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 Annual Period Ended December 31 , 2023

OR

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

For the Transition Period from ___ to ___

Commission file number 001-37936

SMART SAND, INC.

(Exact name of registrant as specified in its charter)

Delaware	**45-2809926**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**
28420 Hardy Toll Road , Suite 130	
Spring , Texas 77373	**(281) 231-2660**
(Address of principal executive offices)	**(Registrant's telephone number)**

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.001 per share	**SND**	**The Nasdaq Global Select Market**

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

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934. Yes ☐ No x

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

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

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

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

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

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

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

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

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

As of June 30, 2023, the last business day of the registrant's second fiscal quarter of 2023, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was $ 45,913,727 based on the closing price of $1.64 per share, as reported on NASDAQ on that date.

Number of shares of common shares outstanding, par value $0.001 per share as of March 4, 2024 was 43,008,960 .

DOCUMENTS INCORPORATED BY REFERENCE

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

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Certain Definitions

The following definitions apply throughout this annual report unless the context requires otherwise:

"We", "Us", "Company", "Smart Sand" or "Our"	Smart Sand, Inc., a company organized under the laws of Delaware, and its subsidiaries.
"shares", "stock"	The common stock of Smart Sand, Inc., nominal value $0.001 per share.
"ABL Credit Facility", "ABL Credit Agreement", "ABL Security Agreement"	The five-year senior secured asset-based lending credit facility (the "ABL Credit Facility") pursuant to: (i) an ABL Credit Agreement, dated December 13, 2019, between the Company, and Jefferies Finance LLC (the "ABL Credit Agreement"); and (ii) a Guarantee and Collateral Agreement, dated December 13, 2019, between the Company and Jefferies Finance LLC, as agent (the "Security Agreement").
"Oakdale Equipment Financing", "MLA"	The five-year Master Lease Agreement, dated December 13, 2019, between Nexseer Capital ("Nexseer") and related lease schedules in connection therewith (collectively, the "MLA"). The MLA is structured as a sale-leaseback of substantially all of the equipment at the Company's mining and processing facility located near Oakdale, Wisconsin. The Oakdale Equipment Financing is considered a lease under article 2A of the Uniform Commercial Code but is considered a financing arrangement (and not a lease) for accounting or financial reporting purposes.
"Exchange Act"	The Securities Exchange Act of 1934, as amended.
"Securities Act"	The Securities Act of 1933, as amended.
"FASB", "ASU", "ASC", "GAAP"	Financial Accounting Standards Board, Accounting Standards Update, Accounting Standards Codification, Accounting Principles Generally Accepted in the United States, respectively.

Disclaimer Regarding Forward-looking Statements and Risk Factor Summary

This Annual Report on Form 10-K contains forward-looking statements that are subject to risks and uncertainties. All statements other than statements of historical fact included in this Annual Report on Form 10-K are forward-looking statements. Forward-looking statements give our current expectations and projections relating to our financial condition, results of operations, plans, objectives, future performance and business. You can identify forward-looking statements by the fact that they do not relate strictly to historical or current facts. These statements may include words such as "anticipate'', "estimate'', "expect", "project", "plan", "intend", "believe", "may", "will", "should", "can have", "likely" and other words and terms of similar meaning in connection with any discussion of the timing or nature of future operating or financial performance or other events. For example, all statements we make relating to our estimated and projected costs, expenditures, cash flows, growth rates and financial results, our plans and objectives for future operations, growth or initiatives, strategies or the expected outcome or impact of pending or threatened litigation are forward-looking statements. All forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those expected, including without limitation:

- fluctuations in demand for frac sand;
- the cyclical nature of our customers' businesses;
- operating risks that are beyond our control, such as changes in the price and availability of transportation, natural gas or electricity; unusual or unexpected geological formations or pressures; pit wall failures or rock falls; or unanticipated ground, grade or water conditions;
- our dependence on our Oakdale mine and processing facility for a significant portion of our current sales;
- decreased usage of rail terminals that we operate;
- the level of activity in the oil and natural gas industries;
- the development of either effective alternative proppants or new processes to replace hydraulic fracturing;
- increased competition from new or existing sources of sand supply, including frac sand mines in locations located close to, or within, the oil and gas basins;
- federal, state and local legislative and regulatory initiatives relating to hydraulic fracturing and the potential for related regulatory action or litigation affecting our customers' operations, including restrictions on oil and gas development and possible bans on hydraulic fracturing;
- potential negative litigation outcomes;
- scarcity of supplies necessary to run our business;
- barriers to entry in the industrial sand market;
- actions by the Organization of the Petroleum Exporting Countries or Russia;
- our rights and ability to mine our properties and process sand and our renewal or receipt of the required permits and approvals from governmental authorities and other third parties;
- our ability to successfully compete in the frac and industrial sand market;
- loss of, or reduction in, business from our largest customers;
- increasing costs or a lack of dependability or availability of transportation services and transload network access or infrastructure, including the potential impact of train derailments;
- increases in the prices of, or interruptions in the supply of, natural gas, electricity, diesel fuel, propane, or any other energy sources;
- loss of or diminished access to water;
- our ability to successfully complete acquisitions or integrate acquired businesses;
- our ability to fully protect our intellectual property rights;

- our ability to make capital expenditures to maintain, develop and increase our asset base and our ability to obtain needed capital or financing on satisfactory terms;
- restrictions imposed by our indebtedness on our current and future operations;
- border restrictions;
- global pandemics;
- contractual obligations that require us to deliver minimum amounts of frac sand or purchase minimum amounts of products or services;
- the accuracy of our estimates of mineral reserves and resource deposits;
- a shortage of skilled labor and rising costs in the frac sand mining and manufacturing industries;
- our ability to attract and retain key personnel;
- our ability to maintain satisfactory labor relations;
- our ability to maintain effective quality control systems at our mining, processing and production facilities and rail terminals;
- seasonal and severe weather conditions;
- the results of political and civil unrest;
- fluctuations in our sales and results of operations due to seasonality and other factors;
- interruptions or failures in our information technology systems, including cyber-attacks;
- the impact of international or domestic terrorism or an armed conflict, including the conflicts in Ukraine and the Middle East;
- extensive and evolving environmental, mining, health and safety, licensing, reclamation and other regulation (and changes in their enforcement or interpretation);
- silica-related health issues and corresponding litigation;
- our ability to acquire, maintain or renew financial assurances related to the reclamation and restoration of mining property; and
- other factors disclosed in Item I A. “Risk Factors” and elsewhere in this Annual Report on Form 10-K.

We derive many of our forward-looking statements from our operating budgets and forecasts, which are based on many assumptions. While we believe that our assumptions are reasonable, we caution that it is very difficult to predict the effect of known or unknown factors, and it is impossible for us to anticipate all factors that could affect our actual results. The risk factors summarized below could materially harm our business, operating results and/or financial condition, impair our future prospects and/or cause the price of our common stock to decline. These risks are discussed more fully under Item 1A, “Risk Factors” and Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in this Annual Report on Form 10-K. Material risks that may affect our business, operating results and financial condition include, but are not necessarily limited to, the following:

- our business and financial performance depend on the level of activity in the oil and natural gas industry;
- a material portion of our revenues have been generated from sales with a limited number of customers;
- we are exposed to the credit risk of our customers;
- our proppant sales are subject to fluctuations in market pricing;
- we face significant competition that may cause us to lose market share;
- we may be required to make substantial capital expenditures to maintain and grow our asset base and we may not realize enough of a return on such capital expenditures to cover their costs;

- the inability to obtain needed capital or financing on satisfactory terms, or at all;
- inaccuracies in estimates of volumes and qualities of our sand reserves could result in lower than expected sales and higher than expected cost of production;
- if we are unable to make acquisitions on economically acceptable terms, our future growth could be limited;
- restrictions in our ABL Credit Facility may limit our ability to capitalize on potential acquisitions and other business opportunities;
- we face distribution and logistical challenges in our business;
- we may be adversely affected by decreased demand for frac sand due to the development of effective alternative proppants or new processes to replace hydraulic fracturing;
- an increase in the supply of frac sand having similar characteristics as the frac sand we produce could make it more difficult for us to renew or replace our existing contracts on favorable terms, or at all;
- our long-term take-or-pay contracts may preclude us from taking advantage of increasing prices for frac sand or mitigating the effect of increased operational costs during the term of those contracts;
- our operations are subject to operational hazards and unforeseen interruptions for which we may not be adequately insured;
- our business relies significantly on railroads to deliver our products, and any delays in rail transportation could adversely impact our business.
- increases in the price or a significant interruption in the supply of natural gas, electricity or any other energy sources, of which our production process consumes large amounts, could adversely impact our production costs;
- increases in the price of diesel fuel could adversely affect our transportation costs;
- a facility closure entails substantial costs, and if we close one of our facilities sooner than anticipated, our results of operations may be adversely affected;
- our operations are dependent on our rights and ability to mine our properties and on our having renewed or received the required permits and approvals from governmental authorities and other third parties;
- a shortage of skilled labor together with rising labor costs in the excavation industry, which may further increase operating costs;
- our business may suffer if we lose, or are unable to attract and retain, key personnel;
- failure to maintain effective quality control systems at our mining, processing and production facilities may negatively affect our ability to conduct business;
- seasonal and severe weather conditions may reduce our ability to process and deliver our products;
- our cash flow fluctuates on a seasonal basis, which may limit our ability to operate;
- we do not own the land on which our transload facilities are located, which inherently limits our rights at those facilities;
- a terrorist attack or armed conflict may affect our ability to conduct business;
- diminished access to water may affect our ability to process sand;
- we may be subject to interruptions or failures in our information technology systems, including cyber-attacks;
- if we are unable to fully protect our intellectual property rights, we may suffer a loss in our competitive advantage;
- we may be adversely affected by disputes regarding intellectual property rights of third parties;

- we currently rely on a limited number of suppliers for certain equipment and materials to build our SmartSystems, and our reliance on a limited number of suppliers for such equipment and materials exposes us to risks including price and timing of delivery;
- unsatisfactory safety performance may negatively affect our customer relationships and cause us to fail to retain existing customers or attract new customers;
- we may be subject to legal claims, such as personal injury and property damage;
- a financial downturn could negatively affect us;
- our future results will suffer if we do not effectively manage our expanded operations;
- federal, state and local legislative and regulatory initiatives or mandates relating to hydraulic fracturing, such as oil and gas leasing moratoriums, and the potential for related litigation could result in increased costs, additional operating restrictions or delays for our customers, which could cause a decline in the demand for our frac sand or restrict our ability to maximize profits;
- we and our customers are subject to extensive regulations, including environmental and occupational health and safety regulations, that impose, and will continue to impose, significant costs and liabilities, and future regulations, or more stringent enforcement of existing regulations, could increase those costs and liabilities;
- we are subject to the Federal Mine Safety and Health Act of 1977, which imposes stringent health and safety standards on numerous aspects of our operations;
- our inability to acquire, maintain or renew financial assurances related to the reclamation and restoration of mining property may increase cash outlay or limit our ability to operate our processing facilities; and
- climate change legislation and regulatory initiatives could negatively affect our business.

All written and oral forward-looking statements attributable to us, or persons acting on our behalf, are expressly qualified in their entirety by these cautionary statements as well as other cautionary statements that are made from time to time in our other filings with the Securities and Exchange Commission (the "SEC") and public communications. You should evaluate all forward-looking statements made in this Annual Report on Form 10-K in the context of these risks and uncertainties.

We caution users of the financial statements that the important factors referenced above may not contain all of the factors that may be important to every user. In addition, we cannot make assurances that we will realize the results or developments we expect or anticipate or, even if substantially realized, that they will result in the consequences or affect us or our operations in the way we expect. The forward-looking statements included in this Annual Report on Form 10-K are made only as of the date hereof. We undertake no obligation to update or revise any forward-looking statement as a result of new information, future events or otherwise, except as otherwise required by law.

PART I

ITEM 1. — BUSINESS

The Company

We are a fully integrated frac and industrial sand supply and services company. We offer complete mine to wellsite proppant supply and logistics solutions to our frac sand customers. We produce low-cost, high quality Northern White sand, which is a premium sand used as a proppant to enhance hydrocarbon recovery rates in the hydraulic fracturing of oil and natural gas wells and for a variety of industrial applications. We also offer proppant logistics solutions to our customers through our in-basin transloading terminals and our SmartSystems™ wellsite proppant storage capabilities. In late 2021, we created our Industrial Products Solutions ("IPS") business in order to diversify our customer base and markets we serve by offering sand for industrial uses.

We market our products and services to oil and natural gas exploration and production companies, oilfield service companies and industrial manufacturers. We sell our sand through short-term and long-term contracts or spot sales in the open market. We provide wellsite proppant handling solutions services and equipment under flexible contract terms custom tailored to meet the needs of our customers. We believe that, among other things, the size and favorable geologic characteristics of our sand reserves, the strategic location and logistical advantages of our facilities, our proprietary SmartDepot™ portable wellsite proppant storage silos, our proprietary SmartPath ® transloader, our proprietary SmartBelt™ conveyor system, access to all Class I rail lines, and the industry experience of our senior management team make us as a highly attractive provider of sand and logistics services.

We incorporated in Delaware in July 2011 and began operations at our Oakdale, Wisconsin facility in July 2012 with 1.1 million tons of annual processing capacity. After several expansions our current annual processing capacity at our Oakdale facility is approximately 5.5 million tons. This facility has access to both the Canadian Pacific Class I rail network (through an onsite, unit train capable rail facility) and the Union Pacific Class I rail network (through the Byron, Wisconsin transload facility).

In September 2020, we acquired our Utica, Illinois mine and processing facility, which has annual processing capacity of approximately 1.6 million tons and access to the Burlington Northern Santa Fe Class I rail line through the Peru, Illinois transload facility, as well as rights to use a rail terminal located in El Reno, Oklahoma. We began operating the Utica facility in October 2020.

In March 2022, we acquired our Blair, Wisconsin mine and processing facility, which has approximately 2.9 million tons of total annual processing capacity and contains an onsite, unit train capable rail terminal with access to the Class 1 Canadian National Railway. We commenced operations at the Blair facility in the second quarter of 2023.

We sell frac sand through a network of in-basin rail terminals. We directly control five in-basin transloading facilities and have access to third party transloading terminals in all operating basins. We operate a unit train capable transloading terminal in Van Hook, North Dakota to service the Bakken Formation in the Williston Basin. The Van Hook terminal became operational in April 2018. In 2020, as part of our acquisition of the Utica, Illinois mining facility, we obtained rights to use a rail terminal located in El Reno, Oklahoma. In January 2022, we began operations at an additional unit train capable transloading terminal in Waynesburg, Pennsylvania to service the Appalachian Basin, including the Marcellus and Utica Formations. We completed an expansion of this terminal in the fourth quarter of 2023. In December 2023, we acquired the rights to operate a unit train capable transloading terminal in Minerva, Ohio. We expect this terminal to become operational in the second quarter of 2024. In January 2024, we acquired the rights to operate a unit train capable transloading terminal in Dennison, Ohio. We expect this terminal to become operational in the second quarter of 2024.

We also offer to our customers portable wellsite storage and management solutions through our SmartSystems products and services. Our SmartSystems provide our customers with the capability to unload, store and deliver proppant at the wellsite, as well as the ability to rapidly set up, takedown and transport the entire system. This capability creates efficiencies, flexibility, enhanced safety and reliability for customers. Through our SmartSystems wellsite proppant storage solutions, we offer the SmartDepot and SmartDepotXL™ silo systems, the SmartBelt conveyor, SmartPath transloader, and our rapid deployment trailers. Our SmartDepot silos include passive and active dust suppression technology, along with the capability of a gravity-fed operation. Our self-contained SmartPath transloader is a mobile sand transloading system designed to work with bottom dump trailers and features a drive over conveyor, surge bin, and dust collection system, and we believe the system has the ability to keep up with any hydraulic fracturing operation. Our SmartBelt conveyor is a belt system that is designed to work with our SmartPath, which allows feeding sand directly into the hopper at the wellsite leading to more efficient delivery of the sand into blender. Our rapid deployment trailers are designed for quick setup, takedown and transportation of the entire SmartSystem, and detach from the wellsite equipment, which allows for removal from the wellsite during operation. We have also developed

a proprietary software program, the SmartSystem Tracker™, which allows our SmartSystems customers to monitor silo-specific information, including location, proppant type and proppant inventory. We believe that our SmartSystems reduce trucking and related fuel consumption for our customers, helping them reduce their carbon footprint in their daily operations.

In late 2021, we started our IPS business to provide sand to customers for various industrial applications, such as glass, foundry, building products, filtration, geothermal, renewables, ceramics, turf & landscape, retail, and recreation. We believe this business will provide us with the ability to diversify some of our sales into more stable, consumer-driven products to help mitigate some of the price volatility we are exposed to in the oil and gas markets that we serve. We completed an expansion of our IPS processing at our Utica, Illinois plant in the fourth quarter of 2023 to provide blending and cooling capabilities to increase our product offerings in the industrial marketplace.

Market

In recent years, the increasing supply of frac sand, particularly in-basin sand, relative to demand, has led to continued volatility in frac sand prices. During most of 2020, demand for frac sand declined significantly as a result of decreased demand for oil and natural gas as a result of the effects of the coronavirus ("COVID-19") pandemic, which caused a global decrease in all means of travel, the closure of borders between countries and a general slowing of economic activity worldwide. Activity in the oil and gas industry began to rebound in the fourth quarter of 2020 and continued to improve through 2021 as the global distribution of COVID-19 vaccines ramped up and travel restrictions lessened. However, the prices of frac sand remained depressed during 2021 as supply remained out of balance with demand even though market activity was improving. Beginning in the first quarter of 2022 and continuing through the middle of 2023, supply and demand fundamentals continued to improve and frac sand prices continued recovering from previous historic lows. Since the middle of 2023, frac sand prices have stabilized as supply and demand of frac sand have become more in balance.

The ongoing conflict in Ukraine and recent developments in the Middle East, as well as economic actions taken by the United States and other countries in connection with such conflicts, have contributed to dramatic swings in oil and natural gas prices and significant volatility in the oilfield service sector. Additionally, other economic factors, including continued high inflation and other economic factors could lead to a global economic recession that could have a negative impact on global oil and natural gas demand, which may lead to continued volatility in the oil field service sector. We cannot predict if frac sand prices will increase, decrease or stabilize.

Northern White frac sand, which is found predominantly in Wisconsin and limited portions of Minnesota, Illinois, and Missouri, is considered a premium proppant due to its favorable physical characteristics. While we anticipate that regional sand will continue to affect the demand for Northern White sand in some of the oil and natural gas producing basins in which we market our products. However, we believe there will continue to be demand for our high-quality Northern White frac sand. In particular, we currently believe that Northern White frac sand has logistical advantages in the Marcellus, Utica, Bakken, and shale basins in Canada. We expect demand for our frac sand to continue to be supported by customers who are focused on long-term well performance and ultimate recovery of reserves from the oil and natural gas wells they are completing, as well as those interested in the efficiency of their logistics supply chain and delivery of sand to the wellsite. Additionally, we believe market trends continue to support increased proppant usage per well drilled due to operator focus on well efficiencies through increasing lengths of drilling laterals, use of simul-fracking techniques and other well enhancement strategies. Finally, we believe that the adoption of our SmartSystems provides improved efficiencies in shipping and storing sand at the wellsite through reduced trucking requirements, which removes traffic from the roads and lowers diesel fuel consumption, thereby providing incremental value to our customers by reducing their carbon emissions.

Demand in the IPS business is relatively stable as customers are spread over a wide range of industries, including glass, foundry, building products, filtration, geothermal, renewables, ceramics, turf & landscape, retail, recreation and more. The IPS business is primarily influenced by macroeconomic drivers such as consumer demand and population growth. We believe that as this business grows, it will provide us with the ability to diversify some of our sales into more stable, consumer-driven products to help mitigate the price volatility that we are exposed to in the oil and gas industry.

Business Strategies

Our principal business objective is to be the premier provider of sustainable Northern White Sand supply and logistics solutions to our customers. We do this through supporting our existing customers, expanding our market share, being a low-cost producer of high-quality Northern White Sand, maintaining low debt leverage and managing efficient and sustainable supply chain logistics from the mine to the wellsite. In late 2021, we began expanding our product line to offer IPS. We believe that by

executing these business strategies, we will be able to increase long-term stockholder value. We expect to achieve this objective through the following business strategies:

- ***Diversifying our customer base to include Industrial Product Solutions.*** In late 2021, we expanded our product offering to provide IPS for industrial customers. We are still in the early stages of the industrial sand business, but this business has incrementally grown since its inception and we and expect to continue to expand and diversify to serve the vital industrial markets throughout North America, including glass, foundry, building products, filtration, geothermal, renewables, ceramics, turf & landscape, retail, recreation and more.

- ***Expanding and optimizing our existing logistics infrastructure and developing additional origination and destination points.*** We expect to continue to capitalize on our Oakdale facility's ability to ship on two Class I rail carriers to maximize our product shipments, increase our railcar utilization and lower our transportation costs. We have the ability to simultaneously accommodate multiple unit trains on-site with the Canadian Pacific rail network while also having the ability to ship our frac sand directly to our customers on a second Class I rail carrier through our transloading facility located on the Union Pacific rail network approximately three miles from our Oakdale operations. This access to two Class I rail carriers from Oakdale provides increased delivery options for our customers, greater competition between our rail carriers and potentially lower freight costs.

  Our mine at Utica, Illinois and related transloading terminal in Peru, Illinois added new origination and destination points to our existing capabilities and offers additional capability to ship products on a third Class I rail carrier, the BNSF.

  Our Blair, Wisconsin mine with onsite rail infrastructure provides us with direct access to the Class 1 Canadian National Railway. We now have access to all Class 1 rail lines within the United States and Canada. The Blair facility began operations in the second quarter of 2023.

  We also operate several terminals throughout the United States, including a multiple unit train capable transloading terminal in Van Hook, North Dakota, which we believe allows us to be one of the most efficient and low-cost sources of frac sand in the Bakken Formation in the Williston Basin. Our Waynesburg, Pennsylvania terminal, which services the Appalachian Basins, including the Marcellus and Utica Formations, became operational in January 2022 and was expanded in the fourth quarter of 2023. We believe this terminal allows us to be one of the most efficient and low-cost sources of frac sand in the Appalachian Basin. Our El Reno, Oklahoma terminal provides us with the flexibility to send sand to the Woodford and SCOOP/STACK Basins as it is needed by our customers. Recently, we obtained access, through a long term lease, to rail terminals in Minerva, Ohio and Dennison, Ohio, which we believe will broaden our ability to offer sand to our customers in the Utica Formation in an efficient and cost-effective manner. We expect both of the Ohio terminals to be operational in the second quarter of 2024.

  Additionally, our SmartSystems wellsite storage and proppant management systems allow us to offer expanded logistics services to our customers. We believe that our SmartSystems reduce trucking and related fuel consumption for our customers, helping them to reduce their carbon footprint in their daily operations.

  The benefits of our long-term growth strategy for in-basin delivery of sand include expanding our customer base by marketing through our own terminals, more opportunity for spot sales by forward deploying sand and the opportunity to capture incremental margin on the sale of sand farther down the supply chain by managing the cost of rail, terminal and wellsite storage operations. Additionally, having a presence in-basin gives us an opportunity to have a base of operations from which to market and support our SmartSystems wellsite storage and proppant management solutions. Through the expansion of our SmartSystems fleet and addition of new origination and destination options, we continue evaluating ways to reduce the landed cost of our products in-basin and to the wellsite for our customers while increasing our customized service offerings to provide our customers with additional delivery and pricing alternatives.

- ***Focusing on organic growth by increasing the utilization of our mine and frac sand processing facilities.*** We intend to continue pursuing opportunities to maximize the value and the utilization of our Oakdale, Utica, and Blair facilities through the addition of new customers and increased sales volumes. Despite the emergence of regional sand in oil and natural gas producing basins, we believe the proppant market continues to offer attractive long-term growth fundamentals for Northern White frac sand in the key operating basins we currently serve due to the logistics advantages in these basins and its superior well results compared to regional sand alternatives. We believe that coupling our premium proppant with long-term sustainable logistics supply services may mitigate the potential cost savings of using regional sand.

Demand for frac sand has continued to increase during 2023, from the all-time lows in 2020, following the decline in demand for oil driven primarily by reduced demand as a result of the COVID-19 pandemic. According to Spears and Associates, Inc. (“Spears”), North America proppant demand increased by 5% in 2023 compared to 2022, mirroring an improving hydraulic fracturing market.

- ***Focusing on being a low-cost provider and continuing to make process improvements.*** We continue to focus on being a low-cost provider, which we believe will allow us to compete effectively for sales of frac and industrial sand and to achieve attractive operating margins. Our low-cost structure results from a number of key attributes, including, among others, our (i) relatively low royalty rates, (ii) majority of fine mineral reserve deposits, (iii) our facilities access to all Class I rail lines within the United States and Canada, and (iv) our low levels of debt. We have strategically designed our operations to provide for low-cost production, including having dryers and wet plants enclosed in our Oakdale and Utica processing facilities that allow for year-round operation at both facilities. This allows us to more efficiently match our wet sand production with our drying capacity and to better utilize our workforce with a goal to reduce the overall cost of production. We continue to invest in capital projects and consider strategic acquisitions that increase efficiencies and offer the opportunity for a high return on investment. In addition, we seek to maximize our mining yields on an ongoing basis by targeting sales volumes that more closely match our reserve gradation in order to minimize waste in our processing. We also continue to evaluate other mining techniques to reduce the overall cost of our mining operations.

- ***Creating flexible sales activities.*** We believe that demand for our products will remain strong in basins where regional sand is not an attractive alternative due to the logistics and performance advantages of Northern White Sand, such as the Bakken in North Dakota, the Marcellus and Utica formations in the Appalachian Basin of the Northeast region of the United States, and shale basins in Canada. We continue to have discussions with operators in these regions regarding new relationship and growth opportunities. We also believe that the long-term benefits of high quality Northern White sand outweighs the short-term cost savings provided by regional sand in the Permian, Eagle Ford and SCOOP/STACK basins. We believe there are additional opportunities for customers in the Permian and other basins, which have regional supply, who are focused on the long-term performance of their production and on the long-term efficiency of their logistics.

  While we continue to look for long-term contract opportunities, we intend to continue to focus on shorter term contracts and increase sales in the spot market given the reluctance of many customers to enter into long-term take-or-pay contracts in the current market environment. Having a greater portion of our activity on spot or short-term contracts allows us the opportunity to take advantage of pricing improvements quickly should market fundamentals improve.

Competitive Strengths

We believe that we will be able to successfully execute our business strategies because of the following competitive strengths:

- ***Long-lived, strategically located, high-quality reserve base.*** We believe our three sand mines in Oakdale, Wisconsin, Utica, Illinois and Blair, Wisconsin have a uniquely desirable combination of large high-quality reserves of fine mesh sand that is contiguous to their production and have primary rail loading facilities that are either on site or are in close proximity to the mines. As of December 31, 2023, we have an estimated life of mine of approximately 61 years at Oakdale, 106 years at Utica, and 45 years at Blair, based on our current expected sales volumes. With the acquisition of the Blair, Wisconsin mine and processing facility, which began operating in the second quarter of 2023, we have the ability to annually process up to approximately 10.0 million tons.

  We believe our reserve base positions us well to take advantage of current market trends of increasing demand for finer mesh frac sand. We also believe that having our mines, processing facilities and primary rail loading facilities in close proximity provides us with an overall low-cost structure, which enables us to compete effectively for sales of Northern White frac sand and to achieve attractive operating margins.

- ***Intrinsic logistics advantage.*** We believe that we are one of the few frac sand producers with a network of facilities custom-designed for the specific purpose of delivering frac sand to all of the major U.S. oil and natural gas producing basins by having rail facilities that can simultaneously accommodate multiple unit trains on site or in close proximity to our mining and processing operations. Our on-site transportation assets at Oakdale have access to two Class I rail lines owned by Canadian Pacific and Union Pacific. We believe our customized on-site logistical configuration yields lower operating and transportation costs of product to our customers between the mine and in basin destinations.

Our Utica mine and related Peru transloading terminal in Illinois provides us direct access to another Class I rail line with direct access to the Burlington Northern Santa Fe Class I rail line. Additionally, we believe the location of our Utica, Illinois facility in close proximity to Greater Chicago and other major Midwestern metropolitan markets and our ability to truck or rail our products from this location allows us to be able to offer competitive pricing for industrial sand application.

The addition of the Blair frac sand mine and related processing facility located in Blair, Wisconsin, which contains an onsite, unit train capable rail terminal with access to the Class 1 Canadian National Railway, has secured our access to provide sand on all Class I rail lines in the United States and Canada.

- ***Expanded logistics solutions.*** Our transloading terminal in Van Hook, North Dakota is capable of handling multiple unit trains simultaneously, and we have been providing in-basin sand at this terminal to our customers since operations began in 2018. This terminal has allowed us to expand our customer base and to offer more efficient delivery options to customers operating in the Bakken Formation in the Williston Basin.

  In January 2022 we began operating the terminal in Waynesburg, Pennsylvania to service the Appalachian Basin, including the Marcellus and Utica Formations. We believe the Waynesburg terminal will allow us to be one of the most efficient and low-cost sources of frac sand in the Appalachian Basin.

  We also operate a terminal located in El Reno, Oklahoma, to serve the Woodford and SCOOP/STACK Basins, which we acquired in 2020.

  Recently, we obtained access, through long term leases, to rail terminals in Minerva, Ohio and Dennison, Ohio, which we believe will broaden our ability to offer sand to our customers in the Utica Formation of the Appalachian Basin in an efficient and cost-effective manner. We expect each of these terminals to be operational in the second quarter of 2024.

  Our SmartSystems wellsite proppant storage and management products provide our customers with the capability to unload, store and deliver proppant at the wellsite, as well as the ability to rapidly set up, takedown and transport the entire system. This capability creates efficiencies, flexibility, enhanced safety and reliability for customers. Through our SmartSystems wellsite proppant storage solutions we offer the SmartDepot and SmartDepotXL silo systems, the SmartBelt conveyor, SmartPath transloader, and our rapid deployment trailers. We believe that our SmartSystems reduce trucking and related fuel consumption for our customers, helping them reduce their carbon footprint in their daily operations.We believe our SmartPath, which allows feeding sand directly into the hopper at the wellsite, will lead to more efficient delivery of sand into the hopper. We have also developed a proprietary software program, the SmartSystem Tracker, which allows our SmartSystems customers to monitor silo-specific information, including location, proppant type and proppant inventory.

  We are capable of delivering sand to substantially all onshore operating basins in the United States and Canada. We have direct access to four Class I rail lines in North America and indirect access to all Class I rail lines, which gives us an advantage over many of our competitors by allowing us to offer more competitive pricing and delivery options to our customers.

- ***Sufficient liquidity and financial flexibility.*** We believe we have sufficient liquidity to support our operations and pursue our growth initiatives. As of December 31, 2023, we had cash on hand of $6.1 million. Further, we have a $20.0 million senior secured asset-based lending credit facility with Jefferies Finance LLC, under which we had undrawn availability of $12.0 million as of December 31, 2023 and $8.0 million in outstanding borrowings. The available borrowing amount under the ABL Credit Facility is based on the Company's eligible accounts receivable and inventory. The ABL Credit Facility matures on December 13, 2024. Our total available liquidity among cash and available borrowings was $18.1 million as of December 31, 2023.

- ***Experienced management team.*** The members of our senior management team bring significant experience to the market environment in which we operate. Their expertise covers a range of disciplines, including industry-specific operating and technical knowledge and experience managing businesses in a variety of operating conditions.

- ***Focus on safety and environmental stewardship.*** We aim to maintain a culture that prioritizes safety, the environment and our relationship with the communities in which we operate, actions we believe are critical to the success of our business. We are a Tier 1 participant in The Wisconsin Department of Natural Resources' Green Tier program, which encourages, recognizes and rewards companies for voluntarily exceeding environmental, health and safety standards. Since 2016, Smart Sand has maintained International Organization for Standardization ("ISO") ISO 9001 and ISO 14001 registrations for our quality management system and environmental management system programs, respectively, for our Oakdale facility. We earned initial ISO 9001 registration for our Utica, IL facility in

2022. We also have attained Green Professional status in Wisconsin's Green Master sustainability recognition program. We are one of a select group of companies who are members of the Wisconsin Industrial Sand Association, which promotes safe and environmentally responsible sand mining standards.

Our Customers

Our core customers are oil and natural gas exploration and production and oilfield service companies. In late 2021, we began diversifying our sand sales to include IPS to customers. While sales of IPS to customers were a small portion of our overall sand sales in 2023, we intend to continue increasing our focus on IPS in 2024 and going forward. We sell frac sand under long-term take-or-pay contracts as well as in the spot market, and provide proppant logistics solutions through our in-basin transloading terminals and SmartSystems wellsite proppant storage solutions and other logistics services.

Generally, customers under long-term take-or-pay contracts are required to take minimum volumes of sand or make shortfall payments for a specified period of time. We recognize revenue in our results of operations in the period in which the obligation becomes due.

While we have increased our long term take-or-pay contracts over the past year, currently many customers prefer to source their frac sand supply in the spot market or under short-term contractual arrangements at market prices. Should our customer base continue to limit their exposure to longer term contracts, we will continue to focus on shorter term contracts and increasing sales in the spot market.

Customers renting SmartSystems are able to tailor the contract, including adjusting the number of SmartDepot silos, SmartPath transloaders and SmartBelt conveyors to be supplied, to meet their short-term and long-term needs. We recognize rental revenue when the equipment is made available for the customer to use or other obligations in the contract are met.

For the year ended December 31, 2023, Equitable Gas Corporation, and Liberty Oilfield Services, accounted for 30.2%, and 11.4%, respectively, of total revenue, and the remainder of our revenues were from 72 customers. For the year ended December 31, 2022, Equitable Gas Corporation, Halliburton Energy Services, Encino Energy, and Liberty Oilfield Services accounted for 22.3%, 15.4%, 14.4%, and 13.7% respectively, of our total revenues, and the remainder of our revenues were from 63 customers. For the year ended December 31, 2021, Equitable Gas Corporation, Halliburton Energy Services, and Liberty Oilfield Services accounted for 24.3%, 18.3% and, 14.8%, respectively, of our total revenues, and the remainder of our revenues were from 20 customers. Please read "Risk Factors—Risks Inherent in Our Business—A substantial majority of our revenues have been generated under contracts with a limited number of customers, and the loss of, material nonpayment or nonperformance by or significant reduction in purchases by any of them could adversely affect our business, results of operations and financial condition."

Capital Plans

We expect 2024 capital expenditures to be between $19.0 million and $23.0 million, consisting primarily of capital for efficiency projects at our mine and processing facilities and our in-basin terminals, along with investments in our facilities to support incremental IPS activity. We expect to fund these capital expenditures with existing cash, cash generated from operations, or borrowings under the ABL Credit Facility or other financing sources, such as equipment finance providers.

Industry Trends Impacting Our Business

Unless otherwise indicated, the information set forth under this section, including all statistical data and related forecasts, is derived from Spears' "Hydraulic Fracturing Market - Q4 2023" published in the first quarter of 2024. While we are not aware of any misstatements regarding the proppant industry data presented herein, estimates involve risks and uncertainties and are subject to change based on various factors, including those discussed under the heading "Risk Factors."

Demand Trends

According to Spears, the North American proppant market, including frac sand, ceramic and resin-coated proppant, was approximately 132 million tons in 2023, which is approximately a 5% increase from the 127 million tons Spears reported for 2022. Spears currently estimates that 2024 demand will remain similar to 2023.

Supply Trends

There was considerable consolidation activity including mergers, acquisitions, closures of mines and bankruptcy filings among our peers from 2020 to 2023. Additional consolidation activity is expected in 2024 in the mining, transloading and logistics businesses. Supply and demand for Northern white frac sand was relatively in balance in 2023 and this is expected to continue in 2024.

Supplies of high-quality Northern White frac sand are limited to select areas, predominantly in western Wisconsin and limited areas of Minnesota and Illinois. We believe the ability to obtain large contiguous reserves in these areas is a key constraint for potential new Northern White frac sand supply and can be an important supply consideration when assessing the economic viability of a potential frac sand processing facility. Further constraining the supply and throughput of Northern White frac sand is that not all of the large reserve mines have on-site excavation, processing or logistics capabilities, which impact the long-term competitiveness of these mines due to lower efficiency and higher cost structures. Historically, much of the capital investment in Northern White frac sand mines was used for the development of coarser deposits in western Wisconsin, which is inconsistent with the increasing demand for finer mesh frac sand in recent years. As such, we've seen competitors in the Northern White frac sand market reduce their capacity by shuttering or idling operations as the shift to finer sands in hydraulic fracturing of oil and natural gas wells and to lower cost regional sand sources has eroded the ongoing economic viability of mines with coarser reserve deposits and inefficient mining and logistics facilities.

Environmental, Social & Governance

Smart Sand already has a strong record of environmental performance. In 2014, we joined the Wisconsin Green Tier program, a marquee public/private partnership, under which the Wisconsin Department of Natural Resources worked with us on a plan to meet applicable legal requirements and to improve our facility from an environmental perspective. In addition to documenting 11 years of compliant operations, we have worked on, among other things, protecting wetlands, reducing usage and impact of heavy equipment, reducing fuel usage of equipment and vehicles and defining best practices for onsite water management. We are also a member of Wisconsin's sustainability initiative, Green Masters. As part of this program, we have completed a detailed survey of our sustainability and social responsibility activities and started the process of completing carbon inventory. As a mining company, we invest and plan for reclamation, ensuring that the land is returned to beneficial use. Smart Sand has held ISO 9001/14001-2015 environmental and quality management systems for the past nine years. Smart Sand is also a member of the Wisconsin Industrial Sand Association, a select group of mining companies focused on safety, environmental and public policy.

One of the goals of the United Nations' Paris Agreement is for the world to become carbon neutral by the year 2050. We know that energy consumption is only one part of ethical operations, and we plan to continue to work to manage our carbon footprint in an efficient and responsible manner. For additional information regarding the United Nations' Paris Agreement, see "Item 1A Risk Factors-Risks Related to Environmental, Mining and Other Regulation-Climate change legislation and regulatory initiatives could result in increased compliance costs for us and our customers."

We provide social value through our excellent employment opportunities. Our first priority is keeping our employees safe, which we implement through daily training and inspections. Our business supports hundreds of families and we are proud to offer rewarding and interesting work with competitive compensation and benefits. We promote from within, provide continuous training, hire with a passion for diversity and provide every employee with the opportunity to participate in retirement plans and ownership of the Company. Smart Sand is an active charitable partner in the communities in which it operates, making both financial and time investments in those communities.

Sustainability has always been part of the Smart Sand story, but we are in the process of evaluating what we have done and identifying improvement opportunities.

Permits

We operate in a highly regulated environment overseen by many governmental regulatory and enforcement bodies at the local, state and federal levels. To conduct our operations, we are required to obtain permits and approvals that address environmental, land use and health and safety issues at our operating facilities. Our current and planned areas for excavation at our mining facilities are permitted for extraction of our proven reserves. Portions of our facilities lie in areas designated as wetlands, which will require additional local, state and federal permits prior to mining and reclaiming those areas.

We also must meet requirements for certain international standards concerning safety, greenhouse gases and rail operations. We have voluntarily agreed to meet the standards of the Wisconsin Department of Natural Resources' Green Tier program, the National Industrial Sand Association ("NISA") and the Wisconsin Industrial Sand Association. Further, for Oakdale, we have agreed to meet the standards required to maintain our ISO 9001-2015 and ISO 14001-2015 quality/environmental management system registrations. These voluntary requirements are tracked and managed along with our permits.

While resources invested in securing permits are significant, this cost has not had a material adverse effect on our results of operations or financial condition. We cannot ensure that existing environmental, health and safety ("EHS") laws and regulations will not be reinterpreted or revised or that new EHS laws and regulations will not be adopted or become applicable

to us. Revised or additional EHS requirements that result in increased compliance costs or additional operating restrictions could have a material adverse effect on our business.

Competition

The proppant industry is highly competitive. Please read “Risk Factors—Risks Inherent in Our Business—We face significant competition that may cause us to lose market share.” There are numerous large and small producers in all sand producing regions of North America with whom we compete, many of which also offer solutions for unloading, storing and delivering proppant to the wellsite. Our main competitors include Badger Mining Corporation, Hi-Crush, Inc., Covia Holdings Corporation, U.S. Silica Holdings, Inc., Capital Sand Company and Solaris Oilfield Infrastructure, Inc.

Although some of our competitors may have greater financial or natural resources than we do, we believe that we are well-positioned competitively due to our low cost of sand production, low debt levels, logistics infrastructure, high-quality, balanced reserve profile and patented SmartSystems wellsite proppant storage solutions, which offer numerous benefits over our competition. The most important factors on which we compete are our service capabilities, product quality, proven performance, sand characteristics, transportation capabilities, reliability of supply, price, logistics services and the performance of patented SmartSystems wellsite proppant storage solutions technology. Demand for frac sand and logistics solutions and the prices that we will be able to obtain for our products, to the extent not subject to a fixed price or take-or-pay contract, are closely linked to proppant consumption patterns for the completion of oil and natural gas wells in North America. These consumption patterns are influenced by numerous factors, including, among other things, the price for oil and natural gas and hydraulic fracturing activity, including the number of stages completed and the amount of proppant used per stage. Further, these consumption patterns are also influenced by the location, quality, price and availability of frac sand and other types of proppants such as resin-coated sand and ceramic proppant.

Seasonality

Our business is affected to some extent by seasonal fluctuations in weather that impact the production levels for a portion of our wet sand processing capacity. While our dry plants are able to process finished product volumes evenly throughout the year, our excavation and our wet sand processing activities have historically been limited to primarily non-winter months. As a consequence, we have experienced lower cash operating costs in the first and fourth quarter of each calendar year, and higher cash operating costs in the second and third quarter of each calendar year when we overproduced wet sand to meet demand in the winter months. These higher cash operating costs are capitalized into inventory and expensed when these tons are sold, which can lead to us having higher overall costs in the first and fourth quarters of each calendar year as we expense inventory costs that were previously capitalized. However, we have enclosed, indoor wet plants at our Oakdale and Utica processing facilities, which allow us to produce wet sand inventory year-round to support a large portion of our dry sand processing capacity, which may reduce certain effects of this seasonality. We may also sell frac sand for use in oil and natural gas producing basins where severe weather conditions may curtail drilling activities and, as a result, our sales volumes to those areas may be reduced during such severe weather periods. Severe weather can also impact the rail lines which we utilize to ship our sand to our customers in the operating basins and as a result could lead to reduced sales volumes during such severe weather periods. Additionally, over the last several years, exploration and production companies have become more disciplined in their spending patterns relative to their budgets, which has led to some of our customers completing their budgeted spending earlier in the year. This spending discipline could potentially lead to a slowdown in activity by our customers and lower sand demand in the fourth quarter of the year. For a discussion of the impact of weather on our operations, please read “Risk Factors—Seasonal and severe weather conditions could have a material adverse impact on our business, results of operations and financial condition” and “Risk Factors—Our cash flow fluctuates on a seasonal basis.”

Intellectual Property

Our intellectual property primarily consists of trade secrets, know-how and trademarks. We own patents and have patent applications pending related to our SmartSystems wellsite proppant storage solutions. All of the issued patents have an expiration date after July 2030. With respect to our other products, we principally rely on trade secrets, rather than patents, to protect our proprietary processes, methods, documentation and other technologies, as well as certain other business information. For a discussion of the impact of our intellectual property, please read “Risk Factors–If we are unable to fully protect our intellectual property rights, we may suffer a loss in our competitive advantage” and “Risk Factors–We may be adversely affected by disputes regarding intellectual property rights of third parties.”

Insurance

We believe that our insurance coverage is customary for the industry in which we operate and adequate for our business. As is customary in the proppant industry, we review our safety equipment and procedures and carry insurance against most, but not all, risks of our business. Losses and liabilities not covered by insurance would increase our costs. To address the hazards inherent in our business, we maintain insurance coverage that includes physical damage coverage, third-party general liability

insurance, employer's liability, business interruption, environmental and pollution and other coverage, although coverage for environmental and pollution-related losses is subject to significant limitations. For additional discussion regarding our insurance, please read "Risk Factors–Our operations are subject to operational hazards and unforeseen interruptions for which we may not be adequately insured."

Environmental and Occupational Health and Safety Regulations

We are subject to stringent and complex federal, state, local and international laws and regulations governing the discharge of materials into the environment or otherwise relating to protection of worker health, safety and the environment. Compliance with these laws and regulations may expose us to significant costs and liabilities and cause us to incur significant capital expenditures in our operations. Any failure to comply with these laws and regulations may result in the assessment of administrative, civil and criminal penalties, imposition of remedial obligations, and the issuance of injunctions delaying or prohibiting operations. Private parties may also have the right to pursue legal actions to enforce compliance as well as to seek damages for non-compliance with environmental laws and regulations or for personal injury or property damage. In addition, the trend in environmental regulation is to place more restrictions on activities that may affect the environment, and thus, any changes in, or more stringent enforcement of, these laws and regulations that result in more stringent and costly pollution control equipment, the occurrence of delays in the permitting or performance of projects, or waste handling, storage, transport, disposal or remediation requirements could have a material adverse effect on our operations and financial position.

We do not believe that compliance by us with federal, state, local or international environmental laws and regulations will have a material adverse effect on our business, financial position or our results of operations or cash flows. We cannot be assured, however, that future events, such as changes in existing laws or enforcement policies, the promulgation of new laws or regulations or the development or discovery of new facts or conditions adverse to our operations will not cause us to incur significant costs. The following is a discussion of environmental and worker health and safety laws, as amended from time to time that relate to our operations or those of our customers that could have a material adverse effect on our business.

Air Emissions

Our operations are subject to the federal Clean Air Act ("CAA") and related state and local laws, which restrict the emission of air pollutants and impose permitting, monitoring and reporting requirements on various sources. Over the next several years, we may be required to incur certain capital expenditures for air pollution control equipment or to address other air emissions-related issues. Changing and increasingly stringent requirements, future non-compliance, or failure to maintain necessary permits or other authorizations could require us to incur substantial costs or suspend or terminate our operations.

Climate Change

In recent years, the U.S. Congress has considered legislation to reduce emissions of greenhouse gases ("GHG"). We are unable to predict actions that may be taken by the Federal government; however, a number of states are addressing GHG emissions, primarily through the development of emission inventories or regional GHG cap and trade programs. Depending on the particular program, we could be required to monitor, report, or control GHG emissions or to purchase and surrender allowances for GHG emissions resulting from our operations. Independent of Congress, the U.S. Environmental Protection Agency ("EPA") has adopted regulations controlling GHG emissions under its existing authority. Compliance with new legislation may require us to incur substantial costs or suspend or terminate our operations. In addition, the U.S. Securities and Exchange Commission ("SEC") issued a proposed rule in March 2022 that would mandate extensive disclosure of climate-related data, risks, GHG emissions, for certain public companies. The SEC originally planned to issue a final rule by October 2022, but according to the SEC's updated rulemaking agenda, a final rule is now expected to be issued in spring 2024.

President Biden has identified climate change as a priority, and executive orders, regulatory action, and/or legislation targeting GHG emissions, or prohibiting, delaying or restricting oil and gas development activities in certain areas, have been proposed and/or promulgated during the Biden Administration. For example, in January 2021, President Biden issued an executive order targeting climate change, which directed the Secretary of the Interior to pause new oil and natural gas leasing on federal public lands and in offshore waters pending completion of a comprehensive review of federal permitting and leasing practices, consider whether to adjust royalties associated with coal, oil, and gas resources extracted from public lands and offshore waters, or take other appropriate actions to account for corresponding climate costs. The climate change executive order also directed the federal government to identify "fossil fuel subsidies" to take steps to ensure that, to the extent consistent with applicable law, federal funding is not directly subsidizing fossil fuels. On January 26, 2024, the Biden Administration implemented a temporary pause on the U.S. Department of Energy's review of pending decisions for authorization to export liquified natural gas ("LNG") to non-Free Trade Agreement countries while the U.S. Department of Energy reviews and updates the underlying analyses for such decisions using more current data to account for considerations like the environmental and climate change impacts of LNG. The temporary pause is not expected to affect LNG exports that have already been

authorized. Such developments could have an adverse effect on our business to the extent they result in decreased demand for LNG, which could result in a decrease in demand for our frac sand.

Water Discharges

The Clean Water Act ("CWA") and analogous state laws impose restrictions and strict controls with respect to the discharge of pollutants, including spills and leaks of oil and other substances, into state waters or waters of the United States. The discharge of pollutants into regulated waters is prohibited, except in accordance with the terms of a permit issued by the EPA or an analogous state agency. The CWA and regulations implemented thereunder also prohibit the discharge of dredge and fill material into regulated waters, including jurisdictional wetlands, unless authorized by the Army Corps of Engineers ("Corps") pursuant to an appropriately issued permit. In addition, the CWA and analogous state laws require individual permits or coverage under general permits for discharges of storm water runoff from certain types of facilities. Compliance with new rules and legislation could require us to face increased costs and delays with respect to obtaining permits for expansion activities. Federal and state regulatory agencies can impose administrative, civil and criminal penalties as well as other enforcement mechanisms for non-compliance with discharge permits or other requirements of the CWA and analogous state laws and regulations.

Hydraulic Fracturing

We supply frac sand to hydraulic fracturing operators in the oil and natural gas industry. Hydraulic fracturing is an industry practice that is used to stimulate production of oil and natural gas from low permeability hydrocarbon bearing subsurface rock formations. The hydraulic fracturing process involves the injection of water, proppants, and chemicals under pressure into the formation to fracture the surrounding rock, increase permeability and stimulate production. Although we do not directly engage in hydraulic fracturing activities, our customers purchase our frac sand for use in their hydraulic fracturing activities.

The adoption of new laws or regulations at the federal or state levels imposing reporting obligations on, or otherwise limiting or delaying, the hydraulic fracturing process could make it more difficult to complete natural gas wells, increase our customers' costs of compliance and doing business, and adversely affect the hydraulic fracturing services they perform, which could negatively impact demand for our frac sand.

Non-Hazardous and Hazardous Wastes

The Resource Conservation and Recovery Act ("RCRA") and comparable state laws control the management and disposal of hazardous and non-hazardous waste. These laws and regulations govern the generation, storage, treatment, transfer and disposal of wastes that we generate. In the course of our operations, we generate waste that is regulated as non-hazardous waste and hazardous waste, obligating us to comply with applicable standards relating to the management and disposal of such waste. In addition, drilling fluids, produced waters, and most of the other wastes associated with the exploration, development, and production of oil or natural gas, if properly handled, are currently exempt from regulation as hazardous waste under RCRA and, instead, are regulated under RCRA's less stringent non-hazardous waste provisions, state laws or other federal laws. However, it is possible that certain oil and natural gas drilling and production wastes now classified as non-hazardous could be classified as hazardous waste in the future. A loss of the RCRA exclusion for drilling fluids, produced waters and related waste could result in an increase in our customers' costs to manage and dispose of generated wastes and a corresponding decrease in their drilling operations, which developments could have a material adverse effect on our business.

Site Remediation

The Comprehensive Environmental Response, Compensation, and Liability Act, as amended ("CERCLA") and comparable state laws impose strict, joint and several liability without regard to fault or the legality of the original conduct on certain classes of persons that contributed to the release of a hazardous substance into the environment. These persons include the owner and operator of a disposal site where a hazardous substance release occurred and any company that transported, disposed of, or arranged for the transport or disposal of hazardous substances released at the site. Under CERCLA, such persons may be liable for the costs of remediating the hazardous substances that have been released into the environment, for damages to natural resources, and for the costs of certain health studies. In addition, where contamination may be present, it is not uncommon for the neighboring landowners and other third parties to file claims for personal injury, property damage and recovery of response costs. We have not received notification that we may be potentially responsible for cleanup costs under CERCLA at any site.

Endangered Species

The Endangered Species Act ("ESA") restricts activities that may result in a "take" of the habitat of endangered or threatened species and provides for substantial penalties in cases where listed species are being harmed. Harm under the ESA includes acts that actually kill or injure wildlife as well as significant habitat modification or degradation that significantly impairs essential behavioral patterns, including breeding, feeding or sheltering . Take prohibitions also protect migratory birds under the Migratory Bird Treaty Act ("MBTA").

The dunes sagebrush lizard is one example of a species that, if listed as endangered or threatened under the ESA, could impact our operations or the operations of our customers. The dunes sagebrush lizard is found in the active and semi-stable shinnery oak dunes of southeastern New Mexico and adjacent portions of Texas, including areas where our customers operate and our frac sand facilities may be located. On July 3, 2023, The United States Fish and Wildlife Service ("USFWS") proposed to list the dunes sagebrush lizard as an endangered species, and the USFWS is expected to issue a final listing rule or withdrawal of the proposed rule within one year. In turn, if the dunes sagebrush lizard is listed, our operations and the operations of our customers in any area that is designated as the dunes sagebrush lizard's habitat may be limited, delayed or, in some circumstances, prohibited, and our customers could be required to comply with expensive conservation measures intended to protect the dunes sagebrush lizard and its habitat.

The USFWS has approved several Enhancement of Survival Permits that allow operations in designated habitats to continue if the dunes sagebrush lizard is listed provided that qualification criteria and conservation measures required by such permits are met. One such permit is referred to as the Texas Conservation Plan ("TCP"). The TCP was developed as a voluntary conservation plan for the dunes sagebrush lizard by the Texas Comptroller, which served as the permit holder until the transfer of the TCP to a new permit holder in September 2020. Smart Sand is a participant in the TCP and has enrolled 2,713-acres of its land in Winkler, County, Texas. In January 2021, the USFWS issued a second Enhancement of Survival Permit for operations in West Texas that may affect the dunes sagebrush lizard. These permits cover incidental "take" of the habitat of the dunes sagebrush lizard associated with oil and gas exploration and development, sand mining, renewable energy development and operations, pipeline construction and operations, local government activities, agricultural activities, and general construction activities within the permit area that could affect suitable habitat. Smart Sand's enrollment in the TCP minimizes the potential that new or more stringent conservation measures or land, water, or resource use restrictions beyond the measures and restrictions in the TCP may be required for that property.

Another species whose recent listing could impact our operations and the operations of our customers is the lesser prairie-chicken. In November 2022, the USFWS formally listed two Distinct Population Segments ("DPSs") of the lesser prairie-chicken under the ESA. The Southern DPS, the habitat of which includes portions of southeast New Mexico and western Texas, was listed as endangered, while the Northern DPS, the habitat of which spans from northern Texas, through eastern Oklahoma, and into southeastern Colorado and southwestern Nebraska, was listed as threatened. The listed territory of the Southern DPS could overlap with the operating areas of some of our customers.

To the extent species are listed under the ESA or similar state laws, or are protected under the MBTA, or previously unprotected species are designated as threatened or endangered in areas where we or our customers operate, we could experience increased costs arising from species protection measures and delays or limitations in our or our customers' performance of operations, which could adversely affect or reduce demand for our frac sand.

Mining and Workplace Safety

Our sand mining operations are subject to mining safety regulation. The U.S. Mining Safety and Health Administration ("MSHA") is the primary regulatory organization governing frac sand mining and processing. Accordingly, MSHA regulates quarries, surface mines, underground mines and the industrial mineral processing facilities associated with and located at quarries and mines. The mission of MSHA is to administer the provisions of the Federal Mine Safety and Health Act of 1977 as amended by the Mine Improvement and New Emergency Response (MINER) Act of 2006 and to enforce compliance with mandatory miner safety and health standards. As part of MSHA's oversight, representatives perform at least two unannounced inspections annually for each above-ground facility.

OSHA has promulgated rules for workplace exposure to respirable silica for several other industries. Respirable silica is a known health hazard for workers exposed over long periods. In 2023, MSHA proposed similar rules, which would, among other updates, reduce the exposure limits, require immediate corrective actions if exposure limits are exceeded, require exposure sampling and no-cost medical surveillance, and update respiratory protection requirements. Additionally, in June 2022, the MSHA launched a new enforcement initiative to better protect U.S. miners from health hazards resulting from repeated overexposure to respirable crystalline silica. As part of the program, MSHA will conduct silica dust-related mine inspections and expand silica sampling at mines, while providing mine operators with compliance assistance and best practices to limit miners' exposure to silica dust. Specifically, the silica enforcement initiative includes:

- Spot inspections at mines with a history of repeated silica overexposures to closely monitor and evaluate health and safety conditions.
- Increased oversight and enforcement of known silica hazards at mines with previous citations for exposing miners to silica dust levels over the existing permissible exposure limit of 100 micrograms. For mines where the operator has not timely abated hazards, MSHA will issue a withdrawal order until the silica overexposure hazard has been abated.
- Expanded silica sampling at mines to ensure inspectors' samples represent the mines, commodities, and occupations known to have the highest risk for overexposure.
- A focus on sampling during periods of the mining process that present the highest risk of silica exposure for miners.
- Reminding miners about their rights to report hazardous health conditions, including any attempt to tamper with the sampling process.

Airborne respirable silica is associated with work areas at our site and is monitored closely through routine testing and MSHA inspection. If the workplace exposure limit is lowered significantly, we may be required to incur certain capital expenditures for equipment to reduce this exposure. Smart Sand also adheres to the NISA's respiratory protection program, and ensures that workers are provided with fitted respirators and ongoing radiological monitoring.

Environmental Reviews

Our operations may be subject to broad environmental review under the National Environmental Policy Act, as amended, ("NEPA"). NEPA requires federal agencies to evaluate the environmental impact of all "major federal actions" significantly affecting the quality of the human environment. The granting of a federal permit for a major development project, such as a mining operation, may be considered a "major federal action" that requires review under NEPA. As part of this evaluation, the federal agency considers a broad array of environmental impacts, including, among other things, impacts on air quality, water quality, wildlife (including threatened and endangered species), historic and archeological resources, geology, socioeconomics, and aesthetics. NEPA also requires the consideration of alternatives to the project. The NEPA review process, especially the preparation of a full environmental impact statement, can be time consuming and expensive. The purpose of the NEPA review process is to inform federal agencies' decision-making on whether federal approval should be granted for a project and to provide the public with an opportunity to comment on the environmental impacts of a proposed project. Though NEPA requires only that an environmental evaluation be conducted and does not mandate a particular result, a federal agency could decide to deny a permit or impose certain conditions on its approval, based on its environmental review under NEPA, or a third party could challenge the adequacy of a NEPA review and thereby delay the issuance of a federal permit or approval. In January 2020, the White House Council on Environmental Quality ("CEQ") published a Notice of Proposed Rulemaking that would revise NEPA's implementing regulations, with the stated purpose of facilitating more efficient and timely NEPA reviews. In July 2020, CEQ issued a final rule implementing the January 2020 proposal. However, several states and environmental groups filed challenges to this rulemaking. CEQ issued an Interim Final Rule in June 2021, which extended the deadline by two years (to September 14, 2023) for federal agencies to develop or update their NEPA implementing procedures to conform to the CEQ regulations. Additionally, in October 2021, the CEQ issued a notice of proposed rulemaking to reintroduce certain requirements removed or reduced by the July 2020 amendments, and the Infrastructure and Investment Jobs Act, Pub.L. 117-58, signed into law in November 2021, codified some of the July 2020 amendments in statutory text. In April 2022, CEQ issued the Phase 1 Final Rule, which finalizes a narrow set of changes to generally restore regulatory provisions that were in effect for decades before the 2020 rule modified them for the first time. In June 2023, the Fiscal Responsibility Act, which reforms NEPA, was signed into law by President Biden, and in July of 2023, CEQ proposed the Phase 2 Rule, which is intended to accelerate the permitting process and would, among other changes, clarify which projects require environmental impact statements and that agencies must consider climate change as part of the review process. At this time, we cannot predict what further revisions, if any, will be made to NEPA's implementing regulations, and what impacts, if any, they will have on our operations.

State and Local Regulation

We are subject to a variety of state and local environmental review and permitting requirements. Some states, including Wisconsin where our current projects are located, have state laws similar to NEPA; thus, our development of a new site or the expansion of an existing site may be subject to comprehensive state environmental reviews even if it is not subject to NEPA. In some cases, the state environmental review may be more stringent than the federal review. Our operations may require state-law based permits in addition to federal permits, requiring state agencies to consider a range of issues, many the same as federal agencies, including, among other things, a project's impact on wildlife and their habitats, historic and archaeological sites, aesthetics, agricultural operations, and scenic areas. Wisconsin has specific permitting and review processes for commercial silica mining operations, and state agencies may impose different or additional monitoring or mitigation requirements than

federal agencies. The development of new sites and our existing operations also are subject to a variety of local environmental and regulatory requirements, including land use, zoning, building, and transportation requirements.

Demand for frac sand in the oil and natural gas industry drove a significant increase in the production of frac sand. As a result, some local communities expressed concern regarding silica sand mining operations. These concerns have generally included exposure to ambient silica sand dust, truck traffic, water usage and blasting. In response, certain state and local communities have developed or are in the process of developing regulations or zoning restrictions intended to minimize dust from becoming airborne, control the flow of truck traffic, significantly curtail the amount of practicable area for mining activities, provide compensation to local residents for potential impacts of mining activities and, in some cases, ban issuance of new permits for mining activities. To date, we have not experienced any material impact to our existing mining operations or planned capacity expansions as a result of these types of concerns. We would expect this trend to continue as oil and natural gas production increases.

In August 2014, we were accepted as a Tier 1 participant in Wisconsin's voluntary Green Tier program, which encourages, recognizes and rewards companies for voluntarily exceeding environmental, health and safety legal requirements. Successful Tier 1 participants are required to demonstrate a strong record of environmental compliance, develop and implement an environmental management system meeting certain criteria, conduct and submit annual performance reviews to the Wisconsin Department of Natural Resources, promptly correct any findings of non-compliance discovered during these annual performance reviews, and make certain commitments regarding future environmental program improvements. Our most recent annual report required under the Tier 1 protocol was submitted to the Green Tier Program contact on March 2023.

Employees

As of December 31, 2023, we employed 378 people, of which 42 were employed under collective bargaining agreements. The current collective bargaining agreements expire April 30, 2024. We offer competitive salaries and a comprehensive package of employee benefits, including bonuses, retirement savings plans, medical, dental, life and disability coverage. We consider our employee relations to be good.

Executive Officers of the Registrant

Charles E. Young

Charles E. Young was named Chief Executive Officer in July 2014. Mr. Young has also served as a director since September 2011. Mr. Young founded Smart Sand, LLC (our predecessor) and served as its President from November 2009 to August 2011. Mr. Young served as our President and Secretary from September 2011 to July 2014. Mr. Young has over 25 years of executive and entrepreneurial experience in the high-technology, telecommunications and renewable energy industries. He previously served as the President and Founder of Premier Building Systems, a construction, solar, geothermal and energy audit company in Pennsylvania and New Jersey from 2006 to 2011. Mr. Young serves as a director for Gravity Oilfield Services, Inc., a privately-held company. Mr. Young received a B.A. in Political Science from Miami University. Mr. Young is the brother of William John Young, our Chief Operating Officer, and James D. Young, our Executive Vice President, General Counsel and Secretary. We believe that Mr. Young's industry experience and deep knowledge of our business makes him well suited to serve as Chief Executive Officer and Director.

Lee E. Beckelman

Lee E. Beckelman was named Chief Financial Officer in August 2014. From December 2009 to February 2014, Mr. Beckelman served as Executive Vice President and Chief Financial Officer of Hilcorp Energy Company, an exploration and production company. From February 2008 to October 2009, he served as the Executive Vice President and Chief Financial Officer of Price Gregory Services, Incorporated, a crude oil and natural gas pipeline construction firm until its sale to Quanta Services. Prior thereto, Mr. Beckelman served in various roles from 2002 to 2007 at Hanover Compressor Company, an international oilfield service company, until its merger with Universal Compression to form Exterran Holdings. Mr. Beckelman received his BBA in Finance with High Honors from the University of Texas at Austin.

William John Young

William John Young was named Chief Operating Officer in April 2018. Prior to that time, he served as Executive Vice President of Sales and Logistics from October 2016 to April 2018. Mr. Young served as Vice President of Sales and Logistics from May 2014 to September 2016 and Director of Sales from November 2011 to April 2014. Prior to joining us, Mr. Young was a Director of Sales for Comcast Corporation from 2002 to 2011. Mr. Young brings over 25 years of experience in the mining, commercial telecommunications and broadband industries. Mr. Young received a BSc in Biology from Dalhousie

University. Mr. Young is the brother of Charles E. Young, our Chief Executive Officer and member of our board of directors, and James D. Young, our Executive Vice President, General Counsel and Secretary.

Robert Kiszka

Robert Kiszka was named Executive Vice President of Operations in May 2014. Previously, Mr. Kiszka served as the Vice President of Operations from September 2011 to May 2014. Mr. Kiszka has over 25 years of construction, real estate, renewable energy and mining experience. Mr. Kiszka has been the owner of A-1 Bracket Group Inc. since 2005 and was a member of Premier Building Systems LLC from 2010 to 2011. Mr. Kiszka attended Pedagogical University in Krakow, Poland and Rutgers University.

Ronald P. Whelan

Ronald P. Whelan was named Executive Vice President of Sales in June 2018. Prior to that time, he served as Executive Vice President of Business Development from April 2017 to June 2018, Vice President of Business Development from September 2016 to March 2017 and as Director of Business Development from April 2014 to August 2016. Prior to being named Director of Business Development, Mr. Whelan was the Operations Manager responsible for the design, development and production of the Oakdale facility from November 2011 to April 2014. Before joining Smart Sand, Mr. Whelan ran his own software design company from 2004 to 2011 and was a member of Premier Building Systems LLC from 2008 to 2009. Mr. Whelan has over 20 years of entrepreneurial experience in mining, technology and renewable energy industries. Mr. Whelan received a B.A. in Marketing from Bloomsburg University and M.S. in Instructional Technology from Bloomsburg University.

James D. Young

James D. Young was named Executive Vice President, General Counsel and Secretary in June 2017. Prior to joining us, Mr. Young was a partner of the law firm Fox Rothschild LLP, where he worked for thirteen years and served as our outside general counsel. Mr. Young received a J.D. from Rutgers University School of Law and a B.A. in History and Political Science from the University of Toronto. Mr. Young is the brother of Charles E. Young, our Chief Executive Officer and member of our board of directors, and William John Young, our Chief Operating Officer.

Available Information

Our website address is *www.smartsand.com*. Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports are available on our website, without charge, as soon as reasonably practicable after they are filed electronically with the SEC. The SEC also maintains a website that contains reports, proxy and information statements and other information statements and other information regarding issuers who file electronically with the SEC. The SEC's website address is *www.sec.gov*.

ITEM 1A. — RISK FACTORS

Risks Inherent in Our Business

Our business and financial performance depend on the level of activity in the oil and natural gas industry.

Substantially all of our revenues are derived from sales to companies in the oil and natural gas industry. As a result, our operations are dependent on the levels of activity in oil and natural gas exploration, development and production and prevailing oil and natural gas prices. More specifically, the demand for the proppants we produce and our wellsite storage and proppant management solutions is closely related to the number of oil and natural gas wells completed in geological formations where sand-based proppants are used in fracturing activities. These activity levels are affected by both short- and long-term trends in oil and natural gas prices, among other factors.

Oil and natural gas prices and, therefore, the level of exploration, development and production activity, experienced a high level of volatility in recent years.

A prolonged reduction in oil and natural gas prices or a sustained lack of key resources that affect drilling activity, whether due to recession, political developments or other events, would generally depress the level of oil and natural gas exploration, development, production and well completion activity and would result in a corresponding decline in the demand for the proppants we produce and our wellsite proppant storage solutions. Such a decline would have a material adverse effect on our business, results of operation and financial condition. The commercial development of economically viable alternative energy sources (such as wind, solar, geothermal, tidal, batteries, fuel cells and biofuels) could have a similar effect. In addition, certain U.S. federal income tax deductions currently available with respect to oil and natural gas exploration and development

may be eliminated. Any future decreases in the rate at which oil and natural gas reserves are discovered or developed, whether due to the passage of legislation, increased governmental regulation leading to limitations, or prohibitions on exploration and drilling activity, including hydraulic fracturing, or other factors, could have a material adverse effect on our business and financial condition, even in a stronger oil and natural gas price environment.

A significant portion of our revenues have been generated with a limited number of customers, and the loss of, material nonpayment or nonperformance by or significant reduction in purchases by any of them could adversely affect our business, results of operations and financial condition.

A material portion of our revenues are generated from a limited number of customers. The ability or willingness of each of our customers to maintain their purchases from us will depend on a number of factors that are beyond our control and may include, among other things, the overall operations and financial condition of the counterparty, the condition of the U.S. oil and natural gas exploration and production industry, continuing use of frac sand in hydraulic fracturing operations and general economic conditions. In addition, in depressed market conditions, our customers may reduce the amount of sand they purchase from us or they may be able to obtain comparable products at a lower price. If our customers with long-term contracts experience a significant downturn in their business or financial condition, they may attempt to renegotiate our contracts. For example, certain of our existing contracts were adjusted in 2020 due to effects of the COVID-19 pandemic, resulting in a combination of reduced average selling prices per ton, adjustments to take-or-pay volumes and length of contract. If any of our major customers substantially reduces or altogether ceases purchasing our sand and we are not able to generate replacement sales of sand into the market, our business, financial condition and results of operations could be adversely affected until such time as we generate replacement sales in the market. In addition, as contracts expire, depending on market conditions at the time, our contracted customers may choose not to extend these contracts which could lead to a significant reduction of sales volumes and corresponding revenues, cash flows and financial condition if we are not able to replace these contracts with new sales volumes. Even if we were to replace any lost volumes, lower prices for our product could materially reduce our revenues, cash flow and financial condition. Additionally, consolidation and vertical integration of pressure pumpers and exploration and production companies continues in the industry and this trend could lead to fewer overall customers for us to market sand to and negatively impact our sales volumes.

We are exposed to the credit risk of our customers, and any material nonpayment or nonperformance by our customers could adversely affect our business, results of operations and financial condition.

We are subject to the risk of loss resulting from nonpayment or nonperformance by our customers. Our credit procedures and policies may not be adequate to fully eliminate customer credit risk. If we fail to adequately assess the creditworthiness of existing or future customers or unanticipated deterioration in their creditworthiness, any resulting increase in nonpayment or nonperformance by them and our inability to re-market or otherwise use the production could have a material adverse effect on our business, results of operations and financial condition. A decline in natural gas and crude oil prices could negatively impact the financial condition of our customers and sustained lower prices could impact their ability to meet their financial obligations to us. Further, our contract counterparties may not perform or adhere to our existing or future contractual arrangements. To the extent one or more of our contract counterparties is in financial distress or commences bankruptcy proceedings, contracts with these counterparties may be subject to renegotiation or rejection under applicable provisions of the United States Bankruptcy Code. Any material nonpayment or nonperformance by our contract counterparties due to inability or unwillingness to perform or adhere to contractual arrangements could adversely affect our business and results of operations.

We face significant competition that may cause us to lose market share.

The proppant industry is highly competitive. The proppant market is characterized by a small number of large, national producers and a larger number of small, regional or local producers. Competition in this industry is based on price, consistency and quality of product, site location, distribution and logistics capabilities, customer service, reliability of supply, breadth of product offering (including wellsite storage products and services) and technical support.

Some of our competitors have greater financial and other resources than we do. Also, certain of our competitors have emerged from bankruptcy in recent years and may be able to offer more attractive pricing as a result of lower debt obligations. In addition, our larger competitors may develop technology superior to ours or may have production facilities that offer lower-cost transportation to certain customer locations than we do. When the demand for hydraulic fracturing services decreases or the supply of proppant available in the market increases, prices in the frac sand market can materially decrease. Furthermore, oil and natural gas exploration and production companies and other providers of hydraulic fracturing services have acquired and in the future may acquire their own frac sand reserves to fulfill their proppant requirements, and these other market participants may expand their existing frac sand production capacity, all of which would negatively impact demand for our frac sand. In addition, increased competition in the proppant industry could have an adverse impact on our ability to enter into long-term contracts or to enter into contracts on favorable terms. For example, supplies of regional frac sand from our competitors became

available in 2018, starting in the Permian Basin of West Texas, and have continued to expand to certain other basins in or near where we sell sand. Regional frac sand has had a negative impact on our ability to sell our Northern White Sand in the Permian Basin or other markets in close proximity to these regional mines. The reduced ability to sell sand in operating basins with regional sand supply has led to increased competition among our competitors in other basins and could lead to pressure to reduce prices to compete effectively.

We may be required to make substantial capital expenditures to maintain and grow our asset base. We may not realize enough of a return on such capital expenditures to cover their costs. Also, the inability to obtain needed capital or financing on satisfactory terms, or at all, could have an adverse effect on our business, results of operations and financial condition.

We rely on cash generated from our operations and the availability of credit to fund our capital expenditures. We have made significant capital expenditures, and expect to make additional capital expenditures in the future. We cannot provide any assurance that we will receive an adequate return on such capital expenditures.

In addition, our ability to maintain existing debt financing or to access the capital markets for future equity or debt offerings may be limited by our financial condition at the time of any such financing or offering, the covenants or borrowing base restrictions contained in our ABL Credit Facility or other current or future debt agreements, adverse market conditions or other contingencies and uncertainties that are beyond our control. Our failure to obtain the funds necessary to maintain, develop and increase our asset base could adversely impact our business, results of operations and financial condition.

Even if we are able to maintain existing financing or access the capital markets, incurring additional debt may significantly increase our interest expense and financial leverage, and our level of indebtedness could restrict our ability to fund future development and acquisition activities. In addition, the issuance of additional equity interests may result in significant dilution to our existing common stockholders.

Inaccuracies in estimates of volumes and qualities of our sand reserves could result in lower than expected sales and higher than expected cost of production.

We rely on our independent reserve engineers' prepared estimates of our reserves based on engineering, economic and geological data assembled and analyzed by our engineers and geologists. However, frac sand reserve estimates are by nature imprecise and depend to some extent on statistical inferences drawn from available data, which may prove unreliable. There are numerous uncertainties inherent in estimating quantities and qualities of reserves and non-reserve frac sand deposits and costs to mine recoverable reserves, including many factors beyond our control. Estimates of economically recoverable frac sand reserves necessarily depend on a number of factors and assumptions, all of which may vary considerably from actual results, such as:

- geological and mining conditions and/or effects from prior mining that may not be fully identified by available data or that may differ from experience;
- assumptions concerning future prices of frac sand, operating costs, mining technology improvements, development costs and reclamation costs; and
- assumptions concerning future effects of regulation, including wetland mitigation requirements, the issuance of required permits and the assessment of taxes by governmental agencies.

Any inaccuracy in our independent reserve engineer's estimates related to our frac sand reserves or non-reserve frac sand deposits could result in lower than expected sales or higher than expected costs. For example, estimates of our proven and probable recoverable sand reserves assume that our revenue and cost structure will remain relatively constant over the life of our reserves. If these assumptions prove to be inaccurate, some or all of our reserves may not be economically mineable, which could have a material adverse effect on our results of operations and cash flows. In addition, our current customer contracts require us to deliver frac sand that meets certain specifications. If estimates of the quality of our reserves, including the volumes of the various specifications of those reserves, prove to be inaccurate, we may incur significantly higher excavation costs without corresponding increases in revenues, we may not be able to meet our contractual obligations, or our facilities may have a shorter than expected reserve life, any of which could have a material adverse effect on our results of operations and cash flows.

Our sand is currently produced at three facilities and our sales are dependent on delivery by railroads. Any adverse developments at our production facilities, rail terminals, or on any rail line could have a material adverse effect on our business, financial condition and results of operations.

All of our sand sales are currently produced at our facilities near Oakdale, Wisconsin, Utica, Illinois and Blair, Wisconsin. We ship a substantial portion of our sand through our rail terminals. Any adverse development at these facilities,

our rail terminals, or on any of the rail lines we use to deliver our sand due to catastrophic events, weather, or any other event that would cause us to curtail, suspend or terminate operations at such facilities or terminals, could result in us being unable to meet our contracted sand deliveries. Although we have access to more than one Class I rail line, we may not be able to facilitate all shipments of product from one facility. We maintain insurance coverage to cover a portion of these types of risks; however, there are potential risks associated with our operations not covered by insurance. There also may be certain risks covered by insurance where the policy does not reimburse us for all of the costs related to a loss. Downtime or other delays or interruptions to our operations that are not covered by insurance could have a material adverse effect on our business, results of operations and financial condition. In addition, under our long-term take-or-pay contracts, if we are unable to deliver contracted volumes and a customer arranges for delivery from a third party at a higher price, we may be required to pay that customer the difference between our contract price and the price of the third-party product.

If we are unable to make acquisitions on economically acceptable terms, our future growth would be limited.

A portion of our strategy to grow our business is dependent on our ability to make acquisitions. If we are unable to make acquisitions from third parties because we are unable to identify attractive acquisition candidates or negotiate acceptable purchase contracts, we are unable to obtain financing for these acquisitions on economically acceptable terms or we are outbid by competitors, our future growth may be limited. Any acquisition involves potential risks, some of which are beyond our control, including, among other things:

- mistaken assumptions about revenues and costs, including synergies;
- inability to integrate successfully the businesses we acquire;
- inability to hire, train or retain qualified personnel to manage and operate our business and newly acquired assets;
- the assumption of unknown liabilities;
- limitations on rights to indemnity from the seller;
- mistaken assumptions about the overall costs of equity or debt;
- diversion of management's attention from other business concerns;
- unforeseen difficulties operating in new product areas or new geographic areas; and
- customer or key employee losses at the acquired businesses.

If we consummate any future acquisitions, our capitalization and results of operations may change significantly, and common stockholders will not have the opportunity to evaluate the economic, financial and other relevant information that we will consider in determining the application of these funds and other resources.

Restrictions in our ABL Credit Facility may limit our ability to capitalize on potential acquisition and other business opportunities.

The operating and financial restrictions and covenants in our ABL Credit Facility could restrict our ability to finance future operations or capital needs or to expand or pursue our business activities. For example, our ABL Credit Facility restricts or limits our ability to:

- grant liens;
- incur additional indebtedness;
- engage in a merger, consolidation or dissolution;
- enter into transactions with affiliates;
- sell or otherwise dispose of assets, businesses and operations;
- materially alter the character of our business as conducted at the time of filing of this annual report; and
- make acquisitions, investments and capital expenditures.

Furthermore, the borrowing base under our ABL Credit Facility is recalculated from time to time based on our eligible accounts receivable and inventory. Decreases in our eligible accounts receivable and inventory may limit our available borrowing levels and may require us to comply with certain financial ratios.

We may not be able to renew the ABL Credit Facility or secure a new credit facility on favorable terms, or at all, which would adversely affect our business, financial condition and/or cash flows.

We have historically relied on third-party financing to meet our seasonal cash flow requirements. Our ABL Credit Facility is set to expire on December 13, 2024. If we are unable to renew our ABL Credit Facility or secure a new credit facility on favorable terms, or at all, our ability to fund our operations would be impaired, which would have a material adverse effect on our business, financial condition and/or cash flows.

We face distribution and logistical challenges in our business.

Transportation and logistical operating expenses comprise a significant portion of the costs incurred by our customers to deliver frac sand to the wellhead, which could favor suppliers located in close proximity to the customer. As oil and natural gas prices fluctuate, our customers may shift their focus to different resource plays, some of which may be located in geographic areas that do not have well-developed transportation and distribution infrastructure systems, or seek contracts with additional delivery and pricing alternatives including contracts that sell product on an "as-delivered" basis at the target shale basin. Serving our customers in these less-developed areas presents distribution and other operational challenges that may affect our sales and negatively impact our operating costs and any delays we experience in optimizing our logistics infrastructure or developing additional origination and destination points may adversely affect our ability to renew existing contracts with customers seeking additional delivery and pricing alternatives. Disruptions in transportation services, including shortages of railcars, lack of developed infrastructure, weather-related problems, flooding, drought, accidents, mechanical difficulties, strikes, lockouts, bottlenecks, environmental restrictions or other events could affect our ability to timely and cost effectively deliver to our customers and could temporarily impair the ability of our customers to take delivery and, in certain circumstances, constitute a force majeure event under our customer contracts, permitting our customers to suspend taking delivery of and paying for our frac sand (and in some cases terminating the agreement after a period of time). Additionally, increases in the price of transportation costs, including freight charges, fuel surcharges, transloading fees, terminal switch fees and demurrage costs, could negatively impact operating costs if we are unable to pass those increased costs along to our customers. Accordingly, because we are so dependent on rail infrastructure, if there are disruptions of the rail transportation services utilized by us or our customers, and we or our customers are unable to find alternative transportation providers to transport our products, our business and results of operations could be adversely affected. Further, declining volumes could result in railcar over-capacity, which would lead to railcar storage fees while, at the same time, we would continue to incur lease costs for those railcars in storage. Failure to find long-term solutions to these logistical challenges could adversely affect our ability to respond quickly to the needs of our customers or result in additional increased costs, and thus could negatively impact our business, results of operations and financial condition.

We may be adversely affected by decreased demand for frac sand due to the development of effective alternative proppants or new processes to replace hydraulic fracturing.

Frac sand is a proppant used in the completion and re-completion of oil and natural gas wells to stimulate and maintain oil and natural gas production through the process of hydraulic fracturing. Frac sand is the most commonly used proppant and is less expensive than other proppants, such as resin-coated sand and manufactured ceramics. A significant shift in demand from frac sand to other proppants, or the development of new processes to make hydraulic fracturing more efficient that could replace it altogether, could cause a decline in the demand for the frac sand we produce and result in a material adverse effect on our business, results of operations and financial condition.

An increase in the supply of frac sand having similar characteristics as the frac sand we produce could make it more difficult for us to maintain sales with existing customers or obtain new customers on favorable terms, or at all.

If significant new reserves of frac sand are discovered and developed, and those frac sands have similar characteristics to the frac sand we produce, we may be unable to maintain sales with our existing customers, obtain new customers on favorable terms, or at all. Specifically, if frac sand is oversupplied, our customers may reduce their sales volumes, may not be willing to purchase sand from us, may demand lower prices, any one or combination of the preceding could have a material adverse effect on our business, results of operations and financial condition. For example, new supplies of regional frac sand from our competitors became available in 2018, primarily in the Permian Basin of West Texas. Since then, other regional frac sand mines have opened in or near additional basins where we sell sand. These new supplies have had a negative impact on our ability to sell our Northern White Sand in the Permian Basin or other markets in close proximity to these regional mines.

Our operations are subject to operational hazards and unforeseen interruptions for which we may not be adequately insured.

Our operations are exposed to potential natural disasters, including blizzards, tornadoes, storms, floods, other adverse weather conditions and earthquakes. In addition, our employees could be subject to a COVID-19 or other outbreak at one or more of our facilities. If any of these events were to occur, we could incur substantial losses because of operational downtime, personal injury or loss of life, severe damage to and destruction of property and equipment, and pollution or other environmental damage resulting in curtailment or suspension of our operations.

We are not fully insured against all risks incident to our business, including the risk of our operations being interrupted due to severe weather and natural disasters. Furthermore, we may be unable to maintain or obtain insurance of the type and amount we desire at reasonable rates. As a result of market conditions, premiums and deductibles for some of our insurance policies have increased and could escalate further. In addition, sub-limits have been imposed for certain risks. In some instances, certain insurance could become unavailable or available only for reduced amounts of coverage. If we were to incur a significant liability for which we are not fully insured, it could have a material adverse effect on our business, results of operations and financial condition.

Our production process consumes large amounts of natural gas and electricity. An increase in the price or a significant interruption in the supply of these or any other energy sources could have a material adverse effect on our business, results of operations and financial condition.

Energy costs, primarily natural gas and electricity, represented approximately 6.4% of our total cost of goods sold for the year ended December 31, 2023. Natural gas is currently the primary fuel source used for drying in our frac sand production process. As a result, our profitability will be impacted by the price and availability of natural gas we purchase from third parties. Because we have not contracted for all of our natural gas usage on a fixed-price basis, our costs and profitability will be impacted by fluctuations in prices for natural gas. The price and supply of natural gas is unpredictable and can fluctuate significantly based on domestic, international, political and economic circumstances, as well as other events outside our control, such as changes in supply and demand due to weather conditions, actions by OPEC, governmental regulations and sanctions, regional production patterns, security threats and environmental concerns. In addition, potential climate change regulations or carbon or emissions taxes could result in higher cost of production for energy, which may be passed on to us in whole or in part. In order to manage the risk of volatile natural gas prices, we may hedge natural gas prices through the use of fixed price supply contracts or derivative financial instruments, such as forwards, swaps and futures. However, these measures carry risk (including nonperformance by counterparties) and do not in any event entirely eliminate the risk of decreased margins as a result natural gas price increases. We further attempt to mitigate these risks by including in our sales contracts fuel surcharges based on natural gas prices exceeding certain benchmarks. A significant increase in the price of energy that is not recovered through an increase in the price of our products or covered through our hedging arrangements or an extended interruption in the supply of natural gas or electricity to our production facilities could have a material adverse effect on our business, results of operations and financial condition.

Increases in the price of diesel fuel may adversely affect our business, results of operations and financial condition.

Diesel fuel costs generally fluctuate with increasing and decreasing world crude oil prices and, accordingly, are subject to political, economic and market factors that are outside of our control. Our operations are dependent on earth moving equipment, locomotives and tractor trailers, and diesel fuel costs are a significant component of the operating expense of these vehicles. Accordingly, increased diesel fuel costs could have an adverse effect on our business, results of operations and financial condition.

A facility closure entails substantial costs, and if we close any of our facilities sooner than anticipated, our results of operations may be adversely affected.

We base our assumptions regarding the life of our facilities on detailed studies that we perform from time to time, but our studies and assumptions may not prove to be accurate. If we close any of our operating facilities sooner than expected, sales may decline. The closure of our operating facilities would involve significant fixed closure costs, including accelerated employment legacy costs, severance-related obligations, reclamation and other environmental costs and the costs of terminating long-term obligations, including energy contracts and equipment leases. We accrue for the costs of reclaiming open pits, stockpiles, non-saleable sand, ponds, roads and other mining support areas over the estimated mining life of our property. If we were to reduce the estimated life of our operating facilities, the fixed facility closure costs would be applied to a shorter period of production, which would increase the cost of production per ton produced and could materially and adversely affect our business, results of operations and financial condition.

Applicable statutes and regulations require that mining property be reclaimed following a mine closure in accordance with specified standards and an approved reclamation plan. The plan addresses matters such as removal of facilities and equipment, regrading, prevention of erosion and other forms of water pollution, re-vegetation and post-mining land use. We may be required to post a surety bond or other form of financial assurance equal to the cost of reclamation as set forth in the approved reclamation plan. The establishment of the final mine closure reclamation liability is based on estimated costs and requires various estimates and assumptions. If our accruals for expected reclamation and other costs associated with facility closures for which we will be responsible were later determined to be insufficient, our business, results of operations and financial condition may be adversely affected.

Our operations are dependent on our rights and ability to mine our properties and on our having renewed or received the required permits and approvals from governmental authorities and other third parties.

We hold numerous governmental, environmental, mining and other permits, water rights and approvals authorizing operations at our mining and operating facilities. For our extraction and processing in Wisconsin and Illinois, we must obtain permits from various federal, tribal, state and local authorities. For example, at the federal level, a *Mine Identification Request (MSHA Form 7000-51)* must be filed and obtained before mining commences. If wetlands are impacted, a permit from the *U.S. Army Corps of Engineers* is required. At the state level, a series of permits are required related to air quality, wetlands, water quality (waste water, storm water), grading permits, protected species, archeological assessments and high capacity wells in addition to others depending upon site specific factors and operational detail. At the local level, zoning, building, storm water, erosion control, wellhead protection, road usage and access are all regulated and require permitting to some degree. A non-metallic mining reclamation permit is required. Certain permits or approvals may also require consultation with federal, state, tribal, or local authorities. A decision by a governmental agency or other third party to deny or delay issuing a new or renewed permit or approval, or to revoke or substantially modify an existing permit or approval, could have a material adverse effect on our business, results of operations and financial condition.

Title to, and the area of, mineral properties and water rights may also be disputed. Mineral properties sometimes contain claims or transfer histories that examiners cannot verify. A successful claim that we do not have title to our property or lack appropriate water rights could cause us to lose any rights to explore, develop and extract minerals, without compensation for our prior expenditures relating to such property. Our business may suffer a material adverse effect in the event we have title deficiencies.

A shortage of skilled labor together with rising labor costs in the excavation industry may further increase operating costs, which could adversely affect our business, results of operations and financial condition.

Efficient sand excavation using modern techniques and equipment requires skilled laborers, preferably with several years of experience and proficiency in multiple tasks, including processing of mined minerals. If there is a shortage of experienced labor in areas in which we operate, we may find it difficult to hire or train the necessary number of skilled laborers to perform our own operations which could have an adverse impact on our business, results of operations and financial condition.

The manufacturing and maintenance of our SmartSystems equipment requires skilled and experienced personnel who can perform physically demanding work. Our ability to operate the manufacturing facility in Saskatoon depends upon our ability to have access to the services of skilled workers. The demand for skilled workers is high, and the supply is limited. As a result, competition for experienced personnel is intense, and a significant increase in the wages paid by competing employers could result in a reduction of our skilled labor force, increases in the rates that we must pay or both. If either of these events were to occur, there could be an adverse impact on our business, results of operations and financial condition.

Our business may suffer if we lose, or are unable to attract and retain, key personnel.

We depend to a large extent on the services of our senior management team and other key personnel. Members of our senior management and other key employees bring significant experience to the market environment in which we operate. Competition for management and key personnel is intense, and the pool of qualified candidates is limited. The loss of any of these individuals or the failure to attract additional personnel, as needed, could have a material adverse effect on our operations and could lead to higher labor costs or the use of less-qualified personnel. In addition, if any of our executives or other key employees were to join a competitor or form a competing company, we could lose customers, suppliers, know-how and key personnel. We do not maintain key-man life insurance with respect to any of our employees. Our success is dependent on our ability to continue to attract, employ and retain highly skilled personnel.

Our profitability could be negatively affected if we fail to maintain satisfactory labor relations.

As of December 31, 2023, 42 employees in our Illinois facility operated under a collective bargaining agreement. Our collective bargaining agreement expires April 30, 2024. While we intend to renew the collective bargaining agreement, if we

are unable to renegotiate acceptable terms with these employees in the future, we could experience, among other things, strikes, work stoppages or other slowdowns by our workers and increased operating costs as a result of higher wages, health care costs or benefits paid to our employees. An inability to maintain good relations with our workforce could cause a material adverse effect on our business, financial condition, and results of operations.

Failure to maintain effective quality control systems at our mining, processing and production facilities could have a material adverse effect on our business, results of operations and financial condition.

The performance and quality of our products are critical to the success of our business. These factors depend significantly on the effectiveness of our quality control systems, which, in turn, depends on a number of factors, including the design of our quality control systems, our quality-training program and our ability to ensure that our employees adhere to our quality control policies and guidelines. Any significant failure or deterioration of our quality control systems could have a material adverse effect on our business, results of operations and financial condition.

Seasonal and severe weather conditions could have a material adverse impact on our business, results of operations and financial condition.

Our business could be materially adversely affected by severe weather conditions. Severe weather conditions may affect our customers' operations, thus reducing their need for our products, impact our operations by resulting in weather-related damage to our facilities and equipment and impact our customers' ability to take delivery of our products at our plant site. Any weather-related interference with our operations could force us to delay or curtail services and potentially breach our contractual obligations to deliver minimum volumes or result in a loss of productivity and an increase in our operating costs.

In addition, winter weather conditions impact our operations by causing us to reduce our excavation and wet plant related production activities during the winter months. During non-winter months, we excavate excess sand to build a stockpile that will feed the dry plants (along with the sand provided by our year-round wet plant), which continue to operate during the winter months. Unexpected winter conditions (such as winter arriving earlier than expected or lasting longer than expected) may result in us not having a sufficient sand stockpile to operate our dry plants during winter months, which could result in us being unable to deliver our contracted sand amounts during such time and lead to a material adverse effect on our business, results of operations and financial condition.

Our cash flow fluctuates on a seasonal basis.

Our cash flow is affected by a variety of factors, including weather conditions and seasonal periods. Seasonal fluctuations in weather impact the production levels at our wet processing plant. While our sales and finished product production levels are contracted evenly throughout the year, our mining and wet sand processing activities are reduced during winter months. As a consequence, we experience lower cash costs in the first and fourth quarter of each calendar year, and higher cash operating costs in the second and third quarter of each calendar year in which we overproduce to meet demand for the winter months.

We do not own the land on which our in-basin transload terminals are located, which could disrupt our operations.

We do not own the land on which our in-basin transload terminals are located and instead own a leasehold interest and right-of-way for the operation of these facilities. Upon expiration, termination or other lapse of our current leasehold terms, we may be unable to renew our existing leases or rights-of-way on terms favorable to us, or at all. Any renegotiation on less favorable terms or inability to enter into new leases on economically acceptable terms upon the expiration, termination or other lapse of our current leases or rights-of-way could cause us to cease operations on the affected land, increase costs related to continuing operations elsewhere and have a material adverse effect on our business, financial condition and results of operations.

A terrorist attack or armed conflict could harm our business.

Global and domestic terrorist activities, anti-terrorist efforts and other armed conflicts could adversely affect the U.S. and global economies and could prevent us from meeting financial and other obligations. We 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, refineries or transportation facilities 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 our frac sand. Global and domestic terrorist activities and the threat of potential terrorist activities and any resulting physical damage and economic downturn could adversely affect our results of operations, impair our ability to raise capital or otherwise adversely impact our ability to realize certain business strategies.

Diminished access to water may adversely affect our operations or the operations of our customers.

The mining and processing activities at our facilities require significant amounts of water. Additionally, the development of oil and natural gas properties through fracture stimulation likewise requires significant water use. We have obtained water rights that we currently use to service the activities at our operating facilities, and we plan to obtain all required water rights to service other properties we may develop or acquire in the future. However, the amount of water that we and our customers are entitled to use pursuant to water rights must be determined by the appropriate regulatory authorities in the jurisdictions in which we and our customers operate. Such regulatory authorities may amend the regulations regarding such water rights, increase the cost of maintaining such water rights or eliminate our current water rights, and we and our customers may be unable to retain all or a portion of such water rights. These new regulations, which could also affect local municipalities and other industrial operations, could have a material adverse effect on our operating costs and effectiveness if implemented. Such changes in laws, regulations or government policy and related interpretations pertaining to water rights may alter the environment in which we and our customers do business, which may negatively affect our financial condition and results of operations.

We may be subject to interruptions or failures in our information technology systems, including cyber-attacks.

We rely on sophisticated information technology systems and infrastructure to support our business, including process control technology. Any of these systems may be susceptible to outages due to fire, floods, power loss, telecommunication failures, usage errors by employees, computer viruses, cyber-attacks or other security breaches, or similar events. If our information technology systems are damaged or cease to function properly, we may have to make a significant investment to fix or replace them, and we may suffer loss of critical data and interruptions or delays in our operations.

We may be the target of attempted cyber-attacks, computer viruses, malicious code, phishing attacks, denial of service attacks and other information security threats. To date, cyber-attacks have not had a material impact on our financial condition, results or business; however, we could suffer material financial or other losses in the future and we are not able to predict the severity of these attacks. The occurrence of a cyber-attack, breach, unauthorized access, misuse, computer virus or other malicious code or other cyber security event could jeopardize or result in the unauthorized disclosure, gathering, monitoring, misuse, corruption, loss or destruction of confidential and other information that belongs to us, our customers, our counterparties, or third-party service providers that is processed and stored in, and transmitted through, our computer systems and networks. The occurrence of such an event could also result in damage to our software, computers or systems, or otherwise cause interruptions or malfunctions in our, our customers', our counterparties' or third parties' operations. This could result in significant losses, loss of customers and business opportunities, reputational damage, litigation, regulatory fines, penalties or intervention, reimbursement or other compensatory costs, or otherwise adversely affect our business, financial condition or results of operations.

The reliability and capacity of our information technology systems is critical to our operations. Any material disruption in our information technology systems, or delays or difficulties in implementing or integrating new systems or enhancing current systems, could have an adverse effect on our business, and results of operations.

If we are unable to fully protect our intellectual property rights, we may suffer a loss in our competitive advantage.

The commercial success of our SmartSystems wellsite proppant storage solutions depends on patented and proprietary information and technologies, know-how and other intellectual property. Because of the technical nature of this business, we rely on a combination of patent, copyright, trademark and trade secret laws, and restrictions on disclosure to protect our intellectual property. As of December 31, 2023, we had several patents related to our SmartSystems, including patents related to our silo storage system and patents related to lifting and lowering our storage silos. We customarily enter into confidentiality or license agreements with our employees, consultants and corporate partners and control access to and distribution of our design information, documentation and other patented and proprietary information. In addition, in the future we may develop or acquire additional patents or patent portfolios, which could require significant cash expenditures. However, third parties may knowingly or unknowingly infringe our patent or other proprietary rights, or challenge patents or proprietary rights held by us, and pending and future trademark and patent applications may not be approved. Failure to protect, monitor and control the use of our existing intellectual property rights could cause us to lose our competitive advantage and incur significant expenses. It is possible that our competitors or others could independently develop the same or similar technologies or otherwise obtain access to our unpatented technologies. In such case, our trade secrets would not prevent third parties from competing with us. Consequently, our results of operations may be adversely affected. Furthermore, third parties or our employees may infringe or misappropriate our patented or proprietary technologies or other intellectual property rights, which could also harm our business and results of operations. Policing unauthorized use of intellectual property rights can be difficult and expensive, and adequate remedies may not be available.

We may be adversely affected by disputes regarding intellectual property rights of third parties.

Third parties from time to time may initiate litigation against us by asserting that the conduct of our business infringes, misappropriates or otherwise violates intellectual property rights. We may not prevail in any such legal proceedings related to such claims, and our storage systems and related items may be found to infringe, impair, misappropriate, dilute or otherwise violate the intellectual property rights of others. If we are sued for infringement and lose, we could be required to pay substantial damages and/or be enjoined from using or selling the infringing products or technology. Any legal proceeding concerning intellectual property could be protracted and costly regardless of the merits of any claim and is inherently unpredictable and could have a material adverse effect on our financial condition, regardless of its outcome.

If we were to discover that our technologies or products infringe valid intellectual property rights of third parties, we may need to obtain licenses from these parties or substantially re-engineer our products in order to avoid infringement. We may not be able to obtain the necessary licenses on acceptable terms, or at all, or be able to re-engineer our products successfully. If our inability to obtain required licenses for our technologies or products prevents us from selling our products, that could adversely impact our financial condition and results of operations.

We currently rely on a limited number of suppliers for certain equipment and materials to build our SmartSystems, and our reliance on a limited number of suppliers for such equipment and materials exposes us to risks including price and timing of delivery.

We currently rely on a limited number of suppliers for equipment and materials to build our SmartSystems. If demand for our systems or the components necessary to build such systems increases or suppliers of equipment face financial distress or bankruptcy, our suppliers may not be able to provide such equipment on schedule at the current price or at all. In particular, steel is the principal raw material used in the manufacture of our systems, and the price of steel has historically fluctuated on a cyclical basis and will depend on a variety of factors over which we have no control, including trade tariffs. Additionally, we depend on a limited number of suppliers for certain mechanical and electrical components that we use in our systems which may not have direct replacements available from alternate suppliers. If our suppliers are unable to provide the raw materials and components needed to build our systems on schedule at the current price or at all, we could be required to seek other suppliers for the raw materials and components needed to build and operate our systems, which may adversely affect our revenues or increase our costs. Any inability to find alternative components at prices or with quality specifications similar to those deployed today could result in delays or a loss of customers.

Unsatisfactory safety performance may negatively affect our customer relationships and, to the extent we fail to retain existing customers or attract new customers, adversely impact our revenues.

Our ability to retain existing customers and attract new business is dependent on many factors, including our ability to demonstrate that we can reliably and safely operate all aspects of our business in a manner that is consistent with applicable laws, rules and permits, which legal requirements are subject to change. In addition, certain customers require compliance with their internal safety protocols. Existing and potential customers consider the safety record of their third-party service providers to be of high importance in their decision to engage such providers. If one or more accidents were to occur in connection with our business, the affected customer may seek to terminate, cancel or substantially reduce its business with us, which could cause us to lose substantial revenues. Furthermore, our ability to attract new customers may be impaired if such potential customers elect not to engage us because they view our safety record as unacceptable. In addition, it is possible that we will experience multiple or particularly severe accidents in the future, causing our safety record to deteriorate. This may be more likely as we continue to grow, if we experience high employee turnover or labor shortage, or if we hire inexperienced personnel to bolster our staffing needs.

We may be subject to legal claims, such as personal injury and property damage, which could materially adversely affect our financial condition, prospects and results of operations.

As we focus on growing our business, particularly as it relates to our SmartSystems offerings, our business may become increasingly subject to inherent risks that can cause personal injury or loss of life, damage to or destruction of property, equipment or the environment or the suspension of our operations. In addition, we may be subject to legal proceedings with our customers or suppliers, particularly as it relates to contract disputes. Regardless of the merit of particular claims, litigation may be expensive, time consuming, disruptive to our operations and distracting to management.

The outcome of litigation is inherently uncertain. If one or more legal matters were resolved against us or an indemnified third party in a reporting period for amounts in excess of management's expectations, our financial condition and operating results for that reporting period could be materially adversely affected. Further, such an outcome could result in significant compensatory, punitive or trebled monetary damages, disgorgement of revenue or profits, remedial corporate measures or injunctive relief against us that could materially adversely affect our financial condition and operating results. We maintain

what we believe is customary and reasonable insurance to protect our business against these potential losses, but such insurance may not be adequate to cover our liabilities, and we are not fully insured against all risks.

A financial downturn could negatively affect our business, results of operations, financial condition and liquidity.

Actual or anticipated declines in domestic or foreign economic growth rates, regional or worldwide increases in tariffs or other trade restrictions, turmoil affecting the U.S. or global financial systems and markets and a severe economic contraction either regionally or worldwide could materially affect our business and financial condition. These events could impact our ability to finance operations by worsening the actual or anticipated future drop in worldwide oil demand, negatively impacting the price we receive for our products and services, compressing the level of available funding under our ABL Credit Facility, inhibiting our lenders from funding borrowings under our ABL Credit Facility or resulting in our lenders reducing the borrowing base under our ABL Credit Facility. Negative economic conditions could also adversely affect the collectability of our trade receivables or performance by our vendors and suppliers.

Risks Related to our Recent Expansion Activity

Our acquisition of the Blair facility may not achieve its intended results, and we may be unable to successfully integrate the operations of the Blair facility.

On March 4, 2022, we entered into the Purchase Agreement with Hi-Crush Inc., a Delaware corporation ("HCR") and Blair, pursuant to which we acquired all of the issued and outstanding limited liability company interests of Blair from HCR for aggregate cash consideration of approximately $6.5 million, subject to customary purchase price adjustments as set forth in the Purchase Agreement. Entities affiliated with Clearlake, who collectively owned approximately 11.3% of the Company's outstanding common stock at the time of the purchase, also owned a significant portion of the outstanding common stock of HCR, and representatives of Clearlake served on our board of directors and HCR's board of directors. At the time of purchase, Clearlake was a related party to the Company, and José Feliciano, the Co-Founder and Managing Partner of Clearlake, was on our board of directors. As of December 31, 2023, the Company was not affiliated with Clearlake and José Feliciano has resigned from our board of directors.

While we believe that the acquisition of Blair will result in various benefits, achieving the anticipated benefits of the acquisition is subject to a number of uncertainties, including whether we can integrate the business of Blair in an efficient and effective manner.

Our results of operations could be adversely affected by any issues attributable to Blair operations that arise from or are based on events or actions that occurred prior to the closing of the acquisition, including unknown liabilities of Blair or its subsidiaries. The integration process is subject to a number of uncertainties, and no assurance can be given whether anticipated benefits will be realized or, if realized, the timing of their realization. Failure to achieve these anticipated benefits could result in increased costs or decreases in the amount of expected revenues and could adversely affect our future business, financial condition, operating results, and prospects.

Our future results will suffer if we do not effectively manage our expanded operations.

With completion of the Blair acquisition and the recent acquisition of the Waynesburg and Ohio terminals, our operations and the size of our business has expanded. Our future operating results depend, in part, on our ability to manage this expansion and growth successfully, which poses substantial challenges for management, including challenges related to the management and monitoring of new operations and associated increased costs and complexity. We cannot assure you that we will be successful or that we will realize the expected operating efficiencies, cost savings, and other benefits from the acquisition that we currently anticipate. A failure to manage our growth effectively could materially and adversely affect our profitability.

Risks Related to Environmental, Mining and Other Regulation

Federal, state and local legislative and regulatory initiatives relating to hydraulic fracturing and the potential for related litigation could result in increased costs, additional operating restrictions or delays for our customers, which could cause a decline in the demand for our frac sand and negatively impact our business, results of operations and financial condition.

We supply frac sand to hydraulic fracturing operators in the oil and natural gas industry. Hydraulic fracturing is an important practice that is used to stimulate production of oil and natural gas from low permeability hydrocarbon bearing

subsurface rock formations. The hydraulic fracturing process involves the injection of water, proppants, and chemicals under pressure into the formation to fracture the surrounding rock, increase permeability and stimulate production.

Although we do not directly engage in hydraulic fracturing activities, our customers purchase our frac sand for use in their hydraulic fracturing activities. Hydraulic fracturing is typically regulated by state oil and natural gas commissions and similar agencies. Some states have adopted, and other states are considering adopting, regulations that could impose new or more stringent permitting, disclosure or well construction requirements on hydraulic fracturing operations. Aside from state laws, local land use restrictions may restrict drilling in general or hydraulic fracturing in particular. Municipalities may adopt local ordinances attempting to prohibit hydraulic fracturing altogether or, at a minimum, to allow such fracturing processes within their jurisdictions to proceed but regulating the time, place and manner of those processes. In addition, federal agencies have started to assert regulatory authority over the process and various studies have been conducted by the EPA, and other federal agencies concerning the potential environmental impacts of hydraulic fracturing activities. At the same time, certain environmental groups have suggested that additional laws may be needed and, in some instances, have pursued voter ballot initiatives to more closely and uniformly limit or otherwise regulate the hydraulic fracturing process, and legislation has been proposed by some members of Congress to provide for such regulation.

The adoption of new laws or regulations at the federal, state or local levels imposing reporting obligations on, or otherwise limiting or delaying, the hydraulic fracturing process could make it more difficult to complete natural gas wells, increase our customers' costs of compliance and doing business, and otherwise adversely affect the hydraulic fracturing services they perform, which could negatively impact demand for our frac sand. In addition, heightened political, regulatory, and public scrutiny of hydraulic fracturing practices could expose us or our customers to increased legal and regulatory proceedings, which could be time-consuming, costly, or result in substantial legal liability or significant reputational harm. We could be directly affected by adverse litigation involving us, or indirectly affected if the cost of compliance limits the ability of our customers to operate. Such costs and scrutiny could directly or indirectly, through reduced demand for our frac sand, have a material adverse effect on our business, financial condition and results of operations.

We and our customers are subject to extensive environmental and occupational health and safety regulations that impose, and will continue to impose, significant costs and liabilities. In addition, future regulations, or more stringent enforcement of existing regulations, could increase those costs and liabilities, which could adversely affect our results of operations.

We are subject to a variety of federal, state, and local regulatory environmental requirements affecting the mining and mineral processing industry, including among others, those relating to employee health and safety, environmental permitting and licensing, air and water emissions, water pollution, waste management, remediation of soil and groundwater contamination, land use, reclamation and restoration of properties, hazardous materials, and natural resources. Some environmental laws impose substantial penalties for noncompliance, and others, such as the federal CERCLA, may impose strict, retroactive, and joint and several liabilities for the remediation of releases of hazardous substances. Liability under CERCLA, or similar state and local laws, may be imposed as a result of conduct that was lawful at the time it occurred or for the conduct of, or conditions caused by, prior operators or other third parties. Failure to properly handle, transport, store, or dispose of hazardous materials or otherwise conduct our operations in compliance with environmental laws could expose us to liability for governmental penalties, cleanup costs, and civil or criminal liability associated with releases of such materials into the environment, damages to property, natural resources and other damages, as well as potentially impair our ability to conduct our operations. In addition, future environmental laws and regulations could restrict our ability to expand our facilities or extract our mineral deposits or could require us to acquire costly equipment or to incur other significant expenses in connection with our business. Future events, including adoption of new, or changes in any existing, environmental requirements (or their interpretation or enforcement) and the costs associated with complying with such requirements, could have a material adverse effect on us.

Any failure by us to comply with applicable environmental laws and regulations may cause governmental authorities to take actions that could adversely impact our operations and financial condition, including:

- issuance of administrative, civil, or criminal penalties;
- denial, modification, or revocation of permits or other authorizations;
- occurrence of delays in permitting or performance of projects;
- imposition of injunctive obligations or other limitations on our operations, including cessation of operations; and
- requirements to perform site investigatory, remedial, or other corrective actions.

Any such regulations could require us to modify existing permits or obtain new permits, implement additional pollution control technology, curtail operations, significantly increase our operating costs, or impose additional operating restrictions among our customers that reduce demand for our services.

We may not be able to comply with any new or amended laws and regulations that are adopted, and any new or amended laws and regulations could have a material adverse effect on our operating results by requiring us to modify our operations or equipment or shut down our facility. Additionally, our customers may not be able to comply with any new or amended laws and regulations, which could cause our customers to curtail or cease operations. We cannot at this time reasonably estimate our costs of compliance or the timing of any costs associated with any new or amended laws and regulations, or any material adverse effect that any new or modified standards will have on our customers and, consequently, on our operations.

Silica-related legislation, health issues and litigation could have a material adverse effect on our business, reputation or results of operations.

We are subject to laws and regulations relating to human exposure to crystalline silica. Several federal and state regulatory authorities, including MSHA, may continue to propose changes in their regulations regarding workplace exposure to crystalline silica, such as permissible exposure limits and required controls and personal protective equipment. We may not be able to comply with any new or amended laws and regulations that are adopted, and any new or amended laws and regulations could have a material adverse effect on our operating results by requiring us to modify or cease our operations.

In addition, the inhalation of respirable crystalline silica is associated with the lung disease silicosis. There is evidence of an association between crystalline silica exposure or silicosis and lung cancer and a possible association with other diseases, including immune system disorders such as scleroderma. These health risks have been, and may continue to be, a significant issue confronting the proppant industry. Concerns over silicosis and other potential adverse health effects, as well as concerns regarding potential liability from the use of frac sand, may have the effect of discouraging our customers' use of our frac sand. The actual or perceived health risks of mining, processing and handling proppants could materially and adversely affect proppant producers, including us, through reduced use of frac sand, the threat of product liability or employee lawsuits, increased scrutiny by federal, state and local regulatory authorities of us and our customers or reduced financing sources available to the frac sand industry.

We are subject to the Federal Mine Safety and Health Act of 1977, which imposes stringent health and safety standards on numerous aspects of our operations.

Our operations are subject to the Federal Mine Safety and Health Act of 1977, as amended by the Mine Improvement and New Emergency Response Act of 2006, which imposes stringent health and safety standards on numerous aspects of mineral extraction and processing operations, including the training of personnel, operating procedures, operating equipment, and other matters. Our failure to comply with such standards, or changes in such standards or the interpretation or enforcement thereof, could have a material adverse effect on our business and financial condition or otherwise impose significant restrictions on our ability to conduct mineral extraction and processing operations.

We and our customers are subject to other extensive regulations, including licensing, plant and wildlife protection and reclamation regulation, that impose, and will continue to impose, significant costs and liabilities. In addition, future regulations, or more stringent enforcement of existing regulations, could increase those costs and liabilities, which could adversely affect our results of operations.

In addition to the regulatory matters described above, we and our customers are subject to extensive governmental regulation on matters such as permitting and licensing requirements, plant and wildlife protection, wetlands protection, reclamation and restoration activities at mining properties after mining is completed, the discharge of materials into the environment, and the effects that mining and hydraulic fracturing have on groundwater quality and availability. Our future success depends, among other things, on the quantity and quality of our frac sand deposits, our ability to extract these deposits profitably, and our customers being able to operate their businesses as they currently do.

In order to obtain permits and renewals of permits in the future, we may be required to prepare and present data to governmental authorities pertaining to the potential adverse impact that any proposed excavation or production activities, individually or in the aggregate, may have on the environment. Certain approval procedures may require preparation of archaeological surveys, endangered species studies, and other studies to assess the environmental impact of new sites or the expansion of existing sites. Compliance with these regulatory requirements is expensive and significantly lengthens the time needed to develop a site. Finally, obtaining or renewing required permits is sometimes delayed or prevented due to community opposition and other factors beyond our control. The denial of a permit essential to our operations or the imposition of conditions with which it is not practicable or feasible to comply could impair or prevent our ability to develop or expand a site. Significant opposition to a permit by neighboring property owners, members of the public, or other third parties, or delay in the

environmental review and permitting process, also could delay or impair our ability to develop or expand a site. New legal requirements, including those related to the protection of the environment, could be adopted that could materially adversely affect our mining operations (including our ability to extract or the pace of extraction of mineral deposits), our cost structure, or our customers' ability to use our frac sand. Such current or future regulations could have a material adverse effect on our business, and we may not be able to obtain or renew permits in the future.

Our inability to acquire, maintain or renew financial assurances related to the reclamation and restoration of mining property could have a material adverse effect on our business, financial condition and results of operations.

We are generally obligated to restore property in accordance with regulatory standards and our approved reclamation plan after it has been mined. We are required under federal, state, and local laws to maintain financial assurances, such as surety bonds, to secure such obligations. The inability to acquire, maintain or renew such assurances, as required by federal, state, and local laws, could subject us to fines and penalties as well as the revocation of our operating permits. Such inability could result from a variety of factors, including:

- the lack of availability, higher expense, or unreasonable terms of such financial assurances;
- the ability of current and future financial assurance counterparties to increase required collateral; and
- the exercise by financial assurance counterparties of any rights to refuse to renew the financial assurance instruments.

Our inability to acquire, maintain, or renew necessary financial assurances related to the reclamation and restoration of mining property could have a material adverse effect on our business, financial condition, and results of operations.

Climate change legislation and regulatory initiatives could result in increased compliance costs for us and our customers.

In recent years, the U.S. Congress has considered legislation to reduce emissions of GHGs, including methane, a primary component of natural gas, and carbon dioxide, a byproduct of the burning of natural gas. It presently appears unlikely that comprehensive climate legislation will be passed by either house of Congress in the near future, although energy legislation and other regulatory initiatives are expected to be proposed that may be relevant to GHG emissions issues. For example, in August 2022, the U.S. Congress passed, and President Biden signed into law, the Inflation Reduction Act of 2022 which appropriates significant federal funding for renewable energy initiatives and, for the first time ever, imposes a fee on GHG emissions from certain facilities. In January of 2024, the EPA released its proposed rule to implement the methane emissions fee with a proposed effective date in 2025 for reporting year 2024 emissions. The emissions fee and funding provisions of the law could increase the operating costs of our customers and accelerate the transition away from fossil fuels, which could in turn adversely affect our business and results of operations.

In addition, a number of states are addressing GHG emissions, primarily through the development of emission inventories or regional GHG cap and trade programs. Depending on the particular program, we could be required to control GHG emissions or to purchase and surrender allowances for GHG emissions resulting from our operations. Independent of Congress, the EPA has adopted regulations controlling GHG emissions under its existing authority under the federal CAA. For example, the EPA has adopted regulations under existing provisions of the CAA that, among other things establish construction and operating permit reviews for GHG emissions from certain large stationary sources that are already potential major sources for conventional pollutants. In addition, the EPA has adopted rules requiring the monitoring and reporting of GHG emissions from specified production, processing, transmission and storage facilities in the United States on an annual basis.

In addition, in December 2015, over 190 countries, including the United States, reached an agreement to reduce global GHG emissions, also known as the Paris Agreement. The Paris Agreement entered into force in November 2016 after more than 170 nations, including the United States, ratified or otherwise indicated their intent to be bound by the agreement. In April 2021, President Biden announced a goal of reducing the United States' emissions by 50-52% below 2005 levels by 2030. In November 2021, the international community gathered again in Glasgow at the 26th Conference to the Parties on the UN Framework Convention on Climate Change ("COP26"), during which multiple announcements were made, including a call for parties to eliminate certain fossil fuel subsidies and pursue further action on non-carbon dioxide ("CO2") GHGs. Relatedly, while at COP26, the United States and European Union jointly announced the launch of the "Global Methane Pledge," which aims to cut global methane pollution at least 30% by 2030 relative to 2020 levels, including "all feasible reductions" in the energy sector. Since its formal launch at COP26, over 150 countries have joined the pledge. We cannot predict what additional legislative or regulatory requirements may result from these developments. COP26 concluded with the finalization of the Glasgow Climate Pact, which stated long-term global goals (including those in the Paris Agreement) aimed at limiting the increase in the global average temperature and reducing GHG emissions. These goals were reaffirmed at the November 2022 UN Climate Change Conference of Parties ("COP27") in Sharm-El Sheik. While there were limited announcements at COP27 with respect to the reduction of fossil fuel use, there were negotiations on emissions reduction targets and reduction of fossil

fuel use amongst the international community, and such discussions continued at COP28 in Dubai. COP28 also resulted in an agreement among 200 nations to take more decisive climate action, including commitments to reduce reliance on fossil fuels. Several states and geographic regions in the United States have also adopted legislation and regulations to reduce emissions of GHGs, including cap and trade regimes and commitments to contribute to meeting the goals of the Paris Agreement. It is not possible at this time to predict the timing and effects of climate change or whether additional climate-related legislation, regulations or other measures will be adopted at the local, state, regional, national and international levels.

Governmental, scientific and public concern over the threat of climate change arising from GHG emissions has also resulted in increasing political risks in the United States, including climate change-related pledges made by certain candidates elected to public office. The Biden Administration has issued several executive orders focused on addressing climate change, including items that may impact our customers' costs to produce, or demand for, oil and natural gas. Additionally, in November 2021, the Biden Administration released "The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050," which establishes a roadmap to net-zero emissions in the United States by 2050 through, among other things, improving energy efficiency; decarbonizing energy sources via electricity, hydrogen and sustainable biofuels; and reducing non-CO2 GHG emissions, such as methane and nitrous oxide. Further, on January 26, 2024, the Biden Administration, as part of its climate agenda, implemented a temporary pause on the U.S. Department of Energy's review of pending decisions for authorization to export LNG to non-Free Trade Agreement countries while the U.S. Department of Energy reviews and updates the underlying analyses for such decisions using more current data to account for considerations like the environmental and climate change impacts of LNG. The temporary pause is not expected to affect LNG exports that have already been authorized, but to the extent such action impacts our customers, we may experience reduced demand for our proppant. To the extent that the United States and other countries implement the Paris Agreement or local, state, regional, national or international governments impose other climate change regulations on the oil and natural gas industry, it could have an adverse effect on our business because substantial limitations on GHG emissions could adversely affect demand for the oil and natural gas that is produced by our customers. Litigation risks are also increasing, as a number of entities have sought to bring suit against oil and natural gas companies in state or federal court, alleging, among other things, that such companies created public nuisances by producing fuels that contributed to climate change. Suits have also been brought against such companies under stockholder and consumer protection laws, alleging that companies have been aware of the adverse effects of climate change but failed to adequately disclose those impacts. To the extent these risks impact our customers, we may experience reduced demand for our proppant.

Additionally, in March 2022, the SEC proposed new rules relating to the disclosure of a range of climate-related data risks and opportunities, including financial impacts, physical and transition risks, related governance and strategy and GHG emissions, for certain public companies. We are currently assessing this rule but at this time we cannot predict the ultimate impact of the rule on our business or those of our customers. The SEC originally planned to issue a final rule by October 2022, but according to the SEC's updated rulemaking agenda, a final rule is now expected to be issued in spring 2024. To the extent this rule is finalized as proposed, we or our customers could incur increased costs related to the assessment and disclosure of climate-related risks and certain emissions metrics. In addition, enhanced climate disclosure requirements could accelerate the trend of certain stakeholders and lenders restricting or seeking more stringent conditions with respect to their investments in certain carbon intensive sectors.

Finally, many scientists have concluded that increasing concentrations of GHGs in the Earth's atmosphere may produce climate changes that have significant physical effects, such as increased frequency and severity of storms, floods and other climatic events; if any such effects were to occur, they could have an adverse effect on our operations and our customers' exploration and production operations.

A negative shift in investor sentiment towards the oil and natural gas industry and increased attention to environmental, social and governance ("ESG") and conservation matters may adversely impact our business.

Increasing attention to climate change and natural capital, societal expectations on companies to address climate change, investor and societal expectations regarding voluntary ESG initiatives and disclosures, and consumer demand for alternative sources of energy may result in increased costs (including but not limited to increased costs associated with compliance, stakeholder engagement, contracting, and insurance), reduced demand for our customers' hydrocarbon products and our product and services, reduced profits, increased legislative and judicial scrutiny, investigations and litigation, and negative impacts on our stock price and access to capital markets. Increasing attention to climate change and environmental conservation, for example, may result in demand shifts for our customers' hydrocarbon products and additional governmental investigations and private litigation against those customers. To the extent that societal pressures or political or other factors are involved, it is possible that liability could be imposed on our customers without regard to their causation of or contribution to the asserted damage, or to other mitigating factors. To date, however, changes in societal pressures and consumer demand related to increased attention to ESG and conservation matters have not had a material impact on our customers' operations or otherwise materially and adversely affected our business. Voluntary disclosures regarding ESG matters, as well as any ESG

disclosures mandated by law, could result in private litigation or government investigation or enforcement action regarding the sufficiency or validity of such disclosures. In addition, failure or a perception (whether or not valid) of failure to implement ESG strategies or achieve ESG goals or commitments, including any GHG reduction goals or commitments, could result in governmental investigations or enforcement, private litigation and damage our reputation, cause our investors or consumers to lose confidence in our Company, and negatively impact our operations.

Moreover, while we may create and publish disclosures regarding ESG matters, many of the statements in those disclosures may be based on hypothetical expectations and assumptions that may or may not be representative of current or actual risks or events or forecasts of expected risks or events, including the costs associated therewith. Such expectations and assumptions are necessarily uncertain and may be prone to error or subject to misinterpretation given the long timelines involved and the lack of an established single approach to identifying and measuring many ESG matters. Such disclosures may also be partially reliant on third-party information that we have not or cannot independently verify. Additionally, we expect there will likely be increasing levels of regulation, disclosure-related and otherwise, with respect to ESG matters, and increased regulation will likely to lead to increased compliance costs as well as scrutiny that could heighten all of the risks identified in this risk factor.

In addition, organizations that provide information to investors on corporate governance and related matters have developed ratings processes for evaluating companies on their approach to ESG matters. Such ratings are used by some investors to inform their investment and voting decisions. Unfavorable ESG ratings and recent activism directed at shifting funding away from companies with energy-related assets could lead to increased negative investor sentiment toward us or our customers and to the diversion of investment to other industries, which could have a negative impact on our stock price and our or our customers' access to and costs of capital. Also, institutional lenders may, of their own accord, decide not to provide funding for fossil fuel industry companies based on climate change, natural capital, or other ESG related concerns, which could affect our or our customers' access to capital for potential growth projects. Moreover, to the extent ESG matters negatively impact our or the fossil fuel industry's reputation, we may not be able to compete as effectively to recruit or retain employees, which may adversely affect our operations.

Risks Related to Ownership of Our Common Stock

Our stock price could be volatile, and you may not be able to resell shares of your common stock at or above the price you paid.

The stock markets generally have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. These broad market fluctuations may adversely affect the trading price of our common stock. Volatility in the market price of our common stock may prevent you from being able to sell your common stock at or above the price at which you purchased the stock. As a result, you may suffer a loss on your investment. Securities class action litigation has often been instituted against companies following periods of volatility in the overall market and in the market price of a company's securities. Such litigation, if instituted against us, could result in very substantial costs, divert our management's attention and resources and harm our business, operating results and financial condition.

In addition to the risks described in this section, the market price of our common stock may fluctuate significantly in response to a number of factors, most of which we cannot control, including:

- our operating and financial performance;
- quarterly variations in the rate of growth of our financial indicators, such as revenues, EBITDA, Adjusted EBITDA, contribution margin, free cash flow, net income, and net income per share;
- the public reaction to our press releases, our other public announcements, and our filings with the SEC;
- strategic actions by our competitors;
- our failure to meet revenue or earnings estimates by research analysts or other investors;
- changes in revenue or earnings estimates, or changes in recommendations or withdrawal of research coverage, by equity research analysts;
- speculation in the press or investment community;
- the failure of research analysts to cover our common stock;

- sales of our common stock by us or our stockholders, or the perception that such sales may occur;
- changes in accounting principles, policies, guidance, interpretations, or standards;
- additions or departures of key management personnel;
- actions by our stockholders;
- general market conditions, including fluctuations in commodity prices, sand-based proppants, or industrial and recreational sand-based products;
- domestic and international economic, legal and regulatory factors unrelated to our performance; and
- the realization of any risks described under this "Risk Factors" section.

We are subject to certain requirements of Section 404 of the Sarbanes-Oxley Act. If we are unable to timely comply with Section 404 or if the costs related to compliance are significant, our profitability, stock price, results of operations and financial condition could be materially adversely affected.

We are required to comply with certain provisions of Section 404 of the Sarbanes-Oxley Act. Section 404 requires that we document and test our internal control over financial reporting and issue management's assessment of our internal control over financial reporting. This section also requires that our independent registered public accounting firm opine on those internal controls upon our public float exceeding a certain threshold as set forth in the SEC rules. We are evaluating our existing controls against the standards adopted by the Committee of Sponsoring Organizations of the Treadway Commission. During the course of our ongoing evaluation and integration of the internal control over financial reporting, we may identify areas requiring improvement, and we may have to design enhanced processes and controls to address issues identified through this review.

We believe that the out-of-pocket costs, diversion of management's attention from running the day-to-day operations and operational changes caused by the need to comply with the requirements of Section 404 of the Sarbanes-Oxley Act could be significant. If the time and costs associated with such compliance exceed our current expectations, our results of operations could be adversely affected.

If we fail to comply with the requirements of Section 404 or if we or our independent registered public accounting firm identify and report such material weaknesses, the accuracy and timeliness of the filing of our annual and quarterly reports may be materially adversely affected and could cause investors to lose confidence in our reported financial information, which could have a negative effect on the stock price of our common stock. In addition, a material weakness in the effectiveness of our internal control over financial reporting could result in an increased chance of fraud and the loss of customers, reduce our ability to obtain financing and require additional expenditures to comply with these requirements, each of which could have a material adverse effect on our business, results of operations and financial condition.

The concentration of our capital stock ownership by our largest stockholders and its affiliates will limit your ability to influence corporate matters.

As of December 31, 2023, our Chief Executive Officer beneficially owns approximately 17.2% of our outstanding common stock. Consequently, our Chief Executive Officer is considered a ("Principal Stockholder") and will continue to have significant influence over all matters that require approval by our stockholders, including the election of directors and approval of significant corporate transactions. Additionally, we are party to a stockholders' agreement pursuant to which, so long as the Principal Stockholder maintains certain beneficial ownership levels of our common stock, the Principal Stockholder will have certain rights, including board of directors and committee designation rights and consent rights, including the right to consent to change in control transactions. For additional information, please read "Certain Relationships and Related Party Transactions—Stockholders Agreement" in the prospectus included in our Registration Statement on Form S-1 (Registration No. 333-215554), initially filed with the SEC on January 13, 2017. This concentration of ownership and the rights of Principal Stockholders under the stockholders agreement, will limit your ability to influence corporate matters, and as a result, actions may be taken that you may not view as beneficial.

The price of our common stock may fluctuate significantly, and you could lose all or part of your investment.

As of December 31, 2023, there were 28,390,059 publicly traded shares of common stock held by our public common stockholders. Although our common stock is listed on the NASDAQ, we do not know whether an active trading market will continue to develop or how liquid that market might be. You may not be able to resell your common stock at or above the

public offering price. Additionally, the lack of liquidity may result in wide bid-ask spreads, contribute to significant fluctuations in the market price of the common stock and limit the number of investors who are able to buy the common stock.

If securities or industry analysts do not publish research or reports or publish unfavorable research about our business, the price and trading volume of our common stock could decline.

The trading market for our common stock depends in part on the research and reports that securities or industry analysts publish about us or our business. If one or more of the analysts who covers us downgrades our securities, the price of our securities would likely decline. If one or more of these analysts ceases to cover us or fails to publish regular reports on us, interest in the purchase of our securities could decrease, which could cause the price of our common stock and other securities and their trading volume to decline.

Our amended and restated certificate of incorporation and amended and restated bylaws, as well as Delaware law, contain provisions that could discourage acquisition bids or merger proposals, which may adversely affect the market price of our common stock.

Our amended and restated certificate of incorporation authorizes our board of directors to issue preferred stock without stockholder approval. If our board of directors elects to issue preferred stock, it could be more difficult for a third party to acquire us. In addition, some provisions of our amended and restated certificate of incorporation and amended and restated bylaws could make it more difficult for a third party to acquire control of us, even if the change of control would be beneficial to our stockholders, including:

- advance notice provisions for stockholder proposals and nominations for elections to the board of directors to be acted upon at meetings of stockholders;
- provisions that divide our board of directors into three classes of directors, with the classes to be as nearly equal in number as possible;
- provisions that prohibit stockholder action by written consent after the date on which our Principal Stockholders collectively cease to beneficially own at least 50% of the voting power of the outstanding shares of our stock entitled to vote;
- provisions that provide that special meetings of stockholders may be called only by the board of directors or, for so long as a Principal Stockholder continues to beneficially own at least 20% of the voting power of the outstanding shares of our stock;
- provisions that provide that our stockholders may only amend our certificate of incorporation or bylaws with the approval of at least 66 2/3% of the voting power of the outstanding shares of our stock entitled to vote, or for so long as our Principal Stockholders collectively continue to beneficially own at least 50% of the voting power of the outstanding shares of our stock entitled to vote, with the approval of a majority of the voting power of the outstanding shares of our stock entitled to vote;
- provisions that provide that the board of directors is expressly authorized to adopt, or to alter or repeal our bylaws; and
- provisions that establish advance notice and certain information requirements for nominations for election to our board of directors or for proposing matters that can be acted upon by stockholders at stockholder meetings.

We do not currently pay dividends on our common stock, and our debt agreements place certain restrictions on our ability to do so. Consequently, your only opportunity to achieve a return on your investment is if the price of our common stock appreciates.

We do not currently pay dividends on shares of our common stock. Additionally, our ABL Credit Facility places certain restrictions on our ability to pay cash dividends. Consequently, unless we revise our dividend policy, your only opportunity to achieve a return on your investment in us will be if you sell your common stock at a price greater than you paid for it. There is no guarantee that the price of our common stock that will prevail in the market will ever exceed the price that you previously paid.

Future sales of our common stock in the public market could reduce our stock price, and the sale or issuance of equity or convertible securities may dilute your ownership in us.

We may sell additional shares of common stock in subsequent public offerings. We may also issue additional shares of common stock or convertible securities. As of December 31, 2023, we have outstanding 41,117,111 shares of common stock. Our Chief Executive Officer beneficially owns 7,076,340 shares of our common stock, or approximately 17.2% of our total outstanding shares.

In connection with our initial public offering, we filed a registration statement with the SEC on Form S-8 providing for the registration of shares of our common stock issued or reserved for issuance under our equity incentive plans. Subject to the satisfaction of vesting conditions and the requirements of Rule 144, shares registered under the registration statement on Form S-8 will be available for resale immediately in the public market without restriction.

We have provided certain registration rights for the sale of common stock by certain existing stockholders in the future. The sale of these shares could have an adverse impact on the price of our common stock or on any trading market that may develop.

We cannot predict the size of future issuances of our common stock or securities convertible into common stock or the effect, if any, that future issuances and sales of shares of our common stock will have on the market price of our common stock. Sales of substantial amounts of our common stock (including shares issued in connection with an acquisition), or the perception that such sales could occur, may adversely affect prevailing market prices of our common stock.

We may issue preferred stock whose terms could adversely affect the voting power or value of our common stock.

Our amended and restated certificate of incorporation authorizes us to issue, without the approval of our stockholders, one or more classes or series of preferred stock having such designations, preferences, limitations and relative rights, including preferences over our common stock respecting dividends and distributions, as our board of directors may determine. The terms of one or more classes or series of preferred stock could adversely impact the voting power or value of our common stock. For example, we might grant holders of preferred stock the right to elect some number of our directors in all events or on the happening of specified events or the right to veto specified transactions. Similarly, the repurchase or redemption rights or liquidation preferences we might assign to holders of preferred stock could affect the residual value of the common stock.

Our amended and restated certificate of incorporation designates the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or agents.

Our amended and restated certificate of incorporation provides that unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will, to the fullest extent permitted by applicable law, be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, employees or agents to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law (the "DGCL"), our amended and restated certificate of incorporation or our bylaws, or (iv) any action asserting a claim against us that is governed by the internal affairs doctrine, in each such case subject to such Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock will be deemed to have notice of, and consented to, the provisions of our amended and restated certificate of incorporation described in the preceding sentence. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, employees or agents, which may discourage such lawsuits against us and such persons. Alternatively, if a court were to find these provisions of our amended and restated certificate of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, financial condition or results of operations.

ITEM 1B. — UNRESOLVED STAFF COMMENTS

None.

ITEM 1C. — CYBERSECURITY

We maintain a cyber risk management program designed to identify, assess, manage, mitigate, and respond to cybersecurity threats. Our information technology ("IT") personnel, together with third party firms, continuously work to identify, assess, and manage cybersecurity risks in alignment with cybersecurity standards, [including the National Institute of Standards and Technology (NIST) Cyber Security Framework, NIST 800-53, NIST 800-82, and International Electrotechnical Commission 62443]. Our executive management team and Board of Directors are periodically updated regarding the status of, and adjustments to, our cybersecurity program.

To protect our technology systems from cybersecurity threats, we use various security tools that help prevent,identify, escalate, investigate, resolve, and recover from identified vulnerabilities and security incidents in a timely manner. These include, but are not limited to, internal reporting, monitoring, and detection tools to assist us in identifying vulnerabilities in our products before they are exploited by malicious threat actors.

We have an Incident Response Plan that defines and documents procedures for assessing, identifying, and managing a cybersecurity incident. In the event there is a cyber security incident, the VP of Technology and the Incident Response Team will assess the cybersecurity incident's impact as the basis for assigning a preliminary severity level. The VP of Technology is also responsible for communicating incidents to other members of management as appropriate. Were a cybersecurity incident to occur that was determined to be material by our Incident Response Team, including executive management, then our Board of Directors would be notified. Should any incidents occur that have a preliminary severity rating of high or critical, our Incident Response Team would confer with our Board of Directors to determine whether to report the cybersecurity incident in our public filings.

Aside from more immediate reporting of material incidents to our Board of Directors as described above, our VP of Technology provides our Board of Directors an update on cybersecurity during each of its quarterly meetings regarding the effectiveness of technical and human security controls, cybersecurity training program compliance, internal and third-party cybersecurity incidents, and cybersecurity risks.

Our VP of Technology leads all components of our IT functions. Our VP of Technology has over 29 years of experience in the IT profession, including 7 years with Smart Sand.

No unauthorized access to customer, vendor, supplier, joint venture, employee or our data occurred as a result of cybersecurity incidents against us that has had a material adverse effect on our business, operations, or consolidated financial condition. If our systems, or our customers' or suppliers' systems, for protecting against cybersecurity incidents prove to be insufficient, a cybersecurity incident could have a material adverse effect on our business, operations, or consolidated financial condition. See additional information about our cybersecurity risks under General Risk factors in Item1(a) Risk Factors.

ITEM 2. — PROPERTIES

Overview of our Properties and Logistics

As of December 31, 2023, we owned and operated three frac sand mines and related processing facilities in Oakdale, Wisconsin; Utica, Illinois; and Blair, Wisconsin. Also, in addition to the onsite transloading capabilities at our Oakdale and Blair mines, we own nearby transloading facilities in Byron, Wisconsin and Peru, Illinois. We also operate in-basin transloading facilities under long-term lease agreements in Van Hook, North Dakota, Waynesburg, Pennsylvania, and El Reno, Oklahoma. In December 2023, we Company acquired the rights to operate a unit train capable transloading terminal in Minerva, Ohio. We expect this terminal to become operational in the second quarter of 2024. In January 2024, we acquired the rights to operate a unit train capable transloading terminal in Dennison, Ohio. We expect this terminal to become operational in the second quarter of 2024.

In March 2022, acquired the Blair, Wisconsin mine and processing facility. The Blair facility has approximately 2.9 million tons of total annual processing capacity and contains an onsite, unit train capable rail terminal with access to the Class 1 Canadian National Railway. We began operating the Blair mine in the second quarter of 2023.

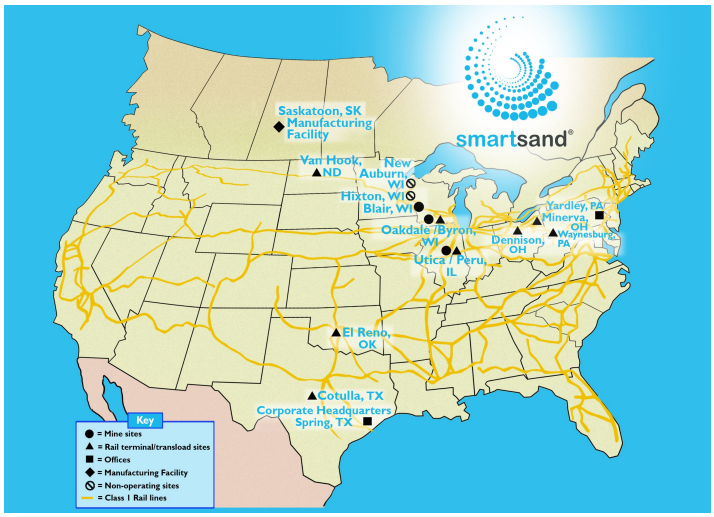
In addition to these currently operating facilities, we also acquired an idled mine and processing facility in New Auburn, Wisconsin as part of our acquisition of Eagle Oil and Gas Proppants Holdings, LLC, a Delaware limited liability company ("Eagle Proppants Holdings"), in 2020, which contains a higher concentration of coarser sand deposits. We do not consider this site to be a mining property as we have no immediate plans to resume processing frac sand operations at this facility, though its administrative facilities and proximity to our Oakdale facility allow us to utilize the property to create synergies with our existing operations in Wisconsin.

We also own approximately 959 acres in Jackson County, Wisconsin ("Hixton"). The Hixton site is fully permitted to initiate operations and is available for future development. Based on our preliminary testing, we believe there are sufficient quantities on these sites to establish reserves in the future. We have no immediate plans to further develop this site.

We have two long-term surface mining leases for properties located in the Permian Basin in Texas that are available for future development. The first site consists of 1,772 acres in Winkler County, Texas. This location is adjacent to the Texas & New Mexico Railway (TXN) short line with direct access to State Highway 18. The second site consists of 2,447 acres in Crane County, Texas. This location has direct access to Interstate Highway 20. Based on our preliminary testing, we believe there are sufficient quantities on these sites to establish reserves in the future. We have no immediate plans to further develop these sites.

We lease a 56,000 square foot facility in Saskatoon, Saskatchewan, Canada where we manufacture our SmartSystems wellsite proppant storage solutions.

The map below shows the locations of our mine sites, rail terminals and transload facilities, manufacturing facilities and administrative facilities.



Summary Overview of Mining Operations

Information concerning our material mining properties in this Annual Report on Form 10-K has been prepared in accordance with the requirements of subpart 1300 of Regulation S-K, which first became applicable to us for the fiscal year ended December 31, 2021. As used in this Annual Report on Form 10-K, the terms “mineral resource”, “mineral reserve”, “proven mineral reserve” and “probable mineral reserve” are defined and used in accordance with subpart 1300 of Regulation S-K. As of December 31, 2023, our individually material mining properties, as determined in accordance with subpart 1300 of Regulation S-K, were the Oakdale, Wisconsin mine and processing facility (“Oakdale”), Utica, Illinois mine and processing facility (“Utica”), and the currently idle Blair, Wisconsin facility (“Blair”).

The information that follows related to the Oakdale, Utica and Blair facilities is derived, for the most part from, and in some instances is an extract from, the technical report summaries (“TRSs”) related to such properties prepared in compliance with the Item 601(b)(96) and subpart 1300 of Regulation S-K. Portions of the following information are based on assumptions, qualifications and procedures that are not fully described herein. Reference should be made to the full text of the TRSs, filed as exhibits to this Annual Report on 10-K.

As of December 31, 2023, we had three operating mines and related processing facilities.

Oakdale, Wisconsin

We, through Smart Sand, Inc. and SSI Oakdale, LLC, its wholly-owned subsidiary, operate a surface mine and silica sand processing plant near Oakdale, Wisconsin. The Oakdale mine includes a total of 1,256 acres that are owned outright by Smart Sand, Inc. This ownership includes subsurface mineral and water rights. The site has no leased property. Royalties are paid in the amount of $0.50 per ton of 70-mesh and coarser substrate.

Our Oakdale facility is a surface mining operation involving heavy equipment and the hydraulic transfer of material to the processing plant. The processing plant uses natural gas, propane, and electricity to produce various grades of high-quality Northern White Sand. Our premium sand is used as proppant used to enhance hydrocarbon recovery rates in the hydraulic fracturing of oil and natural gas wells and for a variety of industrial applications, including glass, foundry, building products, filtration, geothermal, renewables, ceramics, turf & landscape, retail, and recreation.

The Oakdale facility operations are predominantly regulated by Monroe County, Wisconsin through the non-metallic mining and reclamation permit. Air emissions are regulated by the Wisconsin Department of Natural Resources, Bureau of Air Management. All required permits are secured, and the site is operating in full compliance.

Utica, Illinois

We, through Northern White Sand LLC, a wholly-owned subsidiary of Smart Sand, Inc., operate a surface mine and a silica sand processing plant near Utica, Illinois. The Utica mine includes a total of 819 acres that are owned outright by Smart Sand, Inc. This ownership includes subsurface mineral and water rights. The site has no leased property. There are no royalties associated with this property.

Our Utica facility is a surface mining operation involving heavy equipment and the hydraulic transfer of material to the processing plant. The processing plant uses natural gas, propane, and electricity to produce various grades of high-quality Northern White Sand. Our premium sand is used as proppant used to enhance hydrocarbon recovery rates in the hydraulic fracturing of oil and natural gas wells and for a variety of industrial applications, including glass, foundry, building products, filtration, geothermal, renewables, ceramics, turf & landscape, retail, and recreation.

The Utica facility is regulated by the Illinois Department of Natural Resources, which requires a Surface Mining Permit and Reclamation Plan. The mine reclamation plan is submitted to both the LaSalle County, Illinois and Village of Utica, Illinois Boards. Air emissions are regulated by the Illinois Environmental Protection Agency. All required permits are secured, and the site is operating in full compliance.

Blair Wisconsin

We began operating the Blair mine in the second quarter of 2023. It is an idle silica surface mine and processing plant in Blair, Wisconsin. The Blair mine includes a total of 1,285 acres that are owned outright by Smart Sand Blair, a wholly-owned subsidiary of Smart Sand, Inc. This ownership includes subsurface mineral and water rights. The site has no leased property. Royalties are estimated to be paid on certain grades of silica sand in the amount of $1.75/ton with certain minimum annual payments.

Our Blair facility uses a surface mining technique to produce high-quality Northern White Sand. The processing plant uses natural gas, propane, and electricity to make various grades of high-quality Northern White Sand. Our premium sand is used as proppant used to enhance hydrocarbon recovery rates in the hydraulic fracturing of oil and natural gas wells and for a variety of industrial applications, including glass, foundry, building products, filtration, geothermal, renewables, ceramics, turf & landscape, retail, and recreation.

The Blair facility has several active permits including air quality, construction, operations, groundwater extraction, and non-metallic mining and reclamation, which are administered by the Wisconsin Department of Natural Resources. Land use agreements are active for the Cities of Springfield and Preston regarding the hours of operations, blasting, groundwater assurance, noise and traffic. Conditional use permits are active for both Jackson County, Wisconsin and the City of Blair, Wisconsin for the mining and processing of material at the site Blair site. All required permits are secured, and the site is operating in full compliance.

Summary of Annual Production

The table below shows annual dry tons produced at our mining properties for the years ended December 31, 2023, 2022 and 2021. This table does not include mining activity prior to our acquisition of the Blair mine.

	2023	2022	2021
	(millions of tons)		
Silica Sand			
Oakdale mine	4.6	4.9	2.6
Utica mine	0.9	1.1	0.8
Blair mine	0.6	0.0	0.0
	6.1	6.0	3.4

Summary of Mineral Reserves and Resources

Supplies of high-quality Northern White frac sand are limited to select areas, predominantly in western Wisconsin and limited areas of Minnesota and Illinois. All of our sand mines are located in this geographic area. The following table summarizes our mineral reserves as of December 31, 2023:

	Total Saleable Reserves	Proven Reserves	Probable Reserves
		(millions of tons)	
Silica Sand			
Oakdale mine [1]	243	138	105
Utica mine [2]	127	95	32
Blair mine [3]	114	114	0
Total Reserves	484	347	137

(1) Economic evaluation for Oakdale is based on $20.00/ton average minegate pricing as of September 2021, with no escalation.

(2) Economic evaluation for Utica is based on $20.00/ton average minegate pricing as of September 2021, with no escalation.

(3) Economic evaluation for Blair is based on $36.00/ton average minegate pricing, based on 2023 forecast, with no escalation.

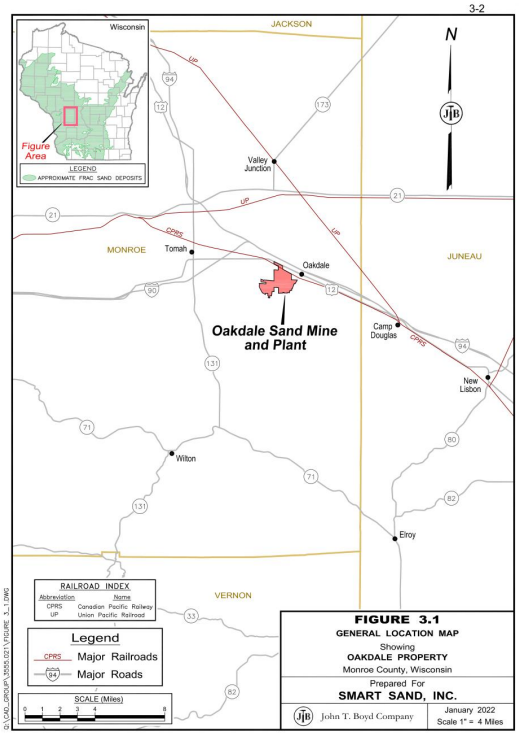
We have no inferred resources.

Material Mine Site Descriptions

Oakdale, Wisconsin

The Oakdale site is a surface proppant sand mining and processing operation located approximately 1 mile southwest of the town of Oakdale, Wisconsin in Monroe County, Wisconsin. Geographically, the Oakdale site is located at

3-2



approximately 43° 57'06.1" N latitude and 90° 24'13.0" W longitude.

The Oakdale site includes approximately 1,256 acres that we own outright. Royalties are paid in the amount of $0.50 per ton of 70-mesh and coarser substrate. Operations began at our Oakdale site in July 2012 with 1.1 million tons o annual processing capacity. Through multiple expansions, the Oakdale facility currently has an annual processing capacity of 5.5 million tons.

The site is accessible by public roads and a Canadian Pacific railroad spur. Our Oakdale site has an extensive rail-car loading, storage, and handling facility. The Oakdale site is connected to the local electrical and natural gas distribution systems. All water onsite is provided through private wells and ponds supplied with recycled process water and groundwater pumped from the active mine. The site has offices holding administrative, engineering, and operations staff. In addition, there are several buildings that house the processing facilities, plant maintenance and support facilities.

We acquired the land and developed the site as a purpose-built silica mine to serve frac sand customers. Since acquiring the facility, we renovated and upgraded its processing capabilities to enable it to produce multiple products through various processing methods, including washing, hydraulic sizing and screening. These techniques allow the Oakdale site to meet a variety of focused specifications on product composition from customers. As such, the Oakdale site services multiple end markets, such as glass, building products, foundry, fillers and extenders, chemicals and oil and gas proppants. We believe that the Oakdale facility and its operating equipment are maintained in good working condition. The total net book value of the Oakdale facility's real property and tangible assets as of December 31, 2023 was $125.8 million.

Current mining at the Oakdale facility is excavated using conventional surface mining methods. The first step in the mining process is the removal of the overburden from the sandstone layer. This is completed either in-house or by third-party contractors using heavy equipment including excavators, dozers and haul trucks. Next, a third-party contractor is used to drill and blast the sandstone. Heavy equipment, conveyors and pumps are used to transfer the blasted material to the processing plant. At the processing plant, the sand slurry is fed to a surge tank where ultrafine material is removed from the product then pumped to hydrosizers that further separate the sand into coarse and fine particle size fractions. The separated streams are either placed in respective piles, stored on a dewatering slab, or sent to waste depending on product mix desired. The decanted sand is then fed by conveyor or loader to the five available fluidized bed dryers. The dry sand is then classified into final grades using screening units and stored in dedicated silos. A system of conveyors then move sand to a loadout for railcars and trucks. Railcars are on a railspur connected to the Canadian Pacific railroad. Trucking to our Byron transload facility provides access to the Union Pacific railroad.

Several natural and man-made features have been identified in and around the Oakdale site which may limit the mineable areas of the property. These features include setbacks from neighboring properties, right of ways, creeks and wetlands.

To operate active mining operations on the property, the Monroe County, Wisconsin non-metallic reclamation permit requires annual reports to be submitted with information on the reclamation status and to pay annual fees based on disturbed acres. A significant portion of the probable reserves underly current wetland areas. These areas will require mitigation as designated wetlands prior to mining. These reserves are not in our current five-year plan. Air emissions are regulated by the Wisconsin Department of Natural Resources, Bureau of Air Management. We monitor air emissions and have all required permits. The operation also has developed an Environmental Management System and Quality Management System. We have successfully completed the annual outside surveillance audit of our Environmental Management System to the ISO 14001:2015. The Oakdale site has secured necessary permits and is operating in compliance with all required licenses, registrations, and permits.

A summary of Oakdale's mineral resources and reserves as of December 31, 2023 and 2022 is shown below.

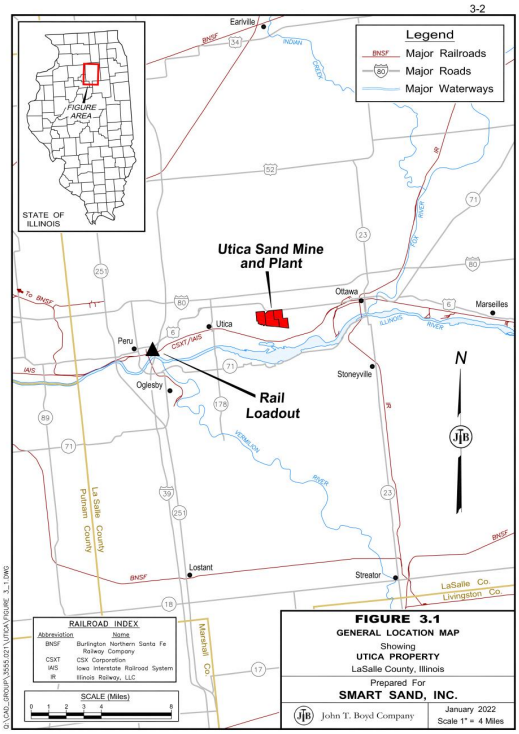
	Year Ended December 31,		Change	
	2023	2022	Volumes	Percentage
	(millions of tons)			
Proven	138	142	-4	(3) %
Probable	105	105	0	— %
Saleable	243	247	-4	(2) %

When estimating mineral reserves, silica product pricing was assumed at $20/ton. Only one commodity (silica sand) is mined, processed and sold at the Oakdale site. Production of silica sand is driven by market demand, and production can be modified in response to that demand. As such, the application of minimum mining thicknesses, maximum stripping ratios (the ratio of waste to sand excavated), or cut-off grades is not generally considered in the estimation of silica sand resources for the Oakdale site. The decrease in reserves from 2022 to 2023 is primarily attributable to excavation and mining activity in 2023. For more information on our resources and reserves, please refer to Exhibit 10.24, the Technical Report Summary for our Oakdale site.

Key assumptions and parameters relating to the mineral reserves at the Oakdale site are discussed in Sections 11.0 and 12.0, respectively, of the Oakdale TRS. Only material that can be economically, safely, and legally extracted is contained in these ore reserve estimates.

Utica, Illinois

The Utica site is a surface proppant sand mining and processing operation located approximately three miles east of the town of Utica, Illinois in LaSalle County, Illinois. Geographically, the Utica site is located at approximately 41° 20'48.6" N latitude and 88° 57'18.9" W longitude.



The Utica site includes approximately 819 acres that we own outright. The mine site was initially developed in 2014 by Eagle Materials Inc., a Delaware corporation ("Eagle"), as a wash plant that railed wet sand to Corpus Christi, TX. In the summer of 2018, a 1.6 million ton per year dry plant was constructed on site. In September 2020, we acquired the Utica Site from Eagle. We began operating the Utica, Illinois mine and Peru, Illinois transload facility in October 2020. There are no royalties associated with any minerals at this site. The current annual processing capacity is estimated at 1.6 million tons.

The site is accessible by public roads. There is no rail onsite. All minerals are trucked from the site to a terminal that we own and operate in Peru, Illinois, on the Burlington Northern Santa Fe railroad a few miles away from the mine site. Our Utica site includes a wet plant and a dry plant, storage, and handling facility. The Utica site is connected to the local electrical and natural gas distribution systems. Water onsite is provided through public works, private wells and ponds supplied with recycled process water and groundwater pumped from the active mine. The site has offices holding administrative, engineering, and operations staff. In addition, there are several buildings that house the processing facilities, plant maintenance and support facilities.

Utica production capabilities include ability to produce multiple products through various processing methods, including washing, hydraulic sizing and screening. These production techniques allow the Utica site to meet a variety of focused specifications on product composition from customers. As such, the Utica site services multiple end markets, such as glass, building products, foundry, fillers and extenders, chemicals and oil and gas proppants. We believe that the Utica facility and its operating equipment are maintained in good working condition. The total net book value of the Utica facility and related transload real property and tangible assets as of December 31, 2023 was $39.8 million.

Current mining at the Utica facility is excavated using conventional surface mining methods. The first step in the mining process is the removal of the overburden from the sandstone layer. This is completed either in-house or by third-party contractors using heavy equipment including excavators, dozers and haul trucks. Next, a third-party contractor is used to drill and blast the sandstone. Heavy equipment is used to transfer the blasted material to the processing plant. At the processing plant, the sand is fed into a crusher, wet screened to remove oversize material and placed in a surge tank where ultra fine material is removed from the product and sent to a thickener as waste. The remaining slurry is pumped to hydrosizers that further hydraulically separate the sand into waste and product streams with the product sent to an enclosed decant shed for dewatering. A drag chain conveyor reclaims sand from the top of the decant pile and conveys the sand to the dryer. Dry sand is then screened into our four primary grades of sand. The finished product is stored in four truck loadout silos. All product leaves the plant via truck. The majority of the product is trucked to a nearby Peru, Illinois rail loadout on the Burlington Northern Santa Fe railroad.

To operate active mining operations on the property, the Illinois Department of Natural Resources requires a Surface Mining Permit. The Surface Mining Permit application requires the operator to submit an annual operating plan that illustrates how the land will be affected by mining operations as well as a reclamation plant that describes how the mined land will be restored for future use. The mine reclamation plan is submitted to the LaSalle County and Village of Utica Boards. The Utica operation has obtained the necessary permits. Air emissions are regulated by the Illinois Environmental Protection Agency. A Title V permit for air emissions is currently issued to Northern White Sand, which is our wholly owned subsidiary. We monitor air emissions and have all required permits. The Utica site has secured necessary permits and is operating in compliance with all required licenses, registrations, and permits.

A summary of Utica's mineral resources and reserves as of December 31, 2023 and 2022 is shown below.

	Year Ended December 31,		Change	
	2023	2022	Volumes	Percentage
	(millions of tons)			
Proven	95	96	-1	(1) %
Probable	32	32	0	— %
Saleable	127	128	-1	(1) %

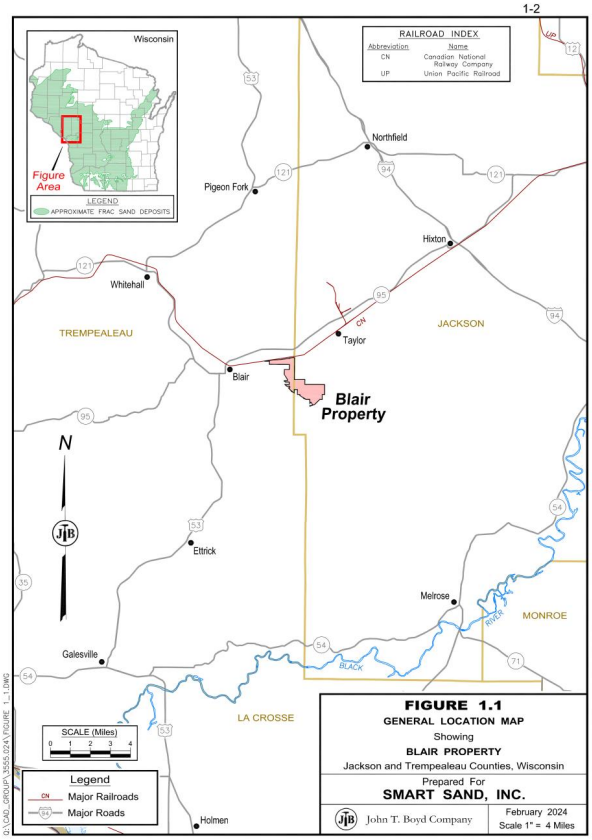
When estimating mineral reserves, silica product pricing was assumed at $20/ton. Only one commodity (silica sand) is mined, processed and sold at the Utica site. Production of silica sand is driven by market demand, and production can be modified in response to that demand. As such, the application of minimum mining thicknesses, maximum stripping ratios (the ratio of waste to sand excavated), or cut-off grades is not generally considered in the estimation of silica sand resources for the Utica site. The decrease in reserves from 2022 to 2023 is primarily attributable to excavation and mining activity in 2023. For more information on our resources and reserves, please refer to Exhibit 10.25, the Technical Report Summary for our Utica mine.

Key assumptions and parameters relating to the mineral reserves at the Utica site are discussed in Sections 11.0 and 12.0, respectively, of the Utica TRS. Only material that can be economically, safely, and legally extracted is contained in these ore reserve estimates.

Blair, Wisconsin

The Blair site is a surface proppant sand mining and processing operation located approximately 3 miles southwest of the town of Taylor, Wisconsin in Trempealeau County, Wisconsin. Geographically, the Blair site is located at

1-2



approximately 44° 17'44.0" N latitude and 91° 10'05.5" W longitude.

The Blair site includes approximately 1,285 acres that we own outright. The mine site was initially developed in 2016 by HCR and shut down in 2020 due to the COVID-19 pandemic. On March 4, 2022, we acquired the Blair facility. We began operations at the Blair facility in the second quarter of 2023. The Blair facility has approximately 2.9 million tons of total annual processing capacity and contains an onsite, unit train capable rail terminal with access to the Class 1 Canadian National Railway. We pay royalties of approximately $1.75 per ton with certain annual minimum payments.

The site is accessible by public roads and the Canadian National railroad spur. Our Blair site has an extensive rail-car loading, storage, and handling facility. The Blair site is connected to the local electrical and natural gas distribution systems. All water onsite is provided through private wells. The site has offices holding administrative, engineering, and operations staff. In addition, there are several buildings that house the processing facilities, plant maintenance and support facilities.

Blair production capabilities include ability to produce multiple products through various processing methods, including washing, hydraulic sizing and screening. These production techniques allow the Blair site to meet a variety of focused specifications on product composition from customers. As such, the Blair site services multiple end markets, such as glass, building products, foundry, fillers and extenders, chemicals and oil and gas proppants. We believe that the Blair facility and its operations have been maintained in good condition. The total net book value of the Blair facility real property and tangible assets as of December 31, 2023 was $15.7 million, which represents our purchase price of the facility.

We began operating the Blair facility in the second quarter of 2023. Current mining at the Blair facility is excavated using conventional surface mining methods. The first step in the mining process is the removal of the overburden from the sandstone layer. This is completed either in-house or by third-party contractors using heavy equipment including excavators, dozers and haul trucks. Next, a third-party contractor is used to drill and blast the sandstone. Heavy equipment is used to transfer the blasted material to the crusher for further processing. Conveyors transfer the sand to the wet plant where hydrosizers are used to sort the sand into product and waste streams. The waste stream is further separated by a cyclone where the ultra fines are sent to a thickener and filter press to recover water and the remainder is conveyed to a pile for reclamation purposes. The product stream is dewatered and conveyed to the wet storage piles next to the dry plant. Loaders will feed the two dryers from the decant pile and will screen the sand into four or five grades that are then stored into dedicated silos until loaded into railcars for shipping. Railcars are on a railspur connected to the Canadian National railroad.

To operate active mining operations on the property, a non-metallic mining industrial permit is in place and administered by the Wisconsin Department of Natural Resources in both Jackson and Trempealeau counties. There are also permits for air quality, construction, ground water extraction administered by the Wisconsin Department of Natural Resources. A land use agreement is active for the cities of Springfield and Preston regarding operating hours. A conditional use permit is active for both Jackson County and the City of Blair for the mining and processing of material at the Blair site. A reclamation plan for restoring the site to an agreed upon state is in place with Jackson County and the City of Blair. The Blair site has secured necessary permits and is in compliance with all required licenses, registrations, and permits.

A summary of Blair's mineral resources and reserves as of December 31, 2023 and 2022 is shown below.

	Year Ended December 31,		Change	
	2023	2022	Volumes	Percentage
	(millions of tons)			
Proven	114	115	-1	(1) %
Probable	0	0	0	Not Meaningful
Saleable	114	115	-1	(1) %

When estimating mineral reserves, silica product pricing was assumed at $36/ton, which represents our budget for 2023. Only one commodity (silica sand) is mined, processed and sold at the Blair site. Production of silica sand is driven by market demand, and production can be modified in response to that demand. As such, the application of minimum mining thicknesses, maximum stripping ratios (the ratio of waste to sand excavated), or cut-off grades is not generally considered in the estimation of silica sand resources for the Blair site. The decrease in reserves from 2022 to 2023 is primarily attributable to excavation and mining activity in 2023. For more information on our resources and reserves, please refer to Exhibit 10.26, the Technical Report Summary for our Blair site.

Key assumptions and parameters relating to the mineral reserves at the Blair site are discussed in Sections 11.0 and 12.0, respectively, of the Blair TRS. Only material that can be economically, safely, and legally extracted is contained in these ore reserve estimates.

Internal Controls Disclosure

The modeling and analysis of our reserves has been developed by our personnel, reviewed by several levels of internal management and, in the case of the three material properties, reviewed by John T. Boyd. This section summarizes the internal control considerations for our development of estimations, including assumptions, used in resource and reserve analysis and modeling.

When determining resources and reserves, as well as the differences between resources and reserves, management developed specific criteria, each of which must be met to qualify as a resource or reserve, respectively. These criteria, such as demonstration of economic viability, repeatable geologic continuity, and meeting generally accepted quality specifications, are specific and attainable, as applicable. Calculations using site specific criteria for the three material properties were reviewed by John T. Boyd. John T. Boyd was provided with our exploration data, geologic models, and volumetric estimates and took a three-step approach to validate our resource and reserve estimates at the four material properties: (1) verified the accuracy of geologic model inputs by comparison with drilling logs and laboratory reports, (2) compared the geologic model with compiled drilling data and (3) prepared a stratigraphic grid model of the geologic unit and independently estimated volumes. All calculations were conducted independently by John T. Boyd, then compared to our internal estimates and found to be within acceptable variance. A detailed description of the methodology used to calculate mineral reserves for the three material properties is provided in the TRSs filed as exhibits to this Annual Report.

For all properties, geographical modeling and mine planning efforts serve as a base assumption for resource and reserve estimates at each location. These outputs have been prepared by both our personnel and third-party consultants, and the methodology is compared to industry best practices. Mine planning decisions, such as mining bench height, execution of mining processes and ground control, are determined and agreed upon by our management. Management adjusts forward-looking models by reference to historic mining results, including reviewing performance versus predicted levels of production from the mineral deposit, and if necessary, reevaluating mining methodologies if production outcomes were not realized as predicted. Ongoing mining and investigation of the mineral deposit, coupled with product quality validation pursuant to industry best practices and customer expectations, provides further empirical evidence as to the homogeneity, continuity and characteristics of the mineral resource. Ongoing quality validation of production also provides a means to monitor for any potential changes in mineral quality.

Management also assesses risks inherent in mineral resource and reserve estimates, such as the accuracy of geological data that is used to support mine planning, identify hazards and inform operations of the presence of mineable deposits. Also, management is aware of risks associated with potential gaps in assessing the completeness of mineral extraction licenses, entitlements or rights, or changes in laws or regulations that could directly impact the ability to assess mineral resources and reserves or impact production levels. Risks inherent in overestimated reserves can impact financial performance when revealed, such as changes in amortization that are based on life of mine estimates.

Based on their review of our cost structure and their extensive experience with similar operations, John T. Boyd concluded that it is reasonable to assume that we will operate under a similar cost structure over the remaining life of our reserves. John T. Boyd further assumed that if our revenue per ton remained relatively constant over the life of the reserves, our current operating margins are sufficient to expect continued profitability throughout the life of our reserves.

ITEM 3. — LEGAL PROCEEDINGS

From time to time we may be involved in litigation relating to claims arising out of our operations in the normal course of business. The disclosure called for by Part I, Item 3 regarding our legal proceedings is incorporated by reference herein from Part II, Item 8. Note 16 - Commitments and Contingencies - Litigation of the notes to the consolidated financial statements in this Form 10-K for the year ended December 31, 2023.

ITEM 4. — MINE SAFETY DISCLOSURES

We are committed to maintaining a culture that prioritizes mine safety. We believe that our commitment to safety, the environment and the communities in which we operate is critical to the success of our business. Our sand mining operations are subject to mining safety regulation. The U.S. Mining Safety and Health Administration (“MSHA”) is the primary regulatory organization governing frac sand mining and processing. Accordingly, MSHA regulates quarries, surface mines, underground mines and the industrial mineral processing facilities associated with and located at quarries and mines. The mission of MSHA is to administer the provisions of the Federal Mine Safety and Health Act of 1977 as amended by the Mine Improvement and

New Emergency Response (MINER) Act of 2006 and to enforce compliance with mandatory miner safety and health standards. As part of MSHA's oversight, representatives perform at least two unannounced inspections annually for each above-ground facility.

We are also subject to regulations by the U.S. Occupational Safety and Health Administration ("OSHA") which has promulgated rules for workplace exposure to respirable silica for several other industries. Respirable silica is a known health hazard for workers exposed over long periods. In 2023, MSHA proposed similar rules, which would, among other updates, reduce the exposure limits, require immediate corrective actions if exposure limits are exceeded, require exposure sampling and no-cost medical surveillance, and update respiratory protection requirements. Airborne respirable silica is associated with work areas at our site and is monitored closely through routine testing and MSHA inspection. If the workplace exposure limit is lowered significantly, we may be required to incur certain capital expenditures for equipment to reduce this exposure. We also adhere to NISA's respiratory protection program, and ensures that workers are provided with fitted respirators and ongoing radiological monitoring.

Our operations are subject to the Federal Mine Safety and Health Act of 1977, as amended by the Mine Improvement and New Emergency Response Act of 2006, which imposes stringent health and safety standards on numerous aspects of mineral extraction and processing operations, including the training of personnel, operating procedures, operating equipment, and other matters. Our failure to comply with such standards, or changes in such standards or the interpretation or enforcement thereof, could have a material adverse effect on our business and financial condition or otherwise impose significant restrictions on our ability to conduct mineral extraction and processing operations. Following passage of The Mine Improvement and New Emergency Response Act of 2006, MSHA significantly increased the numbers of citations and orders charged against mining operations. The dollar penalties assessed for citations issued has also increased in recent years. Information concerning mine safety violations or other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 104 of Regulation S-K (17 CFR 229.104) is included in Exhibit 95.1 to this Report.

PART II

ITEM 5. — MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Shares of our common stock, traded publicly under the symbol, "SND," have been publicly traded since November 4, 2016, when our common stock was listed and began trading on the NASDAQ Global Select Market ("NASDAQ"). Prior to that date, there was no public market for our stock.

Holders of Record

On March 4, 2024, there were 43,008,960 shares of our common stock outstanding, which were held by approximately 31 stockholders of record. Because many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

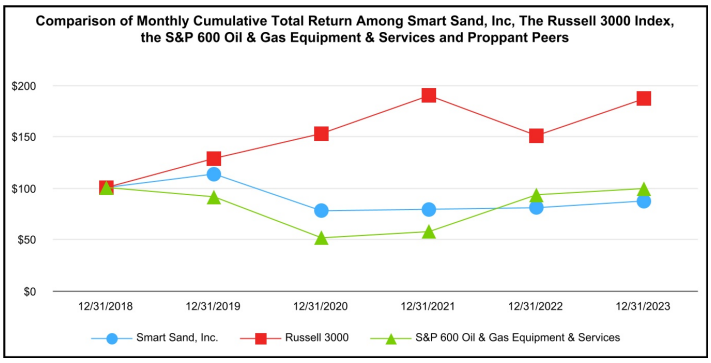
Dividends

Our ability to pay dividends is governed by (i) the provisions of Delaware corporate law, (ii) our Certificate of Incorporation and Bylaws, and (iii) our ABL Credit Facility. To date, we have not paid or declared any dividends on our common stock and there is no assurance that we will pay any cash dividends on our common stock in the future. The future payment of cash dividends on our common stock, if any, is within the discretion of our board of directors and will depend on our earnings, capital requirements, financial condition, and other relevant factors.

Smart Sand, Inc. Comparative Stock Performance Graph

The graph below compares the cumulative total stockholder return on our common stock, the cumulative total return on the Russell 3000 Index and the Standard and Poor's Small Cap 600 GICS Oil & Gas Equipment & Services Sub-Industry for the last five years.

The graph assumes $100 was invested on December 31, 2018, in our common stock, the Russell 3000, and the Standard and Poor's Small Cap 600 GICS Oil & Gas Equipment & Services Sub-Industry Index. The cumulative total return assumes the reinvestment of all dividends.



The information contained in this Smart Sand, Inc. Comparative Stock Performance Graph section shall not be deemed to be "soliciting material" or "filed" or incorporated by reference in future filings with the SEC, or subject to the liabilities of Section 18 of the Exchange Act, except to the extent that we specifically incorporate it by reference into a document filed under the Securities Act or the Exchange Act.

Unregistered Sales of Equity Securities and Use of Proceeds

During the year ended December 31, 2023, no shares were sold by the Company without registration under the Securities Act of 1933.

ITEM 6. — RESERVED

ITEM 7. — MANAGEMENT'S DISCUSSION AND ANALYSIS FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Forward-Looking Statements

The following discussion and analysis of our financial condition and results of operations should be read together with Item 1, "Business," and Item 8, "Financial Statements and Supplementary Data," of this Annual Report on Form 10-K.

This discussion contains forward-looking statements as a result of many factors, including those set forth under Item 1, "Business—Forward-Looking Statements" and Item 1A, "Risk Factors," and elsewhere in this report. These statements are based on current expectations and assumptions that are subject to risks and uncertainties. Actual results could differ materially from those discussed in or implied by forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this report, particularly in Item 1A, "Risk Factors."

We use contribution margin, EBITDA, Adjusted EBITDA and free cash flow herein as non-GAAP measures of our financial performance. For further discussion of contribution margin, EBITDA, Adjusted EBITDA and free cash flow, see the section entitled "Non-GAAP Financial Measures." in this Item 7 of this Annual Report on Form 10-K. We define various terms to simplify the presentation of information in this Report. All share amounts are presented in thousands.

Factors Affecting Comparability of Our Financial Results

Our historical results of operations and cash flows may not be indicative of results of operations and cash flows to be expected in the future, principally for the following reasons:

- *Expansion of Operations*. As discussed in the section entitled "Recent Developments" in this Item 7 of this Annual Report on form 10-K, we have been going through a period of substantial growth and expansion. In recent years we have added two mines, several terminals, and expanded our operations into industrial products. This growth and expansion reduces comparability of periods, due to increased revenue, cost of goods sold, operating costs, and capital investments.
- *Market Trends*. In recent years, the increasing supply of sand, particularly in-basin sand, relative to demand, has led to continued volatility of frac sand prices. During most of 2020, demand for frac sand declined significantly due to decreased demand for oil and natural gas as a result of the effects of the COVID-19 pandemic, which caused a global decrease in all means of travel, the closure of borders between countries and a general slowing of economic activity worldwide. Activity in the oil and gas industry began to rebound in the fourth quarter of 2020 and throughout 2021 as the global distribution of COVID-19 vaccines ramped up and travel restrictions lessened. This improvement in oil and natural gas activity continued in 2022 and 2023 as oil and gas production increased worldwide due to demand relative to supply. We saw an increase in the volume of sand sold and improvements in sand pricing in 2022 and the first nine months of 2023. We did see softening demand in the fourth quarter of 2023 as our customers that had accelerated spending in the first nine months of the year exhausted their budgets. High levels of inflation have also led to increasing operating expenses in 2022 and 2023. Softening economic activities in certain countries, the continuation of the war in Ukraine, the conflict in the Middle East, along with President Biden's pause on LNG permits could impact oil and natural gas prices and overall oil and gas activity thereby leading to substantial volatility in demand and pricing in 2024. The continued volatility in oil and natural gas demand and potential for increased supplies of sand has led to continued reluctance by many customers to enter into long-term contracts. As such, customers have instead trended toward purchasing their frac sand supply in the spot market or under short term supply agreements at current market prices.
- *Litigation settlement.* In 2021, we recorded bad debt of approximately $19.6 million. We entered into a settlement agreement related to previous litigation in which we collected a $35.0 million cash payment to settle $54.6 million of outstanding accounts receivable.
- *Impairment loss.* In 2021, we recorded an inventory impairment loss of $2.2 million related to the write down of inventory driven by expected yield. There were no impairment losses in 2023 or 2022.

MANAGEMENT'S DISCUSSION AND ANALYSIS
OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS
(UNAUDITED)

Overview

We are a fully integrated frac and industrial sand supply and services company. We offer complete mine to wellsite proppant supply and logistics solutions to our frac sand customers. We produce low-cost, high quality Northern White sand, which is a premium sand used as proppant used to enhance hydrocarbon recovery rates in the hydraulic fracturing of oil and natural gas wells and for a variety of industrial applications. We also offer proppant logistics solutions to our customers through our in-basin transloading terminals and our SmartSystems™ wellsite storage capabilities. In late 2021, we created our Industrial Products Solutions ("IPS") business in order to diversify our customer base and markets we serve by offering sand for industrial uses. We market our products and services to oil and natural gas exploration and production companies, oilfield service companies, and industrial manufacturers. We sell our sand through long-term contracts, short-term supply agreements or spot sales in the open market. We provide wellsite proppant storage solutions services and equipment under flexible contract terms custom tailored to meet the needs of our customers. We believe that, among other things: (i) the size and favorable geologic characteristics of our sand reserves; (ii) the strategic location and logistical advantages of our facilities; (iii) our proprietary SmartDepot™ portable wellsite storage silos, SmartPath® transloader and SmartBelt™ conveyor; (iv), access to all Class I rail lines; and (v) the industry experience of our senior management team make us as a highly attractive provider of sand and logistics services.

We incorporated in Delaware in July 2011 and began operations at our Oakdale facility with 1.1 million tons of annual processing capacity in July 2012. After several expansions, our current annual processing capacity at our Oakdale facility is approximately 5.5 million tons of sand.

In September 2020, we acquired, all of the issued and outstanding interests in Eagle Proppants Holdings from Eagle, which included our Utica, Illinois processing facility, which has 1.6 million tons of annual sand processing capacity.

In March 2022, we acquired all of the issued and outstanding interests in Hi-Crush Blair, LLC, which included our Blair, Wisconsin processing facility. This facility has approximately 2.9 million tons of total annual sand processing capacity and contains an onsite, unit train capable rail terminal with access to the Class 1 Canadian National Railway. We commenced operations at the Blair facility in the second quarter of 2023.

We directly control five in-basin transloading facilities and have access to third party transloading terminals in all operating basins. We operate a unit train capable transloading terminal in Van Hook, North Dakota to service the Bakken Formation in the Williston Basin. We operate this terminal under a long-term agreement with Canadian Pacific Railway. We now serve the Appalachian Basin through three company-controlled terminals. In January 2022, we began operations at an additional unit train capable transloading terminal in Waynesburg, Pennsylvania, which we expanded in 2023. In December 2023 we acquired the right to operate a terminal in Minerva, Ohio and in January 2024 we acquired the rights to operate a terminal in Dennison, Ohio. We expect these two Ohio terminals to become operational in the second quarter of 2024. These terminals allow us to offer more efficient and sustainable delivery options to our customers. Additionally, we have long-standing relationships with third party terminal operators that allow us access to substantially all oil and natural gas exploration production basins of North America. We also have rights to use a rail terminal located in El Reno, Oklahoma, which we obtained as part of our acquisition of Eagle Proppants Holdings.

We also offer to our customers portable wellsite proppant storage and management solutions through our SmartSystems products and services. Our SmartSystems provide our customers with the capability to unload, store and deliver proppant at the wellsite, as well as the ability to rapidly set up, takedown and transport the entire system. This capability creates efficiencies, flexibility, enhanced safety and reliability for customers. Through our SmartSystems wellsite proppant storage solutions, we offer the SmartDepot and SmartDepotXL™ silo systems, SmartPath transloader SmartBelt conveyor, and our rapid deployment trailers. Our SmartDepot silos include passive and active dust suppression technology, along with the capability of a gravity-fed operation. Our self-contained SmartPath transloader is a mobile sand transloading system designed to work with bottom dump trailers and features a drive over conveyor, surge bin, and dust collection system, and we believe the system has the ability to keep up with any hydraulic fracturing operation. Our SmartBelt conveyor is designed to work with our SmartPath transloader to directly feed sand into the blender. Our rapid deployment trailers are designed for quick setup, takedown and transportation of the entire SmartSystem, and detach from the wellsite equipment, which allows for removal from the wellsite during operation. We have also developed a proprietary software program, the SmartSystem Tracker™, which allows our SmartSystems customers to monitor silo-specific information, including location, proppant type and proppant inventory. We believe that our

SmartSystems reduce trucking and related fuel consumption for our customers, helping them reduce their carbon footprint in their daily operations.

We have expanded our product line to offer Industrial Sand through IPS. In 2023, we completed the installation of blending and cooling assets at our Utica, Illinois facility that we believe will provide new opportunities to increase our customer base in the IPS business. While sales of IPS to customers were a small portion of our overall sand sales in 2022 and 2023, we expect to continue to expand and diversify to serve the major industrial markets throughout North America, including glass, foundry, building products, filtration, geothermal, renewables, ceramics, turf & landscape, retail, recreation and more in 2024.

Recent Developments

Ohio Transload Terminals

In late 2023 and early 2024, we acquired the rights to operate unit train capable transloading facilities located in Minerva, Ohio and Dennison, Ohio. We expect these sites to become operational in the second quarter of 2024 and believe that they will provide us with the opportunity to sell additional sand to existing and potential customers in the Appalachian Basin.

Blair Mine and Processing Facility

In April 2023, our processing facility located in Blair, Wisconsin became operational. This facility has approximately 2.9 million tons of total annual sand processing capacity and contains an onsite, unit train capable rail terminal with access to the Class 1 Canadian National Railway. We believe this facility will continue to provide us with opportunities to expand our customer base in Canada along with other portions of North America.

Assets and Operations

Oakdale, Wisconsin

Our sand reserves in Oakdale include a balanced concentration of coarse sand, finer sand, and fine sand. We believe this mix of coarse and fine sand reserves, combined with demand for our products across a range of mesh sizes, provides us with relatively higher mining yields and lower processing costs than frac sand mines with predominantly coarse sand reserves. We have approximately 243 million tons of proven and probable recoverable reserves with an estimated life of mine to approximately 61 years, based on current volumes.

Our Oakdale facility is purpose-built to exploit the reserve profile in place and produce high-quality frac sand. Unlike some of our competitors, our primary processing and rail loading facilities are located in close proximity to the mine site, which limits the need for us to truck sand on public roads between the mine and the production facility, between wet and dry processing facilities, or from the processing facility to rail loading facilities. Our on-site transportation assets include approximately nine miles of rail track in a triple-loop configuration and four railcar loading facilities that are connected to a Class I rail line owned by Canadian Pacific. This enables us to simultaneously accommodate multiple unit trains and significantly increases our efficiency in meeting our customers' frac sand transportation needs. Additionally, we have our unit train capable transload facility approximately three miles from the Oakdale facility in Byron Township, Wisconsin, which provides us with the ability to ship sand to our customers on the Union Pacific rail network. We believe that we are the only sand facility in Wisconsin that has dual served rail capabilities, which should create competition among our rail carriers and allow us to provide more competitive logistics options for our customers.

Utica & Peru, Illinois

Our Utica facility also has a large high-quality reserve base of primarily fine-mesh sand that is contiguous to the production facility and in close proximity to our Peru transload facility located on the BNSF railway. We have approximately 127 million tons of proven and probable reserves, and an estimated life of mine of approximately 106 years, based on current volumes. Our owned Peru transload facility has significant logistics assets to support our Utica operations. This facility is capable of handling multiple unit trains simultaneously and provides access to operating basins in the Western United States. Additionally, the CSX and BNSF rail lines, as well as industrial manufacturers in the greater Chicago area and other Midwestern metropolitan markets are within short trucking distances.

Blair, Wisconsin

Our Blair facility also has a large high-quality reserve base of primarily fine-mesh sand that is contiguous to the production facility and significant logistics assets located on the Canadian National railway. We have approximately 114 million tons of proven and probable reserves and an estimated life of mine of approximately 45 years, based on expected sales volumes. Our Blair facility provides us with significant logistics assets that further increases our logistics advantage, including access to the Canadian National Railway, a Class I rail line. In the second quarter of 2023, we commenced operations at the Blair facility; which gave us direct access to four Class I rail lines and the ability to access all Class 1 rail lines within the United States and Canada.

Logistics

Through our transloading terminal in Van Hook, North Dakota, we provide one of the most efficient and lowest-cost sources of Northern White sand in-basin to customers operating in the Bakken Formation in the Williston Basin. In 2021, we acquired the right to operate the Waynesburg, Pennsylvania terminal. In December 2023, we acquired rights to operate a transloading terminal in Minerva, Ohio. In January 2024 we acquired rights to operate a terminal in Dennison, Ohio. With these three terminals in the Appalachian Basin, we believe we are one of the premier providers of low cost high-quality Northern White Sand serving the Marcellus and Utica formations. We also acquired a rail terminal from the Eagle acquisition located in El Reno, Oklahoma, which allows us to economically provide frac sand to customers operating nearby, including customers using our SmartSystems last mile equipment.

Through our SmartSystems offering, we have the technology, production capacity and management team to compete further in the frac sand supply chain for our customers by offering logistics services from the mine all the way to the wellsite. Our SmartSystems consist of our SmartDepot proppant storage silos, our SmartPath transloader, our SmartBelt conveyor and our rapid deployment trailer system.

We believe our patented SmartDepot silos will outperform our competitors in that they can be set up or taken down rapidly, they include industry-leading passive and active dust suppression technology, they have the capability of gravity-fed operation and they can be filled by both pneumatic and gravity dump trailers. Our trailers detach, which reduces their footprint on the wellsite. In 2020, we developed a self-contained SmartPath transloader, which is a mobile sand transloading system designed to work with bottom dump trailers and features a drive over conveyor, surge bin, and dust collection system. We believe the system has the ability to keep up with any hydraulic fracturing operation. Our SmartBelt conveyor is designed to work with our SmartPath transloader to directly feed sand into the blender. Our rapid deployment trailers are designed for quick setup, takedown and transportation of the entire SmartSystem, and they detach from the wellsite equipment, which allows for removal from the wellsite during operation. We have also developed a proprietary software program, the SmartSystem Tracker™, which allows our SmartSystems customers to monitor silo-specific information, including location, proppant type and proppant inventory.

Through the expansion of our SmartSystems fleet and other logistics options, we continue evaluating ways to reduce the landed cost of our products in-basin and to the wellsite for our customers while increasing our customized service offerings to provide additional delivery and pricing alternatives, including selling product on an “as-delivered” basis to the wellsite. We believe that our SmartSystems reduce trucking and related fuel consumption for our customers, helping them reduce their carbon footprint in their daily operations.

We expect to continue to capitalize on our three operating facilities logistics networks to maximize our product shipments, increase our railcar utilization and lower our transportation costs. We now have direct access to four Class I rail lines and the ability to access all Class 1 rail lines within the United States and Canada.

How We Generate Revenue

We generate revenue by excavating and processing frac sand, which we sell to our customers in the oil and gas industry under short and long-term contracts agreements or as spot sales at prevailing market rates. For in-basin sales, revenues also include a charge for transportation and handling services provided to customers. Our contracts typically contain a minimum volume purchase requirement and provide for delivery of frac sand from one of our processing facilities, transloading terminals or another location specified by our customers. Revenue is generally recognized as products are delivered to customers in accordance with the contract.

We generate revenue from our SmartSystems by renting equipment and providing services to our customers under contract terms tailored to meet their short-term or long-term needs with any number of SmartDepots, SmartPaths, SmartBelts or trailers they require. We recognize rental revenue when the equipment is made available for the customer to use, services are provided, or other obligations in the contract are met.

In the fourth quarter of 2021, we expanded our product line to begin offering sand through IPS. In 2023, we completed the installation of blending and cooling assets at our Utica, Illinois facility that we believe will provide new opportunities to increase our customer base in the IPS business. While sales of IPS to customers were a small portion of our overall sand sales in 2022 and 2023, we expect to continue to expand and diversify to serve the major industrial markets throughout North America, including glass, foundry, building products, filtration, geothermal, renewables, ceramics, turf & landscape, retail, recreation and more in 2024.

Costs of Conducting Our Business

The principal direct costs involved in operating our business are freight charges, which include transportation and railcar rental expenses, and production costs, which consists of labor, maintenance, utilities, equipment, excavation and depreciation of our property, plant and equipment. We incur labor costs associated with employees at our processing facilities which represent the most significant cost of converting sand to finished products. Our sand processing and logistics facilities undergo maintenance to minimize unscheduled downtime and ensure the ongoing quality of our sand and ability to meet customer demands. We incur utility costs in connection with the operation of our processing and logistics facilities, primarily electricity and natural gas, which are both susceptible to market fluctuations. We lease equipment in many areas of our operations including some of our mining and hauling equipment and logistics services. Excavation costs relate to the blasting and excavation of sand and other materials in order to retrieve desirable sand products. In addition, other costs including processing costs, overhead allocation, depreciation and depletion are capitalized as a component of inventory and are reflected in cost of goods sold when inventory is sold.

Overall Trends and Outlook

Demand Trends

According to Spears, the North American proppant market, including frac sand, ceramic and resin-coated proppant, was approximately 132 million tons in 2023, an approximate 5% increase from the 127 million tons Spears reported for 2022. Spears estimates that 2024 demand will remain similar to 2023.

Supply Trends

There has been consolidation activity including mergers, acquisitions, closures of mines and bankruptcy filings among our peers. Additional consolidation activity is expected in 2024 in the mining, transloading and logistics businesses.

Supplies of high-quality Northern White frac sand are limited to select areas, predominantly in western Wisconsin and limited areas of Minnesota and Illinois. We believe the ability to obtain large contiguous reserves in these areas is a key constraint and can be an important supply consideration when assessing the economic viability of a potential frac sand processing facility. Further constraining the supply and throughput of Northern White frac sand is that not all of the large reserve mines have on-site excavation, processing or logistics capabilities, which impact the long-term competitiveness of these mines due to lower efficiency and higher cost structures. Historically, much of the capital investment in Northern White frac sand mines was used for the development of coarser deposits in western Wisconsin, which is inconsistent with the increasing demand for finer mesh frac sand in recent years. As such, we've seen competitors in the Northern White frac sand market

reduce their capacity by shuttering or idling operations due to the shift to finer sands in hydraulic fracturing of oil and natural gas wells and due to lower cost regional sand sources that has eroded the ongoing economic viability of mines with coarser reserve deposits and inefficient mining and logistics facilities.

Management's Outlook

In 2021, we started several strategic initiatives to take advantage of the market downturn to set ourselves up for success in future years. These initiatives primarily consisted of growing our asset base and product offerings. We have increased the size of our terminal network by opening our Waynesburg, Pennsylvania transloading terminal in 2022 and expanding it in 2023, along with adding two transloading terminals in recent months in Minerva, Ohio and Dennison, Ohio. With these three terminals in the Appalachian Basin, we believe we are one of the premier providers of low-cost high-quality Northern White Sand into this key market. We expect these newly added terminals to become operational in the second quarter of 2024 and should allow us to expand our product and logistics offerings in the Utica Formation. We also increased our production capacity with our acquisition of the Blair, Wisconsin mine and processing facility in 2022. This facility, which has approximately 2.9 million tons of total annual sand processing capacity, contains an onsite, unit train capable rail terminal with access to the Class 1 Canadian National Railway and became operational in the second quarter of 2023. With this acquisition, we now have direct access to four Class I rail lines and the ability to access all Class 1 rail lines within the United States and Canada.

In the fourth quarter of 2021, we expanded our product line to begin offering IPS. Since then, we have worked to expand and diversify our customer base to serve the major industrial markets throughout North America, including glass, foundry, building products, filtration, geothermal, renewables, ceramics, turf & landscape, retail and recreation. Our IPS business, while a small part of our overall sales, has continued to grow and we are investing to support this growth potential. In 2023, we completed the installation of blending and cooling assets at our Utica, Illinois facility that we believe will provide new opportunities to increase our customer base in the IPS business.

We expect the demand for frac sand in 2024 to continue to be at healthy levels. We believe higher demand driven by increased laterals and higher amounts of sand per well completed should lead to sand prices remaining relatively stable in 2024.

Beginning in 2021 and continuing throughout 2023, exploration and production companies have moved to a more disciplined approach to new drilling activity leading to less volatility in supply relative to demand and subsequently higher overall oil and natural gas prices. Demand for both frac sand and our SmartSystems is influenced by the volume of oil and natural gas wells being drilled and completed, as well as the types of wells that are completed. We expect the Bakken and Marcellus formations as well as the Canada markets to continue to be key markets for us and we look to expand our market share in these key areas through our current strategic initiatives.

The industry trends continue towards drilling and completing wells with longer laterals and more frac stages per lateral foot drilled. This trend is leading to higher volumes of sand per well and the need for oil and natural gas exploration companies to manage larger volumes of sand at the wellsite. We believe these trends support continued demand for frac sand and increased demand for SmartSystems as customers look to create synergies in the time and cost of managing their sand needs at the wellsite.

We generally expect the price of frac sand to fluctuate based on the level of drilling and completions activity for oil and natural gas as well as overall supply for frac sand relative to demand. We believe the supply of sand to be stabilizing or contracting as consolidation in the industry continues. The willingness of exploration and production companies to engage in new drilling is determined by a number of factors, the most important of which are the prevailing and projected prices of oil and natural gas, the cost to drill, complete and operate a well, the availability and cost of capital and environmental and government regulations, as well as their ability to source sand delivered to the wellsite. We generally expect the level of drilling to correlate with long-term trends in commodity prices. Similarly, oil and natural gas production levels nationally and regionally generally tend to correlate with drilling activity.

GAAP Results of Operations

Year Ended December 31, 2023 compared to the Year Ended December 31, 2022:

	Year Ended December 31,		Change	
	2023	2022	Dollars	Percentage
	(in thousands, except percentage change)			
Revenues:				
Sand sales revenue	$ 283,160	$ 243,162	$ 39,998	16 %
Shortfall revenue	4,304	5,010	(706)	(14) %
Logistics revenue	8,509	7,568	941	12 %
Total revenue	295,973	255,740	40,233	16 %
Cost of goods sold	254,418	226,149	28,269	13 %
Gross profit	41,555	29,591	11,964	40 %
Operating expenses:				
Salaries, benefits and payroll taxes	18,309	13,480	4,829	36 %
Depreciation and amortization	2,535	2,244	291	13 %
Selling, general and administrative	20,413	17,288	3,125	18 %
Loss (gain) on disposal of fixed assets, net	1,802	(294)	2,096	(713) %
Bad debt expense	—	1	(1)	(100) %
Total operating expenses	43,059	32,719	10,340	32 %
Operating loss	(1,504)	(3,128)	1,624	52 %
Other (expenses) income:				
Interest expense, net	(1,272)	(1,608)	336	(21) %
Other income	524	828	(304)	(37) %
Total other (expenses) income, net	(748)	(780)	32	4 %
Loss before income tax benefit	(2,252)	(3,908)	1,656	42 %
Income tax benefit	(6,901)	(3,205)	(3,696)	115 %
Net income (loss)	$ 4,649	$ (703)	$ 5,352	761 %

Revenue

Revenue was $296.0 million for the year ended December 31, 2023, during which we sold approximately 4,514,000 tons of sand. Revenue for the year ended December 31, 2022 was $255.7 million, during which we sold approximately 4,333,000 tons of sand. The key factors contributing to the increase in revenues for the year ended December 31, 2023 as compared to the year ended December 31, 2022 were as follows:

- Sand sales revenue increased from $243.2 million for the year ended December 31, 2022 to $283.2 million for the year ended December 31, 2023, as a result of higher total volumes sold. Sand volumes increased by 4% from 2022 to 2023. Additionally, sand prices increased during a portion of the year due to a shift in supply and demand, which we believe was driven by increased completion activity of new oil and natural gas wells.
- We had $4.3 million of contractual shortfall revenue for the year ended December 31, 2023 and $5.0 million for the year ended December 31, 2022, respectively. We recognize revenue to the extent of the unfulfilled minimum contracted quantity at the shortfall price per ton as stated in the contract.
- Logistics revenue, which includes freight for certain mine gate sand sales, logistics services and SmartSystems rentals, was $8.5 million for the year ended December 31, 2023, an increase of $0.9 million when compared to logistics revenue of $7.6 million for the year ended December 31, 2022. The increase in logistics revenue was due to higher utilization of our SmartSystems equipment.

Cost of Goods Sold

Cost of goods sold was $254.4 million and $226.1 million, for the years ended December 31, 2023 and December 31, 2022, respectively. The increase was primarily due to higher volumes sold and the related increase in production costs and freight costs that accompany higher volumes.

Gross Profit

Gross profit was $41.6 million and $29.6 million for the years ended December 31, 2023 and December 31, 2022, respectively. The increase in gross profit for the year ended December 31, 2023 was primarily due to higher sales volumes and higher average sale prices of our sand relative to the cost to produce and deliver products to our customers.

Operating Expenses

Operating expenses were $43.1 million and $32.7 million for the years ended December 31, 2023 and December 31, 2022, respectively. Salaries, benefits and payroll taxes increased to $18.3 million for the year ended December 31, 2023, as compared to $13.5 million for the year ended December 31, 2022, primarily due to increased staffing to support our expanded operations. Depreciation and amortization increased $0.3 million from 2023 as compared to 2022. Selling, general and administrative expenses increased from $17.3 million for the year ended December 31, 2022 to $20.4 million for the year ended December 31, 2023, driven by higher maintenance costs, royalty payments, insurance, and other costs primarily related to the addition of our Blair facility. In 2023, we recorded a $1.8 million net loss on disposal of fixed assets, which was primarily due to a reconfiguration of one of our wet plants to increase the efficiency of its operations.

Interest Expense

We incurred $1.3 million and $1.6 million of net interest expense for the years ended December 31, 2023 and 2022, respectively.

Income Tax Benefit

Income tax benefit was $6.9 million for the year ended December 31, 2023 compared to income tax benefit of $3.2 million for the year ended December 31, 2022. For the years ended December 31, 2023 and 2022, our effective tax rate was approximately 306.4% and 82.0%, respectively, based on the annual effective tax rate net of discrete federal and state taxes. The computation of the effective tax rate for the years ended December 31, 2023 and 2022 included modifications from the statutory rate such as income tax credits, depletion deductions, carrybacks as a result of the Coronavirus Aid, Relief and Economic Security Act, and state apportionment changes, among other items.

Net Income (Loss)

Net income was $4.6 million for year ended December 31, 2023 compared to net loss of $(0.7) million for the year ended December 31, 2022. The increase in net income is attributable to an increase in total volumes sold and higher average sale prices of our sand, which was partially offset by higher operating costs due to the opening of the Blair facility. Additionally, a larger benefit from income taxes was recorded in the current period.

Year Ended December 31, 2022 Compared to the Year Ended December 31, 2021:

	Year Ended December 31,		Change	
	2022	2021	Dollars	Percentage
	(in thousands, except percentage change)			
Revenues:				
Sand sales revenue	$ 243,162	$ 117,402	$ 125,760	107 %
Shortfall revenue	5,010	4,421	589	13 %
Logistics revenue	7,568	4,825	2,743	57 %
Total revenue	255,740	126,648	129,092	102 %
Cost of goods sold	226,149	140,384	85,765	61 %
Inventory impairment loss	—	2,170	(2,170)	(100) %
Gross profit	29,591	(15,906)	45,497	(286) %
Operating expenses:				
Salaries, benefits and payroll taxes	13,480	11,258	2,222	20 %
Depreciation and amortization	2,244	1,980	264	13 %
Selling, general and administrative	17,288	14,194	3,094	22 %
Loss (gain) on disposal of fixed assets, net	(294)	555	(849)	(153) %
Bad debt expense	1	19,592	(19,591)	(100) %
Total operating expenses	32,719	47,579	(14,860)	(31) %
Operating loss	(3,128)	(63,485)	60,357	(95) %
Other (expenses) income:				
Interest expense, net	(1,608)	(1,979)	371	(19) %
Other income	828	5,773	(4,945)	(86) %
Total other (expenses) income, net	(780)	3,794	(4,574)	(121) %
Loss before income tax benefit	(3,908)	(59,691)	55,783	(93) %
Income tax benefit	(3,205)	(9,017)	5,812	(64) %
Net income (loss)	$ (703)	$ (50,674)	$ 49,971	(99) %

Revenue

Revenue was $255.7 million for the year ended December 31, 2022, during which we sold approximately 4,333,000 tons of sand. Revenue for the year ended December 31, 2021 was $126.6 million, during which we sold approximately 3,189,000 tons of sand. The key factors contributing to the increase in revenues for the year ended December 31, 2022 as compared to the year ended December 31, 2021 were as follows.

- Sand sales revenue increased from $117.4 million for the year ended December 31, 2021 to $243.2 million for the year ended December 31, 2022, as a result of higher total volumes sold and higher sand prices. Sand volumes increased by 36% from 2021 to 2022. Additionally sand prices have increased due to a shift in supply and demand, which we believe was driven by increased prices in oil and natural gas leading to increased completion activity of new oil and natural gas wells.

- We had $5.0 million of contractual shortfall revenue for the year ended December 31, 2022 and $4.4 million for the year ended December 31, 2021, respectively. We recognize revenue to the extent of the unfulfilled minimum contracted quantity at the shortfall price per ton as stated in the contract.
- Logistics revenue, which includes freight for certain mine gate sand sales, railcar usage, logistics services and SmartSystems rentals, was $7.6 million for the year ended December 31, 2022, compared to logistics revenue of $4.8 million for the year ended December 31, 2021. The $2.7 million increase in logistics revenue was due to higher utilization of our SmartSystems equipment.

Cost of Goods Sold

Cost of goods sold was $226.1 million and $140.4 million, for the years ended December 31, 2022 and December 31, 2021, respectively. The increase was primarily due to higher volumes sold and the related increase in production costs and freight costs that accompany higher volumes.

Gross Profit

Gross profit was $29.6 million and $(15.9) million for the years ended December 31, 2022 and 2021, respectively. The increase in gross profit for the year ended December 31, 2022 was primarily due to higher sales volumes and higher average sale prices of our sand relative to the cost to produce and deliver products to our customers. Gross profit for the year ended December 31, 2021 included $2.2 million related to a write-down of inventory based on expected yield.

Operating Expenses

Operating expenses were $32.7 million and $47.6 million for the years ended December 31, 2022 and December 31, 2021, respectively. In 2021, we recorded $19.6 million in non-cash bad debt expense, which is the difference between the $54.6 million accounts receivable balance that was subject to litigation and the $35.0 million cash payment received under a settlement agreement. Salaries, benefits and payroll taxes increased to $13.5 million for the year ended December 31, 2022, as compared to $11.3 million for the year ended December 31, 2021, due primarily to increased bonuses as management reinstated a formal employee bonus plan based on company performance for 2022 and increased staffing to support our IPS business. Depreciation and amortization increased slightly from 2022 as compared to 2021. Selling, general and administrative expenses increased from $14.2 million for the year ended December 31, 2021 to $17.3 million for the year ended December 31, 2022, primarily driven by development costs, royalty payments and other costs related to our Blair facility and our Waynesburg terminal.

Other Income

We qualified for federal government assistance through employee retention credit provisions of the Consolidated Appropriations Act of 2021. During the year ended December 31, 2021, we recorded $5.0 million of employee retention credits. The calculation of the credit is based on employees continued employment and represents a portion of the wages paid to them. For income tax purposes, the credit will result in decreased expense related to the wages it offsets in the period received.

Interest Expense

We incurred $1.6 million and $2.0 million of net interest expense for the years ended December 31, 2022 and 2021, respectively. In 2022, we continued to reduce debt levels and decrease interest expense through scheduled amortizing payments.

Income Tax Benefit

Income tax benefit was $3.2 million for the year ended December 31, 2022 compared to income tax benefit of $9.0 million for the year ended December 31, 2021. For the years ended December 31, 2022 and 2021, our effective tax rate was approximately 82.0% and 15.1%, respectively, based on the annual effective tax rate net of discrete federal and state taxes. The computation of the effective tax rate for the year ended December 31, 2022 and 2021 included modifications from the statutory rate such as income tax credits, depletion deductions, carrybacks as a result of the Coronavirus Aid, Relief and Economic Security Act, and state apportionment changes, among other items.

Net Loss

Net loss was $(0.7) million for year ended December 31, 2022 compared to net loss of $(50.7) million for the year ended December 31, 2021. The decrease in net loss is attributable to an increase in total volumes sold and higher average sale prices of our sand in addition to non-cash bad debt expense recorded in the prior year against the residual balance of accounts receivable that were previously the subject of litigation in the prior year.

Non-GAAP Financial Measures

Contribution margin, EBITDA, Adjusted EBITDA and free cash flow are not financial measures presented in accordance with GAAP. We believe that the presentation of these non-GAAP financial measures will provide useful information to

investors in assessing our financial condition and results of operations. Gross profit is the GAAP measure most directly comparable to contribution margin, net income is the GAAP measure most directly comparable to EBITDA and Adjusted EBITDA and net cash provided by operating activities is the GAAP measure most directly comparable to free cash flow. Our non-GAAP financial measures should not be considered as alternatives to the most directly comparable GAAP financial measures. Each of these non-GAAP financial measures has important limitations as analytical tools because they exclude some but not all items that affect the most directly comparable GAAP financial measures. You should not consider contribution margin, EBITDA, Adjusted EBITDA or free cash flow in isolation or as substitutes for an analysis of our results as reported under GAAP. Because contribution margin, EBITDA, Adjusted EBITDA and free cash flow may be defined differently by other companies in our industry, our definitions of these non-GAAP financial measures may not be comparable to similarly titled measures of other companies, thereby diminishing their utility.

Contribution Margin

We use contribution margin, which we define as total revenues less costs of goods sold excluding depreciation, depletion and accretion of asset retirement obligations, to measure our financial and operating performance. Contribution margin excludes other operating expenses and income, including costs not directly associated with the operations of our business such as accounting, human resources, information technology, legal, sales and other administrative activities.

Gross profit is the GAAP measure most directly comparable to contribution margin. Contribution margin should not be considered an alternative to gross profit presented in accordance with GAAP. Because contribution margin may be defined differently by other companies in our industry, our definition of contribution margin may not be comparable to similarly titled measures of other companies, thereby diminishing its utility. The following table presents a reconciliation of contribution margin to gross profit.

	Year Ended December 31,		
	2023	2022	2021
	(in thousands)		
Revenue	$ 295,973	$ 255,740	$ 126,648
Cost of goods sold	254,418	226,149	140,384
Gross profit	41,555	29,591	(13,736)
Depreciation, depletion, and accretion of asset retirement obligations included in cost of goods sold	25,469	25,038	24,258
Contribution margin	$ 67,024	$ 54,629	$ 10,522
Contribution margin per ton	$ 14.85	$ 12.61	$ 3.30
Total tons sold	4,514	4,333	3,189

Contribution margin was $67.0 million, or $14.85 per ton sold, for the year ended December 31, 2023 compared to $54.6 million, or $12.61 per ton sold, for the year ended December 31, 2022. The increase in overall contribution margin and contribution margin per ton sold for the year ended December 31, 2023, as compared to the prior year, was primarily due to higher sales volumes and higher average sale prices, production cost savings, partially offset by higher freight costs.

Contribution margin was $54.6 million, or $12.61 per ton sold, for the year ended December 31, 2022 compared to $10.5 million, or $3.30 per ton sold, for the year ended December 31, 2021. The increase in overall contribution margin and contribution margin per ton sold for the year ended December 31, 2022, as compared to the prior year, was primarily due to higher sales volumes and higher average sale prices relative to the cost to deliver products to our customers, along with increased IPS sales and higher utilization of our SmartSystems fleet in 2022 as compared to 2021.

EBITDA and Adjusted EBITDA

We define EBITDA as net income, plus: (i) depreciation, depletion and amortization expense; (ii) income tax expense (benefit); (iii) interest expense; and (iv) franchise taxes. We define Adjusted EBITDA as EBITDA, plus: (i) gain or loss on sale of fixed assets or discontinued operations; (ii) integration and transition costs associated with specified transactions; (iii) equity compensation; (iv) acquisition and development costs; (v) non-recurring cash charges related to restructuring, retention and other similar actions; (vi) earn-out, contingent consideration obligations and other acquisition and development costs; and (vii)

non-cash charges and unusual or non-recurring charges. Adjusted EBITDA is used as a supplemental financial measure by management and by external users of our financial statements, such as investors and commercial banks, to assess:

- the financial performance of our assets without regard to the impact of financing methods, capital structure or historical cost basis of our assets;
- the viability of capital expenditure projects and the overall rates of return on alternative investment opportunities;
- our ability to incur and service debt and fund capital expenditures;
- our operating performance as compared to those of other companies in our industry without regard to the impact of financing methods or capital structure; and
- our debt covenant compliance, as Adjusted EBITDA is a key component of critical covenants to the ABL Credit Facility.

We believe that our presentation of EBITDA and Adjusted EBITDA will provide useful information to investors in assessing our financial condition and results of operations. Net income is the GAAP measure most directly comparable to EBITDA and Adjusted EBITDA. EBITDA and Adjusted EBITDA should not be considered alternatives to net income presented in accordance with GAAP. Because EBITDA and Adjusted EBITDA may be defined differently by other companies in our industry, our definitions of EBITDA and Adjusted EBITDA may not be comparable to similarly titled measures of other companies, thereby diminishing their utility. The following table presents a reconciliation of EBITDA and Adjusted EBITDA to net income for each of the periods indicated.

	Year Ended December 31,		
	2023	2022	2021
	(in thousands)		
Net income (loss)	$ 4,649	$ (703)	$ (50,674)
Depreciation, depletion and amortization	27,363	26,521	25,495
Income tax benefit	(6,901)	(3,205)	(9,017)
Interest expense	1,532	1,661	2,014
Franchise taxes	804	353	290
EBITDA	$ 27,447	$ 24,627	$ (31,892)
(Gain) loss on sale of fixed assets	1,802	(294)	555
Equity compensation	3,391	2,729	2,933
Royalty stock issuance	—	639	—
Employee retention credit	—	—	(5,026)
Acquisition and development costs [1]	545	675	28
Non-cash impairments [2]	—	—	2,170
Cash charges related to restructuring and retention	32	137	9
Accretion of asset retirement obligations	904	758	740
Adjusted EBITDA	$ 34,121	$ 29,271	$ (30,483)

(1) Represents costs incurred related to the business combinations and current development project activities. The year ended December 31, 2023 includes $271 of costs related to the asst acquisition of the Blair facility and $274 related to the Minerva, Ohio terminal.

(2) The year ended December 31, 2021 represents a write-down of our inventory based on expected yield.

Adjusted EBITDA was $34.1 million for the year ended December 31, 2023 compared to $29.3 million for the year ended December 31, 2022. The increase in Adjusted EBITDA for the year ended December 31, 2023, as compared to the prior year, was primarily due to higher sales volumes and production costs savings, partially offset by higher freight costs.

Adjusted EBITDA was $29.3 million for the year ended December 31, 2022 compared to $(30.5) million for the year ended December 31, 2021. The increase in Adjusted EBITDA for the year ended December 31, 2022, as compared to the prior year, was primarily due to a decrease in net loss for the year ended December 31, 2022 as a result of higher sales volumes and

higher average selling prices of our sand and non-cash bad debt expense of $19.6 million related to a litigation settlement in 2021.

Free Cash Flow

Free cash flow, which we define as net cash provided by operating activities less purchases of property, plant and equipment, is used as a supplemental financial measure by our management and by external users of our financial statements, such as investors and commercial banks, to measure the liquidity of our business.

Net cash provided by operating activities is the GAAP measure most directly comparable to free cash flows. Free cash flows should not be considered an alternative to net cash provided by operating activities presented in accordance with GAAP. Because free cash flows may be defined differently by other companies in our industry, our definition of free cash flows may not be comparable to similarly titled measures of other companies, thereby diminishing its utility. The following table presents a reconciliation of free cash flows to net cash provided by operating activities.

	Year Ended December 31,		
	2023	2022	2021
	(in thousands)		
Net cash provided by operating activities	$ 30,991	$ 5,420	$ 32,438
Acquisition of Blair facility	—	(6,547)	—
Purchases of property, plant and equipment	(23,031)	(12,731)	(11,220)
Free cash flow	$ 7,960	$ (13,858)	$ 21,218

Free cash flow was $8.0 million for the year ended December 31, 2023. Net cash provided by operating activities increased to $31.0 million in 2023, compared to $5.4 million in 2022, primarily due to higher cash generated from increased sales volumes and higher sales prices. In 2022, net cash provided by operating activities was lower primarily due to an increase in working capital requirements early in the year to support a significant increase in sales volumes. Capital expenditures for the year ended December 31, 2023 were $23.0 million compared to $12.7 million for the year ended December 31, 2022.

Free cash flow was $(13.9) million for the year ended December 31, 2022. During the year ended December 31, 2022, positive cash flow from operating activities came late in the year as cash collections caught up with increased working capital requirements due to significant increase in sales volumes. The acquisition of the Blair facility and planned capital expenditures more than offset the cash provided by operating activities. Capital expenditures for the year ended December 31, 2022 were $12.7 million compared to $11.2 million for the year ended December 31, 2021.

Liquidity and Capital Resources

Our primary sources of liquidity are cash flow generated from operations, availability under our ABL Credit Facility and other equipment financing sources. As of December 31, 2023, cash on hand was $6.1 million and we had $12.0 million in undrawn availability on our ABL Credit Facility. Our current ABL Credit Facility matures on December 13, 2024.

Based on our balance sheet, cash flows, current market conditions, and information available to us at this time, we believe that we have sufficient liquidity and other available capital resources, to meet our cash needs for the next twelve months, including continued investment in efficiency projects at Oakdale, Blair and Utica facilities, as well as expansion and customization of our newly acquired Ohio terminals.

Material Cash Requirements

Capital Requirements

We expect 2024 capital expenditures, excluding any acquisitions, to be between $19.0 million and $23.0 million, consisting primarily of capital for efficiency projects at Oakdale, Blair and Utica facilities, as well as expansion and customization of our newly acquired Ohio terminals. We expect to fund these capital expenditures with existing cash, cash generated from operations, borrowings under the ABL Credit Facility or other financing sources, such as equipment finance providers.

Indebtedness

We have several debt facilities including the Oakdale Equipment Financing, various notes payable and our ABL Credit Facility. Our Oakdale Equipment Financing is secured by substantially all of the assets at our Oakdale facility. The balance on our Oakdale Equipment Financing as of December 31, 2023 was $7.9 million. Minimum cash payments on this facility in 2024 are $6.8 million. Our various notes payable are primarily secured by our manufactured SmartSystems equipment and other purchased heavy equipment. Total debt under these notes payable as of December 31, 2023 was $2.5 million. Minimum cash payments on these notes payable in 2024 are $1.1 million. There was $8.0 million in borrowings outstanding out our ABL Credit Facility as of December 31, 2023. The ABL facility matures on December 13, 2024.

Operating Leases

We use leases primarily to procure certain office space, railcars and heavy equipment as part of our operations. The majority of our lease payments are fixed and determinable. Our operating lease liabilities as of December 31, 2023 were $24.6 million. Minimum cash payments on operating leases in 2024 are $11.8 million.

Mineral Rights Property

The Company is obligated under certain contracts for minimum payments for the right to use land for extractive activities. The annual minimum payments under these contracts is approximately $2.5 million per year for the next 13 years.

Off-Balance Sheet Arrangements

We had $18.9 million and $17.7 million of outstanding performance bonds as of each of the years ended December 31, 2023 and 2022, respectively. These performance bonds assure our performance under our reclamation plan, maintenance and restoration of public roadways.

Environmental Matters

We are subject to various federal, state and local laws and regulations governing, among other things, hazardous materials, air and water emissions, environmental contamination and reclamation and the protection of the environment and natural resources. We have made, and expect to make in the future, expenditures to comply with such laws and regulations, but cannot predict the full amount of such future expenditures.

Seasonality

Our business is affected to some extent by seasonal fluctuations in weather that impact the production levels for a portion of our wet sand processing capacity. While our dry plants are able to process finished product volumes evenly throughout the year, our excavation and our wet sand processing activities have historically been limited to primarily non-winter months. As a consequence, we have experienced lower cash operating costs in the first and fourth quarter of each calendar year, and higher cash operating costs in the second and third quarter of each calendar year when we overproduce wet sand to meet dry sand demand in the winter months. These higher cash operating costs are capitalized into inventory and expensed when these tons are sold, which can lead to us having higher overall cost of production in the first and fourth quarters of each calendar year as we expense inventory costs that were previously capitalized. We have indoor wet processing facilities at our Oakdale and Utica plant locations which allow us to produce wet sand inventory year-round to support a portion of our dry sand processing capacity, which may reduce certain of the effects of this seasonality. We may also sell frac sand for use in oil and natural gas producing basins where severe weather conditions may curtail drilling activities and, as a result, our sales volumes to those areas may be reduced during such severe weather periods. Additionally, over the last several years, exploration and production companies have become more disciplined in their spending patterns relative to their budgets, which has led to some of our customers completing their budgeted spending earlier in the year. This spending discipline could potentially lead to a slowdown in activity by our customers and lower sand demand in the fourth quarter of the year.

Customer Concentration

For the year ended December 31, 2023, Equitable Gas Corporation, and Liberty Oilfield Services accounted for 30.2%, and 11.4% respectively, of total revenue. For the year ended December 31, 2022, Equitable Gas Corporation, Halliburton Energy Services, Encino Energy, and Liberty Oilfield Services accounted for 22.3%, 15.4%, 14.4%, and 13.7%, respectively, of total revenue. For the year ended December 31, 2021, Equitable Gas Corporation, Halliburton Energy Services, and Liberty Oilfield Services accounted for 24.3%, 18.3%, and 14.8%, respectively, of total revenue.

Critical Accounting Estimates

The discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the dates of the financial statements and the reported revenues and expenses during the reporting periods. We evaluate these estimates and assumptions on an ongoing basis and base our estimates on historical experience, current conditions and various other assumptions that we believe to be reasonable under the circumstances. The results of these estimates form the basis for making judgments about the carrying values of assets and liabilities as well as identifying and assessing the accounting treatment with respect to commitments and contingencies. Our actual results may materially differ from these estimates.

Listed below are the accounting estimates that we believe are critical to our financial statements due to the degree of uncertainty regarding the estimates or assumptions involved.

Asset Retirement Obligation

We estimate the future cost of dismantling, restoring and reclaiming operating excavation sites and related facilities in accordance with federal, state and local regulatory requirements and recognize reclamation obligations when extraction occurs and record them as liabilities at estimated fair value. In addition, a corresponding increase in the carrying amount of the related asset is recorded and depreciated over such asset's useful life or the estimated number of years of extraction. The reclamation liability is accreted to expense over the estimated productive life of the related asset and is subject to adjustments to reflect changes in value resulting from the passage of time and revisions to the estimates of either the timing or amount of the reclamation costs. If the asset retirement obligation is settled for more or less than the carrying amount of the liability, a loss or gain will be recognized, respectively. The asset retirement obligation estimate is calculated by estimating the cost to reclaim an area as of the estimation date and inflating that cost to an estimated reclamation date, then discounting that inflated cost back to the reporting period date. Changes in the current estimate or the interest rates used for inflation or discount can have a material effect on the liability reported. In addition, due to the nature or our business, changes in mine planning can result in changes to our estimated future reclamation dates.

Inventory Valuation

Sand inventory is stated at the lower of cost or net realizable value using the average cost method. Costs applied to inventory include direct excavation costs, processing costs, overhead allocation, depreciation and depletion. Reserves are estimated for moisture loss and waste during production. Stockpile tonnages are calculated by measuring the number of tons added and removed from the stockpile. Tonnages are verified periodically by a survey. Costs are calculated on a per ton basis and are applied to the stockpiles based on the number of tons in the stockpile. There was no writedown of inventory value based on the lower of cost or net realizable value calculation.

Impairment of Long-Lived Assets

We periodically evaluate whether current events or circumstances indicate that the carrying value of our long-lived assets may not be recoverable. If circumstances indicate that the carrying value may not be recoverable, we estimate future undiscounted net cash flows, estimated future sales prices (considering historical and current prices, price trends and related factors) and anticipated operating costs and capital expenditures. If the carrying value of our long-lived assets is less than the undiscounted cash flows, the assets are measured at fair value and an impairment is recorded if that fair value is less than the

carrying value. During the year ended December 31, 2023, we did not record any impairment charges based on the analysis of our long-lived assets.

Income Taxes

Under the balance sheet approach to provide for income taxes, we recognize deferred tax assets and liabilities for the expected future tax consequences of net operating loss carryforwards and temporary differences between the carrying amounts and the tax bases of assets and liabilities. In assessing the realizability of deferred tax assets, we consider whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the period in which those temporary differences become deductible. If we determine it is more likely than not that we will not be able to realize the benefits of the deductible temporary differences, we would record a valuation allowance against the net deferred tax asset.

We recognize uncertain tax positions at the largest amount that, in our judgment, is more-likely-than-not to be required to be recognized upon examination by a taxing authority.

We have recorded a liability of $2.2 million for uncertain tax positions included in deferred tax liabilities, long-term, net on our consolidated balance sheet as of December 31, 2023 and 2022, related to our depletion deduction methodology, and a corresponding increase to the income tax expense on our consolidated statements of operations.

As of December 31, 2023, we determined it is more likely than not that we will not be able to fully realize the benefits of certain existing deductible temporary differences and have recorded a valuation allowance against the deferred tax liabilities, long-term, net on our consolidated balance sheet in the amount of $0.9 million. The valuation allowance as of December 31, 2022 was $1.6 million. The corresponding increase to the income tax benefit on our consolidated statements of operations for the year ended December 31, 2023 was $0.7 million.

ITEM 7A. — QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market risk is the risk of loss arising from adverse changes in market rates and prices. Historically, our risks have been predominantly related to potential changes in the fair value of our long-term debt due to fluctuations in applicable market interest rates. Going forward our market risk exposure generally will be limited to those risks that arise in the normal course of business, as we do not engage in speculative, non-operating transactions, nor do we utilize financial instruments or derivative instruments for trading purposes. We do not believe that inflation has a material impact on our financial position or results of operations during periods covered by the financial statements included in this filing.

Commodity Price Risk

The market for proppant and proppant storage equipment is indirectly exposed to fluctuations in the prices of crude oil and natural gas to the extent such fluctuations impact drilling and completion activity levels and thus impact the activity levels of our customers in the oilfield services and exploration and production industries. Additionally the price fluctuations of natural gas, electricity, as well as diesel prices impact the overall cost of conducting our business. At times, we hedge a portion of our estimated indirect exposure to commodity price risk by entering into fixed price contracts for natural gas, propane and electricity.

Interest Rate Risk

The majority of our debt is financed under fixed interest rates. Borrowings under the ABL Credit Facility bear interest at a rate per annum equal to an applicable margin, plus, at our option, either a LIBOR rate or an alternate base rate ("ABR"). The applicable margin is 2.00% for LIBOR loans and 1.00% for ABR loans. There was a balance of $8.0 million our ABL Credit Facility as of December 31, 2023. We do not believe this represents a material interest rate risk.

Credit Risk

This concentration of counterparties operating in a single industry may increase our overall exposure to credit risk, in that the counterparties may be similarly affected by changes in economic, regulatory or other conditions. If a customer defaults or if any of our contracts expire in accordance with its terms, and we are unable to renew or replace these contracts or the related sales volumes, our gross profit and cash flows may be adversely affected.

Foreign Currency Risk

Our revenues and expenses are primarily in United States dollars; however, certain transactions are transacted in Canada dollars due to our SmartSystems manufacturing facility located in Canada. Thus, revenues, operating expenses, the results of operations, assets and liabilities may be affected to the extent that they are not hedged by the rise and fall of the relative value of the United States dollar to the Canada dollar. During the years ended December 31, 2023, 2022 and 2021, revenue, expenses, assets and liabilities transacted in Canada dollars were immaterial to the results of operations.

ITEM 8. — FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The following Consolidated Financial Statements are filed as part of this Annual Report on Form 10-K:

Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders
Smart Sand, Inc.

Opinion on the financial statements

We have audited the accompanying consolidated balance sheets of Smart Sand, Inc. (a Delaware corporation) and subsidiaries (the "Company") as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive income (loss), changes in stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2023, and the related notes and financial statement schedule included under Item 15(a) (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

Basis for opinion

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

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

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

Critical audit matters

Critical audit matters are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. We determined that there are no critical audit matters.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2014.

Philadelphia, Pennsylvania

March 11, 2024

SMART SAND, INC.

CONSOLIDATED BALANCE SHEETS

	December 31,	
	2023	2022
	(in thousands of U.S. dollars)	
Assets		
Current assets:		
Cash and cash equivalents	$ 6,072	$ 5,510
Accounts receivable	23,231	35,746
Unbilled receivables	2,561	79
Inventory	26,823	20,185
Prepaid expenses and other current assets	3,217	6,593
Total current assets	61,904	68,113
Property, plant and equipment, net	255,092	258,843
Operating lease right-of-use assets	23,265	26,075
Intangible assets, net	5,876	6,669
Other assets	163	303
Total assets	$ 346,300	$ 360,003
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 16,041	$ 14,435
Accrued expenses and other liabilities	11,024	13,430
Deferred revenue	1,154	6,959
Current portion of long-term debt	15,711	6,183
Current portion of operating lease liabilities	10,536	10,910
Total current liabilities	54,466	51,917
Long-term debt	3,449	9,807
Long-term operating lease liabilities	14,056	17,642
Deferred tax liabilities, long-term, net	12,101	18,238
Asset retirement obligation	19,923	18,888
Other non-current liabilities	38	40
Total liabilities	104,033	116,532
Commitments and contingencies (Note 16)		
Stockholders' equity		
Common stock, $ 0.001 par value, 350,000,000 shares authorized; 45,858,022 issued and 38,486,762 outstanding at December 31, 2023; 45,099,067 issued and 43,088,106 outstanding at December 31, 2022	39	43
Treasury stock, at cost, 7,371,260 and 2,010,961 shares at December 31, 2023 and 2022, respectively	(14,249)	(5,075)
Additional paid-in capital	181,973	178,386
Retained earnings	74,539	69,890
Accumulated other comprehensive (loss) income	(35)	227
Total stockholders' equity	242,267	243,471
Total liabilities and stockholders' equity	$ 346,300	$ 360,003

The accompanying notes are an integral part of these consolidated financial statements.

SMART SAND, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31,		
	2023	2022	2021
	(in thousands of U.S. dollars, except per share amounts)		
Revenues:			
Sand sales revenue	$ 283,160	$ 243,162	$ 117,402
Shortfall revenue	4,304	5,010	4,421
Logistics revenue	8,509	7,568	4,825
Total revenue	295,973	255,740	126,648
Cost of goods sold	254,418	226,149	140,384
Inventory impairment loss	—	—	2,170
Gross profit	41,555	29,591	(15,906)
Operating expenses:			
Salaries, benefits and payroll taxes	18,309	13,480	11,258
Depreciation and amortization	2,535	2,244	1,980
Selling, general and administrative	20,413	17,288	14,194
Loss (gain) on disposal of fixed assets, net	1,802	(294)	555
Bad debt expense	—	1	19,592
Total operating expenses	43,059	32,719	47,579
Operating loss	(1,504)	(3,128)	(63,485)
Other (expenses) income:			
Interest expense, net	(1,272)	(1,608)	(1,979)
Other income	524	828	5,773
Total other (expenses) income, net	(748)	(780)	3,794
Loss before income tax benefit	(2,252)	(3,908)	(59,691)
Income tax benefit	(6,901)	(3,205)	(9,017)
Net income (loss)	$ 4,649	$ (703)	$ (50,674)
Net income (loss) per common share:			
Basic	$ 0.12	$ (0.02)	$ (1.21)
Diluted	$ 0.12	$ (0.02)	$ (1.21)
Weighted-average number of common shares:			
Basic	38,948	42,408	41,775
Diluted	39,046	42,408	41,775

The accompanying notes are an integral part of these consolidated financial statements.

SMART SAND, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

	Year Ended December 31,		
	2023	2022	2021
	(in thousands of U.S. dollars)		
Net income (loss)	$ 4,649	$ (703)	$ (50,674)
Other comprehensive (loss) income:			
Foreign currency translation adjustment	(262)	(347)	151
Comprehensive income (loss)	$ 4,387	$ (1,050)	$ (50,523)

The accompanying notes are an integral part of these consolidated financial statements.

SMART SAND, INC.

CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY

	Common Stock		Treasury Stock		Additional		Accumulated Other	Total
	Outstanding Shares	Par Value	Shares	Amount	Paid-In Capital	Retained Earnings	Comprehensive Income (Loss)	Stockholders' Equity
	(in thousands of U.S. dollars, except share amounts)							
Balance at December 31, 2020	41,575,129	$ 42	1,618,265	$ (4,134)	$ 171,209	$ 121,267	$ 423	$ 288,807
Foreign currency translation adjustment	—	—		—	—	—	151	151
Acquisition stock issuance	14,430	—	—	—	20	—	—	20
Vesting of restricted stock	547,563	—	—	—	—	—	—	—
Stock-based compensation	—	—	—	—	3,161	—	—	3,161
Employee stock purchase plan compensation	—	—	—	—	34	—	—	34
Employee stock purchase plan issuance	34,427	—	—	—	62	—	—	62
Restricted stock buy back	(158,736)	—	158,736	(401)	—	—	—	(401)
Net loss	—	—	—	—	—	(50,674)	—	(50,674)
Balance at December 31, 2021	42,012,813	$ 42	1,777,001	$ (4,535)	$ 174,486	$ 70,593	$ 574	$ 241,160
Foreign currency translation adjustment	—	—	—	—	—	—	(347)	(347)
Acquisition stock issuance	300,000	—	—	—	639	—	—	639
Vesting of restricted stock	974,730	1	—	—	—	—	—	1
Stock-based compensation	—	—	—	—	3,184	—	—	3,184
Employee stock purchase plan compensation	—	—	—	—	25	—	—	25
Employee stock purchase plan issuance	34,523	—	—	—	52	—	—	52
Restricted stock buy back	(233,960)	—	233,960	(540)	—	—	—	(540)
Net loss	—	—	—	—	—	(703)	—	(703)
Balance at December 31, 2022	43,088,106	$ 43	2,010,961	$ (5,075)	$ 178,386	$ 69,890	$ 227	$ 243,471
Foreign currency translation adjustment	—	—	—	—	—	—	(262)	(262)
Vesting of restricted stock	720,534	1	—	—	—	—	—	1
Stock-based compensation	—	—	—	—	3,507	—	—	3,507
Employee stock purchase plan compensation	—	—	—	—	24	—	—	24
Employee stock purchase plan issuance	38,421	—	—	—	56	—	—	56
Purchase of treasury stock	(5,175,688)	(5)	5,175,688	(8,845)	—	—	—	(8,850)
Restricted stock buy back	(184,611)	—	184,611	(329)	—	—	—	(329)
Net income	—	—	—	—	—	4,649	—	4,649
Balance at December 31, 2023	38,486,762	$ 39	7,371,260	$ (14,249)	$ 181,973	$ 74,539	$ (35)	$ 242,267

The accompanying notes are an integral part of these consolidated financial statements.

SMART SAND, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
	2023	2022	2021
	(in thousands of U.S. dollars)		
Operating activities:			
Net income (loss)	$ 4,649	$ (703)	$ (50,674)
Adjustments to reconcile net (loss) income to net cash provided by operating activities:			
Depreciation, depletion and accretion of asset retirement obligation	27,472	26,488	25,308
Impairment loss	—	—	2,170
Amortization of intangible assets	793	792	792
(Gain) loss on disposal of assets	1,802	(294)	555
Provision for bad debt	—	1	19,592
Amortization of deferred financing cost	105	105	105
Accretion of debt discount	186	186	183
Deferred income taxes	(6,137)	(4,196)	(10,547)
Stock-based compensation, net	3,507	3,184	3,161
Employee stock purchase plan compensation	24	25	34
Changes in assets and liabilities:			
Accounts receivable	12,672	(18,265)	32,899
Unbilled receivables	(2,640)	1,805	(2,011)
Inventory	(6,638)	(5,161)	1,942
Prepaid expenses and other assets	1,996	6,524	751
Deferred revenue	(5,805)	(9,311)	5,913
Settlement of asset retirement obligation	(197)	—	—
Accounts payable	1,974	5,244	4,508
Accrued expenses and other liabilities	(2,772)	(1,004)	(2,243)
Net cash provided by operating activities	30,991	5,420	32,438
Investing activities:			
Acquisition, net of cash acquired	—	(6,547)	—
Purchases of property, plant and equipment	(23,031)	(12,731)	(11,220)
Proceeds from disposal of assets	129	1,070	78
Net cash used in investing activities	(22,902)	(18,208)	(11,142)
Financing activities:			
Repayments of notes payable	(10,435)	(7,325)	(6,771)
Payments under financing lease obligation	(394)	(116)	(123)
Proceeds from revolving credit facility	23,000	10,000	—
Repayment of revolving credit facility	(15,000)	(10,000)	—
Payment of contingent consideration	—	—	(180)
Proceeds from equity issuance	56	52	42
Royalty stock issuance	—	639	—
Purchase of treasury stock	(4,754)	(540)	(401)
Net cash used in financing activities	(7,527)	(7,290)	(7,433)
Net increase in cash and cash equivalents	562	(20,078)	13,863
Cash and cash equivalents at beginning of year	5,510	25,588	11,725
Cash and cash equivalents at end of year	$ 6,072	$ 5,510	$ 25,588

The accompanying notes are an integral part of these consolidated financial statements.

NOTE 1 — Organization and Nature of Business

The Company was incorporated in July 2011 and is headquartered in Spring, Texas. The Company primarily operates as a fully integrated frac and industrial sand supply and services company. The Company offers complete mine to wellsite proppant supply and logistics solutions to our frac sand customers. These operations include the excavation, processing and sale of sand, or proppant, for use in hydraulic fracturing operations as well as proppant logistics and wellsite storage solutions through its SmartSystems™ products and services. In late 2021, the Company created its Industrial Products Solutions ("IPS") business to diversify its customer base and markets it serves by offering sand to customers for industrial uses, such as glass, foundry, building products, filtration, geothermal, renewables, ceramics, turf & landscape, retail, and recreation.

Sand Mines and Processing Facilities

The Company's integrated Oakdale facility, with on-site rail infrastructure and wet and dry sand processing facilities, has access to two Class I rail lines which enable the Company to process and cost effectively deliver products to its customers. The Company completed construction of the first phase of its mine and processing facility near Oakdale, Wisconsin and commenced operations in July 2012, and subsequently expanded its operations in 2014, 2015 and 2018. Currently, the annual processing capacity at the Company's Oakdale facility is approximately 5.5 million tons.

In September 2020, the Company acquired two frac sand mines and related processing facilities in Utica, Illinois and New Auburn, Wisconsin. The Utica facility has an annual processing capacity of 1.6 million tons and access to the Burlington Northern Santa Fe ("BNSF") Class I rail line through the Peru, Illinois transload facility. The Company began operating the Utica, Illinois mine and Peru, Illinois transload facility in October 2020. The Company has no plans to operate the New Auburn Facility for the foreseeable future.

In March 2022, the Company acquired its Blair, Wisconsin, whose primary assets of Blair consisted of an idle frac sand mine and related processing facility located in Blair, Wisconsin. The Blair facility has approximately 2.9 million tons of total annual processing capacity and contains an onsite, unit train capable rail terminal with access to the Class 1 Canadian National Railway. The Company began operations at Blair in the second quarter of 2023.

With the Blair acquisition, the Company has direct access to four Class I rail lines and the ability to access all Class 1 rail lines within the United States and Canada.

The Company also offers proppant logistics solutions to its customers through, among other things, its in-basin transloading terminals and its SmartSystems ™ wellsite proppant storage and management capabilities.

Transload & Logistics Solutions

In March 2018, the Company acquired the rights to operate a unit train capable transloading terminal in Van Hook, North Dakota to service the Bakken Formation in the Williston Basin and began providing Northern White Sand in-basin in April 2018.

In September 2020, the Company acquired the rights to use a rail terminal located in El Reno, Oklahoma.

In September 2021, the Company acquired the rights to construct and operate a transloading terminal in Waynesburg, Pennsylvania to service the Appalachian Basin, including the Marcellus and Utica Formations. The Company began providing sand to customers through this terminal in January 2022 and recently expanded the facility's capacity in late 2023.

In December 2023 and January 2024, the Company acquired rights to use transloading terminals in Minerva, Ohio and Dennison, Ohio, respectively. These terminals will service the Appalachian Basin and are expected to commence operations in the second quarter of 2024.

In June 2018, the Company acquired substantially all of the assets of Quickthree Solutions, Inc., ("Quickthree"), a manufacturer of portable vertical proppant storage solution systems. Quickthree formed the basis for the Company's SmartSystems under which it offers various proppant storage solutions that create efficiencies, flexibility, enhanced safety and reliability for customers by providing the capability to unload, store and deliver proppant at the wellsite, as well as the ability to rapidly set up, takedown and transport the entire system. The SmartDepot™ silo includes passive and active dust suppression technology, along with the capability of gravity-fed operation. The self-contained SmartPath ™ transloader is a mobile sand transloading system designed to work with bottom dump trailers and features a drive over conveyor, surge bin, and dust collection system. The SmartBelt™ conveyor works in conjunction with the SmartPath to provide sand directly into the blender

on the wellsite. The Company has developed a belt system to pair with its SmartPath, which allows for feeding sand directly into the hopper at the wellsite. Rapid deployment trailers are designed for quick setup, takedown and transportation of the entire SmartSystem, and they detach from the wellsite equipment, which allows for removal from the wellsite during operation. A proprietary software program, the SmartSystem Tracker™, allows customers to monitor silo-specific information, including location, proppant type and proppant inventory.

NOTE 2 — Summary of Significant Accounting Policies

Basis of Presentation and Consolidation

The accompanying consolidated financial statements ("financial statements") of the Company have been prepared in accordance with GAAP and pursuant to the rules and regulations of the SEC. The accompanying financial statements include those of our controlled subsidiaries. The intercompany accounts and transactions have been eliminated. In the opinion of management, all adjustments and disclosures necessary for a fair presentation of these financial statements have been included.

Revision of Previously Issued Financial Statements for Immaterial Misstatements

During the quarter ended March 31, 2023, the Company identified a misclassification in the operating expenses section of the statement of operations in the audited financial statements for the year ended December 31, 2022. The misclassification was an overstatement of salaries, benefits and payroll taxes and an understatement of selling, general and administrative in the amount of $ 1,462 . For the three and twelve months ended December 31, 2022, the Company has decreased salaries, benefits and payroll taxes and increased selling, general and administrative line items by $ 1,462 . There was no effect to the amounts reported in the first, second or third quarter financial statements of 2022. Pursuant to the guidance of Staff Accounting Bulletin ("SAB") No. 99, "Materiality", the Company evaluated the materiality of this misclassification quantitatively and qualitatively and concluded that it was not material to any of its prior annual or quarterly financial statements or trends of financial results. The Company has reclassified the prior year financial statement presentation to conform to the current financial statement presentation. These reclassifications have no effect on previously reported net income.

Use of Estimates

The preparation of financial statements in accordance with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent liabilities at the date of the consolidated financial statements, and the reported amounts of revenues and expenses during the reporting period. Significant estimates used in the preparation of these financial statements include, but are not limited to: the sand reserves and their impact on calculating the depletion expense under the units-of-production method; the depreciation and amortization associated with property, plant and equipment and definite-lived intangible assets; impairment considerations of intangible assets; estimated cost of future asset retirement obligations; fair value of acquired assets and assumed liabilities; stock-based compensation; recoverability of deferred tax assets; inventory reserve; collectability of receivables; and certain liabilities.

Actual results could differ from management's best estimates as additional information or actual results become available in the future, and those differences could be material. The Company is currently unable to estimate the impact of current or future events on its future financial position and results of operations. Therefore, the Company can give no assurances that current or future events will not have a material adverse effect on its financial position or results of operations.

Revenue Recognition

Revenues are generally recognized when control of the promised goods or services is transferred to our customers, the amount of which reflects the consideration the Company expects to be entitled to in exchange for those goods or services.

Sand Sales Revenue

The Company derives its sand sales revenue by mining and processing sand. Its revenues are primarily a function of the price per ton realized and the volumes sold. The singular performance obligation for sand sold is determined by each individual purchase order and the respective products ordered, with revenue being recognized at a point-in-time when the obligation under the terms of the agreement is satisfied and the product control is transferred to our customer. For sand delivered at one of the Company's facilities, title passes as the product is loaded into railcars hired by the customer or provided by the Company and revenue is recognized when title transfers at the Company's facility. For sand delivered in-basin, the Company recognizes revenue when title passes to the customer at the transload facility or in the customer's truck, depending on the level of logistics

services provided to the customer. The amount invoiced reflects product, transportation and any other additional handling services, such as storage or transloading the product from railcar to truck.

Prices under the Company's long-term agreements with customers are generally fixed but may contain provisions allowing for adjustments including: (i) annual percentage price increases; and/or (ii) market factor adjustments, including a natural gas surcharge/reduction, propane surcharge/reduction, or rail surcharge which are applied if prices moved beyond benchmarks established in the contract.

The Company requires certain customers to pay a monthly reservation charge based on a minimum contractual volume over the remaining life of their contract, which may be applied as a per ton credit to the sales price up to a certain contractually specified monthly volume or credited against any applicable shortfall payments. Standard collection terms are net 30 days, although extended terms are offered in competitive situations. The Company recognizes revenue when the customer no longer has the right to use the reservation charge towards sand sales or shortfall payments.

Shortfall Revenue

The Company's shortfall revenues are related to minimum commitments under take-or-pay contracts and based on negotiated contract terms and are recognized when rights of use are expired. The Company recognizes revenue to the extent of the unfulfilled minimum contracted quantity at the shortfall price per ton as stated in the contract.

Logistics Revenue

Logistics revenue is primarily from SmartSystems revenue, railcar usage and transportation revenue.

SmartSystems revenues are primarily from the rental of our patented SmartSystems equipment and related services provided to customers, which is typically earned under fixed monthly rental fees for equipment and services for the delivery, proppant management and maintenance on the equipment. The singular performance obligation of SmartSystems revenue is providing the equipment and related to services to customers. Revenues are recognized as the performance obligations are satisfied under the terms of the customer contract.

Railcar usage revenue consists of revenue derived from the usage of the Company's railcars by customers under long-term contracts or on an as-used basis. The singular performance obligation for railcar usage revenue is making the railcars available for customer use. Based on the customer contract, the Company either recognizes revenue on the usage of railcars based on when the terms of the agreement state that the railcar is available to the customer for use, or based on a specified price per ton shipped.

Transportation revenue consists primarily of railway transportation and transload services that occur after the control over a product has transferred to a customer. The singular performance obligation for transportation revenue is providing the railway and transportation services. Revenue is recognized when this performance obligation is fulfilled. The Company's transportation revenue fluctuates based on many factors, including the volume of product it transports and the distance between its plant and customers.

Contract Balances

The timing of revenue recognition, billings and cash collections results in billed accounts receivable, unbilled receivables, deferred revenue, and contract assets, included in other assets, on the consolidated balance sheet. Generally, billing occurs subsequent to revenue recognition, though certain billing occurs in advance, resulting in unbilled receivables and deferred revenue, respectively. In addition, the Company sometimes receives shortfall payments from or offers pricing concessions to its customers, which results in deferred revenue until the Company recognizes such revenue when performance obligations are met in accordance with the contract.

Deferred Revenues

The Company receives advance payments from certain customers in order to secure and procure a reliable provision and delivery of product. The Company classifies such advances as current or noncurrent liabilities depending upon the anticipated timing of delivery of the supplied product. Deferred revenue is recognized as revenue when performance obligations are met in accordance with the contract.

Performance Obligations

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer, and is the unit of account in accordance with ASC 606. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, each performance obligation is satisfied. The Company's contracts may include a single performance obligation in a single contract whereby the allocation of transaction price is not necessary. The Company's contracts may also contain multiple elements in a single contract or multiple contracts. For contracts with multiple performance obligations, the transaction price is allocated to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognize the related revenue as control of each individual product or service is transferred to the customer, in satisfaction of the corresponding performance obligations. As of December 31, 2023, the Company had $ 235,704 in estimated unsatisfied performance obligations related to contracts with customers. The Company expects to perform these obligations and recognize revenue of approximately $ 150,475 and $ 85,229 in the years ending December 31, 2024 and 2025, respectively. These estimates include all open contracts as of December 31, 2023. Actual amounts earned may vary from these estimates as our contract prices include provisions for pricing changes discussed above.

Taxes Collected from Customers and Remitted to Governmental Authorities

We exclude from our measurement of transaction prices all taxes assessed by governmental authorities that are both (i) imposed on and concurrent with a specific revenue-producing transaction and (ii) collected from customers.

Significant Judgments

Accounting for long-term contracts involves the use of various techniques to estimate total contract revenue, costs and satisfaction of performance obligations. The Company satisfies its performance obligation and subsequently recognizes revenue, at a point in time, upon shipment of the products as the customer obtains control over the goods once the sand is loaded into the railcars or sand is delivered to the customer's destination.

Cash and Cash Equivalents

The Company considers all short-term, highly liquid investments with an original maturity of three months or less to be cash equivalents. Cash is maintained at financial institutions and, at times, balances may exceed federally insured limits.

Accounts and Unbilled Receivables

Accounts receivable represents customer transactions that have been invoiced as of the balance sheet date; unbilled receivables represent customer transactions that have not yet been invoiced as of the balance sheet date. Accounts receivable are due in accordance with terms agreed upon with customers, and are stated at amounts due from customers net of any allowance for doubtful accounts. The Company considers accounts outstanding longer than the payment terms past due.

In January 2023, the Company adopted ASU 2016-13, Financial Instruments - Credit Losses (Topic 326), which modifies how companies recognize expected credit losses on financial instruments and other commitments to extend credit held by an entity at each reporting date. Effective with this amendment, the Company records an allowance for credit losses and deducts that amount from its accounts receivable balance and a related expense will be recognized in selling, general and administrative expenses on the income statement. The Company has not recorded any allowance for bad debt under this new methodology for the year ended December 31, 2023.

Prior to 2023, GAAP required incurred loss methodology whereby companies are prohibited from recording an expected loss until it is probable that the loss has been incurred. Accounts receivable are written off when they are deemed uncollectible, and payments subsequently received on such receivables are credited to bad debt expense. The Company has not recorded any allowance for bad debt under this previous methodology for the year ended December 31, 2022.

Under both methodologies, the Company determines the allowance by considering a number of factors, including the length of time trade accounts receivable are past due, previous loss history, a customer's current ability to pay its obligation, and the condition of the general economy and the industry as a whole. As of December 31, 2023 and 2022, there were no unbilled receivables included in deferred revenue. The Company recorded $ 0 , $ 1 , and $ 19,592 for the years ended December 31, 2023, 2022, and 2021, respectively as non-cash bad debt expense. The $ 19,592 in non-cash debt expense in 2021 is the difference between the $ 54,592 accounts receivable balance that was previously under litigation and the $ 35,000 cash received under a settlement agreement.

Transportation

Transportation costs are classified as cost of goods sold. Transportation costs consist of railway transportation and transload costs to deliver products to customers. Cost of sales generated from shipping was $ 139,568 , $ 118,616 and $ 57,770 for the years ended December 31, 2023, 2022 and 2021, respectively.

Inventories

The Company's sand inventory consists of raw material (sand that has been excavated but not processed), work-in-progress (sand that has undergone some but not all processing) and finished goods (sand that has been completely processed and is ready for sale). Costs applied to sand inventory include direct excavation costs, processing costs, overhead allocation, depreciation and depletion, transportation and additional service costs, as applicable. Stockpile tonnages are calculated by measuring the number of tons added and removed from the stockpile. Costs are calculated on a per ton basis and are applied to the stockpiles based on the number of tons in the stockpile. The Company performs periodic surveys to verify the quantity of sand inventory on hand. Due to variation in sand density and moisture content and production processes utilized to manufacture the Company's products, physical inventories will not necessarily detect all variances. To mitigate this risk, the Company recognizes a yield adjustment on its inventories. Sand inventory is stated at the lower of cost or net realizable value using the average cost method. There was no write-down of inventory value based on the lower of cost or net realizable value calculation for the years ended December 31, 2023, 2022 and 2021. The Company also performs an analysis on its existing inventory and estimates the expected production yield based on waste sand produced to determine if it has obsolete inventory. An inventory impairment was recorded in the amount of $ 2,170 for the year ended December 31, 2021. There was no inventory impairment due to obsolescence for the years ended December 31, 2023 and 2022.

The spare parts inventory consists of critical spare parts. Spare parts inventory is accounted for on a first-in, first-out basis at the lower of cost or net realizable value.

Certain acquired inventory is stated at fair market value, as determined by its anticipated sales price less costs of disposal and reasonable profit allowance for selling efforts, which may be higher than its cost.

Deferred Financing Charges

Direct costs incurred in connection with the Company's debt are capitalized amortized using the straight-line method, which approximates the effective interest method, over the term of the debt. Amortization expense of the deferred financing and debt discount charges of $ 291 , $ 291 , and $ 291 are included in interest expense as of December 31, 2023, 2022 and 2021, respectively. Costs related to the Oakdale Equipment Financing are presented net of the related debt and costs related to the ABL Credit Facility are presented in other assets on the balance sheet.

Financial Instruments

The carrying value of the Company's financial instruments, consisting of cash, accounts receivable, accounts payable, accrued expenses, and debt approximates their fair value due to the short maturity of such instruments. Unless otherwise noted, it is management's opinion that the Company is not exposed to significant interest, currency or credit risks arising from these financial instruments.

Property, Plant and Equipment

Property, plant and equipment are recorded at cost. Deferred stripping costs are amortized over the estimated life of the mining area to which they apply. Construction in progress is primarily comprised of machinery and equipment which has not been placed in service and is not depreciated until the related assets or improvements are ready to be placed in service. Depreciation is calculated using the straight-line method over the estimated useful lives of the property, plant and equipment, which are:

	Years
Machinery, equipment and tooling	3 - 15
SmartSystems	5 - 15
Vehicles	3 - 5
Furniture and fixtures	3 - 10
Plant and buildings	5 - 15
Real estate properties	10 - 40
Railroad and sidings	30
Land improvements	10
Deferred stripping costs	1 - 9

Expenditures for maintenance and repairs are charged against income as incurred; betterments that increase the value or materially extend the life of the related assets are capitalized. Upon sale or disposition of property and equipment, the cost and related accumulated depreciation and amortization are removed from the accounts and any resulting gain or loss is recognized in the consolidated statements of operations.

Acquisitions

The Company determines whether a transaction or other event is a business combination, which requires that the assets acquired and liabilities assumed constitute a business. Each business combination is then accounted for by applying the acquisition method. If the assets acquired are not a business, the Company accounts for the transaction or other event as an asset acquisition. Under both methods, the Company recognizes the identifiable assets acquired, the liabilities assumed, contingent considerations and any non-controlling interest in the acquired entity. In addition, for transactions that are business combinations, the Company evaluates the existence of goodwill or a gain from a bargain purchase. The Company capitalizes acquisition-related costs and fees associated with asset acquisitions and expenses acquisition-related costs and fees associated with business combinations in the period in which they are incurred.

Long-Lived Assets, Including Definite-Lived Intangible Assets

Long-lived assets are evaluated for impairment whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable through the estimated undiscounted future cash flows derived from such assets. Definite-lived intangible assets primarily consist of developed technology. For long-lived assets used in operations, impairment losses are only recorded if the asset's carrying amount is not recoverable through its undiscounted, probability-weighted future cash flows. The Company measures the impairment loss based on the difference between the carrying amount and the estimated fair value. When an impairment exists, the related assets are written down to fair value.

Acquired finite-lived intangible assets are amortized on a straight-line basis over the following periods:

	Estimated Useful Life (Years)
Developed technology	13

There were no impairments of long-lived assets or definite-lived intangible assets during the years ended December 31, 2023, 2022 and 2021.

Leases

Lessee

The Company uses leases primarily to procure certain office space, railcars and heavy equipment as part of its operations. The majority of its lease payments are fixed and determinable with certain of its lease payments containing immaterial variable payments based on the number of hours the equipment is used. Certain of its leases have options that allow for renewal at market rates, purchase at fair market value or termination of the lease. The Company must determine that it is reasonably certain that a lease option will be exercised for such an option to be included in the right-of-use asset or lease liability. The Company is not reasonably certain that any of its lease options will be exercised and, as such, has not included those options in its right-of-use assets or lease liabilities. Certain of its equipment leases contain residual value guarantees which guarantee various parts of heavy equipment will have a remaining life when the equipment is returned to the lessor. It is possible that the Company could owe additional amounts to the lessor upon return of equipment. There are no restrictions or covenants imposed by any of the Company's leases.

The Company evaluates contracts during the negotiation process and when they are executed to determine the existence of leases. A contract contains a lease when it conveys the right to use property, plant or equipment for a stated period of time in exchange for consideration. Leases with an initial term of twelve months or less are not recorded on the balance sheet. The Company recognizes lease expense on a straight-line basis over the term of the lease. The Company evaluates the classification of its leases at the commencement date and includes both lease and non-lease components in its calculation of consideration in the contract for all classes of operating leases.

The Company applies a discount rate to operating leases by class of asset, which is its incremental borrowing rate. The Company determines its incremental borrowing rate based on an average of collateralized borrowing rates offered by various lenders. The Company considers the nature of the assets and the life of the leases and determines the incremental borrowing rate among its classes of assets. See Note 10 — Leases for additional disclosures regarding the Company's leasing activity.

The Company is obligated under certain contracts for minimum payments for the right to use land for extractive activities, which is not within the scope of leases under ASC 842. See Note 17 — Commitments and Contingencies for additional disclosures regarding these obligations.

Lessor

The Company manufactures SmartSystems and offers the equipment for lease. The Company negotiates the terms of its leases on a case-by-case basis. There are no significant options that are reasonably certain to be exercised, residual value guarantees, restrictions or covenants in its lease contracts and have, therefore, not been included in its accounting for the leases. All of the Company's SmartSystems are accounted for as operating leases.

Fair Value Measurements

The Company has categorized its assets and liabilities that are measured at fair value on a recurring and non-recurring basis into a three-level fair value hierarchy, of which the first two are considered observable and the last unobservable, which are as follows:

- Level 1—Inputs are unadjusted quoted prices in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date;
- Level 2—Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active or other inputs corroborated by observable market data for substantially the full term of the assets or liabilities; and
- Level 3—Unobservable inputs that reflect the Company's assumptions that market participants would use in pricing assets or liabilities based on the best information available.

The Company had no financial instruments carried at fair value as of December 31, 2023 and 2022.

Asset Retirement Obligation

The Company estimates the future cost of dismantling, restoring and reclaiming operating excavation sites and related facilities in accordance with federal, state and local regulatory requirements and recognizes reclamation obligations when disturbance occurs and records them as liabilities at estimated fair value. In addition, a corresponding increase in the carrying amount of the related asset is recorded and depreciated over such asset's useful life or the estimated number of years of extraction. The reclamation liability is accreted to expense over the estimated productive life of the related asset and is subject to adjustments to reflect changes in value resulting from the passage of time and revisions to the estimates of either the timing or amount of the reclamation costs. If the asset retirement obligation is settled for more or less than the carrying amount of the liability, a loss or gain will be recognized, respectively.

Stock-Based Compensation

The Company issues restricted stock to certain employees and members of the board of directors of the Company (the "Board") for their services on the Board. The Company estimates the grant date fair value of each share of restricted stock at issuance. For awards subject to service-based vesting conditions, the Company recognizes, in the consolidated statements of operations, stock-based compensation expense equal to the grant date fair value of the award on a straight-line basis over the requisite service period, which is generally the vesting term. For awards subject to both performance and service-based vesting conditions, the Company recognizes stock-based compensation expense on a straight-line basis unless it is probable that the performance condition will not be achieved. Forfeitures are accounted for when they occur. The Company uses the market price of its shares as the grant date fair value for restricted stock awards.

Income Taxes

The Company applies the provisions of ASC 740, "Income Taxes" ("ASC 740"), which principally utilizes a balance sheet approach to provide for income taxes. Under this method, deferred tax assets and liabilities are recognized for the expected future tax consequences of net operating loss carryforwards and temporary differences between the carrying amounts and the tax bases of assets and liabilities.

ASC 740 clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements. The impact of an uncertain income tax position on the income tax returns must be recognized at the largest amount that is more-likely-than-not to be required to be recognized upon audit by the relevant taxing authority. This standard also provides guidance on derecognition, measurement, classification, interest and penalties, accounting for interim periods, disclosure and transition issues with respect to tax positions. The Company includes interest and penalties as a component of income tax expense in the consolidated statements of operations. For the periods presented, immaterial interest and penalties were recorded.

Environmental Matters

The Company is subject to various federal, state and local laws and regulations relating to the protection of the environment. Management has established procedures for the ongoing evaluation of the Company's operations, to identify potential environmental exposures and to comply with regulatory policies and procedures. Environmental expenditures that relate to current operations are expensed or capitalized as appropriate. Expenditures that relate to an existing condition caused by past operations and do not contribute to current or future revenue generation are expensed as incurred. Liabilities are recorded when environmental costs are probable, and the costs can be reasonably estimated. The Company maintains insurance which may cover, in whole or in part, certain environmental expenditures. As of December 31, 2023 and 2022, there were no material probable environmental matters.

Segment Information

Reportable operating segments are identified as components of an enterprise about which separate discrete financial information is available and utilized by the chief operating decision maker, or decision-making group, in making decisions on how to allocate resources and assess performance. The Company's chief operating decision maker is the Chief Executive Officer. The Company and the Chief Executive Officer view the Company's operations and manage its business as one reportable operating segment.

Basic and Diluted Net Income Per Share of Common Stock

Basic net income per share of common stock is computed by dividing net income attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period, excluding the dilutive effects of restricted stock. Diluted net income per share of common stock is computed by dividing the net income attributable to common stockholders by the sum of the weighted-average number of shares of common stock outstanding during the period plus the potential dilutive effects of restricted stock outstanding during the period calculated in accordance with the treasury stock method, although these shares and restricted stock are excluded if their effect is anti-dilutive. The number of shares underlying equity-based awards that were excluded from the calculation of diluted earnings per share for the years ended December 31, 2023, 2022, 2021 was 1,719 , 2,317 and 3,011 , respectively as their effect would be anti-dilutive. The following table reconciles the weighted-average common shares outstanding used in the calculation of basic net income per share to the weighted average common shares outstanding used in the calculation of diluted net income per share:

	Year Ended December 31,		
	2023	2022	2021
Weighted average common shares outstanding	38,948	42,408	41,775
Assumed conversion of restricted stock	98	—	—
Diluted weighted average common stock outstanding	39,046	42,408	41,775

Employee Retention Credit

The Company qualified for federal government assistance through employee retention credit provisions of the Consolidated Appropriations Act of 2021. During the year ended December 31, 2021, the Company recorded $ 5,026 of employee retention credits in other income on its consolidated statements of operations, of which $ 522 remained included in prepaid expenses and other current assets on the consolidated balance sheet as of December 31, 2023. The calculation of the credit is based on employees continued employment and represents a portion of the wages paid to them. For income tax purposes, the credit will result in decreased expense related to the wages it offsets in the period received.

Recent Accounting Pronouncements

In November 2023, the FASB issued ASU 2023-07, Segment Reporting, which updates various reportable disclosure requirements, primarily through incremental disclosures of segment expenses in both annual and interim reporting. The Update is effective for the Company as of the annual reporting period beginning January 1, 2024 and interim periods beginning January 1, 2025. While the Company is still in the process of evaluating the effects of ASU 2023-07 and its related updates on the consolidated financial statements, at the time of adoption, it believes the primary effect will be updated note disclosures.

In December 2023, the FASB issued ASU 2023-09, Income Taxes, which updates various disclosures including enhancing the income tax rate reconciliation and income taxes paid disclosures by requiring greater disaggregation of information. The other amendments in this Update are intended to improve the effectiveness and comparability of disclosures. The Update is effective for the Company for the annual reporting period beginning January 1, 2025 and for interim periods beginning January 1, 2026. While the Company is still in the process of evaluating the effects of ASU 2023-07 and its related updates on the consolidated financial statements, at the time of adoption, it believes the primary effect will be updated note disclosures.

NOTE 3 — Inventories

Inventories consisted of the following:

	December 31,	
	2023	2022
Raw material	$ 467	$ 844
Work in progress	9,391	6,240
Finished goods	8,244	7,534
Spare parts	8,721	5,567
Total inventory	$ 26,823	$ 20,185

NOTE 4 — Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consisted of the following:

	December 31,	
	2023	2022
Prepaid insurance	$ 1,494	$ 777
Prepaid expenses	910	658
Prepaid income taxes, net	—	2,494
Other receivables	813	2,476
Other current assets	—	188
Total prepaid expenses and other current assets	$ 3,217	$ 6,593

NOTE 5 — Property, Plant and Equipment, net

Net property, plant and equipment consists of:

	December 31,	
	2023	2022
Machinery, equipment and tooling	$ 40,632	$ 36,483
SmartSystems	30,651	28,376
Vehicles	4,082	3,835
Furniture and fixtures	1,466	1,421
Plant and buildings	213,756	200,480
Real estate properties	7,209	6,155
Railroad and sidings	35,491	33,698
Land and land improvements	40,519	40,433
Asset retirement obligation	22,910	22,583
Mineral properties	7,442	7,442
Deferred stripping costs	3,802	2,470
Construction in progress	6,270	10,421
	414,230	393,797
Less: accumulated depreciation and depletion	159,138	134,954
Total property, plant and equipment, net	$ 255,092	$ 258,843

Depreciation expense was $ 26,533 , $ 25,693 and $ 24,667 for the years ended December 31, 2023, 2022 and 2021, respectively. Depletion expense was $ 35 , $ 36 and $ 36 for the years ended December 31, 2023, 2022 and 2021, respectively.

The Company capitalized no interest expense associated with the construction of new property, plant and equipment for the years ended December 31, 2023, 2022 and 2021.

NOTE 6 — Intangible Assets, net

The following table reflects the changes in the net carrying amounts of the Company's intangible assets for the year ended December 31, 2023.

	Balance at December 31, 2022	Assets Acquired Pursuant to Business Combination	Impairment Charges	Amortization Expense	Balance at December 31, 2023
Developed technology	$ 6,669	$ —	$ —	$ 793	$ 5,876
	$ 6,669	$ —	$ —	$ 793	$ 5,876

The following table reflects the changes in the net carrying amounts of the Company's finite-lived intangible assets for the year ended December 31, 2022.

	Balance at December 31, 2021	Assets Acquired Pursuant to Business Combination	Impairment Charges	Amortization Expense	Balance at December 31, 2022
Developed technology	$ 7,461	$ —	$ —	$ 792	$ 6,669
	$ 7,461	$ —	$ —	$ 792	$ 6,669

The following table reflects the carrying amounts of the Company's finite-lived intangible assets at December 31, 2023 and 2022.

	December 31, 2023		December 31, 2022	
	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Developed technology	$ 10,300	$ (4,424)	$ 10,300	(3,631)
	$ 10,300	$ (4,424)	$ 10,300	$ (3,631)

The Company uses the straight-line method to determine the amortization expense for its definite-lived intangible assets. The weighted-average remaining useful life for the intangible assets is 7.4 years. Amortization expense related to the purchased intangible assets was $ 793 , $ 792 and $ 792 for the year ended December 31, 2023, 2022, and 2021, respectively.

The table below reflects the future estimated amortization expense for amortizable intangible assets as of December 31, 2023.

Year ending December 31,	
2024	$ 792
2025	792
2026	792
2027	792
2028	792
Thereafter	1,916
Total	$ 5,876

NOTE 7 — Accrued and Other Expense

Accrued and other expense consists of the following:

	December 31,	
	2023	2022
Employee related expenses	$ 1,767	$ 1,172
Accrued equipment expense	524	597
Accrued professional fees	461	295
Accrued royalties	3,149	3,470
Accrued freight and delivery charges	2,066	4,117
Accrued real estate tax	1,044	1,008
Accrued utilities	604	1,604
Sales tax liability	486	829
Income taxes payable, net	865	—
Other accrued liabilities	58	338
Total accrued liabilities	$ 11,024	$ 13,430

NOTE 8 — Debt

Current portion of long-term debt current consists of the following:

	December 31,	
	2023	2022
ABL Credit Facility	$ 8,000	$ —
Oakdale Equipment Financing	6,462	4,041
Finance leases	238	360
Notes payable	1,011	1,782
Current portion of long-term debt	$ 15,711	$ 6,183

Long-term debt consists of the following:

	December 31,	
	2023	2022
Oakdale Equipment Financing	$ 1,388	$ 7,753
Finance leases	542	460
Notes payable	1,519	1,594
Long-term debt	$ 3,449	$ 9,807

ABL Credit Facility

On December 13, 2019, the Company entered into a $ 20,000 five-year senior secured asset-based credit facility with Jefferies Finance LLC, which matures on December 13, 2024. The available borrowing amount under the ABL Credit Facility as of December 31, 2023 was $ 20,000 and is based on the Company's eligible accounts receivable and inventory, as described in the ABL Credit Agreement. As of December 31, 2023, there was $ 8,000 outstanding under the ABL Credit Facility, and $ 12,000 was available to be drawn. We use this facility primarily as a source for working capital needs. Borrowings under the ABL Credit Facility bear interest at a rate per annum equal to an applicable margin, plus, at our option, either a LIBOR rate or an alternate base rate ("ABR") as well as unused commitment fees. The applicable margin is 2.00 % for LIBOR loans and 1.00 % for ABR loans. Substantially all of the U.S. assets of the Company are pledged as collateral under the ABL Credit Facility. The ABL Credit Facility contains various reporting requirements, negative covenants and restrictive provisions and requires maintenance of financial covenants, under certain conditions, including a fixed charge coverage ratio, as defined in the ABL Credit Agreement. As of December 31, 2023, the Company was in compliance with all financial covenants. The weighted average interest rate on our ABL credit facility for the years ended December 31, 2023 and 2022 was 8.20 % and 4.81 %, respectively.

Oakdale Equipment Financing

On December 13, 2019, the Company received net proceeds of $ 23,000 in an equipment financing arrangement with Nexseer. The Oakdale Equipment Financing is legally comprised of an MLA and five lease schedules. The Oakdale Equipment Financing is considered a lease under article 2A of the Uniform Commercial Code but is considered a financing arrangement for accounting or financial reporting purposes and not a lease. Substantially all of the Company's mining and processing equipment at its Oakdale facility is pledged as collateral under the Oakdale Equipment Financing. The Oakdale Equipment Financing bears interest at a fixed rate of 5.79 %. The Company used the net proceeds to repay in full and terminate the previous credit facility, pay transaction costs, and the remainder was used for working capital purposes. The Oakdale Equipment Financing was originally set to mature on December 13, 2024. As a result of financial relief during the COVID-19 coronavirus pandemic in 2020, a portion of the Oakdale Equipment Financing maturity was extended to March 31, 2025. The Company has the right to prepay the financing and reacquire the underlying equipment on a lease schedule-by-lease schedule basis during the period commencing on the seventh month of the term and continuing until the 54th month of the term at a percentage of the purchase price of the relevant equipment, and at the end of the term at the fair market value of the equipment. The Oakdale Equipment Financing contains affirmative and restrictive covenants customary for transactions of this type.

Notes Payable

Notes payable primarily include various financing arrangements to finance the Company's manufactured wellsite proppant storage solutions equipment and heavy equipment. In June 2020, the Company executed a note payable to defer certain near-term minimum royalty payments. All notes payable bear interest at fixed rates between 3.99 % and 7.49 %.

On February 28, 2023, the Company purchased 5,176 shares of the Company's common stock from Clearlake Capital Partners II (Master), L.P., an affiliate of Clearlake Capital Group ("Clearlake"), for $ 8,850 , of which $ 4,425 was paid in cash and the remainder was financed through an unsecured promissory note, bearing interest of 10 %, issued to Clearlake. This purchase represented substantially all of the common stock previously owned by Clearlake and approximately 11.3 % of the number of outstanding shares of the Company's common stock as of immediately prior to the purchase. At the time of purchase, Clearlake was a related party to the Company, and José Feliciano, the Co-Founder and Managing Partner of Clearlake, was on our board of directors. As of December 31, 2023, the entire balance of the unsecured promissory note has been paid in full.

Finance Leases

See Note 9 - Leases for additional information about the Company's finance leases.

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

Year Ended December 31,	ABL Credit Facility	Oakdale Equipment Financing	Notes Payable	Finance Leases	Total
2024	$ 8,000	$ 6,815	$ 1,094	$ 312	$ 16,221
2025	—	1,724	678	268	2,670
2026	—	—	620	257	877
2027	—	—	350	59	409
2028 and thereafter	—	—	—	7	7
Total minimum payments	8,000	8,539	2,742	903	20,184
Amount representing interest	—	(514)	(212)	(123)	(849)
Amount representing unamortized lender fees	—	(175)	—	—	(175)
Present value of payments				780	
Less: current portion	(8,000)	(6,462)	(1,011)	(238)	(15,711)
Total long-term debt, net	$ —	$ 1,388	$ 1,519	$ 542	$ 3,449

NOTE 9 — Leases

Lessee

At December 31, 2023 and 2022, the operating and financing components of the Company's right-of-use assets and lease liabilities on the consolidated balance sheet are as follows:

	Balance Sheet Location	December 31,	
		2023	2022
Right-of-use assets			
Operating	Operating right-of-use assets	$ 23,265	$ 26,075
Financing	Property, plant and equipment, net	908	699
Total right-of use assets		$ 24,173	$ 26,774
Lease liabilities			
Operating	Operating lease liabilities, current and long-term portions	$ 24,592	$ 28,552
Financing	Long-term debt, current and long-term portions	780	820
Total lease liabilities		$ 25,372	$ 29,372

Operating lease costs are recorded in a single expense on the statements of operations and allocated to the right-of-use assets and the related lease liabilities as depreciation expense and interest expense, respectively. Lease cost recognized in the consolidated statements of operations for the years ended December 31, 2023 and 2022 is as follows:

	2023	2022
Finance lease cost		
Amortization of right-of-use assets	$ 292	$ 136
Interest on lease liabilities	74	20
Operating lease cost	13,797	12,214
Short-term lease cost	36	594
Total lease cost	$ 14,199	$ 12,964

Other information related to the Company's leasing activity for year ended December 31, 2023 and 2022 is as follows:

	Year ended December 31,	
	2023	2022
Cash paid for amounts included in the measurement of lease liabilities		
Operating cash flows used for finance leases	$ 73	$ 20
Operating cash flows used for operating leases	$ 14,928	$ 12,626
Financing cash flows used for finance leases	$ 394	$ 116
Right-of-use assets obtained in exchange for new finance lease liabilities	$ 492	$ 590
Right-of-use assets obtained in exchange for new operating lease liabilities	$ 9,569	$ 6,721
Weighted average remaining lease term - finance leases	3.3 years	3.1 years
Weighted average discount rate - finance leases	9.71 %	9.37 %
Weighted average remaining lease term - operating leases	2.7 years	2.8 years
Weighted average discount rate - operating leases	6.51 %	5.81 %

Maturities of the Company's lease liabilities as of December 31, 2023 are as follows:

Year	Operating Leases	Finance Leases	Total
2024	$ 11,776	$ 312	$ 12,089
2025	7,785	268	8,052
2026	4,335	257	4,592
2027	2,075	59	2,134
2028	923	7	930
Thereafter	25	—	25
Total cash lease payments	26,919	903	27,822
Less: amounts representing interest	(2,327)	(123)	(2,450)
Total lease liabilities	$ 24,592	$ 780	$ 25,372

NOTE 10 — Asset Retirement Obligation

The Company had a post-closure reclamation and site restoration obligation of $ 19,923 as of December 31, 2023. The following is a reconciliation of the total reclamation liability for asset retirement obligations.

Balance at December 31, 2021	$	16,155
Additions and revisions of prior estimates		1,975
Accretion expenses		758
Settlement of liability		—
Balance at December 31, 2022	$	18,888
Additions and revisions of prior estimates		328
Accretion expenses		904
Settlement of liability		(197)
Balance at December 31, 2023	$	19,923

NOTE 11 — Revenue

Disaggregation of Revenue

The following table presents the Company's revenues disaggregated by type and percentage of total revenues for the periods indicated.

	Year Ended December 31,								
	2023			2022			2021		
	Revenue		Percentage of Total Revenue	Revenue		Percentage of Total Revenue	Revenue		Percentage of Total Revenue
Sand sales revenue	$	283,161	96 %	$	243,162	95 %	$	117,402	93 %
Shortfall revenue		4,304	1 %		5,010	2 %		4,421	3 %
Logistics revenue		8,509	3 %		7,568	3 %		4,825	4 %
Total revenues	$	295,974	100 %	$	255,740	100 %	$	126,648	100 %

Deferred revenue recognition is as follows:

December 31, 2023			December 31, 2022		
Total deferred revenue	$	1,154	Total deferred revenue	$	6,959
			Recognized in 2023		6,936
Expected recognition:			Expected recognition:		
2024		1,154	2024		23
	$	1,154		$	6,959

NOTE 12 — Stock-Based Compensation

Equity Incentive Plan

In November 2016, in connection with its initial public offering, the Company adopted the 2016 Omnibus Incentive Plan ("2016 Plan") which provides for the issuance of Awards (as defined in the 2016 Plan) of up to a maximum of 3,911 shares of the Company's common stock to employees, non-employee members of the Board and consultants of the Company. On April 3, 2020, the Company's Board adopted an amendment to the 2016 Plan to increase the available shares of common stock authorized for issuance by an additional 2,088 shares. On April 22, 2022, the Company's board of directors adopted an amendment to the 2016 Plan to increase the available shares of common stock authorized for issuance by an additional 3,900 shares. The awards can be issued in the form of incentive stock options, non-qualified stock options or restricted stock.

During 2023, there were 810 shares of restricted stock issued under 2016 Plan. During 2022 and 2021, 1,172 and 2,013 shares of restricted stock were issued under the 2016 Plan, respectively. The grant date fair value of all restricted stock outstanding during the year ended December 31, 2023 was between $ 1.65 and $ 4.57 per share. The shares issued in 2023, vest over one to four years from their respective grant dates and their grant date fair value was the actual market price of the Company's shares. The total number of shares and their respective values that vested during the years ended December 31, 2023, 2022 and 2021 were 721 at $ 1,282 , 975 at $ 2,275 and 675 at $ 1,358 , respectively.

The Company recognized $ 3,507 , $ 3,184 and $ 3,161 of compensation expense for the restricted stock during 2023, 2022 and 2021, respectively, in cost of goods sold and operating expenses on the consolidated statements of operations. At December 31, 2023, the Company had unrecognized compensation expense of $ 3,835 related to granted but unvested stock awards. That expense is expected to be recognized as follows:

Year Ended December 31,		
2024	$	1,987
2025		1,369
2026		439
2027		40
2028		—
	$	3,835

The following table summarizes restricted stock activity under the 2016 Plan from January 1, 2022 through December 31, 2023:

	Number of Shares		Weighted Average
Unvested, January 1, 2022	3,151	$	3.06
Granted	1,172	$	3.30
Vested	(975)	$	3.54
Forfeiture	(618)	$	2.69
Unvested, December 31, 2022	2,730	$	3.06
Granted	810	$	1.69
Vested	(721)	$	2.74
Forfeiture	(189)	$	2.80
Unvested December 31, 2023	2,630	$	2.89

Employee Stock Purchase Plan

Shares of the Company's common stock may be purchased by eligible employees under the Company's 2016 Employee Stock Purchase Plan in six-month intervals at a purchase price equal to 85 % of the lesser of the fair market value of the Company's common stock on either the first day or the last day of each six-month offering period. Employee purchases may not exceed 20 % of their gross compensation during an offering period.

NOTE 13 — Income Taxes

On August 16, 2022, the President signed into law the Inflation Reduction Act of 2022 (the "IRA"). Tax provisions under the IRA include, but are not limited to, (a) a 15% corporate alternative minimum tax for certain large corporations that have at least $1.0 billion adjusted financial statement income over a three-year period effective for tax years beginning after December 31, 2022, and (b) a 1% excise tax on corporate stock repurchases after January 1, 2023. Although the Company is currently evaluating the impact of the IRA, it does not expect it to have a material impact on its consolidated financial statements for the year ended December 31, 2023.

The provision for income taxes consists of the following:

	Year Ended December 31,		
	2023	2022	2021
Current			
Federal	$ (181)	$ 96	$ 1,404
State and local	(969)	895	125
Foreign	386	—	—
Total current (benefit) expense	(764)	991	1,529
Deferred			
Federal	(4,869)	(3,148)	(10,133)
State and local	(1,268)	(1,048)	(413)
Foreign	—	—	—
Total deferred income tax benefit	(6,137)	(4,196)	(10,546)
Total income tax benefit	$ (6,901)	$ (3,205)	$ (9,017)

Income tax expense differs from the amounts computed by applying the statutory income tax rates to pretax income. The statutory income tax rates were 21% for the years ended December 31, 2023, 2022 and 2021. The reconciliations from the applicable statutory income tax rates to income tax (benefit) expense are as follows:

	Year Ended December 31,		
	2023	2022	2021
At statutory rate	$ (473)	$ (821)	$ (12,535)
State taxes, net of U.S. federal benefit	(1,554)	(162)	(757)
Foreign taxes	305	—	—
Federal tax deductions	(3,231)	(3,299)	357
Change in applicable tax rate	(436)	26	286
Provision to return permanent difference	(810)	(17)	340
R&D credits	(149)	(209)	67
Fuel tax credit	(181)	(142)	(125)
Unrecognized tax benefits	—	70	2,163
NOL carryback/carryforward	(714)	14	1,186
Nondeductible asset basis	342	909	—
Compensation deduction limitation	—	426	—
Total income tax benefit	$ (6,901)	$ (3,205)	$ (9,017)

Deferred income taxes reflect the net tax effects of loss and credit carry-forwards and temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes.

Significant components of the Company's deferred tax assets for federal and state income taxes are as follows:

	Year Ended December 31,	
	2023	2022
Deferred tax assets:		
Reserves and accruals	$ 1,928	$ 2,560
Prepaid expenses and other	1,373	1,137
Federal net operating losses	15,980	11,184
State net operating losses	1,595	763
Operating lease liabilities	5,688	6,605
Total gross deferred tax assets	26,564	22,249
Less valuation allowance	(874)	(1,588)
Total net deferred tax assets	25,690	20,661
Deferred tax liabilities:		
Depreciation and amortization	(32,361)	(32,822)
Foreign net operating losses	(50)	(50)
Operating lease right-of-use assets	(5,380)	(6,027)
Total deferred tax liabilities	(37,791)	(38,899)
Deferred tax liabilities, long-term, net	$ (12,101)	$ (18,238)

In assessing the realizability of deferred tax assets, the Company considered whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the period in which those temporary differences become deductible. A valuation allowance should be recorded if, based on the weight of all positive and negative evidence, it is more likely than not that some portion or all of a deferred tax asset will not be related. At December 31, 2023 and December 31, 2022, the Company determined it was more likely than not that it will not be able to fully realize the benefits of certain existing deductible temporary differences and has recorded a partial valuation allowance against the gross deferred tax assets on its consolidated balance sheet in the amount of $ 874 and $ 1,588 , respectively.

The Company has recorded a liability of $ 2,240 for unrecognized tax benefits for uncertain tax positions included on its consolidated balance sheet as of December 31, 2023 and 2022. A reconciliation of the beginning and ending amounts of unrecognized tax benefits is as follows:

	Unrecogized tax benefits
Balance at December 31, 2021	$ 2,163
Additions based on prior year positions	77
Decreases due to settlements and /or reduction in reserves	—
Balance at December 31, 2022	2,240
Additions based on prior year positions	—
Decreases due to settlements and /or reduction in reserves	—
Balance at December 31, 2023	$ 2,240

The Company's federal income tax returns subsequent to 2019 remain open to audit by taxing authorities. The Company has not been informed that its tax returns are the subject of any audit or investigation by taxing authorities.

NOTE 14 — Retirement Benefits

U.S. Defined Contribution Plan

The Company is the sponsor of a defined contribution plan, subject to the provisions of the Employee Retirement Income Security Act of 1974, that covers substantially all U.S. employees over the age of 21 that have been employed for at least 90 days. The plan allows participants to make pre-tax and Roth after-tax contributions and the Company provides 100 % matching

on the first 3 % and 50 % matching on the next 2 % of employee's eligible deferred compensation. Employees are immediately vested in both their contributions and the Company's matching contributions. In accordance with the provisions of the plan, the Company may make additional discretionary contributions to the accounts of its participants. There were no additional discretionary contributions during the years ended December 31, 2023, 2022 and 2021. During the years ended December 31, 2023, 2022 and 2021, the Company made matching contributions of $ 677 , $ 572 and $ 513 , respectively to its U.S. Defined Contribution Plan.

Canada Group Savings Plan and Deferred Profit Sharing Plan

The Company is the sponsor of a defined contribution plan that covers substantially all Canada employees that have been employed for at least 90 days. The plan allows participants to make contributions to the Group Savings Plan and after six months of employment the Company provides 100 % matching contributions on between 3 % - 5 % of the employee's salary, depending on their length of service to the Deferred Profit Sharing Plan. Employees are immediately vested in their contributions to the Group Savings Plan and vest in the Company's contributions to the Deferred Profit Sharing Plan after two years of service. All accounts opened prior to May 31, 2018 are fully vested. During the year ended December 31, 2023, 2022 and 2021, the Company made matching contributions of $ 24 and $ 18 and $ 30 , respectively, to its Deferred Profit Sharing Plan.

NOTE 15 — Concentrations

As of December 31, 2023, four customers accounted for 70 % of the Company's total accounts receivable. As of December 31, 2022, four customers accounted for 65 % of the Company's total accounts receivable.

During the year ended December 31, 2023, 42 % of the Company's revenues were earned from two customers. During the years ended December 31, 2022 and 2021, 60 % and 58 % of the Company's revenues were earned from four and three customers, respectively.

As of December 31, 2023, one vendor accounted for 11 % of the Company's accounts payable. As of December 31, 2022, one vendor accounted for 17 % of the Company's accounts payable.

During the year ended December 31, 2023, two vendors accounted for 32 %, of the Company's cost of goods sold. During the year ended December 31, 2022 and 2021, two and one vendors accounted for 34 % and 22 %, respectively, of the Company's cost of goods sold.

The Company's primary product is Northern White frac sand and its mining operations are limited to Wisconsin and Illinois. There is a risk of loss if there are significant environmental, legal or economic changes to this geographic area.

As of December 31, 2023, the Company employed 378 people, of which 42 were employed under collective bargaining agreements. The current collective bargaining agreements expire April 30, 2024.

NOTE 16 — Commitments and Contingencies

Future Minimum Commitments

The Company is obligated under certain contracts for minimum payments for the right to use land for extractive activities, which is not within the scope of leases under ASC 842. Future minimum annual commitments under such contracts at December 31, 2023 are as follows:

2024	$	2,469
2025		2,462
2026		2,456
2027		2,449
2028		2,275
Thereafter		19,706
Total future minimum annual commitments under these obligations	$	31,817

Litigation

We may be subject to various legal proceedings, claims and governmental inspections, audits or investigations arising out of our operations in the normal course of business, which cover matters such as general commercial, governmental and trade regulations, product liability, environmental, intellectual property, employment and other actions. Although the outcomes of these routine claims cannot be predicted with certainty, in the opinion of management, the ultimate resolution of these matters will not have a material adverse effect on our financial statements.

Bonds

The Company has performance bonds with various public and private entities regarding reclamation, permitting and maintenance of public roadways. Total performance bonds as of December 31, 2023 was $ 18,868 .

NOTE 17 — Supplemental Disclosures of Cash Flow information

Supplemental disclosures regarding cash flow information and non-cash investing and financing activities are as follows:

	Year Ended December 31,		
	2023	2022	2021
Cash paid for interest	$ 1,116	$ 1,239	$ 1,548
Cash paid for income taxes	$ 211	$ 187	$ 209
Non-cash investing activities:			
Asset retirement obligation	$ 328	$ 1,975	$ 418
Non-cash financing activities:			
Equipment purchased with debt	$ 1,206	$ 445	$ —
Capitalized expenditures in accounts payable and accrued expenses	$ 834	$ 958	$ 1,586
Treasury stock purchased with debt	$ 4,425	$ —	$ —

ITEM 9. — CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS AND FINANCIAL DISCLOSURE

None.

ITEM 9A. — CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this Annual Report on Form 10-K. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that as of such date, our disclosure controls and procedures were effective.

Management's Report on Internal Control Over Financial Reporting

Our 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 Exchange Act. Our internal control over financial reporting is a process designed under the supervision of our Chief Executive Officer and Chief Financial Officer 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.

Because of its inherent limitations, internal control over financial reporting may not detect or prevent misstatements. Also, projections of any evaluation of the effectiveness to future periods are subject to risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

As of December 31, 2023, our management assessed the effectiveness of our internal control over financial reporting based on the criteria for effective internal control over financial reporting established in *Internal Control - Integrated Framework*, issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013. Based on its assessment, management determined that we maintained effective internal control over financial reporting as of December 31, 2023.

Our independent registered public accounting firm is not yet required to formally attest to the effectiveness of our internal controls over financial reporting, and will not be required to do so for as long as we are a smaller reporting company as defined in Rule 12b-2 of the Exchange Act.

Changes in Internal Controls Over Financial Reporting

There have been no changes in our internal control over financial reporting for the three months ended December 31, 2023 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. — OTHER INFORMATION

Information Required to be Disclosed on Form 8-K for the Fiscal Quarter Ended December 31, 2023, But Not Reported.

None.

Trading Plans

During the three months ended December 31, 2023, none of our directors or officers (as defined in Rule 16a-1(f) of the Securities Exchange Act of 1934) informed us of the adoption or termination of a "Rule 10b5-1 trading arrangement" or "non-Rule 10b5-1 trading arrangement," as defined in Item 408 of Regulation S-K.

ITEM 9C. — DISCLOSURES REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

None.

PART III

ITEM 10. — DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item with respect to directors and corporate governance will be set forth under “Proposal No. 1: Election of Directors” in the 2024 Proxy Statement and is incorporated herein by reference.

The information required by this item with respect to executive officers of Smart Sand, Inc., pursuant to instruction 3 of paragraph (b) of Item 401 of Regulation S-K, is set forth following Part I, Item 1 of this Annual Report on Form 10-K under “Executive Officers of the Registrant”.

The information required by this item regarding Section 16(a) beneficial ownership reporting compliance will be set forth under “Section 16(a) Beneficial Ownership Reporting Compliance” in the 2024 Proxy Statement and is incorporated herein by reference.

ITEM 11. — EXECUTIVE COMPENSATION

The information required by this item will be set forth under “Executive Compensation” in the 2024 Proxy Statement and is incorporated herein by reference.

ITEM 12. — SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The Equity Compensation Plan Information table required pursuant to Item 201(d) of Regulation S-K will be set forth in the 2024 Proxy Statement and is incorporated herein by reference.

The information required by Item 403 of Regulation S-K regarding security ownership of certain beneficial owners and management will be set forth under “Principal Stockholders” in the 2023 Proxy Statement and is incorporated herein by reference.

ITEM 13. — CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item will be set forth under “Certain Relationships and Transactions with Related Persons” and “Corporate Governance” in the 2024 Proxy Statement and is incorporated herein by reference.

ITEM 14. — PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item will be set forth under “Ratification of the Selection of Grant Thornton LLP as the Company’s Independent Registered Public Accounting Firm for the Year Ending December 31, 2023” in the 2024 Proxy Statement and is incorporated herein by reference.

PART IV

ITEM 15. — EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) **Financial Statements**

(1) The Consolidated Financial Statements are included in Part II, Item 8 of this Annual Report on Form 10-K.

(2) Financial Statement Schedules:

SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS

	Balance at Beginning of the Year	Charged to cost and expenses	Additions (Deductions)	Balance at End of the Year
Year Ended December 31, 2022				
Deferred tax asset valuation allowance	$ 1,574	$ 14		$ 1,588
Year Ended December 31, 2023				
Deferred tax asset valuation allowance	$ 1,588	$ —	$ 714	$ 874

(b) **Exhibits**

2.1	Equity Purchase and Sale Agreement, dated September 18, 2020, by and between Smart Sand, Inc. and Eagle Materials, Inc. (incorporated by reference to Exhibit 2.1 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on September 18, 2020)
2.2	Membership Interest Purchase Agreement by and among HI-CRUSH INC., HI-CRUSH BLAIR LLC, and Smart Sand, Inc. Dated as of March 4, 2022 (incorporated by reference to Exhibit 2.1 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on March 8, 2022)
3.1	Second Amended and Restated Certificate of Incorporation of Smart Sand, Inc. (incorporated by reference to Exhibit 3.1 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on November 15, 2016)
3.2	Second Amended and Restated Bylaws of Smart Sand, Inc. (incorporated by reference to Exhibit 3.2 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on November 15, 2016)
4.1	Registration Rights Agreement, dated November 9, 2016, by and among Smart Sand, Inc. and the Persons listed on Schedule A thereto (incorporated by reference to Exhibit 4.1 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on November 15, 2016)
4.2	Stockholders Agreement, dated November 9, 2016, by and among Smart Sand, Inc., Clearlake Capital Partners II (Master), L.P. and Keystone Cranberry, LLC (incorporated by reference to Exhibit 4.2 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on November 15, 2016)
4.3*	Description of the Company's Capital Stock
10.1†	Smart Sand, Inc. Amended and Restated 2016 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.1 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on June 4, 2020)
10.2†	Form of Time-Based Vesting Restricted Stock Award Agreement under Smart Sand, Inc. 2016 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.1 to Smart Sand Inc.'s Current Report on Form 8-K filed with the SEC on April 5, 2017)
10.3†	Form of Performance-Based Vesting Restricted Stock Award Agreement under Smart Sand, Inc. 2016 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.2 to Smart Sand Inc.'s Current Report on Form 8-K filed with the SEC on April 5, 2017)
10.4†	Form of Time and Performance-Based Vesting Restricted Stock Award Agreement under Smart Sand, Inc. 2016 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.3 to Smart Sand Inc.'s Current Report on Form 8-K filed with the SEC on April 5, 2017)
10.5	2016 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.3 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on November 15, 2016)
10.6	Amendment No. 1 to the Smart Sand, Inc. Amended and Restated 2016 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.1 Smart Sand Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 9, 2022)
10.7	Form of Indemnification Agreement between the Company and its officers and directors (incorporated by reference to Exhibit 10.23 to Amendment No. 2 to Smart Sand, Inc.'s Registration Statement on Form S-1 filed with the SEC on October 18, 2016)

10.8	Master Lease Agreement, dated December 13, 2019, among Smart Sand, Inc., Smart Sand Oakdale, LLC and Nexseer Capital (incorporated by reference to Exhibit 10.13 to Smart Sand, Inc.'s Annual Report on Form 10-K filed with the SEC on March 14, 2020)
10.9	ABL Credit Agreement, dated December 13, 2019, among Smart Sand, Inc., the subsidiary borrowers and guarantors party thereto, Jefferies Finance LLC, as issuing bank, swingline lender and agent, and certain other lenders from time to time party thereto (incorporated by reference to Exhibit 10.14 to Smart Sand, Inc.'s Annual Report of Form 10-K filed with the SEC on March 14, 2020)
10.10	Guarantee and Collateral Agreement, dated December 13, 2019, among Smart Sand, Inc., the subsidiary borrowers and guarantors party thereto and Jefferies Finance LLC, as agent (incorporated by reference to Exhibit 10.15 to Smart Sand, Inc.'s Annual Report on Form 10-K filed with the SEC on March 14, 2020)
10.11	First Amendment to ABL Credit Agreement, dated July 8, 2020, by and between Smart Sand, Inc. and Jefferies Finance LLC (incorporated by reference to Exhibit 10.3 to Smart Sand, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on November 9, 2020)
10.12	Second Amendment to ABL Credit Agreement, dated September 18, 2020, by and between Smart Sand, Inc. and Jefferies Finance LLC (incorporated by reference to Exhibit 10.4 to Smart Sand, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on November 9, 2020)
10.13	Third Amendment to ABL Credit Agreement, dated July 22, 2022, by and between Smart Sand, Inc. and Jefferies Finance LLC (incorporated by reference to Exhibit 10.1 to Smart Sand, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on November 8, 2022)
10.14	Guarantee and Collateral Agreement Supplement, dated September 18, 2020, by and between Eagle Oil and Gas Proppants Holdings LLC and Northern White Sand LLC, and CRS Proppants LLC, and Jefferies Finance LLC (incorporated by reference to Exhibit 10.5 to Smart Sand, Inc.'s Quarterly Report on Form 10-K filed with the SEC on November 9, 2020)
10.15‡	Master Product Purchase Agreement dated effective as of January 1, 2017 between Rice Drilling B, LLC and Smart Sand, Inc. (incorporated by reference to Exhibit 10.1 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on January 6, 2017)
10.16†	Railcar Usage Agreement dated effective as of January 1, 2017 between Rice Drilling B, LLC and Smart Sand, Inc. (incorporated by reference to Exhibit 10.2 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on January 6, 2017)
10.17†	First Amendment to the Master Product Purchase Agreement and First Amendment to Railcar Usage Agreement, dated June 21, 2019, between Smart Sand, Inc. and Rice Drilling B LLC, a subsidiary of EQT Corporation (incorporated by reference to Exhibit 10.1 to Smart Sand, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 7, 2019)
10.18†	Letter Agreement to Master Product Purchase Agreement, dated May 26, 2020, between Smart Sand, Inc. and Rice Drilling B LLC, a subsidiary of EQT Corporation (incorporated by reference to Exhibit 10.1 to Smart Sand, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 5, 2020)
10.19‡	Second Amendment to Master Product Purchase Agreement and Second Amendment to Railcar Usage Agreement, dated September 28, 2020, between Smart Sand, Inc. and Rice Drilling B, LLC, a subsidiary of EQT Corporation (incorporated by reference to Exhibit 10.2 to Smart Sand, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on November 9, 2020)
10.20‡	Second Amended and Restated Master Product Purchase Agreement, dated September 10, 2019, by and between Smart Sand, Inc. and Schlumberger Technology Corporation (incorporated by reference to Exhibit 10.1 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on September 13, 2019)
10.21	Loan and Security Agreement, dated September 18, 2020, by and between Smart Sand, Inc. and Eagle Materials, Inc. (incorporated by reference to Exhibit 10.1 to Smart Sand, Inc.'s Current Report on Form 8-K filed with the SEC on September 18, 2020)
10.22	Settlement Agreement and Release, dated June 28, 2021, by and among Smart Sand, Inc., U.S. Well Services, LLC and U.S. Well Services, Inc. (incorporation by reference to Exhibit 10.1 to Smart Sand Inc.'s Current Report on Form 8-K filed with the SEC on June 29, 2021)
10.23‡	Master Product Purchase Agreement, dated effective August 1, 2021, by and between Smart Sand, Inc. and EQT Production Company (incorporated by reference to Exhibit 10.1 to Smart Sand Inc.'s Current Report on Form 8-K filed with the SEC on August 4, 2021)
10.24*	Technical Report Summary, Frac Sand Resources and Reserves Oakdale Mine, Monroe County, Wisconsin
10.25*	Technical Report Summary, Frac Sand Resources and Reserves Utica Mine, Lasalle County, Illinois
10.26*	Technical Report Summary, Frac Sand Resources and Reserves Blair Mine, Trempealeau County, Wisconsin
21.1*	List of subsidiaries of Smart Sand, Inc.
23.1*	Consent of Independent Registered Public Accounting Firm

23.2*	Consent of John T. Boyd Company
31.1*	Certification Pursuant to Certification Pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934, adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification Pursuant to Certification Pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934, adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1*t	Certification Pursuant to 18 U.S.C. adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2*t	Certification Pursuant to 18 U.S.C. adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
95.1*	Mine Safety Disclosure Mine Safety Disclosure Exhibit
97.1*	Policy for Recovery of Erroneously Awarded Compensation
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase
101.DEF*	XBRL Taxonomy Extension Definition Linkbase
101.LAB*	XBRL Taxonomy Extension Label Linkbase
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase
104*	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

* Filed herewith

† Compensatory plan, contract or arrangement.

‡ Certain portions have been omitted pursuant to a confidential treatment request. Omitted information has been separately filed with the Securities and Exchange Commission.

t This certification is deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, as amended (Exchange Act), or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended or the Exchange Act.

ITEM 16. — FORM 10-K SUMMARY

None.

Signatures

Date: March 11, 2024

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.

/s/ Charles E. Young	/s/ Lee E. Beckelman
Charles E. Young,	Lee E. Beckelman
Director and Chief Executive Officer	*Chief Financial Officer*
(Principal Executive Officer)	*(Principal Financial Officer)*
/s/ Christopher Green	/s/ Frank Porcelli
Christopher Green	Frank Porcelli
Controller and Vice President of Accounting	*Director*
(Principal Accounting Officer)	
/s/ Andrew Speaker	/s/ Sharon Spurlin
Andrew Speaker	Sharon Spurlin
Director	*Director*
(Chairman of the Board)	
/s/ Timothy J. Pawlenty	
Timothy J. Pawlenty	
Director	

Exhibit 4.3

DESCRIPTION OF THE COMPANY'S CAPITAL STOCK REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

The following description of our capital stock registered pursuant to Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to the complete text of our Second Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation") and our Second Amended and Restated Bylaws (the "Bylaws"), each of which are incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.3 is a part. We encourage you to read our Certificate of Incorporation, our Bylaws and the applicable provisions of the General Corporation Law of the State of Delaware (the "DGCL"), Title 8 of the Delaware Code for additional information.

The authorized capital stock of Smart Sand, Inc. consists of 350,000,000 shares of common stock, $0.001 par value per share ("common stock"), and 10,000,000 shares of preferred stock, $0.001 par value per share ("preferred stock"). Our preferred stock is not registered pursuant to Section 12 of the Exchange Act.

As of March 4, 2024, 50,412,448 shares of common stock were issued and 43,008,960 shares of common stock were outstanding.

Common Stock

Dividend Rights

Subject to the rights of any holders of any outstanding shares or series of preferred stock, holders of common stock are entitled to the payment of dividends when and as declared by our board of directors in accordance with applicable law and to receive other distributions.

Voting Rights

Except as provided by law or in a preferred stock designation, holders of common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, have the exclusive right to vote for the election of directors and do not have cumulative voting rights. Except as otherwise required by law, holders of common stock are not entitled to vote on any amendment to the Certificate of Incorporation (including any certificate of designations relating to any series of preferred stock) that relates solely to the terms of any outstanding series of preferred stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to the Certificate of Incorporation (including any certificate of designations relating to any series of preferred stock) or pursuant to the DGCL.

Liquidation Rights

Subject to the rights of any holders of any outstanding shares or series of preferred stock, in the event of any liquidation, dissolution or winding up of our affairs, whether voluntary or involuntary, our funds and assets, to the extent they may be legally distributed to holders of common stock, shall be distributed among the holders of the then outstanding common stock pro rata in accordance with the number of shares of common stock held by each such holder.

Other Rights and Preferences

All outstanding shares of common stock are fully paid and non-assessable. The holders of common stock have no pre-emptive or other subscription rights.

Classification of the Board of Directors

Our Certificate of Incorporation divide our board of directors into three classes, as nearly equal in number as possible, with staggered three-year terms. Subject to our stockholders agreement, under our Certificate of Incorporation and our Bylaws, any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by the affirmative vote of a majority of our directors then in office, even though less than a quorum of the board of directors.

Listing

Our common stock is traded on the NASDAQ Global Select Market under the symbol, “SND.”

Anti-Takeover Effects of Provisions of Our Certificate of Incorporation and our Bylaws

Provisions of our Certificate of Incorporation and Bylaws may delay or discourage transactions involving an actual or potential change in control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock.

Among other things our Certificate of Incorporation and Bylaws:

- establish advance notice procedures with regard to stockholder proposals relating to the nomination of candidates for election as directors or new business to be brought before meetings of our stockholders. These procedures provide that notice of stockholder proposals must be timely given in writing to our corporate secretary prior to the meeting at which the action is to be taken. Generally, to be timely, notice must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the annual meeting for the preceding year. Our Bylaws specify the requirements as to form and content of all stockholders’ notices. These requirements may preclude stockholders from bringing matters before the stockholders at an annual or special meeting;

- provide our board of directors the ability to authorize undesignated preferred stock. This ability makes it possible for our board of directors to issue, without stockholder approval, preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of our company;
- provide that our board of directors will be divided into three classes, as nearly equal in number as possible, with staggered three-year terms;
- subject to the stockholders agreement, provide that the size of our board of directors may be changed only by resolution of the board of directors;
- subject to the stockholders agreement, provide that all vacancies, including newly created directorships, shall, except as otherwise required by law or, if applicable, the rights of holders of a series of preferred stock, be filled exclusively by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- provide that any action required or permitted to be taken by the stockholders must be effected at a duly called annual or special meeting of stockholders and may not be effected by any consent in writing in lieu of a meeting of such stockholders, subject to the rights of the holders of any series of preferred stock with respect to such series;
- provide that our stockholders may only amend or repeal our Bylaws with the affirmative vote of at least 66 2/3% of the voting power of the outstanding shares of our stock entitled to vote;
- provide that special meetings of our stockholders may only be called by the board of directors (except that certain stockholders (each, a “Principal Stockholder”) may also call special meetings of our stockholders so long as such Principal Stockholder beneficially owns at least 20% of the voting power of the outstanding shares of our stock);
- provide that our stockholders may only amend our Certificate of Incorporation with the affirmative vote of at least 66 2/3% of the voting power of the outstanding shares of our stock entitled to vote;
- provide that, subject to the rights of the preferred stockholders and the stockholders agreement, if any, any director may be removed only upon the affirmative vote of the holders of at least 66 2/3% of the voting power of the outstanding shares of our stock entitled to vote; and
- provide that our Bylaws can be amended or repealed by the board of directors.

TECHNICAL REPORT SUMMARY
FRAC SAND RESOURCES AND RESERVES
OAKDALE MINE

Monroe County, Wisconsin

Prepared For

SMART SAND, INC.

Spring, Texas

By

John T. Boyd Company

Mining and Geological Consultants

Pittsburgh, Pennsylvania

Report No. 3555.021A

FEBRUARY 2024

John T. Boyd Company
Mining and Geological Consultants

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February 28, 2024
File: 3555.021A

Mr. Christopher Green, CPA
Controller
Smart Sand, Incorporated
1000 Floral Vale Boulevard, Suite 225
Yardley, PA 19067

Subject: Technical Report Summary
Frac Sand Resources and Reserves
Oakdale Mine
Monroe County, Wisconsin

Dear Mr. Beckelman:

This SK-1300-compliant technical report summary provides the results of John T. Boyd Company's (BOYD) independent audit of the frac (proppant) sand resources and reserves for Smart Sand, Inc.'s (Smart Sand) holdings as of December 31, 2021.

We wish to acknowledge the cooperation of Smart Sand management and staff for providing the technical, financial, and legal information used in completing this project. Our findings are based on BOYD's extensive experience in preparing frac sand resource and reserve estimates used in U.S. Securities and Exchange Commission (SEC) filings, and our knowledge of frac sand mining in Wisconsin, Illinois, and throughout North America.

Respectfully submitted,

JOHN T. BOYD COMPANY
By:

John T. Boyd II
President and CEO

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GLOSSARY OF ABBREVIATIONS AND DEFINITIONS

$	:	US dollar(s)
%	:	Percent or percentage
Smart Sand	:	Smart Sand, Inc.
API	:	American Petroleum Institute
BOYD	:	John T. Boyd Company
CapEx	:	Capital expenditures
COGS	:	Cost of goods sold
Constant Dollar	:	A monetary measure that is not influenced by inflation and used to compare time periods. Sometimes referred to as “real dollars”.
CY	:	Cubic yards
DCF	:	Discounted Cash Flow
Discount Rate	:	A rate of return used to discount future cash flows based on the return investors expect to receive from their investment.
DUC	:	Drilled but uncompleted gas or oil well.
FOB	:	Free-on-Board
Frac Sand	:	Frac sand is a naturally occurring, high silica content quartz sand, with grains that are generally well rounded and exhibit high compressive strength characteristics relative to other silica sand. It is utilized as a prop or “proppant” in unconventional shale frac well completions.
Frac Sand Resource	:	Frac sand resource is a concentration or occurrence of sand material of economic interest in or on the Earth’s crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as quality specifications, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.
Frac Sand Reserve	:	Frac sand reserve is an estimate of tonnage and grade or quality of mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a mineral

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

		resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.
Indicated Sand Resource	:	An Indicated Sand Resource is that part of a Sand Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing, and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Sand Resource has a lower level of confidence than that applying to a Measured Sand Resource and may only be converted to a Probable Sand Reserve.
IRR	:	Internal rate-of-return
ISO	:	International Organization for Standardization
lb	:	Pound
LOM	:	Life-of-Mine
Measured Sand Resource	:	A Measured Sand Resource is that part of a Sand Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling, and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Sand Resource has a higher level of confidence than that applying to either an Indicated Sand Resource or an Inferred Sand Resource. It may be converted to a Proven Sand Reserve or to a Probable Sand Reserve.
Mesh	:	A measurement of particle size often used in determining the size distribution of granular material.
Mineral Reserve	:	*See "Frac Sand Reserve"*
Mineral Resource	:	*See "Frac Sand Resource"*
Modifying Factors	:	The factors that a qualified person must apply to indicated and measured sand resources and then evaluate to establish the economic viability of sand reserves. A qualified person must apply and evaluate modifying factors to convert measured and indicated resources to proven and probable reserves. These factors include, but are not restricted to: mining; processing; metallurgical;

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

		infrastructure; economic; marketing; legal; environmental compliance; plans, negotiations, or agreements with local individuals or groups; and governmental factors. The number, type and specific characteristics of the modifying factors applied will necessarily be a function of and depend upon the mineral, mine, property, or project.
MSHA	:	Mine Safety and Health Administration. A division of the U.S. Department of Labor.
msl	:	Mean sea level
NOAA	:	National Oceanic and Atmospheric Administration
NSR	:	New Source Review
NTU	:	Nephelometric turbidity units
NPV	:	Net Present Value
NWS	:	Northern White Sands
Probable Sand Reserve	:	A Probable Sand Reserve is the economically mineable part of an Indicated and, in some circumstances, a Measured Sand Resource. The confidence in the Modifying Factors applying to a Probable Sand Reserve is lower than that applying to a Proven Sand Reserve.
Proppant Sand	:	See “Frac Sand”
Proven Sand Reserve	:	A Proven Mineral Reserve is the economically mineable part of a Measured Sand Resource. A Proven Sand Reserve implies a high degree of confidence in the Modifying Factors.
PSI	:	Pounds per square inch
ROM	:	Run-of-Mine. The as-mined including in-seam clay partings mined with the sand, and out-of-seam dilution.
SEC	:	U.S. Securities and Exchange Commission
S-K 1300	:	Subpart 1300 and Item 601(b)(96) of the U.S. Securities and Exchange Commission’s Regulation S-K
Surficial	:	Relating to the earths surface or the geology that is on the surface.
Ton	:	Short Ton. A unit of weight equal to 2,000 pounds

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

tph	:	Tons per Hour
WTI	:	West Texas Intermediate

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

BOYD was retained by Smart Sand to complete an independent technical audit of mineral resource and mineral reserve estimates—hereafter referred to as frac sand resource and frac sand reserve estimates—for their active mining operation located in Oakdale, Wisconsin (the "Oakdale Mine"). This report summarizes the results of our audit and satisfies the requirements for Smart Sand's disclosure of frac sand resources and reserves set forth in Subpart 1300 and Item 601(b)(96) of the SEC's Regulation S-K (S-K 1300). This is the first technical report summary filed by Smart Sand for the Oakdale Mine.

BOYD's findings are based on our detailed examination of the supporting geologic, technical, and economic information obtained from: (1) Smart Sand provided files, (2) discussions with Smart Sand personnel, (3) records on file with regulatory agencies, (4) public sources, and (5) nonconfidential BOYD files. Our investigation was performed to obtain reasonable assurance that Smart Sand's frac sand resource and reserve statements are free from material misstatement. This report provides results of an independent audit concerning Smart Sand's estimate of the frac sand resources and reserves underlying the Oakdale, Wisconsin property. The basis for these estimates is a volumetric geologic model estimating the reserves and resources compiled by Smart Sand in July 2021.

This chapter provides a summary of primary information contained within this technical report summary and is supported by remaining portions of this report including text, figures, and tables. Weights and measurements are expressed in US customary units. Unless noted, the effective date of the information, including estimates of frac sand reserves, is December 31, 2021.

1.2 Property Description

Smart Sand's Oakdale Mine is a surface mining operation located in Monroe County, Wisconsin. Frac sand is extracted from the Mt. Simon Formation and the Wonewoc Formation both extensively mined for frac sand in the area. Smart Sand controls approximately 1,256 contiguous acres of property which is owned fee simple. The general location of this property (the "Oakdale Property") is provided on Figure 3.1.

The Oakdale Mine was one of the first frac sand mines in the area commencing operations in 2012. The mine exploits the Mt. Simon sand formation which generally lies

at, or below, the water table in the area. Additionally, “bluff mining” occurs on the above grade ridges within the property where Wonewoc Formation sand is mined.

1.3 Geology

Northern white sands (NWS) are generally located in the north-central portion of the United States (predominantly in Minnesota, Wisconsin, and Illinois, with lesser amounts in Arkansas and Iowa). NWS is found in poorly cemented Cambrian and Ordovician sandstones and in unconsolidated alluvial deposits locally derived from these sandstones. The Saint Peter, Jordan, Wonewoc, and Mount Simon formations, located in south-central Minnesota into Wisconsin, are the primary sources of NWS, and can be observed in Figure 4.1 which presents the various stratigraphic rock units in Wisconsin.

The Oakdale Property is underlain by the Mount Simon Formation, which on a regional basis, ranges in thickness from 300 ft to over 2,000 ft (in Indiana). The Mount Simon sands can be described as poorly consolidated, poorly sorted, fine-grained, quartz sandstone. These sands are typically white in color, but can show a color change to a yellowish-gray or to a grayish-red.

The Mount Simon Formation is of Cambrian age and underlying the Mount Simon is pre-Cambrian age granite. Above the Mt. Simon, in the bluffs, is the Wonewoc Formation. The Wonewoc is generally somewhat coarser in grain size than the Mt. Simon, ranges in thickness from 60 ft to 90 ft, and exhibits similar API quality attributes.

The surface of the Oakdale Property is overlain by a veneer of poorly sorted glacial till ranging from a few feet to over 30 ft in depth. Beneath the glacial fill is the Mount Simon Formation. Above grade, in the surrounding ridges lies the Wonewoc Formation. Both formations are extensively mined on the property

Within the property, the surface topography is predominately flat lying except for the western-southwestern portion of the property where the surface elevation increases as a series of hills or bluffs are present (vertical relief of 125 ft to 150 ft). The size consist of the sand found in the above drainage bluff areas is a coarser mix in comparison to the sands found in the alluvial material and in the in-place below drainage sand formations.

Structure of the Mount Simon and Wonewoc formations, on the Oakdale Property, appears to be flat lying with no evidence of faulting or other geologic features. Total thickness of the Mount Simon Formation contained on the property was not determined

as the deepest drill hole (240 ft in length) was stopped while still in the sandstone formation.

1.4 Exploration

Based on information provided to BOYD by Smart Sand, there have been six different drilling campaigns on the Oakdale Property. The first drilling program commenced in December 2010, and the last drilling program was completed in 2018.

A total of 37 holes were drilled, with 30 of the holes providing sufficient sand core data that was utilized by Smart Sand in their reserve model and subsequently by BOYD to verify the Smart Sand model. Seven of the drill holes were not utilized because of varying reasons, such as insufficient core recovery, hole abandoned, BOYD confirmatory drill holes (duplicated data), and no data provided. Table 1.1 provides additional summary information on the drilling campaigns.

Table 1.1: Oakdale Mine Exploration Drilling Campaign Summary

	Number of	Sand Cores		Drill Holes	
Year	Holes Drilled	Data Used	Thickness (ft)	Not Used	Reason Not Used
2010	2	-	NA	2	Insufficient Core Recovery
2011	13	12	1,581	1	Hole Abandoned
2011-BOYD	3	-	NA	3	Duplicated Results
2012	3	2	330	1	No data provided
2016	12	12	1,765	-	
2018	4	4	965	-	
Total	37	30	4,641	7	

BOYD reviewed the drilling and sampling methodologies utilized in the various exploration campaigns at the Oakdale Property, as well as the equipment utilized, and the sampling, logging, and field work performed. We note that methodologies and procedures indicate that the data obtained were carefully and professionally collected, prepared, and documented in conformance with generally accepted industry standards. BOYD opines that this work is thorough and complete for purposes of evaluating and estimating frac sand resources and reserves on the Oakdale Property.

1.5 Frac Sand Reserves and Quality

This technical report summary provides an estimate of frac sand reserves for Smart Sand's Oakdale Mine in accordance with the requirements set forth in S-K 1300. These estimates were independently audited by BOYD. This report, and previous reports, include a thorough geologic investigation of the property, appropriate modeling of the

deposit, development of life-of-mine (LOM) plans, and consideration of the relevant processing, economic (including independent estimates of capital, revenue, and cost), marketing, legal, environmental, socio-economic, and regulatory factors.

Smart Sand's estimated surface mineable frac sand reserves for the Oakdale Property total 250 million saleable product tons, as of December 31, 2021.

Table 1.2 presents the estimated Reserve tons by product (size), that are anticipated to be produced at Smart Sand's Oakdale Property.

Table 1.2: Reserves as of December 31, 2021

Smart Sand Oakdale Property Reserves			
	Tons (000) By Classification		
Mesh Size	Proven	Probable	Total
30/50	48,367	31,785	80,152
50/140	96,818	72,984	169,802
Total	145,186	104,769	249,955

The reported reserves include only frac sand which is reportedly owned as of December 31, 2021. It is BOYD's opinion that extraction of the reported frac sand reserves is technically achievable and economically viable after the consideration of potentially material modifying factors.

Projecting the historic sales volume of approximately 2.8 million tons per year, the operation has an expected LOM of approximately 90 years.

Composite samples collected during the drilling of the initial exploration holes were tested by Stim-Lab for API RP 19C/ISO 13503-2 proppant sand characteristics. Testing was performed on the 20/40, 40/70, and 70/140-mesh product sizes. The test results are presented in Table 1.3.

Table1.3: Oakdale API/ISO Test Results for the DDH-1-10 Composite Sample

	DDH-1-10 Average API/ISO Test Results By Product Size				
		API RP19C			API RP19C
Test	Result 20/40-mesh	Recommended Specification	Result 40/70-mesh	Result 70/140-mesh*	Recommended Specification
Sphericity	0.8	≥ 0.6	0.7	0.7	≥ 0.6
Roundness	0.7	≥ 0.6	0.7	0.6	≥ 0.6
Acid Solubility (%)	0.7	≤ 2.0	0.9	1.3	≤ 3.0
Turbidity (NTU)	30	≤ 250	16	16	≤ 250
K-Value (000 psi)	7	-	9	12	-

* Note: Currently, 70/140-mesh proppant sand material does not have an API/ISO specification.

The composited sample testing suggested that the Oakdale Mine produces frac sand products which meet minimum API/ISO recommended testing characteristics. BOYD notes that the Oakdale operation has been selling various frac sand sized products to their E&P and drilling services customers since 2012.

1.6 Operations

1.6.1 Mining

The Oakdale Mine property is broadly separated into two sections, the east section and the west section. The property is bisected by the loadout rail spur and access roads entering the site. The office, process plants and unit train loadouts are generally located within the interior of the property.

The mine has two distinct mining schemes that are employed at the property. The eastern side of the property generally consists of lowlands with some interspersed wetlands. This area served as the initial mining area for approximately the first five to six years of the operation. Typical excavator and articulated truck method is employed in a series of benches downward. There is very little overburden overlying the sand and the overburden that is stripped is utilized in berms or hauled to a dump area. The sand is drilled and blasted on a very wide pattern to “fluff” or disaggregate the sand grains. The sand is then hauled to a wet process plant located on the eastern side of the property for processing. The pits are continuously dewatered, and the water is pumped into a holding pond at the northeast area of the property prior to sampling and discharging.

Currently, and for the immediate future, the majority of the run-of-mine (ROM) sand is mined from the western side of the property. Here, the “bluffs” are mined which generally lie above ground level to approximately 970 ft mean sea level (msl) in elevation. Typical of other Wonewac Formation “bluff” mines, there is little overburden and following vegetation grubbing a bench is drilled and blasted in approximate 50 ft high benches progressing from the highest elevation downward. Excavators load articulated trucks which haul the ROM material to a primary crusher located on the western side of the property.

1.6.2 Processing

The Oakdale plant area is actually a series of two wash plants, three dry plants, and three rail loadouts that are centered around the railroad tracks in the interior of the property. The original layout (Wet 1, Dry 1, Loadout 1) was constructed in 2012. An additional dry plant (Dry 2) was subsequently added which was fed by Wet 1. The most recent expansion in Q1 2018 included a new wet plant, dry plant, and loadout on the

west side of the rail loadout (Wet 2, Dry 3, Loadout 3). This newer plant is where the majority of the sand is now processed and loaded. The adjacent mining pit essentially excavates the higher “bluff” sand material. The east side plants are utilized for incremental production as a “peaking” type facility when demand for product cannot be satisfied from the west side facility. A fourth loadout, which is off site, is for UP bound frac sand product. Figure 1.1 illustrates the Oakdale facility layout.

Figure 1.1: Oakdale Processing Plants and Rail Loadouts

The overall complex has an approximate annual finished product capacity of 5.5 million tons. The entire complex is staffed by approximately 160 employees at the site. This number can fluctuate based on product demand.

The average process yield is reported to be 81.2%; as such, 3.5 million ROM tons are expected to produce approximately 2.8 million tons of finished product per year.

The entire operation conforms to a 2-2 3-2 2-3 rotating shift schedule which uses four teams (crews) and two 12-hour shifts to provide 24/7 coverage. Personnel work an average 42 hours per week. The quarry pit generally operates 12-hours per day utilizing this rotation for the entire operation.

1.6.3 Infrastructure

The Oakdale Mine is serviced by three phase power that is routed along County Road CA and into the plant at the southern end of the property. The pipeline providing natural gas supply for the drying equipment is also routed along this corridor. Plant process water is supplied by surface water retention ponds and a backup drilled high capacity well if needed. Additionally, the wash process water is recycled after fines are removed via settling in a series of constructed ponds. As the mine progresses, silt ponds are constructed in mined-out areas. Wastewater from offices and other buildings are collected via holding tanks and disposed of on a regular basis. Potable water is provided by a public water system.

On-site facilities include a scale house, office, shop, and a quality laboratory located in the dry process plants. The operation employs approximately 160 people and staffing varies based on production demand.

1.7 Financial Analysis

1.7.1 Market Analysis

Although Smart Sand's market area is essentially all of the energy basins in the United States and western Canada, we have selectively focused on the Permian, Appalachian, and Denver-Julesburg (DJ) as these are target markets for their frac sand. The Oakdale Mine has advantaged delivered cost to the western basins like the DJ as the Oakdale Mine directly loads onto the Canadian Pacific Railway, a very competitive option for westbound sand to the DJ. Oakdale also own a loadout near the mine which enables them to load directly on the Union Pacific Railway, the favored Permian basin rail. The Utica Mine has access to their nearby Burlington Northern rail loadout which greatly complements the Oakdale facility, especially when moving product to the Appalachian (Marcellus-Utica) basin. Therefore, a high-level overview of demand in these basins follows.

Permit submissions for horizontal oil and gas wells in the Permian indicate a continuation of strong drilling ahead. According to Infill Thinking, the number of permits

filed per working rig this summer is tracking at multi-year highs as evidenced in Figure 1.2 below.

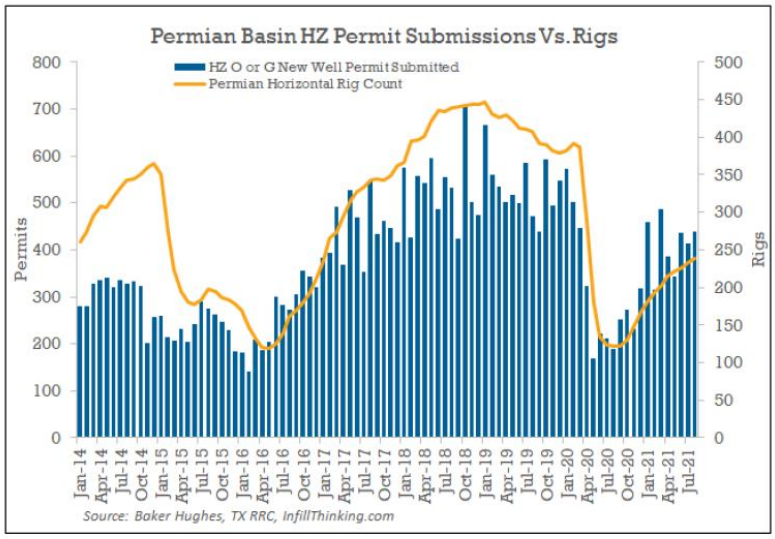

Figure 1.2: Permian Basin HZ Permit Submissions vs. Rigs

Over the previous 52 weeks, rig counts in the Permian are up approximately 111%. This has led to increased production for both crude oil and natural gas. For the same time period, crude oil (barrels per day) and natural gas production (thousand cubic feet per day) in the Permian are up 10% and 9%, respectively. As Figure 1.3 illustrates, Permian daily crude oil production is nearing its pre-pandemic impacted peak, while daily natural gas production in the Permian continues to make new records and now stands at 18.6 billion cubic feet per day.

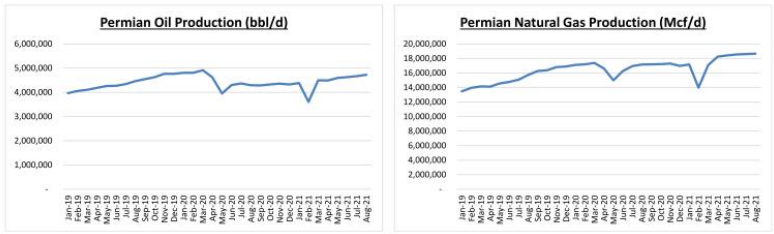

Figure 1.3: Permian Oil Production and Natural Gas Production

According to U.S. Energy Information Administration Drilling Productivity Report, drilled but uncompleted wells (DUCs) in the Permian Basin have declined 43% since peaking in July 2020 (refer to Figure 1.4). These data dovetail with increased crude oil and natural gas production in the basin.

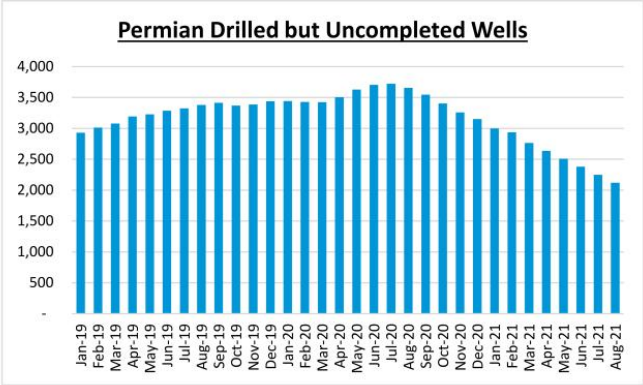

Figure 1.4: Permian Drilled but Uncompleted Wells

Although a majority of this large basin's sand is sourced from local sand mines, Northern White, Oakdale quality sand remains an important product for many well applications.

1.7.1.1 Appalachian Basin (Marcellus/Utica Play) and Niobrara Basin (DJ)

Although smaller in size than the Permian energy fields, the Appalachian and Niobrara (DJ) are substantial natural gas and oil plays in North America. Unlike the Permian, the Appalachian and Niobrara import the vast majority of the frac sand. Very few, notable in-basin sand operations exist. This creates an advantaged situation for the Oakdale and Utica mines as they are advantaged, transport wise to the basin and there are few substitutes for NWS.

Following the energy downturn in 2019 and then Covid shutdown in 2020, the basin wellfield activity appears to be rebounding. Horizontal rigs have stabilized over the past two years as can be seen from Figures 1.5 but gas production per rig is substantially higher. Energy companies are drilling longer laterals and optimizing each well pad

becoming more efficient from a cost perspective and overall natural gas production is stable as can be seen from Figure 1.6.

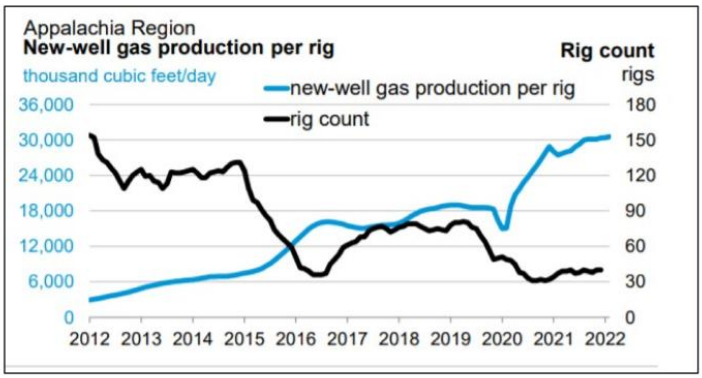

Figure 1.5: Appalachian Rig Count and Production per Rig (Source: EIA)

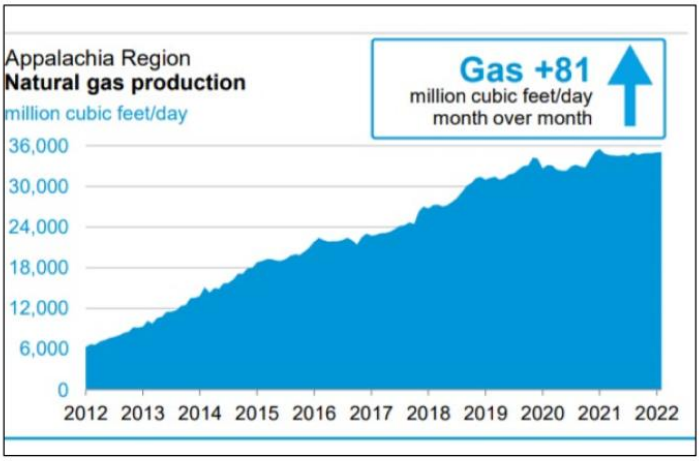

Figure 1.6: Appalachian Gas Production (Source: EIA)

Similarly, the DJ basin has seen a rebound in rig count since the Covid shutdown. Both gas and oil rig counts have risen but productivity per well has decreased as can be seen in Figure 1.7.

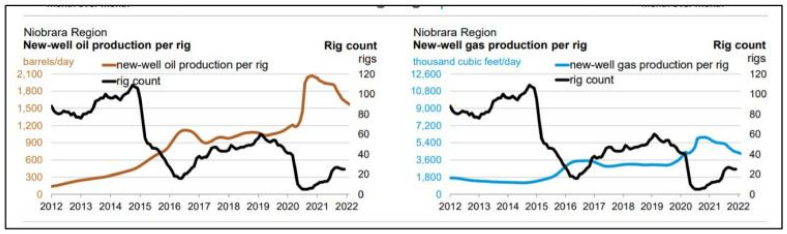

Figure 1.7: Niobrara Oil and Gas Rig Count and Productivity (Source: EIA)

Overall gas and oil production remains relatively flat in the basin but more wells are being drilled to maintain this capacity. Figure 1.8 illustrates the overall yearly gas and oil production in the basin.

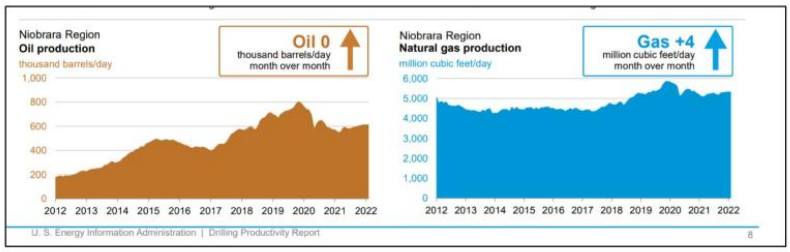

Figure 1.8: Niobrara Oil and Gas Production (Source: EIA)

Having survived the challenging environment of 2019 and 2020, Smart Sand's operations should continue to prove viable into the future notwithstanding a sustained and significant energy price collapse. Their low-cost mining scheme, advantaged transport to select basins, and high-quality product help to create an advantage compared with other NWS producers.

1.7.2 Historic Capital Expenditures, Operating Costs, and Pricing

The Oakdale operation's CapEx, and Historical Sales for the years 2019, 2020, and 2021 (September YTD), is presented in Tables 1.4 and 1.5 below.

Table 1.4: Historical Capital Expenditures

	CapEx ($000)*
Year 2019	10,527
Year 2020	1,737
Sep YTD 2021	1,962
Total	14,227

*Oakdale operation only, excludes transload sites and other locatons/activities.

Table 1.5: Historical Sales Statistics

	Year 2019	Year 2020	SepYTD2021
Tons Sold (000)	2,462	1,779	1,752
Total Revenues ($000)*	103,865	67,827	70,546
Average Sales Price ($ per ton sold)	42.19	38.14	40.26

*Revenues are a mix of point of sale, and as such are not all mine gate prices.

Smart Sand provided BOYD with historical average mine gate pricing (Table 1.6), which eliminates the additional revenue received for transportation services from the mine gate to the customer's delivery point.

Table 1.6: Historical Average Mine Gate Pricing

Average Mine Gate Pricing - $ per ton sold		
Year 2019	Year 2020	Year 2021
25.11	22.89	20.00

Table 1.7, following this page, presents Oakdale's historical cash operating costs for the years 2019, 2020, and 2021 (September YTD). Operating costs represent the costs

incurred associated with the mining, ongoing reclamation, wet processing, dry processing, on-site rail loadout, and other related costs.

Table 1.7: Historical Cost of Production

	$ (000)			$ per ton sold		
Cash Operating Costs:	Year 2019	Year 2020	SepYTD2021	Year 2019	Year 2020	SepYTD2021
Wages and benefits	15,837	10,577	8,012	6.43	5.95	4.54
Excavation	5,297	3,135	3,640	2.15	1.76	2.06
Utilities	7,622	4,600	5,029	3.10	2.59	2.85
Equipment	5,834	3,493	2,480	2.37	1.96	1.41
Maintenance	3,863	2,148	1,984	1.57	1.21	1.12
Other costs	2,360	2,410	1,475	0.96	1.36	0.84
Total Cash Operating Costs	40,813	26,362	22,620	16.62	14.82	12.81

Note: Rounding Errors

1.7.3 Projected Sales Revenue, Production Costs, and Capex

Table 1.8 presents BOYD's sales projections for the period 2022 through 2026. The sales price forecast is constant dollar, by product, and is based on current quarter average prices. We opine that these are reasonable price projections.

Table 1.8: Oakdale Sales Projections

	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
Tons Sold (000)	2,800	2,800	2,800	2,800	2,800
30/50-Mesh	898	898	898	898	898
50/140-Mesh	1,902	1,902	1,902	1,902	1,902
Revenues ($000)	56,000	56,000	56,000	56,000	56,000
Product Pricing ($ per ton sold)					
Average Price for all products	20.00	20.00	20.00	20.00	20.00

Table 1.9 below, presents the above table's cost projections on a cost per ton sold basis for the years 2022 through 2026.

Table 1.9: Annual Dollars per Ton Sold Cash Cost Projections

	Summary Cash Cost of Goods Sold ($ per ton sold)				
	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
Cash Operating Expense:					
Wages and benefits	3.86	3.86	3.86	3.86	3.86
Excavation	2.06	2.06	2.06	2.06	2.06
Utilities	2.85	2.85	2.85	2.85	2.85
Equipment	1.18	1.18	1.18	1.18	1.18
Maintenance	1.12	1.12	1.12	1.12	1.12
Other costs	0.86	0.86	0.86	0.86	0.86
Subtotal Cash Operating Expense	11.93	11.93	11.93	11.93	11.93
Royalty	0.25	0.25	0.25	0.25	0.25
SG&A	4.98	4.98	4.98	4.98	4.98
Final Reclamation Escrow	0.08	0.08	0.08	0.08	0.08
Total Cash Cost of Goods Sold	17.24	17.24	17.24	17.24	17.24

Smart Sand provided BOYD with the annual sustaining CapEx estimate of $4 million, which includes maintenance of production equipment as well as other items, for the operation.

1.7.4 Economic Analysis

BOYD prepared an economic analysis, as of January 1, 2022, for the Oakdale Operation using the production, sales, and financial projections presented in this report. Our analysis confirms that the operation generates positive cash flows (based on a 12% discount rate), on a pre-tax and after-tax basis, that supports the statement of frac sand reserves herein.

Table 1.10 below presents the pre-tax and after-tax cash flow projections based on the proposed LOM production schedule, revenue, cost of goods sold, CapEx, and other estimates discussed above for the Oakdale operation.

Table 1.10: Summary Cash Flow Statement

	Summary Cash Flow Statement ($ 000)									
	2022 to 2031	2032 to 2041	2042 to 2051	2052 to 2061	2062 to 2071	2072 to 2081	2082 to 2091	2092 to 2101	2102 to 2111	Total
Total Tons Sold (000)	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	25,955	249,955
Revenues	560,000	560,000	560,000	560,000	560,000	560,000	560,000	560,000	519,100	4,999,100
COGS	482,617	484,017	485,417	486,817	488,217	489,617	491,017	492,417	461,556	4,361,689
CapEx	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	34,000	354,000
Net Pre-Tax Cash Flow	37,383	35,983	34,583	33,183	31,783	30,383	28,983	27,583	23,544	283,411
Federal and State Income Taxes	-	-	-	7,352	9,185	8,781	8,376	7,972	6,868	48,534
After-Tax Net Cash Flow	37,383	35,983	34,583	25,832	22,598	21,603	20,607	19,612	16,675	234,877

Discounted Cash Flow-Net Present Values (DCF-NPV) on a pre-tax and after-tax basis, using discount rates of 10%, 12%, and 15%, were calculated utilizing the cash flows above. The DCF-NPV values used mid-year discounting and all cash flows were on a constant dollar basis.

The pre-tax DCF-NPV ranges from approximately $26.4 million to $38.3 million. The after-tax DCF-NPV ranges from approximately $26.3 million to $37.8 million. Table 1.11 summarizes the results of the pre-tax and after-tax DCF-NPV analyses:

Table 1.11: DCF-NPV

	DCF-NPV ($ 000)		
	10%	12%	15%
Pre-Tax	38,282	32,382	26,397
After-Tax	37,836	32,171	26,324

The NPV estimate was made for purposes of confirming the economic viability of the reported frac sand reserves and not for purposes of valuing the Oakdale Mine or its assets. Internal rate-of-return (IRR) and project payback were not calculated, as there was no initial investment considered in the financial model.

1.8 Regulation and Liabilities

The Oakdale Mine's operations are predominantly regulated by a Monroe County, Wisconsin non-metallic reclamation permit which contains detailed reclamation plans for the property. Mine operators must submit annual reports to Monroe County containing information on the reclamation status of their mines and pay annual fees based on the disturbed acres. They must also provide written certification that the reclamation plan is being followed. A significant portion of the Probable Reserves underlie current wetlands areas. These areas will be mitigated if designated wetlands prior to mining. These reserves are not in the current five-year plan.

Air emissions are regulated by the Wisconsin Department of Natural Resources, Bureau of Air Management. Smart Sand monitors air emissions and has current permits.

Based on our review of information provided by Smart Sand and available public information, it is BOYD's opinion that the Oakdale Mine's record of compliance with applicable mining, water quality, and environmental regulations is generally superior for that of the industry. BOYD is not aware of any regulatory violation or compliance issue which would materially impact the frac sand reserve estimate.

1.9 Conclusions

It is BOYD's overall conclusion that Smart Sand's Oakdale Mine's frac sand reserves, as reported herein: (1) were prepared in conformance with accepted industry standards and practices, and (2) are reasonably and appropriately supported by technical evaluations, which consider all relevant modifying factors. We do not believe there are other relevant data or information material to the Oakdale Property that would render this technical report summary misleading. Our conclusions represent only informed professional judgment.

The ability of Smart Sand, or any mine operator, to recover all of the reported frac sand reserves is dependent on numerous factors that are beyond the control of, and cannot be anticipated by, BOYD. These factors include mining and geologic conditions, the capabilities of management and employees, the securing of required approvals and

permits in a timely manner, future sand prices, etc. Unforeseen changes in regulations could also impact performance. Opinions presented in this report apply to the site conditions and features as they existed at the time of BOYD's investigations and those reasonably foreseeable.

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2.0 INTRODUCTION

2.1 Registrant and Purpose

This technical report summary was prepared for Smart Sand in support of their disclosure of frac sand reserves for the Oakdale Mine in accordance with S-K 1300 Regulations.

Smart Sand is a publicly traded corporation listed on the NASDAQ (SND) with headquarters in The Woodlands, Texas. Smart Sand commenced operations at their Oakdale Mine in 2012 and expanded their footprint with operations and property in Wisconsin and Illinois. Smart Sand also operates several rail transloads and offers "last mile" solutions with their SmartSystem™ wellsite silo division. Smart Sand's website is found at www.smartsand.com.

2.2 Terms of Reference

Smart Sand retained BOYD to prepare an SEC-compliant technical report summary to support their disclosure of frac sand reserves following S-K 1300 requirements. Our objective was to incorporate the results of the existing technical report along with additional information that we reviewed into a compliant technical report summary.

The results of our review, presented in report form herein, were prepared in accordance with the disclosure requirements set forth in Subpart 1300 and Item 601(b)(96) of the SEC's Regulation S-K. The purpose of this report is threefold: (1) to summarize available information for the subject mining property, (2) to provide the conclusions of our technical audit, and (3) to provide a statement of frac sand resources and reserves for the Oakdale Mine. This is the first technical report summary filed by Smart Sand for the Oakdale Mine.

BOYD's findings are based on our detailed examination of the supporting geologic, technical, and economic information provided by Smart Sand in formulating the estimates of frac sand resources and reserves disclosed in this report. We independently estimated the frac sand resources and reserves from first principles based on third-party exploration information provided to BOYD to verify that the Smart Sand estimated resources and reserves, used as the basis for this report, were reasonable.

We used standard engineering and geoscience methods, or a combination of methods, that we considered to be appropriate and necessary to establish the conclusions set forth herein. As in all aspects of mining property evaluation, there are uncertainties inherent in the interpretation of engineering and geoscience data; therefore, our conclusions necessarily represent only informed professional judgment.

The ability of Smart Sand, or any mine operator, to recover all of the estimated frac sand reserves presented in this report is dependent on numerous factors that are beyond the control of, and cannot be anticipated by, BOYD. These factors include mining and geologic conditions, the capabilities of management and employees, the securing of required approvals and permits in a timely manner, future sand prices, etc. Unforeseen changes in regulations could also impact performance. Opinions presented in this report apply to the site conditions and features as they existed at the time of BOYD's investigations and those reasonably foreseeable.

This report is intended for use by Smart Sand subject to the terms and conditions of its engagement agreement with BOYD. The agreement permits Smart Sand to file this report as a technical report summary with the SEC pursuant to Subpart 1300 and Item 601(b)(96) of Regulation S-K. Except for the purposes legislated under US securities law, any other uses of or reliance on this report by any third party is at that party's sole risk. The responsibility for this disclosure remains with Smart Sand. The user of this document should ensure that this is the most recent disclosure of frac sand resources and reserves for the Oakdale Mine as it is no longer valid if more recent estimates have been issued.

2.3 Expert Qualifications

BOYD is an independent consulting firm specializing in mining-related engineering and financial consulting services. Since 1943, BOYD has completed over 4,000 projects in the United States and more than 90 other countries. Our full-time staff comprises mining experts in: civil, environmental, geotechnical, and mining engineering; geology; mineral economics; and market analysis. Our extensive experience in frac sand resources/reserve estimation and our knowledge of the subject property, provides BOYD an informed basis on which to opine on the frac sand reserves available at the Oakdale Mine. An overview of BOYD can be found on our website at www.jtboyd.com.

The individuals primarily responsible for this audit and the preparation of this report are by virtue of their education, experience, and professional association considered qualified persons as defined in Subpart 1300 of Regulation S-K.

Neither BOYD nor its staff employed in the preparation of this report have any beneficial interest in Smart Sand, and are not insiders, associates, or affiliates of Smart Sand. The results of our resource/reserve estimate and subsequent audit were not dependent upon any prior agreements concerning the conclusions to be reached, nor were there any undisclosed understandings concerning any future business dealings between Smart Sand and BOYD. This report was prepared in return for fees based upon agreed commercial rates, and the payment for our services was not contingent upon our opinions regarding the project or approval of our work by Smart Sand and its representatives.

2.4 Principal Sources of Information

Information used in this assignment was obtained from: (1) Smart Sand files, (2) discussions with Smart Sand personnel, (3) records on file with regulatory agencies, (4) public sources, and (5) nonconfidential BOYD files. The basis for this report is a July 2021 volumetric model compiled by Smart Sand. This model was verified by BOYD and plant production records were utilized to adjust the resources and reserves to year end 2021.

Additional information was provided by Smart Sand including:

- Financial forecasting models.
- Historical information, including:
  - Production reports and reconciliation statements.
  - Financial statements.
  - Product sales and pricing.

The data and work papers used in the preparation of this report are on file in our offices.

2.4.1 Site Visits

A personal inspection of the Oakdale operation was made by two of BOYD's senior geology and mining staff—both qualified persons and co-authors of this report—on October 26, 2021. The site visit included: (1) observation of the active mining operations, (2) a tour of the mine site's surface infrastructure, and (3) a detailed discussion of the Smart Sand volumetric model and mine plan. BOYD's representatives were accompanied by Smart Sand management who openly and cooperatively answered questions regarding, but not limited to: site geology, mining conditions and operations, equipment usage, labor relations, operating and capital costs, current and proposed processing operations, and frac sand marketing.

2.4.2 Reliance on Information Provided by the Registrant

In the preparation of this report we have relied, without independent verification, upon information furnished by Smart Sand with respect to: property interests; exploration results; current and historical production from such properties; current and historical costs of operation and production; and agreements relating to current and future operations and sale of production.

BOYD exercised due care in reviewing the information provided by Smart Sand within the scope of our expertise and experience (which is in technical and financial mining issues) and concluded the data are valid and appropriate considering the status of the subject property and the purpose for which this report was prepared. BOYD is not qualified to provide findings of a legal or accounting nature. We have no reason to believe that any material facts have been withheld, or that further analysis may reveal additional material information. However, the accuracy of the results and conclusions of this report are reliant on the accuracy of the information provided by Smart Sand.

While we are not responsible for any material omissions in the information provided for use in this report, we do not disclaim responsibility for the disclosure of information contained herein which is within the realm of our expertise.

2.5 Effective Date

The frac sand reserves presented in this technical report summary are effective as of December 31, 2021. The report effective date is December 31, 2021.

2.6 Units of Measure

The US customary measurement system has been used throughout this report. Tons are dry short tons of 2,000 pounds-mass. Unless otherwise stated, all currency is expressed in constant 2020 US Dollars ($).

3.0 PROPERTY OVERVIEW

3.1 Description and Location

Smart Sand's Oakdale Mine surface frac sand mining operation is located on a contiguous block of acres controlled by Smart Sand, in Monroe County, Wisconsin. The subject property is less than 2 miles southwest of the town of Oakdale.

Geographically, the Oakdale frac sand processing plant is located at approximately 43°57'5.46" N latitude and 90°24'14.22" W longitude. Figure 3.1 illustrates the location of the Oakdale Property and Mine.

3.2 History

The Smart Sand Oakdale Property has operated since 2012 and has mined premium NWS for use in the oil/gas industry. NWS has been extensively mined, via surface mining operations, in the north central area of the United States (predominantly mined in Minnesota, Wisconsin, and Illinois, with lesser amounts mined in Arkansas and Iowa). The primary sources of NWS are from the Saint Peter, Jordan, Wonewoc, and Mt. Simon Formations, which are found in an area ranging from south central Minnesota into Wisconsin.

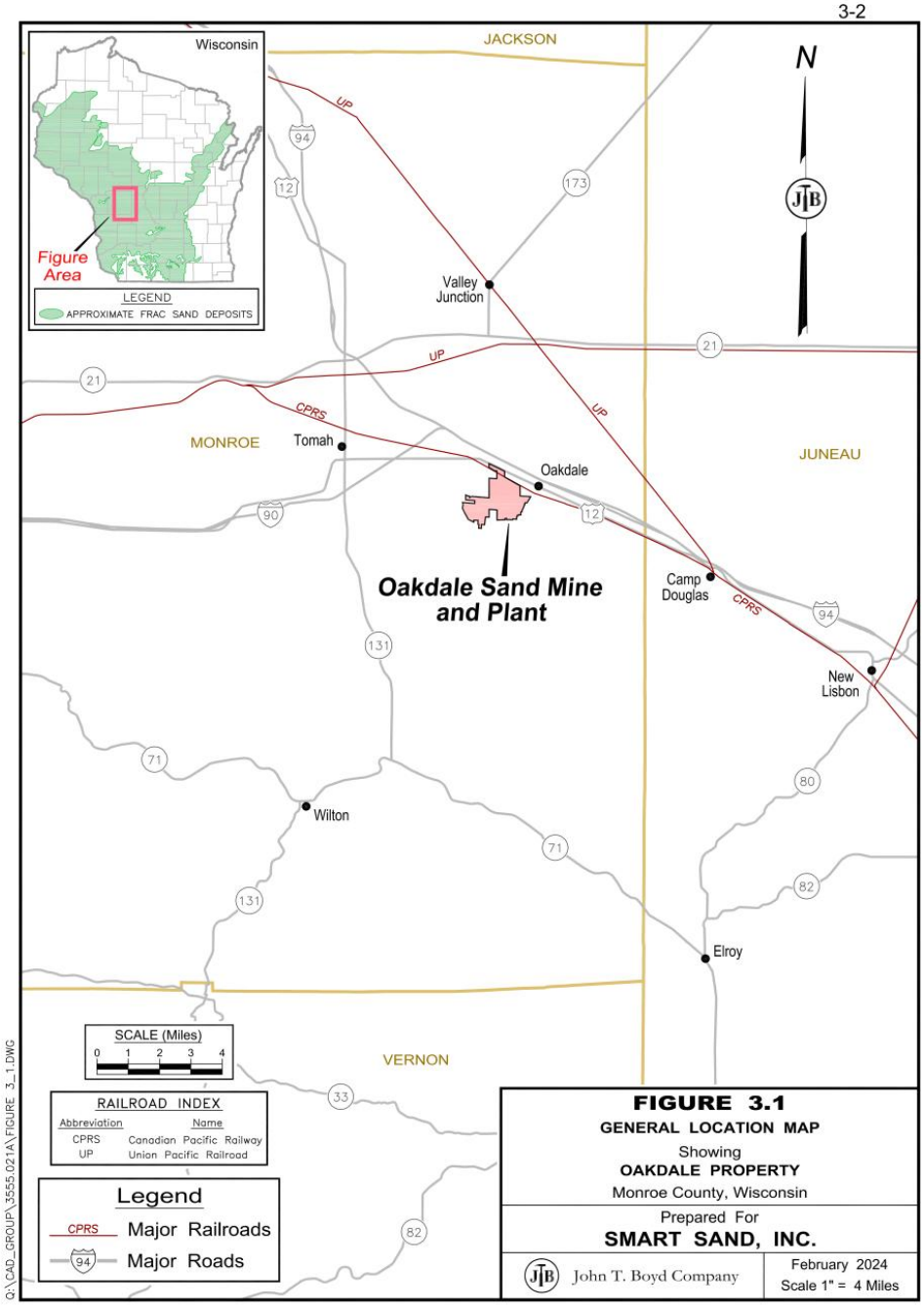
Oakdale's Mine Safety and Health Administration (MSHA) identification number (4703625) was assigned in 2012, with mining operations commencing in the third quarter 2012.

3.3 Property Control

The Oakdale Property comprises approximately 1,256 contiguous acres and are owned in fee by Smart Sand. Ownership information provided by Smart Sand has been accepted as being true and accurate for the purpose of this report. No royalties are paid to former landholders or mineral rights owners. However, a royalty (commission) is paid related to the sale of only 20/70-mesh sized products.

3.3.1 Mineral Ownership

Smart Sand owns 100% of the mineral rights to the entire subject property. The current estimated mineable area is approximately 837 acres, or 67% of the total property, after observing setbacks, right of ways, processing areas, and other non-mining acreage.


Wisconsin
Figure Area
LEGEND
APPROXIMATE FRAC SAND DEPOSITS
JACKSON
N
UP
94
12
173
Valley Junction
21
UP
CPRS
MONROE
Tomah
Oakdale
JUNEAU
90
12
Oakdale Sand Mine and Plant
Camp Douglas
CPRS
94
131
New Lisbon
71
80
Wilton
71
82
131
Elroy
SCALE (Miles)
0 1 2 3 4
VERNON
33
RAILROAD INDEX
Abbreviation Name
CPRS Canadian Pacific Railway
UP Union Pacific Railroad
Legend
CPRS Major Railroads
94 Major Roads
82
FIGURE 3.1
GENERAL LOCATION MAP
Showing
OAKDALE PROPERTY
Monroe County, Wisconsin
Prepared For
SMART SAND, INC.
John T. Boyd Company
February 2024
Scale 1" = 4 Miles
Q:\CAD_GROUP\3555.021A\FIGURE 3_1.DWG

3.3.2 Surface Ownership

Smart Sand owns 100% of the surface rights to the entire subject property.

3.4 Adjacent Properties

Wisconsin frac sand mining and processing activity occurs in three general regions/districts: the Barron, Blair, and Oakdale districts. Smart Sand's Oakdale operation is in the Oakdale district. All three districts have seen extensive mining of the sand deposits for purposes of producing frac sand. All currently existing frac sand mining operations are located to the northwest of the Oakdale Mine.

3.5 Regulation and Liabilities

Mining and related activities for the Oakdale operation are regulated by five Federal agencies, seven State of Wisconsin agencies, and three Local agencies.

3.6 Accessibility, Local Resources, and Infrastructure

Smart Sand's Oakdale Mine is located near a number of small towns in southwestern Wisconsin. Monroe County and the four surrounding counties have a combined population of over 240,000 people, according to 2020 population estimates for the State of Wisconsin.

General access to the Oakdale Mine is via a well-developed network of primary and secondary roads serviced by state and local governments. These roads offer direct access to the mine and processing facilities and are open year-round. Primary vehicular access to the property is via State Route 12, with nearby access to Interstate 90/94.

The Oakdale Property has on-site rail access to the Canadian Pacific rail network, and access to the Union Pacific rail network via an off-site transload facility located in Byron Township, approximately 3 miles from the site.

The Oakdale operation has access to numerous airports as there are:

- Five International airports within a 240-mile radius of the site.
- Five Domestic airports within a 120-mile radius of the site.
- Six Local airports within a 60-mile radius of the site.

Sources of three phase electrical power, natural gas, and other miscellaneous materials are readily available. Water supplied to the operation is via various sources such as, on-site wells, on-site ponds, and public water; the operation was issued a public water system permit in 2015.

3.7 Physiography

The Oakdale Property is located in the Western Upland, a geographical region that comprises the western half of Wisconsin. The Western Upland region is rugged and hilly and is divided by streams and rivers. The region contains numerous rocky outcrops and small caves.

The surface of the Smart Sand property is overlain by a veneer of poorly sorted glacial till ranging from a few feet to over 30 ft in depth. Beneath the glacial fill is the Mt. Simon Formation, one of the primary sources of NWS.

Surface topography within the property is predominately flat lying except for the western-southwestern portion of the property where the surface elevation increases, and a series of hills or bluffs are present (vertical relief of 125 ft to 150 ft).

3.8 Climate

For the Oakdale operation, average monthly high temperatures range from 28ºF to 83ºF, with June, July, and August being the hottest months. Average monthly low temperatures range from 9ºF to 60ºF, with the months of November, December, January, February, and March exhibiting average lows at or below freezing (32ºF).

Average annual rainfall is 3 in. with approximately 75 days of rain. Average annual snowfall is about 38 in. with approximately 23 days of snowfall.

Table 3.1 provides National Oceanic and Atmospheric Administration's (NOAA) monthly average climate data for Monroe County, Wisconsin.

Table 3.1: Climate Data for Oakdale Mine - Monroe County, Wisconsin

Averages	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Temp	ºF	28	31	45	59	70	79	83	80	74	60	46	32
Low Temp	ºF	9	10	23	34	46	56	60	58	49	38	28	15
Rainfall	inches	0.9	0.9	1.9	3.4	4.4	4.7	4.2	4.3	3.8	2.4	2.0	1.2
	days	4	3	5	8	9	9	7	8	7	6	5	4
Snowfall	inches	10.0	7.8	6.2	2.1	0.0	0.0	0.0	0.0	0.0	0.1	2.9	9.3
	days	6	5	3	1	0	0	0	0	0	0	2	6

Source: National Oceanic and Atmospheric Administration

4.0 GEOLOGY

4.1 Regional Geology

NWS are generally located in the north-central portion of the United States (predominantly in Minnesota, Wisconsin, and Illinois, with lesser amounts in Arkansas and Iowa). NWS is found in poorly cemented Cambrian and Ordovician sandstones and in unconsolidated alluvial deposits locally derived from these sandstones. The Saint Peter, Jordan, Wonewoc, and Mount Simon formations, located in south-central Minnesota into Wisconsin, are the primary sources of NWS, and can be observed in Figure 4.1, on the following page, which presents the various stratigraphic rock units in Wisconsin.

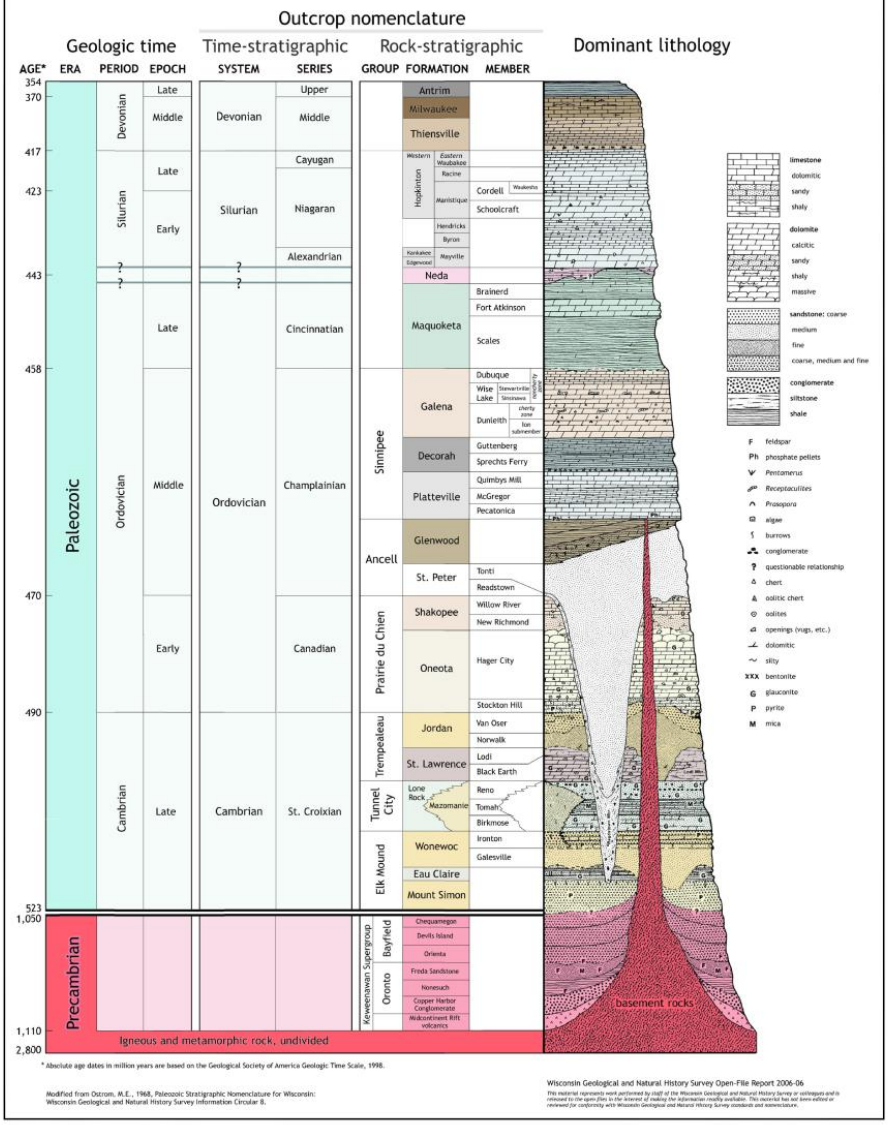
The Oakdale Property is underlain by the Mount Simon Formation, which on a regional basis, ranges in thickness from 300 ft to over 2,000 ft (in Indiana). The Mount Simon sands can be described as poorly consolidated, poorly sorted, fine-grained, quartz sandstone. These sands are typically white in color, but can show a color change to a yellowish-gray or to a grayish-red.

The Mount Simon Formation is of Cambrian age and underlying the Mount Simon is pre-Cambrian age granite.

4.2 Local Stratigraphy

The surface of the Oakdale Property is overlain by a veneer of poorly sorted glacial till ranging from a few feet to over 30 ft in depth. Beneath the glacial till is the Mount Simon Formation.

Within the property, the surface topography is predominately flat lying except for the western-southwestern portion of the property where the surface elevation increases as a series of hills or bluffs are present (vertical relief of 125 ft to 150 ft). The size consist of the sand found in the above drainage bluff areas is a coarser mix in comparison to the sands found in the alluvial material and in the in-place below drainage sand formations.



Q:\CAD_GROUP\3555.021A\FIGURE 4_1.DWG

FIGURE 4.1

Structure of the Mount Simon Formation, on the Oakdale Property, appears to be flat lying with no evidence of faulting or other geologic features. Total thickness of the Mount Simon Formation contained on the property was not determined as the deepest drill hole (240 ft in length) was stopped while still in the sandstone formation.

A cross-section through the deposit is provided in Figure 4.2 (page 4-4).

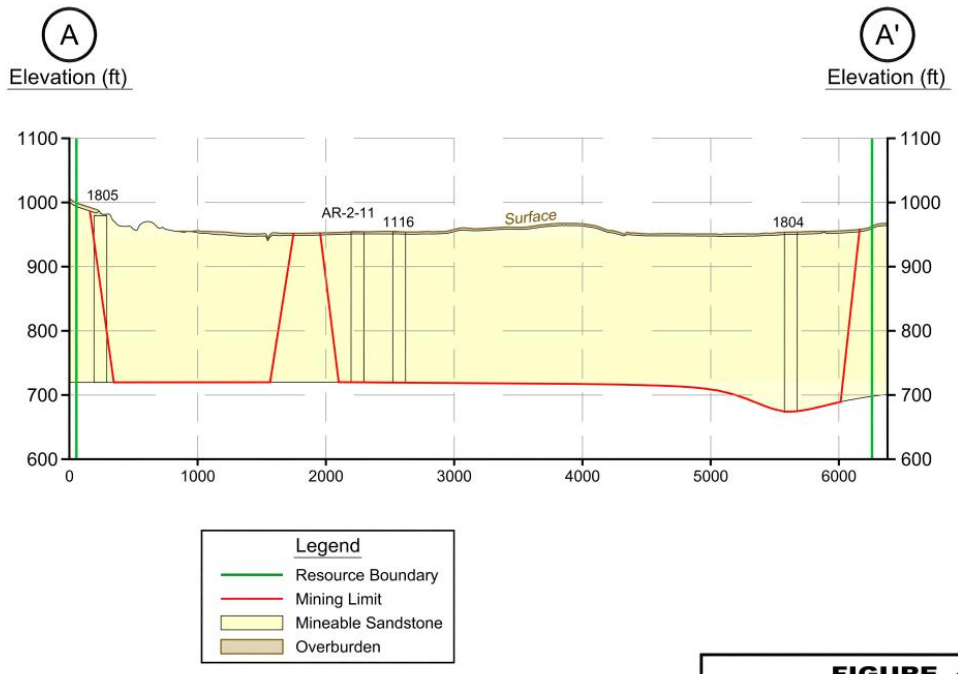
4.3 Frac Sand Geology

Frac sand is a naturally occurring, high silica content quartz sand, with grains that are generally well-rounded. The main difference between frac sand and other sands is that frac sand grains are relatively pure in composition, consisting almost entirely of quartz; other sands have numerous impurities that may be cemented to the quartz grains. The pure quartz composition of frac sand grains, along with being well-rounded and spherical in shape, gives these sands the characteristics (crush strength, high acid solubility, low turbidity) that are branded as premium sands by the drilling service industry.

The NWS-Mount Simon sands are generally characterized by a high silica content, high roundness and sphericity, white color, and lack of deleterious material. Because of their monocrystalline structure, these sands have superior grain strength when compared to other silica sands and are suitable for pressure applications generally up to the 9,000 pounds per square inch (psi) range.

NWS is not classified as an in-basin frac sand. In-basin frac sands, such as those found in west Texas, are a relatively new extension of the frac sand mining industry. The first in-basin frac sand deposits mined (late-2017) in the United States were in the Permian Basin of Texas. Permian Basin oil and gas exploration and production companies noted favorable results from locally sourced sands, and as such, nearly every other energy basin has gone through a period of exploration to locate suitable local sources of frac sands. Many E&Ps shifted their approach from requiring only premium branded frac sands, such as NWS, to using higher quantities of locally sourced and lower-priced frac sands, with positive results.

Q:\CAD_GROUP\3555.021A\FIGURE 4_2.DWG



Legend
- Resource Boundary
- Mining Limit
- Mineable Sandstone
- Overburden

FIGURE 4.2
CROSS SECTION A - A'
OAKDALE PROPERTY
Monroe County, Wisconsin
Prepared For
SMART SAND, INC.

Horizontal 1" = 1,000'
Vertical 1" = 200'
Vertical Exaggeration 5X

John T. Boyd Company

February 2024
Scales As Shown

Note : See Figure 6.2 For Cross Section Location.

5.0 EXPLORATION DATA

5.1 Background

BOYD has been involved with Smart Sand's Oakdale Property since mid-2011. At that time, under BOYD's supervision, three confirmatory drill holes were completed with frac sand core samples submitted to Stim-Lab for API testing. BOYD used the results of this program to confirm prior drilling data on the property and in combination with the prior drill hole data, BOYD was able to map the frac sand deposit and calculate the initial resource estimate for the Oakdale Property.

5.2 Exploration Procedures

5.2.1 Drilling and Sampling

Based on information provided to BOYD by Smart Sand, there have been six different drilling campaigns on the Oakdale Property. The first drilling program commenced in December 2010, and the last drilling program was completed in 2018.

From 2010 to 2018, a total of 37 holes were drilled, with 30 of the holes providing sufficient sand core data that were utilized by Smart Sand in their reserve model and subsequently by BOYD to verify the Smart Sand model. Seven of the drill holes were not utilized for varying reasons, such as, insufficient core recovery, hole abandoned, BOYD confirmatory drill holes (duplicated data), and no data provided. Table 5.1 provides additional summary information on the drilling campaigns.

Table 5.1: Oakdale Mine Exploration Drilling Campaign Summary

	Number of	Sand Cores		Drill Holes	
Year	Holes Drilled	Data Used	Thickness (ft)	Not Used	Reason Not Used
2010	2	-	NA	2	Insufficient Core Recovery
2011	13	12	1,581	1	Hole Abandoned
2011-BOYD	3	-	NA	3	Duplicated Results
2012	3	2	330	1	No data provided
2016	12	12	1,765	-	
2018	4	4	965	-	
Total	37	30	4,641	7	

BOYD reviewed the drilling and sampling methodologies utilized in the various exploration campaigns at the Oakdale Property, as well as the equipment utilized, and the sampling, logging, and field work performed. We note that methodologies and

procedures indicate that the data obtained were carefully and professionally collected, prepared, and documented in conformance with generally accepted industry standards. BOYD opines that this work is thorough and complete for purposes of evaluating and estimating frac sand resources and reserves on the Oakdale Property.

5.2.2 Frac Sand Quality Testing

Stim-Lab performed sieve analyses on numerous samples taken on the Oakdale Property. In addition, they performed the API RP 19C/ISO 13503-2 proppant sand characteristic tests for sphericity and roundness, acid solubility, crush resistance, and turbidity on several composite samples (DDH-1-10 drilled in 2010, a composite sample of the three BOYD confirmation holes drilled in July 2011, and on the three “bluff” holes drilled in 2012). The DDH-1 composite sample (comprised of sample material from the depth range of 9 ft to 59 ft) had a full suite of tests, while the BOYD hole and “bluff” hole only had sphericity, roundness, and crush resistance tests performed.

When the samples were received by Stim-Lab, the general initial preparation was for each sample to be washed, dried (to remove moisture), and disassociated. After which, a composite sieve analysis was conducted on each sample. Composite samples of the anticipated frac sand product sizes, such as 20/40, 30/50, 40/70, and 70/140-mesh, were created and tested per API RP 19C/ISO 13503-2 standards.

Results from the various testing performed on the DDH-1 sample from the Oakdale Property is presented in Section 5.3.

5.2.3 Other Exploration Methods

No other methods of exploration (such as airborne or ground geophysical surveys) are reported for the Oakdale Property.

5.3 Laboratory Testing Results

The relatively uniform nature of the Mount Simon sand formation underlying the Oakdale Property, combined with the results of independent laboratory testing (Stim-Lab) indicated that the Oakdale Property was capable of producing a suite of 20/140-mesh frac sand products that meet customer specifications for frac sand use.

5.3.1 Grain Size Distribution

Grain size distribution was analyzed according to API RP 19C/ISO 13503-2, Section 6. A table of weighted average grain size distribution of the in situ sand deposit, based on laboratory testing results, is shown in Table 5.2.

Table 5.2: Weighted Average Particle Size Distribution

Approximate In-Place Product Distribution					
% Retained By Mesh Size				% Product	
>30	30/50	50/140	<140	30/50	50/140
7	27	58	8	32	68

The preceding table highlights the relative size mix of the sand found within the Oakdale Property, indicating approximately 85% of the sand particles are concentrated between the “passing 30-mesh” and “retained 140-mesh” size fraction. Moreover, of the 30/140-mesh sand faction, approximately 68% of the marketable product consists of the finer 50/140-mesh sands.

5.3.2 Grain Shape (Sphericity and Roundness)

Grain shape was analyzed according to ISO 13503-2/API RP19C, Section 7. Under this standard, recommended sphericity and roundness values for proppants are 0.6 or greater, and 0.7 or greater for high strength proppants. As part of the grain shape analysis, the presence of grain clusters (weakly cemented grain aggregates) and their approximate proportion in the sample were reported.

5.3.3 Crush Resistance

Crush resistance is a key test that determines the amount of pressure a sand grain can withstand under laboratory conditions for a two-minute duration. The sample was analyzed according to ISO 13503-2/API RP19C, Section 11. Under this standard, the highest stress level (psi) in which the proppant produces no more than 10% crushed fine material is rounded down to the nearest 1,000 psi and reported as the “K-value” of the material.

5.3.4 Acid Solubility

Acid solubility was analyzed according to ISO 13503-2/API RP19C, Section 8. Under this standard, 5 grams of sand is treated with 100 milliliters of 12:3 hydrochloric acid to hydrofluoric acid at 150ºF for 30 minutes. The recommended maximum acid solubility for proppants in the 6/12 through 30/50-mesh size range is 2.0%, and for proppants in the 40/70-mesh and finer size range is 3.0%.

5.3.5 Turbidity

Turbidity was analyzed according to ISO 13503-2/API RP19C, Section 9. Under this standard, the suggested maximum frac sand turbidity should be equal to or less than 250 nephelometric turbidity units (NTU).

5.3.6 Quality Summary

The DDH-1-10 composite sample gathered during the initial exploration was tested by Stim-Lab for API RP 19C/ISO 13503-2 proppant sand characteristics. Testing was performed on the 20/40, 40/70, and 70/140-mesh product sizes. The test results are presented in Table 5.3.

Table 5.3: Oakdale API/ISO Test Results for the DDH-1-10 Composite Sample

	DDH-1-10 Average API/ISO Test Results By Product Size				
		API RP19C			API RP19C
Test	Result 20/40-mesh	Recommended Specification	Result 40/70-mesh	Result 70/140-mesh*	Recommended Specification
Sphericity	0.8	≥ 0.6	0.7	0.7	≥ 0.6
Roundness	0.7	≥ 0.6	0.7	0.6	≥ 0.6
Acid Solubility (%)	0.7	≤ 2.0	0.9	1.3	≤ 3.0
Turbidity (NTU)	30	≤ 250	16	16	≤ 250
K-Value (000 psi)	7	-	9	12	-

* Currently, 70/140-mesh proppant sand material does not have an API/ISO specification.

The composited sample testing suggested that the Oakdale Mine could produce frac sands which meet minimum API/ISO recommended testing characteristics. BOYD notes that the Oakdale operation has been selling various frac sand sized products to their E&P and drilling services customers since 2012.

5.4 Data Verification

For purposes of this report, BOYD notes that we prepared the initial resource/reserve report for the Oakdale Property in 2012 and have prepared updates (additions or reductions) to the estimated resources and reserves tons through December 31, 2020.

The December 31, 2021, reserve estimate for the Oakdale Property is based on historic drill hole data previously used by BOYD in the preparation of our prior reserve estimates. It is customary in preparing proppant sand resource and reserve estimates to accept basic drilling and quality testing data as provided by the client, subject to the reported results being judged representative and reasonable. As we have judged the drilling and quality data representative and reasonable, we opine that they are still representative and reasonable for use in the December 31, 2021, resource and reserve estimate.

6.0 FRAC SAND RESOURCES AND RESERVES

6.1 Applicable Standards and Definitions

Unless otherwise stated, frac sand resource and frac sand reserve estimates disclosed herein are completed in accordance with the standards and definitions provided by S-K 1300. It should be noted that BOYD considers the terms “mineral” and “frac sand” to be generally interchangeable within the relevant sections of S-K 1300.

Estimates of any mineral resources and reserves are always subject to a degree of uncertainty. The level of confidence that can be applied to a particular estimate is a function of, among other things: the amount, quality, and completeness of exploration data; the geological complexity of the deposit; and economic, legal, social, and environmental factors associated with mining the resource/reserve. By assignment, BOYD used the definitions provided in S-K 1300 to describe the degree of uncertainty associated with the estimates reported herein.

The definition of mineral (frac sand) resource provided by S-K 1300 is:

> *Mineral resource is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.*

Estimates of frac sand resources are subdivided to reflect different levels of geological confidence into measured (highest geologic assurance), indicated, and inferred (lowest geologic assurance)

The definition of mineral (frac sand) reserve provided by S-K 1300 is:

> *Mineral reserve is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.*

Estimates of frac sand reserves are subdivided to reflect geologic confidence, and potential uncertainties in the modifying factors, into proven (highest assurance) and probable.

Figure 6.1 shows the relationship between frac sand resources and frac sand reserves.

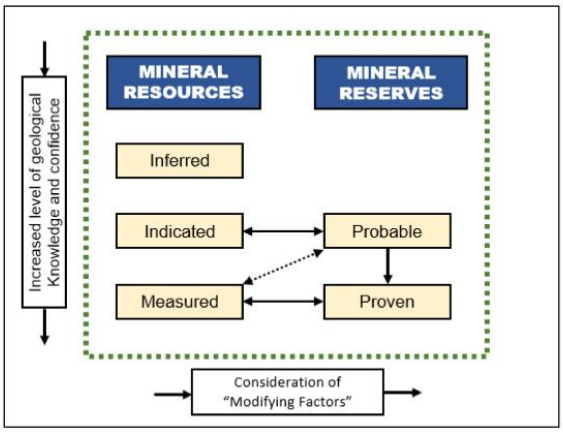


Figure 6.1: Relationship Between Frac Sand Resources and Frac Sand Reserves

In this report, the term “frac sand reserves” represent the tonnage of frac sand products that meets customer specifications and will be available for sale after processing of the ROM sand.

6.2 Frac Sand Resources

6.2.1 Methodology

BOYD independently prepared estimates of in-place frac sand for the Oakdale Property by performing the following tasks:

1. Available drilling logs and laboratory testing results were reviewed to check for accuracy and to support development of the geologic model. The geologic database utilized for modeling and estimation consists of results of 30 drillholes as the holes from the first campaign were twinned by two campaigns in 2014 and 2016 for verification purposes. Two of the drillholes from the initial drilling campaign were left out, because the accurate locations of the drillholes were not identified in the records. The existing drillhole data were complimented by an excavation sample

collected more recently. Based on the data from the excavation sample and an adjacent drillhole, a dummy hole was also added to the drillhole dataset to make sure that overburden thickness is modeled properly. The geologic data were imported into Carlson Software, a geologic modeling and mine planning software suite that is widely used and accepted by the mining industry.

2. A geologic model of the deposit was created in Carlson Software using industry-standard grid modeling methods well-suited for simple stratigraphic deposits. The geologic model delineates the top and bottom of the mineable sand horizon and the distribution of the product size fractions across the deposit. The top and bottom of the mineable frac sand interval were established thusly:
    a. There is minimal overburden material across the property. The top of the mineable sand interval was defined as the current ground surface as provided by several aerial topographic surveys conducted from the beginning of the project until July of 2021. The local pit areas were included and for the areas where the facilities are located, the original LIDAR data were used to define the ground surface to get accurate reserves.
    b. The bottom of the mineable sand interval was established at an 800 ft level. Although the sand layer extends below the 800 ft level, due to waste material stockpile space constraints, it is unlikely that mining the material below this level is operationally feasible.
3. After reviewing the continuity and variability of the deposit, suitable resources classification criteria were developed and applied as per the discussion in Section 6.2.2.
4. BOYD then reviewed the proposed mining regions identified by Smart Sand. Estimation of the in-place frac sand resources for the Oakdale Property assumes mining operations using standard surface excavation equipment, which is widely utilized for mining of similar deposit types. As such, the estimates were subject to the following setbacks and slope requirements:
    a. 100 ft inside of property lines.
    b. Site infrastructures, including the railroad areas and plants were eliminated from the resource areas.
5. A 75 degree highwall with a 30 ft catch bench for every 100 ft drop and a floor elevation of 800 ft. In-place volumes for each of the proposed mining blocks were calculated from the geologic model within Carlson Software. A dry, in-place, bulk density of 125 pounds per cubic foot was used to calculate the in-place tonnage of frac sand. It is based on a density study done by Smart Sand in 2019. The overall mineable area was divided into West and East areas. West area includes two sections with proven reserves (West_1 and West_2 pits) and three sections with probable reserves (West_3, West_4, and West_5 pits). East area consists of two sections with proven reserves (East_1 and East_2 pits) and one section with probable reserves (East_3 pit).

6. BOYD then compared the volumetric estimate derived from its geologic modeling to that of the model provided by Smart Sand. The volumetric estimates from the two models were reasonably similar. The Smart Sand volumetric estimate is therefore utilized as the basis for this reserve estimate.

7. BOYD utilized provided production data to reconcile the estimate from date of volumetric estimate to December 31, 2021.

6.2.2 Classification

Geologic assuredness is established by the availability of both structural (thickness and elevation) and quality (size fraction) information for the deposit. Resource classification is generally based on the concentration or spacing of exploration data which can be used to demonstrate the geologic continuity of the deposit. When material variations in thickness, depth, and/or sand quality occur between drill holes, the allowable spacing distance between drill holes is reduced. The following drill hole spacing criteria were established by the Qualified Person after review of the available exploration data and geologic models and used to classify the frac sand resources of the Oakdale Mine:

Table 6.1: Oakdale Property Drill Hole Spacing Parameters

Resource Classification	Spacing Requirement (ft) (Nominal Maximum)
Measured	1,750
Indicated	3,500
Inferred	7,000

The Qualified Person has determined that all of the estimated frac sand resources within the Oakdale Property are classified as either Measured or Indicated.

BOYD is of the opinion that there is a low degree of uncertainty associated with each of the resource classifications.

6.2.3 Frac Sand Resource Estimate

There are no reportable frac sand resources excluding those converted to frac sand reserves for the Oakdale Mine. Quantities of frac sand controlled by Smart Sand within the defined boundaries of the Oakdale Property which are not reported as frac sand reserves are not considered to have potential economic viability; as such, they are not reportable as frac sand resources.

6.2.4 Validation

BOYD independently estimated in-place frac sand resources for the Oakdale Mine based on the provided drilling, sampling, and testing data obtained by Smart Sand.

Utilizing industry-standard grid modeling techniques we have estimated volumes of frac sand indicated by such data. Based on the favorable comparison of our estimate to that of Smart Sand's well-documented geologic exploration and volumetric estimate, we are of the opinion that Smart Sand's estimate is reasonable and appropriate. Furthermore, it is our opinion that the estimation methods employed are both appropriate and reasonable for the deposit type and proposed extraction methods.

6.3 Frac Sand Reserves

6.3.1 Methodology

Estimates of frac sand reserves for the Oakdale Mine were derived contemporaneously with estimates of frac sand resources. To derive an estimate of saleable product tons (proven and probable frac sand reserves), the following modifying factors were applied to the in-place measured and indicated frac sand resources underlying the respective mine plan areas:

- The mining recovery factor utilized in the estimates assumes that approximately 5% of the mineable (in-place) frac sand resource will not be recovered for various reasons. Applying this recovery factor to the in-place resource results in the estimated ROM sand tonnage that will be delivered to the wet process plant.
- A 95% dry processing recovery, which accounts for losses in the dry processing plant due to minor inefficiencies, was used in the estimate of the reserves. In addition, for each of the mining sections, a wet plant recovery factor, which accounts for removal of out-sized (i.e., larger than 30-mesh and smaller than 140-mesh) sand was derived from sieve analysis results from drilling campaigns. The overall wet plant recovery is 85.5%.

The overall product yield (after mining and processing losses) for the Oakdale Mine is estimated at 77.1%. That is, for every 100 tons of in-place frac sand resources mined, approximately 77.1 tons will be recovered and sold as product.

At the request of Smart Sand, BOYD utilized provided October – December 2021 production volumes to estimate the frac sand reserves for the Oakdale Mine as of

December 31, 2021. The following table presents the estimated tons that are anticipated to be produced at Smart Sand's Oakdale Property.

Table 6.2: Mineable and Reserve Tons as of December 31, 2021

Oakdale Property In-Place Resource and Reserve Tons			
	Tons (000)		
	In-Place[a]	Run-of-Mine[b]	Product[c]
West Pit	202,854	192,305	156,210
East Pit	121,736	115,406	93,745
Total	324,590	307,712	249,955

a. In-place tons calculated using an in situ dry density of 125 pcf.
b. ROM tons calculated using a 94.8% mining recovery.
c. Product tons calculated using 95% dry plant and 85.5% wet plant recoveries.

6.3.2 Classification

Proven and probable frac sand reserves are derived from measured and indicated frac sand resources, respectively, in accordance with S-K 1300. BOYD is satisfied that the frac sand reserve classification reflects the outcome of technical and economic studies. Figure 6.2 illustrates the reserve classification of the Oakdale Property frac sand deposit.

6.3.3 Frac Sand Reserve Estimate

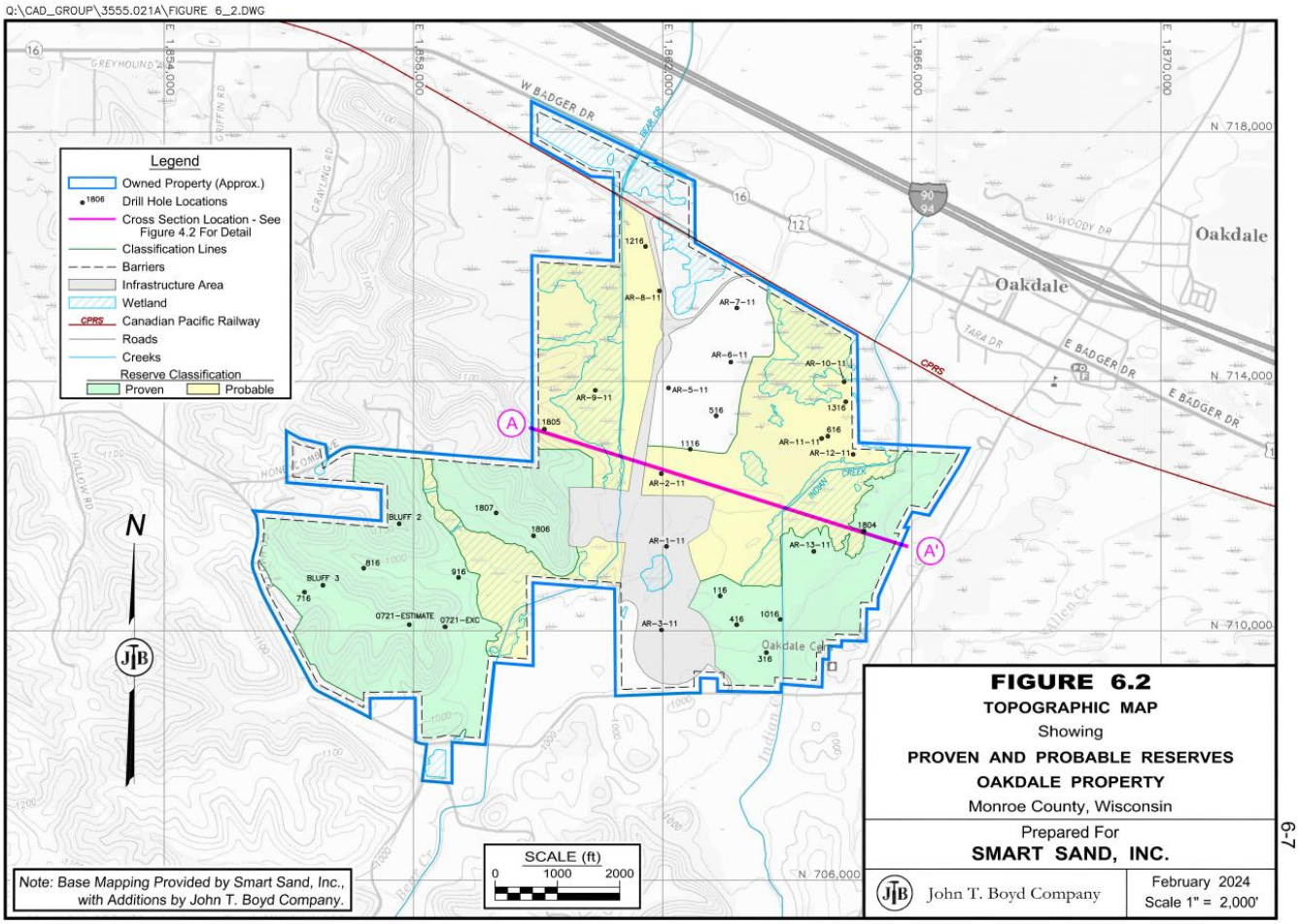
Smart Sand's estimated surface mineable frac sand reserves for the Oakdale Property total 250 million saleable product tons, as of December 31, 2021.

The following table presents the estimated Reserve tons by product (size), that are anticipated to be produced at Smart Sand's Oakdale Property.

Table 6.3: Reserves as of December 31, 2021

Smart Sand Oakdale Property Reserves			
	Tons (000) By Classification		
Mesh Size	Proven	Probable	Total
30/50	48,367	31,785	80,152
50/140	96,818	72,984	169,802
Total	145,186	104,769	249,955

The reported reserves include only frac sand which is reportedly owned as of December 31, 2021.


Q:\CAD_GROUP\3555.021A\FIGURE 6_2.DWG
Legend
Owned Property (Approx.)
Drill Hole Locations
Cross Section Location - See Figure 4.2 For Detail
Classification Lines
Barriers
Infrastructure Area
Wetland
Canadian Pacific Railway
Roads
Creeks
Reserve Classification
Proven
Probable
N
SCALE (ft)
0 1000 2000
Note: Base Mapping Provided by Smart Sand, Inc., with Additions by John T. Boyd Company.
FIGURE 6.2
TOPOGRAPHIC MAP
Showing
PROVEN AND PROBABLE RESERVES
OAKDALE PROPERTY
Monroe County, Wisconsin
Prepared For
SMART SAND, INC.
John T. Boyd Company
February 2024
Scale 1" = 2,000'
W BADGER DR
E BADGER DR
Oakdale
CPRS
A
A'
N 718,000
N 714,000
N 710,000
E 1,854,000
E 1,858,000
E 1,862,000
E 1,866,000
E 1,870,000

The frac sand reserves of the Oakdale Mine are well-explored and defined. It is our conclusion that over 58% of the stated reserves can be classified on the proven reliability category (the highest level of assurance) with the reminder classified as probable. It should be noted that we classified wetlands located at the reserve areas as probable reserves.

The estimated product distribution of the frac sand reserves is based on available laboratory gradation test data provided by Smart Sand. Grain size distribution and overall yields may vary based on the depth and location at which mining occurs.

The Oakdale Property, and other frac sand operations in the area, have a well-established history of mining and selling frac sand products into the Permian Basin energy fields as well as other regions. BOYD has assessed that sufficient studies have been undertaken to enable the frac sand resources to be converted to frac sand reserves based on current and proposed operating methods and practices. Changes in the factors and assumptions employed in these studies may materially affect the frac sand reserve estimate.

The extent to which the frac sand reserves may be affected by any known geological, operational, environmental, permitting, legal, title, variation, socio-economic, marketing, political, or other relevant issues has been reviewed as warranted. It is the opinion of BOYD that Smart Sand has appropriately mitigated, or has the operational acumen to mitigate, the risks associated with these factors. BOYD is not aware of any additional risks that could materially affect the development of the frac sand reserves.

Based on our independent estimate and operations review, we have a high degree of confidence that the estimates shown in this report accurately represent the available frac sand reserves controlled by Smart Sand, as of December 31, 2021.

7.0 MINING OPERATIONS

7.1 Mining Method

The Oakdale Mine property is broadly separated into two sections, the east section and the west section. The property is bisected by the loadout rail spur and access roads entering the site. The office, process plants and unit train loadouts are generally located within the interior of the property.

The mine has two distinct mining schemes that are employed at the property. The eastern side of the property generally consists of lowlands with some interspersed wetlands. This area served as the initial mining area for approximately the first five to six years of the operation. Typical excavator and articulated truck method is employed in a series of benches downward. There is very little overburden overlying the sand and the overburden that is stripped is utilized in berms or hauled to a dump area. The sand is drilled and blasted on a very wide pattern to “fluff” or disaggregate the sand grains. The mined sand is crushed then hauled to a wet process plant located on the eastern side of the property for processing. The pits are continuously dewatered, and the water is pumped into a holding pond at the northeast area of the property prior to sampling and discharging.

Currently, and for the immediate future, the majority of the ROM sand is mined from the western side of the property. Here, the “bluffs” are mined which generally lie above ground level to approximately 970 ft msl in elevation. Typical of other Wonewac Formation “bluff” mines, there is little overburden and following vegetation grubbing a bench is drilled and blasted in approximate 50 ft high benches progressing from the highest elevation downward. Excavators load articulated trucks which haul the ROM material to a primary crusher located on the western side of the property. Figure 7.1 illustrates the benching and primary crusher on the west side of the property.

The current mine plan and exploration drilling have projected the pit(s) to extend down to a basement elevation of approximately 800 ft msl.

Figure 7.1: West Side "bluff" Mining at Oakdale

Typically, blasting occurs twice per week in the pit. The drilling and blasting are contracted to a third-party vendor.

7.2 Mine Schedule, Equipment, and Staffing

The entire operation conforms to a 2-2 3-2 2-3 rotating shift schedule which uses four teams (crews) and two 12-hour shifts to provide 24/7 coverage. Personnel work an average 42 hours per week. The quarry pit generally operates on 12 hours daily utilizing this rotation for the entire operation.

The primary pit mobile equipment involved in sand excavation includes:

- Four Cat 988 loaders.
- Two Cat 982 loaders.

- Eight Volvo A45 haul trucks.
- Three Cat 745 haul trucks.
- One Cat 390 excavator.
- One Cat 349 excavator.
- One Volvo 480 excavator.

In addition, there are numerous support vehicles (maintenance trucks, skid steers, water truck, etc.) to complement the fleet.

7.3 Mine Production

7.3.1 Historical Mine Production

Oakdale predominantly produces 30/50-mesh and 50/140-mesh (100-mesh) frac sand products for sale to destinations served by the Canadian Pacific and Union Pacific railways. All of the finished product is railed to the final destination.

The sand is mined, processed, stored, and shipped from one contiguous property. Production from the operation commenced in mid-2012. Recent historic ROM production is as follows:

Table 7.1: Historic ROM Production

Year	Finished Tons (000)
2019	5,133
2020*	2,765
2021	5,760 est

* Included Covid period.

7.3.2 Forecasted Production

Forecasted ROM sand production is estimated as follows:

Table 7.2: Forecasted ROM Production Tons

	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
ROM Production tons (000)	3,447	3,447	3,447	3,447	3,447

The average process yield is reported to be 81.2%; as such, 3.5 million ROM tons are expected to produce approximately 2.8 million tons of finished product.

7.3.3 Expected Mine Life

As of December 31, 2021, the reserve estimate for the Oakdale Mine is estimated at 250 million saleable tons. Projecting an average yearly sales volume of 2.8 million tons per year, the operation has a LOM of approximately 90 years.

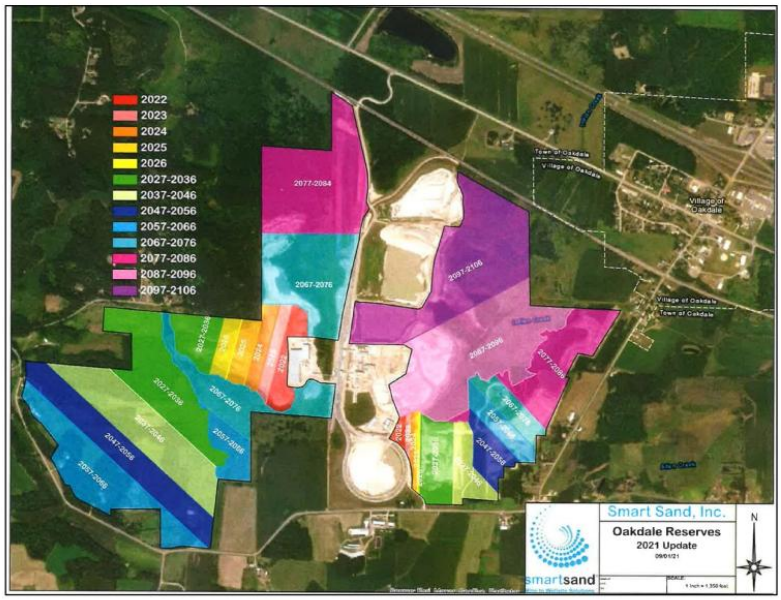


Figure 7.2: Oakdale Proposed Mine Plan

The illustration above depicts the proposed LOM plan for the Oakdale Mine. The LOM plan assumes a steady-state sales volume in the 2.8 to 3.0 million product tons per year range for approximately 85 years through year 2106. Future mine plan production, and hence the longevity of the mine, is directly related to energy market demand for proppant sand. Actual yearly production volumes may, and are likely to, fluctuate significantly based on this demand.

7.3.4 Mining Risk

Surface mines face two primary types of operational risks. The first category of risk includes those daily variations in physical mining conditions, mechanical failures, and

operational activities that can temporarily disrupt production activities. Several examples are as follows:

- Water accumulations/soft floor conditions.
- Process water shortages.
- Power curtailments.
- Variations in grain size consistency.
- Encountering excessive clay and other waste material.
- Failures or breakdowns of operating equipment and supporting infrastructure.
- Weather disruptions (power outages, dust storms, excessive heat etc.).

The above conditions/circumstances can adversely affect production on any given day, but are not regarded as “risk issues” relative to the long-term operation of a mining entity. Instead, these are considered “nuisance items” that, while undesirable, are encountered on a periodic basis at many mining operations. BOYD does not regard the issues listed above as being material to the Oakdale Mine operations or otherwise compromising its forecasted performance.

The second type of risk is categorized as “event risk.” Items in this category are rare, but significant occurrences that are confined to an individual mine, and ultimately have a pronounced impact on production activities and corresponding financial outcomes. Examples of event risks are major fires or explosions, floods, or unforeseen geological anomalies that disrupt extensive areas of proposed or operating mine workings and require alterations of mining plans. Such an event can result in the cessation of production activities for an undefined but extended period (measured in months, and perhaps years) and/or result in the sterilization of frac sand reserves. This type of risk is minimal in a relatively simple surface sand mining operation.

8.0 PROCESSING OPERATIONS

8.1 Overview

The Oakdale plant area is actually a series of two wash plants, three dry plants, and three rail loadouts that are centered around the railroad tracks in the interior of the property. The original layout (Wet 1, Dry 1, Loadout 1) was constructed in 2012. An additional dry plant (Dry 2) was subsequently added which was fed by Wet 1. The most recent expansion in Q1 2018 included a new wet plant, dry plant, and loadout on the west side of the rail loadout (Wet 2, Dry 3, Loadout 3). This newer plant is where the majority of the sand is now processed and loaded. The adjacent mining pit essentially excavates the higher “bluff” sand material. The east side plants are utilized for incremental production as a “peaking” type facility when demand for product cannot be satisfied from the west side facility. Figure 8.1 illustrates the layout and location of the process and loadout facilities.

The overall complex has an approximate annual finished product capacity of 5.5 million tons.

Figure 8.1 Oakdale Processing Plants and Rail Loadouts

There are three major process components which are typical in the frac sand industry. At the Oakdale operation these components include:

- Wet Process Plants- These facilities include the west plant (Wet 2) and the east plant (Wet 1). ROM material from the pit is hauled to a primary crusher to reduce oversize before entering the wet plant. Sand that is greater than 30-mesh and less than 140-mesh including silt material is removed in a typical screen/hydrosizer/cycone wet classification system. The resulting 30 x 140-mesh WIP material is stockpiled and decanted before being fed into the dry plants. The silt and fine waste (<140-mesh) is captured in a series of ponds. Plant process water is recycled from these ponds. The plants have a nominal capacity of approximately 3 million tons per year or 650 tons per hour (tph) of WIP material. The west plant produces the majority of the sand and the east plant is utilized during periods of high demand.
- Dry Process Plants- The damp 30 x 140-mesh material produced by the wet process plant is loaded into a feed hopper and metered into one of five Carrier fluid bed dryers. Each dryer has a nominal finished capacity of approximately 1.1 million tons per year. Each dryer operates in the 220 tph to 250 tph range of feed input depending on moisture content. Three dryers are located on the east side serving the dry plants and two dryers are located within the west plant. Once the sand is dried it is separated by Rotex multi-deck screens into finished product sizes. The material is then conveyed to storage silos before being loaded predominantly into railcars. The plant produces mainly 30 x 50-mesh, 40 x 70-mesh, and 70 x 140-mesh (100-mesh) products. Figure 8.2 illustrates the east side wet plant and a dry plant.

Figure 8.2 East Wet 1 and Dry 2

- Storage and Loadout- Finished products are stored in 13 product silos (6 at west plant, 7 at east plants). Approximate finished storage capacity of all the silos is 36,000 tons. There are three on-site rail loadouts that service the Canadian Pacific Railway. One loadout is supplied directly by the west plant and the other two loadouts are located on the east side at Dry 1 and Dry 2. There is a nearby fourth rail loadout that services the Union Pacific Railway. Finished product is hauled to this facility by truck. The on-site rail spur is capable of loading unit train shipments and the off- site loadout is a manifest loadout. Figure 8.3 illustrates the two east side loadouts.

Figure 8.3 East Side Rail Loading Facilities

The entire complex is staffed by approximately 160 employees at the site. This number can fluctuate based on product demand.

8.2 Conclusion

Based on our review of the Oakdale Mine, it is BOYD's opinion that the processing methods and existing equipment at the plant will be sufficient for the planned production of frac sand.

9.0 MINE INFRASTRUCTURE

The Oakdale Mine is serviced by three phase power that is routed along County Road CA and into the plant at the southern end of the property. The pipeline providing natural gas supply for the drying equipment is also routed along this corridor. Plant process water is supplied by surface water retention ponds and a backup drilled high capacity well if needed. Additionally, the wash process water is recycled after fines are removed via settling in a series of constructed ponds. As the mine progresses, silt ponds are constructed in mined-out areas. Wastewater from offices and other buildings are collected via holding tanks and disposed of on a regular basis. Potable water is provided by a public water system.

On-site facilities include a guard house, office, shop, and a quality laboratory located in the dry process plants. The operation employs approximately 160 people and staffing varies based on production demand.

The surface facilities currently located at the mine are well constructed and have the necessary capacity/capabilities to support the Oakdale Mine's near-term and long-term operating plans. Substantial excess production capacity is installed as the nameplate capacity of the facility is approximately 5.5 million tons per year with current yearly sales projected in the 2.8 to 3.0 million tons per year range.

10.0 MARKET ANALYSIS

The frac sand market is driven by unconventional horizontal drilling in the oil and gas industry. In the late 1990s, rapid advances in horizontal drilling and hydraulic fracturing (fracking) in North America ushered in large-scale commercial oil and gas production. This fracking technique has been increasingly successful and modified over time to extract oil and gas held in dense layers of shale rocks, whose low permeability had previously prevented the flow of hydrocarbons.

Hydraulic fracturing uses a mixture of water, chemicals, and proppant (natural sand or man-made sand-like substances) to fracture shale rock and release hydrocarbons such as oil, natural gas and natural gas liquids. The proppant acts to keep the fractures open (prop) while the pressurized fluids flow back up the well piping. Wells have become more productive with the addition of horizontal drilling capabilities, longer lateral lengths, and multi-stage fracks.

North America's shale oil industry's growing competitiveness gained through continuous technology improvement and falling production costs have had major implications on the global energy market. Oilfield service companies, including frac sand producers, made significant cuts in 2020 to survive lower commodity prices because of the COVID-19 pandemic. Figure 10.1 illustrates the CME Group's West Texas Intermediate (WTI) Crude Oil Annual Average Futures Price. We estimate breakeven pricing for unconventional oil wells in the Permian to be in the $30 to $40 per barrel range, with some areas in the mid $20s per barrel. 2021 WTI futures pricing showed a strong recovery following the 2020 COVID-19 impact.

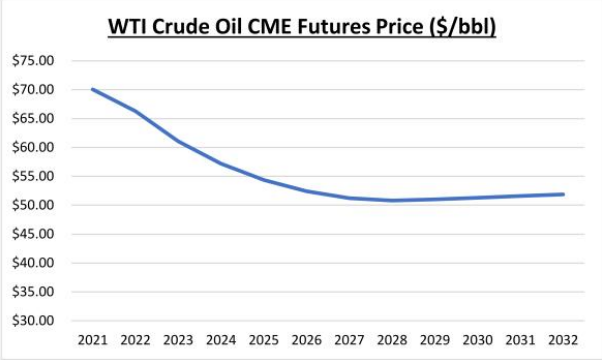


Figure 10.1: WTI Crude Oil CME Futures Price

Although Smart Sand's market area is essentially all of the energy basins in the United States and western Canada, we have selectively focused on the Permian, Appalachian, and Denver-Julesburg (DJ) as these are target markets for their frac sand. The Oakdale Mine has advantaged delivered cost to the western basins like the DJ as the Oakdale Mine directly loads onto the Canadian Pacific Railway, a very competitive option for westbound sand to the DJ. Oakdale also own a loadout near the mine which enables them to load directly on the Union Pacific Railway, the favored Permian basin rail. The Utica Mine has access to their nearby Burlington Northern rail loadout which greatly complements the Oakdale facility, especially when moving product to the Appalachian (Marcellus-Utica) basin. Therefore, a high-level overview of demand in these basins follows.

10.1 Permian Basin

Permit submissions for horizontal oil and gas wells in the Permian indicate a continuation of strong drilling ahead. According to InfillThinking, the number of permits filed per working rig this summer is tracking at multi-year highs as evidenced in Figure 10.2 below.

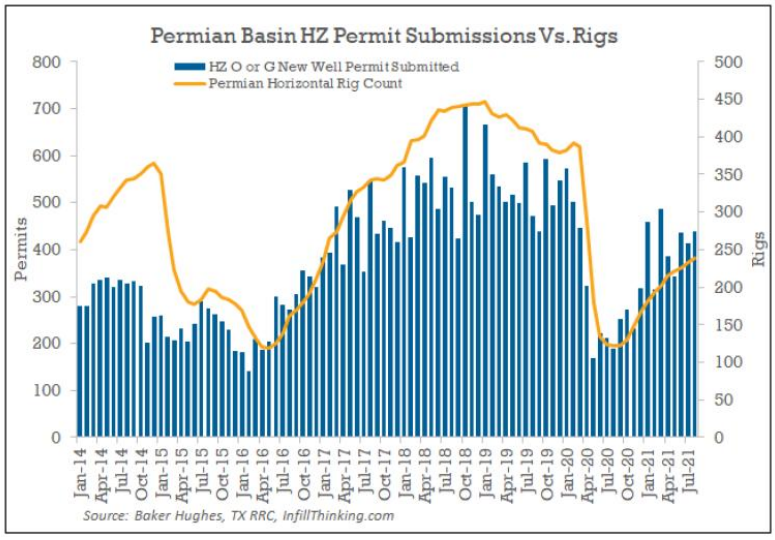


Figure 10.2: Permian Basin HZ Permit Submissions vs. Rigs

Over the previous 52 weeks, rig counts in the Permian are up approximately 111%. This has led to increased production for both crude oil and natural gas. For the same time period, crude oil (barrels per day) and natural gas production (thousand cubic feet per day) in the Permian are up 10% and 9%, respectively. As Figure 10.3 illustrates, Permian daily crude oil production is nearing its pre-pandemic impacted peak, while daily natural gas production in the Permian continues to make new records and now stands at 18.6 billion cubic feet per day.

Figure 10.3: Permian Oil Production and Natural Gas Production

According to U.S. Energy Information Administration Drilling Productivity Report, drilled but uncompleted wells (DUCs) in the Permian Basin have declined 43% since peaking in July 2020 (refer to Figure 10.4). These data dovetail with increased crude oil and natural gas production in the basin.

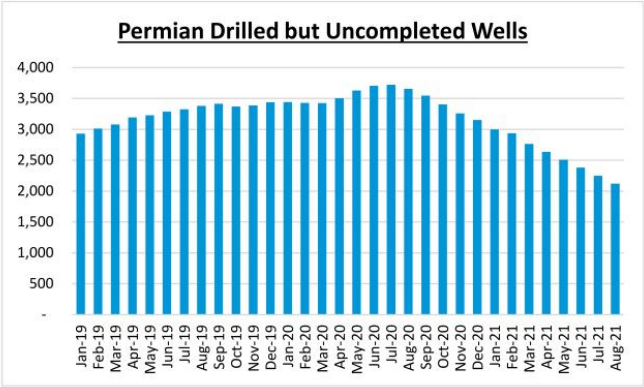


Figure 10.4: Permian Drilled but Uncompleted Wells

Although a majority of this large basin's sand is sourced from local sand mines, Northern White, Oakdale quality sand remains an important product for many well applications.

10.2 Appalachian Basin (Marcellus/Utica Play) and Niobrara Basin

Although smaller in size than the Permian energy fields, the Appalachian and Nioobrara (DJ) are substantial natural gas and oil plays in North America. Unlike the Permian, the Appalachian and Niobrara import the vast majority of the frac sand. Very few, notable in-basin sand operations exist. This creates an advantaged situation for the Oakdale and Utica mines as they are advantaged, transport wise to the basin and there are few substitutes for NWS.

Following the energy downturn in 2019 and then Covid shutdown in 2020, the basin wellfield activity appears to be rebounding. Horizontal rigs have stabilized over the past two years as can be seen on Figure 10.5, but gas production per rig is substantially higher. Energy companies are drilling longer laterals and optimizing each well pad becoming more efficient from a cost perspective and overall natural gas production is stable as can be seen from Figure 10.6.

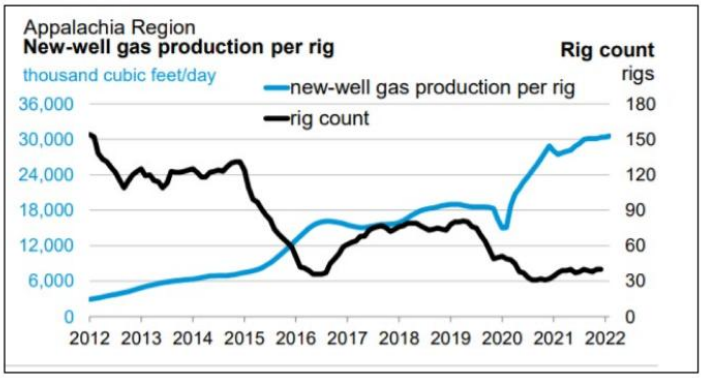


Figure 10.5: Appalachian Rig Count and Production per Rig (Source: EIA)

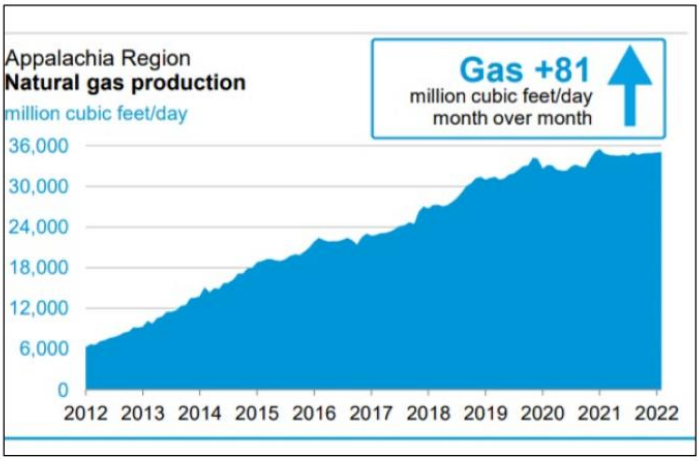


Figure 10.6: Appalachian Gas Production (Source: EIA)

Similarly, the DJ basin has seen a rebound in rig count since the Covid shutdown. Both gas and oil rig counts have risen but productivity per well has decreased as can be seen in Figure 10.7.

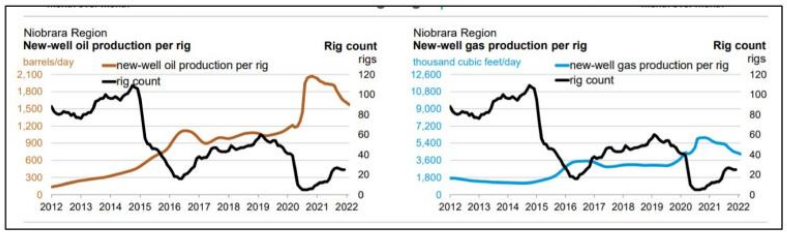


Figure 10.7: Niobrara Oil and Gas Rig Count and Productivity (Source: EIA)

Overall gas and oil production remains relatively flat in the basin, but more wells are being drilled to maintain this capacity. Figure 10.8 illustrates the overall yearly gas and oil production in the basin.

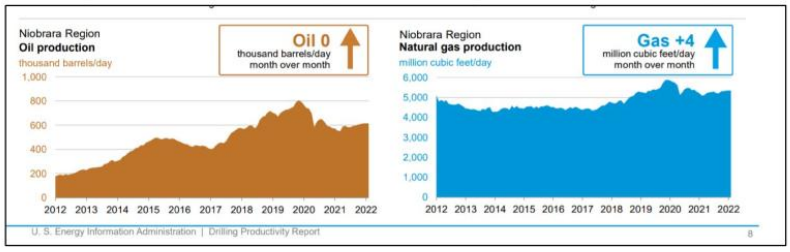


Figure 10.8: Niobrara Oil and Gas Production (Source: EIA)

Having survived the challenging environment of 2019 and 2020, Smart Sand's operations should continue to prove viable into the future notwithstanding a sustained and significant energy price collapse. Their low-cost mining scheme, advantaged transport to select basins, and high-quality product help to create an advantage compared with other NWS producers.

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11.0 CAPITAL, REVENUES, AND OPERATING COSTS

11.1 Introduction

Smart Sand commenced mining and processing operations at the Oakdale Mine in July 2012. Smart Sand provided BOYD with production, sales, CapEx, and financial data for the years 2019, 2020, and September YTD 2021.

We remind the reader of the significant effect the COVID-19 pandemic had on drilling and fracking activities in the oil & gas industry in 2020.

11.2 Historical Capital Expenditures

The Oakdale operation's CapEx, for the years 2019, 2020, and 2021 (September YTD), is presented in Table 11.1 below.

Table 11.1: Historical Capital Expenditures

	CapEx ($000)*
Year 2019	10,527
Year 2020	1,737
Sep YTD 2021	1,962
Total	14,227

*Oakdale operation only, excludes transload sites and other locatons/activities.

11.3 Historical Revenues and Operating Costs

11.3.1 Historical Revenues

Table 11.2 presents Smart Sand's historical sales data for the years 2019, 2020, and 2021 (September YTD).

Table 11.2: Historical Sales Statistics

	Year 2019	Year 2020	SepYTD2021
Tons Sold (000)	2,462	1,779	1,752
Total Revenues ($000) (a)	103,865	67,827	70,546
Average Sales Price ($ per ton sold)	42.19	38.14	40.26

*Revenues are a mix of point of sale, and as such are not all mine gate prices.

Figure 11.1 presents the product sizes sold as a percent of total tons sold. About 90% of the tons sold consists of the finer size 40/70-mesh and 100-mesh products with about 10% of the products sold consisting of the coarser 20/40 and 30/50-mesh products.

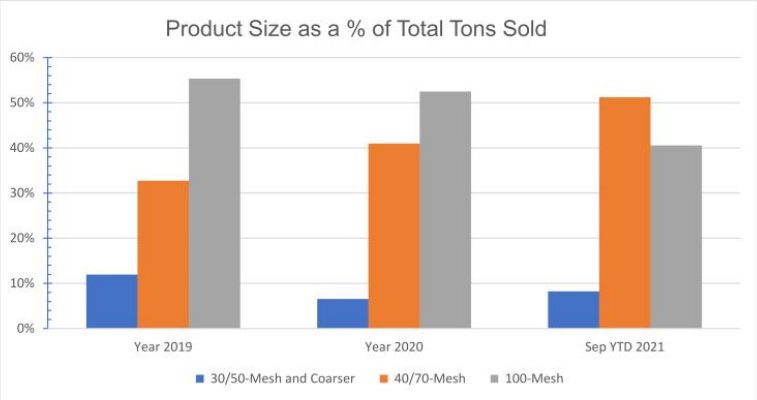

Figure 11.1: Product Size as a Percentage of Total Tons Sold

Based on the statistics presented in Table 11.2 above, the average realization ranges from a low of $38.14 per ton sold to a high of $42.19 per ton sold. The revenues and average sales price are not 100% free-on-board (FOB) mine gate but represent a mix of point-of-sale revenues.

Smart Sand provided BOYD with historical average mine gate pricing (Table 11.3), which eliminates the additional revenue received for transportation services from the mine gate to the customer's delivery point.

Table 11.3: Historical Average Mine Gate Pricing

Average Mine Gate Pricing - $ per ton sold		
Year 2019	Year 2020	Year 2021
25.11	22.89	20.00

Over the past three years, the average mine gate prices have decreased from $25.11 per ton in Year 2019 to $20.00 per ton in Year 2021 (September YTD).

The Oakdale operation has both contract and spot sales. Figure 11.2 presents annual contract and spot sales as a percent of total tons sold for the years 2019, 2020, and 2021 (September YTD).

Figure 11.2: Oakdale Contract and Spot Sales

Oakdale's customer portfolio primarily consists of E&P and Well Services Companies. Figure 11.3 presents Top 5 Customers (as a group) based on total revenues for the years 2019, 2020, and 2021 (September YTD).

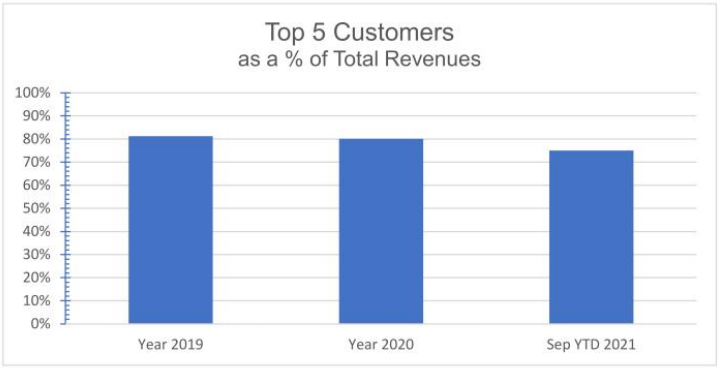

Figure 11.3: Oakdale Top 5 Customers (Grouped) as a Percentage of Total Revenues

Table 11.4 presents Oakdale's historical cash operating costs for the years 2019, 2020, and 2021(September YTD). Operating costs represent the costs incurred associated

with the mining, ongoing reclamation, wet processing, dry processing, on-site rail loadout, and other related costs.

Table 11.4: Historical Cost of Production

	$ (000)			$ per ton sold		
Cash Operating Costs:	Year 2019	Year 2020	SepYTD2021	Year 2019	Year 2020	SepYTD2021
Wages and benefits	15,837	10,577	8,012	6.43	5.95	4.54
Excavation	5,297	3,135	3,640	2.15	1.76	2.06
Utilities	7,622	4,600	5,029	3.10	2.59	2.85
Equipment	5,834	3,493	2,480	2.37	1.96	1.41
Maintenance	3,863	2,148	1,984	1.57	1.21	1.12
Other costs	2,360	2,410	1,475	0.96	1.36	0.84
Total Cash Operating Costs	40,813	26,362	22,620	16.62	14.82	12.81

Note: Rounding Errors

Based on the statistics presented in Table 11.4 above, total cash operating costs declined from $16.62 per ton sold in 2019 to $12.81 per ton sold in 2021.

11.4 Projected Production, Sales, and Costs

Smart Sand provided BOYD with production, sales, and cost projections for the Oakdale operation. We reviewed and adjusted the cost projections based on current year and historical financial data. Forecasted financial data, product pricing, and costs are in 2021 constant dollars. BOYD opines that the production and financial projections are reasonable and are likely to be within ± 20% accuracy level.

11.4.1 Production and Sales Projections

Table 11.5 below, presents frac sand production projections for the years 2022 through 2026.

Table 11.5: Oakdale Production Projections

	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
ROM Production (000)	3,447	3,447	3,447	3,447	3,447
Wet Plant Feed	3,447	3,447	3,447	3,447	3,447
Processing Recovery (%)	85.5	85.5	85.5	85.5	85.5
Wet Plant Product	2,947	2,947	2,947	2,947	2,947
Dry Plant Feed	2,947	2,947	2,947	2,947	2,947
Processing Recovery (%)	95.0	95.0	95.0	95.0	95.0
Dry Plant Product	2,800	2,800	2,800	2,800	2,800

Annual forecasted ROM production is based on the dry plant producing 2.8 million tons per year of saleable product after a processing (wet and dry processing plant) loss of

approximately 18.8%, as discussed in Chapter 6. Forecasted dry processing plant production is within the operation's current infrastructure capacities and capabilities. Table 11.6 below, presents frac sand sales projections for the years 2022 through 2026.

Table 11.6: Oakdale Sales Projections

	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
Tons Sold (000)	2,800	2,800	2,800	2,800	2,800
30/50-Mesh	898	898	898	898	898
50/140-Mesh	1,902	1,902	1,902	1,902	1,902
Revenues ($000)	56,000	56,000	56,000	56,000	56,000
Product Pricing ($ per ton sold)					
Average Price for all products	20.00	20.00	20.00	20.00	20.00

Sales of the projected dry processing plant product are about 32% for 30/50-mesh product and approximately 68% for 50/140-mesh product and are based on reserve product size data provided to BOYD by Smart Sand.

The sales price forecast presented in Table 11.6 above is based on Smart Sand's current year (2021) mine gate pricing discussed above. BOYD opines that these are reasonable price projections.

11.4.2 Operating Cost Projections

Table 11.7 below, presents the cash cost projections for the years 2022 through 2026. These projections were based on a review of historic costs, and SG&A data provided to BOYD by Smart Sand, as well as other information.

Table 11.7: Annual Cash Cost Projections

	Summary Cash Cost of Goods Sold ($000)				
	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
Cash Operating Expense					
Wages and benefits	10,800	10,800	10,800	10,800	10,800
Excavation	5,771	5,771	5,771	5,771	5,771
Utilities	7,974	7,974	7,974	7,974	7,974
Equipment	3,307	3,307	3,307	3,307	3,307
Maintenance	3,147	3,147	3,147	3,147	3,147
Other costs	2,400	2,400	2,400	2,400	2,400
Subtotal Cash Operating Expense	33,399	33,399	33,399	33,399	33,399
Royalty	698	698	698	698	698
SG&A	13,944	13,944	13,944	13,944	13,944
Final Reclamation Escrow	221	221	221	221	221
Total Cash Cost of Goods Sold	48,262	48,262	48,262	48,262	48,262

BOYD notes that the Oakdale property is owned in fee, and the royalty expense is not paid to a former landowner/mineral owner. The royalty is on only the sales of 20/70-mesh sized products.

Smart Sand provided BOYD with the current estimated final reclamation cost ($19.7 million) of the Oakdale operation/site. BOYD calculated a rate of approximately $0.08 per ton sold to recognize the current estimated cost over the life of the operation.

Table 11.8 below, presents the above table's cost projections on a cost per ton sold basis for the years 2022 through 2026.

Table 11.8: Annual Dollars per Ton Sold Cash Cost Projections

	Summary Cash Cost of Goods Sold ($ per ton sold)				
	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
Cash Operating Expense:					
Wages and benefits	3.86	3.86	3.86	3.86	3.86
Excavation	2.06	2.06	2.06	2.06	2.06
Utilities	2.85	2.85	2.85	2.85	2.85
Equipment	1.18	1.18	1.18	1.18	1.18
Maintenance	1.12	1.12	1.12	1.12	1.12
Other costs	0.86	0.86	0.86	0.86	0.86
Subtotal Cash Operating Expense	11.93	11.93	11.93	11.93	11.93
Royalty	0.25	0.25	0.25	0.25	0.25
SG&A	4.98	4.98	4.98	4.98	4.98
Final Reclamation Escrow	0.08	0.08	0.08	0.08	0.08
Total Cash Cost of Goods Sold	17.24	17.24	17.24	17.24	17.24

11.4.3 Projected Capital Expenditures

Smart Sand provided BOYD with the annual sustaining CapEx estimate of $4 million, which includes maintenance of production equipment as well as other items, for the operation.

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12.0 ECONOMIC ANALYSIS

12.1 Introduction

Cash flow projections for the Oakdale operation have been generated from the proposed LOM production schedules, revenues, cost of goods sold (COGS), and CapEx estimates discussed in Chapter 11. A summary of the key assumptions used is provided below.

- LOM ROM frac sand tons and product tons sold were based on the total frac sand reserve estimate discussed in Chapter 6 of this report. BOYD estimates that the Oakdale operation reserves would be depleted in Year 2111.
- Forecasted revenues at the on-site loadout (mine gate) is based on sales of 30/50, 40/70 and 70/140-mesh size products to be delivered to its customer base in the various energy basins.
- Operating and Other Costs (as discussed in Chapter 11) include:
  - Employee wages and benefits.
  - Excavation.
  - Utilities.
  - Equipment.
  - Maintenance.
  - Other Operating Expenses.
  - Royalty.
  - Selling, General and Administrative.
- Reclamation costs include:
  - Final reclamation cost to reclaim the Oakdale operation/site.
- Capital Expenditures (as discussed in Chapter 11) include:
  - Sustaining/Maintenance.
- Taxes are based on:
  - Federal Business Income Tax Rate of 21%.
  - Wisconsin State Income Tax Rate of 7.9%.
- Adjustments used to determine After-Tax cash flows:
  - Current depreciation expense was provided by Smart Sand for the Oakdale operation.
  - Depreciation expense for new fixed assets (from sustaining/maintenance CapEx) are based on a straight-line depreciation calculation using a 10-year asset life.
  - Operating losses, if any, are carried forward in the tax computation.

12.2 Economic Analysis

BOYD prepared an economic analysis, as of January 1, 2022, for the Oakdale Operation using the production, sales, and financial projections presented in this report. Our analysis confirms that the operation generates positive cash flows (based on a 12% discount rate), on a pre-tax and after-tax basis, that supports the statement of frac sand reserves herein.

12.2.1 Cash Flow Analysis

Table 12.1 below presents the pre-tax and after-tax cash flow projections based on the proposed LOM production schedule, revenue, cost of goods sold, CapEx and other estimates discussed above for the Oakdale operation.

Table 12.1: Summary Cash Flow Statement

	Summary Cash Flow Statement ($ 000)									
	2022 to 2031	2032 to 2041	2042 to 2051	2052 to 2061	2062 to 2071	2072 to 2081	2082 to 2091	2092 to 2101	2102 to 2111	Total
Total Tons Sold (000)	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	25,955	140,000
Revenues	560,000	560,000	560,000	560,000	560,000	560,000	560,000	560,000	519,100	2,800,000
COGS	482,617	484,017	485,417	486,817	488,217	489,617	491,017	492,417	461,556	2,427,083
CapEx	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	34,000	200,000
Net Pre-Tax Cash Flow	37,383	35,983	34,583	33,183	31,783	30,383	28,983	27,583	23,544	172,917
Federal and State Income Taxes	-	-	-	7,352	9,185	8,781	8,376	7,972	6,868	16,537
After-Tax Net Cash Flow	37,383	35,983	34,583	25,832	22,598	21,603	20,607	19,612	16,675	156,380

DCF-NPV on a pre-tax and after-tax basis, using discount rates of 10%, 12%, and 15%, were calculated utilizing the cash flows above. The DCF-NPV values used mid-year discounting and all cash flows were on a constant dollar basis.

The pre-tax DCF-NPV ranges from approximately $26.4 million to $38.3 million. The after-tax DCF-NPV ranges from approximately $26.3 million to $37.8 million. Table 12.2 summarizes the results of the pre-tax and after-tax DCF-NPV analyses:

Table 12.2: DCF-NPV

	DCF-NPV ($ 000)		
	10%	12%	15%
Pre-Tax	38,282	32,382	26,397
After-Tax	37,836	32,171	26,324

Refer to Table 12.3 on the next page for the detailed LOM cash flow analysis and corresponding pre-tax and after-tax DCF-NPV analyses at a 12% discount rate.

TABLE 12.3

PRE-TAX AND AFTER-TAX CASH FLOW ANALYSIS
SMART SAND - OAKDALE OPERATION
Monroe County, Wisconsin
Prepared For
SMART SAND, INC
By
John T. Boyd Company
Mining and Geological Consultants
February 2024

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032 to 2041	2042 to 2051	2052 to 2061	2062 to 2071	2072 to 2081	2082 to 2091	2092 to 2101	2102 to 2111	Total
Production Statistics (Tons 000):																			
ROM Production off Fee Property	3,447	3,447	3,447	3,447	3,447	3,447	3,447	3,447	3,447	3,447	34,470	34,470	34,470	34,470	34,470	34,470	34,470	31,952	307,712
Processing Statistics (Tons 000):																			
Wet Plant Feed	3,447	3,447	3,447	3,447	3,447	3,447	3,447	3,447	3,447	3,447	34,470	34,470	34,470	34,470	34,470	34,470	34,470	31,952	307,712
Processing Recovery (%)	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5	85.5
Wet Plant Product	2,947	2,947	2,947	2,947	2,947	2,947	2,947	2,947	2,947	2,947	29,474	29,474	29,474	29,474	29,474	29,474	29,474	27,321	263,110
Dry Plant Feed	2,947	2,947	2,947	2,947	2,947	2,947	2,947	2,947	2,947	2,947	29,474	29,474	29,474	29,474	29,474	29,474	29,474	27,321	263,110
Processing Recovery (%)	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
Dry Plant Product	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	28,000	28,000	28,000	28,000	28,000	28,000	28,000	25,955	249,955
Overall Processing Recovery (%)	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2	81.2
Sales and Financial Data:																			
Saleable Product Tons Sold (000):																			
30/50-Mesh	898	898	898	898	898	898	898	898	898	898	8,980	8,980	8,980	8,980	8,980	8,980	8,980	8,321	80,161
50/140-Mesh	1,902	1,902	1,902	1,902	1,902	1,902	1,902	1,902	1,902	1,902	19,020	19,020	19,020	19,020	19,020	19,020	19,020	17,634	169,794
Total Tons Sold	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	28,000	28,000	28,000	28,000	28,000	28,000	28,000	25,955	249,955
Product Pricing ($ per ton)																			
30/50-Mesh	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
50/140-Mesh	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Weighted Average	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Revenues ($ 000)																			
30/50-Mesh	17,960	17,960	17,960	17,960	17,960	17,960	17,960	17,960	17,960	17,960	179,600	179,600	179,600	179,600	179,600	179,600	179,600	166,420	1,603,220
50/140-Mesh	38,040	38,040	38,040	38,040	38,040	38,040	38,040	38,040	38,040	38,040	380,400	380,400	380,400	380,400	380,400	380,400	380,400	352,680	3,395,880
Total Sales Revenues	56,000	56,000	56,000	56,000	56,000	56,000	56,000	56,000	56,000	56,000	560,000	560,000	560,000	560,000	560,000	560,000	560,000	519,100	4,999,100
COGS ($ 000):																			
Cash Operating Expense:																			
Wages and benefits	10,800	10,800	10,800	10,800	10,800	10,800	10,800	10,800	10,800	10,800	108,000	108,000	108,000	108,000	108,000	108,000	108,000	102,600	966,600
Excavation	5,771	5,771	5,771	5,771	5,771	5,771	5,771	5,771	5,771	5,771	57,708	57,708	57,708	57,708	57,708	57,708	57,708	53,493	515,157
Utilities	7,974	7,974	7,974	7,974	7,974	7,974	7,974	7,974	7,974	7,974	79,744	79,744	79,744	79,744	79,744	79,744	79,744	73,920	711,872
Equipment	3,307	3,307	3,307	3,307	3,307	3,307	3,307	3,307	3,307	3,307	33,070	33,070	33,070	33,070	33,070	33,070	33,070	31,417	295,977
Maintenance	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	31,472	31,472	31,472	31,472	31,472	31,472	31,472	29,173	280,949
Other costs	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	25,400	26,800	28,200	29,600	31,000	32,400	33,800	33,182	264,382
Total Cash Operating Expense	33,399	33,399	33,399	33,399	33,399	33,399	33,399	33,399	33,399	33,399	335,394	336,794	338,194	339,594	340,994	342,394	343,794	323,785	3,034,937
$ per ROM ton	9.69	9.69	9.69	9.69	9.69	9.69	9.69	9.69	9.69	9.69	9.73	9.77	9.81	9.85	9.89	9.93	9.97	10.13	9.86
$ per ton sold	11.93	11.93	11.93	11.93	11.93	11.93	11.93	11.93	11.93	11.93	11.98	12.03	12.08	12.13	12.18	12.23	12.28	12.47	12.14
Royalty	698	698	698	698	698	698	698	698	698	698	6,976	6,976	6,976	6,976	6,976	6,976	6,976	6,467	62,276
$ per ton sold	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
S,G&A	13,944	13,944	13,944	13,944	13,944	13,944	13,944	13,944	13,944	13,944	139,440	139,440	139,440	139,440	139,440	139,440	139,440	129,256	1,244,776
$ per ton sold	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98
Final Reclamation Escrow	221	221	221	221	221	221	221	221	221	221	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,049	19,700
$ per ton sold	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Total COGS	48,262	48,262	48,262	48,262	48,262	48,262	48,262	48,262	48,262	48,262	484,017	485,417	486,817	488,217	489,617	491,017	492,417	461,556	4,361,689
$ per ton sold	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.24	17.29	17.34	17.39	17.44	17.49	17.54	17.59	17.78	17.45
EBITDA	7,738	7,738	7,738	7,738	7,738	7,738	7,738	7,738	7,738	7,738	75,983	74,583	73,183	71,783	70,383	68,983	67,583	57,544	637,411
$ per ton sold	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.71	2.66	2.61	2.56	2.51	2.46	2.41	2.22	2.55
CapEx ($ 000):																			
Total CapEx	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	34,000	354,000
Net Pre-Tax Cash Flow	3,738	3,738	3,738	3,738	3,738	3,738	3,738	3,738	3,738	3,738	35,983	34,583	33,183	31,783	30,383	28,983	27,583	23,544	283,411
Federal and State Income Taxes	-	-	-	-	-	-	-	-	-	-	-	-	7,352	9,185	8,781	8,376	7,972	6,868	48,534
After-Tax Net Cash Flow	3,738	3,738	3,738	3,738	3,738	3,738	3,738	3,738	3,738	3,738	35,983	34,583	25,832	22,598	21,603	20,607	19,612	16,675	234,877
DCF-NPV Analysis:																			
Pre-Tax Discounted Cash Flows at 12%	3,532	3,154	2,816	2,514	2,245	2,004	1,790	1,598	1,427	1,274	6,928	2,144	662	204	63	19	6	2	32,382
Cumulative Pre-Tax Discounted Cash Flows at 12%	3,532	6,686	9,502	12,017	14,262	16,266	18,056	19,653	21,080	22,354	29,282	31,426	32,088	32,292	32,355	32,374	32,380	32,382	
After-Tax Discounted Cash Flows at 12%	3,532	3,154	2,816	2,514	2,245	2,004	1,790	1,598	1,427	1,274	6,928	2,144	536	145	45	14	4	1	32,171
Cumulative After-Tax Discounted Cash Flows at 12%	3,532	6,686	9,502	12,017	14,262	16,266	18,056	19,653	21,080	22,354	29,282	31,426	31,962	32,107	32,152	32,165	32,170	32,171	

BOYD notes that the NPV estimate was made for purposes of confirming the economic viability of the reported frac sand reserves and not for purposes of valuing Smart Sand, the Oakdale operation, or its assets. IRR and project payback were not calculated, as there was no initial investment considered in the financial model. Risk is subjective, as such, BOYD recommends that each reader should evaluate the project based on their own investment criteria.

12.2.2 Sensitivity Analyses

Sensitivity analyses for the pre-tax and after-tax cash flows considering changes to revenues and COGS/CapEx were prepared using discount rates of 10%, 12%, and 15%. Revenues were adjusted in increments of 5% and range from minus 20% to plus 20% base revenues; the corresponding average sales price would range from $16.00 per ton sold to $24.00 per ton sold, with the base price of $20.00 per ton sold as noted in Table 12.4 below.

Table 12.4: Sensitivity Analysis – Average Sales Prices

Average Sales Price $ per ton sold								
-20.0%	-15.0%	-10.0%	-5.0%	0.0%	5.0%	10.0%	15.0%	20.0%
16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00

Costs were adjusted in increments of 5% and range from minus 20% to plus 20% base costs. BOYD notes that the royalty expense in COGS was not adjusted (kept constant) in the sensitivity analysis.

12.2.2.1 Pre-Tax Sensitivity Analyses

The following three tables (Tables 12.5–12.7) summarize the results of the pre-tax sensitivity analyses performed, which utilize discount rates of 10%, 12%, and 15% and incorporate the changes to revenue and COGS/CapEx discussed above:

Table 12.5: Pre-Tax DCF-NPV at 10%

Pre-Tax DCF-NPV @ 10% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	**0.0%**	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	29.0	58.4	87.8	117.1	146.5	175.8	205.2	234.6	263.9
	-15.0%	2.0	31.3	60.7	90.1	119.4	148.8	178.2	207.5	236.9
	-10.0%	(25.1)	4.3	33.7	63.0	92.4	121.7	151.1	180.5	209.8
	-5.0%	(52.1)	(22.8)	6.6	36.0	65.3	94.7	124.1	153.4	182.8
	0.0%	(79.2)	(49.8)	(20.4)	8.9	**38.3**	67.6	97.0	126.4	155.7
	5.0%	(106.2)	(76.9)	(47.5)	(18.1)	11.2	40.6	70.0	99.3	128.7
	10.0%	(133.3)	(103.9)	(74.5)	(45.2)	(15.8)	13.5	42.9	72.3	101.6
	15.0%	(160.3)	(130.9)	(101.6)	(72.2)	(42.9)	(13.5)	15.9	45.2	74.6
	20.0%	(187.4)	(158.0)	(128.6)	(99.3)	(69.9)	(40.6)	(11.2)	18.2	47.5

Table 12.6: Pre-Tax DCF-NPV at 12%

Pre-Tax DCF-NPV @ 12% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	0.0%	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	24.6	49.3	74.0	98.7	123.4	148.1	172.8	197.5	222.2
	-15.0%	1.9	26.6	51.3	76.0	100.6	125.3	150.0	174.7	199.4
	-10.0%	(20.9)	3.8	28.5	53.2	77.9	102.6	127.3	152.0	176.7
	-5.0%	(43.6)	(18.9)	5.8	30.4	55.1	79.8	104.5	129.2	153.9
	0.0%	(66.4)	(41.7)	(17.0)	7.7	32.4	57.1	81.8	106.5	131.2
	5.0%	(89.1)	(64.5)	(39.8)	(15.1)	9.6	34.3	59.0	83.7	108.4
	10.0%	(111.9)	(87.2)	(62.5)	(37.8)	(13.1)	11.6	36.3	61.0	85.6
	15.0%	(134.7)	(110.0)	(85.3)	(60.6)	(35.9)	(11.2)	13.5	38.2	62.9
	20.0%	(157.4)	(132.7)	(108.0)	(83.3)	(58.6)	(33.9)	(9.2)	15.4	40.1

Table 12.7: Pre-Tax DCF-NPV at 15%

Pre-Tax DCF-NPV @ 15% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	0.0%	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	20.1	40.1	60.1	80.2	100.2	120.2	140.2	160.2	180.2
	-15.0%	1.7	21.7	41.7	61.7	81.7	101.8	121.8	141.8	161.8
	-10.0%	(16.8)	3.2	23.3	43.3	63.3	83.3	103.3	123.3	143.4
	-5.0%	(35.2)	(15.2)	4.8	24.8	44.8	64.9	84.9	104.9	124.9
	0.0%	(53.7)	(33.7)	(13.6)	6.4	26.4	46.4	66.4	86.5	106.5
	5.0%	(72.1)	(52.1)	(32.1)	(12.1)	8.0	28.0	48.0	68.0	88.0
	10.0%	(90.6)	(70.5)	(50.5)	(30.5)	(10.5)	9.5	29.5	49.6	69.6
	15.0%	(109.0)	(89.0)	(69.0)	(49.0)	(28.9)	(8.9)	11.1	31.1	51.1
	20.0%	(127.5)	(107.4)	(87.4)	(67.4)	(47.4)	(27.4)	(7.3)	12.7	32.7

12.2.2.2 After-Tax Sensitivity Analyses

The following three tables (Tables 12.8–12.10) summarize the results of the after-tax sensitivity analyses performed, which utilize discount rates of 10%, 12%, and 15% and incorporate the changes to revenues and COGS/CapEx discussed above:

Table 12.8: After-Tax DCF-NPV at 10%

After-Tax DCF-NPV @ 10% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	0.0%	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	29.0	56.4	81.4	104.9	126.5	147.4	168.2	189.1	210.0
	-15.0%	2.0	31.2	58.4	83.3	106.6	128.0	148.8	169.7	190.6
	-10.0%	(25.1)	4.3	33.5	60.4	85.1	108.2	129.4	150.3	171.2
	-5.0%	(52.1)	(22.8)	6.6	35.7	62.4	86.9	109.8	130.9	151.8
	0.0%	(79.2)	(49.8)	(20.4)	8.9	37.9	64.3	88.7	111.4	132.4
	5.0%	(106.2)	(76.9)	(47.5)	(18.1)	11.2	40.0	66.3	90.5	112.9
	10.0%	(133.3)	(103.9)	(74.5)	(45.2)	(15.8)	13.5	42.2	68.2	92.3
	15.0%	(160.3)	(130.9)	(101.6)	(72.2)	(42.9)	(13.5)	15.9	44.3	70.1
	20.0%	(187.4)	(158.0)	(128.6)	(99.3)	(69.9)	(40.6)	(11.2)	18.2	46.4

Table 12.9: After-Tax DCF-NPV at 12%

After-Tax DCF-NPV @ 12% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	**0.0%**	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	24.6	48.2	69.9	90.2	108.5	126.1	143.6	161.2	178.7
	-15.0%	1.9	26.5	49.9	71.5	91.6	109.7	127.3	144.8	162.4
	-10.0%	(20.9)	3.8	28.4	51.6	73.1	93.0	110.9	128.5	146.0
	-5.0%	(43.6)	(18.9)	5.8	30.3	53.3	74.6	94.3	112.1	129.7
	0.0%	(66.4)	(41.7)	(17.0)	7.7	**32.2**	55.0	76.2	95.6	113.3
	5.0%	(89.1)	(64.5)	(39.8)	(15.1)	9.6	34.0	56.7	77.8	96.9
	10.0%	(111.9)	(87.2)	(62.5)	(37.8)	(13.1)	11.6	35.9	58.4	79.3
	15.0%	(134.7)	(110.0)	(85.3)	(60.6)	(35.9)	(11.2)	13.5	37.7	60.1
	20.0%	(157.4)	(132.7)	(108.0)	(83.3)	(58.6)	(33.9)	(9.2)	15.4	39.5

Table 12.10: After-Tax DCF-NPV at 15%

After-Tax DCF-NPV @ 15% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	**0.0%**	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	20.1	39.6	57.8	74.9	90.0	104.2	118.4	132.7	146.9
	-15.0%	1.7	21.7	41.1	59.2	76.1	90.9	105.2	119.4	133.6
	-10.0%	(16.8)	3.2	23.2	42.5	60.5	77.2	91.9	106.1	120.4
	-5.0%	(35.2)	(15.2)	4.8	24.8	44.0	61.9	78.3	92.9	107.1
	0.0%	(53.7)	(33.7)	(13.6)	6.4	**26.3**	45.4	63.2	79.4	93.8
	5.0%	(72.1)	(52.1)	(32.1)	(12.1)	8.0	27.9	46.8	64.5	80.4
	10.0%	(90.6)	(70.5)	(50.5)	(30.5)	(10.5)	9.5	29.4	48.2	65.8
	15.0%	(109.0)	(89.0)	(69.0)	(49.0)	(28.9)	(8.9)	11.1	30.9	49.6
	20.0%	(127.5)	(107.4)	(87.4)	(67.4)	(47.4)	(27.4)	(7.3)	12.7	32.4

13.0 PERMITTING AND COMPLIANCE

13.1 Permitting

The Oakdale Mine's operations are predominantly regulated by a Monroe County, Wisconsin non-metallic reclamation permit which contains detailed reclamation plans for the property. Mine operators must submit annual reports to Monroe County containing information on the reclamation status of their mines and pay annual fees based on the disturbed acres. They must also provide written certification that the reclamation plan is being followed. A significant portion of the Probable Reserves underlie current wetland areas. These areas will be mitigated as designated wetlands prior to mining. These reserves are not in the current five-year plan.

Air emissions are regulated by the Wisconsin Department of Natural Resources, Bureau of Air Management. Smart Sand monitors air emissions and has current permits.

The operation also has developed an Environmental Management System and Quality Management System. They have successfully completed an outside surveillance audit of their Environmental Management System to the ISO 14001: 2015 standard on June 21, 2019.

13.2 Compliance

Mine safety is regulated by the federal government by MSHA as are all surface mining operations. MSHA inspects the facilities a minimum of twice yearly. Smart Sand's safety record compares favorably with its regional peers.

Based on our review of information provided by Smart Sand and available public information, it is BOYD's opinion that the Oakdale Mine's record of compliance with applicable mining, water quality, and environmental regulations is generally superior for that of the industry. BOYD is not aware of any regulatory violation or compliance issue which would materially impact the frac sand reserve estimate.

14.0 INTERPRETATION AND CONCLUSIONS

14.1 Findings

Based on our independent technical review and geoscientific study of the Oakdale Mine, BOYD concludes:

- Sufficient data have been obtained through the site exploration and sampling program and mining operations to support the geological interpretations of seam thickness, grain size distribution and API quality for the portions of the sand underlying the controlled property. The data are of sufficient quantity and reliability to reasonably support the sand resource and sand reserve estimates in this technical report summary.
- Estimates of proppant sand reserves reported herein are reasonably and appropriately supported by technical studies, which consider mining plans, revenue, and operating and capital cost estimates.
- The 249.9 million product tons of frac sand reserves (as of December 31, 2021) identified on the property are economically extractable under reasonable expectations of market volumes and pricing for proppant sand products, estimated operation costs, and capital expenditures.
- There is no other relevant data or information material to the Oakdale Mine that is necessary to make this technical report summary not misleading.

14.2 Significant Risks and Uncertainties

As with any mining project there are certain inherent risks associated with the overall operation of a facility. Smart Sand has sufficiently mitigated operational risk through obtaining sufficient geologic sampling information and analysis. Additionally, Smart Sand has engineered the processing plant to include parallel duplicate process circuits which significantly increases plant availability. However, it should be noted that frac sand is generally marketed exclusively to the energy industry which has historically been a volatile industry.

TECHNICAL REPORT SUMMARY
FRAC SAND RESOURCES AND RESERVES
UTICA MINE

LaSalle County, Illinois

Prepared For

SMART SAND, INC.

Spring, Texas

By

John T. Boyd Company

Mining and Geological Consultants

Pittsburgh, Pennsylvania

Report No. 3555.022A

FEBRUARY 2024

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February 28, 2024
File: 3555.022A

Mr. Christopher Green, CPA
Controller
Smart Sand, Incorporated
1000 Floral Vale Boulevard, Suite 225
Yardley, PA 19067

Subject: Technical Report Summary
Frac Sand Resources and Reserves
Utica Mine
LaSalle County, Illinois

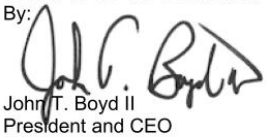
Dear Mr. Beckelman:

This SK-1300-compliant technical report summary provides the results of John T. Boyd Company's (BOYD) independent audit of the frac (proppant) sand resources and reserves for Smart Sand, Inc.'s (Smart Sand) Utica Mine as of December 31, 2021.

We wish to acknowledge the cooperation of Smart Sand management and staff for providing the technical, financial, and legal information used in completing this project. Our findings are based on BOYD's extensive experience in preparing frac sand resource and reserve estimates used in US Securities and Exchange Commission (SEC) filings, and our knowledge of frac sand mining in Wisconsin, Illinois, and throughout North America.

Respectfully submitted,

JOHN T. BOYD COMPANY
By:



John T. Boyd II
President and CEO

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GLOSSARY OF ABBREVIATIONS AND DEFINITIONS

$	:	US dollar(s)
%	:	Percent or percentage
Smart Sand	:	Smart Sand, Inc.
API	:	American Petroleum Institute
BOYD	:	John T. Boyd Company
CapEx	:	Capital expenditures
COGS	:	Cost of goods sold
Constant Dollar	:	A monetary measure that is not influenced by inflation and used to compare time periods. Sometimes referred to as “real dollars”.
CY	:	Cubic yards
DCF	:	Discounted Cash Flow
Discount Rate	:	A rate of return used to discount future cash flows based on the return investors expect to receive from their investment.
DUC	:	Drilled but uncompleted gas or oil well.
FOB	:	Free-on-Board
Frac Sand	:	Frac sand is a naturally occurring, high silica content quartz sand, with grains that are generally well rounded and exhibit high compressive strength characteristics relative to other silica sand. It is utilized as a prop or “proppant” in unconventional shale frac well completions.
Frac Sand Resource	:	Frac sand resource is a concentration or occurrence of sand material of economic interest in or on the Earth’s crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as quality specifications, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.
Frac Sand Reserve	:	Frac sand reserve is an estimate of tonnage and grade or quality of mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a mineral

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

		resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.
IDNR	:	Illinois Department of Natural Resources
Indicated Sand Resource	:	An Indicated Sand Resource is that part of a Sand Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing, and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Sand Resource has a lower level of confidence than that applying to a Measured Sand Resource and may only be converted to a Probable Sand Reserve.
IRR	:	Internal rate-of-return
ISO	:	International Organization for Standardization
lb	:	Pound
LOM	:	Life-of-Mine
Measured Sand Resource	:	A Measured Sand Resource is that part of a Sand Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling, and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Sand Resource has a higher level of confidence than that applying to either an Indicated Sand Resource or an Inferred Sand Resource. It may be converted to a Proven Sand Reserve or to a Probable Sand Reserve.
Mesh	:	A measurement of particle size often used in determining the size distribution of granular material.
Mineral Reserve	:	*See "Frac Sand Reserve"*
Mineral Resource	:	*See "Frac Sand Resource"*
Modifying Factors	:	The factors that a qualified person must apply to indicated and measured sand resources and then evaluate to establish the economic viability of sand reserves. A qualified person must apply and evaluate modifying factors to convert measured and indicated resources to proven and probable reserves. These factors include,

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

		but are not restricted to: mining; processing; metallurgical; infrastructure; economic; marketing; legal; environmental compliance; plans, negotiations, or agreements with local individuals or groups; and governmental factors. The number, type and specific characteristics of the modifying factors applied will necessarily be a function of and depend upon the mineral, mine, property, or project.
MSHA	:	Mine Safety and Health Administration. A division of the U.S. Department of Labor.
msl	:	Mean sea level
NOAA	:	National Oceanic and Atmospheric Administration
NTU	:	Nephelometric turbidity units
NPV	:	Net Present Value
NWS	:	Northern White Sands
Probable Sand Reserve	:	A Probable Sand Reserve is the economically mineable part of an Indicated and, in some circumstances, a Measured Sand Resource. The confidence in the Modifying Factors applying to a Probable Sand Reserve is lower than that applying to a Proven Sand Reserve.
Proppant Sand	:	See “Frac Sand”
Proven Sand Reserve	:	A Proven Mineral Reserve is the economically mineable part of a Measured Sand Resource. A Proven Sand Reserve implies a high degree of confidence in the Modifying Factors.
PSI	:	Pounds per square inch
ROM	:	Run-of-Mine. The as-mined including in-seam clay partings mined with the sand, and out-of-seam dilution.
SEC	:	U.S. Securities and Exchange Commission
S-K 1300	:	Subpart 1300 and Item 601(b)(96) of the U.S. Securities and Exchange Commission’s Regulation S-K
SG&A	:	Selling, General, and Administrative
Surficial	:	Relating to the earth’s surface or the geology that is on the surface.
Ton	:	Short Ton. A unit of weight equal to 2,000 pounds

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

tph	:	Tons per Hour
WIP	:	Work-in-process
WTI	:	West Texas Intermediate

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

BOYD was retained by Smart Sand to complete an independent technical audit of mineral resource and mineral reserve estimates—hereafter referred to as frac sand resource and frac sand reserve estimates—for their active mining operation located in Utica, Illinois (the "Utica Mine"). This report summarizes the results of our audit and satisfies the requirements for Smart Sand's disclosure of frac sand resources and reserves set forth in Subpart 1300 and Item 601(b)(96) of the SEC's Regulation S-K (S-K 1300). This is the first technical report summary filed by Smart Sand for the Utica Mine.

BOYD's findings are based on our detailed examination of the supporting geologic, technical, and economic information obtained from: (1) Smart Sand provided files, (2) discussions with Smart Sand personnel, (3) records on file with regulatory agencies, (4) public sources, and (5) nonconfidential BOYD files. Our investigation was performed to obtain reasonable assurance that Smart Sand's frac sand resource and reserve statements are free from material misstatement. This report provides results of an independent estimate of the frac sand resources and reserves underlying the Utica, Illinois property. The basis for these estimates is a volumetric geologic model estimating the reserves and resources compiled by BOYD in July 2020. Production information supplied by Smart Sand was utilized to adjust the reserve estimate to December 31, 2021.

This chapter provides a summary of primary information contained within this technical report summary and is supported by remaining portions of this report including text, figures, and tables. Weights and measurements are expressed in US customary units. Unless noted, the effective date of the information, including estimates of frac sand reserves, is December 31, 2021.

1.2 Property Description

Smart Sand's Utica Mine is a surface mining operation located in LaSalle County, Illinois. Frac sand is extracted from the St. Peter Formation which is extensively mined for frac sand in the area. Smart Sand controls approximately 819 contiguous acres of property which is owned fee simple. The general location of this property (the "Utica Property") is provided on Figure 3.1.

Smart Sand acquired the Utica operation from Eagle Materials Incorporated (Eagle Materials) in 2020. The mine exploits the St. Peter sandstone formation which generally lies approximately 40 ft to 60 ft below the land surface in the area.

1.3 Geology

The Utica Property's target silica bearing formation is the St. Peter sandstone, which is a massive formation in areal extent and thickness. Aerially, it extends from Minnesota to Arkansas and from Illinois into Nebraska and South Dakota. On a regional basis, the St. Peter ranges in thickness from a few feet to over 700 ft, with a general thickness of 100 ft to 200 ft. In northern Illinois, the thickness can be over 300 ft thick.

The surface of the Utica Property is overlain by overburden that ranges in thickness from 57 ft to 77 ft, with an average thickness of approximately 66 ft. The overburden material consists of clay, sandy gravel, peat, and limestone cap rock. Beneath the overburden material is the St. Peter sandstone formation.

The St. Peter deposit on the Utica Property is flat lying with no evidence of faulting, and has been eroded to an average thickness of approximately 100 ft. The formation is a white to buff, with fine to medium grained ortho-quartzite. It contains rounded, clear polished sand quartz grains with minor secondary silica and clay cement. Care must be taken in defining the presence of erosion channels, which can replace the critical upper portion of the St. Peter sandstone formation locally.

Grain size distribution drives the mine planning. Iron tends to be concentrated near the surface and is visible in orange staining. Iron also increases at the bottom sandstone contact, occurring mostly as pyrite. The deposit is coarser in its top half. Where the upper part of the formation is eroded, multiple mining faces must operate to ensure adequate sand is available to meet product specifications.

1.4 Exploration

Based on information provided by Smart Sand to BOYD, we note that there were several exploration drilling programs performed on the Utica Property, the most recent of which was in 2017. Overall, there were 29 holes drilled on the property. However, BOYD utilized the results of only 14 exploration holes to develop the geologic model of the Utica deposit.

The lithologic data obtained from the 14 holes, the results of the particle size distribution, and the results of the Stim-Lab analyses, were compiled into a database for input into

the BOYD geologic model, which was the principal source of information used to define the extent of the deposit on the property, the overburden volumes, the sand and waste volumes and tonnages, the corresponding sand product distribution based on particle size, and quality of the St. Peter sand underlying the Utica Property.

1.5 Frac Sand Reserves and Quality

This technical report summary provides an estimate of frac sand reserves for Smart Sand's Utica Mine in accordance with the requirements set forth in S-K 1300. These estimates were independently estimated by BOYD. This report, and previous reports, include a thorough geologic investigation of the property, appropriate modeling of the deposit, development of life-of-mine (LOM) plans, and consideration of the relevant processing, economic (including independent estimates of capital, revenue, and cost), marketing, legal, environmental, socio-economic, and regulatory factors.

Smart Sand's estimated surface mineable frac sand reserves for the Utica Property total 129 million saleable product tons, as of December 31, 2021.

Table 1.1 presents the estimated Reserve tons by product (size), that are anticipated to be produced at Smart Sand's Utica Property.

Table 1.1: Reserves as of December 31, 2021

Estimated Reserve Tons By Classification as of December 31, 2021				
Tons (000)	20/40-Mesh	40/70-Mesh	70/100-Mesh	Total
Proven	28,443	55,384	12,637	96,464
Probable	8,781	18,984	4,582	32,347
Total	37,224	74,368	17,219	128,811

The reported reserves include only frac sand which is reportedly owned as of December 31, 2021. It is BOYD's opinion that extraction of the reported frac sand reserves is technically achievable and economically viable after the consideration of potentially material modifying factors.

Projecting the historic sales volume of approximately 0.8 million tons per year, the operation has an expected LOM of approximately 161 years.

Composite samples collected during the drilling of the initial exploration holes were tested by Stim-Lab for API RP 19C/ISO 13503-2 proppant sand characteristics. Testing

was performed on the 20/40, 30/50, 40/70, and 70/140-mesh (100-mesh) product sizes. The test results are presented in Table 1.2.

Table 1.2: Utica Year 2018 API/ISO Test Results for the Four Sized Samples

NWS, LLC Year 2018 Sample - Average API/ISO Test Results By Product Size						
Test	Result 20/40-mesh	Result 30/50-mesh	API RP19C Recommended Specification	Result 40/70-mesh	Result 100-mesh*	API RP19C Recommended Specification
Sphericity	0.8	0.8	≥ 0.6	0.7	0.7	≥ 0.6
Roundness	0.7	0.7	≥ 0.6	0.6	0.6	≥ 0.6
Acid Solubility (%)	0.3	0.3	≤ 2.0	0.3	No Test	≤ 3.0
Turbidity (NTU)	9	12	≤ 250	7	No Test	≤ 250
K-Value (000 psi)	6	7	-	8	No Test	-
Clusters	None Observed	None Observed	NA	None Observed	None Observed	NA

* Note: Currently, 70/140-mesh proppant sand material does not have an API/ISO specification.

The test results suggest that the Utica Mine could produce frac sands which meet minimum API/ISO recommended testing characteristics. BOYD notes that the Utica operation has a prior history of selling various frac sand sized products to oil service companies prior to the Smart Sand acquisition in 2020.

1.6 Operations

1.6.1 Mining

The Utica Mine produces approximately 800,000 to 1 million tons of finished product per year. The quarry exploits the St. Peter sandstone formation which is extensively mined in the Ottawa-Utica, Illinois area. To produce 800,000 tons of frac sand product, approximately 1 million tons of ROM sand is uncovered, drilled, blasted, and then hauled to the slurry plant. Conventional excavators, front-end loaders, articulated haul trucks and dozers are used to strip the overburden and recover the sand. Initially, 50 ft to 75 ft of overburden is removed prior to exposing the approximately 90 ft thick sand formation.

Currently the mine pit operates two, 10-hour shifts, four days per week resulting in a 40-hour work week per shift. A 10-hour Friday shift is added if needed. Generally, there are seven employees on the day shift and five employees on the night shift.

The sand is mined, processed, and stored from one contiguous property. The product is trucked to the nearby Peru rail loadout. Production from the operation commenced in mid-2012. Recent historic run-of-mine (ROM) production and forecast ROM production are illustrated in Tables 1.3 and 1.4:

Table 1.3 Historic ROM Production

Year	Finished Tons (000)
2019	n/a
2020*	722
2021	1,136 est

* Acquired partial year

Table 1.4: Forecasted ROM Production Tons

	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
ROM Production tons (000)	982	982	982	982	982

The average process yield is reported to be 81.5%; as such, 982,000 ROM tons are expected to produce approximately 800,000 tons of finished product.

The LOM plan, contained in Chapter 7, assumes a steady-state sales volume in the 800,000 product tons per year range for approximately 150 years through year 2172. Future mine plan production, and hence the longevity of the mine, is directly related to energy market demand for proppant sand. Actual yearly production volumes may, and are likely to, fluctuate significantly based on this demand.

1.6.2 Processing

The Utica plant commenced wash plant operations in 2014. Initially, the work-in-process (WIP) sand was railed to a dry process plant in Corpus Christi, Texas. In 2018, a 1.6 million tons per year dry process plant was constructed on-site and is currently utilized. The ROM sand material is hauled to an in-pit feed hopper where it is slurried and pumped to an enclosed wet process plant. Following removal of oversize and waste (< 140-mesh) material, the sand is pumped to a decant facility adjacent to the drying and screening plant. After decanting, the sand is reclaimed, dried, and screened into the various frac sand sizes. Finished product is stored in silos and trucked either to local industrial customers or to their Burlington Northern rail loadout in nearby Peru, Illinois.

The wet plant employs typical screen/hydrosizer /cyclone classification and dewatering technology and also has an ultrafine circuit and thickener. The wet plant operates two, 10-hour shifts, four days per week. Concerning the decant shed/dry plant, a drag chain arrangement reclaims dryer sand from the top of the decant pile and conveys the sand

to a 250 tons per hour (tph) natural gas fired dryer. Dry sand is then screened into predominantly 20/40-mesh, 30/50-mesh,40/70-mesh, and 70/140-mesh (100-mesh) finished products. The finished products are stored in four 2,000-ton truck loadout silos before being trucked to customers or the rail loadout.

1.6.3 Infrastructure

The Utica Mine is serviced by three phase power that is routed along US highway 6, which runs north of the northern property line. The pipeline providing natural gas supply for the drying equipment is also routed along this corridor. Plant process water is supplied by water collected in the pit and ponds. Additionally, the wash process water is recycled after fines are removed via settling with a flocculent in a thickener and series of constructed ponds.

On-site facilities include a scale house, office, shop, and a quality laboratory located in the dry process plant. The operation employs approximately 54 people and staffing varies based on production demand.

1.7 Financial Analysis

1.7.1 Market Analysis

Although Smart Sand's market area is essentially all of the energy basins in the United States and western Canada, we have selectively focused on the Permian, Appalachian, and Denver-Julesburg (DJ) as these are target markets for their frac sand. The Oakdale Mine has advantaged delivered cost to the western basins like the DJ as the Oakdale Mine directly loads onto the Canadian Pacific Railway, a very competitive option for westbound sand to the DJ. Oakdale also own a loadout near the mine which enables them to load directly on the Union Pacific Railway, the favored Permian basin rail. The Utica Mine has access to their nearby Burlington Northern rail loadout which greatly complements the Oakdale facility, especially when moving product to the Appalachian (Marcellus-Utica) basin. Therefore, a high-level overview of demand in these basins follows.

Permit submissions for horizontal oil and gas wells in the Permian indicate a continuation of strong drilling ahead. According to InfillThinking, the number of permits

filed per working rig this summer is tracking at multi-year highs as evidenced in Figure 1.1 below.

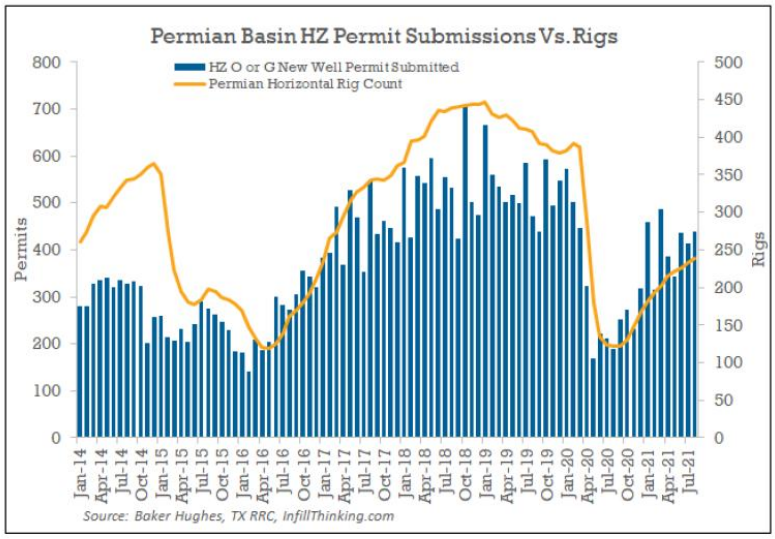


Figure 1.1: Permian Basin HZ Permit Submissions vs. Rigs

Over the previous 52 weeks, rig counts in the Permian are up approximately 111%. This has led to increased production for both crude oil and natural gas. For the same time period, crude oil (barrels per day) and natural gas production (thousand cubic feet per day) in the Permian are up 10% and 9%, respectively. As Figure 1.2 illustrates, Permian daily crude oil production is nearing its pre-pandemic impacted peak, while daily natural gas production in the Permian continues to make new records and now stands at 18.6 billion cubic feet per day.

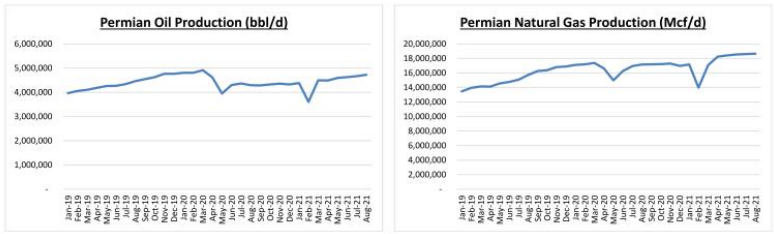


Figure 1.2: Permian Oil Production and Natural Gas Production

According to U.S. Energy Information Administration Drilling Productivity Report, drilled but uncompleted wells (DUCs) in the Permian Basin have declined 43% since peaking in July 2020 (refer to Figure 1.3). These data dovetail with increased crude oil and natural gas production in the basin.

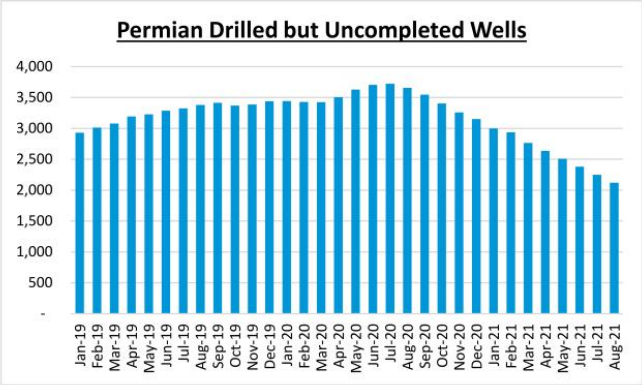


Figure 1.3: Permian Drilled but Uncompleted Wells

Although a majority of this large basin's sand is sourced from local sand mines, Northern White, Oakdale quality sand remains an important product for many well applications.

1.7.1.1 Appalachian Basin (Marcellus/Utica Play) and Niobrara Basin

Although smaller in size than the Permian energy fields, the Appalachian and Nioobrara (DJ) are substantial natural gas and oil plays in North America. Unlike the Permian, the Appalachian and Niobrara import the vast majority of the frac sand. Very few, notable in-basin sand operations exist. This creates an advantaged situation for the Oakdale and Utica mines as they are advantaged, transport wise to the basin and there are few substitutes for NWS.

Following the energy downturn in 2019 and thern Covid shutdown in 2020, the basin wellfield activity appears to be rebounding. Horizontal rigs have stabilized over the past two years as can be seen from Figures 1.4 but gas production per rig is substantially higher. Energy companies are drilling longer laterals and optimizing each well pad

becoming more efficient from a cost perspective and overall natural gas production is stable as can be seen from Figure 1.5.

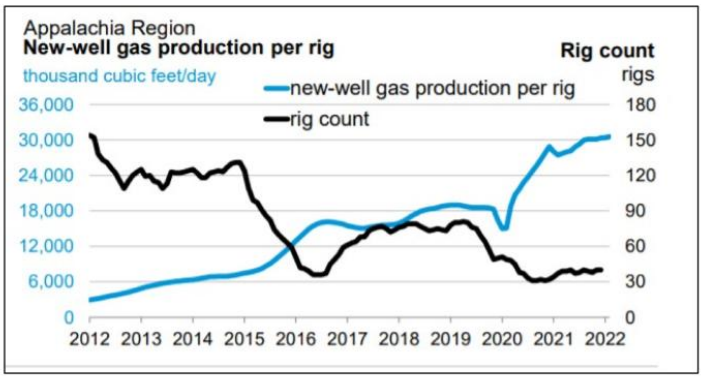


Figure 1.4: Appalachian Rig Count and Production per Rig (Source: EIA)

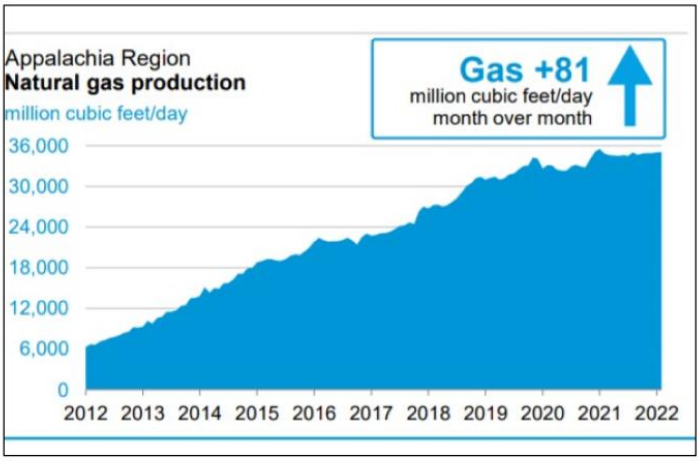


Figure 1.5: Appalachian Gas Production (Source: EIA)

Similarly, the DJ basin has seen a rebound in rig count since the Covid shutdown. Both gas and oil rig counts have risen but productivity per well has decreased as can be seen in Figure 1.6.

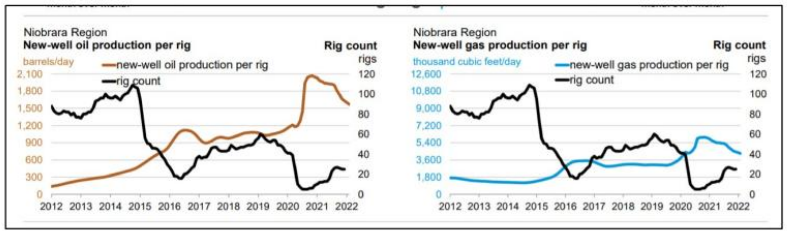


Figure 1.6: Niobrara Oil and Gas Rig Count and Productivity (Source: EIA)

Overall gas and oil production remains relatively flat in the basin, but more wells are being drilled to maintain this capacity. Figure 1.7 illustrates the overall yearly gas and oil production in the basin.

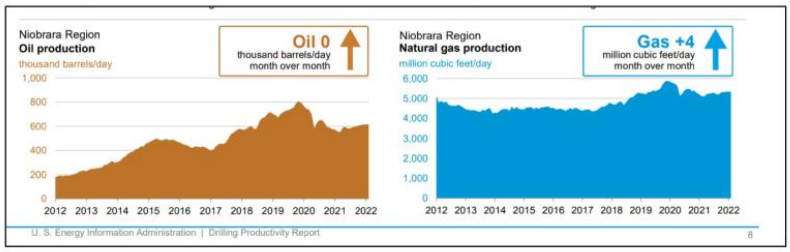


Figure 1.7: Niobrara Oil and Gas Production (Source: EIA)

Having survived the challenging environment of 2019 and 2020, Smart Sand's operations should continue to prove viable into the future notwithstanding a sustained and significant energy price collapse. Their low-cost mining scheme, advantaged transport to select basins, and high-quality product help to create an advantage compared with other NWS producers.

1.7.2 Historic Capital Expenditures, Operating Costs, and Pricing

The Utica operation's CapEx, and Historical Sales for the years 2020, and 2021 (September YTD), is presented in Tables 1.5 and 1.6 below.

Table 1.5: Historical Capital Expenditures

	CapEx ($000)
Year 2020*	-
Sep YTD 2021	257
Total**	257

*Utica acquired on September 18, 2020

**Utica operation only, excludes transload sites and other locatons/activities.

Table 1.6 : Historical Sales Statistics

	Year 2020*	SepYTD2021
Tons Sold (000)	106	564
Total Revenues ($000) (a)	2,256	11,553
Average Sales Price ($ per ton sold)	21.33	20.48

*Acquired in September 2020

Table 1.7 presents Utica's historical cash operating costs for the short year 2020, and September YTD 2021. Operating costs represent the costs incurred associated with the mining, ongoing reclamation, wet processing, dry processing, trucking to the off-site rail loadout, off-site rail loadout (Peru), and other related costs.

.

Table 1.7 : Historical Cost of Production

	$(000)		$ per ton sold	
Cash Operating Costs	Year 2020*	SepYTD2021	Year 2020*	SepYTD2021
Wages and benefits	566	3,391	5.35	6.15
Excavation	50	859	0.47	1.56
Utilities	134	1,061	1.26	1.93
Equipment	78	342	0.74	0.62
Maintenance	154	551	1.46	1.00
Peru Trucking	-	1,075	-	1.95
Real Estate taxes	-	415	-	0.75
Other Costs (a)	(2)	49	(0.02)	0.09
Total Cash Operating Costs	980	7,742	9.27	14.05

*Acquired in September 2020

Note Rounding Errors

1.7.3 Projected Sales Revenue, Production Costs, and Capex

Table 1.8 presents BOYD's sales projections for the period 2022 through 2026. The sales price forecast is constant dollar, by product, and is based on current quarter average prices. We opine that these are reasonable price projections.

Table 1.8: Utica Sales Projections

	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
Tons Sold (000)	800	800	800	800	800
40/70-Mesh and coarser	694	694	694	694	694
70/100-Mesh	106	106	106	106	106
Revenues ($000)	16,000	16,000	16,000	16,000	16,000
Product Pricing ($ per ton sold)					
Average Price for all products	20.00	20.00	20.00	20.00	20.00

Table 1.9 below, presents the above table's cost projections on a cost per ton sold basis for the years 2022 through 2026.

Table 1.9: Annual Dollars per Ton Sold Cash Cost Projections

	Summary Cash Cost of Goods Sold ($ per ton sold):				
Cash Operating Expense	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
Wages and benefits	6.00	6.00	6.00	6.00	6.00
Excavation	1.56	1.56	1.56	1.56	1.56
Utilities	1.93	1.93	1.93	1.93	1.93
Equipment	0.57	0.57	0.57	0.57	0.57
Maintenance	1.00	1.00	1.00	1.00	1.00
Peru Trucking	1.95	1.95	1.95	1.95	1.95
Real Estate taxes	0.75	0.75	0.75	0.75	0.75
Other Costs	0.09	0.09	0.09	0.09	0.09
Subtotal Cash Operating Expense	13.85	13.85	13.85	13.85	13.85
SG&A	1.42	1.42	1.42	1.42	1.42
Final Reclamation Escrow	0.07	0.07	0.07	0.07	0.07
Total Cash Cost of Goods Sold	15.34	15.34	15.34	15.34	15.34

Smart Sand provided BOYD with the annual sustaining CapEx estimate of $1 million, which includes maintenance of production equipment as well as other items for the operation.

1.7.4 Economic Analysis

BOYD prepared an economic analysis, as of January 1, 2022, for the Utica Operation using the production, sales, and financial projections presented in this report. Our analysis confirms that the operation generates positive cash flows (based on a 12% discount rate), on a pre-tax and after-tax basis, that supports the statement of frac sand

reserves herein. Table 1.10 below presents the pre-tax and after-tax cash flow projections based on the proposed LOM production schedule, revenue, cost of goods sold, CapEx and other estimates discussed above for the Utica operation.

Table 1.10: Summary Cash Flow Statement

	Summary Cash Flow Statement ($ 000)											
	2022 to 2031	2032 to 2041	2042 to 2051	2052 to 2061	2062 to 2071	2072 to 2081	2082 to 2091	2092 to 2101	2102 to 2111	2112 to 2121	2122 to 2182	Total
Total Tons Sold (000)	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	48,811	128,811
Revenues	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	976,220	2,576,220
COGS	122,696	122,856	123,016	123,176	123,336	123,496	123,656	123,816	123,976	124,136	767,135	2,001,295
CapEx	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	61,014	161,014
Net Pre-Tax Cash Flow	27,304	27,144	26,984	26,824	26,664	26,504	26,344	26,184	26,024	25,864	148,071	413,911
Federal and State Income Taxes	2,856	7,681	7,636	7,591	7,546	7,501	7,455	7,410	7,365	7,320	40,631	110,992
After-Tax Net Cash Flow	24,448	19,463	19,348	19,233	19,118	19,003	18,889	18,774	18,659	18,544	107,441	302,920

Discounted Cash Flow-Net Present Values (DCF-NPV) on a pre-tax and after-tax basis, using discount rates of 10%, 12%, and 15%, were calculated utilizing the cash flows above. The DCF-NPV values used mid-year discounting and all cash flows were on a constant dollar basis.

The pre-tax DCF-NPV ranges from approximately $19.5 million to $28.5 million. The after-tax DCF-NPV ranges from approximately $16.8 million to $23.8 million. Table 1.11 summarizes the results of the pre-tax and after-tax DCF-NPV analyses:

Table 1.11: DCF-NPV

	DCF-NPV ($ 000)		
	10%	12%	15%
Pre-Tax	28,531	24,013	19,483
After-Tax	23,797	20,347	16,824

The NPV estimate was made for purposes of confirming the economic viability of the reported frac sand reserves and not for purposes of valuing the Utica Mine or its assets. Internal rate-of-return (IRR) and project payback were not calculated, as there was no initial investment considered in the financial model.

1.8 Regulation and Liabilities

The Utica Mine's operations are predominantly regulated by LaSalle County, Illinois and the State of Illinois concerning reclamation of the site. Air emissions are regulated by the Illinois Environmental Protection Agency.

Based on our review of information provided by Smart Sand and available public information, it is BOYD's opinion that the Utica Mine's record of compliance with applicable mining, water quality, and environmental regulations is generally typical for that of the industry. BOYD is not aware of any regulatory violation or compliance issue which would materially impact the frac sand reserve estimate.

1.9 Conclusions

It is BOYD's overall conclusion that Smart Sand's Utica Mine frac sand reserves, as reported herein: (1) were prepared in conformance with accepted industry standards and practices, and (2) are reasonably and appropriately supported by technical evaluations, which consider all relevant modifying factors. We do not believe there is other relevant data or information material to the Utica Property that would render this technical report summary misleading. Our conclusions represent only informed professional judgment.

The ability of Smart Sand, or any mine operator, to recover all of the reported frac sand reserves is dependent on numerous factors that are beyond the control of, and cannot be anticipated by, BOYD. These factors include mining and geologic conditions, the capabilities of management and employees, the securing of required approvals and permits in a timely manner, future sand prices, etc. Unforeseen changes in regulations could also impact performance. Opinions presented in this report apply to the site conditions and features as they existed at the time of BOYD's investigations and those reasonably foreseeable.

2.0 INTRODUCTION

2.1 Registrant and Purpose

This technical report summary was prepared for Smart Sand in support of their disclosure of frac sand reserves for the Utica Mine in accordance with S-K 1300 Regulations.

Smart Sand is a publicly traded corporation listed on the NASDAQ (SND) with headquarters in The Woodlands, Texas. Smart Sand purchased the Utica Mine in September 2020 from Eagle Materials. The company, since inception, has expanded their footprint with operations and property in Wisconsin and Illinois. Smart Sand also operates several rail transloads and offers “last mile” solutions with their SmartSystem™ wellsite silo division. Smart Sand’s website is found at www.smartsand.com.

2.2 Terms of Reference

Smart Sand retained BOYD to prepare an SEC-compliant technical report summary to support their disclosure of frac sand reserves following S-K 1300 requirements. Our objective was to incorporate the results of the existing technical report along with additional information that we reviewed into a compliant technical report summary.

The results of our review, presented in report form herein, were prepared in accordance with the disclosure requirements set forth in Subpart 1300 and Item 601(b)(96) of the SEC’s Regulation S-K. The purpose of this report is threefold: (1) to summarize available information for the subject mining property, (2) to provide the conclusions of our technical audit, and (3) to provide a statement of frac sand resources and reserves for the Utica Mine. This is the first technical report summary filed by Smart Sand for the Utica Mine.

BOYD’s findings are based on our detailed examination of the supporting geologic, technical, and economic information provided by Smart Sand in formulating the estimates of frac sand resources and reserves disclosed in this report. We independently estimated the frac sand resources and reserves from first principles based on third-party exploration information provided to BOYD. This estimate is contained in BOYD Report 3555.019 issued in February 2021 shortly after the operation was acquired from Eagle Materials.

We used standard engineering and geoscience methods, or a combination of methods, that we considered to be appropriate and necessary to establish the conclusions set forth herein. As in all aspects of mining property evaluation, there are uncertainties inherent in the interpretation of engineering and geoscience data; therefore, our conclusions necessarily represent only informed professional judgment.

The ability of Smart Sand, or any mine operator, to recover all of the estimated frac sand reserves presented in this report is dependent on numerous factors that are beyond the control of, and cannot be anticipated by, BOYD. These factors include mining and geologic conditions, the capabilities of management and employees, the securing of required approvals and permits in a timely manner, future sand prices, etc. Unforeseen changes in regulations could also impact performance. Opinions presented in this report apply to the site conditions and features as they existed at the time of BOYD's investigations and those reasonably foreseeable.

This report is intended for use by Smart Sand subject to the terms and conditions of its engagement agreement with BOYD. The agreement permits Smart Sand to file this report as a technical report summary with the SEC pursuant to Subpart 1300 and Item 601(b)(96) of Regulation S-K. Except for the purposes legislated under US securities law, any other uses of or reliance on this report by any third party is at that party's sole risk. The responsibility for this disclosure remains with Smart Sand. The user of this document should ensure that this is the most recent disclosure of frac sand resources and reserves for the Utica Mine as it is no longer valid if more recent estimates have been issued.

2.3 Expert Qualifications

BOYD is an independent consulting firm specializing in mining-related engineering and financial consulting services. Since 1943, BOYD has completed over 4,000 projects in the United States and more than 90 other countries. Our full-time staff comprises mining experts in: civil, environmental, geotechnical, and mining engineering; geology; mineral economics; and market analysis. Our extensive experience in frac sand resources/reserve estimation and our knowledge of the subject property, provides BOYD an informed basis on which to opine on the frac sand reserves available at the Utica Mine. An overview of BOYD can be found on our website at www.jtboyd.com.

The individuals primarily responsible for this audit and the preparation of this report are by virtue of their education, experience, and professional association considered qualified persons as defined in Subpart 1300 of Regulation S-K.

Neither BOYD nor its staff employed in the preparation of this report have any beneficial interest in Smart Sand, and are not insiders, associates, or affiliates of Smart Sand. The results of our resource/reserve estimate and subsequent audit were not dependent upon any prior agreements concerning the conclusions to be reached, nor were there any undisclosed understandings concerning any future business dealings between Smart Sand and BOYD. This report was prepared in return for fees based upon agreed commercial rates, and the payment for our services was not contingent upon our opinions regarding the project or approval of our work by Smart Sand and its representatives.

2.4 Principal Sources of Information

Information used in this assignment was obtained from: (1) Smart Sand files, (2) discussions with Smart Sand personnel, (3) records on file with regulatory agencies, (4) public sources, and (5) nonconfidential BOYD files. The basis for this report is BOYD Report 3555.019 issued in February 2021. This resource and reserve estimate compiled by BOYD was used in conjunction with plant production records to adjust the resources and reserves to year end 2021.

Additional information was provided by Smart Sand including:

- Financial forecasting models.
- Historical information, including:
  - Production reports and reconciliation statements.
  - Financial statements.
  - Product sales and pricing.

The data and work papers used in the preparation of this report are on file in our offices.

2.4.1 Site Visits

A personal inspection of the Utica operation was made by two of BOYD's senior geology and mining staff—both qualified persons and co-authors of this report—on October 27, 2021. The site visit included: (1) observation of the active mining operations, (2) a tour of the mine site's surface infrastructure, and (3) a detailed discussion of the mine plan. BOYD's representatives were accompanied by Smart Sand management who openly and cooperatively answered questions regarding, but not limited to: site geology, mining conditions and operations, equipment usage, labor relations, operating and capital costs, current and proposed processing operations, and frac sand marketing.

2.4.2 Reliance on Information Provided by the Registrant

In the preparation of this report we have relied, without independent verification, upon information furnished by Smart Sand with respect to: property interests; exploration results; current and historical production from such properties; current and historical costs of operation and production; and agreements relating to current and future operations and sale of production.

BOYD exercised due care in reviewing the information provided by Smart Sand within the scope of our expertise and experience (which is in technical and financial mining issues) and concluded the data are valid and appropriate considering the status of the subject property and the purpose for which this report was prepared. BOYD is not qualified to provide findings of a legal or accounting nature. We have no reason to believe that any material facts have been withheld, or that further analysis may reveal additional material information. However, the accuracy of the results and conclusions of this report are reliant on the accuracy of the information provided by Smart Sand.

While we are not responsible for any material omissions in the information provided for use in this report, we do not disclaim responsibility for the disclosure of information contained herein which is within the realm of our expertise.

2.5 Effective Date

The frac sand reserves presented in this technical report summary are effective as of December 31, 2021. The report effective date is December 31, 2021.

2.6 Units of Measure

The US customary measurement system has been used throughout this report. Tons are dry short tons of 2,000 pounds-mass. Unless otherwise stated, all currency is expressed in constant 2020 US Dollars ($).

3.0 PROPERTY OVERVIEW

3.1 Description and Location

Smart Sand's Utica surface frac sand mining operation is located on a contiguous block of acres controlled by Smart Sand, in LaSalle County, Illinois, and is approximately 6 miles west of the city of Ottawa. Utica's off-site rail loadout is in Peru, Illinois approximately 7 miles west of the mining operation.

Geographically, the Utica frac sand processing plant is located at approximately 41°20'51.18"N latitude and 88°57'25.85"W longitude. Figure 3.1 illustrates the location and general layout of the Utica Property and Mine.

3.2 History

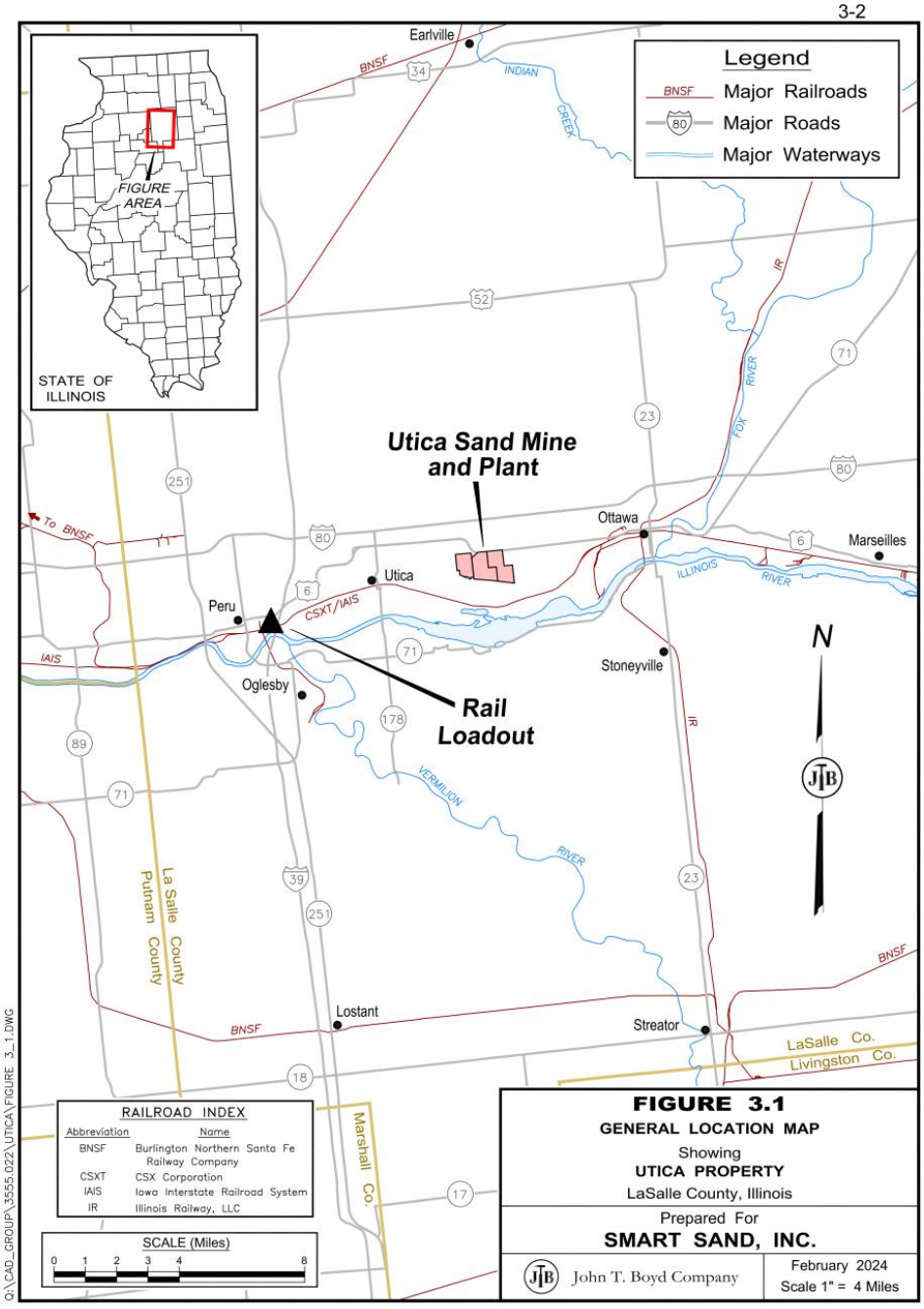
Smart Sand purchased the Utica frac sand operation from Eagle Materials in September 2020. The acquisition included the purchase of the mineral reserves and associated mining and processing facilities. Eagle Materials originally purchased the Utica greenfield property in 2012 and 2013, with mining and wet processing operations commencing in 2014.

The Utica operation has mined premium NWS for use in the oil/gas industry. NWS has been extensively mined, via surface mining operations, in the north central area of the United States (predominantly mined in Minnesota, Wisconsin, and Illinois, with lesser amounts mined in Arkansas and Iowa). The primary sources of NWS are from the Saint Peter, Jordan, Wonewoc, and Mt. Simon formations, which are found in an area ranging from south central Minnesota into Wisconsin.

Utica's Mine Safety and Health Administration (MSHA) identification number (1103253) was assigned in 2012.

3.3 Property Control

The Utica Property comprises approximately 819 acres owned in fee by Smart Sand. Ownership information provided by Smart Sand has been accepted as being true and accurate for the purpose of this report.


Earlville
BNSF
INDIAN CREEK
Legend
BNSF Major Railroads
Major Roads
Major Waterways
FIGURE AREA
STATE OF ILLINOIS
Utica Sand Mine and Plant
Ottawa
Marseilles
Utica
Peru
CSXT/IAIS
IAIS
Oglesby
Rail Loadout
Stoneyville
FOX RIVER
ILLINOIS RIVER
IR
VERMILION RIVER
To BNSF
La Salle County
Putnam County
Lostant
Streator
LaSalle Co.
Livingston Co.
Marshall Co.
N
RAILROAD INDEX
Abbreviation Name
BNSF Burlington Northern Santa Fe Railway Company
CSXT CSX Corporation
IAIS Iowa Interstate Railroad System
IR Illinois Railway, LLC
SCALE (Miles)
0 1 2 3 4 8
FIGURE 3.1
GENERAL LOCATION MAP
Showing
UTICA PROPERTY
LaSalle County, Illinois
Prepared For
SMART SAND, INC.
John T. Boyd Company
February 2024
Scale 1" = 4 Miles
Q:\CAD_GROUP\3555.022\UTICA\FIGURE 3_1.DWG

3.3.1 Mineral Ownership

Smart Sand owns 100% of the mineral rights to the entire subject property. The current estimated area suitable for resource extraction is approximately 642 acres, or 78% of the total mining property, after observing setbacks, right of ways, processing areas, and other non-mining acreage.

3.3.2 Surface Ownership

Smart Sand owns 100% of the surface rights to the entire subject property.

3.4 Adjacent Properties

Most of the Illinois frac sand mining activity occurs in LaSalle County, with another operation in nearby Ogle County. Smart Sand's Utica operation is in LaSalle County. The mining activity in these two counties is in the St. Peter Formation and is for the purpose of producing frac sand. All existing frac sand mining operations in LaSalle County are located either northeast/east or northwest/west of the Utica Mine.

3.5 Regulation and Liabilities

Mining and related activities for the Utica operation are regulated by two Federal agencies, three State of Illinois agencies, and two Local agencies.

3.6 Accessibility, Local Resources, and Infrastructure

Smart Sand's Utica Mine is located near a number of small cities in north-central Illinois. Ottawa has a population of about 18,000, while LaSalle County has over 108,000, based on 2019 population estimates. There are nine counties adjacent to LaSalle County, specifically, Lee, DeKalb, Kendall, Grundy, Livingston, Woodford, Marshall, Putnam and Bureau counties.

General access to the Utica Mine is via a well-developed network of primary and secondary roads serviced by state and local governments. These roads offer direct access to the mine and processing facilities and are open year-round. Primary vehicular access to the property is via US Highway 6, with nearby access to Interstate 80 and Interstate 39.

The Utica operation has an off-site rail loadout facility in nearby Peru, Illinois, approximately 7 miles from the site, with access to the BNSF rail network. Utica's frac

sand product is railed to the various energy basins via the BNSF or other connecting rail carriers.

The Utica operation has access to major airports as there are:

- Five International airports within a 90-mile radius of the site.
- One Regional airport within an 80-mile radius of the site.
- One Local airport in Peru, Illinois.

Sources of three phase electrical power, natural gas, and other miscellaneous materials are readily available. Water supplied to the operation is via various sources such as, on-site wells, on-site ponds, and public water.

3.7 Physiography

The Utica Property in LaSalle County is in the Bloomington Ridged Plain of the Central Lowland Province, and within the Fox Valley and Illinois River Valley regions in north Illinois. As stated in the Soil Survey of LaSalle County, Illinois, a USDA-NRCS publication[1], "The Bloomington Ridged Plain consists mainly of till of Wisconsinan age. It is characterized by low, broad morainic ridges with intervening wide stretches of relatively flat or gently undulating ground moraines[2]. The moraines form a series of curves roughly concentric with the outer boundary of the county."

"Most of La Salle County is drained by the Illinois River and its tributaries, the Fox, Vermilion, and Little Vermilion Rivers. The Illinois River flows into the Mississippi River, which empties into the Gulf of Mexico."[3] The Illinois River is about 2.5 miles south of the mining property. Starved Rock State Park is about 3 miles southwest of the mining property along the southern bank of the Illinois River.

The surface of the Utica Property is overlain by overburden that ranges in thickness from 57 ft to 77 ft, with an average thickness of approximately 66 ft. The overburden material consists of clay, sandy gravel, peat, and limestone cap rock. Beneath the overburden material is the St. Peter sandstone formation, one of the primary sources of NWS. Care

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[1] Soil Survey of LaSalle County, Illinois, USDA-NRCS, pages 3 to 4.

[2] Soil Survey of LaSalle County, Illinois, USDA-NRCS, pages 416: Moraine: In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.

[3] Soil Survey of LaSalle County, Illinois, USDA-NRCS, page 4.

must be taken in defining the presence of erosion channels, which can replace the critical upper portion of the St. Peter sandstone formation locally.

3.8 Climate

For the Utica operation, average monthly high temperatures range from 31ºF to 85ºF, with June, July, and August being the hottest months. Average monthly low temperatures range from 14ºF to 64ºF, with the months of November, December, January, February, and March exhibiting average lows at or below freezing (32ºF).

Average annual rainfall is 36 in. with approximately 82 days of rain. Average annual snowfall is about 25 in. with approximately 13 days of snowfall.

Table 3.1 provides National Oceanic and Atmospheric Administration (NOAA) monthly average climate data for LaSalle County, Illinois.

Table 3.1: Climate Data for Utica Mine – LaSalle County, Wisconsin

Climate Data for Utica Mine LaSalle County (City of Ottawa), Illinois

Averages	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Temp	ºF	31	36	49	63	74	82	85	84	78	66	50	36
Low Temp	ºF	14	19	29	40	51	60	64	63	55	43	32	21
Rainfall	inches	1.6	1.5	2.6	3.4	4.2	4.3	3.6	4.0	3.3	2.8	2.7	2.1
	days	6	5	7	9	9	8	7	7	6	6	6	6
Snowfall	inches	8.4	6.0	3.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.8	5.9
	days	5	3	1	0	0	0	0	0	0	0	0	3

Source: National Oceanic and Atmospheric Administration

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4.0 GEOLOGY

4.1 Regional Geology

NWS are generally located in the north-central portion of the United States (predominantly in Minnesota, Wisconsin, and Illinois, with lesser amounts in Arkansas and Iowa). NWS is found in poorly cemented Cambrian and Ordovician sandstones and in unconsolidated alluvial deposits locally derived from these sandstones. The Saint Peter, Jordan, Wonewoc, and Mount Simon Formations, located in south-central Minnesota into Wisconsin, are the primary sources of NWS. Figure 4.1, on the following page, presents the various stratigraphic rock units in Wisconsin, which are similar to the rock units encountered in Illinois.

The Utica Property's target silica bearing formation is the St. Peter Sandstone, which is a massive formation in areal extent and thickness. Areally, it extends from Minnesota to Arkansas and from Illinois into Nebraska and South Dakota. On a regional basis, the St. Peter ranges in thickness from a few feet to over 700 ft, with a general thickness of 100 ft to 200 ft. In northern Illinois, the thickness can be over 300 ft thick.

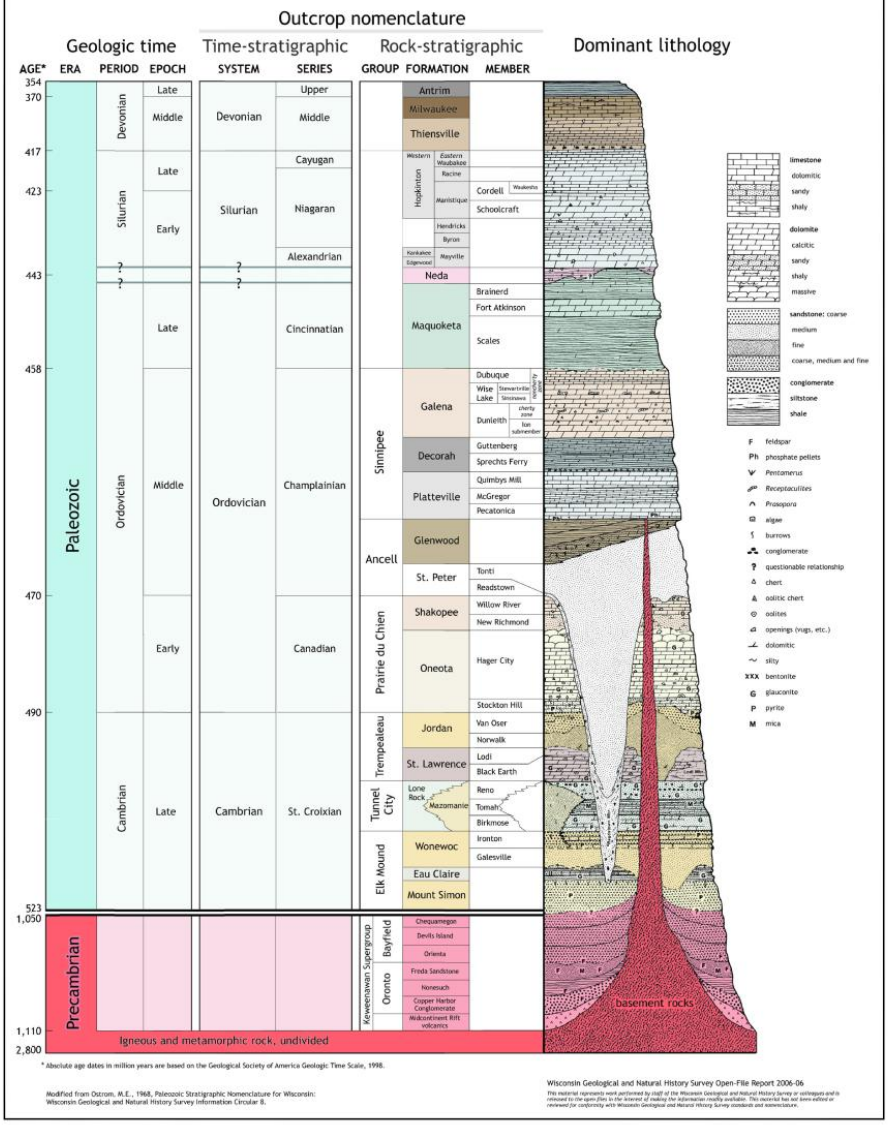
Sand comprising the St. Peter Formation was originally deposited in clear shallow water near the shore of a Paleozoic Sea. The St. Peter sandstone can be generally described as well sorted, well rounded, fine to medium size frosted grains of exceptionally pure quartz sands free from clay, carbonates, and heavy minerals that are friable or weakly cemented. As such, the sand is valued in the marketplace for its high silica content and is extensively quarried for silica sand. The St. Peter sandstone is one of the major aquifers in Illinois.

On a regional basis the properties of the formation exhibit grain size that is generally uniform and normally grades from medium to medium-coarse in the upper section, to medium to fine-grained in the lower section. As a rule, the lower portion of the formation is fine-grained with iron, alumina, and carbonate contamination increasing with depth.

The St. Peter Formation is of Ordovician age (early middle). It is the lower formation of the Anceli Group and overlies the Shakopee Dolomite.

4.2 Local Stratigraphy

The surface of the Utica property is overlain by overburden that ranges in thickness from 57 ft to 77 ft, with an average thickness of approximately 66 ft. The overburden



Q:\CAD_GROUP\3555.022\UTICA\FIGURE 4_1.DWG

FIGURE 4.1

material consists of clay, sandy gravel, peat, and limestone cap rock. Beneath the overburden material is the St. Peter sandstone formation.

The St. Peter deposit on the Utica Property is flat lying with no evidence of faulting, and has been eroded to an average thickness of approximately 100 ft. The formation is a white to buff, with fine to medium grained ortho-quartzite. It contains rounded, clear polished sand quartz grains with minor secondary silica and clay cement. Care must be taken in defining the presence of erosion channels, which can replace the critical upper portion of the St. Peter sandstone formation locally.

Grain size distribution drives the mine planning. Iron tends to be concentrated near the surface and is visible in orange staining. Iron also increases at the bottom sandstone contact, occurring mostly as pyrite. The deposit is coarser in its top half. Where the upper part of the formation is eroded, multiple mining faces must operate to ensure adequate sand is available to meet product specifications.

A cross-section through the deposit is provided in Figure 4.2 (page 4-4).

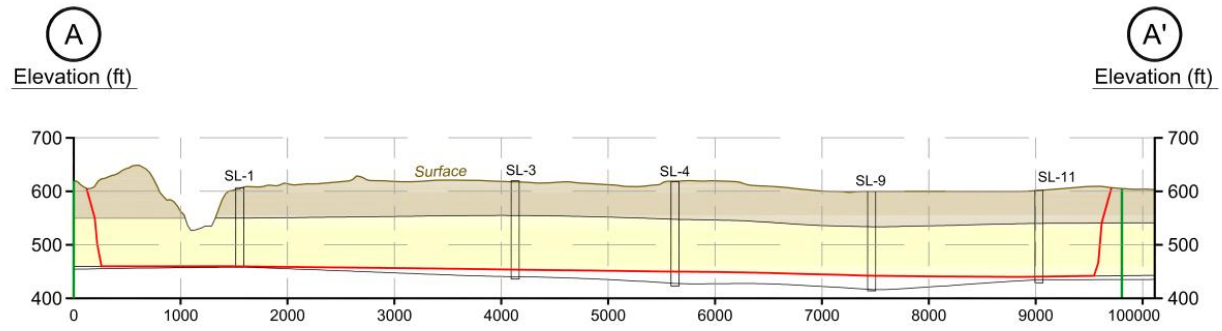
4.3 Frac Sand Geology

Frac sand is a naturally occurring, high silica content quartz sand, with grains that are generally well-rounded. The main difference between frac sand and other sands is that frac sand grains are relatively pure in composition, consisting almost entirely of quartz; other sands have numerous impurities that may be cemented to the quartz grains. The pure quartz composition of frac sand grains, along with being well-rounded and spherical in shape, gives these sands the characteristics (crush strength, high acid solubility, low turbidity) that are branded as premium sands by the drilling service industry.

The NWS-St. Peter sands are generally characterized by a high silica content, high roundness and sphericity, white color, and lack of deleterious material. Because of their monocrystalline structure, these sands have superior grain strength when compared to other silica sands and are suitable for pressure applications generally up to the 9,000-pounds per square inch (psi) range.

NWS is not classified as an in-basin frac sand. In-basin frac sands, such as those found in west Texas, are a relatively new extension of the frac sand mining industry. The first in-basin frac sand deposits mined (late-2017) in the United States were in the Permian Basin of Texas. Permian basin oil and gas exploration and production companies noted favorable results from locally sourced sands, and as such, nearly every other energy

Q:\CAD_GROUP\3555.022\UTICA\FIGURE 4_2.DWG



Legend
- Resource Boundary
- Mining Limit
- Mineable Sandstone
- Overburden

FIGURE 4.2
CROSS SECTION A - A'
UTICA PROPERTY
LaSalle County, Illinois
Prepared For
SMART SAND, INC.

Horizontal 1" = 1,200'
Vertical 1" = 240'
Vertical Exaggeration 5X

John T. Boyd Company

February 2024
Scales As Shown

Note : See Figure 6.2 For Cross Section Location.

basin has gone through a period of exploration to locate suitable local sources of frac sands. Many E&Ps shifted their approach from requiring only premium branded frac sands, such as NWS, to using higher quantities of locally sourced and lower-priced frac sands, with positive results.

5.0 EXPLORATION DATA

5.1 Background

As previously mentioned, Smart Sand acquired the Utica Property in September 2020 from Eagle Materials. BOYD, in February 2021, prepared a Resource and Reserve Estimate for the Utica Proppant Sand Property as of the date of acquisition, which utilized available exploration information provided to us by Smart Sand.

5.2 Exploration Procedures

5.2.1 Drilling and Sampling

Based on information provided by Smart Sand to BOYD, we note that there were several exploration drilling programs performed on the Utica Property, the most recent of which was in 2017. There were 29 holes drilled on the property. However, BOYD utilized the results of only 14 exploration holes to develop the geologic model of the Utica deposit, specifically SL-1 to SL-11 (11 holes), DI-5 (1 hole), EG-3 (1 hole), and LD-3 (1 hole), as they were the only holes with sieve size, overburden and sand thickness data. Also, the sand core in each hole was tested in 10-ft increments for particle size distribution.

Smart Sand provided BOYD with the results of two sets of sand samples (Year 2011 and Year 2018) sent to Stim-Lab in Duncan, Oklahoma, for ISO/API analysis. Refer to Section 5.2.2 for further information.

The lithologic data obtained from the 14 holes, the results of the particle size distribution, and the results of the Stim-Lab analyses, were compiled into a database for input into the BOYD geologic model, which was the principal source of information used to define the extent of the deposit on the property, the overburden volumes, the sand and waste volumes and tonnages, the corresponding sand product distribution based on particle size, and quality of the St. Peter sand underlying the Utica Property.

BOYD notes we were not involved with any exploration activities associated with the information presented above and were not provided information pertaining to the drilling and sampling methodologies utilized in the various exploration campaigns at the Utica Property. Other than the 14 exploration hole data provided by Smart Sand, we were not provided information regarding the equipment utilized, and the sampling, logging, and field work performed pertaining to the exploration work on the Utica property by the prior owners of the property. BOYD notes that we cannot opine on whether those methodologies and procedures used to obtain the exploration data were carefully and

professionally collected, prepared, and documented in conformance with generally accepted industry standards. We can confirm that the Stim-Lab results were professionally prepared and documented in conformance with generally accepted industry standards.

BOYD opines that although limited, the data provided were sufficient for the purposes of evaluating and estimating frac sand resources and reserves on the Utica Property.

5.2.2 Frac Sand Quality Testing

Stim-Lab performed sieve analyses on two sets of sized-samples pertaining to the Utica Property. In addition, they performed the API RP 19C/ISO 13503-2 proppant sand characteristic tests for sphericity and roundness, acid solubility, crush resistance, and turbidity. These specific sized samples are the following:

- Three sand samples labelled Illinois Cement 20/40, Illinois Cement 40/70, and Illinois Cement 70/140 submitted by Eagle Materials on August 3, 2011.
- Four sand samples labelled NWS 20/40, NWS 30/50, NWS 40/70, and NWS 100M submitted by Northern White Sand, LLC on August 3, 2018.

When the samples were received by Stim-Lab, they performed a sieve analysis on each frac sand product sized sample and tested each product sized sample per API RP 19C/ISO 13503-2 standards.

Results from the various testing performed on the Year 2011 and Year 2018 sized sand samples pertaining to the Utica Property is presented in Section 5.3.

5.2.3 Other Exploration Methods

No other methods of exploration (such as airborne or ground geophysical surveys) are reported for the Utica Property.

5.3 Laboratory Testing Results

The relatively uniform nature of the St. Peter sand formation underlying the Utica Property, combined with the results of independent laboratory testing (Stim-Lab) indicated that the Utica Property could produce a suite of 20/100-mesh frac sand products that meet customer specifications for frac sand use.

5.3.1 Grain Size Distribution

Smart Sand provided BOYD the grain size distribution data, from the 14 holes selected.

A table, summarizing the 14 holes average grain size distribution of the in situ sand deposit, based on sieve results, is shown in Table 5.1.

Table 5.1: Average Particle Size Distribution

Approximate In-Place Product Distribution						
% Retained By Mesh Size					% Product	
>20	20/40	40/70	70/100	<100	20/40	40/100
1.0	22.2	49.0	12.4	15.4	26.6	73.4

The preceding table highlights the relative size mix of the sand found within the Utica Property, indicating approximately 84% of the sand particles are concentrated between the “passing 20-mesh” and “retained 100-mesh” size fraction. Moreover, of the 20/100-mesh sand faction, approximately 73% of the marketable product consists of the finer 40/100-mesh sands.

5.3.2 Grain Shape (Sphericity and Roundness)

Grain shape was analyzed according to ISO 13503-2/API RP19C, Section 7. Under this standard, recommended sphericity and roundness values for proppants are 0.6 or greater, and 0.7 or greater for high strength proppants. As part of the grain shape analysis, the presence of grain clusters (weakly cemented grain aggregates) and their approximate proportion were not observed in the seven sized samples.

5.3.3 Crush Resistance

Crush resistance is a key test that determines the amount of pressure a sand grain can withstand under laboratory conditions for a two-minute duration. The sample was analyzed according to ISO 13503-2/API RP19C, Section 11. Under this standard, the highest stress level (psi) in which the proppant produces no more than 10% crushed fine material is rounded down to the nearest 1,000 psi and reported as the “K-value” of the material.

5.3.4 Acid Solubility

Acid solubility was analyzed according to ISO 13503-2/API RP19C, Section 8. Under this standard, 5 grams of sand is treated with 100 milliliters of 12:3 hydrochloric acid to hydrofluoric acid at 150ºF for 30 minutes. The recommended maximum acid solubility for proppants in the 6/12 through 30/50-mesh size range is 2.0%, and for proppants in the 40/70-mesh and finer size range is 3.0%.

5.3.5 Turbidity

Turbidity was analyzed according to ISO 13503-2/API RP19C, Section 9. Under this standard, the suggested maximum frac sand turbidity should be equal to or less than 250 nephelometric turbidity units (NTU).

5.3.6 Quality Summary

The three sized samples, 20/40, 40/70, and 70/140-mesh product sizes, provided to Stim-Lab in August 2011 were tested for API RP 19C/ISO 13503-2 proppant sand characteristics. The test results are presented in Table 5.2.

Table 5.2: Utica Year 2011 API/ISO Test Results for the Three Sized Samples

	EM Year 2011 - Average API/ISO Test Results By Product Size				
		API RP19C			API RP19C
Test	Result 20/40-mesh	Recommended Specification	Result 40/70-mesh	Result 70/140-mesh*	Recommended Specification
Sphericity	0.7	≥ 0.6	0.6	0.6	≥ 0.6
Roundness	0.7	≥ 0.6	0.6	0.6	≥ 0.6
Acid Solubility (%)	0.6	≤ 2.0	0.9	1.2	≤ 3.0
Turbidity (NTU)	44	≤ 250	35	35	≤ 250
K-Value (000 psi)	6	NA	7	9	NA
Clusters	None Observed	NA	None Observed	None Observed	NA

* Note: Currently, 70/140-mesh proppant sand material does not have an API/ISO specification.

The four sized samples, 20/40, 30/50, 40/70, and 100-mesh product sizes, provided to Stim-Lab in August 2018 were tested by for API RP 19C/ISO 13503-2 proppant sand characteristics. The test results are presented in Table 5.3.

Table 5.3: Utica Year 2018 API/ISO Test Results for the Four Sized Samples

	NWS, LLC Year 2018 Sample - Average API/ISO Test Results By Product Size					
			API RP19C			API RP19C
Test	Result 20/40-mesh	Result 30/50-mesh	Recommended Specification	Result 40/70-mesh	Result 100-mesh*	Recommended Specification
Sphericity	0.8	0.8	≥ 0.6	0.7	0.7	≥ 0.6
Roundness	0.7	0.7	≥ 0.6	0.6	0.6	≥ 0.6
Acid Solubility (%)	0.3	0.3	≤ 2.0	0.3	No Test	≤ 3.0
Turbidity (NTU)	9	12	≤ 250	7	No Test	≤ 250
K-Value (000 psi)	6	7	-	8	No Test	-
Clusters	None Observed	None Observed	NA	None Observed	None Observed	NA

* Note: Currently, 70/140-mesh proppant sand material does not have an API/ISO specification.

The seven sized samples tested suggest that the Utica Mine could produce frac sands which meet minimum API/ISO recommended testing characteristics. BOYD notes that the Utica operation has a prior history of selling various frac sand sized products to oil

service companies (Eagle Materials[1] preacquisition by Smart Sand) and by Smart Sand thereafter.

5.4 Data Verification

The December 31, 2021, reserve estimate for the Utica Property is based on historic drill hole data previously provided to BOYD by Smart Sand in the preparation of our prior reserve estimate. It is customary in preparing proppant sand resource and reserve estimates to accept basic drilling and quality testing data as provided by the client, subject to the reported results being judged representative and reasonable. As we have judged the drilling and quality data representative and reasonable, we opine that they are still representative and reasonable for use in the December 31, 2021, resource and reserve estimate.

[1] 2020EM 2020 Annual Report and Form 10-K March 31, 2020, page 19.

6.0 FRAC SAND RESOURCES AND RESERVES

6.1 Applicable Standards and Definitions

Unless otherwise stated, frac sand resource and frac sand reserve estimates disclosed herein are completed in accordance with the standards and definitions provided by S-K 1300. It should be noted that BOYD considers the terms “mineral” and “frac sand” to be generally interchangeable within the relevant sections of S-K 1300.

Estimates of any mineral resources and reserves are always subject to a degree of uncertainty. The level of confidence that can be applied to a particular estimate is a function of, among other things: the amount, quality, and completeness of exploration data; the geological complexity of the deposit; and economic, legal, social, and environmental factors associated with mining the resource/reserve. By assignment, BOYD used the definitions provided in S-K 1300 to describe the degree of uncertainty associated with the estimates reported herein.

The definition of mineral (frac sand) resource provided by S-K 1300 is:

> *Mineral resource is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.*

Estimates of frac sand resources are subdivided to reflect different levels of geological confidence into measured (highest geologic assurance), indicated, and inferred (lowest geologic assurance)

The definition of mineral (frac sand) reserve provided by S-K 1300 is:

> *Mineral reserve is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.*

Estimates of frac sand reserves are subdivided to reflect geologic confidence, and potential uncertainties in the modifying factors, into proven (highest assurance) and probable.

Figure 6.1 shows the relationship between frac sand resources and frac sand reserves.

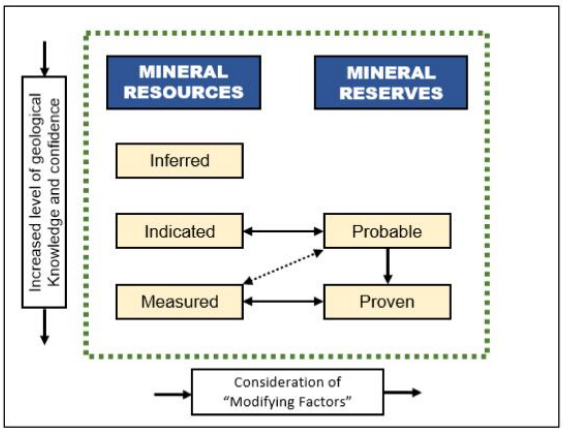


Figure 6.1: Relationship Between Frac Sand Resources and Frac Sand Reserves

In this report, the term "frac sand reserves" represent the tonnage of frac sand products that meets customer specifications and will be available for sale after processing of the ROM sand.

6.2 Frac Sand Resources

6.2.1 Methodology

BOYD had previously estimated the in-place frac sand resources on the property as of the date of acquisition by Smart Sand in September 2020. Incorporating our prior work, which is discussed below, BOYD independently prepared estimates of in-place frac sand resources for the Utica Property, as of December 31, 2021, by performing the following tasks:

1. Available product size distribution data and laboratory testing results, provided by Smart Sand, were compiled into a database for use in modeling the quality and quantity of the mineable sand underlying the Utica Property. The geologic database

utilized 14 of 29 holes, those with complete information including, sieve size, overburden, and sand thickness data. The geologic data was imported into Carlson Software, a geologic modeling and mine planning software suite that is widely used and accepted by the mining industry.

2. A geologic model of the deposit was created in Carlson Software using industry-standard grid modeling methods well-suited for simple stratigraphic deposits, and for estimating overburden and sand volumes and associated product distribution. The geologic model delineates the top and bottom of the mineable sand horizon and the distribution of the product size fractions across the deposit. The top and bottom of the mineable frac sand interval were established as follows:
    a. Aerial mapping as of July 20, 2020, in conjunction with drilling data, was used as the basis for estimating overburden and sand volumes and associated product distribution in the Carlson geologic modeling program. It was reported to BOYD that no mining was undertaken on the property between July 20, 2020, the date of aerial photography, and September 18, 2020, the date of the acquisition. Accordingly, no adjustments were made for depletion for this period.
    b. As there is overburden material across the property, which ranges in thickness from 57 ft to 77 ft, the top of the mineable sand interval was defined as the base of the overburden material above the St. Peter sandstone unit.
    c. The bottom of the mineable sand interval was based primarily on a target mineable thickness of 90 ft. However, drill holes that exhibited higher concentrations of fine materials near their bottoms also defined what depths mining may be terminated.
3. After reviewing the continuity and variability of the deposit, suitable resources classification criteria were developed and applied as per the discussion in Section 6.2.2.
4. BOYD defined the mineable resources within the property as the area defined by management which included a mine plan. A viewshed was incorporated, which involved leaving an earthen berm constructed mainly of overburden and topsoil around the property in order to maintain a shielded view of the future mine from local roadways. Areas on the property that were excluded from being considered mineable were those that had fines and stormwater ponds, or processing facilities constructed, as well as areas directly underlying property boundary viewshed areas. Estimation of the in-place resources assumes mining operations using standard surface excavation equipment, which is widely utilized for mining of similar deposit types. As such, the estimates were subject to the following setbacks and slope requirements:
    a. 100 ft offset inside of the entire property boundary line.
    b. A final pit highwall slope of 80 degrees was applied from the top of the pit to the bottom of the mineable sandstone interval.
    c. The final pit floor was estimated to be at an elevation of between approximately 440 ft mean sea level (msl) and 460 ft msl.

5. In-place volumes for each of the proposed mining blocks were calculated from the geologic model within Carlson Software. An in-place sandstone dry density of 127 pounds per cubic foot was used to convert the in-place sand volumes to short tons.
6. BOYD utilized provided production data, from the date of acquisition in September 2020 by Smart Sand, to reconcile the estimate from date of volumetric estimate to December 31, 2021.

6.2.2 Classification

Geologic assuredness is established by the availability of both structural (thickness and elevation) and quality (size fraction) information for the deposit. Resource classification is generally based on the concentration or spacing of exploration data which can be used to demonstrate the geologic continuity of the deposit. When material variations in thickness, depth, and/or sand quality occur between drill holes, the allowable spacing distance between drill holes is reduced. The following drill hole spacing criteria were established by the Qualified Person after review of the available exploration data and geologic models and used to classify the frac sand resources of the Utica Property:

Table 6.1: Utica Property Drill Hole Spacing Parameters

Resource Classification	Spacing Requirement (ft) (Nominal Maximum)
Measured	1,500 (750 ft radius)
Indicated	3,000 (1,500 ft radius)

The Qualified Person has determined that nearly all of the estimated frac sand resources within the Utica Property are classified as either Measured or Indicated.

BOYD is of the opinion that there is a low degree of uncertainty associated with each of the resource classifications.

6.2.3 Frac Sand Resource Estimate

There are no reportable frac sand resources excluding those converted to frac sand reserves for the Utica Mine. Quantities of frac sand controlled by Smart Sand within the defined boundaries of the Utica Property which are not reported as frac sand reserves are not considered to have potential economic viability; as such, they are not reportable as frac sand resources.

As a note, BOYD did not include the sand material located below the depths of the planned pit floor (between approximately 440 ft and 460 ft msl) in the resource estimate. There is the potential for some areas of this formation to be mineable to greater depths than used to define resources herein. The lower lying sandstone could potentially be

evaluated for resource and reserve consideration in the future, provided additional exploration was conducted and subsequent mine planning was completed to determine the ability to extract the lower lying sand material safely and economically.

6.2.4 Validation

BOYD independently estimated in-place frac sand resources for the Utica Mine based on the provided drilling, sampling, and testing data obtained from Smart Sand. Utilizing industry-standard grid modeling techniques we have estimated volumes of frac sand indicated by such data. Based on our review of the information provided by Smart Sand, we are of the opinion that the data provided are reasonable and appropriate. Furthermore, it is our opinion that the estimation methods employed are both appropriate and reasonable for the deposit type and proposed extraction methods.

6.3 Frac Sand Reserves

6.3.1 Methodology

Estimates of frac sand reserves for the Utica Mine were derived contemporaneously with estimates of frac sand resources. To derive an estimate of saleable product tons (proven and probable frac sand reserves), the following modifying factors were applied to the in-place measured and indicated frac sand resources underlying the respective mine plan areas:

- A 95% mining recovery factor, which assumes that 5% of the mineable (in-place) frac sand resource will not be recovered for various reasons. Applying this recovery factor to the in-place resource results in the estimated ROM sand tonnage that will be delivered to the wet process plant.
- An overall 81% processing recovery. This recovery factor accounts for losses in the wet and dry plants. This recovery factor accounts for removal of out-sized (i.e., larger than 20-mesh and smaller than 100-mesh) sand and losses in the wet and dry processing plants due to minor inefficiencies.

The overall product yield (after mining and processing losses) for the Utica Mine is estimated at 77%. That is, for every 100 tons of in-place frac sand resources mined, approximately 77 tons will be recovered and sold as product.

At the request of Smart Sand, BOYD utilized actual/estimated production data, provided by Smart Sand, from the date of acquisition in September 2020 through December 31, 2021, to reconcile the estimate from the date of volumetric estimate to December 31, 2021.

As previously noted, there are no reportable frac sand resource tons. However, Table 6.2 provides insight into the frac sand in-place resources tons that would be eventually mined and converted into frac sand product tons for the Utica Mine. The frac sand product tons are equivalent to the total reserve tons as of December 31, 2021, for the Utica Mine.

Table 6.2: Mineable and Reserve Tons as of December 31, 2021

Utica Property In-Place, ROM and Product Tons			
Tons (000)	In-Place [(a)]	ROM [(b)]	Product [(c)]
Measured	124,087	117,883	96,464
Indicated	42,379	40,260	32,347
Total	166,466	158,143	128,811

a: In-place tons calculated using an in situ dry density of 127 pcf.
b: Run-of-Mine tons calculated using a 94.8% mining recovery.
c: Product tons calculated using 77% processing recoveries.

6.3.2 Classification

Proven and probable frac sand reserves are derived from measured and indicated frac sand resources, respectively, in accordance with S-K 1300. BOYD is satisfied that the frac sand reserve classification reflects the outcome of technical and economic studies. Figure 6.2 illustrates the reserve classification of the Utica Property frac sand deposit.

6.3.3 Frac Sand Reserve Estimate

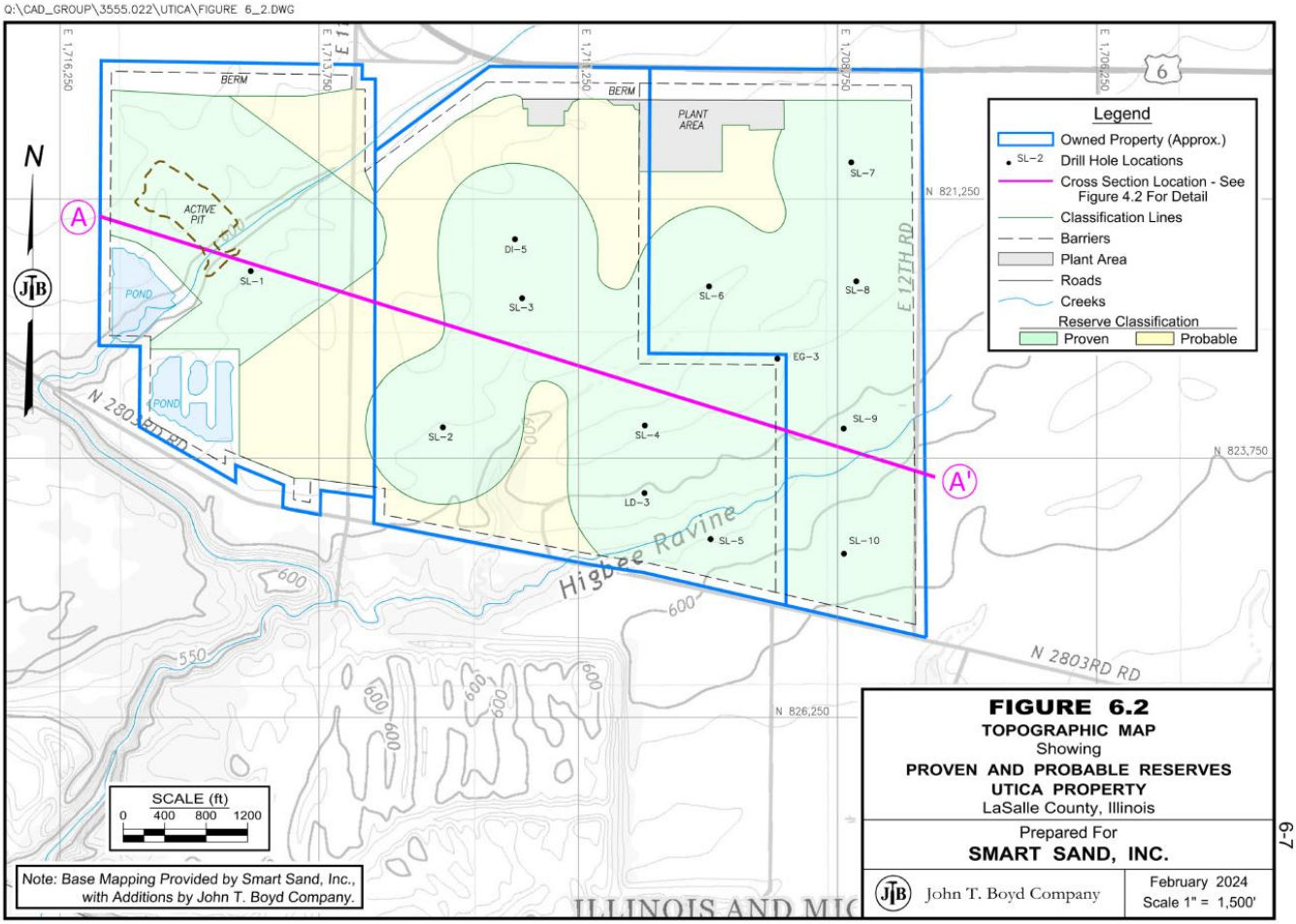
Smart Sand's estimated surface mineable frac sand reserves for the Utica Property total 128.8 million saleable product tons, as of December 31, 2021.

The following table presents the estimated Reserve tons by product (size) owned in fee, which are anticipated to be produced at Smart Sand's Utica Property.

Table 6.3: Reserves as of December 31, 2021

Estimated Reserve Tons By Classification as of December 31, 2021				
Tons (000)	20/40-Mesh	40/70-Mesh	70/100-Mesh	Total
Proven	28,443	55,384	12,637	96,464
Probable	8,781	18,984	4,582	32,347
Total	37,224	74,368	17,219	128,811

Of the total frac sand reserves for the Utica Mine as of December 31, 2021, it is our conclusion that approximately 75% of the stated reserves can be classified on the proven reliability category (the highest level of assurance) with the reminder classified as probable.


Q:\CAD_GROUP\3555.022\UTICA\FIGURE 6_2.DWG
E 1,716,250
E 1,713,750
E 1,711,250
E 1,708,750
E 1,706,250
N 821,250
N 823,750
N 826,250
BERM
BERM
PLANT AREA
ACTIVE PIT
POND
POND
A
A'
SL-1
DI-5
SL-3
SL-6
SL-7
SL-8
EG-3
SL-9
SL-2
SL-4
LD-3
SL-5
SL-10
E 12TH RD
N 2803RD RD
N 2803RD RD
Higbee Ravine
600
550
N
Legend
Owned Property (Approx.)
SL-2 Drill Hole Locations
Cross Section Location - See Figure 4.2 For Detail
Classification Lines
Barriers
Plant Area
Roads
Creeks
Reserve Classification
Proven
Probable
SCALE (ft)
0 400 800 1200
Note: Base Mapping Provided by Smart Sand, Inc., with Additions by John T. Boyd Company.
FIGURE 6.2
TOPOGRAPHIC MAP
Showing
PROVEN AND PROBABLE RESERVES
UTICA PROPERTY
LaSalle County, Illinois
Prepared For
SMART SAND, INC.
John T. Boyd Company
February 2024
Scale 1" = 1,500'

The estimated product distribution of the frac sand reserves is based on available laboratory gradation test data provided by Smart Sand. Grain size distribution and overall yields may vary based on the depth and location at which mining occurs.

The Utica Property, and other frac sand operations in the area, have a well-established history of mining and selling frac sand products into the various energy basin fields. BOYD has assessed that sufficient studies have been undertaken to enable the frac sand resources to be converted to frac sand reserves based on current and proposed operating methods and practices. Changes in the factors and assumptions employed in these studies may materially affect the frac sand reserve estimate.

The extent to which the frac sand reserves may be affected by any known geological, operational, environmental, permitting, legal, title, variation, socio-economic, marketing, political, or other relevant issues has been reviewed as warranted. It is the opinion of BOYD that Smart Sand has appropriately mitigated, or has the operational acumen to mitigate, the risks associated with these factors. BOYD is not aware of any additional risks that could materially affect the development of the frac sand reserves.

Based on our independent estimate and operations review, we have a high degree of confidence that the estimates shown in this report accurately represent the available frac sand reserves controlled by Smart Sand, as of December 31, 2021.

7.0 MINING OPERATIONS

7.1 Mining Method

The Utica Mine produces approximately 800,000 to 1 million tons of finished product per year. The quarry exploits the St. Peter sandstone formation which is extensively mined in the Ottawa-Utica, Illinois area. To produce 800,000 tons of frac sand product, approximately 1 million tons of ROM sand is uncovered, drilled, blasted, and then hauled to the slurry plant. Conventional excavators, front-end loaders, articulated haul trucks and dozers are used to strip the overburden and recover the sand. Initially, 50 ft to 75 ft of overburden is removed prior to exposing the approximately 90 ft thick sand formation. The majority of the overburden is excavatable with the exception of thin caprock above the sand which requires drill and blast. Approximately 60,000 tons per month of overburden is stripped, mainly on the day shift, and hauled and dumped into the mined-out area of the pit. Approximately one 90-ft high bench of sandstone is blasted per month. The drilling and blasting is contracted to a third party. A continuous 90 ft shot (no decking) on a 20 ft x 20 ft pattern is generally utilized. The night shift predominantly loads and hauls the sand to the dump hopper. Approximately 6,000 to 9,000 tons of ROM sand is generally hauled per 10-hour shift.

Figure 7.1 below illustrates the stripping bench and the sand bench from the rim of the pit. The operation has numerous dewatering pumps to maintain the working pit. The mine plan in Section 7.3.3 illustrates the yearly advancement of the pit.

Figure 7.1: Utica Quarry Pit looking North

7.2 Mine Schedule, Equipment, and Staffing

Currently the mine pit operates two, 10-hour shifts, four days per week resulting in a 40-hour work week per shift. A 10-hour Friday shift is added if needed. Generally, there are seven employees on the day shift and five employees on the night shift.

Stripping is generally completed during the day shift and sand is hauled to the wet plant at night. Day shift primary equipment consists of:

- Four 40T articulated haul trucks.
- Three Various size front-end loaders.
- One Deere 870 excavator.
- One Grade
- One Dozer.

In addition, there are numerous support vehicles (maintenance trucks, skid steers, water truck, etc.) to complement the fleet.

The mine, plants and loadout operate year around. The entire complex employs approximately 54 employees.

7.3 Mine Production

7.3.1 Historical Mine Production

Utica predominantly produces 20/40-mesh, 30/50-mesh, 40/70-mesh and 70/140-mesh (100-mesh) frac sand products for sale to destinations served by predominantly the Burlington Northern Railway. The majority of the finished product is railed to the final destination after trucked and loaded onto rail at their nearby Peru, Illinois loadout facility.

The sand is mined, processed, stored, and shipped from one contiguous property. Production from the operation commenced in mid-2012. Recent historic ROM production is as follows:

Table 7.1: Historic ROM Production

Year	Finished Tons (000)
2019	n/a
2020*	722
2021	1,136 est

* Acquired partial year

7.3.2 Forecasted Production

Forecasted ROM sand production is estimated as follows:

Table 7.2: Forecasted ROM Production Tons

	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
ROM Production tons (000)	982	982	982	982	982

The average process yield is reported to be 81.5%; as such, 982,000 ROM tons are expected to produce approximately 800,000 tons of finished product.

7.3.3 Expected Mine Life

As of December 31, 2021, reserves for the Utica Mine are estimated at 129 million saleable tons. Projecting an average yearly sales volume of 800,000 tons per year, the operation has a LOM of approximately 161 years.

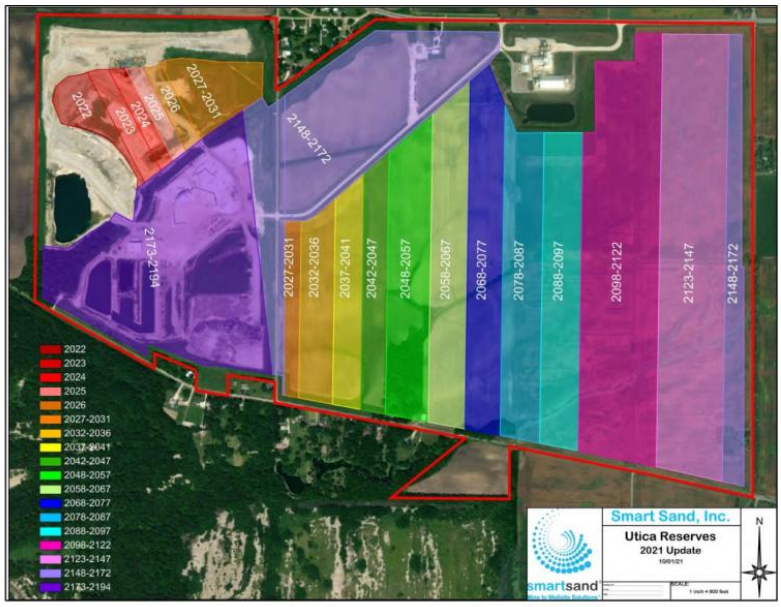


Figure 7.2: Utica Proposed Mine Plan

The illustration above depicts the proposed LOM plan for the Utica Mine. The LOM plan assumes a steady-state sales volume in the 800,000 product tons per year range for approximately 150 years through year 2172. Future mine plan production, and hence the longevity of the mine, is directly related to energy market demand for proppant sand. Actual yearly production volumes may, and are likely to, fluctuate significantly based on this demand.

7.3.4 Mining Risk

Surface mines face two primary types of operational risks. The first category of risk includes those daily variations in physical mining conditions, mechanical failures, and

operational activities that can temporarily disrupt production activities. Several examples are as follows:

- Water accumulations/soft floor conditions.
- Process water shortages.
- Power curtailments.
- Variations in grain size consistency.
- Encountering excessive clay and other waste material.
- Failures or breakdowns of operating equipment and supporting infrastructure.
- Weather disruptions (power outages, dust storms, excessive heat etc.).

The above conditions/circumstances can adversely affect production on any given day, but are not regarded as “risk issues” relative to the long-term operation of a mining entity. Instead, these are considered “nuisance items” that, while undesirable, are encountered on a periodic basis at many mining operations. BOYD does not regard the issues listed above as being material to the Utica Mine operations or otherwise compromising its forecasted performance.

The second type of risk is categorized as “event risk.” Items in this category are rare but include significant occurrences that are confined to an individual mine, and ultimately have a pronounced impact on production activities and corresponding financial outcomes. Examples of event risks are major fires or explosions, floods, or unforeseen geological anomalies that disrupt extensive areas of proposed or operating mine workings and require alterations of mining plans. Such an event can result in the cessation of production activities for an undefined but extended period (measured in months, and perhaps years) and/or result in the sterilization of frac sand reserves. This type of risk is minimal in a relatively simple surface sand mining operation.

8.0 PROCESSING OPERATIONS

8.1 Overview

The Utica plant area commenced wash plant operations in 2014. Initially, the work in process sand was railed to a dry process plant in Corpus Christi, Texas. In 2018, a 1.6 million tons per year dry process plant was constructed on site and is currently utilized. The ROM sand material is hauled to an in-pit feed hopper where it is slurried and pumped to an enclosed wet process plant.

8.1.1 Wet Plant

Figure 8.1 below shows the enclosed wet plant where the material between 20-mesh and 140-mesh is classified and pumped onward to the dry process plant at the northeast end of the property. The waste < 140-mesh sand and oversize is hauled back into a mined out area of the pit. The wet plant employs typical screen/hydrosizer /cyclone classification and dewatering technology and also has an ultrafine circuit and thickener. The wet plant operates two, 10-hour shifts, four days per week. This schedule fluctuates based on product demand. The nominal capacity of the plant is approximately 450 tph of ROM sand.

Figure 8.1: Utica Wet Processing Plant

8.1.2 Decant/Dry Plant

The slurried WIP (20/140-mesh) material is pumped to an enclosed decant shed for dewatering prior to entering the dryer. A drag chain arrangement reclaims dryer sand from the top of the decant pile and conveys the sand to a 250 tph natural gas fired dryer. Dry sand is then screened into predominantly 20/40-mesh, 30/50-mesh,40/70-mesh, and 70/140-mesh (100-mesh) finished products. The finished products are stored in four 2,000-ton truck loadout silos. All product leaves the plant via truck. Several industrial customers truck the sand directly to their plants. The majority of the product is trucked to a nearby Peru, Illinois rail loadout servicing the Burlington Northern Railway. The dry plant operates 20 hours per day, four to five days per week. Approximately 54 people work at the Utica Facility.

Figure 8.2: Decant Shed and Dry Processing Plant

8.2 Conclusion

Based on our review of the Utica Mine, it is BOYD's opinion that the processing methods and existing equipment at the plant will be sufficient for the planned production of frac sand.

9.0 MINE INFRASTRUCTURE

The Utica Mine is serviced by three phase power that is routed along US highway 6, which runs north of the northern property line. The pipeline providing natural gas supply for the drying equipment is also routed along this corridor. Plant process water is supplied by water collected in the pit and ponds. Additionally, the wash process water is recycled after fines are removed via settling with a flocculent in a thickener and series of constructed ponds. As the mine progresses, silt ponds are constructed in mined-out areas. Wastewater from offices and other buildings are collected via a municipal sewer line. Potable water is provided by public water supply.

On-site facilities include a scale house, office, shop, and a quality laboratory located in the dry process plant. The operation employs approximately 54 people and staffing varies based on production demand.

The surface facilities currently located at the mine are well constructed and have the necessary capacity/capabilities to support the Utica Mine's near-term operating plans. Operational preference may lead to the upgrading of some existing facilities if the operation expands in the future.

10.0 MARKET ANALYSIS

The frac sand market is driven by unconventional horizontal drilling in the oil and gas industry. In the late 1990s, rapid advances in horizontal drilling and hydraulic fracturing (fracking) in North America ushered in large-scale commercial oil and gas production. This fracking technique has been increasingly successful and modified over time to extract oil and gas held in dense layers of shale rocks, whose low permeability had previously prevented the flow of hydrocarbons.

Hydraulic fracturing uses a mixture of water, chemicals, and proppant (natural sand or man-made sand-like substances) to fracture shale rock and release hydrocarbons such as oil, natural gas and natural gas liquids. The proppant acts to keep the fractures open (prop) while the pressurized fluids flow back up the well piping. Wells have become more productive with the addition of horizontal drilling capabilities, longer lateral lengths, and multi-stage fracks.

North America's shale oil industry's growing competitiveness gained through continuous technology improvement and falling production costs have had major implications on the global energy market. Oilfield service companies, including frac sand producers, made significant cuts in 2020 to survive lower commodity prices because of the COVID-19 pandemic. Figure 10.1 illustrates the CME Group's West Texas Intermediate (WTI) Crude Oil Annual Average Futures Price. We estimate breakeven pricing for unconventional oil wells in the Permian to be in the $30 to $40 per barrel range, with some areas in the mid $20s per barrel. 2021 WTI futures pricing showed a strong recovery following the 2020 COVID-19 impact.

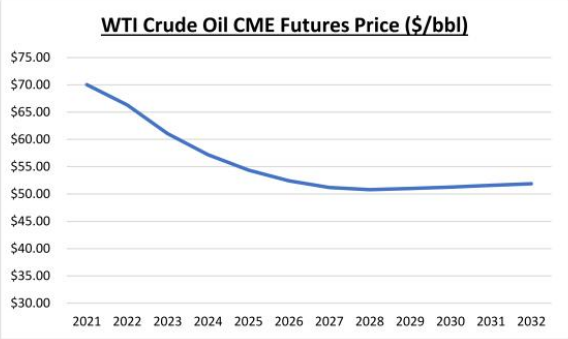


Figure 10.1: WTI Crude Oil CME Futures Price

Although Smart Sand's market area is essentially all of the energy basins in the United States and western Canada, we have selectively focused on the Permian, Appalachian, and Denver-Joulesberg (DJ) as these are target markets for their frac sand. The Oakdale Mine has advantaged delivered cost to the western basins like the DJ as the Oakdale Mine directly loads onto the Canadian Pacific Railway, a very competitive option for westbound sand to the DJ. Oakdale also owns a loadout near the mine which enables them to load directly on the Union Pacific Railway, the favored Permian basin rail. The Utica Mine has access to their nearby Burlington Northern rail loadout which greatly complements the Oakdale facility, especially when moving product to the Appalachian (Marcellus-Utica) basin. Therefore, a high-level overview of demand in these basins follows.

10.1 Permian Basin

Permit submissions for horizontal oil and gas wells in the Permian indicate a continuation of strong drilling ahead. According to InfillThinking, the number of permits filed per working rig this summer is tracking at multi-year highs as evidenced in Figure 10.2 below.

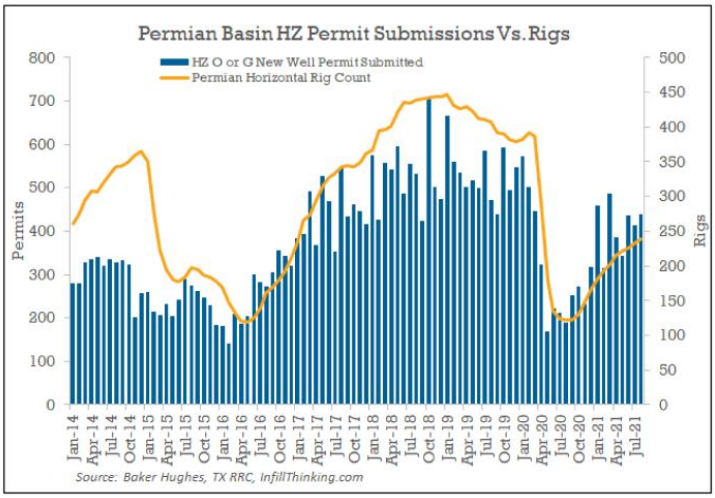


Figure 10.2: Permian Basin HZ Permit Submissions vs. Rigs

Over the previous 52 weeks, rig counts in the Permian are up approximately 111%. This has led to increased production for both crude oil and natural gas. For the same time period, crude oil (barrels per day) and natural gas production (thousand cubic feet per day) in the Permian are up 10% and 9%, respectively. As Figure 10.3 illustrates, Permian daily crude oil production is nearing its pre-pandemic impacted peak, while daily natural gas production in the Permian continues to make new records and now stands at 18.6 billion cubic feet per day.

Figure 10.3: Permian Oil Production and Natural Gas Production

According to U.S. Energy Information Administration Drilling Productivity Report, drilled but uncompleted wells (DUCs) in the Permian Basin have declined 43% since peaking in July 2020 (refer to Figure 10.4). These data dovetail with increased crude oil and natural gas production in the basin.

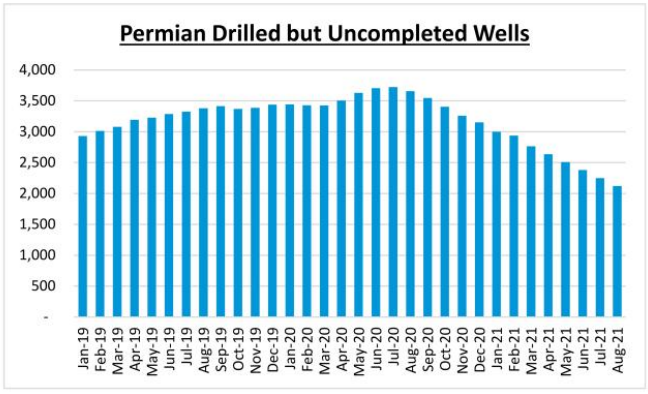


Figure 10.4: Permian Drilled but Uncompleted Wells

Although a majority of this large basin's sand is sourced from local sand mines, Northern White, Oakdale quality sand remains an important product for many well applications.

10.2 Appalachian Basin (Marcellus/Utica Play) and Niobrara Basin

Although smaller in size than the Permian energy fields, the Appalachian and Nioobrara (DJ) are substantial natural gas and oil plays in North America. Unlike the Permian, the Appalachian and Niobrara import the vast majority of the frac sand. Very few notable in-basin sand operations exist. This creates an advantaged situation for the Oakdale and Utica mines as they are advantaged, transport wise to the basin and there are few substitutes for NWS.

Following the energy downturn in 2019 and then Covid shutdown in 2020, the basin wellfield activity appears to be rebounding. Horizontal rigs have stabilized over the past two years as can be seen on Figure 10.5, but gas production per rig is substantially higher. Energy companies are drilling longer laterals and optimizing each well pad becoming more efficient from a cost perspective and overall natural gas production is stable as can be seen from Figure 10.6.

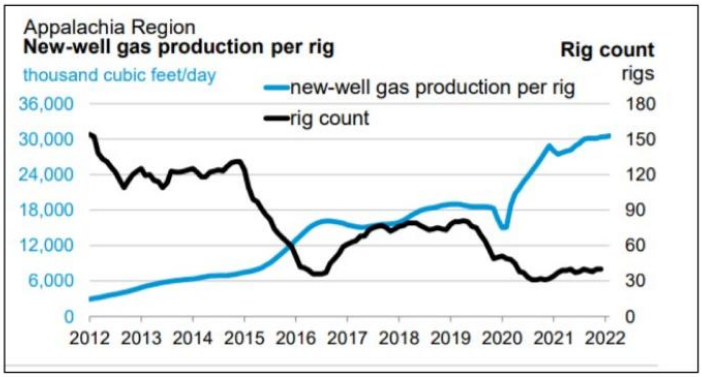


Figure 10.5: Appalachian Rig Count and Production per Rig (Source: EIA)

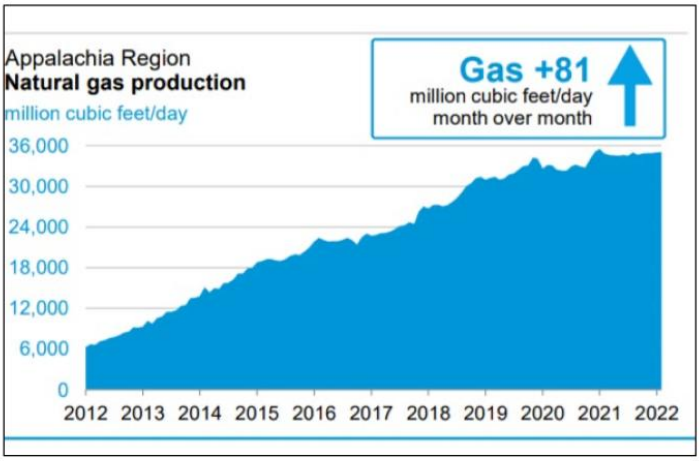


Figure 10.6: Appalachian Gas Production (Source: EIA)

Similarly, the DJ basin has seen a rebound in rig count since the Covid shutdown. Both gas and oil rig counts have risen but productivity per well has decreased as can be seen in Figure 10.7.

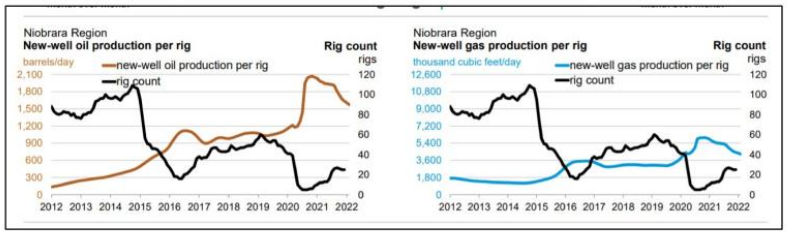


Figure 10.7: Niobrara Oil and Gas Rig Count and Productivity (Source: EIA)

Overall gas and oil production remains relatively flat in the basin, but more wells are being drilled to maintain this capacity. Figure 10.8 illustrates the overall yearly gas and oil production in the basin.

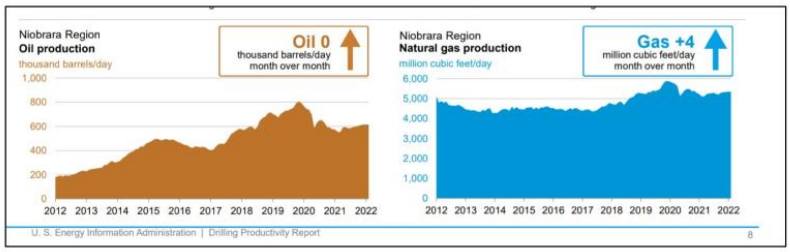


Figure 10.8: Niobrara Oil and Gas Production (Source: EIA)

Having survived the challenging environment of 2019 and 2020, Smart Sand's operations should continue to prove viable into the future notwithstanding a sustained and significant energy price collapse. Their low-cost mining scheme, advantaged transport to select basins, and high-quality product help to create an advantage compared with other NWS producers.

11.0 CAPITAL, REVENUES, AND OPERATING COSTS

11.1 Introduction

Smart Sand acquired the Utica operation from Eagle Materials on September 18, 2020. Smart Sand provided BOYD with production, sales, CapEx, and financial data for the period September 2020 through September 2021. BOYD will not present any pre-acquisition data for the Utica operation.

11.2 Historical Capital Expenditures

Table 11.1 below, presents CapEx for the period September 2020 through September 2021.

Table 11.1: Historical Capital Expenditures

	CapEx ($000)
Year 2020*	-
Sep YTD 2021	257
Total**	257

*Utica acquired on September 18, 2020

**Utica operation only, excludes transload sites and other locatons/activities.

11.3 Historical Revenues and Operating Costs

11.3.1 Historical Sales

Table 11.2 presents Smart Sand's historical sales data for the period September 2020 through September 2021.

Table 11.2: Historical Sales Statistics

	Year 2020*	SepYTD2021
Tons Sold (000)	106	564
Total Revenues ($000) (a)	2,256	11,553
Average Sales Price ($ per ton sold)	21.33	20.48

*Acquired in September 2020

Figure 11.1 presents the product sizes sold as a percent of total tons sold. In 2021, about 65% of the tons sold consists of the finer size products, 40/70-mesh and finer, with

about 35% of the products sold consisting of the coarser 20/40 and 30/50-mesh products.

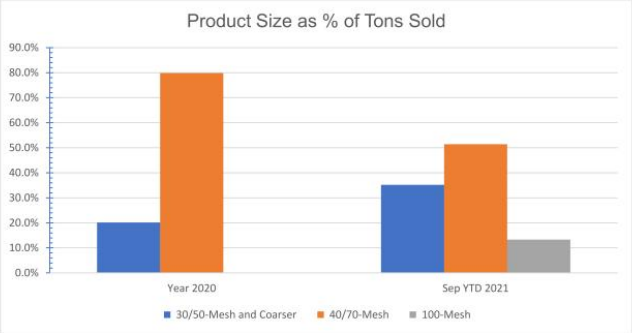


Figure 11.1: Product Size as a Percentage of Total Tons Sold

Since the acquisition in September 2020 and through September 2021, the Utica operation has had only spot sales. In 2021, the Top 5 Customers (as a group) represented 91% of their total revenues.

Table 11.3 presents Utica's historical cash operating costs for the short year 2020, and September YTD 2021. Operating costs represent the costs incurred associated with the mining, ongoing reclamation, wet processing, dry processing, trucking to the off-site rail loadout, off-site rail loadout (Peru), and other related costs.

Table 11.3: Historical Cost of Production

	$(000)		$ per ton sold	
Cash Operating Costs	Year 2020*	SepYTD2021	Year 2020*	SepYTD2021
Wages and benefits	566	3,391	5.35	6.15
Excavation	50	859	0.47	1.56
Utilities	134	1,061	1.26	1.93
Equipment	78	342	0.74	0.62
Maintenance	154	551	1.46	1.00
Peru Trucking	-	1,075	-	1.95
Real Estate taxes	-	415	-	0.75
Other Costs (a)	(2)	49	(0.02)	0.09
Total Cash Operating Costs	980	7,742	9.27	14.05

*Acquired in September 2020
Note Rounding Errors

11.4 Projected Production, Sales, and Costs

Smart Sand provided BOYD with production, sales, and cost projections for the Utica operation. We reviewed and adjusted the price and cost projections based on historical financial data. Forecasted financial data, product pricing, and costs are in 2021 constant dollars. BOYD opines that the production and financial projections are reasonable and are likely to be within ± 20% accuracy level.

11.4.1 Production and Sales Projections

Table 11.4 below, presents frac sand production projections for the years 2022 through 2027.

Table 11.4: Utica Production Projections

	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
ROM Production (000)	982	982	982	982	982
Wet Plant Feed	982	982	982	982	982
Processing Recovery (%)	84.0	84.0	84.0	84.0	84.0
Wet Plant Product	825	825	825	825	825
Dry Plant Feed	825	825	825	825	825
Processing Recovery (%)	97.0	97.0	97.0	97.0	97.0
Dry Plant Product	800	800	800	800	800

Annual forecasted ROM production is based on the dry plant producing 0.8 million tons per year of saleable product after a processing (wet and dry processing plant) loss of approximately 18.5%, as discussed in Chapter 6. Forecasted dry processing plant production is within the operation's current infrastructure capacities and capabilities.

Table 11.5 below, presents frac sand sales projections for the years 2022 through 2026.

Table 11.5: Utica Sales Projections

	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
Tons Sold (000)	800	800	800	800	800
40/70-Mesh and coarser	694	694	694	694	694
70/100-Mesh	106	106	106	106	106
Revenues ($000)	16,000	16,000	16,000	16,000	16,000
Product Pricing ($ per ton sold)					
Average Price for all products	20.00	20.00	20.00	20.00	20.00

Sales of the projected dry processing plant product are about 13% for 70/100-mesh product and approximately 87% for the remaining suite of products (20/40, 30/50, and

40/70-mesh). These are in-line with the reserve product size data provided by Smart Sand.

BOYD used a mine gate sales price of $20.00 per ton, which is slightly less than the current year (2021) average pricing of $20.48 per ton. BOYD opines that these are reasonable price projections, as they are in-line with Smart Sand's mine gate pricing data for 2021.

11.4.2 Operating Cost Projections

Table 11.6 below, presents the cash cost projections for the years 2022 through 2026. These projections were based on a review of prior year and current year cost, and Selling, General and Administrative (SG&A) data provided to BOYD by Smart Sand, as well as other information.

Table 11.6: Annual Cash Cost Projections

	Summary Cash Cost of Goods Sold ($000):				
Cash Operating Expense	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
Wages and benefits	4,800	4,800	4,800	4,800	4,800
Excavation	1,248	1,248	1,248	1,248	1,248
Utilities	1,544	1,544	1,544	1,544	1,544
Equipment	456	456	456	456	456
Maintenance	800	800	800	800	800
Peru Trucking	1,560	1,560	1,560	1,560	1,560
Real Estate taxes	600	600	600	600	600
Other Costs	72	72	72	72	72
Subtotal Cash Operating Expense	11,080	11,080	11,080	11,080	11,080
SG&A	1,136	1,136	1,136	1,136	1,136
Final Reclamation Escrow	54	54	54	54	54
Total Cash Cost of Goods Sold	12,270	12,270	12,270	12,270	12,270

BOYD notes that the Utica Property has no royalty expense as it is owned in fee.

Smart Sand provided BOYD with the current estimated final reclamation cost (approximately $8.6 million) of the Utica operation/sites. BOYD calculated a rate of approximately $0.07 per ton sold to recognize the current estimated cost over the life of the operation.

Table 11.7 below, presents the above table's cost projections on a cost per ton sold basis for the years 2022 through 2026.

Table 11.7: Annual Dollars per Ton Sold Cash Cost Projections

	Summary Cash Cost of Goods Sold ($ per ton sold):				
Cash Operating Expense	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
Wages and benefits	6.00	6.00	6.00	6.00	6.00
Excavation	1.56	1.56	1.56	1.56	1.56
Utilities	1.93	1.93	1.93	1.93	1.93
Equipment	0.57	0.57	0.57	0.57	0.57
Maintenance	1.00	1.00	1.00	1.00	1.00
Peru Trucking	1.95	1.95	1.95	1.95	1.95
Real Estate taxes	0.75	0.75	0.75	0.75	0.75
Other Costs	0.09	0.09	0.09	0.09	0.09
Subtotal Cash Operating Expense	13.85	13.85	13.85	13.85	13.85
SG&A	1.42	1.42	1.42	1.42	1.42
Final Reclamation Escrow	0.07	0.07	0.07	0.07	0.07
Total Cash Cost of Goods Sold	15.34	15.34	15.34	15.34	15.34

11.4.3 Projected Capital Expenditures

Smart Sand provided BOYD with the annual sustaining CapEx estimate of $1 million, which includes maintenance of production equipment as well as other items for the operation.

12.0 ECONOMIC ANALYSIS

12.1 Introduction

Cash flow projections for the Utica operation have been generated from the proposed LOM production schedules, revenues, cost of goods sold (COGS), and CapEx estimates discussed in Chapter 11. A summary of the key assumptions used is provided below.

- LOM ROM frac sand tons and product tons sold were based on the total frac sand reserve estimates discussed in Chapter 6 of this report. BOYD estimates that the Utica operation reserves would be depleted in Year 2182.

- Forecasted revenues at the Peru off-site loadout (mine gate) are based on sales of 20/40, 30/50, 40/70, and 70/100-mesh size products to be delivered to its customer base in the various energy basins via the BNSF railway or other connecting rail carriers.

- Operating and Other Costs (as discussed in Chapter 11) include:
  - Employee wages, and benefits.
  - Excavation.
  - Utilities.
  - Equipment.
  - Maintenance.
  - Peru Trucking Costs.
  - Real Estate Taxes.
  - Other Operating Expenses.
  - SG&A.

- Reclamation costs include:
  - Final reclamation cost to reclaim the Utica operation/sites.

- Capital Expenditures (as discussed in Chapter 11) include:
  - Sustaining/Maintenance.

- Taxes are based on:
  - Federal Business Income Tax Rate of 21%.
  - Illinois Corporate Income and Replacement Tax Rate of 9.5% (reduced to 7.3% after Year 2024).

- Adjustments used to determine After-Tax cash flows:
  - Current depreciation expense was provided by Smart Sand for the Utica operation.

- Depreciation expense, for new fixed assets (from sustaining/maintenance CapEx), is based on a straight-line depreciation calculation using a 10-year asset life.
- Operating losses, if any, are carried forward in the tax computation.

12.2 Economic Analysis

BOYD prepared an economic analysis, as of January 1, 2022, for the Utica Operation using the production, sales, and financial projections presented in this report. Our analysis confirms that the operation generates positive cash flows (based on a 12% discount rate), on a pre-tax and after-tax basis, that supports the statement of frac sand reserves herein.

12.2.1 Cash Flow Analysis

Table 12.1 below presents the pre-tax and after-tax cash flow projections based on the proposed LOM production schedule, revenue, COGS, CapEx and other estimates discussed above for the Utica operation.

Table 12.1: Summary Cash Flow Statement

	Summary Cash Flow Statement ($ 000)											
	2022 to 2031	2032 to 2041	2042 to 2051	2052 to 2061	2062 to 2071	2072 to 2081	2082 to 2091	2092 to 2101	2102 to 2111	2112 to 2121	2122 to 2182	Total
Total Tons Sold (000)	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	48,811	128,811
Revenues	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	976,220	2,576,220
COGS	122,696	122,856	123,016	123,176	123,336	123,496	123,656	123,816	123,976	124,136	767,135	2,001,295
CapEx	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	61,014	161,014
Net Pre-Tax Cash Flow	27,304	27,144	26,984	26,824	26,664	26,504	26,344	26,184	26,024	25,864	148,071	413,911
Federal and State Income Taxes	2,856	7,681	7,636	7,591	7,546	7,501	7,455	7,410	7,365	7,320	40,631	110,992
After-Tax Net Cash Flow	24,448	19,463	19,348	19,233	19,118	19,003	18,889	18,774	18,659	18,544	107,441	302,920

DCF-NPV on a pre-tax and after-tax basis, using discount rates of 10%, 12%, and 15%, were calculated utilizing the cash flows above. The DCF-NPV values used mid-year discounting and all cash flows were on a constant dollar basis.

The pre-tax DCF-NPV ranges from approximately $19.5 million to $28.5 million. The after-tax DCF-NPV ranges from approximately $16.8 million to $23.8 million. Table 12.2 summarizes the results of the pre-tax and after-tax DCF-NPV analyses:

Table 12.2: DCF-NPV

	DCF-NPV ($ 000)		
	10%	12%	15%
Pre-Tax	28,531	24,013	19,483
After-Tax	23,797	20,347	16,824

Refer to Table 12.3 on the next page for the detailed LOM cash flow analysis and corresponding pre-tax and after-tax DCF-NPV analyses at a 12% discount rate.

BOYD notes that the NPV estimate was made for purposes of confirming the economic viability of the reported frac sand reserves and not for purposes of valuing Smart Sand, the Utica operation, or its assets. IRR and project payback were not calculated, as there was no initial investment considered in the financial model. Risk is subjective, as such, BOYD recommends that each reader should evaluate the project based on their own investment criteria.

12.2.2 Sensitivity Analyses

Sensitivity analyses for the pre-tax and after-tax cash flows considering changes to revenues and COGS/CapEx were prepared using discount rates of 10%, 12%, and 15%. Revenues were adjusted in increments of 5% and range from minus 20% to plus 20% of base revenues; the corresponding weighted average sales price would range from $16.00 per ton sold to $24.00 per ton sold, with the base price of $20.00 per ton sold as noted in Table 12.4 below.

Table 12.4: Sensitivity Analysis – Average Sales Prices

Average Sales Price $ per ton sold								
-20.0%	-15.0%	-10.0%	-5.0%	0.0%	5.0%	10.0%	15.0%	20.0%
16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00

Costs were adjusted in increments of 5% and range from minus 20% to plus 20% of base costs.

TABLE 12.3

PRE-TAX AND AFTER-TAX CASH FLOW ANALYSIS
SMART SAND - UTICA OPERATION
LaSalle County, Illinois
Prepared For
SMART SAND, INC
By
John T. Boyd Company
Mining and Geological Consultants
February 2024

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032 to 2041	2042 to 2051	2052 to 2061	2062 to 2071	2072 to 2081	2082 to 2091	2092 to 2101	2102 to 2111	2112 to 2121	2122 to 2182	Total
Production Statistics (Tons 000):																					
ROM Production off Fee Property	982	982	982	982	982	982	982	982	982	982	9,822	9,822	9,822	9,822	9,822	9,822	9,822	9,822	9,822	59,924	158,143
Processing Statistics (Tons 000):																					
Wet Plant Feed	982	982	982	982	982	982	982	982	982	982	9,822	9,822	9,822	9,822	9,822	9,822	9,822	9,822	9,822	59,927	158,145
Processing Recovery (%)	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
Wet Plant Product	825	825	825	825	825	825	825	825	825	825	8,247	8,247	8,247	8,247	8,247	8,247	8,247	8,247	8,247	50,321	132,795
Dry Plant Feed	825	825	825	825	825	825	825	825	825	825	8,247	8,247	8,247	8,247	8,247	8,247	8,247	8,247	8,247	50,321	132,795
Processing Recovery (%)	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0
Dry Plant Product	800	800	800	800	800	800	800	800	800	800	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	48,811	128,811
Overall Processing Recovery (%)	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5
Sales and Financial Data:																					
Saleable Product Tons Sold (000):																					
40/70-Mesh and coarser	693	693	693	693	693	693	693	693	693	693	6,930	6,930	6,930	6,930	6,930	6,930	6,930	6,930	6,930	42,250	111,550
70/100-Mesh	107	107	107	107	107	107	107	107	107	107	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070	6,561	17,261
Total Tons Sold	800	800	800	800	800	800	800	800	800	800	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	48,811	128,811
Product Pricing ($ per ton)																					
40/70-Mesh and coarser	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
70/100-Mesh	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Weighted Average	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Revenues ($ 000)																					
40/70-Mesh and coarser	13,860	13,860	13,860	13,860	13,860	13,860	13,860	13,860	13,860	13,860	138,600	138,600	138,600	138,600	138,600	138,600	138,600	138,600	138,600	845,000	2,231,000
70/100-Mesh	2,140	2,140	2,140	2,140	2,140	2,140	2,140	2,140	2,140	2,140	21,400	21,400	21,400	21,400	21,400	21,400	21,400	21,400	21,400	131,220	345,220
Total Sales Revenues	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	976,220	2,576,220
COGS ($ 000):																					
Cash Operating Expense:																					
Wages and benefits	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	48,000	48,000	48,000	48,000	48,000	48,000	48,000	48,000	48,000	297,600	777,600
Excavation	1,248	1,248	1,248	1,248	1,248	1,248	1,248	1,248	1,248	1,248	12,480	12,480	12,480	12,480	12,480	12,480	12,480	12,480	12,480	76,145	200,945
Utilities	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	15,440	15,440	15,440	15,440	15,440	15,440	15,440	15,440	15,440	94,205	246,605
Equipment	456	456	456	456	456	456	456	456	456	456	4,560	4,560	4,560	4,560	4,560	4,560	4,560	4,560	4,560	28,272	73,872
Maintenance	800	800	800	800	800	800	800	800	800	800	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	48,811	128,811
Peru Trucking	1,560	1,560	1,560	1,560	1,560	1,560	1,560	1,560	1,560	1,560	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	95,181	251,181
Real Estate taxes	600	600	600	600	600	600	600	600	600	600	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	37,200	97,200
Other Costs	72	72	72	72	72	72	72	72	72	72	880	1,040	1,200	1,360	1,520	1,680	1,840	2,000	2,160	17,140	31,540
Total Cash Operating Expense	11,080	11,080	11,080	11,080	11,080	11,080	11,080	11,080	11,080	11,080	110,960	111,120	111,280	111,440	111,600	111,760	111,920	112,080	112,240	694,554	1,809,754
$ per ROM ton	11.28	11.28	11.28	11.28	11.28	11.28	11.28	11.28	11.28	11.28	11.30	11.31	11.33	11.35	11.36	11.38	11.39	11.41	11.43	11.59	11.44
$ per ton sold	13.85	13.85	13.85	13.85	13.85	13.85	13.85	13.85	13.85	13.85	13.87	13.89	13.91	13.93	13.95	13.97	13.99	14.01	14.03	14.23	14.05
S,G&A	1,136	1,136	1,136	1,136	1,136	1,136	1,136	1,136	1,136	1,136	11,360	11,360	11,360	11,360	11,360	11,360	11,360	11,360	11,360	69,312	182,912
$ per ton sold	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Final Reclamation Escrow	54	54	54	54	54	54	54	54	54	54	536	536	536	536	536	536	536	536	536	3,269	8,629
$ per ton sold	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Total COGS	12,270	12,270	12,270	12,270	12,270	12,270	12,270	12,270	12,270	12,270	122,856	123,016	123,176	123,336	123,496	123,656	123,816	123,976	124,136	767,135	2,001,295
$ per ton sold	15.34	15.34	15.34	15.34	15.34	15.34	15.34	15.34	15.34	15.34	15.36	15.38	15.40	15.42	15.44	15.46	15.48	15.50	15.52	15.72	15.54
EBITDA	3,730	3,730	3,730	3,730	3,730	3,730	3,730	3,730	3,730	3,730	37,144	36,984	36,824	36,664	36,504	36,344	36,184	36,024	35,864	209,085	574,925
$ per ton sold	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.64	4.62	4.60	4.58	4.56	4.54	4.52	4.50	4.48	4.28	4.46
CapEx ($ 000):																					
Total CapEx	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	61,014	161,014
Net Pre-Tax Cash Flow	2,730	2,730	2,730	2,730	2,730	2,730	2,730	2,730	2,730	2,730	27,144	26,984	26,824	26,664	26,504	26,344	26,184	26,024	25,864	148,071	413,911
Federal Income and State Franchise Taxes	196	166	147	183	293	266	238	209	387	772	7,681	7,636	7,591	7,546	7,501	7,455	7,410	7,365	7,320	40,631	110,992
After-Tax Net Cash Flow	2,534	2,565	2,584	2,547	2,437	2,464	2,493	2,521	2,344	1,958	19,463	19,348	19,233	19,118	19,003	18,889	18,774	18,659	18,544	107,441	302,920
DCF-NPV Analysis:																					
Pre-Tax Discounted Cash Flows at 12%	2,580	2,304	2,057	1,836	1,640	1,464	1,307	1,167	1,042	930	5,226	1,673	535	171	55	18	6	2	1	0	24,013
Cumulative Pre-Tax Discounted Cash Flows at 12%	2,580	4,884	6,940	8,777	10,416	11,880	13,187	14,354	15,396	16,327	21,553	23,225	23,761	23,932	23,987	24,005	24,010	24,012	24,013	24,013	
After-Tax Discounted Cash Flows at 12%	2,395	2,164	1,946	1,713	1,463	1,321	1,193	1,078	894	667	3,747	1,199	384	123	39	13	4	1	0	0	20,347
Cumulative After-Tax Discounted Cash Flows at 12%	2,395	4,559	6,505	8,218	9,682	11,003	12,196	13,274	14,168	14,836	18,583	19,782	20,166	20,289	20,328	20,341	20,345	20,346	20,347	20,347	

12.2.2.1 Pre-Tax Sensitivity Analyses

The following three tables (Tables 12.5–12.7) summarize the results of the pre-tax sensitivity analyses performed, which utilize discount rates of 10%, 12%, and 15% and incorporate the changes to revenue and COGS/CapEx discussed above:

Table 12.5: Pre-Tax DCF-NPV at 10%

Pre-Tax DCF-NPV @ 10% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	0.0%	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	22.8	31.2	39.6	48.0	56.4	64.7	73.1	81.5	89.9
	-15.0%	15.8	24.2	32.6	41.0	49.4	57.8	66.2	74.6	83.0
	-10.0%	8.9	17.3	25.7	34.1	42.4	50.8	59.2	67.6	76.0
	-5.0%	1.9	10.3	18.7	27.1	35.5	43.9	52.3	60.7	69.0
	0.0%	(5.0)	3.4	11.8	20.1	28.5	36.9	45.3	53.7	62.1
	5.0%	(12.0)	(3.6)	4.8	13.2	21.6	30.0	38.4	46.7	55.1
	10.0%	(18.9)	(10.6)	(2.2)	6.2	14.6	23.0	31.4	39.8	48.2
	15.0%	(25.9)	(17.5)	(9.1)	(0.7)	7.7	16.1	24.4	32.8	41.2
	20.0%	(32.9)	(24.5)	(16.1)	(7.7)	0.7	9.1	17.5	25.9	34.3

Table 12.6: Pre-Tax DCF-NPV at 12%

Pre-Tax DCF-NPV @ 12% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	0.0%	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	19.2	26.3	33.3	40.4	47.4	54.5	61.5	68.6	75.6
	-15.0%	13.3	20.4	27.5	34.5	41.6	48.6	55.7	62.7	69.8
	-10.0%	7.5	14.6	21.6	28.7	35.7	42.8	49.8	56.9	63.9
	-5.0%	1.6	8.7	15.8	22.8	29.9	36.9	44.0	51.0	58.1
	0.0%	(4.2)	2.8	9.9	17.0	24.0	31.1	38.1	45.2	52.2
	5.0%	(10.1)	(3.0)	4.1	11.1	18.2	25.2	32.3	39.3	46.4
	10.0%	(15.9)	(8.9)	(1.8)	5.3	12.3	19.4	26.4	33.5	40.5
	15.0%	(21.8)	(14.7)	(7.7)	(0.6)	6.5	13.5	20.6	27.6	34.7
	20.0%	(27.6)	(20.6)	(13.5)	(6.4)	0.6	7.7	14.7	21.8	28.8

Table 12.7: Pre-Tax DCF-NPV at 15%

Pre-Tax DCF-NPV @ 15% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	0.0%	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	15.6	21.3	27.0	32.7	38.5	44.2	49.9	55.6	61.3
	-15.0%	10.8	16.6	22.3	28.0	33.7	39.4	45.2	50.9	56.6
	-10.0%	6.1	11.8	17.5	23.3	29.0	34.7	40.4	46.1	51.8
	-5.0%	1.3	7.1	12.8	18.5	24.2	29.9	35.7	41.4	47.1
	0.0%	(3.4)	2.3	8.0	13.8	19.5	25.2	30.9	36.6	42.4
	5.0%	(8.1)	(2.4)	3.3	9.0	14.7	20.5	26.2	31.9	37.6
	10.0%	(12.9)	(7.2)	(1.4)	4.3	10.0	15.7	21.4	27.2	32.9
	15.0%	(17.6)	(11.9)	(6.2)	(0.5)	5.2	11.0	16.7	22.4	28.1
	20.0%	(22.4)	(16.7)	(10.9)	(5.2)	0.5	6.2	11.9	17.7	23.4

12.2.2.2 After-Tax Sensitivity Analyses

The following three tables (Tables 12.8–12.10) summarize the results of the after-tax sensitivity analyses performed, which utilize discount rates of 10%, 12%, and 15% and incorporate the changes to revenues and COGS/CapEx discussed above:

Table 12.8: After-Tax DCF-NPV at 10%

After-Tax DCF-NPV @ 10% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	**0.0%**	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	19.9	25.9	31.9	37.8	43.8	49.8	55.7	61.7	67.7
	-15.0%	14.4	20.9	26.9	32.8	38.8	44.8	50.7	56.7	62.7
	-10.0%	8.6	15.5	21.9	27.8	33.8	39.8	45.7	51.7	57.7
	-5.0%	1.9	9.8	16.6	22.8	28.8	34.8	40.7	46.7	52.7
	0.0%	(5.0)	3.4	11.0	17.7	**23.8**	29.8	35.7	41.7	47.7
	5.0%	(12.0)	(3.6)	4.8	12.2	18.8	24.8	30.7	36.7	42.7
	10.0%	(18.9)	(10.6)	(2.2)	6.1	13.3	19.8	25.7	31.7	37.7
	15.0%	(25.9)	(17.5)	(9.1)	(0.7)	7.4	14.5	20.7	26.7	32.7
	20.0%	(32.9)	(24.5)	(16.1)	(7.7)	0.7	8.7	15.6	21.7	27.7

Table 12.9: After-Tax DCF-NPV at 12%

After-Tax DCF-NPV @ 12% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	**0.0%**	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	17.1	22.1	27.1	32.2	37.2	42.2	47.2	52.2	57.2
	-15.0%	12.4	17.9	22.9	28.0	33.0	38.0	43.0	48.0	53.0
	-10.0%	7.3	13.3	18.7	23.7	28.8	33.8	38.8	43.8	48.8
	-5.0%	1.6	8.4	14.3	19.5	24.6	29.6	34.6	39.6	44.6
	0.0%	(4.2)	2.8	9.4	15.2	**20.3**	25.4	30.4	35.4	40.4
	5.0%	(10.1)	(3.0)	4.0	10.4	16.1	21.2	26.2	31.2	36.2
	10.0%	(15.9)	(8.9)	(1.8)	5.2	11.4	16.9	22.0	27.0	32.0
	15.0%	(21.8)	(14.7)	(7.7)	(0.6)	6.3	12.4	17.8	22.8	27.8
	20.0%	(27.6)	(20.6)	(13.5)	(6.4)	0.6	7.4	13.4	18.6	23.6

Table 12.10: After-Tax DCF-NPV at 15%

After-Tax DCF-NPV @ 15% (US$ millions)										
		Revenues								
		-20.0%	-15.0%	-10.0%	-5.0%	**0.0%**	5.0%	10.0%	15.0%	20.0%
COGS and CapEx	-20.0%	14.2	18.3	22.4	26.4	30.5	34.5	38.6	42.6	46.7
	-15.0%	10.3	14.9	18.9	23.0	27.1	31.1	35.2	39.2	43.3
	-10.0%	6.0	11.1	15.5	19.6	23.6	27.7	31.8	35.8	39.9
	-5.0%	1.3	6.9	11.9	16.2	20.2	24.3	28.4	32.4	36.5
	0.0%	(3.4)	2.3	7.8	12.7	**16.8**	20.9	24.9	29.0	33.1
	5.0%	(8.1)	(2.4)	3.3	8.6	13.4	17.5	21.5	25.6	29.6
	10.0%	(12.9)	(7.2)	(1.4)	4.3	9.5	14.1	18.1	22.2	26.2
	15.0%	(17.6)	(11.9)	(6.2)	(0.5)	5.2	10.3	14.7	18.8	22.8
	20.0%	(22.4)	(16.7)	(10.9)	(5.2)	0.5	6.1	11.1	15.4	19.4

13.0 PERMITTING AND COMPLIANCE

13.1 Permitting

The Illinois Department of Natural Resources (IDNR) requires a Surface Mining Permit for all operations that affect over 10 acres per year by mining or remove more than 10 ft of overburden (soil on top of the rock or mineral being extracted). A Surface Mining Permit application requires the operator to submit an operating plan that illustrates how the land will be affected by mining operations as well as a reclamation plan that describes how the mined land will be restored for future use. The mine reclamation plan must be submitted for review to the LaSalle County Board. If the County Board requests, a public hearing will be scheduled by the IDNR to receive comments on the proposed reclamation plan. The Utica operation has a current IDNR permit.

Air emissions at the Utica facility are regulated by the Illinois Environmental Protection Agency. A Title V permit for air emissions is currently issued to Northern White Sand Company (Permit # 170090027), the company that filed the permit application prior to Smart Sand's acquisition.

13.2 Compliance

Mine safety is regulated by the federal government by MSHA as are all surface mining operations. MSHA inspects the facilities a minimum of twice yearly. Smart Sand's safety record compares favorably with its regional peers.

Based on our review of information provided by Smart Sand and available public information, it is BOYD's opinion that the Utica Mine's record of compliance with applicable mining, water quality, and environmental regulations is generally typical for that of the industry. BOYD is not aware of any regulatory violation or compliance issue which would materially impact the frac sand reserve estimate.

14.0 INTERPRETATION AND CONCLUSIONS

14.1 Findings

Based on our independent technical review and geoscientific study of the Utica Mine, BOYD concludes:

- Sufficient data have been obtained through the site exploration and sampling program and mining operations to support the geological interpretations of seam thickness, grain size distribution and API quality for the portions of the sand underlying the controlled property. The data are of sufficient quantity and reliability to reasonably support the sand resource and sand reserve estimates in this technical report summary.
- Estimates of proppant sand reserves reported herein are reasonably and appropriately supported by technical studies, which consider mining plans, revenue, and operating and capital cost estimates.
- The 128.8 million product tons of frac sand reserves (as of December 31, 2021) identified on the property are economically extractable under reasonable expectations of market volumes and pricing for proppant sand products, estimated operation costs, and capital expenditures.
- There is no other relevant data or information material to the Utica Mine that is necessary to make this technical report summary not misleading.

14.2 Significant Risks and Uncertainties

As with any mining project there are certain inherent risks associated with the overall operation of a facility. Smart Sand has sufficiently mitigated operational risk through obtaining sufficient geologic sampling information and analysis. Additionally, Smart Sand has engineered the processing plant to include parallel duplicate process circuits which significantly increases plant availability. However, it should be noted that frac sand is generally marketed exclusively to the energy industry which has historically been a volatile industry.

TECHNICAL REPORT SUMMARY
FRAC SAND RESOURCES AND RESERVES
BLAIR MINE

Jackson and Trempeleau Counties, Wisconsin

Prepared For

SMART SAND, INC.

Spring, Texas

By

John T. Boyd Company

Mining and Geological Consultants

Pittsburgh, Pennsylvania

Report No. 3555.024

FEBRUARY 2024

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February 28, 2024
File: 3555.024

Mr. Christopher Green, CPA
Controller
Smart Sand, Incorporated
1000 Floral Vale Boulevard, Suite 225
Yardley, PA 19067

Subject: Technical Report Summary
Frac Sand Resources and Reserves
Blair Mine
Jackson and Trempeleau Counties, Wisconsin

Dear Mr. Green:

This SK-1300-compliant technical report summary provides the results of John T. Boyd Company's (BOYD) independent audit of the frac (proppant) sand resources and reserves for Smart Sand, Inc.'s (Smart Sand) holdings as of December 31, 2022.

We wish to acknowledge the cooperation of Smart Sand management and staff for providing the technical, financial, and legal information used in completing this project. Our findings are based on BOYD's extensive experience in preparing frac sand resource and reserve estimates used in US Securities and Exchange Commission (SEC) filings, and our knowledge of frac sand mining in Wisconsin and throughout North America.

Respectfully submitted,

JOHN T. BOYD COMPANY
By:

John T. Boyd II
President and CEO

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GLOSSARY OF ABBREVIATIONS AND DEFINITIONS

000	:	Thousand(s)
$	:	US dollar(s)
%	:	Percent or percentage
AMSL	:	Above mean sea level
API	:	American Petroleum Institute
ARO	:	Asset Retirement Obligation(s)
ASP	:	Average Selling Price
ASTM	:	ASTM International (formerly American Society for Testing and Materials)
BNSF	:	BNSF Railway Company
BOYD	:	John T. Boyd Company
CapEx	:	Capital expenditures
CER	:	Canadian Energy Regulator
CN	:	Canadian National Railway
Constant Dollar	:	A monetary measure that is not influenced by inflation and used to compare time periods. Sometimes referred to as “real dollars”.
COGS	:	Cost of Goods Sold
CUP	:	Conditional Use Permit
DCF	:	Discounted Cash Flow
Discount Rate	:	A rate of return used to discount future cash flows based on the return investors expect to receive from their investment.
E&P	:	Exploration and Production
EBIT	:	Earnings before interest and taxes
EBITDA	:	Earnings before interest, taxes, depreciation, and amortization
ESA	:	Environmental Site Assessment
Frac Sand	:	*See “Proppant Sand”*
ft	:	Foot/feet

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

Hi-Crush	:	Hi-Crush Proppants LLC
Indicated Proppant Sand Resource	:	That part of a proppant sand resource for which quantity and quality are estimated based on adequate geological evidence and sampling. The level of geological certainty associated with an indicated proppant sand resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated proppant sand resource has a lower level of confidence than the level of confidence of a measured proppant sand resource, an indicated proppant sand resource may only be converted to a probable proppant sand reserve.
Inferred Proppant Sand Resource	:	That part of a proppant sand resource for which quantity and quality are estimated based on limited geological evidence and sampling. The level of geological uncertainty associated with an inferred proppant sand resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred proppant sand resource has the lowest level of geological confidence of all proppant sand resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred proppant sand resource may not be considered when assessing the economic viability of a mining project, and may not be converted to a proppant sand reserve.
IRR	:	Internal rate-of-return
ISO		International Organization for Standardization
ISP	:	Industrial and Specialty Products
lb	:	Pound
LOM	:	Life-of-Mine
Measured Proppant Sand Resource	:	That part of a proppant sand resource for which quantity and quality are estimated based on conclusive geological evidence and sampling. The level of geological certainty associated with a measured proppant sand resource is sufficient to allow a qualified person to apply modifying factors, as defined herein, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured proppant sand resource has a higher level of confidence than the level of confidence of either an indicated proppant sand resource or an inferred proppant sand resource, a measured proppant sand resource may be converted to a proven proppant sand reserve or

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

		to a probable proppant sand reserve
Mesh	:	A measurement of particle size often used in determining the size distribution of granular material.
Mineral Reserve	:	*See "Proppant Sand Reserve"*
Mineral Resource	:	*See "Proppant Sand Resource"*
Modifying Factors		The factors that a qualified person must apply to indicated and measured proppant sand resources and then evaluate to establish the economic viability of proppant sand reserves. A qualified person must apply and evaluate modifying factors to convert measured and indicated proppant sand resources to proven and probable proppant sand reserves. These factors include but are not restricted to: mining; processing; infrastructure; economic; marketing; legal; environmental compliance; plans, negotiations, or agreements with local individuals or groups; and governmental factors. The number, type and specific characteristics of the modifying factors applied will necessarily be a function of and depend upon the mineral, mine, property, or project.
MSHA	:	Mine Safety and Health Administration. A division of the U.S. Department of Labor
MSGP	:	Multi-Sector General Permit
NTU	:	Nephelometric turbidity units.
NPV	:	Net Present Value
NWS	:	Northern White Sand
O&G	:	Oil and Gas
Probable Proppant Sand Reserve	:	The economically mineable part of an indicated and, in some cases, a measured proppant sand resource.
Production Stage Property	:	A property with material extraction of proppant sand reserves.
Proppant Sand	:	Proppant (frac) sand is a naturally occurring, high silica content quartz sand, with grains that are generally well rounded and exhibit high compressive strength characteristics relative to other proppant sand. It is utilized as a prop or "proppant" in unconventional shale frac well completions.
Proppant Sand Reserve	:	Proppant sand reserve is an estimate of tonnage and grade or quality of indicated and measured proppant sand resources that,

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

		in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated Proppant sand resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.
Proppant Sand Resource	:	Proppant sand resource is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A proppant sand resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.
Proven Proppant Sand Reserve	:	The economically mineable part of a measured proppant sand resource which can only result from conversion of a measured proppant sand resource.
PSI	:	Pounds per square inch
PST	:	Petroleum Storage Tank
QP	:	Qualified Person
Qualified Person	:	An individual who is: 1. A mineral industry professional with at least five years of relevant experience in the type of mineralization and type of deposit under consideration and in the specific type of activity that person is undertaking on behalf of the registrant; and 2. An eligible member or licensee in good standing of a recognized professional organization at the time the technical report is prepared. For an organization to be a recognized professional organization, it must: a. Be either: i. An organization recognized within the mining industry as a reputable professional association; or ii. A board authorized by U.S. federal, state, or foreign statute to regulate professionals in the mining, geoscience, or related field; b. Admit eligible members primarily based on their academic qualifications and experience; c. Establish and require compliance with professional standards of competence and ethics;

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

		d. Require or encourage continuing professional development; e. Have and apply disciplinary powers, including the power to suspend or expel a member regardless of where the member practices or resides; and f. Provide a public list of members in good standing.
ROM	:	Run-of-Mine. The processing feed material, including proppant sand and any inseparable waste, excavated from the mine.
SEC	:	U.S. Securities and Exchange Commission
SG&A	:	Selling, General & Administrative
S-K 1300	:	Subpart 1300 and Item 601(b)(96) of the U.S. Securities and Exchange Commission's Regulation S-K
SWPPP	:	Stormwater Pollution Prevention Plan
Thein	:	Thein Well Services, Incorporated
Ton	:	Short Ton. A unit of weight equal to 2,000 pounds
WCS	:	Western Canadian Select
WDNR	:	Wisconsin Department of Natural Resources
WIP	:	Work-in-progress

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

BOYD was retained by Smart Sand to complete an independent reserve estimate of mineral resources and mineral reserves—hereafter referred to as proppant sand resource and proppant sand reserves—for their active mining operation located in Blair, Wisconsin (the "Blair Operation"). Smart Sand purchased the Blair Operation in March 2022 from Hi-Crush LLC. Hi-Crush LLC was the original developer of the mine and property.

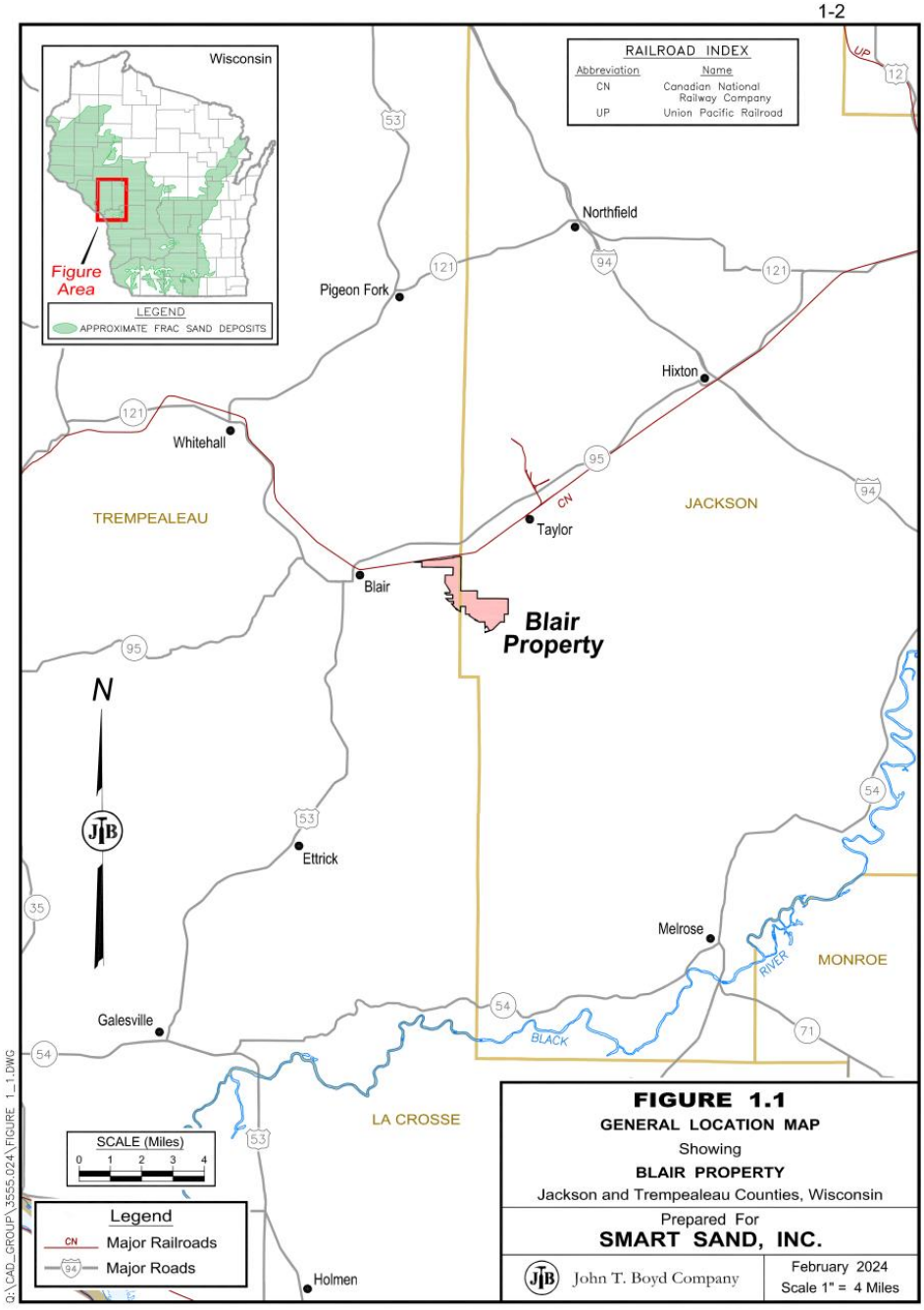
This report summarizes the results of our review and satisfies the requirements for Smart Sand's disclosure of frac sand resources and reserves set forth in Subpart 1300 and Item 601(b)(96) of the SEC's Regulation S-K (S-K 1300). This is the first technical report summary filed by Smart Sand for the Blair Operation.

BOYD's findings are based on our detailed examination of the supporting geologic, technical, and economic information obtained from: (1) Smart Sand provided files, (2) discussions with Smart Sand personnel, (3) records on file with regulatory agencies, (4) public sources, and (5) nonconfidential BOYD files. Our investigation was performed to obtain reasonable assurance that Smart Sand's proppant sand resource and reserve statements are free from material misstatement. This report provides results of an independent estimate of the proppant sand resources and reserves underlying the Blair, Wisconsin property. It should be noted that all of the proppant sand resources on the property have been converted to proppant sand reserves, and there are no additional resources to report.

This chapter provides a summary of primary information contained within this technical report summary and is supported by remaining portions of this report including text, figures, and tables. Weights and measurements are expressed in US customary units. Unless noted, the effective date of the information, including estimates of proppant sand reserves, is December 31, 2022.

1.2 Property Description

Smart Sand's Blair Operation is a surface mining operation located in Trempealeau and Jackson counties, Wisconsin. Proppant sand is mined from the Wonewoc Formation Sandstone, which has historically been the subject of extensive proppant sand mining in the area. Smart Sand controls approximately 1,285 contiguous acres of property which is owned fee simple. The general location of this property (the "Blair Operation") is provided on Figure 1.1, on the following page.


Wisconsin
Figure Area
LEGEND
APPROXIMATE FRAC SAND DEPOSITS
RAILROAD INDEX
Abbreviation Name
CN Canadian National Railway Company
UP Union Pacific Railroad
Northfield
Pigeon Fork
Hixton
Whitehall
TREMPEALEAU
JACKSON
Taylor
Blair
Blair Property
N
Ettrick
Melrose
MONROE
Galesville
BLACK RIVER
LA CROSSE
Holmen
SCALE (Miles)
0 1 2 3 4
Legend
Major Railroads
Major Roads
FIGURE 1.1
GENERAL LOCATION MAP
Showing
BLAIR PROPERTY
Jackson and Trempealeau Counties, Wisconsin
Prepared For
SMART SAND, INC.
John T. Boyd Company
February 2024
Scale 1" = 4 Miles
Q:\CAD_GROUP\3555.024\FIGURE 1_1.DWG

1.3 Geology

The Blair Operation's target silica bearing formation is the Wonewoc Sandstone, which is a massive formation in areal extent and thickness. Aerially, it extends from Minnesota to Arkansas and from Wisconsin into Nebraska and South Dakota. On a regional basis, the Wonewoc ranges in thickness from a few feet to over 200 ft, with a general thickness between 100 ft to 200 ft, reaching over 200 ft thick in portions of northern Wisconsin.

The surface of the Blair Operation is overlain by a combination of shale, clayey sands, and soils material that ranges in thickness from 1 ft to 105 ft, with an average thickness of approximately 30 ft throughout the mineable portion of the property.

The Wonewoc deposit within the Blair Operation property is flat lying with no evidence of faulting, and has been partially eroded to an average thickness of approximately 106 ft. The Wonewoc Sandstone can be generally described as well sorted, well rounded, fine to medium size frosted grains of exceptionally pure quartz sands, which are free from deleterious materials and weakly cemented. As such, the sand is valued in the marketplace for its high silica content, grain roundness, grain strength and other attractive proppant sand properties.

Grain size distribution and overburden thickness drives the mine planning. Sand intervals sampled indicate grain size becomes coarser in the middle portions of the mineable interval. These coarser intervals are approximately 40 ft thick and yield between 33% and 41% 20/40-mesh material.

The overburden is at its thinnest on the western portion of the property where the Wonewoc Sandstone outcrops. Overburden material in this area can be removed with simple conventional extraction and scraping methods. Conversely, the overburden is thickest in the south and eastern edge of the property, beneath several shallow ridges. In areas of the highest topography, the overburden will most likely become competent and require drilling and blasting before excavation.

1.4 Exploration

Based on available information, there were two exploration drilling programs performed on the Blair property: first in 2012 and a second in 2014. Overall, there have been 12

drill holes completed on the property to date. Table 1.1, below, summarizes exploration work completed during these drilling campaigns.

Table 1.1: Blair Mine Exploration Drilling Summary

Year	Number of Holes Drilled	Driller	Method	Total Footage
2012	5	Thein	Air Rotary	704
2014	7	Cascade	Rotosonic	1,045
	12			1,749

BOYD reviewed drilling and sampling methodologies utilized in the drilling campaigns at the Blair Operation, as well as equipment used, sampling, logging, and field work performed. We note that methodologies and procedures indicate that the data obtained were carefully and professionally collected, prepared, and documented in conformance with generally accepted industry standards. BOYD opines that work conducted is thorough and complete for purposes of evaluating and estimating proppant sand resources and reserves at the Blair Operation.

1.5 Frac Sand Reserves and Quality

This technical report summary provides an estimate of frac sand reserves for Smart Sand's Blair Operation in accordance with the requirements set forth in S-K 1300. This estimate was independently prepared by BOYD, and this report includes conclusions from a thorough geologic investigation of the property, appropriate modeling of the deposit, development of life-of-mine (LOM) plans, and consideration of the relevant processing, economic (including independent estimates of capital, revenue, and cost), marketing, legal, environmental, socio-economic, and regulatory factors.

Smart Sand's estimated surface mineable proppant sand reserves for the Blair Operation total 115.3 million saleable product tons, as of December 31, 2022.

Table 1.2, below, presents the estimated reserve tons by product (size), that are anticipated to be produced at Smart Sand's Blair property.

Table 1.2: Smart Sand Blair Reserve Tons as of December 31, 2022

Proven Reserves (000 Tons) By Mesh-Size					
20/40	40/70	70/140	30/50*	50/140*	Total
40,695	54,877	19,707	56,494	44,176	115,279

*These product sizes may only be produced in-lieu of an equivalent percentage of other overlapping product sizes, and are not additive.

The reported reserves include only proppant sand which is reportedly owned as of December 31, 2022. It is BOYD's opinion that extraction of the reported frac sand reserves is technically achievable and economically viable after the consideration of potentially material modifying factors.

Projecting the average sales volume of approximately 1.965 million tons per year, the operation has an expected LOM of approximately 58 years.

Composite samples collected during each of the drilling campaigns were tested by PropTester, Inc (PropTester), Cyprus, Texas, for API RP 19C/ISO 13503-2 (API/ISO) proppant sand characteristics. Testing was performed on composite samples created from 20/40, 30/50, 40/70, and 50/140-mesh (100-mesh) product splits. The API/ISO testing results are presented in Table 1.3, below.

Table 1.3: Summary of Select API/ISO Test Results and Associated Recommended Specifications

Test	Result 20/40-mesh	Result 30/50-mesh	API/ISO Recommended Specification	Result 40/70-mesh	API/ISO Recommended Specification	50/140 mesh Result*
Sphericity	0.8	0.7	≥ 0.6	0.8	0.6≥	0.7
Roundness	0.8	0.8	≥ 0.6	0.8	0.6≥	0.8
Acid Solubility (%)	1.9	1.8	≤ 2.0	1.8	≤2.0	2.4
Turbidity (NTU)	9	11	≤ 250	9	≤250	14
K-Value (000 psi)	5	8	-	10	-	13

*Currently, 100-mesh proppant sad material does not have an API/ISO recommended specification.

The composite sample testing indicates that the Blair Operation is able to produce frac sand products which meet minimum API/ISO recommended testing characteristics. BOYD notes that the Blair Operation has a prior history of selling various frac sand sized products to oil service companies prior to the Smart Sand acquisition in 2022.

1.6 Operations

1.6.1 Mining

The Blair Operation can produce up to 1.96 million tons of finished product per year. The quarry exploits the Wonewoc Sandstone formation which is extensively mined in the Blair, Wisconsin area. To produce 1.96 million tons of frac sand product, approximately 2.62 million tons of ROM sand is uncovered, drilled, blasted, and then hauled to the processing plant. Conventional excavators, front-end loaders, articulated haul trucks and dozers are used to strip the overburden and recover the sand. Initially, the deposit outcrops on the western end where current operations are expected to resume. Thus, no overburden is removed prior to exposing the approximately 106 ft thick sand formation.

It is anticipated that the mine pit operates two, eight-hour shifts, four days per week resulting in a 40-hour work week per shift. A Friday and Saturday will be added if needed based on product demand.

The sand is mined and processed in the wet processing plant on the northern section of the property. The wet process plant product is then conveyed to the dry processing plant on the northern section where it is then stored in one of five 5,000 tons rail silos for shipping. Recent historic run-of-mine (ROM) production and forecast ROM production are illustrated in Tables 1.4 and 1.5:

Table 1.4: Historic ROM Production

Year	Finished Tons (000)
2016	3,573
2017	4,079
2018	4,078
2019	3,432

Table 1.5: Forecasted ROM Production Tons

	Year 2023	Year 2024	Year 2025	Year 2026	Year 2027
ROM Production tons (000)	816	1,640	1,968	2,165	2,381

The average process yield is reported to be 75%; as such, 1 million ROM tons are expected to produce approximately 750,000 tons of finished product.

The LOM plan, contained in Chapter 7, assumes a steady-state increase in sales volume from 2023 to 2028 until nominal plant capacity of 1.96 million tons is achieved in 2028. The mine and plant will operate at this rate until 2081 when the deposit is depleted. Future mine plan production, and hence the longevity of the mine, is directly related to energy market demand for Frac sand. Actual yearly production volumes may, and are likely to, fluctuate significantly based on this demand.

1.6.2 Processing

The Blair plant commenced wash plant operations in 2016. It shut down in 2020 due to the COVID-19 pandemic and has been on care and maintenance since then. The ROM sand material is hauled to an in-pit feed hopper where it is crushed and conveyed to a wet process plant. Following removal of oversize and waste (<140-mesh) material, the sand is conveyed to the drying and screening plant. Finished product is stored in silos and is railed to multiple oil and gas well service customers via the Canadian National Railway (CN).

The wet plant employs typical screen/hydrosizer/cyclone classification and dewatering technology and also has an ultrafine circuit and thickener. The wet plant operates 24 hours a day, 4-5 days a week between March and November. Winter weather shuts the mine and wet processing plant down. A substantial stockpile is created to allow the dry processing plant to continue to run 24 hours a day, 365 days a year. An overland conveyor transports the wet process feed to two 200 tons per hour (tph) natural gas fired dryer. Dry sand is then screened into predominantly 20/40-mesh, 30/50-mesh, 40/70-mesh, and 50/140-mesh (100-mesh) finished products. The finished products are stored in five 5,000-ton loadout silos before being railed to customers.

1.6.3 Infrastructure

Electricity for the Blair Mine is serviced by Xcel Energy that is routed along the CN corridor, which runs north of the northern property line. The pipeline providing natural gas supply for the drying equipment is also routed along this corridor and is supplied by We Energies. Plant process water is supplied by wells drilled on the property as well as water collected in the pit and ponds. Additionally, the wash process water is recycled after fines are removed via settling with a flocculent in a thickener and series of constructed ponds. Potable water is provided by one of the wells on site and by water bottles and jugs delivered.

On-site facilities include a scale house, office, shop, and a quality laboratory located in the dry process plant. While in production, the Blair Operation employs approximately 54 people and staffing varies based on production demand.

1.7 Financial Analysis

1.7.1 Market Analysis

Although Smart Sand's market area is essentially all of the energy basins in the United States and Western Canada, we have selectively focused on the Montney and Marcellus/Utica (Appalachia Region) as these are target markets for their proppant sand. The Blair Mine has advantaged delivered cost to the Marcellus/Utica and Montney Basins as the Blair Mine directly loads onto the CN; a very competitive option for eastbound/westbound sand to the Marcellus/Utica and Montney basins. Blair owns a loadout at the site which enables them to load directly on the CN. A high-level overview of demand in these basins follows.

1.7.2 Montney Basin

The Montney Basin was discovered as a large source of tight oil in 2005 and with the advancement of horizontal drilling techniques, it has become a strong producer of hydrocarbons in Western Canada. Figure 1.2, following this page, shows the general location of the Montney Basin and all oil and gas wells drilled since 2005. After rising quickly between 2005 and 2014, prices retreated due to surplus of oil production in the market. Prices have been steady (with the exception of 2020 COVID), averaging between the high $30's and low $40's per barrel.

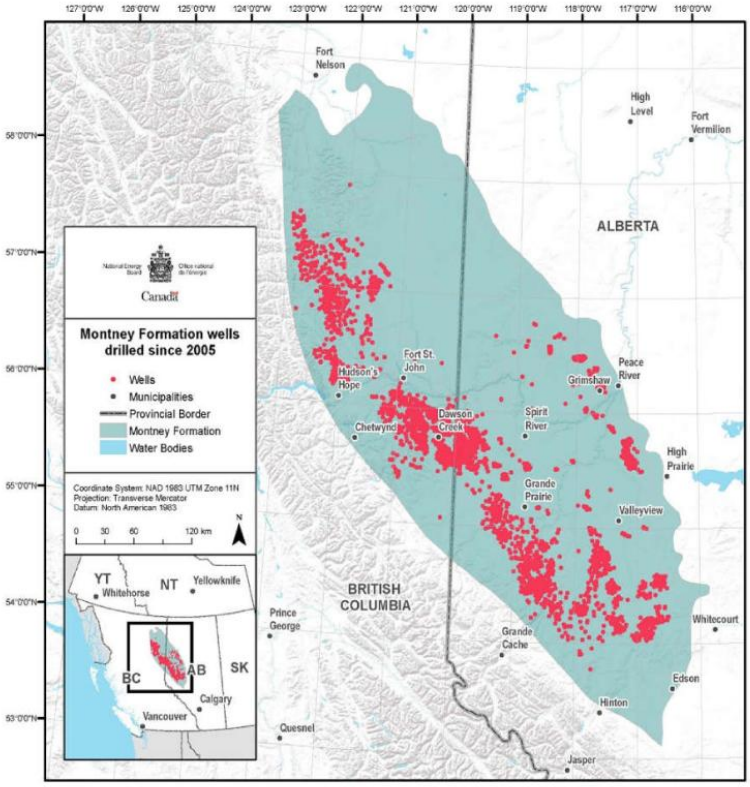


Figure 1.2: General Overview of the Montney Basin and all Oil and Gas Wells Drilled Since 2005 (Source: CER)

Figure 1.3, below, illustrates the average annual price for Western Canadian Select (WCS) crude oil located in Alberta and British Columbia.

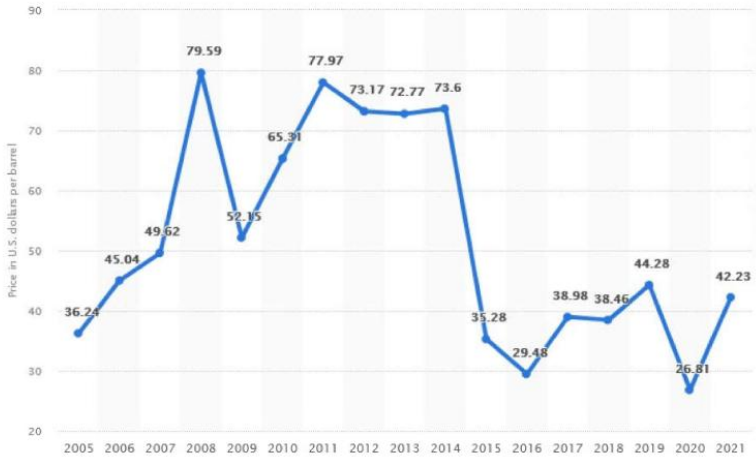


Figure 1.3: Average Annual Western Canada Select Oil Prices (Source: Statista)

Rig counts in Western Canada indicate a rebound of drilling activity over the past three years. The number of rigs working this winter is growing to three-year highs as illustrated in Figure 1.4 below.

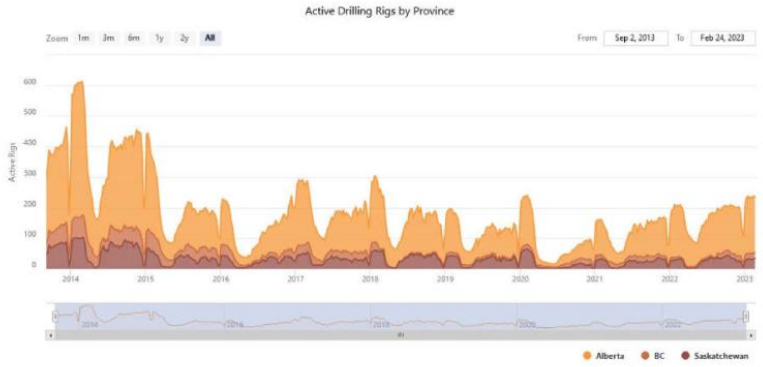


Figure 1.4: Active Drilling Rigs in Western Canada (Source: CAOEC)

Since reaching a low of nine active rigs in Alberta in 2020, active drilling has rebounded to 183 as of February 2023. According to the Canadian Energy Regulator (CER) and is shown in Figure 1.5, below, Alberta daily tight crude oil production is continuing to increase and is forecasted to achieve more gains through 2030.

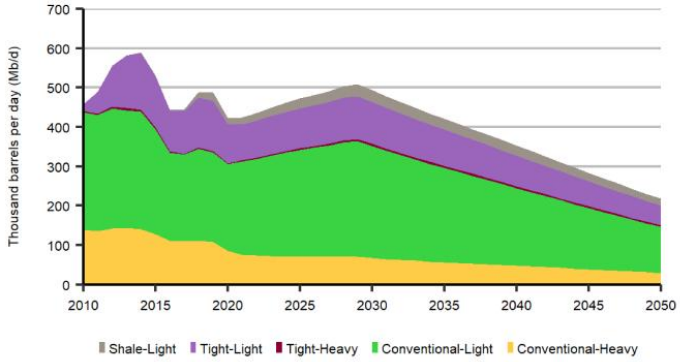


Figure 1.5: Current and Forecasted Oil Production in Alberta (Source: CER)

The Montney Basin is chiefly reliant on imported sand for drilling oil and gas wells and Northern White Sand (NWS) from the Wisconsin area remains an important product for many well applications.

1.7.3 Appalachian Basin (Marcellus/Utica Basins)

The Appalachian Basin predominantly consists of the Marcellus and Utica shale plays. They are substantial natural gas and oil plays in North America and a target market for the Blair Operation. Like the Montney, the Appalachian imports most of the proppant sand. Very few notable in-basin sand operations exist. This creates an advantaged situation for the Blair Mine as there are few substitutes transport wise to the basin.

Following the energy downturn in 2019 and then Covid shutdown in 2020, the basin wellfield activity appears to be rebounding. Horizontal rigs have stabilized over the past two years as can be seen in Figure 1.6, but gas production per rig is substantially higher. Energy companies are drilling longer laterals and

optimizing each well pad; becoming more efficient from a cost perspective and overall natural gas production is stable as can be seen from Figure 1.7, below.

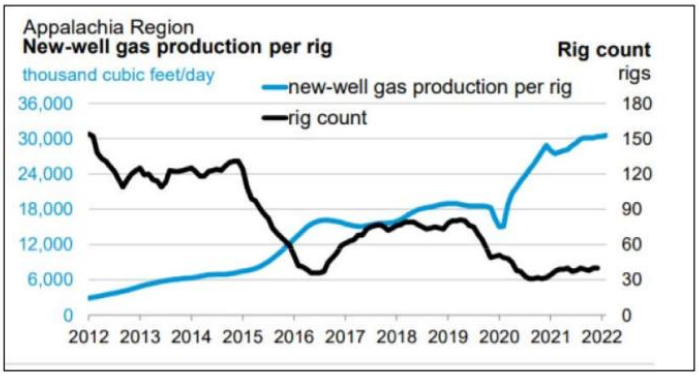


Figure 1.6: Appalachian Rig Count and Production per Rig (Source: EIA)

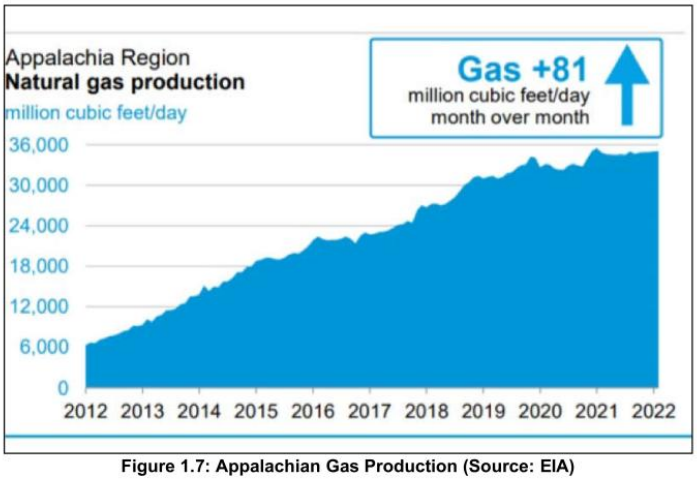


Figure 1.7: Appalachian Gas Production (Source: EIA)

Having survived the challenging environment of 2019 and 2020, Smart Sand's Blair Operation should continue to prove viable into the future notwithstanding a sustained and significant energy price collapse. Their low-cost mining scheme,

advantaged transport to select basins, and high-quality product help to create an advantage compared with other NWS producers.

1.7.4 Historic Production, Capital Expenditures, Operating Costs, and Pricing

Historical CapEx, sales and revenue were not available for this report as a different owner operated the facility prior to 2022. Historical product sales information is available for the facility and is listed below in Table 1.6:

Table 1.6 presents Blair's historical sales production for the period 2016 to 2020.

Table 1.6: Historical Sales Statistics

Year	Tons Sold (000)
2016	1,482,355
2017	2,503,867
2018	2,047,677
2019	2,025,313
2020*	507,262
Total	8,566,474

*Operations Idled

1.7.5 Projected Sales Revenue, Production Costs, and Capex

Table 1.7, below, presents BOYD's sales projections for the period of 2023 through 2027. The sales price forecast is constant dollar, by product, and is based on current quarter average prices. We are of the opinion that these are reasonable price projections.

Table 1.7: Blair 5-Year Sales Projection by Product

Tons Sold (000)	Year 2023	Year 2024	Year 2025	Year 2026	Year 2027
20/40 Mesh	50	102	123	135	148
30/50 Mesh	99	204	245	270	297
40/70 Mesh	347	718	858	943	1,038
100 Mesh	116	206	250	276	303
Total Sold	612	1,230	1,476	1,624	1,786
Average Price ($/ton Sold)	$36.00	$36.00	$36.00	$36.00	$36.00
Revenue ($000)	$22,032	$44,280	$53,136	$58,464	$64,296

Table 1.8, below, presents the above table's cost projections on a cost per ton sold basis for the years 2023 through 2027.

Table 1.8: Annual Cash Cost Projections

Cost of Sales ($ 000)	2023	2024	2025	2026	2027
Wages and Benefits	3,275	5,092	6,111	6,723	7,394
Excavation	4,842	7,528	9,033	9,939	10,930
Utilities	3,133	4,871	5,845	6,431	7,073
External Labor	142	221	266	292	321
Insurance	142	221	266	292	321
Equipment	1,424	2,214	2,657	2,923	3,215
Maintenance	1,139	1,771	2,125	2,339	2,572
Real Estate Taxes	142	221	266	292	321
Cash Production Costs	14,241	22,140	26,568	29,232	32,148
SG&A	1,845	2,214	2,657	2,923	3,215
Total Production Costs	**16,086**	**24,354**	**29,225**	**32,155**	**35,363**
Unit cost per sales ton($/ton)	26.28	19.80	19.80	19.80	19.80

Smart Sand provided BOYD with the CapEx estimate for the Blair operation. A total amount of $4.19 million will be spent between 2023 to bring the operation back into production and streamline the site. Smart Sand projects an annual amount of $3.93 million starting in 2028, which includes maintenance of production equipment as well as other items for the operation, through the remainder LOM. Please refer to Table 12.3 for yearly detail on capital expenditures.

1.7.6 Economic Analysis

BOYD prepared an economic analysis, as of January 1, 2023, for the Blair Operation using the production, sales, and financial projections presented in this report. Our analysis confirms that the operation generates positive cash flows (based on a 12.0% discount rate), on a pre-tax and after-tax basis, that supports the statement of frac sand reserves herein. Table 1.9, following this page, presents the pre-tax and after-tax cash

flow projections for 2023 to 2027 based on the proposed production schedule, revenue, cost of goods sold, CapEx and other estimates discussed above for the Blair Operation.

Table 1.9: Summary Cash Flow Statement

Description	Units	2023	2024	2025	2026	2027
Opening Reserve Balance	000 tons	115,279	114,667	113,437	111,961	110,337
Closing Reserve Balance	000 tons	114,667	113,437	111,961	110,337	108,551
Process Yield	%	75.0	75.0	75.0	75.0	75.0
Product Sales	000 tons	612	1,230	1,476	1,624	1,786
Total Revenues	$ 000	22,032	44,279	53,135	58,464	64,296
Average Selling Price	$/ton sold	36.00	36.00	36.00	36.00	36.00
Total Cash Costs of Sales	$ 000	14,241	22,140	26,568	29,232	32,148
Average Cash Cost of Sales	$/ton sold	23.27	18.00	18.00	18.00	18.00
SG&A	$ 000	1,845	2,214	2,657	2,923	3,215
EBITDA	$ 000	5,946	19,925	23,910	26,309	28,933
Capital Expenditures	$ 000	4,919	2,460	2,952	3,248	3,572
Pre-tax Cash Flow	$ 000	1,027	17,465	20,958	23,061	25,361
Taxes	$ 000	154	4,847	5,798	6,346	6,950
Net Operating Profit after Taxes	$ 000	873	12,619	15,160	16,714	18,411
Pre-tax Cash Flow	$ 000	1,027	17,465	20,958	23,061	25,361
After-tax Cash Flow	$ 000	873	12,619	15,160	16,714	18,411

Discounted Cash Flow-Net Present Values (DCF-NPV) on a pre-tax and after-tax basis, using discount rates of 10%, 12%, and 15%, were calculated utilizing the cash flows above. The DCF-NPV values used mid-year discounting and all cash flows were on a constant dollar basis.

The pre-tax DCF-NPV ranges from approximately $158 million to $250 million. The after-tax DCF-NPV ranges from approximately $116 million to $183 million. Table 1.10, below, summarizes the results of the pre-tax and after-tax DCF-NPV analyses:

Table 1.10: DCF-NPV Analysis

	NPV ($ millions)		
	10%	12%	15%
Pre-Tax:	249.7	201.5	158.5
After-Tax:	182.8	147.5	115.9

The NPV estimate was made for purposes of confirming the economic viability of the reported frac sand reserves and not for purposes of valuing the Blair Mine or its assets. Internal rate-of-return (IRR) and project payback were not calculated, as there was no initial investment considered in the financial model.

1.8 Regulation and Liabilities

The Blair Mine's operations are predominantly regulated by Trempealeau and Jackson counties, Wisconsin, the Wisconsin Department of Natural Resources (WDNR) and several local municipalities regarding water use, air quality, general operations and eventual reclamation of the site. Safety and operational regulations are administered by the Mine Safety and Health Administration (MSHA).

Based on our review of information provided by Smart Sand and available public information, it is BOYD's opinion that the Blair Mine's record of compliance with applicable mining, water quality, and environmental regulations is generally typical for that of the industry. BOYD is not aware of any regulatory violation or compliance issue which would materially impact the frac sand reserve estimate.

1.9 Conclusions

It is BOYD's overall conclusion that Smart Sand's Blair Mine frac sand reserves, as reported herein: (1) were prepared in conformance with accepted industry standards and practices, and (2) are reasonably and appropriately supported by technical evaluations, which consider all relevant modifying factors. We do not believe there is other relevant data or information material to the Blair Property that would render this technical report summary misleading. Our conclusions represent only informed professional judgment.

The ability of Smart Sand, or any mine operator, to recover all of the reported frac sand reserves is dependent on numerous factors that are beyond the control of, and cannot be anticipated by, BOYD. These factors include mining and geologic conditions, the capabilities of management and employees, the securing of required approvals and permits in a timely manner, future sand prices, etc. Unforeseen changes in regulations could also impact performance. Opinions presented in this report apply to the site conditions and features as they existed at the time of BOYD's investigations and those reasonably foreseeable.

2.0 INTRODUCTION

2.1 Registrant

Smart Sand is a US-based mining company headquartered in Spring, Texas. The company's common stock is listed on the New York Stock Exchange (NASDAQ:SND). Smart Sand is actively engaged in the production and marketing of commercial proppant sand. Their products are used as proppant sand for oil and natural gas recovery. Additional information regarding Smart Sand can be found on their website: www.smartsand.com.

2.2 Terms of Reference and Purpose

Smart Sand retained BOYD to complete an independent technical assessment of their Blair operation including an independent estimate of the proppant sand resources and reserves underlying the property as of December 31, 2022.

BOYD prepared this technical report summary for Smart Sand in support of their disclosure of proppant sand reserves for the Blair Operation in accordance with US SEC S-K 1300. The purpose of this report is threefold: (1) to summarize material technical and geoscientific information for the subject mining property, (2) to provide the conclusions of our technical assessment, and (3) to provide a statement of proppant sand resources and/or reserves for the Blair Operation.

BOYD's findings are based on our detailed examination of the supporting geologic and other scientific, technical, and economic information provided by Smart Sand, as well as our independent estimate of proppant sand resources and reserves presently available at the Blair Operation.

We used standard engineering and geoscience methods, or a combination of methods, that we considered to be appropriate and necessary to establish the conclusions set forth herein. As in all aspects of mining property evaluation, there are uncertainties inherent to the interpretation of engineering and geoscience data; therefore, our conclusions necessarily represent only informed professional judgment.

The ability of Smart Sand, or any mine operator, to recover all the estimated proppant sand reserves presented in this report is dependent on numerous factors that are beyond the control of, and cannot be anticipated by, BOYD. These factors include

mining and geologic conditions, the capabilities of management and employees, the securing of required approvals and permits in a timely manner, future sand prices, etc. Unforeseen changes in regulations could also impact performance. Opinions presented in this report apply to the site conditions and features as they existed at the time of BOYD's investigations and those reasonably foreseeable.

This report is intended for use by Smart Sand, subject to the terms and conditions of its professional services agreement with BOYD. We also consent to Smart Sand filing this report as a technical report summary with the SEC pursuant to S-K 1300. Except for the purposes legislated under US securities law, any other uses of or reliance on this report by any third party is at that party's sole risk. The responsibility for this disclosure remains with Smart Sand.

2.3 Expert Qualifications

BOYD is an independent consulting firm specializing in mining-related engineering and financial consulting services. Since 1943, BOYD has completed over 4,000 projects in the US and more than 60 other countries. Our full-time staff comprises mining experts in: civil, environmental, geotechnical, and mining engineering; geology; mineral economics; and market analysis. Our extensive experience in proppant sand resource and reserve estimation combined with our knowledge of the subject property, provides BOYD an informed basis on which to opine on the reasonableness of the estimates pertaining to Smart Sand's Blair Operation. An overview of BOYD can be found on our website at www.jtboyd.com.

The individuals primarily responsible for completing this technical assessment and the preparation of this report are by virtue of their education, experience, and professional association considered qualified persons (QPs) as defined in S-K 1300.

Neither BOYD nor its staff employed in the preparation of this report have any beneficial interest in Smart Sand, and are not insiders, associates, or affiliates of Smart Sand. The results of our assessment were not dependent upon any prior agreements concerning the conclusions to be reached, nor were there any undisclosed understandings concerning any future business dealings between Smart Sand and BOYD. This report was prepared in return for fees based upon agreed-to commercial rates, and the payment for our services was not contingent upon our opinions regarding the project or approval of our work by Smart Sand and its representatives.

2.4 Principal Sources of Information

Information used in this assignment was obtained from: (1) files provided by Smart Sand, (2) discussions with Smart Sand personnel, (3) records on file with regulatory agencies, (4) public sources, and (5) nonconfidential information in BOYD's possession.

The following information was provided by Smart Sand:

- Exploration records (e.g., drilling logs and lab sheets).
- Geologic databases of lithology and sand quality.
- Computerized geologic models.
- Mapping data, with:
  - Land ownership boundaries.
  - Infrastructure locations.
  - Easement and right-of-way boundaries.
  - Surveyed topography (surface elevation).
- Mine plans, production schedules, and supporting data.
- Overview of processing operations and detailed flow sheets.
- Copies of mining and operating permits.
- Historical information, including:
  - Production reports.
  - Financial statements.
  - Product sales and pricing.

Information from sources external to BOYD and/or Smart Sand are referenced accordingly.

The data and work papers used in the preparation of this report are on file in our offices.

2.5 Personal Inspections

A site visit and inspection of the Blair Operation was completed on February 21, 2023, by a BOYD representative. The site visit included: (1) observation of the current and future mining areas, (2) a tour of the mine site's surface infrastructure, and (3) a tour of the process plant and truck loadouts. BOYD's representatives were accompanied by Smart Sand management personnel who openly and cooperatively answered questions regarding, but not limited to: site history; deposit geology; mining and processing operations; near- and long-range mining plans; and frac sand marketing.

2.6 Report Version

The frac sand resources and reserves presented in this Technical Report Summary are effective as of December 31, 2022. The effective (i.e., “as of”) date of the report is December 31, 2022.

This is the first Technical Report Summary filed by Smart Sand for the Blair Operation.

2.7 Units of Measure

The US customary measurement system has been used throughout this report. Tons are short tons of 2,000 pounds-mass. Unless otherwise stated, currency is expressed in US Dollars ($). Historic prices and costs are presented in nominal (unadjusted) dollars. Future dollars values are expressed on a constant (un-escalated) basis.

3.0 PROPERTY OVERVIEW

3.1 Description and Location

Smart Sand's Blair Operation is a surface proppant sand mining operation located on a contiguous block of property totaling approximately 1,285 acres controlled by Smart Sand. The subject property is located in Trempealeau and Jackson counties, Wisconsin, approximately three miles east of the City of Blair.

Geographically, the Blair proppant sand processing plant is located at approximately 41°17'56.59"N latitude and 91°10'11.96"W longitude. Figure 3.1, on the following page, illustrates the location and general layout of the Blair Operation.

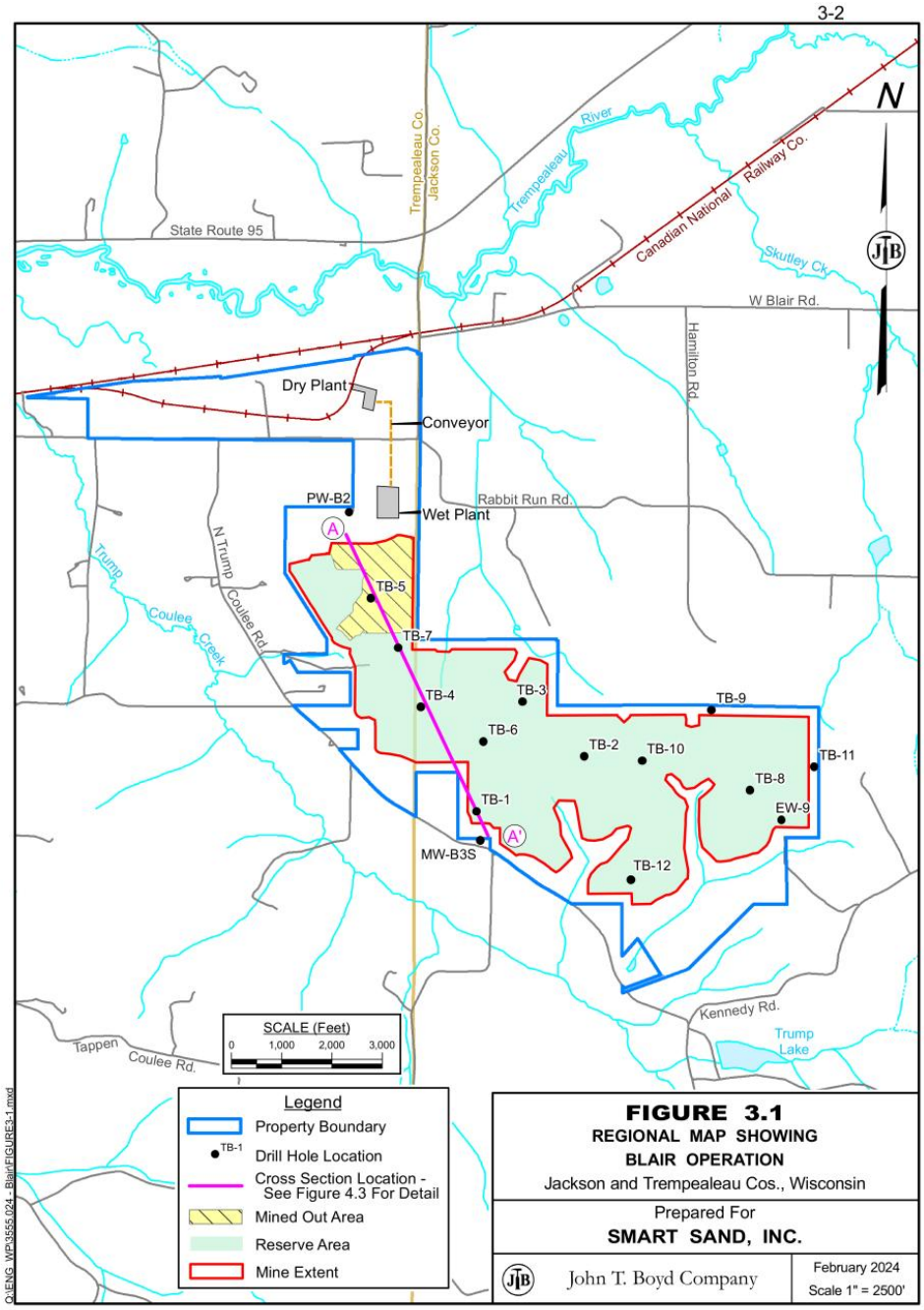
3.2 History

Hi-Crush Proppants LLC (Hi-Crush) began to establish the Blair Operation in 2012 by completing initial exploratory drilling and sampling of the Wonewoc Sandstone within the subject property. Subsequent development led to the first production of proppant sands from the Blair Operation in 2016. Mining operations utilized a combination of overburden removal, and blasting and surface mining of the Wonewoc Sandstone. In addition to the mine site and processing facilities, a rail loadout, several maintenance and engineering buildings, and other auxiliary structures required for the mining, processing, and marketing and transportation of proppant sand were constructed.

Hi-Crush mined and processed proppant sand at the Blair Operation from 2016 through 2020, when the COVID-19 pandemic created economic uncertainty and lead to the facility being temporarily idled. Hi-Crush declared bankruptcy soon after and placed the Blair Operation on indefinite care and maintenance status. In March 2022, Smart Sand acquired the Blair Operation for $6.5 million. Smart Sand's current intent is to place the facility into active operational status again by May 2023.

3.3 Property Control

The Blair Operation comprises approximately 1,285 acres owned in fee by Smart Sand. Ownership information provided by Smart Sand has been accepted as being true and accurate for the purpose of this report.


N
State Route 95
Trempealeau Co.
Jackson Co.
Trempealeau River
Canadian National Railway Co.
Skutley Ck
W Blair Rd.
Hamilton Rd.
Dry Plant
Conveyor
PW-B2
Wet Plant
Rabbit Run Rd.
A
A'
N Trump Coulee Rd.
Trump Coulee Creek
TB-5
TB-7
TB-4
TB-3
TB-9
TB-6
TB-2
TB-10
TB-11
TB-8
TB-1
EW-9
MW-B3S
TB-12
Kennedy Rd.
Trump Lake
Tappen Coulee Rd.
SCALE (Feet)
0 1,000 2,000 3,000
Legend
Property Boundary
TB-1 Drill Hole Location
Cross Section Location - See Figure 4.3 For Detail
Mined Out Area
Reserve Area
Mine Extent
FIGURE 3.1
REGIONAL MAP SHOWING
BLAIR OPERATION
Jackson and Trempealeau Cos., Wisconsin
Prepared For
SMART SAND, INC.
John T. Boyd Company
February 2024
Scale 1" = 2500'
Q:\ENG_WP\3555.024_Blair\FIGURE3-1.mxd

Smart Sand owns 100% of the surface and mineral rights to the entire 1,285-acre Blair Operation. The current estimated area suitable for resource extraction is approximately 647 acres, or 50% of the total property, after observing setbacks, right of ways, processing areas, and other non-mining acreage.

3.4 Adjacent Properties

Wisconsin proppant sand mining activity occurs primarily in three regions: the Barron, Blair, and Oakdale regions. Many operations have been located in these regions as Northern White Sand became prevalent in the oil and gas industry. Smart Sand's Blair Operation is located within the Blair region; however a majority of these sand mining operations are all located within ±100 miles of each other, with Smart Sand also having additional operations within the region.

3.5 Regulation and Liabilities

Mining and related activities for the Blair Operation are regulated by the State of Wisconsin, and several local agencies. Mine safety is regulated by the Federal Government through the Mine Safety and Health Administration (MSHA).

3.6 Accessibility, Local Resources, and Infrastructure

Smart Sand's Blair Operation is located near several small rural cities in southwestern Wisconsin. Blair, WI has a population of 1,366, while the overall region has a population of approximately 360,000 in Jackson, Trempealeau, Eau Claire, La Crosse, Monroe, and Clark Counties, according to 2021 Census Data.

General access to the Blair Operation is via a well-developed network of primary and secondary roads serviced by state and local governments. These roads offer direct access to the mine and processing facilities and are open year-round. Primary vehicular access to the property is via US Highway 95, with nearby access to Interstate 94.

The Blair operation has an on-site rail loadout facility with access to the CN rail network. Blair's proppant sand product is railed to the various energy basins via the CN, or other connecting rail carriers.

The Blair operation has access to major airports as there are:

- Three International airports within a 200-mile radius of the site.
- Four domestic airports within a 110-mile radius of the site.
- Three local airports within a 50-mile radius of the site.

Sources of three phase electrical power, natural gas, and other miscellaneous materials are readily available. Water supplied to the operation is via various sources such as, on-site wells, on-site ponds, and public water.

3.7 Physiography

The Blair Operation is located in the Western Upland physiographic region of Wisconsin, which spans most of the southwestern border of the state. This region is characterized by steep hills, wooded ridges, and rocky outcrops that are characteristically dissected by streams and rivers. This region comprises a portion of the greater driftless area, which marks the termination of advancing glaciers during the last glacial periods of the ice age (Wisconsin Period), which lasted until approximately 11,000 years ago.

The surface of Smart Sand's Blair Operation is overlain by topsoil, sandy clays, and shales, which based on a combination of drill hole data and flown topographic mapping, suggests that overburden ranges in thickness from being absent where the Wonewoc outcrops along the western portion of the property, up to 106 ft in isolated high-elevation hilltops. Over the entire mineable portion of the property, overburden averages approximately 30 ft in thickness. Beneath the overburden material is the Wonewoc Sandstone Formation, one of the primary sources of proppant sands being mined in the region.

3.8 Climate

For the Blair Operation, average monthly high temperatures range from 26ºF to 82ºF, with June, July, and August being the hottest months. Average monthly low temperatures range from 9ºF to 61ºF, with the months of November, December, January, February, and March exhibiting average lows at or below freezing (32ºF).

Average annual rainfall totals approximately 26.9 in, averaging 81 days of rain, while average annual snowfall totals approximately 21 in., averaging 9 days of snowfall.

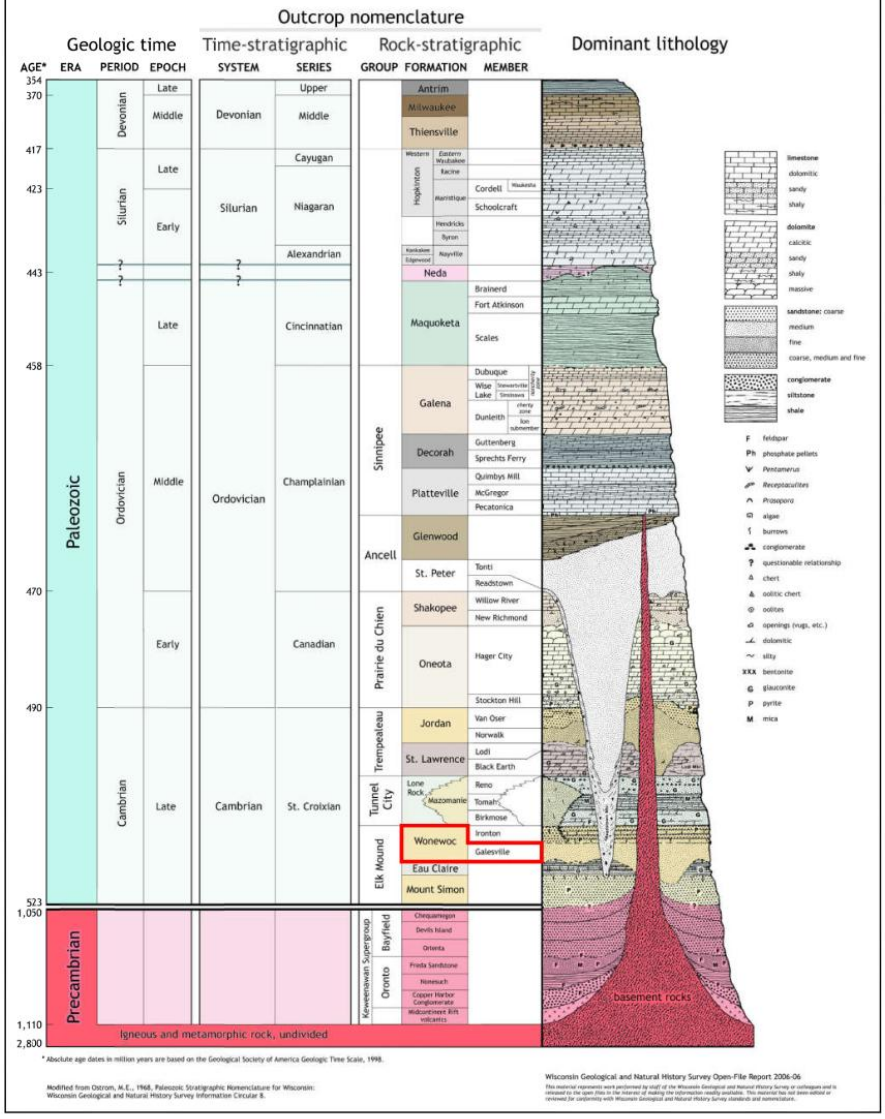
4.0 GEOLOGY

4.1 Regional Geology

Mining of NWS for use as a proppant sand is generally concentrated in the north-central portion of the United States (primarily in Minnesota, Wisconsin, and Illinois, with lesser amounts in Arkansas and Iowa). The predominant formations containing NWS consist of poorly cemented Cambrian and Ordovician age sandstones, and unconsolidated alluvial deposits locally derived from these sandstones. The Mount Simon, Wonewoc, Jordan, and Saint Peter Formations (in depositional order), located in south-central Minnesota and into Wisconsin are the primary formations currently being mined for NWS today. Each of these sandstone formations generally consists of deposits containing high silica content sands that exhibit a monocrystalline grain structure and contain well-rounded and generally well-sorted sand grains. Figure 4.1, on the following page, presents the various stratigraphic rock units in Wisconsin.

The Wonewoc Formation, which is the formation being mined at the Blair Operation, is of Cambrin Age (middle-late) and has been noted as spanning an area from Minnesota to Arkansas, and from Illinois into Nebraska and South Dakota. Sand grains comprising the Wonewoc Formation were originally deposited in clear shallow waters near the shore of a Cambrian Sea. The high-energy wave action during particle transport and deposition helped form the generally described well sorted and well rounded, fine to medium-grained, frosted sandstone deposit that the Wonewoc is known for. On a formation-wide basis, the Wonewoc Formation thicknesses may range from a few feet to over 200 ft in thickness; however, regionally the Wonewoc exhibits a more uniform range of depositional thickness of between 100 ft to 200 ft. The presence of the Wonewoc in southwestern Wisconsin is often easily identifiable as it tends to be located underlying clusters of densely wooded, higher-elevation hilly regions of the state. These wooded areas are often on the peripheries of farm fields where sandy and rocky soils began to be encountered during cultivating fields.

The Wonewoc Formation is composed of two members: the upper Ironton Member, and the lower Galesville Member, as the formation exhibits grain sizing that sometimes grades from medium to medium-coarse in the upper section, and medium to fine-grained in the lower section.



Q:\CAD_GROUP\3555.024\FIGURE 4_1.DWG

FIGURE 4.1

4.2 Local Geology

4.2.1 Stratigraphy

Cambrian sedimentary strata comprise the surface stratigraphic units underlying the soils in and around the Blair Operation. These units primarily include bedrock of, in order of deposition, the Mount Simon, Eau Claire, Wonewoc, and Tunnel City Formations. The stratigraphic relationships between these formations is presented in Figure 4.2 as follows:

System	Group	Formation
Cambrian	Elk Mound	Wonewoc
		Eau Claire
		Mount Simon

Figure 4.2: Geologic Period

The following text discusses the strata encountered near the Blair Operation, in ascending depositional order.

Mount Simon

The Mount Simon consists of interbedded sandstones and shales. The lower portion of the formation contains more shale, while the upper portion contains more sand intervals. The sands contained in the Mount Simon consists of somewhat poorly sorted, fine to coarse grained sandstone that is generally white to yellow in color and poorly consolidated. This unit serves as another well-known source of NWS in local mining operations and is said to be somewhat similar in character to the Wonewoc Formation.

Eau Claire

The Eau Claire Formation overlies the Mount Simon and is comprised of a thinly bedded and shaley fine grained sandstone that may be argillaceous or glauconitic. The Eau Claire is noted as unconformably overlying the Mount Simon. Overall thickness ranges from approximately 120 ft to 150 ft.

Wonewoc

The Wonewoc Formation generally consists of medium to coarse grained sandstone ranging in thickness from 125 ft to 150 ft and is the target mineable formation of the Blair Operation. The deposit is flat lying with no evidence of faulting and has been eroded to an average thickness of approximately 102 ft across the subject property. Wonewoc Sandstone is characterized by generally consisting of a white in color, fine to medium grained ortho-quartzite. Sand grains are rounded, frosted, and poorly cemented due to minor secondary silica and clay cement.

The Blair Operation mines and processes proppant sand from the lower member (Galesville) of the Wonewoc Formation, which is a massively bedded silica-rich sandstone interval that is regionally very consistent in depositional nature, both in areal extent and thickness. The Galesville contains primarily fine to medium-grained sand grains that are well sorted and monocrystalline in structure.

Overburden

The surface of the Blair property is overlain by shale, clayey sands, and unconsolidated soil overburden material. Drilling completed on the property has recorded overburden ranging from 10 ft to 65.5 ft thick, however the Wonewoc outcrops in portions of the western extents of the property, and is projected to reach up to 105 ft thick under the highest hilltops in the eastern portion of the property. Across the mineable portion of the Blair property, overburden thickness averages approximately 30 ft in thickness.

A cross-section through the deposit is provided in Figure 4.3 (page 4-5).

4.3 Proppant Sand Geology

Proppant sand is a naturally occurring, high silica content quartz sand, with grains that are generally well-rounded. The main difference between proppant sand and other sands is that proppant sand grains are relatively pure in composition, consisting almost entirely of quartz; other types of sands have numerous impurities that may be cemented to the quartz grains. The pure quartz composition of proppant sand grains, along with being well-rounded and spherical in shape, gives these sands the characteristics (crush strength, high acid solubility, low turbidity) that are desired for specific well applications in the drilling service industry.

The Wonewoc Sandstone (and other NWS) is generally characterized by a high silica content, high roundness and sphericity, white color, and lack of deleterious material. Because of the monocrystalline grain structure, these sands have superior grain strength when compared to other silica sands and are suitable for pressure applications generally up to the 9,000-pounds per square inch (psi) range.

Q:\CAD_GROUP\3555.024\FIGURE 4_3.DWG

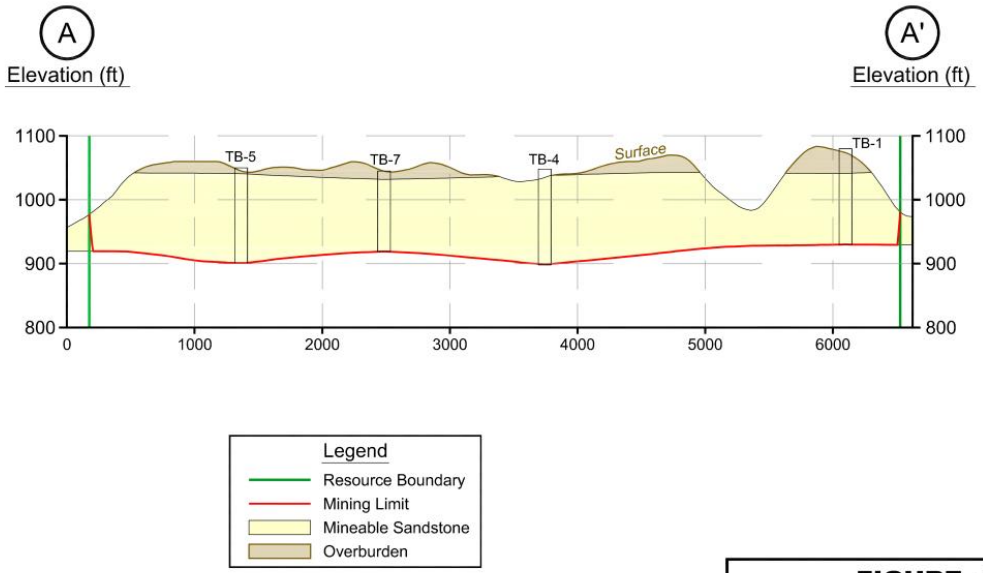


FIGURE 4.3
CROSS SECTION A - A'
BLAIR PROPERTY
Jackson and Trempealeau Counties, Wisconsin
Prepared For
SMART SAND, INC.

Horizontal 1" = 1,000'
Vertical 1" = 200'
Vertical Exaggeration 5X

John T. Boyd Company

February 2024
Scales As Shown

Note : See Figure 3.1 For Cross Section Location.

5.0 EXPLORATION, SAMPLING, AND TESTING

5.1 Background

The Blair Operation was originally developed and operated by Hi-Crush, with initial exploratory drilling and sampling completed on the property in 2012. Additional exploration was conducted in 2014, and operations commenced in early 2016. In 2020, amidst the COVID-19 pandemic, operations were idled, before the Blair Operation was ultimately purchased by Smart Sand in March 2022.

5.2 Exploration Procedures

5.2.1 Drilling and Sampling Overview

To date, two separate exploration drilling programs have been completed at the Blair Operation, resulting in a total of 12 drill holes being drilled and sampled across the mine area. BOYD utilized the results of the completed geologic logs and laboratory testing results to develop a geologic model of the Blair deposit.

Table 5.1 provides summary information on the drilling completed to date, with additional information on each exploration campaign discussed in Sections 5.2.2 and 5.2.3.

Table 5.1: Blair Mine Exploration Drilling Summary

Year	Number of Holes Drilled	Driller	Method	Total Footage
2012	5	Thein	Air Rotary	704
2014	7	Cascade	Rotosonic	1,045
	12			1,749

Both of the drilling campaigns conducted were directed and planned by Hi-Crush. BOYD worked with Hi-Crush to suggest sampling protocols in order to ensure that representative samples were obtained through the total depth drilled in each drill hole.

5.2.2 2012 Air Rotary Exploration Campaign

The initial exploration and sampling campaign consisted of completing five widely spaced air rotary drill holes across the Blair property. Drilling was contracted to Thein Well Services, Incorporated (Thein), Monticello, Minnesota, to utilize an air rotary drilling rig to obtain subsurface samples on the subject property. Hi-Crush contracted field work

(geologic logging and sampling) out to geologists employed by Summit Envirosolutions (Summit), St. Paul, Minnesota.

Air rotary drilling utilizes a rotating impact hammer drilling bit to break up the strata that are being drilled through. High pressured air drives the impacting and rotating forces of the hammer bit to advance drill hole depths while also cooling the bit during drilling. Cuttings that are produced as the bit advances down hole are forced back up the drill hole and to the surface to keep the hole clear as the cutting head advances. Samples are obtained from air rotary drills by placing a chip tray beneath the cyclone chute on the drilling rig. Samples for this campaign were gathered for each 10 ft interval that the drill rig advanced to a total depth ranging from 120 ft to 150 ft.

Samples obtained for each 10 ft run were coned and quartered in the field, with duplicate samples of each 10 ft run taken. Each sample was placed into a heavy-mil plastic bag that was labeled with drill hole name, top and bottom depth, and whether each sample was an “A Sample” or a “B Sample”. Sample bags were then placed into buckets, with lids secured and contents of each bucket noted. The “A Sample” set was sent to FracTAL, LLC (FracTAL), St. Paul, Minnesota for sample preparation and particle size analyses, while the “B Sample” set was placed into storage by Hi-Crush for archival purposes.

FracTAL was also directed by Hi-Crush to create two sets of composite “product size” (20/40, 30/50, 40/70, 50/140-mesh) samples, which would represent the fully processed (washed and dried) material that is run through the processing plant, from sample material of two different drill holes. These composite samples were sent to Prop Tester, Cyprus, Texas, to have API RP 19C/ISO 13503-2 (API/ISO) testing completed.

5.2.3 2014 Rotosonic Exploration Campaign

The 2014 exploration and sampling campaign consisted of completing seven rotosonic drill holes on the Blair property, in order to serve as an infill drilling campaign and obtain additional detailed information on the deposit for mine planning and plant design. The 2014 drilling campaign was contracted to Cascade Environmental (Cascade), Little Falls, Minnesota, to utilize a rotosonic drilling rig to obtain subsurface sample materials, with field work again contracted to Summit.

Rotosonic drilling utilizes a rotating and vibratory drilling head that advances a hollow drilling bit and core barrels down hole. This drilling method provides good recovery results with a nearly undisturbed drilling core in strata that is poor-to-unconsolidated in nature. As the bit advances down hole, rotational forces and different vibration

frequencies can be applied by the drill operator to advance through various lithology types, while maximizing core recoveries. The rotosonic drill rig advances down hole 10 ft at a time, with the core barrels containing the total interval of core drilled during each drilling run.

Samples are obtained by pulling the core barrels after each run, and applying vibratory forces to the core barrel containing the recovered core, which causing the core to slide out of the barrel and into a similar sized core bag. Drillers label the bottom depth of each core bag prior to extruding the core, and place the bagged core onto a core tray. Geologic logging, photographing the core, and core sampling may take place while the drillers continue drilling the next drill run. Samples were obtained by taking a trowel and sampling approximately 1/4 of the diameter of the core, along the entire length of the recovered core, in order to create a representative sample of the entire 10 ft drilling run. Sample material was placed into smaller heavy-mil sample bags, which were then labeled with drill hole name, top and bottom of the sample interval, and the sample ID (A or B sample). The process was repeated in order to create duplicate sample sets throughout the duration of the drilling campaign. Bagged samples were placed into buckets with lids secured and contents of the bucket noted. One sample set was sent to FracTAL for preparation and particle size analyses, while the duplicate sample set was placed into storage by Hi-Crush for archival purposes.

FracTAL again prepared “product size” composite samples from material obtained from two different rotosonic drill holes, which were sent to PropTester for API/ISO testing purposes on additional samples.

5.2.4 Proppant Sand Quality Testing

As discussed in the exploration section of this report, each “A-Sample” obtained during the completed exploration campaigns were sent to FracTAL for sample preparation, particle size analysis, and to have composite drill hole samples created, which were then sent to PropTester for API/ISO testing purposes.

FracTAL checked in samples received and prepared an appropriately sized split of each sample. Each prepared sample for testing was initially weighed, then washed over a 200-mesh size screen. The remaining (+200-mesh) material is dried and weighed again to determine fines content of the in-situ sample interval. The washed and dried portion of each sample then undergoes sieve analysis to determine particle size distribution. Each

sample obtained during exploration was analyzed, in order to gain information on the entire Blair Operation sand deposit through the total depths drilled in each drill hole.

Particle size distribution results, and the associated lithologic data obtained from the 12 drill holes completed on Blair were provided to BOYD, and compiled into a database for input into BOYD's geologic model. These results were the principal source of information used to define the extent of the deposit on the property, overburden volumes, and sand and waste volumes, and tonnages for the Blair Operation.

Based on the data provided, and the information related to the drilling, sampling, logging, and field work performed during exploration on the Blair property, BOYD opines that the available data was prepared professionally, and documented in conformance with generally accepted industry practice, and the data provided were sufficient for the purposes of evaluating and estimating proppant sand resources and proppant sand reserves on the Blair Property.

5.2.5 Other Exploration Methods

No other methods of exploration (such as airborne or ground geophysical surveys) are reported for the Blair Property.

5.3 Laboratory Testing Results

Noting the relatively well-known and generally uniform nature of the Wonewoc Formation, and data obtained from exploration and independent laboratory testing, test results indicate the deposit underlying the Blair Operation would produce a suite of high-quality 20/140-mesh size products that meet customer specifications for use as a proppant sand.

Further details supporting this conclusion are presented in Sections 5.3.1 and 5.3.6.

5.3.1 Grain Size Distribution

Table 5.2, below, summarizes the in-situ concentrations of product sized particle distributions, by depth, for the of the Blair Operations deposit:

Table 5.2: Product Size Distribution (%) By Elevation

	Product Size Distribution, by Mesh Size					
Elevation Range	20/40	40/70	70/140	Total 20/140	30/50*	50/140*
Surface-1055	18.31	42.02	9.38	69.71	33.49	28.85
1055-1035	27.21	41.01	9.97	78.19	40.68	27.78
1035-1015	40.26	35.89	9.02	85.17	47.14	21.43
1015-995	40.95	34.54	13.62	89.10	44.71	28.03
995-975	32.67	42.43	17.87	92.97	44.39	37.66
975-955	28.92	46.29	17.20	92.41	44.53	38.96
955-935	23.13	51.81	15.02	89.96	44.46	40.53
935-Pit Floor	18.49	48.29	19.66	86.44	36.53	45.41

*These products may only be made in-lieu of equivalent proportions of overlapping products.

The preceding table highlights the relative size consist, by elevation range, of the finished proppant sand found underlying the Blair Operation. Approximately 90.6% of the sand particles, by weighted average over the total mineable area, are concentrated between the “passing 20-mesh” and “retained 140-mesh” size fraction.

5.3.2 Grain Shape (Sphericity and Roundness)

Grain shape was analyzed according to API/ISO Section 7. Under this standard, recommended sphericity and roundness values for Fracs are 0.6 or greater, and 0.7 or greater for high strength proppants. As part of the grain shape analysis, the presence of grain clusters (weakly cemented grain aggregates) and their approximate proportion were not observed in the seven sized samples.

5.3.3 Acid Solubility

Acid solubility was analyzed according to API/ISO Section 8. Under this standard, five grams of sand is treated with 100 milliliters of 12:3 hydrochloric acid to hydrofluoric acid at 150ºF for 30 minutes. The recommended maximum acid solubility for proppants in the 6/12 through 30/50-mesh size range is 2.0%, and for proppants in the 40/70-mesh and finer size range is 3.0%.

5.3.4 Turbidity

Turbidity was analyzed according to API/ISO Section 9. Under this standard, the suggested maximum proppant sand turbidity should be equal to or less than 250 nephelometric turbidity units (NTU).

5.3.5 Crush Resistance

Crush resistance is a key test that determines the amount of pressure a sand grain can withstand under laboratory conditions for a two-minute duration. The sample was analyzed according to API/ISO Section 11 and API RP 56/58/6. Under this standard, the highest stress level (psi) in which the proppant produces no more than 10% crushed fine material is rounded down to the nearest 1,000 psi and reported as the "K-value" of the material.

5.3.6 Quality Summary

Composited product size samples of 20/40, 30/50, 40/70, and 50/140-mesh material were prepared by FracTAL, from both 2012 and 2014 exploration campaigns, and were tested by PropTester for the above noted API/ISO proppant sand characteristics. Testing results and recommended specifications for these samples are presented in Table 5.3:

Table 5.3: Summary of Select API/ISO Test Results and Associated Recommended Specifications

	Result		API/ISO Recommended	Result	API/ISO Recommended	50/140 mesh
Test	20/40-mesh	30/50-mesh	Specification	40/70-mesh	Specification	Result*
Sphericity	0.8	0.7	≥ 0.6	0.8	0.6≥	0.7
Roundness	0.8	0.8	≥ 0.6	0.8	0.6≥	0.8
Acid Solubility (%)	1.9	1.8	≤ 2.0	1.8	≤2.0	2.4
Turbidity (NTU)	9	11	≤ 250	9	≤250	14
K-Value (000 psi)	5	8	-	10	-	13

*Currently, 100-mesh proppant sad material does not have an API/ISO recommended specification.

The multiple samples tested suggest that the Blair Operation could produce proppant sands which meet minimum API/ISO recommended testing characteristic.

5.4 Data Verification

BOYD, by way of data verification processes described in various sections of this report, has used only that data which were deemed by the QPs to have been generated with property industry standard procedures, were accurately transcribed from the original source, and were suitable to be used for the purposes of preparing estimates of proppant sand resources and reserves.

Based on our review, it is BOYD's overall conclusion that the information made available to us at the time of this report is representative and reliable for use in estimating the proppant sand resources and reserves of the Blair Operation.

BOYD is not aware of any other limitations on, nor failure to conduct, appropriate data verification.

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6.0 PROPPANT SAND RESOURCES AND RESERVES

6.1 Applicable Standards and Definitions

Unless otherwise stated, proppant sand resource and proppant sand reserve estimates disclosed herein are completed in accordance with the standards and definitions provided by S-K 1300. It should be noted that BOYD considers the terms “mineral” and “proppant sand” to be generally interchangeable within the relevant sections of S-K 1300.

Estimates of any mineral resources and reserves are always subject to a degree of uncertainty. The level of confidence that can be applied to a particular estimate is a function of, among other things: the amount, quality, and completeness of exploration data; the geological complexity of the deposit; and economic, legal, social, and environmental factors associated with mining the resource/reserve. By assignment, BOYD used the definitions provided in S-K 1300 to describe the degree of uncertainty associated with the estimates reported herein.

The definition of mineral (proppant sand) resource provided by S-K 1300 is:

> *Mineral resource is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.*

Estimates of proppant sand resources are subdivided to reflect different levels of geological confidence into measured (highest geologic assurance), indicated, and inferred (lowest geologic assurance).

The definition of mineral (proppant sand) reserve provided by S-K 1300 is:

> *Mineral reserve is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.*

Estimates of proppant sand reserves are subdivided to reflect geologic confidence, and potential uncertainties in the modifying factors, into proven (highest assurance) and probable.

Figure 6.1 shows the relationship between proppant sand resources and proppant sand reserves.

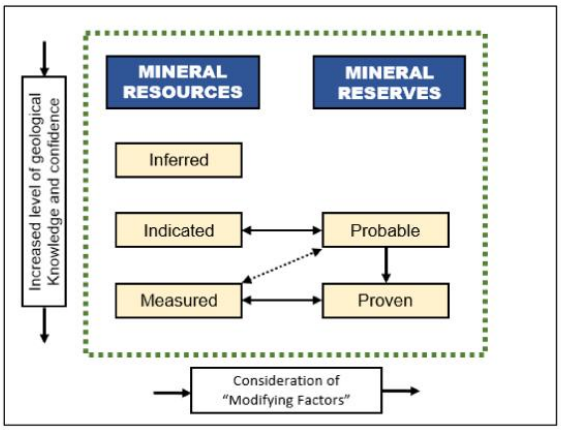


Figure 6.1: Relationship Between Proppant Sand Resources and Proppant Sand Reserves

In this report, the term "proppant sand reserves" represent the tonnage of proppant sand products that meets customer specifications and will be available for sale after processing of the ROM sand.

6.2 Proppant Sand Resources

6.2.1 Methodology

BOYD previously estimated the in-place proppant sand resources on the Blair Operation before the mining began in 2016. An update to this estimate was conducted using recently obtained Li-DAR topographic data to define the current extent of mining activity on the subject property. Incorporating this new data with our prior work, which is discussed on the following page, BOYD prepared an updated estimate of in-place proppant sand resources for the Blair property as of December 31, 2022, by performing the following tasks:

1. Available product size distribution data and laboratory testing results provided were compiled into a database for use in modeling the quality and quantity of the mineable sand resources underlying the Blair Operation. The geologic database utilized 12 drill holes with complete information including particle size distribution data, overburden thickness, and sand thickness. The geologic data compiled, checked for accuracy, and was imported into Carlson Software, a geologic modeling and mine planning software suite that is widely used and accepted by the mining industry.
2. A geologic model of the deposit was created in Carlson Software using industry-standard grid modeling methods well-suited for simple sedimentary deposits in order to estimate overburden and sand volumes, and model associated proppant sand particle size distribution. The geologic model delineates the top and bottom of overburden material, and the mineable sand horizon throughout the subject property. The top and bottom of the mineable proppant sand interval was established as follows:
    a. Aerial mapping as of April 26, 2022, in combination with drilling data, was used as the basis for estimating overburden and sand volumes and associated product distribution in the Carlson geologic modeling program. It was reported to BOYD that no mining was undertaken on the property between April 26, 2022 (the date of aerial topographic flyover) and December 31, 2022. Accordingly, no adjustments were made for depletion of this period.
    b. As there is overburden material across the property, the top of the mineable sand interval was defined as the base of the overburden material above the Wonewoc Sandstone Formation.
    c. The bottom of the mineable sand interval was based primarily on the approved mining reclamation plan.
3. After reviewing the continuity of the deposit, suitable resources classification criteria were developed and applied. Further discussion of these criteria are presented in Section 6.2.2.
4. BOYD utilized the defined mineable resource area within the property, as defined by Smart Sand's mine plan, and the approved reclamation permit. A viewshed area was also incorporated, which involved leaving an earthen berm constructed mainly of overburden and topsoil around the property in order to maintain a shielded view of the future mine from local roadways. Areas on the property that were excluded from being considered mineable were those that had waste impoundments, stormwater ponds, processing facilities, and those areas affected by the property boundary viewshed. Estimation of the in-place resources assumes mining operations using standard surface excavation equipment, which is widely utilized for mining of similar deposit types. As such, mining operations would be subject to the following setbacks and slope requirements:
    a. Mining offsets are required to be observed inside of the entire property boundary for a surface mining operation, and are specified in the approved mining permits. The Blair Operation straddles two counties, and as such, each county does require different property offsets be observed:

- A 100 ft property offset is required in Trempealeau County.
- A 200 ft property offset is required in Jackson County.

b. A vertical final pit highwall was assumed in BOYD's model, for the following reasons:
   - The mineable Wonewoc Sandstone Formation outcrops along nearly the entire western portion of the Blair mining property, while most of the eastern portion of the mine property will require a pit highwall remain in place.
   - Smart Sand management specified mining to a final slope of 80 degrees in their mine plan in areas where a final highwall will be required to remain.
   - BOYD assigned additional in-pit mining losses for this estimate (90% mining recovery, discussed further in Section 6.3.1) to remain conservative in our estimate of mineable resources.
c. The final pit floor was based on the approved reclamation plan for the Blair Operation, which slopes from approximately 920 ft amsl on the western extent of the mine pit, to 940 amsl on the eastern extent of the mine pit.

In-place volumes for each of the proposed mining blocks were calculated from the geologic model within Carlson Software, and an in-place dry sandstone density of 118.5 pounds per cubic foot was used to convert the in-place sand volumes to tons.

6.2.2 Classification

Geologic assuredness is established by the availability of both structural (thickness and elevation) and quality (size fraction) information for the deposit. Resource classification is generally based on the concentration or spacing of exploration data which can be used to demonstrate the geologic con of the deposit. When material variations in thickness, depth, and/or sand quality occur between drill holes, the allowable spacing distance between drill holes is reduced; conversely, if the deposit in question is well studied and exhibits continuity in thickness, depth, and/or sand quality, the allowable spacing may be increased.

The following drill hole spacing criteria were established by the QP after review of the available exploration and testing data and the geologic model, and is used to classify the proppant sand resources of the Blair Operation:

Table 6.1: Blair Property Drill Hole Spacing Parameters

Resource Classification	Spacing Requirements (ft) (Nominal Maximum)
Measured	2,000
Indicated	4,000

The QP has determined that the estimated proppant sand resources within the Blair property are all classified as measured resources.

BOYD is of the opinion that there is a low degree of uncertainty associated with each of the resource classifications.

6.2.3 Proppant Sand Resource Estimate

There are no reportable proppant sand resources excluding those converted to proppant sand reserves for the Blair Operation. Quantities of proppant sand controlled by Smart Sand within the defined boundaries of the Blair Operation which are not reported as proppant sand reserves are not considered to have potential economic viability; as such, they are not reportable as proppant sand resources.

As a note, BOYD did not include the sand material located below the depths of the planned pit floor (approximately 920 - 940 ft amsl) in the resource estimate. There is evidence of additional sand below this depth, however due to level of current exploration drilling and the currently approved reclamation plan for the Blair Operation, additional work would be required in order to consider this material as an additional resource.

6.2.4 Validation

BOYD independently estimated in-place proppant sand resources for the Blair Operation based on the provided drilling, sampling, and testing data obtained. Utilizing industry-standard grid modeling techniques we have estimated volumes of proppant sand indicated by such data. Based on our review of the information provided, we are of the opinion that the data provided are reasonable and appropriate. Furthermore, it is our opinion that the estimation methods employed are both appropriate and reasonable for the deposit type and proposed extraction methods.

6.3 Proppant Sand Reserves

6.3.1 Methodology

Estimates of proppant sand reserves for the Blair Operation were derived contemporaneously with estimates of proppant sand resources. To derive an estimate of saleable product tons (proven and probable proppant sand reserves), the following modifying factors were applied to the in-place measured and indicated proppant sand resources underlying the respective mine plan areas:

- A 90% mining recovery factor, which assumes that 10% of the in-place proppant sand resource will not be recovered for various reasons. Applying this recovery factor to the in-place resource results in the estimated ROM sand tonnage that will be delivered to the wet process plant.
- An overall 75% processing recovery. This recovery factor accounts for losses in the wet and dry plants as a result of removing out-sized (i.e., larger than 20-mesh and smaller than 140-mesh) sand, as well as considering losses in the wet and dry processing plants due to minor inefficiencies. Processing recoveries were based on a combination of laboratory testing data and historic production data available from the Blair Operation.
- The overall product yield (after accounting for mining and processing losses) for the Blair Operation is estimated at 67.5%. That is, for every 100 tons of in-place proppant sand resources mined, approximately 67 tons will be recovered and sold as product.

At the request of Smart Sand, BOYD utilized actual/estimated production data, provided by Smart Sand, from the date of acquisition in March 2022 through December 31, 2022, to reconcile the estimate from the date of volumetric estimate to December 31, 2022.

As previously noted, there are no reportable proppant sand resource tons. However, Table 6.2 provides insight into the proppant sand in-place reserve tons that would be eventually mined and converted into proppant sand product tons for the Blair Mine. The proppant sand product tons are equivalent to the total reserve tons as of December 31, 2022, for the Blair Mine.

Table 6.2: Smart Sand Blair Reserve Tons as of December 31, 2022

Proven Reserves (000 Tons)					
By Mesh-Size					
20/40	40/70	70/140	30/50*	50/140*	Total
40,695	54,877	19,707	56,494	44,176	115,279

*These product sizes may only be produced in-lieu of an equivalent percentage of other overlapping product sizes, and are not additive.

6.3.2 Classification

Proven and probable proppant sand reserves are derived from measured and indicated proppant sand resources, respectively, in accordance with S-K 1300. BOYD is satisfied that the proppant sand reserve classification elects the outcome of technical and economic studies. Figure 6.2, following this page, illustrates the reserve classification of the Blair Operation proppant sand deposit.

6.3.3 Proppant Sand Reserve Estimate

Smart Sand's estimated surface mineable proppant sand reserves for the Blair property total 115.3 million saleable product tons, as of December 31, 2022. Of the total proppant sand reserves for the Blair Mine as of December 31, 2022, it is our conclusion that all the stated reserves can be classified in the Proven Reliability category (the highest level of assurance).

The estimated product distribution of the proppant sand reserves is based on available laboratory gradation test data provided by Smart Sand. Grain size distribution and overall yields may vary based on the depth and location at which mining occurs.

The Blair Operation, and other proppant sand operations in the area, have a well-established history of mining and selling proppant sand products into the various energy basins. BOYD has assessed that sufficient studies have been undertaken to enable the proppant sand resources to be converted to proppant sand reserves based on current and proposed operating methods and practices. Changes in the factors and assumptions employed in these studies may materially affect the proppant sand reserve estimate.

The extent to which the proppant sand reserves may be affected by any known geological, operational, environmental, permitting, legal, title, variation, socio-economic, marketing, political, or other relevant issues has been reviewed as warranted. It is the opinion of BOYD that Smart Sand has appropriately mitigated, or has the operational acumen to mitigate, the risks associated with these factors. BOYD is not aware of any additional risks that could materially affect the development of the proppant sand reserves.

Based on our independent estimate and operations review, we have a high degree of confidence that the estimates shown in this report accurately represent the available proppant sand reserves controlled by Smart Sand, as of December 31, 2022.

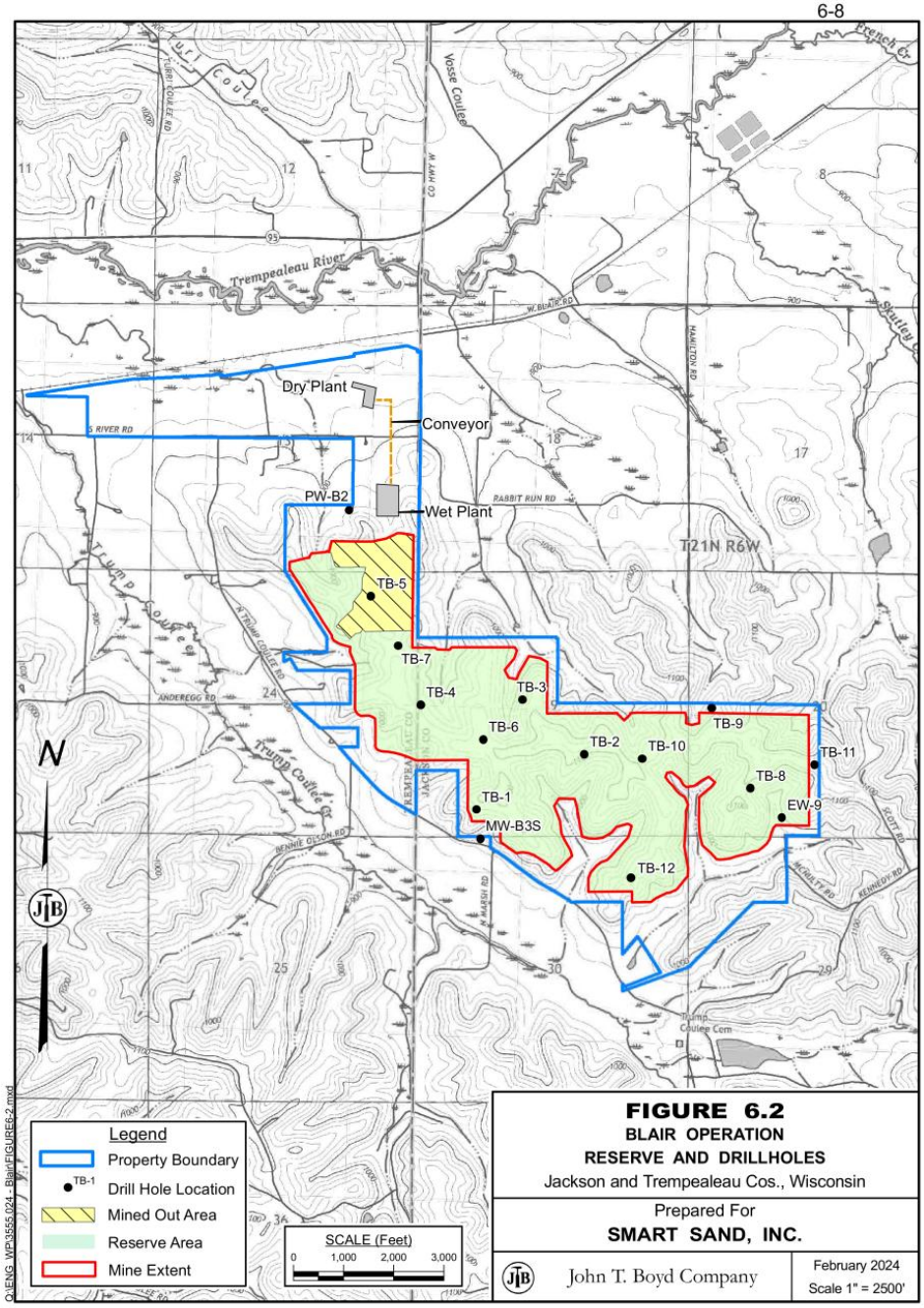


FIGURE 6.2
BLAIR OPERATION
RESERVE AND DRILLHOLES
Jackson and Trempealeau Cos., Wisconsin

Prepared For
SMART SAND, INC.

John T. Boyd Company

February 2024
Scale 1" = 2500'

7.0 MINING OPERATIONS

7.1 Mining Method

The Blair Mine property is broadly separated into two sections, the northern section, and the southern section. The property is bisected by S River Road. The office, wet processing plant, maintenance buildings and mine site are in the southern section, while the dry processing plant and unit train loadouts are in the northern section of the property.

The western side of the property generally consists of sandstone outcrops with minimal overburden. This area serves as the initial mining target between Year 2023 and Year 2026. A typical excavator and articulated truck method is employed in which a series of 55 ft high benches are extracted by drill and blast methods starting near the hilltop and working downward. The sand is drilled and blasted on a very wide pattern to “fluff” or disaggregate the sand grains. The mined sand is hauled to the wet process plant located on the northern section of the property for initial processing. The pits are dewatered as needed, and the water is pumped into a holding pond at the northwest area of the south section prior to sampling and discharging.

Figure 7.2, page 7-5, illustrates the current active mining area located on the western edge of the property. Reserves in the western outcrop area will be mined until mid-2026. Mining will then progress in a north to south/southeast direction until all current reserves are exhausted in approximately 58 years in 2081. The overburden is minimal on the western edge of the deposit where the sandstone outcrops. Further to the south and east, the overburden thickness increases and averages approximately 30 ft throughout the property. The overburden, consisting of a combination of soil, clay and clay-sandstone mixture is drilled and blasted to fluff the material before loading and removal. All overburden material is stored on site for eventual reclamation of the Blair site.

The current mine plan and exploration drilling have projected the pit(s) to extend down to a basement elevation of approximately 925 ft amsl.

The drilling and blasting are contracted to a third-party vendor and are performed on an as needed basis.

Figure 7.1: Current Sand Extraction Site. Idled For Seasonal Weather.

7.2 Mine Schedule, Equipment, and Staffing

The mining operation operates between mid-March to mid-November and shuts down during winter. The mine is scheduled to operate four days a week, running two back-to-back eight-hour shifts consecutively. A Friday shift can be added if required. It is expected that production will resume in May of 2023 at a rate of 600 tph of ROM. The schedule is highly dependent on product demand and is adjusted frequently.

The primary pit mobile equipment involved in sand excavation includes:

- Cat 988 loaders.
- Cat 982 loaders.
- Volvo A45 haul trucks.
- Cat 745 haul trucks.

- Cat 390 excavator.
- Cat 349 excavator.
- Volvo 480 excavator.

In addition, there are numerous support vehicles (maintenance trucks, skid steers, water truck, etc.) to complement the fleet. A third-party contractor will be used for the initial mining startup in May 2023 and the foreseeable future.

7.3 Mine Production

7.3.1 Historical Mine Production

Blair has predominantly produced 20/40-mesh, 30/50-mesh, 40/70-mesh, and 50/140-mesh (100-mesh) proppant sand products for sale to destinations served by the CN network. All the finished product is railed to its destination.

The sand is stored and shipped from the northern section of the property near the dry plant and adjacent to the CN rail line. Production originally commenced from the operation in 2016. Historical ROM production while the Blair Mine was operated by Hi-Crush is as follows:

Table 7.1: Historic ROM Production

Year	Finished Tons (000)
2016	3,573
2017	4,079
2018	4,078
2019	3,432

Due to poor economics, the mine was placed on care and maintenance status in 2020. Smart Sand bought the facility from Hi-Crush in March 2022 and intends to resume production in May 2023 after performing all necessary maintenance at the site.

7.3.2 Forecasted Production

Forecasted ROM sand production is estimated as follows:

Table 7.2: Forecasted ROM Production Tons

	Year 2023	Year 2024	Year 2025	Year 2026	Year 2027
ROM Production tons (000)	816	1,640	1,968	2,165	2,381

The average process yield is estimated at 75%; as such, 1 million ROM tons are expected to produce approximately 750,000 tons of finished product.

7.3.3 Expected Mine Life

As of December 31, 2022, the reserve estimate for the Blair Mine is estimated at 115.2 million saleable tons. Projecting an average yearly sales volume of 1.965 million tons per year, the operation has a LOM of approximately 58 years.

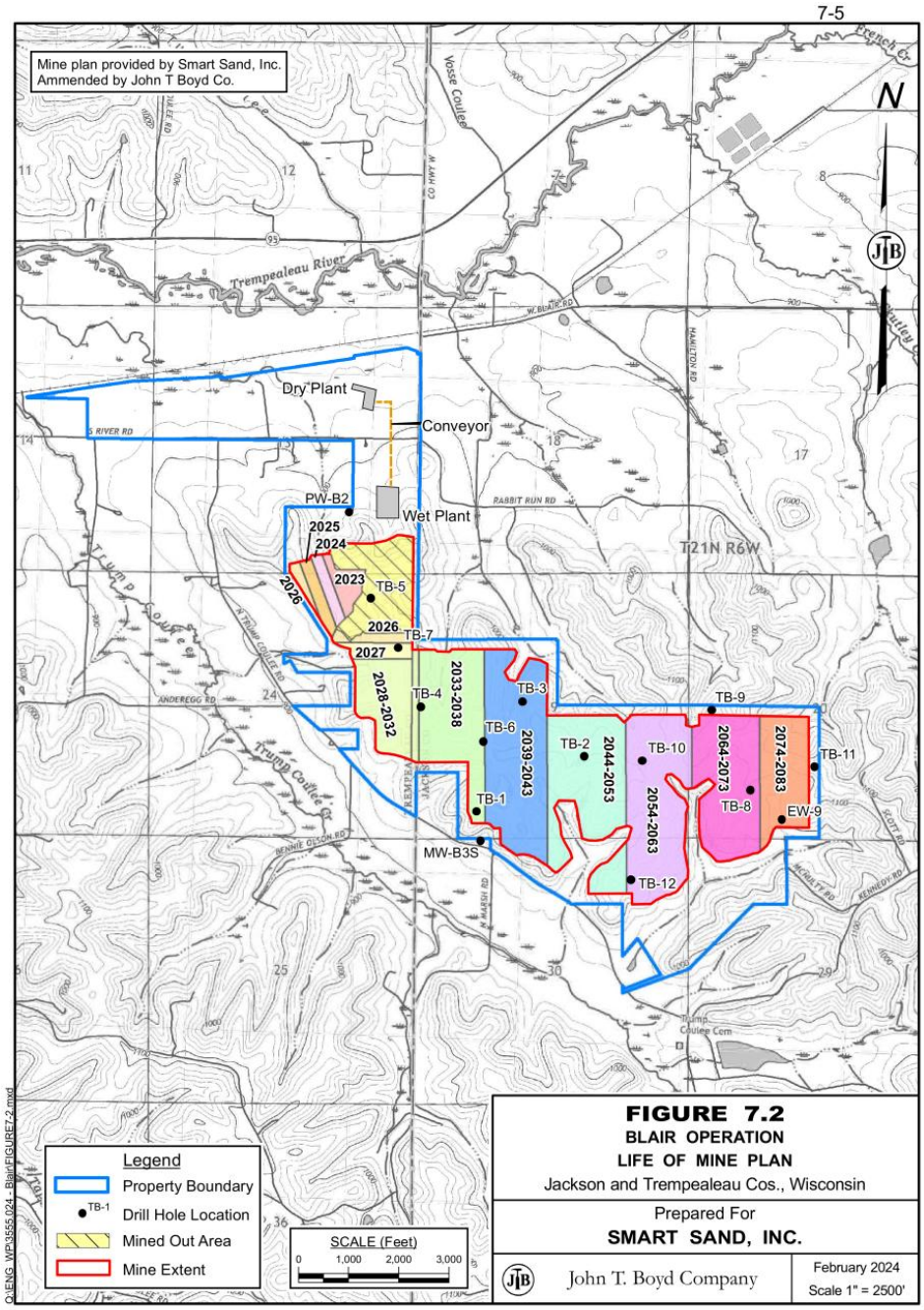
The illustration, Figure 7.2, depicts the proposed LOM plan for the Blair Mine. The LOM plan assumes an increasing volume from 816,000 ROM tons from May through December 2023 to 2.62 million ROM tons per year in 2028 and thereafter. Future mine plan production, and hence the longevity of the mine, is directly related to energy market demand for proppant sand. Actual yearly production volumes may, and are likely to, fluctuate significantly based on this demand.

7.3.4 Mining Risk

Surface mines face two primary types of operational risks. The first category of risk includes those daily variations in physical mining conditions, mechanical failures, and operational activities that can temporarily disrupt production activities. Several examples are as follows:

- Water accumulations/soft floor conditions.
- Process water shortages.
- Power curtailments.
- Variations in grain size consistency.
- Encountering excessive clay and other waste material.
- Failures or breakdowns of operating equipment and supporting infrastructure.
- Weather disruptions (power outages, dust storms, excessive heat etc.).

The above conditions/circumstances can adversely affect production on any given day but are not regarded as “risk issues” relative to the long-term operation of a mining entity. Instead, these are considered “nuisance items” that, while undesirable, are encountered on a periodic basis at many mining operations. BOYD does not regard the issues listed above as being material to the Blair Mine operations or otherwise compromising its forecasted performance.


Mine plan provided by Smart Sand, Inc.
Ammended by John T Boyd Co.
N
Trempealeau River
Vosse Coulee
Dry Plant
Conveyor
Wet Plant
PW-B2
T21N R6W
2025
2024
2023
2026
2027
2028-2032
2033-2038
2039-2043
2044-2053
2054-2063
2064-2073
2074-2083
TB-1
TB-2
TB-3
TB-4
TB-5
TB-6
TB-7
TB-8
TB-9
TB-10
TB-11
TB-12
EW-9
MW-B3S
Legend
Property Boundary
Drill Hole Location
Mined Out Area
Mine Extent
SCALE (Feet)
0 1,000 2,000 3,000
FIGURE 7.2
BLAIR OPERATION
LIFE OF MINE PLAN
Jackson and Trempealeau Cos., Wisconsin
Prepared For
SMART SAND, INC.
John T. Boyd Company
February 2024
Scale 1" = 2500'
Q:\ENG WP\3555.024 - Blair\FIGURE7-2.mxd

The second type of risk is categorized as “event risk.” Items in this category are rare, but significant occurrences that are confined to an individual mine, and ultimately have a pronounced impact on production activities and corresponding financial outcomes. Examples of event risks are major fires or explosions, floods, or unforeseen geological anomalies that disrupt extensive areas of proposed or operating mine workings and require alterations of mining plans. Such an event can result in the cessation of production activities for an undefined but extended period (measured in months, and perhaps years) and/or result in the sterilization of proppant sand reserves. This type of risk is minimal in a relatively simple surface sand mining operation.

8.0 PROCESSING OPERATIONS

8.1 Overview

The Blair plant area commenced wash plant operations in 2016. The plant consists of a wet processing plant, a dry processing plant and a rail loadout facility. The plant currently has a nominal capacity of approximately 3 million saleable tons per year. The ROM sand material is hauled to the wet processing plant via articulated truck and then conveyed to the dry processing plant on the northern property.

8.1.1 Wet Plant

Figure 8.1, below, shows the wet plant where the material between 20-mesh and 140-mesh is classified and conveyed onward to the dry process plant at the north end of the property. The waste <140-mesh sand and oversize are placed back into a plastic lined tailings pond east of the wet processing plant. The wet plant employs typical screen/hydrosizer/cyclone classification and dewatering technology and has an ultrafine circuit and thickener. The wet plant will operate 4-5 days a week, 16 hours a day between March and November. The wet plant and mine shut down during winter when weather makes operations of this equipment uneconomical. This schedule fluctuates based on product demand. The nominal capacity of the plant is approximately 400 tph of ROM sand.

Figure 8.1: Blair Wet Processing Plant

8.1.2 Decant/Dry Plant

The WIP (20/140-mesh) material is conveyed to a storage shed for dewatering prior to entering the dryer. A drag chain arrangement reclaims dryer sand from the top of the decant pile and conveys the sand to two 200 tph natural gas fired dryer. Dry sand is then screened into predominantly 20/40-mesh, 30/50-mesh, 40/70-mesh, and 50/140-mesh (100-mesh) finished products. The finished products are stored in five 5,000-ton loadout silos. All product leaves the plant via rail. The rail loadout serviced by the CN. The dry plant will operate 24 hours per day, 365 days a year. A sufficient stockpile of WIP is made during the operating season to service customers year-round. Approximately 54 people worked at the Blair Facility prior to shut down in 2020. Production is anticipated to resume in May of 2023 as hiring is currently underway.

Figure 8.2: Rail Loadout and Silos

8.2 Conclusion

Based on our review of the Blair Mine, it is BOYD's opinion that the processing methods and existing equipment at the plant will be sufficient for the planned production of proppant sand.

9.0 MINE INFRASTRUCTURE

The Blair Mine is serviced by various utilities that are routed along the CN corridor, which runs north of the northern property line.

We Energies, (a subsidiary of WEC Energy group) provides natural gas supply for the drying equipment is routed along this same corridor. Natural gas is then piped to various buildings in a series of underground pipelines.

Xcel Energy provides three phase electrical power via a high voltage line that runs along the same utility corridor as the natural gas and is supplied to various points at the Blair Operation with above and below ground electrical lines.

Plant process water is supplied by three wells drilled on the property as well as water collected in the pit and ponds. Additionally, the wash process water is recycled after fines are removed via settling with a flocculent in a thickener and series of constructed ponds. As the mine progresses, silt ponds are constructed in mined-out areas. Potable water is provided by one of the onsite wells which is purified for consumption. In addition, bottled water and jugs are provided.

On-site facilities include a scale house, office, shop, and a quality laboratory located in the dry process plant. The operation employed approximately 54 people and staffing prior to being placed on care and maintenance. Currently a minimal staff is present to maintain the facility and provide security.

The surface facilities currently located at the mine are well constructed and have the necessary capacity/capabilities to support the Blair Mine's near-term operating plans. Operational preference may lead to the upgrading of some existing facilities if the operation expands in the future.

10.0 MARKET ANALYSIS

The proppant sand market is driven by unconventional horizontal drilling in the oil and gas industry. In the late 1990s, rapid advances in horizontal drilling and hydraulic fracturing (fracking) in North America ushered in large-scale commercial oil and gas production. This fracking technique has been increasingly successful and modified over time to extract oil and gas held in dense layers of shale rocks, whose low permeability had previously prevented the flow of hydrocarbons.

Hydraulic fracturing uses a mixture of water, chemicals, and proppant (natural sand or man-made sand-like substances) to fracture shale rock and release hydrocarbons such as oil, natural gas, and natural gas liquids. The proppant acts to keep the fractures open (prop) while the pressurized fluids flow back up the well piping. Wells have become more productive with the addition of horizontal drilling capabilities, longer lateral lengths, and multi-stage fracking.

North America's shale oil industry's growing competitiveness gained through continuous technology improvement and falling production costs have had major implications on the global energy market. Oilfield service companies, including proppant sand producers, made significant cuts in 2020 to survive lower commodity prices because of the COVID-19 pandemic. More recently, energy pricing has rebounded along with well activity in the basins.

Although Smart Sand's market area is essentially all of the energy basins in the United States and Western Canada, we have selectively focused on the Montney and Marcellus/Utica (Appalachia Region) as these are target markets for their proppant sand. The Blair Mine has advantaged delivered cost to the Marcellus/Utica and Montney Basins as the Blair Mine directly loads onto the CN, a very competitive option for eastbound/westbound sand to the Marcellus/Utica and Montney basins. Blair owns a loadout at the site which enables them to load directly on the CN. A high-level overview of demand in these basins follows.

10.1 Montney Basin

The Montney Basin was discovered as a large source of tight oil in 2005 and with the advancement of horizontal drilling techniques, it has become a strong producer of hydrocarbons in Western Canada. Figure 10.1, following this page, shows the general

location of the Montney Basin and all oil and gas wells drilled since 2005. After rising quickly between 2005 and 2014, prices retreated due to surplus of oil production in the market. Prices have been steady (with the exception of 2020 /COVID), averaging between the high $30's and low $40's per barrel.

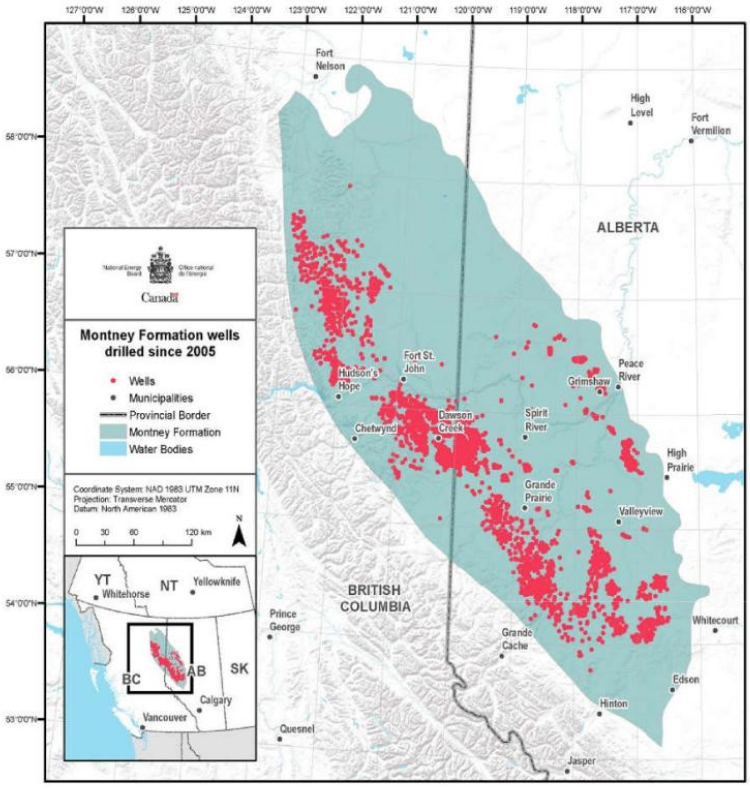


Figure 10.1: General Overview of the Montney Basin and All Oil and Gas Wells Drilled Since 2005 (Source: CER)

Figure 10.2, below, illustrates the average annual price for Western Canadian Select (WCS) crude oil located in Alberta and British Columbia.

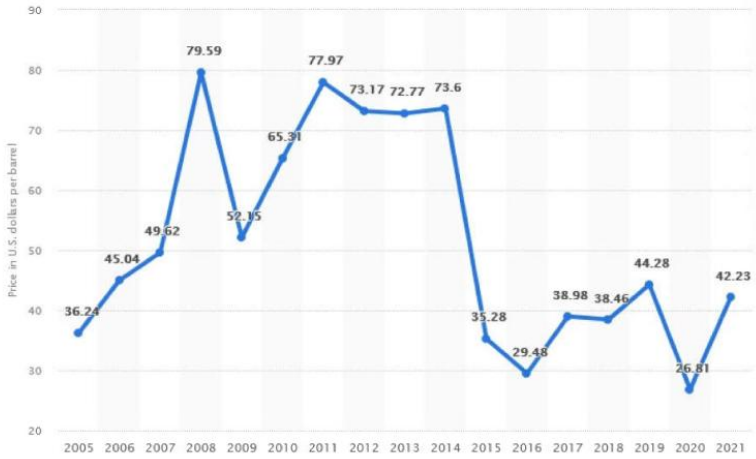


Figure 10.2: Average Annual Western Canada Select Oil Prices (Source: Statista)

Rig counts in Western Canada indicate a rebound of drilling activity over the past three years. The number of rigs working this winter is growing to three-year highs as illustrated in Figure 10.3, below.

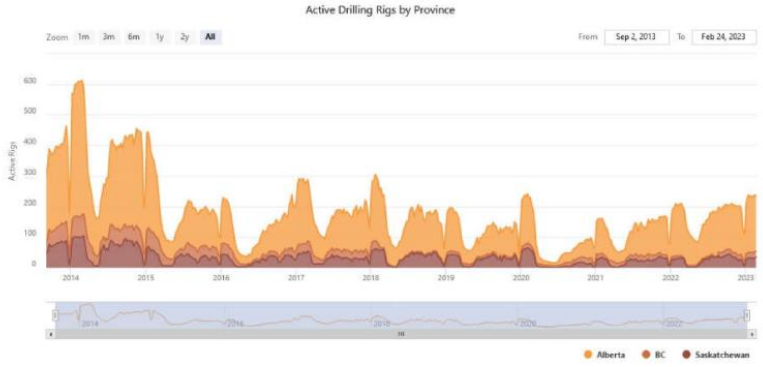


Figure 10.3: Active Drilling Rigs in Western Canada (Source: CAOEC)

Since reaching a low of nine active rigs in Alberta in 2020, active drilling has rebounded to 183 as of February 2023. According to the Canadian Energy Regulator (CER) and is shown in Figure 10.4, below, Alberta daily tight crude oil production is continuing to increase and is forecasted to achieve more gains through 2030.

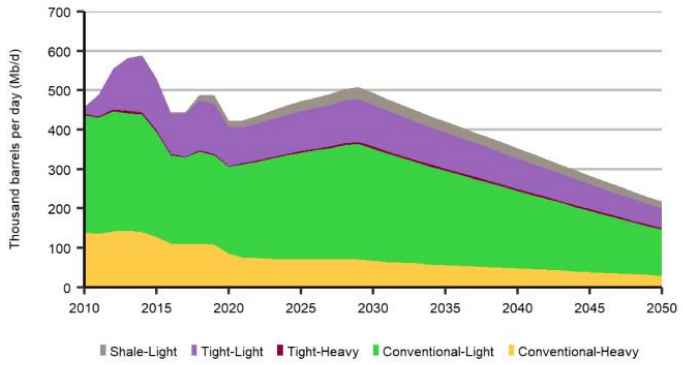


Figure 10.4: Current and Forecasted Oil Production in Alberta (Source: CER)

The Montney Basin is chiefly reliant on imported sand for drilling oil and gas wells and thus, NWS from the Wisconsin area remains an important product for many well applications.

10.2 Appalachian Basin (Marcellus/Utica Basin)

The Appalachian Basin predominantly consists of the Marcellus and Utica shale plays. They are substantial natural gas and oil plays in North America and a target market for the Blair Operation. Like the Montney, the Appalachian imports most of the proppant sand. Very few notable in-basin sand operations exist. This creates an advantaged situation for the Blair Mine as there are few substitutes transport wise to the basin.

Following the energy downturn in 2019 and then Covid shutdown in 2020, the basin wellfield activity appears to be rebounding. Horizontal rigs have stabilized over the past two years as can be seen on Figure 10.5, following this page, but gas production per rig is substantially higher. Energy companies are drilling longer laterals and optimizing each

well pad; becoming more efficient from a cost perspective and overall natural gas production is stable as can be seen from Figure 10.6, below.

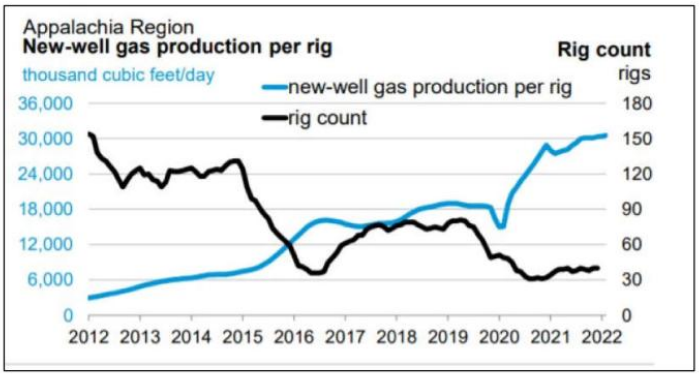


Figure 10.5: Appalachian Rig Count and Production per Rig (Source: EIA)

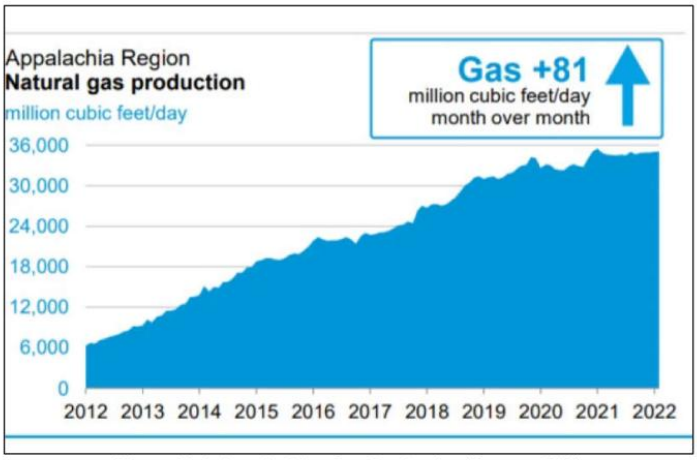


Figure 10.6: Appalachian Gas Production (Source: EIA)

Having survived the challenging environment of 2019 and 2020, Smart Sand's Blair Operation should continue to prove viable into the future notwithstanding a sustained and significant energy price collapse. Their low-cost mining scheme, advantaged

transport to select basins, and high-quality product help to create an advantage compared with other NWS producers.

11.0 CAPITAL, REVENUES, AND OPERATING COSTS

11.1 Introduction

Smart Sand acquired the Blair Operation from Hi-Crush in March 2022. Smart Sand provided BOYD with historical production for the period 2016 through 2020. However, no historical financial, sales, or cost (CapEx/OpEx) data was available for the Blair Operation. Therefore, for purposes of compiling the TRS, only historical production will be reviewed, and all other financial information is based on Smart Sand's forecast of future performance.

11.2 Historical Production, Revenues and Operating Costs

11.2.1 Historical Production

Table 11.1, below, presents Blair's historical sales data for the period 2016 and 2020.

Table 11.1: Historical Sales Statistics

Year	Tons Sold (000)
2016	1,482,355
2017	2,503,867
2018	2,047,677
2019	2,025,313
2020*	507,262
Total	8,566,474

*Operations Idled

Figure 11.1, following this page, presents the product sizes sold each year. In 2017, the peak sales year, about 71% of the tons sold consists of the finer size products (40/70,100-mesh) and approximately 29% of the products sold consisted of

coarser (20/40, 30/50-mesh) products. Additionally, similar product proportions were realized for other years.

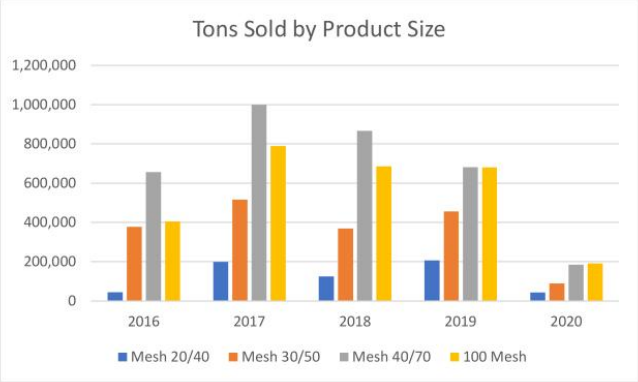


Figure 11.1: Tons Sold by Product Size

Since the acquisition in March 2022 through December 2022, the Blair Operation has not had any sales. The operation is projected to resume mining, processing, and sales in May of 2023.

11.3 Projected Production, Sales, and Costs

Smart Sand has provided BOYD with production, sales, and cost projections for the Blair Operation. We reviewed and, if needed, adjusted the price and cost projections based on historical financial data of similar operations and our experience in the industry. Forecasted financial data, including product pricing, and costs are in 2023 constant dollars. Frac sand sales volumes increase over a six-year period from 612,000 tons in 2023 to a steady-state 1.964 million tons in 2028 and thereafter. BOYD opines that the production and financial projections are reasonable and are likely to be within ±20% accuracy level.

11.3.1 Production and Sales Projections

Table 11.2, below, presents proppant sand production projections for the years 2022 through 2027.

Table 11.2: Blair Production Projections

	Year 2023	Year 2024	Year 2025	Year 2026
ROM Production (000)	816	1,640	1,968	2,165
Wet Plant Feed	816	1,640	1,968	2,165
Processing Recover (%)	75%	75%	75%	75%
Finished Product	612	1,230	1,476	1,624

Annual forecasted ROM production will reach steady-state in 2028 when the dry plant is estimated to produce 1.96 million tons per year of saleable product after a processing (wet and dry processing plant) loss of approximately 25%, as discussed in Chapter 6. Forecasted processing plant production is within the operation's current infrastructure capacities and capabilities. It should be noted that Year 2023 is a partial year with operations estimated to commence in May.

Table 11.3, below, presents proppant sand five-year sales projections.

Table 11.3: Blair Sales Projections

Year:	2023	2024	2025	2026	2027
20/40 Dry Sand:	49,635	102,106	122,527	134,780	148,257
30/50 Dry Sand:	99,269	204,211	245,054	269,559	296,515
40/70 Dry Sand:	347,443	714,740	857,688	943,457	1,037,802
100 Mesh:	116,062	208,912	250,694	275,764	303,340
Total Frac Sand Sales Volumes:	612,409	1,229,969	1,475,963	1,623,559	1,785,915

Sales of the projected plant product are approximately 85% for the coarse products (20/70-mesh) and 15% for the 50/140-mesh or 100-mesh product. These are in-line with the reserve product size data provided by Smart Sand.

BOYD used a mine gate sales price of $36.00 per ton. BOYD opines that these are reasonable price projections, as they are in-line with Smart Sand's expected mine gate pricing data for 2023 and historical 2022 pricing.

11.3.2 Operating Cost Projections

Table 11.4, following this page, presents the cash cost projections for the years 2023 through 2028. These projections were based on a review of prior year and current year

cost, and Selling, General and Administrative (SG&A) data provided to BOYD by Smart Sand, as well as other information. The 2023 cost projections are higher than subsequent years reflecting the restart of the purchased operation.

Table 11.4: Annual Cash Cost Projections

Cost of Sales ($ 000)	2023	2024	2025	2026	2027
Wages and Benefits	3,275	5,092	6,111	6,723	7,394
Excavation	4,842	7,528	9,033	9,939	10,930
Utilities	3,133	4,871	5,845	6,431	7,073
External Labor	142	221	266	292	321
Insurance	142	221	266	292	321
Equipment	1,424	2,214	2,657	2,923	3,215
Maintenance	1,139	1,771	2,125	2,339	2,572
Real Estate Taxes	142	221	266	292	321
Cash Production Costs	14,241	22,140	26,568	29,232	32,148
SG&A	1,845	2,214	2,657	2,923	3,215
Total Production Costs	**16,086**	**24,354**	**29,225**	**32,155**	**35,363**
Unit cost per sales ton($/ton)	26.28	19.80	19.80	19.80	19.80

BOYD notes that the Blair Property has limited royalty minimums and ongoing reclamation costs that are included in the production costs above.

11.3.3 Projected Capital Expenditures

Smart Sand provided BOYD with the CapEx estimate for the Blair Operation. A total amount of $17.15 million will be spent between 2023 and 2027 with a projected $4.92 million in 2023 to commission the plant after being idled. Smart Sand projects an annual amount of approximately $2.00 per sales ton for sustaining capital expenditures following the restart of the plant in 2023. This includes capital maintenance and replacement of production equipment as well as other items for the operation, through the remainder LOM.

Table 11.5: Projected Capital Costs (LOM)

Year	CapEx ($ 000)
2023*	4,919
2024	2,460
2025	2,950
2026 thru 2087	223,924
Total	234,253

Total capital projections for the life of the operation are approximately $234 million. The capital cost estimates appear reasonable and customary for a plant with an approximate 3 million tpy capacity.

12.0 ECONOMIC ANALYSIS

12.1 Introduction

Cash flow projections for the Blair Operation have been generated from the proposed LOM production schedules, revenues, cost of goods sold (COGS), and CapEx estimates discussed in Chapter 11. A summary of the key assumptions used is provided below.

- LOM ROM proppant sand tons and product tons sold were based on the total proppant sand reserve estimates discussed in Chapter 6 of this report. BOYD estimates that the Blair Operation reserves would be depleted in Year 2083.
- Forecasted revenues at Blair are based on sales of 20/40, 30/50, 40/70 and 100 mesh (50/140) products to be delivered to its customer base in the various energy basins via the CN railway or other connecting rail carriers.
- Operating and Other Costs (as discussed in Chapter 11) include:
  - Employee wages, and benefits.
  - Excavation.
  - Utilities and Fuel.
  - Equipment.
  - Maintenance.
  - Real Estate Taxes.
  - Other Operating Expenses.
  - SG&A.
- Reclamation costs are ongoing and included in operating cost estimates.
- Capital Expenditures (as discussed in Chapter 11) include:
  - Sustaining/Maintenance.
- Taxes are based on:
  - Federal Business Income Tax Rate of 21%.
  - Wisconsin Corporate Income and Replacement Tax Rate of 7.9%.
- Adjustments used to determine After-Tax cash flows:
  - Current depreciation expense was provided by Smart Sand for the Blair Operation to year 2041, 20-year average used thereafter.
  - Operating losses, if any, are carried forward in the tax computation.

12.2 Economic Analysis

BOYD prepared an economic analysis, as of January 1, 2023, for the Blair Operation using the production, sales, and financial projections presented in this report. Our

analysis confirms that the operation generates positive net present value (NPV) based on a 12% discount rate on a pre-tax and after-tax basis, that supports the statement of proppant sand reserves herein.

12.2.1 Cash Flow Analysis

Table 12.1, below, presents the pre-tax and after-tax cash flow projections for the years 2023 through 2027, based on the proposed production schedule, revenue, COGS, CapEx and other estimates discussed above for the Blair Operation. DCF-NPV on a pre-tax and after-tax basis, using discount rates of 10%, 12%, and 15%, were calculated utilizing the cash flows above. The DCF-NPV values used mid-year discounting and all cash flows were on a constant dollar basis.

Table 12.1: Summary Cash Flow Statement

Description	Units	2023	2024	2025	2026	2027
Opening Reserve Balance	000 tons	115,279	114,667	113,437	111,961	110,337
Closing Reserve Balance	000 tons	114,667	113,437	111,961	110,337	108,551
Process Yield	%	75	75	75	75	75
Product Sales	000 tons	612	1,230	1,476	1,624	1,786
Total Revenues	$0	22,032	44,279	53,135	58,464	64,296
Average Selling Price	$/ton sold	36	36	36	36	36
Total Cash Costs of Sales	$0	14,241	22,140	26,568	29,232	32,148
Average Cash Cost of Sales	$/ton sold	23.27	18	18	18	18
SG&A	$0	1,845	2,214	2,657	2,923	3,215
EBITDA	$0	5,946	19,925	23,910	26,309	28,933
Capital Expenditures	$0	4,919	2,460	2,952	3,248	3,572
Pre-tax Cash Flow	$0	1,027	17,465	20,958	23,061	25,361
Taxes	$0	154	4,847	5,798	6,346	6,950
Net Operating Profit after Taxes	$0	873	12,619	15,160	16,714	18,411
Pre-tax Cash Flow	$0	1,027	17,465	20,958	23,061	25,361
After-tax Cash Flow	$0	873	12,619	15,160	16,714	18,411

The pre-tax DCF-NPV ranges from approximately $158 million to $250 million. The after-tax DCF-NPV ranges from approximately $116 million to $183 million. Table 12.2, below, summarizes the results of the pre-tax and after-tax DCF-NPV analyses:

Table 12.2: DCF-NPV Analysis

	NPV ($ millions)		
	10%	12%	15%
Pre-Tax:	249.7	201.5	158.5
After-Tax:	182.8	147.5	115.9

Refer to Table 12.3, following this page, for the detailed LOM cash flow analysis and corresponding pre-tax and after-tax DCF-NPV analyses at a 12% discount rate.

BOYD notes that the NPV estimate was made for purposes of confirming the economic viability of the reported proppant sand reserves and not for purposes of valuing Smart Sand, the Blair Operation, or its assets. IRR and project payback were not calculated, as there was no initial investment considered in the financial model. Risk is subjective, as such, BOYD recommends that each reader should evaluate the project based on their own investment criteria.

TABLE 12.3

PRE-TAX AND AFTER-TAX CASH FLOW ANALYSIS
SMART SAND - BLAIR OPERATION
Tremealeau and Jackson Counties, WI
Prepared For
SMART SAND, INC
By
John T. Boyd Company
Mining and Geological Consultants
February 2024

As of Jan 1 2023	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044-2081
Production Statistics (Tons 000):																						-
ROM Production	816	1,640	1,968	2,165	2,381	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	97,575
Dry Plant Product	612	1,230	1,476	1,624	1,786	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	73,181
Overall Processing Recovery (%)	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
																						-
Sales and Financial Data:																						-
Total Tons Sold	612	1,230	1,476	1,624	1,786	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	73,181
																						-
Product Pricing ($ per ton)																						-
Weighted Average	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00
																						-
Revenues ($ 000)																						-
Total Sales Revenues	22,032	44,280	53,136	58,464	64,296	70,740	70,740	70,740	70,740	70,740	70,740	70,740	70,740	70,740	70,740	70,740	70,740	70,740	70,740	70,740	70,740	2,634,516
																						-
COGS ($ 000):																						-
$ per ton sold	23.27	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
																						-
S,G&A	1,845	2,214	2,657	2,923	3,215	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	131,726
$ per ton sold	3.01	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
																						-
Total COGS	16,066	24,354	29,225	32,155	35,363	38,907	38,907	38,907	38,907	38,907	38,907	38,907	38,907	38,907	38,907	38,907	38,907	38,907	38,907	38,907	38,907	1,448,984
$ per ton sold	26.28	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80
																						-
EBITDA	5,946	19,926	23,911	26,309	28,933	31,833	31,833	31,833	31,833	31,833	31,833	31,833	31,833	31,833	31,833	31,833	31,833	31,833	31,833	31,833	31,833	1,185,532
$ per ton sold	9.72	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20
																						-
CapEx ($ 000):																						-
Total CapEx	4,919	2,460	2,952	3,248	3,572	3,930	3,930	3,930	3,930	3,930	3,930	3,930	3,930	3,930	3,930	3,930	3,930	3,930	3,930	3,930	3,930	145,410
Net Pre-Tax Cash Flow	1,027	17,466	20,959	23,061	25,361	27,903	27,903	27,903	27,903	27,903	27,903	27,903	27,903	27,903	27,903	27,903	27,903	27,903	27,903	27,903	27,903	1,040,122
Federal and State Income Taxes	154	4,847	5,798	6,346	6,950	7,416	7,416	7,416	7,416	7,416	7,416	7,416	7,416	7,416	7,416	7,416	7,416	7,416	7,416	7,416	7,416	275,720
After-Tax Net Cash Flow	873	12,619	15,161	16,714	18,411	20,487	20,487	20,487	20,487	20,487	20,487	20,487	20,487	20,487	20,487	20,487	20,487	20,487	20,487	20,487	20,487	764,402
																						-
DCF-NPV Analysis:																						-
Pre-Tax Discounted Cash Flows at 12%	970	14,736	15,788	15,510	15,230	14,961	13,358	11,927	10,649	9,508	8,489	7,580	6,767	6,042	5,395	4,817	4,301	3,840	3,429	3,061	2,733	22,443
Cumulative Pre-Tax Discounted Cash Flows at 12%	970	15,706	31,494	47,004	62,233	77,194	90,552	102,478	113,127	122,635	131,124	138,704	145,471	151,513	156,908	161,725	166,026	169,866	173,295	176,356	179,089	201,533
After-Tax Discounted Cash Flows at 12%	825	10,647	11,420	11,242	11,056	10,984	9,808	8,757	7,819	6,981	6,233	5,565	4,969	4,436	3,961	3,537	3,158	2,819	2,517	2,248	2,007	16,479
Cumulative After-Tax Discounted Cash Flows at 12%	825	11,472	22,892	34,134	45,190	56,174	65,982	74,739	82,557	89,538	95,771	101,336	106,305	110,741	114,702	118,239	121,397	124,216	126,734	128,981	130,988	147,467

12.2.2 Sensitivity Analyses

Sensitivity analyses for the after-tax cash flows considering changes to the average sales price (ASP) and COGS were prepared using discount rates of 12%. Revenues were adjusted in increments of 10% and range from minus 20% to plus 20% of base revenues as noted in Table 12.4 below.

Table 12.4: After-Tax NPV_{12} Sensitivity Analysis ($ millions)

COGS Sensitivity \ ASP Sensitivity	-20%	-10%	0%	10%	20%
-20%	95.9	124.8	201.0	249.4	301.0
-10%	72.3	107.1	174.2	226.7	276.3
0%	48.8	97.1	147.5	197.8	248.2
10%	25.2	68.0	120.7	173.7	223.3
20%	1.7	46.4	93.9	150.1	198.4

13.0 PERMITTING AND COMPLIANCE

13.1 Permitting

Several air quality permits are active at the site for both construction (#14-POY-226, #16-POY-076, and #19-BAP-140-EXM) and operations (#662070970-F02). These permits give guidance on particulate emissions and visible emissions for both the construction and operation of the Blair facility and are administered by the Wisconsin Department of Natural Resources (WDNR). One Federally Enforceable State Operation Permit (FESOP #662070970-F03) is currently requested and is pending approval.

Various permits for ground water extraction is active and administered by the WDNR. These permits (#91080-#92085) allow for the use of a total of 2,120 GPM of water for mineral processing.

A Non-Metallic Mining Industrial Permit (also known at a Storm Water Pollution & Prevention Plan or SWPPP) is in place and administered by WDNR in both Jackson and Trempealeau counties. This permit gives guidance on the discharge and limits of industrial water from the site to the waters of the US.

A Land Use Agreement is active for the Cities of Springfield and Preston regarding operating hours, noise, traffic, etc.

A Conditional Use Permit (CUP) is active for both Jackson County and the City of Blair for the mining and processing of material at the Blair site.

A reclamation plan for restoring the site to an agreed upon state is in place with Jackson County and the City of Blair.

13.2 Compliance

Mine safety is regulated by the federal government by MSHA as are all surface mining operations. MSHA inspects the facilities a minimum of twice yearly. Smart Sand's safety record compares favorably with its regional peers.

Based on our review of information provided by Smart Sand and available public information, it is BOYD's opinion that the Blair Mine's record of compliance with applicable mining, water quality, and environmental regulations is generally typical for that of the industry. BOYD is not aware of any regulatory violation or compliance issue

which would materially impact the frac sand reserve estimate. Currently, Smart Sand is finalizing transfer of permit ownership from Hi-Crush to the current owners. It is anticipated that the permit transfers will be completed with no issues and in a timely manner.

14.0 INTERPRETATION AND CONCLUSIONS

14.1 Findings

Based on our independent technical review and geoscientific study of the Blair Mine, BOYD concludes:

- Sufficient data have been obtained through the site exploration and sampling program and mining operations to support the geological interpretations of seam thickness, grain size distribution and API quality for the portions of the sand underlying the controlled property. The data are of sufficient quantity and reliability to reasonably support the sand resource and sand reserve estimates in this technical report summary.
- Estimates of proppant sand reserves reported herein are reasonably and appropriately supported by technical studies, which consider mining plans, revenue, and operating and capital cost estimates.
- The 115.3 million product tons of proppant sand reserves (as of December 31, 2022) identified on the property are economically extractable under reasonable expectations of market volumes and pricing for proppant sand products, estimated operation costs, and capital expenditures.
- There is no other relevant data or information material to the Blair Mine that is necessary to make this technical report summary not misleading.

14.2 Significant Risks and Uncertainties

As with any mining project there are certain inherent risks associated with the overall operation of a facility. Smart Sand has sufficiently mitigated operational risk through obtaining sufficient geologic sampling information and analysis. Additionally, Smart Sand has engineered the processing plant to include parallel duplicate process circuits which significantly increases plant availability. However, it should be noted that proppant sand is generally marketed exclusively to the energy industry which has historically been a volatile industry.

Exhibit 21.1

Smart Sand, Inc. and Subsidiaries

List of Subsidiaries as of December 31, 2023

Subsidiaries	State of Organization
Fairview Cranberry, LLC	Wisconsin
Will Logistics, LLC	Pennsylvania
Smart Sand Live Oak LLC	Delaware
Smart Sand Fayette County LLC	Delaware
Smart Sand Hixton LLC	Delaware
Smart Sand Reagan County LLC	Delaware
Smart Sand Tom Green County LLC	Delaware
Smart Sand Oakdale LLC	Delaware
SSI Logistics LLC	Delaware
SSI Permian I, LLC	Delaware
SSI Permian II, LLC	Delaware
Smart Sand Holdings, LLC	Delaware
SSI Bakken I, LLC	Delaware
Quickthree Technology, LLC	Delaware
SSI Marcellus I, LLC	Delaware
Bakken Silo Servicing, LLC	Delaware
SSI Oil and Gas Proppants Holdings, LLC	Delaware
SSI Oil and Gas Proppants, LLC	Delaware
CRS Proppants LLC	Delaware
Northern White Sand LLC	Delaware
Smart Sand Blair, LLC	Delaware

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our report dated March 11, 2024, with respect to the consolidated financial statements included in the Annual Report of Smart Sand, Inc. on Form 10-K for the year ended December 31, 2023. We consent to the incorporation by reference of said report in the Registration Statements of Smart Sand, Inc. on Form S-3 (File No. 333-251915) and on Forms S-8 (File No. 333-270118, File No. 333-214699, File No. 333-214700 and File No. 333-239057).

/s/ GRANT THORNTON LLP

Philadelphia, Pennsylvania
March 11, 2024

Exhibit 23.2

[LETTERHEAD OF JOHN T. BOYD COMPANY]

March 11, 2024
File: 3555.010

CONSENT OF JOHN T. BOYD COMPANY TO BE NAMED IN REGISTRATION STATEMENT

Ladies and Gentlemen,

The undersigned hereby consents to the references to our firm in the form and context in which they appear in this Annual Report on Form 10-K for the year ended December 31, 2023 (the "Annual Report") and the Quarterly Reports on Form 10-Q for the quarters ended March 31, 2023, June 30, 2023 and September 30, 2023 (the "Quarterly Reports"). We hereby further consent to (i) the use in the Annual Report and the Quarterly Reports of information relating to our Technical Report Summaries for Frac Sand Resources and Reserves for Oakdale,Utica, and Blair Mines and (ii) the incorporation by reference in the Registration Statement on Form S-3 (No. 333-251915) of Smart Sand, Inc., including any amendment thereto, any related prospectus and any related prospectus supplement of such information.

Respectfully submitted,

JOHN T. BOYD COMPANY
By:

/s/ Ronald L. Lewis_____
Ronald L. Lewis
Managing Director and COO

Exhibit 31.1

CERTIFICATION BY PRINCIPAL EXECUTIVE OFFICER

I, Charles E. Young, certify that:

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

Dated: March 11, 2024

/s/ Charles E. Young

Charles E. Young, Chief Executive Officer

(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION BY PRINCIPAL FINANCIAL OFFICER

I, Lee E. Beckelman, certify that:

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

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

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; 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 (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: March 11, 2024

/s/ Lee E. Beckelman

Lee E. Beckelman, Chief Financial Officer

(Principal Financial Officer)

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 Smart Sand, Inc. (the "Company") on Form 10-K for the year ended December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Charles E. Young, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(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 result of operations of the Company.

/s/ Charles E. Young

Charles E. Young, Chief Executive Officer

(Principal Executive Officer)

Dated: March 11, 2024

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 Smart Sand, Inc. (the "Company") on Form 10-K for the year ended December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Lee E. Beckelman, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(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 result of operations of the Company.

/s/ Lee E. Beckelman

Lee E. Beckelman, Chief Financial Officer

(Principal Financial Officer)

Dated: March 11, 2024

Exhibit 95.1

MINE SAFETY DISCLOSURES

The following disclosures are provided pursuant to Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Act") and Item 104 of Regulation S-K, which requires certain disclosures by companies required to file periodic reports under the Securities Exchange Act of 1934, as amended, that operate mines regulated under the Federal Mine Safety and Health Act of 1977 (the "Mine Act").

Mine Safety Information

Whenever the Federal Mine Safety and Health Administration ("MSHA") believes a violation of the Mine Act, any health or safety standard or any regulation has occurred, it may issue a citation which describes the alleged violation and fixes a time within which the U.S. mining operator must abate the alleged violation. In some situations, such as when MSHA believes that conditions pose a hazard to miners, MSHA may issue an order removing miners from the area of the mine affected by the condition until the alleged hazards are corrected. When MSHA issues a citation or order, it generally proposes a civil penalty, or fine, as a result of the alleged violation, that the operator is ordered to pay. Citations and orders can be contested and appealed, and as part of that process, may be reduced in severity and amount, and are sometimes dismissed. The number of citations, orders and proposed assessments vary depending on the size and type (underground or surface) of the mine as well as by the MSHA inspector(s) assigned.

Mine Safety Data

The following provides additional information about references used in the table below to describe the categories of violations, orders or citations issued by MSHA under the Mine Act:

- *Section 104 S&S Citations:* Citations received from MSHA under section 104 of the Mine Act for violations of mandatory health or safety standards that could significantly and substantially contribute to the cause and effect of a mine safety or health hazard.
- *Section 104(b) Orders:* Orders issued by MSHA under section 104(b) of the Mine Act, which represents a failure to abate a citation under section 104(a) within the period of time prescribed by MSHA. This results in an order of immediate withdrawal from the area of the mine affected by the condition until MSHA determines that the violation has been abated.
- *Section 104(d) Citations and Orders:* Citations and orders issued by MSHA under section 104(d) of the Mine Act for an unwarrantable failure to comply with mandatory health or safety standards.
- *Section 110(b)(2) Violations:* Flagrant violations issued by MSHA under section 110(b)(2) of the Mine Act.
- *Section 107(a) Orders:* Orders issued by MSHA under section 107(a) of the Mine Act for situations in which MSHA determined an "imminent danger" (as defined by MSHA) existed.

Pattern or Potential Pattern of Violations

The following provides additional information about references used in the table below to describe elevated pattern of violation enforcement actions taken by MSHA under the Mine Act:

- *Pattern of Violations*: A pattern of violations of mandatory health or safety standards that are of such nature as could have significantly and substantially contributed to the cause and effect of mine health or safety hazards under section 104(e) of the Mine Act.
- *Potential Pattern of Violations*: The potential to have a pattern of violations under section 104(e).

Pending Legal Actions

The following provides additional information of the types of proceedings brought before the Federal Mine Safety and Health Review Commission ("FMSHRC"):

- *Contest Proceedings:* A contest proceeding may be filed by an operator to challenge the issuance of a citation or order issued by MSHA.
- *Civil Penalty Proceedings:* A civil penalty proceeding may be filed by an operator to challenge a civil penalty MSHA has proposed for a violation contained in a citation or order. The operator does not institute civil penalty proceedings based solely on the assessment amount of proposed penalties. Any initiated adjudications address substantive matters of law and policy instituted on conditions that are alleged to be in violation of mandatory standards of the Mine Act.
- *Discrimination Proceedings:* Involves a miner's allegation that he or she has suffered adverse employment action because he or she engaged in activity protected under the Mine Act, such as making a safety complaint. Also includes temporary reinstatement proceedings involving cases in which a miner has filed a complaint with MSHA stating that he or she has suffered discrimination and the miner has lost his or her position.
- *Compensation Proceedings:* A compensation proceeding may be filed by miners entitled to compensation when a mine is closed by certain closure orders issued by MSHA. The purpose of the proceeding is to determine the amount of compensation, if any, due to miners idled by the orders.
- *Temporary Relief:* Applications for temporary relief are applications filed under section 105(b)(2) of the Mine Act for temporary relief from any modification or termination of any order.
- *Appeals:* An appeal may be filed by an operator to challenge judges' decisions or orders to the Commission, including petitions for discretionary review and review by the Commission on its own motion.

For the Twelve Months Ended December 31, 2023:

Mine [1]	Oakdale, WI 4703625	Taylor, WI 4703759	Ottawa, IL 1103253
Section 104 citations for violations of mandatory health or safety standards that could significantly and substantially contribute to the cause and effect of a mine safety or health hazard (#)	—	—	—
Section 104(b) orders (#)	—	—	—
Section 104(d) citations and orders (#)	—	—	—
Section 110(b)(2) violations (#)	—	—	—
Section 107(a) orders (#)	—	—	—
Proposed assessments under MSHA [2]	$1,293	—	$143
Mining-related fatalities (#)	—	—	—
Section 104(e) notice	—	—	—
Notice of the potential for a pattern of violations under Section 104(e)	—	—	—
Legal actions before the FMSHRC initiated (#)	—	—	—
Legal actions before the FMSHRC resolved (#)	1	—	—
Legal actions pending before the FMSHRC, end of period:	—	—	—
Contests of citations and orders referenced in Subpart B of 29 CFR Part 2700 (#)	—	—	—
Contests of proposed penalties referenced in Subpart C of 29 CFR Part 2700 (#)	1	—	—
Complaints for compensation referenced in Subpart D of 29 CFR Part 2700 (#)	—	—	—
Complaints of discharge, discrimination or interference referenced in Subpart E of 29 CFR Part 2700 (#)	—	—	—
Applications for temporary relief referenced in Subpart F of 29 CFR Part 2700 (#)	—	—	—
Appeals of judges' decisions or orders referenced in Subpart H of 29 CFR Part 2700 (#)	—	—	—
Total pending legal actions (#)	—	—	—

(1) The definition of mine under section 3 of the Mine Act includes the mine, as well as other items used in, or to be used in, or resulting from, the work of extracting minerals, such as land, structures, facilities, equipment, machines, tools and minerals preparation facilities. Unless otherwise indicated, any of these other items associated with a single mine have been aggregated in the totals for that mine. MSHA assigns an identification number to each mine and may or may not assign separate identification numbers to related facilities such as preparation facilities. We are providing the information in the table by mine rather than MSHA identification number because that is how we manage and operate our mining business and we believe this presentation will be more useful to investors than providing information based on MSHA identification numbers.

(2) Represents the total dollar value of the proposed assessments from MSHA under the Mine Act for the twelve months preceding December 31, 2023, for all citations/orders assessed, not just those disclosed in the rows preceding such dollar value.

SMART SAND, INC.

POLICY FOR RECOVERY OF ERRONEOUSLY AWARDED COMPENSATION

Smart Sand, Inc. (the "***Company***") has adopted this Policy for Recovery of Erroneously Awarded Compensation (the "***Policy***"), effective as of October 2, 2023 (the "***Effective Date***"). Capitalized terms used in this Policy but not otherwise defined herein are defined in Section 11.

1. Persons Subject to Policy

This Policy shall apply to current and former Officers.

2. Compensation Subject to Policy

This Policy shall apply to Incentive-Based Compensation received on or after the Effective Date. For purposes of this Policy, the date on which Incentive-Based Compensation is "received" shall be determined under the Applicable Rules, which generally provide that Incentive-Based Compensation is "received" in the Company's fiscal period during which the relevant Financial Reporting Measure is attained or satisfied, without regard to whether the grant, vesting or payment of the Incentive-Based Compensation occurs after the end of that period.

3. Recovery of Compensation

In the event that the Company is required to prepare a Restatement, the Company shall recover, reasonably promptly, and in accordance with Section 4 below, the portion of any Incentive-Based Compensation that is Erroneously Awarded Compensation, unless the Committee has determined that recovery from the relevant current or former Officer would be Impracticable. Recovery shall be required in accordance with the preceding sentence regardless of whether the applicable Officer engaged in misconduct or otherwise caused or contributed to the requirement for the Restatement and regardless of whether or when restated financial statements are filed by the Company. For clarity, the recovery of Erroneously Awarded Compensation under this Policy will not give rise to any Officer's right to voluntarily terminate employment for "good reason" or due to a "constructive termination" (or any similar term of like effect) under any plan, program or policy of or agreement with the Company or any of its affiliates.

4. Manner of Recovery; Limitation on Duplicative Recovery

The Committee shall, in its sole discretion, determine the manner of recovery of any Erroneously Awarded Compensation, which may include, without limitation, reduction or cancellation by the Company or an affiliate of the Company of Incentive-Based Compensation or Erroneously Awarded Compensation, reimbursement or repayment by any person subject to this Policy, and, to the extent permitted by law, an offset of the Erroneously Awarded Compensation against other compensation payable by the Company or an affiliate of the Company to such person. Notwithstanding the foregoing, unless otherwise prohibited by the Applicable Rules, to the extent this Policy provides for recovery of Erroneously Awarded Compensation already recovered by the Company pursuant to Section 304 of the Sarbanes-Oxley Act of 2002 or Other Recovery Arrangements, the amount of Erroneously Awarded Compensation already recovered

by the Company from the recipient of such Erroneously Awarded Compensation may be credited to the amount of Erroneously Awarded Compensation required to be recovered pursuant to this Policy from such person.

5. Administration

This Policy shall be administered, interpreted and construed by the Committee, which is authorized to make all determinations necessary, appropriate or advisable for such purpose. The Board may re-vest in itself the authority to administer, interpret and construe this Policy in accordance with applicable law, and in such event references herein to the "Committee" shall be deemed to be references to the Board. Subject to any permitted review by the applicable national securities exchange or association pursuant to the Applicable Rules, all determinations and decisions made by the Committee pursuant to the provisions of this Policy shall be final, conclusive and binding on all persons, including the Company and its affiliates, stockholders and employees. The Committee may delegate administrative duties with respect to this Policy to one or more directors or employees of the Company, as permitted under applicable law, including any Applicable Rules.

6. Interpretation

This Policy shall be interpreted and applied in a manner that is consistent with the requirements of the Applicable Rules, and to the extent this Policy is inconsistent with such Applicable Rules, it shall be deemed amended to the minimum extent necessary to ensure compliance therewith.

7. No Indemnification; No Liability

The Company shall not indemnify or insure any person against the loss of any Erroneously Awarded Compensation pursuant to this Policy, nor shall the Company directly or indirectly pay or reimburse any person for any premiums for third-party insurance policies that such person may elect to purchase to fund such person's potential obligations under this Policy. None of the Company, an affiliate of the Company or any member of the Committee or the Board shall have any liability to any person as a result of actions taken under this Policy.

8. Application; Enforceability

Except as otherwise determined by the Committee or the Board, the adoption of this Policy does not limit, and is intended to apply in addition to, any *Other Recovery Arrangements*. Subject to Section 4, the remedy specified in this Policy shall not be exclusive and shall be in addition to every other right or remedy at law or in equity that may be available to the Company or an affiliate of the Company or is otherwise required by applicable law and regulations.

9. Severability

The provisions in this Policy are intended to be applied to the fullest extent of the law; provided, however, to the extent that any provision of this Policy is found to be unenforceable or invalid under any applicable law, such provision will be applied to the maximum extent

permitted, and shall automatically be deemed amended in a manner consistent with its objectives to the extent necessary to conform to any limitations required under applicable law.

10. Amendment and Termination

The Board or the Committee may amend, modify or terminate this Policy in whole or in part at any time and from time to time in its sole discretion. This Policy will terminate automatically when the Company does not have a class of securities listed on a national securities exchange or association.

11. Definitions

"***Applicable Rules***" means Section 10D of the Exchange Act, Rule 10D-1 promulgated thereunder, the listing rules of the national securities exchange or association on which the Company's securities are listed, and any applicable rules, standards or other guidance adopted by the Securities and Exchange Commission or any national securities exchange or association on which the Company's securities are listed.

"***Board***" means the Board of Directors of the Company.

"***Committee***" means the committee of the Board responsible for executive compensation decisions comprised solely of independent directors (as determined under the Applicable Rules), or in the absence of such a committee, a majority of the independent directors serving on the Board.

"***Erroneously Awarded Compensation***" means the amount of Incentive-Based Compensation received by a current or former Officer that exceeds the amount of Incentive-Based Compensation that would have been received by such current or former Officer based on a restated Financial Reporting Measure, as determined on a pre-tax basis in accordance with the Applicable Rules.

"***Exchange Act***" means the Securities Exchange Act of 1934, as amended.

"***Financial Reporting Measure***" means any measure determined and presented in accordance with the accounting principles used in preparing the Company's financial statements, and any measures derived wholly or in part from such measures, including GAAP, IFRS and non-GAAP/IFRS financial measures, as well as stock or share price and total stockholder return.

"***GAAP***" means United States generally accepted accounting principles.

"***IFRS***" means international financial reporting standards as adopted by the International Accounting Standards Board.

"***Impracticable***" means (a) the direct expense paid to third parties to assist in enforcing recovery would exceed the Erroneously Awarded Compensation; provided that the Company has (i) made reasonable attempt(s) to recover the Erroneously Awarded Compensation, (ii) documented such reasonable attempt(s), and (iii) provided such documentation to the relevant listing exchange or association, (b) the recovery would violate the Company's home country laws adopted prior to November 28, 2022 pursuant to an opinion of home country counsel;

provided that the Company has (i) obtained an opinion of home country counsel, acceptable to the relevant listing exchange or association, that recovery would result in such a violation, and (ii) provided such opinion to the relevant listing exchange or association, or (c) recovery would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company, to fail to meet the requirements of 26 U.S.C. 401(a)(13) or 26 U.S.C. 411(a) and the regulations thereunder.

"***Incentive-Based Compensation***" means, with respect to a Restatement, any compensation that is granted, earned, or vested based wholly or in part upon the attainment of one or more Financial Reporting Measures and received by a person: (a) after such person began service as an Officer; (b) who served as an Officer at any time during the performance period for that compensation; (c) while the Company has a class of securities listed on a national securities exchange or association; and (d) during the applicable Three-Year Period.

"***Officer***" means each person who the Company determines serves as a Company officer, as defined in Section 16 of the Exchange Act.

"***Other Recovery Arrangements***" means any clawback, recoupment, forfeiture or similar policies or provisions of the Company or its affiliates, including any such policies or provisions of such effect contained in any employment agreement, bonus plan, incentive plan, equity-based plan or award agreement thereunder or similar plan, program or agreement of the Company or an affiliate or required under applicable law.

"***Restatement***" means an accounting restatement to correct the Company's material noncompliance with any financial reporting requirement under securities laws, including restatements that correct an error in previously issued financial statements (a) that is material to the previously issued financial statements or (b) that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period.

"***Three-Year Period***" means, with respect to a Restatement, the three completed fiscal years immediately preceding the date that the Board, a committee of the Board, or the officer or officers of the Company authorized to take such action if Board action is not required, concludes, or reasonably should have concluded, that the Company is required to prepare such Restatement, or, if earlier, the date on which a court, regulator or other legally authorized body directs the Company to prepare such Restatement. The "Three-Year Period" also includes any transition period (that results from a change in the Company's fiscal year) within or immediately following the three completed fiscal years identified in the preceding sentence. However, a transition period between the last day of the Company's previous fiscal year end and the first day of its new fiscal year that comprises a period of nine to 12 months shall be deemed a completed fiscal year.