

GSE SYSTEMS INC

FORM 10-K (Annual Report)

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2020

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 001-14785

GSE Systems, Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State of incorporation)

52-1868008

(I.R.S. Employer Identification Number)

6940 Columbia Gateway Dr., Suite 470, Columbia MD

(Address of principal executive offices)

21046

(Zip Code)

Registrant's telephone number, including area code: (410) 970-7800

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, \$.001 Par Value	GVP	The NASDAQ Capital Market

SECURITIES REGISTERED PURSUANT TO SECTION 12(g) OF THE ACT: NONE

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

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

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

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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. (Check one):

Large accelerated filer
Emerging growth company

Accelerated filer

Non-accelerated filer

Smaller reporting 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 is a shell company (as defined in rule 12(b)-2 of the Exchange Act). Yes No

The aggregate market value of Common Stock held by non-affiliates of the Registrant was \$20,709,883 on June 30, 2020, the last business day of the Registrant's most recently completed second fiscal quarter, based on the closing price of such stock on that date of \$1.01.

The number of shares outstanding of the registrant's Common Stock as of March 31, 2021 was 20,634,372 shares.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for the 2021 Annual Meeting of Stockholders to be filed pursuant to Regulation 14A under the Securities Exchange Act of 1934, as amended, are incorporated by reference into Part III.

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* to be incorporated by reference from the Proxy Statement for the registrant’s 2021 Annual Meeting of Shareholders.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS.

This report and the documents incorporated by reference herein contain “forward-looking” statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”) that are based on management’s assumptions, expectations and projections about us, and the industry within which we operate, and that have been made pursuant to the Private Securities Litigation Reform Act of 1995 reflecting our expectations regarding our future growth, results of operations, performance and business prospects and opportunities. Wherever possible, words such as “anticipate”, “believe”, “continue”, “estimate”, “intend”, “may”, “plan”, “potential”, “predict”, “expect”, “should”, “will” and similar expressions, or the negative of these terms or other comparable terminology, have been used to identify these forward-looking statements. These forward-looking statements may also use different phrases. These statements regarding our expectations reflect our current beliefs and are based on information currently available to us. Accordingly, these statements by their nature are subject to risks and uncertainties, including those listed under Item 1A Risk Factors, which could cause our actual growth, results, performance and business prospects and opportunities to differ from those expressed in, or implied by, these forward-looking statements. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. Except as otherwise required by federal securities law, we are not obligated to update or revise these forward looking statements to reflect new events or circumstances. We caution you that a variety of factors, including but not limited to the factors described below and in Item 1A Risk Factors, could cause our business conditions and results to differ materially from what is contained in forward-looking statements:

- changes in the rate of economic growth in the United States and other major international economies;
- changes in investment by the nuclear and fossil electric utility industry, the chemical and petrochemical industries, or the U.S. military;
- changes in the financial condition of our customers;
- changes in the regulatory environment;
- changes in political climate;
- changes in project design or schedules;
- contract cancellations;
- changes in our estimates of costs to complete projects;
- changes in trade, monetary and fiscal policies worldwide;
- currency fluctuations;
- war and/or terrorist attacks on facilities either owned by our customers or our company, or where equipment or services are or may be provided;
- initiation, prosecution, or outcomes of future litigation;
- protection and validity of our trademarks and other intellectual property rights;
- increasing competition by foreign and domestic companies;
- compliance with our debt covenants;
- recoverability of claims against our customers and others;
- changes in estimates used in our critical accounting policies; and
- impact of the Novel Coronavirus (COVID-19), or other future pandemics, on the global economy and on our customers, suppliers, employees and business.

The forward-looking statements are based upon management’s beliefs and assumptions and are made as of the date of this report on Form 10-K. Other factors and assumptions not identified above were also involved in the formation of these forward-looking statements and the failure of such other assumptions to be realized, as well as other factors, may also cause actual results to differ materially from those projected. Most of these factors are difficult to predict accurately and are generally beyond our control. You should consider the areas of risk described above and in Item 1A Risk Factors in connection with any forward-looking statements that may be made by us. You should not place undue reliance on any forward-looking statements. New factors emerge from time to time, and it is not possible for us to predict which factors will arise.

We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise. You are advised, however, to consult any additional disclosures we make in proxy statements, quarterly reports on Form 10-Q and current reports on Form 8-K filed with the SEC.

Company Information Available on the Internet

Our Internet address is www.gses.com. We make available free of charge through our Internet site our annual reports on Form 10-K; quarterly reports on Form 10-Q; current reports on Form 8-K; proxy statements, and any amendment to those reports filed or furnished pursuant to the Exchange Act as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC.

PART I

ITEM 1. BUSINESS.

GSE Systems, Inc. (GSE Systems, GSE, the Company, we, us or our), a Nasdaq-listed company trading under the symbol GVP, is a leading provider of engineering services and technology, expert staffing, and simulation software to clients in the power and process industries. We provide customers with simulation, engineering technology, engineering and plant services that help clients reduce risks associated with operating their plants, increase revenue through improved plant and employee performance, and lower costs through improved operational efficiency. In addition, we provide professional services that systematically help clients fill key vacancies in the organization on a short-term basis, including but not limited to, the following: procedure writing, planning, scheduling; engineering; Senior Reactor Operator [SRO] training; various technical support and training personnel focused on regulatory compliance and certification in the nuclear power industry.

Our services help our customers provide clean energy to all in a reliable and safe manner. There is growing recognition of the importance of low and zero carbon energy as the United States in particular, and the world in general, races to decarbonize power grids. GSE is uniquely positioned as one of the largest independent nuclear services companies in the United States to support decarbonization of the power industry. In fact, the more wind and solar that comes onto the grid, the greater zero carbon base-load becomes to ensure grid stability, reliability and safety. Decarbonization is a leading means of delivering environmental equity – ensuring that anyone regardless of background and economic status can benefit from a safe and healthy environment, free of pollution related to carbon intensive power generation. GSE operations also include interactive software for tutorials and simulation for the refining, chemical, and petrochemical industries.

We execute projects globally with approximately 332 employees, as of December 31, 2020. We operate from offices in the U.S. and China and with our employees deployed at client sites. While most of our revenue comes from the nuclear power market, we also serve agencies in the United States Department of Energy, United States Navy and adjacent defense opportunities, and the oil and gas, refining, chemical, and petrochemical markets.

GSE Systems was formed on March 30, 1994, to consolidate the simulation and related businesses of General Physics International Engineering & Simulation, S3 Technologies, and EuroSim. The Company completed its Initial Public Offering in 1995.

On November 14, 2014, we acquired Hyperspring, LLC (Hyperspring). Hyperspring is a nuclear industry expert staffing firm that employs highly skilled, high-value professionals primarily filling training and consulting positions on a contract basis for nuclear power plant operators. Hyperspring professionals provide training, operations and maintenance support including: generic fundamentals exams (GFES), accreditation training visit (ATV) preparation, senior reactor operator (SRO) certification, procedure development, work management, tagging/labeling, outage execution, planning/scheduling, corrective action, self-assessments and equipment reliability. Customers have included Entergy, TVA, PSEG Nuclear and First Energy, among others.

On September 20, 2017, we acquired Absolute Consulting, Inc. (Absolute). Absolute is a provider of technical consulting and staffing solutions to the global nuclear power industry with expertise in procedure writing, engineering, technical support, scheduling, planning, project management, training, project controls, and corrective actions. Customers have included Entergy, Duke Energy, Vistra Energy and Southern Nuclear Operating Company, among others.

On May 11, 2018, we acquired True North Consulting, LLC (True North). True North is a provider of engineering solutions to nuclear and non-nuclear power plants with an emphasis on regulatory-driven ASME code programs. Customers have included Exelon, Entergy, Southern Nuclear Operating Company, and EPRI, among others.

On February 15, 2019, we acquired DP Engineering Ltd, Co, (DP Engineering). DP Engineering is a specialized provider of high-value engineering services and solutions to the nuclear power industry. Founded in 1995 in Fort Worth, Texas, DP Engineering generates over 90% of its revenue from the nuclear power industry with core expertise in: mechanical design; civil/structural design; electrical, instrumentation and controls design; digital controls/cyber security; and fire protection. DP Engineering primarily works under master service agreements as the Engineer of Choice (EOC). Customers have included Entergy, Fluor, Talen Energy Services, and Vistra Energy, among others.

Renewed Focus for 2021

Early in 2020 as the COVID-19 unfolded, the end markets that GSE serves, namely the power industries, delayed the essential services it could and dramatically cut back on non-essential services. Although this impacted GSE, as an essential services provider to an essential industrial base, GSE benefited from maintaining a baseline of business to continue and align itself to the realities of the pandemic. As GSE enters 2021, the effects of the pandemic are still impacting the end markets we serve, but those effects may be mitigated for a number of factors, including the following: the pandemic largely has had a targeted effect on the population; there now are number of vaccines in the market being distributed and, despite logistical challenges, making solid progress for those in most need; the economy of the United States has not had as much disruption as was initially feared which has benefited our end markets; and most importantly the end markets of GSE seem poised to spend to catch up on essential services that had been delayed as a result of the pandemic. As GSE ended 2020 and began 2021, we have had a number of significant contract wins that have been publicly announced, which we hope is a harbinger of a more solid 2021 business environment.

As we look ahead to 2021 and beyond, with a new administration in the United States, there is renewed focus on decarbonizing the power sector, which is recognized as a key means in achieving environmental equity. The new administration is in the process of rejoining the Paris climate accord, has spoken in support of zero carbon power sources such as nuclear, and has spoken of increased public spending in support of the industry and related industries. Management feels that GSE is well positioned as one of the largest independent businesses focused on services supporting decarbonization to benefit from these significant developments in the economy and governing policy.

In light of these emerging policies, there has been significant increase in the public awareness of the essential requirement that nuclear be a big part of the grid to achieve zero carbon goals. In an article early in 2020, Yale360.com highlighted the potential of new generation Small Module Reactors (“SMR’s”) in driving the achievement of a zero-carbon grid. Nuclear, especially SMR’s, are recognized for their potential to replace carbon intensive power generation while maintaining a smaller footprint than existing coal plants. In February 2021, the Montana State Senate approved a feasibility study to evaluate replacing coal fired power generation with SMR’s at the Colstrip power plant. This is an exciting development for decarbonization. The benefits of SMR’s are also noted as a key element to restore ecological systems while simultaneously maintaining zero carbon power generation. Idaho GOP Rep. Mike Simpson has proposed a sweeping \$33.5 billion plan to save the Pacific Northwest’s iconic salmon that includes breaching four of the most controversial dams in the country. The power generation of the dams would be replaced by building SMR’s as part of this plan. The massive infrastructure bill under consideration by the US government, has all eyes on investments to decarbonize the power sector.

Branding

GSE Systems, Inc. remains the legal name of the parent company, publicly traded on Nasdaq under the ticker symbol “GVP”; GSE operations and marketing uses the more distinct trademark “GSE Solutions” as a way to communicate the fact that GSE’s specialized business units help customers reduce risk and optimize performance through unique solutions, a centralized project approach, expert resource management, and a culture of continuous improvement to drive decarbonization of the power industry.

Operating Segments

We operate through two reportable business segments: Performance Improvement Solutions and Nuclear Industry Training and Consulting. Each segment focuses on delivering solutions to customers within our target markets. Marketing and communications, accounting, finance, legal, human resources, corporate development, information systems and other administrative services are organized at the corporate level. Business development and sales resources are generally aligned with each segment to support existing customer accounts and new customer development. The business units collaborate to facilitate cross-selling and the development of new solutions. The following is a description of our business segments:

Performance Improvement Solutions (approximately 57.0% of revenue)

Our Performance Improvement Solutions segment primarily encompasses our power plant high-fidelity simulation solutions, technical engineering services for ASME programs, power plant thermal performance optimization, and interactive computer based tutorials/simulation focused on the process industry. The Performance Solutions segment includes various simulation products, engineering services, and operation training systems delivered across the industries we serve: primarily nuclear and fossil fuel power generation and the process industries. Our simulation solutions include the following: (1) simulation software and services, including operator training systems, for the nuclear power industry, (2) simulation software and services, including operator training systems, for the fossil power industry, and (3) simulation software and services for the process industries used to teach fundamental industry processes and control systems to newly hired employees and for ongoing workforce development and training. GSE and its predecessors have been providing these services since 1976.

Our engineering solutions include the following: (1) in-service testing for engineering programs focused on ASME OM code including Appendix J, balance of plant programs, and thermal performance; (2) in-service inspection for specialty engineering including ASME Section XI; (3) software solutions; and (4) mechanical design, civil/structural design, electrical, instrumentation and controls design, digital controls/cyber security, and fire protection for nuclear power plant design modifications. Our GSE True North Consulting and GSE DP Engineering businesses typically work as either the engineer of choice or specialty engineer of choice for our clients under master services agreements and are included in our Performance Improvement Solutions segment due to their service offerings. GSE has been providing these engineering solutions and services since 1995.

Nuclear Industry Training and Consulting (approximately 43.0% of revenue)

Nuclear Industry Training and Consulting provides highly specialized and skilled nuclear operations instructors, procedure writers, technical engineers, and other consultants to the nuclear power industry. These employees work at our clients' facilities under client direction. Examples of these highly skilled positions are senior reactor operations instructors, procedure writers, project managers, work management specialists, planners and training material developers. This business is managed through Hyperspring and Absolute subsidiaries. The business model, management focus, margins and other factors clearly separate the business line from the rest of the Company's product and service portfolio. GSE has been providing these services since 1997.

Financial information is provided in Note 20 of the accompanying consolidated financial statements regarding our business segments and geographic operations and revenue.

Business Strategy, Industry Trends, Products and Services

Business Strategy

Serve existing customers and adjacencies with compelling solutions, with a focus on decarbonization:

Our objective has been to create a leading business focused on decarbonizing the power industries by providing a diverse set of highly unique and essential services and technologies. GSE is now one of the leading, publicly traded engineering and technology companies serving the zero-carbon energy sector of nuclear power and adjacent nuclear markets in DOE, US Navy and related defense sectors. As a result of this effort and established leadership position in key sectors, GSE is positioned to expand into essential clean energy opportunities that may arise such as wind, solar, hydrogen production, and others. In 2021, we will focus on organic growth in the sectors we serve by: cross selling and upselling in our existing markets as we focus on delivering significant value to our customers in a manner of excellence; create new and compelling solutions in-house as a result of advancing our technology offerings in sponsorship with industry early adopters focused on critical business need; develop new services as a result of combining the expertise of the Company; expand into compelling adjacent markets such as clean energy as they may arise with renewed sales focus.

Cross sell and upsell into existing markets:

GSE has spent the past several years conducting a rollup of essential services providers to the industry. To ensure efficient and streamlined operations for the business, the Company has brought all of the engineering services together into one organization with one leader; and the NITC teams together as one team under one leader. The business units operating uniformly within their respective structure. As such, the opportunity to cross-sell the capabilities across the entire customer base is greatly enhanced. This further differentiates GSE as a unique provider to industry vs. providers of specific niche services. The unified go-to-market efforts, such as cross-selling capability should lead to greater share of available spending within the customer base, which in turn should lead to significant upselling opportunity. As a result of a rejuvenated marketing effort, the Company is equipped to take this new approach to market. In particular, with the US government rejoining the Paris Climate Agreement and driving to decarbonize the energy grid by 2035, and create a carbon neutral economy by 2050, decarbonization of the energy sector will require significant investment for decades to come. As a key provider of essential services to the power sector, with a focus on decarbonization, GSE is poised to benefit from and exploit this investment.

Organic growth through new and compelling technology:

While the company was managing through the pandemic, in parallel the leadership was working to investigate compelling opportunities by which new offerings that uniquely result from the combination of capabilities across GSE could create significant value for the industry and advance the efforts of decarbonizing the power sector. As a result, the Company has identified a robust pipeline of new and compelling technology solutions to develop and take to market. Net new solutions would create new revenue streams with the potential of on-going annuities through license revenue, software maintenance and services revenue. As the Company has demonstrated in the past few years, small wins over time accrue into meaningful revenue on an on-going basis. This is a key element of our organic growth thesis: focusing on creating and bringing to market compelling technology solutions.

Focus on compelling adjacencies in clean energy, defense, and national labs:

- ***Research and development (R&D).*** We invest in R&D to deliver unique solutions that add value to our end-user markets. Our software tools leverage the high-end expertise of our experienced staff in helping plants operate better and more efficiently. Our software technology together with our deep staff expertise supports multiple industries including the nuclear industry, as a part of the larger decarbonization drive. GSE's software technology includes decision-support tools for engineering simulation supporting design and plant commissioning, operational performance tools, and training platform.

One area of significant recent enhancement is in improving the thermal performance of power plants. We have introduced the next generation platform in TSM Enterprise, providing the technology solution to centralize and continuously monitor plant thermal performance. The solution benefits our customers by automating standardized reporting in modern dashboards available to engineers and decision makers across the fleet, leverage automation to facilitate troubleshooting plant performance issues, reducing time and error with direct access to source data, and applying industry guidelines for problem resolution. This platform also supports integration with Data Validation and Reconciliation (DVR) (implemented by GSE's True North division) that enhances the quality of data for analysis and decision making, providing a solution to better detect and identify faulty measurements/sensors and thus reduce maintenance costs by focusing on critical components.

In the area of engineering simulations, we deliver nuclear core and Balance-of-Plant modeling and visualization systems to the industry. To address the nuclear industry's need for more accurate simulation of both normal and accident scenarios, we provide our DesignEP® and RELAP5-HD® solutions. Our entire JADE™ suite of simulation software, including industry leading JTOPMERET® and JElectric™ software, provides the most accurate simulation of Balance-of-Plant and electrical systems available to the nuclear and fossil plant simulation market. The significant enhancements we have made to our SimExec® and OpenSim™ platforms enables customers to be more efficient in the daily operation of their simulators. We have brought SimExec® and OpenSim™ together into a next generation unified environment that adds new capabilities as requested by clients and driven by market need.

We intend to continue to make pragmatic and measured investments in R&D that first and foremost are driven by the market and complement our growth strategy. Such investments in R&D may result in on-going enhancement of existing solutions as well as the creation of new solutions to serve our target markets, ensuring that we add greater value that is easier to use, at lower total cost of ownership than any alternative available to customers. GSE has pioneered a number of industry standards and intends to continue to be one of the most innovative companies in our industry. During the years ended December 31, 2020 and 2019, we have made R&D investments totaling \$1.0 million and \$1.1 million, respectively.

- Strengthen and develop our talent while delivering high-quality solutions. Over the past several years GSE has assembled a unique and highly experienced group of talent through organic growth and strategic acquisition. Our Engineering team comprised of design, simulation, regulatory compliance, and performance optimization capabilities are unique to the industry and capable of addressing the entire power generation life cycle.

Our experienced employees and management team are our most valuable resources. The continued integration of our team in parallel with attracting, training, and retaining top talent is critical to our success. To achieve our goals, we intend to remain focused on providing our employees with opportunities to increase client contact within their areas of expertise and to expand and deepen our service offerings. As we refine our product and service areas to best align with the critical areas listed above, we will also integrate and apply our composite employee talent to the fullest extent possible combining employee personal and professional growth opportunities with fulfillment of cutting-edge industry needs. Performance-based incentives including opportunities for stock ownership, bonuses and competitive benefits as benchmarked to our industry and locations will also be utilized to ensure continuity of our approach.

We have developed a strong reputation for quality services based upon our industry-recognized depth of experience, ability to attract and retain quality professionals, and exceptional expertise across multiple service sectors. As we continue to integrate and leverage our individual company components assembled over the past several years, our capabilities and reputation will further strengthen.

Industry Trends

- Industry need to build and sustain a highly skilled workforce

We believe a critical ongoing challenge facing the industries we serve is access to, and continued development of, a highly trained and efficient workforce. This challenge manifests primarily in two ways: the increasing pace at which industry knowledge and experience are lost as a significant percentage of the existing experienced workforce reaches retirement age; and the fact that as new power plants come on-line, there is an increased demand for more workers to staff and operate those plants.

In the United States, the energy industry is expected to lose a large percentage of its workforce within the next few years as baby boomers retire on the traditional schedule. For example, Power Engineering reported that the power sector needs more than 100,000 skilled workers within the next few years to replace retiring baby boomers. Electric, Light, and Power reported that 72% of energy employers currently struggle to find quality candidates and fill open positions. The National Electrical Contractors Association reported that 7,000 electricians join the field each year, while 10,000 retire. Finally, the Nuclear Energy Institute estimated that 39% of the nuclear workforce were eligible to retire in the next few years. As the nuclear industry continues to operate and modernizes its fleet and strains to maintain the high standards of training for the existing workforce, existing plant simulator systems, which provide a critical environment for training services, are often operating 24 hours a day. As workers retire and the need to backfill as well as expand the workforce for new units, certain operators are exploring the opportunity to de-bottleneck their existing simulator capabilities through the creation of dual reference simulators. Other workforce shortages and/or short-term spikes in demand for specialist skills that we offer similarly are positive developments for our business. Further, as new nuclear technologies are researched and developed, such as new reactors and new fuels, the R&D industry needs to identify the right talent to advance those endeavors. Our business is uniquely positioned to identify and provide solutions that offer the best personnel for both short and long-term assignments.

Globally, as more people increase their standard of living, there is an expectation that their demand for power will increase, which in turn will require the on-going construction of power plants to meet this surging demand. The drive to lower carbon emissions from power generation while ensuring a stable baseload to accommodate intermittent energy sources such as wind and solar power brings focus on the essential nature of nuclear power. Developing a skilled labor force to operate these plants and keeping their skills current and their certifications in compliance with regulatory requirements is a key challenge facing the global power industry.

- Status of decarbonization nuclear power in 2020/2021

According to World Energy Outlook report, 2019 had the second highest energy generation year for nuclear in history. By 2030, nuclear is planned to increase in generation capacity from roughly 400 GW to roughly 450 GW. Most new plants will be built in developing economies such as China and India, and advanced economies will invest to extend the lifetimes and increase the output of remaining nuclear reactors to bridge the gap to a new generation of reactors under development.

Decarbonizing the power sector is a key focus for advanced and developing nations. As a critical part of zero carbon clean energy, nuclear energy ensures access to abundant, clean, reliable and affordable energy to all who can connect to the grid, no matter a person's background or status. To combat climate change and the pollution of the atmosphere, nuclear is a key element to decarbonizing the power sector across the world. As more variable sources of power come on to the grid, such as wind and solar, ensuring a stable grid requires baseload, and nuclear is the essential source of economically scalable carbon free baseload. As such, nuclear, wind and solar are tied together in the massive effort to decarbonize economies the world over.

Nuclear provides 10% of the world's power, and 20% of power for the United States. President Biden is on record indicating a desire to decarbonize the US power sector by 2035 and achieve a carbon neutral grid by 2050. To support this effort, the Department of Energy has made significant investment in the development of next generation zero carbon energy production through the development of advanced reactors and/or small modular reactors from Terra Power, X-Energy, NuScale and others.

These reactors are quickly becoming reality, with a January 2021 announcement of an agreement to facilitate the development of a project proposal for a NuScale designed plant to be built at the United States Department of Energy [DOE] Idaho National Laboratory grounds. Engineering, procurement and construction firm Fluor will provide its services for Utah Associated Municipal Power Systems' [UAMPS] Carbon-Free Power Project. The project includes plans for nuclear energy featuring NuScale's small modular reactor design. NuScale has been a long-time customer of GSE, using our simulation technology and engineering services to enhance the reactor design, operations and accelerate NRC licensing efforts. In addition to the NuScale plans, HOLTEC, another firm with SMR technology, is studying the feasibility of building an SMR facility in New Jersey at the Oyster Creek site of a decommissioned traditional nuclear power plant.

The SMR momentum is noted in the mainstream press. The Wall Street journal notes the significant plans for SMR's being developed in the United States and elsewhere at an accelerated clip. In addition to the plants currently planned, as mentioned earlier in this document, proponents of SMR's, see them as a complementary role in the smart grid of the future—replacing coal- and gas-fired plants and operating alongside wind and solar.

All of this is part of a broader effort for decarbonization that GSE, through the aforementioned strategies, plans to exploit for organic growth.

Products and Services

- Performance Improvement Solutions

Our engineering team, comprised of design, simulation, regulatory compliance, and performance optimization capabilities are unique to the industry and capable of addressing the entire power generation life cycle. As we move forward in alignment with client and industry goals targeting clean energy production and overall decarbonization we are positioned to be at the forefront in three critical areas:

- optimization of existing generation assets
- design support and deployment of advanced reactor designs
- integration with renewable power sources

Optimizing Existing Generation Assets

As the existing fleet of nuclear reactors age and competitive pressures increase, we find ever increasing significance in being able to provide value to their continued operation. Maximizing power production through a variety of methods such as digital verification and reconciliation, a statistical based analysis used to lower uncertainty, and thus increase recognized power output is instrumental in helping these facilities face current competitive pressures. Other approaches involving safe reduction of testing and inspection requirements or performance periodicities are also at the forefront of our cost saving techniques with defined services and products providing a clear and positive return on investment. In all cases these efforts are aligned with keeping this important source of carbon free base power economically and technically viable.

Advanced Reactor Designs & Deployment

Designers of first-of-a-kind plants or existing plants need a highly accurate dynamic simulation platform to model a wide variety of design assumptions and concepts from control strategies to plant behavior to human factors. Because new builds and upgrades to existing plants result in deployment of new technology, often involving the integration of disparate technologies for the first time, a high-fidelity simulator enables designers to model the interaction between systems in advance of construction. With our combination of simulation technology and expert engineering, GSE was chosen to build first-of-a-kind simulators for the AP1000, PBMR, and small modular reactors such as those being built by NuScale. Going forward we also envision many of the optimization techniques and strategies currently emphasized for the existing reactor fleet incorporated with new-build prototypes as they begin to add value and assume a larger component of our clean, carbon free, power requirements.

Renewable Integration

A significant component of overall decarbonization regarding power generation will ultimately fall to renewable sources such as wind, solar, and hydro generation. These technologies are individually well on their way towards assuming a significant share of the overall generation make-up and are expected to significantly increase. One of the particular needs is the ability to safely and efficiently integrate these renewable sources with our existing and planned nuclear generation. We are on the cutting edge, working closely with academia and industry support organizations to design, model, and evaluate creative approaches to support this integration. Base load production, renewable availability, and other pertinent factors are at the core of the solutions we are exploring.

Engineering Solutions for Decarbonization

With overall decarbonization as our primary focus, we will blend our current and future efforts in those areas described above to best support that goal positioning our Engineering team as recognized leaders in the pursuit of Clean Energy. An overview highlighting many areas of our current and planned involvement as well as the associated benefits is summarized below:

With nuclear power being such a high percentage of carbon free power generation, the continued safe and efficient operation of these plants is critical to meeting decarbonization goals. We help the industry achieve these goals through better training and provide engineering services to optimize performance while maintaining regulatory compliance. Our focus is on products and services to improve the efficiency and lower operating costs for existing power generation assets as well as help the next generation of carbon free power plants achieve design approval and plant startup as quickly as possible.

Training plant operators and engineers is critical to safe operations and continued viability of the industry. Using state-of-the-art modeling tools combined with our leading nuclear power modeling expertise, GSE provides simulation solutions that achieve unparalleled fidelity and accuracy. We have also adapted these solutions to provide highly accurate training across a variety of delivery platforms. These include universal or generic simulators which are excellent in teaching fundamental concepts, systems, and plant behaviors. They are also used by academia for research on improved plant operations, human factors design and the development of automated procedures and decision support systems for the next generation of reactors. Our part task simulators and virtual control panels are cost effective solutions enabling customers broader freedom in where they deliver simulation training and opening the door for plant engineers and maintenance staff to access high fidelity training without interrupting the operator training program. Our full scope simulators use the most sophisticated modeling technology. For these reasons, GSE has delivered more nuclear power plant simulators than any other company in the world.

Even prior to the COVID pandemic, GSE had delivered training products though the cloud. This delivery method reduces our customers infrastructure and ownership costs and provides anytime, anywhere access to rich learning content. Innovative Critical Thinking Exercises enable autonomous simulation training to take place, reducing the burden on instructors and increasing training touch time for students and employees. All of which enabling the training organization to be more flexible and efficient.

GSE's simulation solutions not only address industry training needs, but are used for Simulation Assisted Engineering, the process of using simulation to virtually test and commission plant designs prior to construction. Because new builds and upgrades to existing plants result in deployment of new technology, GSE's high-fidelity simulator enables designers to model the interaction between systems in advance of construction. With our combination of simulation technology and expert engineering, GSE was chosen to build first-of-a-kind simulators for the AP1000, PBMR, and small modular reactors such as those being built by NuScale. This technique reduces design costs, accelerates design approvals, de-risks projects, and provides clients with a tool to sell their new plant designs to both customers and regulators. In essence, enabling our customers to get to market faster.

Beyond training, GSE technology is used to improve the efficiency of existing power generation assets. Our Thermal System Monitoring System provide live insights into plant operations, by monitoring performance of key plant equipment, analyzes degradation and advises actions to be taken. When combined with Data Validation and Reconciliation techniques, GSE can help reduce operating and maintenance cost. DVR enhances the quality of data for analysis and decision making, providing a solution to better detect and identify faulty measurements/sensors and thus reduce maintenance costs by focusing on critical components.

Our EP-Plus software suite provides one common platform for all Engineering Programs, helping client engineers keep track of Engineering Program inspection and monitoring requirements aimed at safe plant operations. This reduces the engineering workload of our customers, saving costs and enabling staff to focus on the most critical activities.

All of these technologies leverage the vast experience and industry expertise of GSE's engineering organization. Our Engineering team helps our clients throughout the entire plant lifecycle. GSE is the engineer of choice in areas such as:

- Design engineering for plant mechanical, electrical, I&C, civil and structural, fire protection and cyber systems
- Engineering Programs addressing ASME codes, balance of plant programs other regulatory programs and economic driven programs such as plant thermal performance
- Simulation engineering for nuclear, thermal and process plant training and virtual commissioning

We see organic growth through closer integration of these engineering activities and technologies to provide solutions to improve the performance of our customers' people and plants.

- Workforce Solutions: Nuclear Industry Training and Consulting

As our customers' experienced employees retire, access to industry experts to operate and train existing and new employees how to operate nuclear plants is essential to ensure safe, ongoing plant operation. In addition, operating and training needs change over time and sometimes our clients require fixed priced, discrete projects or specialized courses in contrast to straight staff augmentation. The industry needs operating personnel, including procedure writers, engineers, operators and instructors who can step in and use, as well as, update the client's operating methods, procedures, training material and more. Finding technical professionals and instructors, who know the subject, can perform the work or teach it to others and can adapt to the client's culture is critical. GSE provides qualified professionals, instructors and turnkey projects/courses that work within the client's system and complement the operating or training methods they already have in place. Examples of our training program courses include senior reactor operator certification, generic fundamentals training, and simulation supervisor training. GSE also provides expert support through workforce solutions, consulting, or turnkey projects for procedure writing, technical engineers, project managers, training material upgrade and development, outage execution, planning and scheduling, corrective actions programs, and equipment reliability. Our workforce solutions include traditional staffing services, such as temporary and direct hire, as well as customized approaches in which we work with our customers to evaluate their specific needs and put together a strategic plan specifically to meet their unique needs. Workforce solutions is not only a complement to our other service offerings; it often leads the way as the preferred method for many of our clients to execute entire projects and/or supplement their own staff during project peak periods or with specialized skill sets that are often hard to find. Our staffing experts give our customers the ability to ramp up quickly, eliminate risks, and provide more flexible options as situations often demand.

In addition to the core training and staffing business lines in the nuclear sector, we have significant organic growth opportunity with our workforce solutions and consulting services by expanding our service offerings to meet the evolving needs of the energy industry as well as other opportunities that support decarbonization and major infrastructure projects. Due to the experience within our team, we are already well positioned to offer expanded workforce solutions through our existing relationships and industry knowledge. This growth is occurring both with existing and new customers. We are placing a greater emphasis on cross-selling the services offered by our NITC organization with our Engineering and Performance group. NITC is expanding our footprint with companies dedicated to the support of decarbonization, and we have already been awarded contracts to support engineering, manufacturing, and construction projects with companies focused on clean energy solutions. Further the U.S. government has already announced intentions to increase spending in key areas such as communication, clean energy, manufacturing, transportation, and environmental projects. We anticipated these developments and have made key hires to better position GSE to support those opportunities. As the pandemic has shown, we must also be able to adapt quickly to evolving staffing needs. This has certainly been demonstrated with companies adjusting and allowing more employees to work from home. Our workforce solutions offer our customers more flexibility to support ever changing needs. This flexibility combined with our ability to support all of these areas position GSE both for current and future staffing needs.

We recognize the necessity to listen to the needs of our customers and provide the right solution. Whether the answer is one of our traditional service offerings or putting together a customized approach, we have the capabilities to help our customers get the job done. We bring together the collection of skills we have amassed over more than 40 years beginning with its traditional roots in custom high-fidelity simulation and training solutions for the power industries, extended through the acquisition of specialized engineering capabilities, enhanced by the entry and intermediate level training solutions of EnVision, backed by the extensive nuclear industry training and consulting services of Absolute and Hyperspring, and now strengthened by our ability to successfully adapt, diversify, and offer a solutions based approach with our workforce solutions.

Customer and Locations

For almost 50 years, we have been developing next-generation, custom training simulation technologies. Since we built the first commercial full-scope nuclear power plant simulator in 1971, we have completed more than 1,100 installations across the power and process industries in 50 countries.

In 2020, approximately 17.0% of our revenue was generated from end-users outside the United States and we have a concentration of revenue from one individual customers, which accounted for 14.1% of our consolidated revenue, respectively. A small representative list of our customer base includes: ABB Inc., American Electric Power, Bechtel Hanford National Laboratory, Duke Energy, EDF Energy (United Kingdom), Emerson Process Management, Entergy Nuclear Operations Inc, Exelon, PSEG Nuclear, Inc., Siemens AG (Germany), Southern Nuclear Operating Company, Inc., State Nuclear Power Automation System Engineering Company (China), Savannah River Nuclear Solutions, LLC, Slovenkse Elektrarne, A.S. (Slovakia), Tennessee Valley Authority, and Westinghouse Electric Co. Hydrocarbon and chemical process customers include numerous large oil refineries and chemical plants such as BP (worldwide), Statoil ASA (Norway), Chevron,, Shell Oil Company (worldwide), Total (Belgium), and Valero (USA).

Marketing and Sales

We market our products and services through a network of direct sales staff, agents and representatives, and strategic alliance partners. Market-oriented business and customer account teams define and implement specific campaigns to pursue opportunities.

We continue to have a proactive public relations program, issuing non-financial press releases to announce product development and significant deliveries, as well as our presence at numerous industry trade shows and technical conferences. We are active on numerous social media platforms and strive to build a strong presence across all media that our clients use to find information about the Company. Our goal is to provide useful information at each stage of the client's journey with the Company.

The Company's ability to support its multi-facility, international, and multinational clients is facilitated by its network of offices and strategic partners in the U.S. and overseas. In addition to its office located in China, the Company's ability to conduct international business is enhanced by its multilingual and multicultural workforce. GSE has strategic relationships with system integrators and agents representing its interests in Bulgaria, Japan, Malaysia, Singapore, South Korea, Taiwan, Ukraine and various locations in the Gulf Coast Countries of the Middle East.

Competition

In the nuclear simulation market, we compete directly with firms primarily from Canada, France and the U.S., such as L-3 MAPPS Inc., a subsidiary of Harris (Canada), CORYS T.E.S.S (France) and Western Services Corporation. In the fossil simulation market, the Company competes with smaller companies in the U.S. and overseas. In the process industry our main competition comes from large digital control system/automation companies such as Honeywell and Schneider. In our engineering market, we compete with firms primarily from North America such as Enercon Services, Kinectrics, Sargent & Lundy, and AECOM.

The Nuclear Industry Training and Consulting business services include technical professional and training-related and services as well as staff augmentation solutions. The competition for these services includes but is not limited to the following: GP Strategies, The Westwind Group, Professional Training Technologies, and Western Technical Services. The competition for staff augmentation includes: System One, Aerotek, and Peak Technical. Competition with staff augmentation is further impacted by wide scale industry consolidation as a result of the growing movement toward use of Managed Staffing Providers (MSPs). As some competitors, such as Allied Technical, have been forced to close their doors, others have lost market share with the MSP model as it has shown a clearer picture of which companies can best deliver. NITC has continuously found success with the MSP models and avoided the missteps that have impacted other competitors.

Competitive Advantages

Although there is competition in various industry niches, few companies in our space compare to our engineering, simulation and performance optimization expertise, especially for the nuclear power industry. Few of our competitors serve the broader performance improvement market and few work across the full spectrum of energy markets addressing clean energy sources and decarbonization initiatives, specifically, existing nuclear generation, advanced reactor applications, and ongoing integration with renewable power sources. Our unique combination of talent and expertise, built through organic and acquisition-based growth has positioned us perfectly to align with the clean energy initiatives of our clients and the industry at large.

Full Spectrum Support. Over the past several years GSE has assembled a unique and highly experienced group of talent through organic growth and strategic acquisition. Our Engineering team comprised of design, simulation, regulatory compliance, and performance optimization capabilities are unique to the industry and capable of addressing the entire power generation life cycle. A major and ongoing attribute associated with this unique grouping of expertise is our multi-tiered approach aimed at leveraging the aggregate strengths and abilities of our resource components towards maximizing client and shareholder value. This centers on the following key areas:

- Retain and strengthen our “Base” revenue through optimization of current capabilities and established client relationships.
- Integrate our product and service areas to provide more comprehensive or enhanced solutions when internal or external value can be identified.
- Explore, evaluate, and develop new collaborative service areas, products, and solutions closely aligned with internal core strengths, client goals, and overall industry clean power initiatives.

Base Revenue and Strategic Integration. We will continue to build upon what has historically worked well for our Engineering Service Areas maintaining our client connections through efforts that provide a clear and immediate return such as optimized power generation and efforts that reduce or extend testing and inspection requirements. In parallel we are aggressively evaluating ways to integrate and package our design, simulation, and plant performance components to further enhance client benefit. In many cases this is structured with our historical base scope of supply proposed as the stand-alone foundation with optional scopes included to deliver a more integrated comprehensive solution if desired.

New Product / Service Areas. A dedicated, strategically focused exercise centered on evaluation of core capabilities, potential adjacencies, client needs, and industry direction has resulted in several new product or service initiatives within our Engineering group. Further development, expansion, and application of existing product lines and associated services have moved to the forefront of this effort with the added benefit of minimizing engineering and information technology level of effort while maintaining very high client benefit. Additional competitive advantage are also present through client contracts which help fund the R&D components of the initiatives.

Proprietary Software Tools. We developed a library of proprietary software tools including auto-code generators and first principles-based system models that substantially improve and expedite the design, production and integration, testing and modification of software and systems. These tools are used to automatically generate the computer code and systems models required for specific functions commonly used in simulation applications, thereby enabling the Company or its customers to develop repeatable high-fidelity, real-time software quickly, accurately and at lower costs. The Company also has an expertise integrating third-party engineering codes into the Company's simulation environment, thereby offering some of the most sophisticated technical solutions in the market. The Company has a substantial library of Process-Specific Simulation models and eLearning Modules aimed at the oil and gas, refining and specialty chemicals markets. Lastly, our Thermal System Monitoring (TSM) platform is being used as a plant performance reporting tool and as the graphical user interface for our digital validation and reconciliation (DVR) service initiatives which provide high value client return through power recovery and other optimization strategies. This platform also serves as the foundation for our new product service initiatives with numerous optional modules and applications under consideration.

Performance Expertise. We are a leading innovator and developer of engineering directed solutions for the power generation industry. Our design, simulation, and plant performance resources are fully engaged with industry developments and client requirements routinely providing answers to our clients most pressing needs. Design modifications addressing base generation usage for nuclear facilities, optimization of power production through innovative statistical analysis, and real-time simulation software producing high-fidelity, real-time plant simulation are representative examples. As of December 31, 2020, the Company employed a highly educated and experienced multinational workforce of approximately 332 employees, including approximately 141 engineers and scientists in fields such as nuclear, chemical, mechanical and electrical engineering, applied mathematics and computer sciences, and approximately 118 instructors and plant operations staff specialists.

Unique Combination of Talent. Few in our market space brings together the sophistication of simulation technology with the engineering expertise, training expertise and plant performance expertise to provide the holistic people and plant performance improvement solutions as well as we do.

Reputation for Customer Satisfaction. As part of its ISO-9001:2015 Quality Program Certification, GSE measures customer satisfaction across numerous factors such as On-Time Delivery, Problem Solving, and Customer Communication. In each category measured we routinely exceed customer expectations.

Training Curricula. The Company has developed hundreds of detailed courses and simulator exercise material and specific industrial applications including oil and gas refining, gas-oil production, nuclear and combined cycle gas turbine power plant and desalination.

Our Nuclear Industry Training and Consulting business is mostly focused on training and operations support. Our trainers and consultants provide their services at customer facilities which allows us to interface with our customers directly in the course of doing business versus only periodically calling on customers. Our proximity gives us a significant competitive advantage in that we can immediately offer and implement solutions rather than contending with lengthy bid processes.

Intellectual Property.

The Company depends upon its intellectual property rights in its proprietary technologies and in its distinctive trade and service marks. GSE maintains a portfolio of: trademarks and servicemarks (both registered and unregistered) on its logos, product and service names, and other elements of trade dress; copyrights (both registered and unregistered) on written materials including software code, manuals, and other creative works; trade secret protections on its proprietary technologies and methodologies; and licenses from third parties to use and commercially exploit other protected intellectual property. While such trademarks, copyrights, trade secrets, and inbound licenses as a group are of material importance to the Company, we do not consider any one trademark, copyright, trade secret, or license to be of such importance that the loss or expiration thereof would materially affect the Company. GSE distributes its software products under software license agreements that grant customers nonexclusive and nontransferable licenses for the use of the products. Usage of GSE's licensed on-premise software is restricted to designated computers at specified sites, unless the customer obtains a site-wide license for its use of the software. GSE software products delivered as a service (SaaS) over the Internet also contain customer verifications and usage limitations. The Company employs not only software and hardware security measures to prevent unauthorized use of its software, but also detailed contractual terms and limitations within its license and service agreements to prohibit unauthorized usage or reproduction. GSE offers its customers both perpetual software licenses with unlimited duration (as long as the customer complies with the license terms) and term-limited software licenses and usage agreements.

The Company does not own any patents. The Company believes that all of the Company's trademarks are valid and will have an unlimited duration as long as they are adequately protected and sufficiently used. GSE has numerous registered U.S. trademarks, including: GSE Systems®, JTOPMERET®, RELAP5-HD®, TOTALVISION®, VPanel® and SimExec®. GSE believes that its international trademark protection is adequate to its business needs. The Company also claims trademark rights to DesignEP™, Java Application and Development Environment (JADE)™, OpenSim™, PSA-HD™, RACS™, SimSuite Pro™, SmartTutor™, THOR™, and Xtreme I/ST™. Despite these protections, the Company cannot be sure that it has protected or will be able to protect its intellectual property adequately, that the unauthorized disclosure or use of its intellectual property will be prevented, that others have not or will not develop similar technology independently, or, to the extent it owns any patents in the future, that others have not or will not be able to design around those patents. Furthermore, the laws of certain countries in which the Company's products are sold do not protect its products and intellectual property rights to the same extent as the laws of the United States.

Government Regulations

Our operations are directly and indirectly affected by political developments and both domestic and foreign governmental regulations. We cannot determine the extent to which changing political priorities, new legislation, new regulations or changes in existing laws or regulations may affect our future operations, positively or negatively.

Industries Served

The following chart illustrates the approximate percentage of the Company's 2020 and 2019 consolidated revenue by industries served:

	Years ended December 31,	
	2020	2019
Nuclear power	89%	90%
Fossil fuel power	7%	7%
Process	4%	2%
Other	–	1%
Total	100%	100%

Backlog

As of December 31, 2020, we had approximately \$40.4 million of total gross revenue in backlog compared to \$52.7 million as of December 31, 2019. Most of our contract terms are for less than 24 months. Our backlog includes only those amounts that have been funded and authorized and does not reflect the full amounts we may receive over the term of such contracts. Our backlog includes future expected revenue at contract rates, excluding contract renewals or extensions that are at the discretion of the client. We calculate backlog without regard to possible project reductions or expansions or potential cancellations unless and until we have reason to believe that such changes may occur.

Backlog is expressed in terms of gross revenue and, therefore, may include significant estimated amounts of third-party or pass-through costs to subcontractors and other parties. Because backlog is not a defined accounting term, our computation of backlog may not necessarily be comparable to that of our industry peers.

Human Capital

As of December 31, 2020, we had approximately 332 employees, which include 197 in our Performance Improvement segment and 135 in our Nuclear Industry Training and Consulting segment. The 332 employees are comprised of 292 fulltime employees and 44 part time employees, 133 of these employees fall under our Workforce Solutions which is our staff augmentation division and most of the remainder fall under Engineering Performance. Excluding our Nuclear Industry Training and Consulting business, which consists primarily of specialized instructors, our employee attrition rate for 2020 among all staff was approximately 8.9%. To date, we have been able to locate and engage highly qualified employees as needed and we expect our growth efforts to be addressed through attracting top talent.

Our people are what make us the Company we are today. Not only does it depend on employing highly skilled professionals but also people who can work together, effectively and collaboratively, as a team, whether departmental, cross functional, or cross company. Our employees come from diverse backgrounds as well as a diverse geography, and we look to attract people by offering a positive and welcoming work environment, strong management and leadership teams, along with a competitive compensation and benefit package.

Talent Management

GSE is committed to recruiting, hiring, retaining, and developing the most talented and skilled professionals & graduates available in the job market. Our approach to Talent Management includes a rigorous selection process followed by coaching, training, and knowledge transfer. We differentiate our program from typical performance management programs by focusing on the manager's role. HR provides support but the day-to-day interactions that ensure the employee's success come from the manager. They coach and develop employees through their active and regular interactions. This is a critical part of both current performance as well as knowledge transfer from our more experienced staff that may be nearing the end of their career, to our less experienced. Training takes place internally and across our companies to take advantage of our SMEs in our industry. As a result of this we can integrate different talent pools to be interchangeable across projects. In addition, we offer a tuition reimbursement that allows employees to further their education or attend external professional development programs.

In 2021, we will be putting career paths in place and compensation structures that will increase our retention rates as well as offering leadership development for our upcoming, emerging leaders that will lead us into the future.

Compensation & Benefits

GSE offers market competitive compensation and benefit programs for our employees in order to attract and retain superior talent. In addition to competitive base wages, additional programs include a Long-Term Incentive Stock Option Plan, a Company matched 401(k) Plan, healthcare and insurance benefits, health savings and flexible spending accounts, paid time off, family leave, and employee assistance programs are provided.

Diversity & Inclusion

A diverse and inclusive workforce adds value to our company and helps us succeed. We believe diversity is important because it provides varied insight and varied perspectives which results in innovative thinking, better decision making and faster problem solving. Having a diverse workforce also brings different skill sets and experiences that are shared throughout the Company. Our culture which is collaborative in nature, provides for inclusion of all employees in all aspects of our work.

Health, Safety, & COVID-19

The health and safety of our employees is of paramount importance to us. Our OSHA records show that we have had zero injuries/illnesses in the past four years, and we attribute that to our employees working carefully so they don't get injured. We provide everyone a safety manual and the employees that work at power plants are also provided with the necessary safety training on site.

In response to COVID-19, we have implemented some protocols to keep our employees safe. All employees are provided remote work with office visits restricted to essential work only and includes use of masks, social distancing, and proper hand washing and cleaning protocols. Travel has also been limited to essential work only. While some employees are doing essential work at client sites, all our clients have provided their COVID safety protocols, and they are strictly adhered to.

During COVID-19, our employees have faced the challenges of maintaining their mental health as well as providing an environment for their children to participate in virtual learning. In response to this, we have provided multiple mental health resources for our employees and their families including subscriptions to Headspace as well as a wellness program that incentivizes and motivates people to eat healthy, get some form of exercise, and destress. We also offer an EAP and full access to mental health providers through our health partner, Cigna. And in order for our employees to be able to assist in the virtual learning environment with their children, we have offered flexible work schedules to accommodate their needs.

COVID-19

GSE employees began working remotely during the first quarter of 2020 due to the COVID-19 pandemic and will continue to do so when practical and as mandated by local, state and federal directives and regulations. Employees almost entirely work from home within our Performance Improvement Solutions (“Performance”) segment, except when required to be at the client site for essential project work. Our Performance contracts, which are considered an essential service, are permitted to and mostly continue without pause; however, we have experienced certain delays in new business. For our staff augmentation business, we have seen certain contracts for our Nuclear Industry Training and Consulting (“NITC”) customers paused or delayed as clients shrink their own on-premise workforces to the minimum operating levels in response to the pandemic; as a result, our NITC segment has experienced a decline in its billable employee base since the start of the pandemic. Although we cannot fully estimate the length or gravity of the impact of the COVID-19 pandemic to our business at this time, we have experienced delays in commencing new projects and thus our ability to recognize revenue has been delayed for some contracts. We have also experienced order reductions or other negative changes to orders due to the pandemic. We routinely monitor our operating expenses as a result of contract delays and have made adjustments to keep our gross profit at a sustainable level.

ITEM 1A. RISK FACTORS.

The following are some of the factors that we believe could cause our actual results to differ materially from historical results and from the results contemplated by the forward-looking statements contained in this report and other public statements we have made. Additional risks and uncertainties not presently known to us, or that we currently see as immaterial, may also harm our business. Most of these risks are generally beyond our control. If any of the risks or uncertainties described below, or any such other or additional risks and uncertainties actually occurs, our business, results of operations and financial condition could be materially and adversely affected. The following information should be read in conjunction with Item 7 - Management’s Discussion and Analysis of Financial Condition and Results of Operations and the consolidated financial statements and related notes under Item 8 - Financial Statements and Supplementary Data.

A novel strain of coronavirus, the COVID-19 virus, may adversely affect our business operations and financial condition.

In December 2019, an outbreak of the COVID-19 virus was reported in Wuhan, China. On March 11, 2020, the World Health Organization declared the COVID-19 virus a global pandemic and on March 13, 2020, President Donald J. Trump declared the virus a national emergency in the United States. This highly contagious disease has spread to most of the countries in the world and throughout the United States, creating a serious impact on customers, workforces and suppliers, disrupting economies and financial markets, and potentially leading to a world-wide economic downturn. It has caused a disruption of the normal operations of many businesses, including the temporary closure or scale-back of business operations and/or the imposition of either quarantine or remote work or meeting requirements for employees, either by government order or on a voluntary basis. The pandemic may adversely affect our customers’ operations, our employees and our employee productivity. It may also impact the ability of our subcontractors, partners, and suppliers to operate and fulfill their contractual obligations, and result in an increase in costs, delays or disruptions in performance. These supply chain effects, and the direct effect of the virus and the disruption on our employees and operations, may negatively impact both our ability to meet customer demand and our revenue and profit margins. Our employees, in many cases, are working remotely and using various technologies to perform their functions. We might experience delays or changes in customer demand, particularly if customer funding priorities change. Further, in reaction to the spread of COVID-19 in the United States, many businesses have instituted social distancing policies, including the closure of offices and worksites and deferring planned business activity. Our Performance Solutions business segment, as they are classified essential, for the most part continue without pause. With regard to our Nuclear Industry Training and Consulting business segment, because of the embedded presence of our on-site workforce, if COVID-19 or a similar outbreak of infectious disease were to prevent our workers from being deployed to the applicable customer site, it may disrupt our Nuclear Industry Training and Consulting service offerings, interrupt performance on our Nuclear Industry Training and Consulting contracts with clients and negatively impact our business, financial condition and results of operations. Additionally, the disruption and volatility in the global and domestic capital markets may increase the cost of capital and limit our ability to access capital. Both the health and economic aspects of the COVID-19 virus are highly fluid and the future course of each is uncertain. For these reasons and other reasons that may come to light if the coronavirus pandemic and associated protective or preventative measures expand, we may experience a material adverse effect on our business operations, revenues and financial condition; however, its ultimate impact is highly uncertain and subject to change.

If we cannot comply with the financial or other restrictive covenants in our credit agreement, or obtain waivers or other relief from our lender, we may cause an event of default to occur, which could result in loss of our sources of liquidity and acceleration of our debt.

In order to fund acquisition related costs we entered into a debt agreement for which a line of credit remains outstanding. We may not be able to refinance or restructure any of our debt, sell assets or raise equity, in each case on commercially reasonable terms or at all, which could cause us to default on our obligations and impair our liquidity. Our inability to generate sufficient cash flow to satisfy repayment obligations or to refinance or restructure these obligations on commercially reasonable terms could have a material adverse effect on our business, financial condition, results of operations and cash flows. Our credit agreement also contains financial and other restrictive covenants. Our ability to comply with the covenants in our credit agreement will depend upon our future performance and various other factors, some of which are beyond our control. We may not be able to maintain compliance with all of these covenants. In that event, we would need to seek an amendment to our credit agreement, a waiver from our lender, utilize cash to pay down outstanding debt and/or refinance or restructure our debt. There can be no assurance that we could obtain future amendments or waivers of our credit agreement, or refinance or restructure our debt, in each case on commercially reasonable terms or at all. Our failure to maintain compliance with the covenants under our credit agreement could result in an event of default, subject to applicable notice and cure provisions. Upon the occurrence of an event of default under our credit agreement, our lender could elect to declare all amounts outstanding thereunder to be immediately due and payable, terminate all commitments to extend further credit and cease making further loans. If we were unable to repay all outstanding amounts in full, our lender could exercise various remedies including instituting foreclosure proceedings against our assets pledged to them as collateral to secure that debt.

If we do not receive full or partial forgiveness of the PPP loan from the United States Small Business Administration (SBA), we will be required to remit the amount not forgiven by the SBA to our lender in accordance with the terms of the PPP loan starting on the date established by the SBA, which could result in loss of sources of liquidity and acceleration of debt.

We received a payroll protection program loan (PPP Loan) under the Coronavirus Aid, Relief and Economic Security Act (CARES Act) in the amount of ten million dollars (\$10,000,000). Pursuant to the regulations promulgated by the SBA, we were required to submit an application to our lender requesting forgiveness for the PPP Loan and substantiating that we were entitled to the PPP Loan and used the proceeds of the PPP Loan as permitted under the CARES Act. Our application for forgiveness has been submitted to the SBA. The SBA has 90 days from submission of the forgiveness application to review the request and communicate its determination to our lender. If the SBA determines that we were ineligible for the PPP Loan, we will be required to immediately repay the PPP Loan to our lender. If the SBA determines that we did not spend the proceeds of the PPP Loan as required by the CARES Act in order to obtain forgiveness of the PPP Loan (in whole or in part), we will be required to repay the PPP Loan over two (2) years. The failure to obtain forgiveness from the SBA with respect to our PPP Loan (in whole or in part) could result in the loss of liquidity and acceleration of debt, which ultimately could result in our being unable to meet our debts as they become due. Our lender has reviewed our application for forgiveness and associated documentation, forwarding it to the SBA with their determination that the loan is fully forgivable on February 26, 2021. However, we are ultimately subject to the SBA's process and conclusion for forgiveness. To the extent the loan amount is not forgiven under the PPP, we are obligated to make equal monthly payments of principal and interest, beginning after determination of forgiveness by the SBA.

Our business is largely dependent on sales to the nuclear power industry. Any significant disruption in this industry would have a material adverse effect upon our revenue and profitability.

In 2020 and 2019, 89.0% and 90% of our revenue, respectively, was from customers in the nuclear power industry customers. We expect to derive a significant portion of our revenue from customers in the nuclear power industry for the foreseeable future. Market demand for, and our ability to supply nuclear power plant simulators and related products and services is dependent on the continued operation of nuclear power plants globally and, to a lesser extent, on the construction of new nuclear power plants. A wide range of factors affect the continued operation and construction of nuclear power plants, including the political, regulatory and legal environment in which they operate, the availability and cost of alternative means of power generation, the occurrence of future nuclear incidents, such as the one which occurred at the Fukushima Daiichi nuclear plant in 2011, and general economic conditions. Significant regulatory changes in the U.S. or abroad could materially affect demand for our products, the profitability of our service deliveries to nuclear power industry customers, and the overall efficacy of our current business model.

Our sales to foreign customers expose us to risks associated with operating internationally.

Sales of products and services to end users outside the United States accounted for approximately 17.0% of the Company's consolidated revenue in 2020 and 16.0% of consolidated revenue in 2019. Consequently, our businesses are subject to a variety of risks that are specific to international operations, including the following:

- export laws and regulations that could erode our profit margins or restrict the export of some or all of our products;
- compliance with the U.S. Foreign Corrupt Practices Act and similar non-U.S. regulations such as the UK Bribery Act;
- the burden and cost of compliance with foreign laws, treaties and technical standards generally, as well as responding to changes in those requirements;
- contract award and funding delays;
- potential restrictions on transfers of funds;
- potential difficulties in accounts receivable collection;
- currency fluctuations, including costs and potentially limited availability of viable hedging options;
- import and export duties and value added or other taxes;
- transportation and communication delays and interruptions;
- differences in insurance availability and coverage in some jurisdictions;
- difficulties involving strategic alliances and managing foreign sales agents or representatives;
- uncertainties arising from foreign local business practices and cultural considerations; and
- potential military conflicts and political risks.
- potential disruption of our international business due to the worldwide COVID-19 virus outbreak.

In December 2019, an outbreak of the COVID-19 virus was reported in Wuhan, China. On March 11, 2020, the World Health Organization declared the COVID-19 virus a global pandemic. This highly contagious disease has spread to most of the countries in the world and throughout the United States, creating a serious impact on customers, workforces and suppliers, disrupting economies and financial markets, and potentially leading to a world-wide economic downturn. It has caused a disruption of the normal operations of many businesses, including the temporary closure or scale-back of business operations and/or the imposition of either quarantine or remote work or meeting requirements for employees, either by government order or on a voluntary basis. The pandemic may adversely affect our international customers' operations, our employees and our employee productivity. It may also impact the ability of our subcontractors, partners, and suppliers to operate and fulfill their contractual obligations, and result in an increase in costs, delays or disruptions in performance. These supply chain effects, and the direct effect of the virus and the disruption on our employees and operations, may negatively impact both our ability to meet customer demand and our revenue and profit margins.

While we have and will continue to adopt measures to reduce the potential impact of losses resulting from the risks of our foreign business, we cannot ensure that such measures will be adequate. During the years ended December 31, 2020 and 2019, we did not have revenues greater than 10% from any individual foreign country.

Exports and sales to certain foreign countries, including the People's Republic of China, are subject to regulatory, political, and other risks.

The export and sale of our services and technology to certain foreign countries including China, are subject to U.S. export control regulations. Export control policy pertaining to China and other countries may be enforced through laws and regulations administered by the Department of Commerce and the Department of Energy, and jurisdiction with regard to the export and sale of our services and technology may be overlapping and unclear. Specific governmental authorizations may be required before we can export our services or technology to countries such as China, or collaborate with foreign entities or foreign individuals located in countries such as China. These restrictions include our own wholly-owned Chinese subsidiary and its employees. If export or other authorizations are required and not granted, or are significantly delayed, our international business plans pertaining to China and other countries could be materially affected. Further, our exports and sales to China and other countries with respect to which the United States may have shifting or negative diplomatic and trade relations, including sales made by or through our wholly-owned Chinese subsidiary, expose us to particular risks associated with the political and regulatory relationship between the U.S. and China and between the U.S. and such other countries.

In October 2018, the Department of Energy announced the tightening of certain export control restrictions with regard to the export of nuclear technology to China, including certain presumptive denials with regard to the export of identified nuclear technologies to China. Although we do not believe that these policy changes cover our technologies or services, additional restrictions pertaining to U.S. regulation and policy pertaining to international trade with China could adversely affect our business in China and the performance of our Chinese subsidiary.

Finally, violation of export control regulations, including those pertaining to China, could subject us to fines and other penalties, such as losing the ability to export for a period of years, which would limit our revenue growth opportunities and significantly hinder our attempts to expand our business internationally. Although we take steps to monitor and ensure our compliance with all applicable export laws and regulations, we are nevertheless exposed to political and regulatory risks that we may not be able to mitigate fully and that may have a material adverse effect upon our international business operations.

Our operations within China subject us to risks and uncertainties relating to the laws and regulations of China.

Our business and operations within China may be adversely affected by China's continuously evolving internal policies, laws and regulations, including those relating to nuclear technology, trade, taxation, import and export tariffs or restrictions, currency controls, cybersecurity and data protection, indigenous innovation and the promotion of a domestic nuclear industry, and intellectual property rights and enforcement and protection of those rights. Enforcement of existing laws or agreements in China may be inconsistent. In addition, changes in the political environment, governmental policies, international trade policies and relations, or U.S. - China relations could result in revisions to laws or regulations or their interpretation and enforcement, exposure of our proprietary intellectual property to risk of loss, increased taxation, trade sanctions, the imposition of import duties or tariffs, restrictions on imports or exports, currency revaluations, or retaliatory actions by the Chinese government in response to U.S. actions, any or all of which could have an adverse effect on our business plans and operating results.

Customer concentration in the U.S. nuclear power industry subjects us to risks and uncertainty, which we may not be able to mitigate through diversification.

The U.S. nuclear industry has significant customer concentration with a limited number of entities owning all of the 99 nuclear reactors currently operating in the United States. In 2020, we continued to experience high customer concentration with respect to each of our businesses. Indeed, one customer accounted for 14.1% of our total consolidated revenue for the year-ended December 31, 2020. We monitor our customer concentration and seek to diversify our customer base within this concentrated industry. In addition to pursuing diversification strategies and expanding relationships with targeted customers, we mitigate the associated customer concentration risk by developing meaningful relationships with each nuclear power plant, which are often separately responsible for vendor selection and individual procurement decisions.

While our acquisition activity has the potential to diversify our customer base through inorganic means, we have also found that some of the strongest commercial opportunities are within our existing customer base, as our existing relationships are a resource for introductions, due diligence, and business intelligence. Our acquisition of DP Engineering highlights these kinds of opportunities and challenges. Through the acquisition process, we benefited from insights obtained from our subsidiaries who work side-by-side with DP Engineering within our existing footprint. At the same time, DP Engineering has significant customer concentration within our existing customer base. As a result, our strategy with DP Engineering includes a focus on new customer acquisition and diversification.

Our revenue, results of operations, and cash flows may suffer upon the loss of a significant customer.

For the years ended December 31, 2020 and 2019, four customers have provided more than 10% of **Nuclear Industry Training and Consulting** segment's revenues:

	Years ended December 31,	
	2020	2019
Customer A	30%	46%
Customer B	15%	7%
Customer C	12%	7%
Customer D	11%	11%

Hyperspring and Absolute, which together comprise our Nuclear Industry Training and Consulting segment, may lose a significant customer if any existing contract with such customer expires without extension, renewal, or negotiation or if it is terminated by the customer prior to expiration, to the extent such early termination is permitted by the contract. A number of Hyperspring's and Absolute's contracts typically are subject to expiration during each year, and either company may lose any of these contracts if the Company is unable to extend, renew, or renegotiate the contracts. The loss of any significant customer would adversely affect our Nuclear Industry Training and Consulting segment's revenue, results of operations, and cash flows.

For the years ended December 31, 2020 and 2019, a customer has provided more than 10% of **Performance Improvement Solutions** segment's revenues:

	Years ended December 31,	
	2020	2019
Customer E	11%	8%

Customer A also provided 14.1% and 27.8% of our total consolidated revenue for the years ended December 31, 2020 and 2019, respectively. While the acquisition of DP Engineering increased our product and service offerings, we anticipate that it will further increase our customer concentration in our Performance Improvement Solutions segment.

GSE Performance Solutions, Inc., GSE True North Consulting, LLC, and DP Engineering, which together comprise our Performance Improvement Solutions segment, may lose a significant customer if any existing contract with such customer expires without extension, renewal, or negotiation or if it is terminated by the customer prior to expiration, to the extent such early termination is permitted by the contract. A majority of the contracts entered into by our Performance Improvement Solutions businesses are able to be terminated by our customer on relatively short notice without cause or further compensation. The loss of any significant customer would adversely affect our Performance Improvement Solutions segment's revenue, results of operations, and cash flows.

Our expense levels are based upon our expectations as to future revenue, and we may be unable to adjust spending to compensate for a revenue shortfall. Accordingly, any revenue shortfall would likely have a disproportionate effect on our operating results.

Our revenue was \$57.6 million and \$83.0 million for the years ended December 31, 2020 and 2019, respectively. We had operating loss of \$9.5 million and \$7.4 million for the years ended December 31, 2020 and 2019, respectively. Our operating results have fluctuated in the past and may fluctuate significantly in the future as a result of a variety of factors, including purchasing patterns, timing of launch or release of new products and enhancements by us and our competitors, and fluctuating global economic conditions. Because our expense levels are based in part on our expectations as to future revenue and includes certain fixed, pre-negotiated, and prepaid costs, we may be unable to adjust spending in a timely manner to compensate for any revenue shortfall. Because of this lag in response time, such revenue shortfalls likely would have a disproportionate adverse effect on our operating results.

Our backlog is subject to unexpected adjustments and cancellations and may not be a reliable indicator of future revenues or earnings.

Backlog represents products or services that our customers have committed by contract or purchase order to purchase from us and that we have not yet delivered or recognized as revenue. Our backlog as of December 31, 2020 and 2019 was \$40.4 million and \$52.7 million, respectively. There can be no assurance that the revenues projected in our backlog will be realized or, if realized, will result in profits. Because of project cancellations or changes in project scope and schedule, we cannot predict with certainty whether or when backlog services will be performed, or products delivered. In addition, even where a project proceeds as scheduled, it is possible that contracted parties may default and fail to pay amounts owed to us. Our poor project performance could increase the cost associated with a project. Thus, delays, suspensions, cancellations, payment defaults, scope changes and poor project execution could materially reduce or eliminate the revenues and profits that we actually realize from projects in backlog. Reductions in our backlog due to cancellation or modification by a customer or for other reasons may adversely affect, potentially to a material extent, the revenues and earnings we actually receive from contracts and orders included in our backlog. Many, but not all, of the contracts in our backlog provide for cancellation fees in the event customers cancel projects. These cancellation fees usually provide for reimbursement of our out-of-pocket costs and payments, for work performed prior to cancellation including varying percentages of the profits we would have realized had the contract been completed. We usually have no contractual right to payment for all of the lost revenue or lost profits in the event of cancellation of the contracts and orders reflected in our backlog, however. Projects may remain in our backlog for extended periods of time. If we experience significant project terminations, suspensions, or scope adjustments to contracts reflected in our backlog, our financial condition, results of operations and cash flows may be adversely impacted.

We are currently a party to multiple fixed price contracts and will continue to enter into similar contracts in the future. If we are not able to estimate accurately or control costs on such projects, the profitability of such projects could be reduced.

A significant portion of our revenue is attributable to contracts entered into on a fixed price basis, which enable us to benefit from cost savings, but expose us to the risk of cost overruns. If our initial estimates are incorrect regarding our costs of performance under these contracts, or if unanticipated circumstances arise, we could experience cost overruns that could result in reduced profits or even net losses on these contracts. Our financial condition is dependent upon our ability to maximize our earnings from our contracts. Lower earnings or losses caused by cost overruns could have a negative impact on our financial results.

Under our time and materials contracts, we are paid for labor at negotiated hourly billing rates and for certain expenses. Under cost-reimbursable contracts, which are subject to a contract ceiling amount, we are reimbursed for allowable costs and are paid a fee, which may be fixed, or performance based. In both cases, however, if our costs exceed the contract ceiling or are not allowable under the provisions of the contract or applicable regulations, we may not be able to obtain reimbursement for all such costs even under a time and materials or cost-reimbursable contract.

Our inability to successfully estimate and manage costs on each of these contract types may materially and adversely affect our financial condition.

Our simulation business is dependent on product innovation and research and development, which costs are incurred prior to realization of revenue for new products and improvements.

We believe that our success will depend in large part on our ability to maintain and enhance our current product line, develop new products, maintain technological competitiveness and meet an expanding range of customer needs. Our product development activities are aimed at the development and expansion of our library of software modeling tools, the improvement of our display systems and workstation technologies, and the advancement and upgrading of our simulation technology. The life cycles for software modeling tools, graphical user interfaces, and simulation technology are variable and largely determined by competitive pressures and the evolution of software and standards that may be controlled by third parties. Consequently, we will need to continue to make significant investments in research and development to enhance and expand our capabilities in these areas and to maintain our competitive advantage. We cannot control, and we may be unable to predict accurately, the development and evolution of these competitive pressures and external software and standards. We may be unable to monetize our investment in research and development in a timely manner, or at all. Unexpected or excessive delays in realizing a return on these investments may have a material and adverse effect on our cash position, results of operations, and financial condition.

We use derivative instruments in the normal course of our business which could result in financial losses and exposure to other risks that negatively impact our net income (loss) and business operational efficiency.

We periodically enter into forward foreign exchange contracts to manage market risks associated with the fluctuations in foreign currency exchange rates on foreign-denominated trade receivables. We could recognize financial losses as a result of volatility in the market values of these contracts or if a derivative instrument counterparty fails to perform. We attempt to minimize credit exposure by limiting counterparties to internationally recognized financial institutions, but even these counterparties are subject to default and contract risk and this risk is beyond our control. We also engage in interest rate hedging transactions in the ordinary courses of our business to mitigate the risk that amounts borrowed under our credit facility at floating interest rates may be affected by adverse rate movements. Depending on future business, market, and interest rate environments, however, these hedging transactions may not be effective to mitigate the financial impact of the risks for which they were put into place sufficiently to justify their expense. Additionally, we may need or wish to avail ourselves of other forms of hedging or derivative instruments in the future depending on our business needs, and these other types of derivative instruments may be subject to the same and other risks and may not be available to us on a cost-effective or risk-controlled basis, if at all. The unavailability of viable and cost effective risk management, hedging, or similar instruments now or in the future could adversely impact our business operational efficiency or results.

We issue performance, advance payment, and bid bonds in the normal course of our business which could result in financial losses that negatively impact our net income (loss).

We may be required to issue performance, advance payment, and bid bonds to our customers and potential customers as a normal part of our business activities. Our customers may have the ability to draw upon these performance bonds in the event we fail to cure a material breach of the contract within a specified period after receiving notice from the customer regarding the nature of the breach. For the year ended December 31, 2020, we did not issue any advance payment or performance bonds, but we may be required to do so in the future to secure contract awards.

We rely upon our intellectual property rights for the success of our business, but the steps we have taken to protect our intellectual property may be inadequate.

Although we believe that factors such as the technological and creative skills of our personnel, new product developments, frequent product enhancements and reliable product maintenance are important to establishing and maintaining a technological leadership position, our business depends, in part, on the strength of our intellectual property rights in our proprietary technology and information. We rely upon a combination of trade secret, copyright, and trademark law, contractual arrangements and technical means to protect our intellectual property rights. We enter into confidentiality agreements with our employees, consultants, joint venture and alliance partners, customers, and other third parties that are granted access to our proprietary information, and we limit access to and distribution of our proprietary information. There can be no assurance, however, that we have protected or will be able to protect our proprietary technology and information adequately, that the unauthorized disclosure or use of our proprietary information will be prevented, that others have not or will not develop similar technology or information independently, or, to the extent we own any patents in the future, that others have not or will not be able to design around those future patents. Furthermore, the laws of certain countries in which our products are sold do not protect our products and intellectual property rights to the same extent as the laws of the United States. Our inability to protect our intellectual property rights from infringement, dilution, or loss could make it more difficult for us to generate revenue from the offer, licensure, and sale of our products and services and could enable third parties to compete with us more effectively.

The industries in which we operate are highly competitive. This competition may prevent us from raising prices at the same pace at which our costs increase.

Our businesses operate in highly competitive environments with both domestic and foreign competitors, many of whom have substantially greater financial, marketing, and other resources than we do. The principal factors affecting competition in our industries include price, technological proficiency, ease of system configuration and use, product reliability, applications expertise, engineering support, local presence, personal relationships, and the relative financial stability of the competitor. We believe competition in the simulation fields may further intensify in the future as a result of advances in technology, consolidations and strategic alliances among competitors, increased costs required to develop new technology and the increasing importance of software content in systems and products. Because our business has a significant international component, changes in the value of the dollar could adversely affect our ability to compete internationally and could reduce our profitability on international business opportunities that we do win. Any of these competitive factors, or any combination of two or more factors, could make it more difficult for us to bid successfully on new projects, or to complete projects at profit margins that we consider reasonable. An inability or reduced ability to win new work would have a material adverse impact on our backlog and revenue, and an inability or reduced ability to secure reasonable profit margins on projects awarded to us would have a material adverse impact on our profitability and overall results of operations.

We may encounter difficulties in effectively integrating acquired businesses.

As part of our business strategy, we have acquired, and intend to acquire, companies with compatible or related products. These acquisitions will be accompanied by the risks commonly encountered in acquisitions of companies, which include, among other things:

- potential exposure to unknown liabilities of the acquired companies;
- higher than anticipated acquisition costs and expenses;
- depletion of cash and other company assets and resources in connection with the acquisition or integration;
- difficulty and expense of integrating the operations and personnel of the companies, especially if the acquired operations are geographically distant or culturally different;
- potential disruption of our ongoing business and diversion of management time and attention;
- failure to maximize our financial and strategic position by the successful incorporation of acquired technology;
- difficulties in adopting and maintaining uniform standards, controls, procedures, and policies;
- loss of key employees and customers as a result of changes in management; and
- possible dilution to our shareholders.

We may not be successful in overcoming these risks or any other problems encountered in connection with any of our acquisitions, and if we are not successful, our financial results may be materially impacted. We may be forced to modify our strategic objectives or seek alternative sources of growth.

We are dependent on our management team, and the loss of or the inability to attract and retain one or more key employees or groups could harm our business and prevent us from implementing our business plan in a timely manner.

Our future success is substantially dependent on the continued services and continuing contributions of our executive officers and other key personnel. All of our recently acquired businesses, including Hyperspring, Absolute, True North, and DP Engineering, are particularly dependent on key personnel and their key strategic relationships. The loss of the services of any of our executive officers or other key personnel could harm our business. Our future success also depends on our ability to continue to attract, retain, and motivate highly skilled employees. If we are not able to attract and retain key skilled personnel, our business could be harmed and our revenue, profitability, and overall results of operations could be materially impacted.

A failure to attract and retain technical personnel could reduce our revenue and our operational effectiveness.

There is a continuing demand for qualified technical personnel in the industries within which we operate. We believe that our future growth and success will depend upon our ability to attract, train and retain such personnel. Our design and development efforts, particularly within our Performance Improvement Solutions business segment, depend on hiring and retaining qualified technical personnel. An inability to attract or maintain a sufficient number of technical personnel could have a material adverse effect on our contract performance or on our ability to capitalize on market opportunities.

The nuclear power industry, our largest customer group, is associated with a number of hazards which could create significant liabilities.

Our business could expose us to third party claims with respect to product, environmental and other similar liabilities. Although we have sought protection from these potential liabilities through a variety of legal and contractual provisions as well as through liability insurance, the effectiveness of such protections has not been fully tested. Certain of our products and services are used by the nuclear power industry primarily in operator training. Although our contracts for such products and services typically contain provisions designed to protect us from potential liabilities associated with such use, there can be no assurance that we would not be materially adversely affected by claims or actions which may potentially arise due to factors that may be outside of our direct control.

Cyber security incidents could disrupt business operations, result in the loss of critical and confidential information, and adversely impact our reputation and results of operations.

Global cyber security threats can range from uncoordinated individual attempts to gain unauthorized access to our information technology (IT) systems to sophisticated and targeted measures known as advanced persistent threats. While we employ comprehensive measures to prevent, detect, address and mitigate these threats (including access controls, data encryption, vulnerability assessments, continuous monitoring of our IT networks and systems, and maintenance of backup and protective systems), cyber security incidents, depending on their nature and scope, could potentially result in the misappropriation, destruction, corruption or unavailability of critical data and confidential or proprietary information (our own or that of third parties) and the disruption of business operations. The potential consequences of a material cyber security incident include reputational damage, litigation with third parties, civil or regulatory liability for loss of sensitive or protected information such as personal data, incident response costs, diminution in the value of our investment in research, development and engineering, loss of intellectual property, and increased cyber security protection and remediation costs, which in turn could adversely affect our competitiveness and results of operations.

Third-party claims that we allegedly infringe the intellectual property rights of others may be costly to defend or settle and could damage our business.

We cannot be certain that our software and services do not infringe issued patents, copyrights, trademarks or other intellectual property rights of third parties. We may be subject to legal proceedings and claims from time to time, including claims of alleged infringement of intellectual property rights of third parties by us or our licensees concerning their use of our software products and integration technologies and services. Third parties may bring claims of infringement directly against us, or because our software is integrated with our customers' networks and business processes, as well as other software applications against us, our customers, and our business partners or software suppliers, if the cause of the alleged infringement cannot easily be determined.

Claims of alleged infringement may have a material adverse effect on our business and may discourage potential customers from doing business with us on acceptable terms, if at all, even if the claims are ultimately adjudicated to have no merit, dismissed, or settled. Defending against claims of infringement may be time-consuming and may result in substantial costs and diversion of resources, including our management's attention to our business. Furthermore, a party making an infringement claim could secure a judgment that requires us to pay substantial damages. A judgment could also include an injunction or other court order that could prevent us from selling our software or require that we re-engineer some or all of our products or modules. Claims of intellectual property infringement also might require us to enter costly royalty or license agreements. We may be unable to obtain royalty or license agreements on terms acceptable to us or at all. Our business, operating results and financial condition could be harmed significantly if any of these events were to occur, and the price of our common stock could be adversely affected. In addition, we have agreed, and may agree in the future, to indemnify certain of our customers against claims that our software infringes upon the intellectual property rights of others. Although we carry general liability insurance, our current insurance coverage may not apply to, and likely would not protect us entirely or at all from, liability that may be imposed under any of the types of claims described above.

We are subject to a wide variety of laws and regulations, and these may change.

Our businesses are subject to regulation by U.S. federal and state laws, and foreign laws, government regulations and policies, and other administrative requirements. Changes to laws or regulations may require us to modify our business objectives if existing practices become more restricted, subject to escalating costs, or prohibited outright. Particular risks include possible curtailment of our intended business activities or strategies as a result of changed or new regulatory risks arising from federal laws and regulations, such as laws and regulations regarding export of sensitive technologies or technical information or changed interpretations of existing laws and regulations. Our business and the industries in which we operate are also at times being reviewed or investigated by regulators, which could lead to enforcement actions, fines and penalties, or the assertion of private litigation claims and damages. Any significant change to laws, regulations, enforcement policies, or liability regimes, or other actions by government bodies having jurisdiction over our business, may have material adverse effects on our business and profitability. We have only limited ability to foresee, plan for, or influence changes to these requirements.

Provisions in our corporate documents and Delaware law could delay or prevent a change in control of our company, even if that change may be considered beneficial by some stockholders.

The existence of some provisions of our certificate of incorporation and bylaws and Delaware law could discourage, delay or prevent a change in control of our company that a stockholder may consider favorable. These include provisions:

- providing that our Board of Directors fixes the number of members of the board and fills all vacancies on the Board of Directors;
- providing for the division of our Board of Directors into three classes with staggered terms;

- limiting who may call special meetings of stockholders;
- prohibiting stockholder action by written consent, thereby requiring stockholder action to be taken at a meeting of the stockholders;
- establishing advance notice requirements for nominations of candidates for election to our Board of Directors or for proposing matters that can be acted on by stockholders at stockholder meetings;
- establishing supermajority vote requirements for certain amendments to our certificate of incorporation and bylaws;
- limiting the right of stockholders to remove directors; and
- authorizing the issuance of “blank check” preferred stock, which could be issued by our Board of Directors to increase the number of outstanding shares and thwart a takeover attempt.

In addition, we are subject to Section 203 of the Delaware General Corporation Law, which may have an anti-takeover effect with respect to transactions not approved in advance by our Board of Directors, including discouraging takeover attempts that might result in a premium over the market price for shares of our common stock.

We believe these provisions protect our stockholders from coercive or otherwise unfair takeover tactics by requiring potential acquirers to negotiate with our Board of Directors and by providing our Board of Directors with more time to assess any acquisition proposal and are not intended to make our company immune from takeovers. These provisions apply even if the offer may be considered beneficial by some stockholders, however, and could delay or prevent an acquisition that our Board of Directors determines is not in the best interests of our company and our stockholders.

A sustained decline in the price of our common stock or weaker than forecasted operating results could result in write-downs of goodwill and other intangible assets and capitalized software development costs.

In conjunction with business acquisitions, we record goodwill and other intangible assets and review their fair value for impairment annually as of December 31, or on an interim basis if impairment indicators are present, such as a significant reduction in our market capitalization, significant declines in operating performance or disruptions to the business that could reduce our future cash flow. On November 14, 2014, we recorded \$5.6 million of goodwill related to our acquisition of Hyperspring. On September 20, 2017, we recorded \$2.8 million of goodwill related to our acquisition of Absolute. On May 11, 2018, we recorded \$4.7 million of goodwill related to our acquisition of True North, LLC. On February 15, 2019, we recorded \$5.8 million of goodwill related the acquisition of DP Engineering. Following the February 23, 2019 event occurring at DP Engineering’s largest customer and subsequent receipt of the Notice of Suspension on February 28, 2019. The Company determined that the notice of suspension was a triggering event necessitating an interim assessment of a potential impairment of definite-lived intangible assets and goodwill. The Company recognized an impairment charge of \$5.6 million to write down goodwill on DP Engineering on at March 31, 2019. We used a discounted cash flow analysis to test for impairment and concluded that the carrying value of the definite-lived intangible assets of DP Engineering exceeded its fair value by \$4.3 million, and we recorded an impairment for this amount as of the three months ended March 31, 2020. We can provide no assurance that we will not have an impairment charge in future periods as the result of changing conditions. See Note 6 to our consolidated financial statements for information regarding our goodwill.

We capitalize certain computer software development costs and, accordingly, the capitalized costs are reported on our balance sheet. Capitalization of computer software development costs begins upon the establishment of technological feasibility. Capitalization ceases and amortization of capitalized costs begins when the software product is commercially available for general release to customers. Amortization of capitalized computer software development costs is included in cost of revenue and is determined using the straight-line method over the remaining estimated economic life of the product, typically three years. On an annual basis, and more frequently as conditions indicate, we assess the status of our development programs and the recoverability of the unamortized software development costs by estimating the net undiscounted cash flows expected to be generated by the sale of the product. If the undiscounted cash flows are not sufficient to recover the unamortized software costs, we will write-down these costs to their estimated fair value based on the future undiscounted cash flows. The excess of any unamortized computer software costs over the related net realizable value is written down and charged to operations.

Write-down of goodwill and capitalized software development costs in the current and future accounting periods may have an impact on the value of the Company, results of operations, and price of our common stock.

Our ability to use our net operating loss (NOL) carryforward and certain other tax attributes may be limited.

Under Section 382 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an “ownership change,” generally defined as a greater than 50% change (by value) in its equity ownership over a three-year period, the corporation’s ability to use its pre-change NOL carryforwards, and other pre-change tax attributes (such as research tax credits) to offset its post-change income or tax liabilities may be limited. We may experience ownership changes in the future as a result of shifts in our stock ownership. As a result, if we earn net taxable income, our ability to use our pre-change NOL carryforwards to offset U.S. federal taxable income may be subject to limitations, which could potentially result in increased future tax liability to us.

ITEM 1B. UNRESOLVED STAFF COMMENTS.

None.

ITEM 2. PROPERTIES.

The Company is headquartered in Columbia. On November 28, 2017, the Company entered into an office lease agreement to sublease 5,039 rentable square feet of an office building located in Columbia, Maryland. The lease is for an initial six years and six months with two renewal periods of five years each. The Company relocated many of the back-office employees to the new office in the first quarter of 2018 from its Sykesville, Maryland office. The office in Columbia, Maryland, now serves as the Company’s executive office location.

The Company leases a facility in Sykesville, Maryland (37,000 square feet). The lease for this facility expires on June 30, 2023. As of December 31, 2020, the Company subleased approximately 7,472 square feet of the facility with a sublease term ending June 30, 2023. As of December 31, 2019, as part of the Company’s ongoing international restructuring plan, management decided to cease-use, and abandoned (21,913 square feet) a portion of this right of use lease.

In addition, the Company leases office space domestically in Huntsville, Alabama; Montrose, Colorado; Fort Worth, Texas, and internationally in Beijing, China. The Company leases these facilities for terms ending between 2019 and 2023. Additionally, as of December 31, 2019, management decided to cease-use, abandoned (9,936 square feet) a portion of the right of use lease in Fort Worth, Texas. See Note 6 and 18 to our consolidated financial statements for information regarding our restructuring activity and leases.

ITEM 3. LEGAL PROCEEDINGS.

The Company and its subsidiaries are from time to time involved in ordinary routine litigation incidental to the conduct of its business. The Company and its subsidiaries are not a party to, and its property is not the subject of, any material pending legal proceedings that, in the opinion of management, are likely to have a material adverse effect on the Company’s business, financial condition or results of operations.

On March 29, 2019, a former employee of Absolute Consulting, Inc., filed a putative class action against Absolute and the Company, *Joyce v. Absolute Consulting Inc.*, case number *1:19 cv 00868 RDB*, in the United States District Court for the District of Maryland. The lawsuit alleges that plaintiff was not properly compensated for overtime hours that he worked. In addition, he alleges that there is a class of employees who were not properly compensated for overtime hours worked. Following a mediation session on July 14, 2020, the parties entered into a Settlement Agreement and Release on August 17, 2020, providing that the case would be settled and dismissed in exchange for Absolute’s payment of a gross settlement amount not to exceed \$1.5 million. The court approved the settlement and dismissed the case with prejudice on September 8, 2020. After the passing of an opt-in notice period expired, the final cost of settling this case, including plaintiff’s attorney fees was approximately \$1.4 million. Approximately \$713 thousand of the settlement amount was paid out prior to December 31, 2020, with \$715 thousand of the remaining balance paid out in 2021.

The Company is involved in litigation in the ordinary course of business. While it is too early to determine the outcome of such matters, management does not expect the resolution of these matters to have a material impact on the Company’s financial position or results of operations.

ITEM 4. MINE SAFETY DISCLOSURES.

Not applicable.

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

The Company's common stock is listed on the NASDAQ Capital Market, where it trades under the symbol "GVP". The following table sets forth, for the periods indicated, the high and low sale prices for the Company's common stock reported by the Nasdaq Stock Exchange for each full quarterly period within the two most recent fiscal years:

Quarter	2020	
	High	Low
First	\$ 1.84	\$ 0.88
Second	\$ 1.18	\$ 0.91
Third	\$ 1.08	\$ 0.90
Fourth	\$ 1.46	\$ 0.98

Quarter	2019	
	High	Low
First	\$ 3.15	\$ 2.40
Second	\$ 2.87	\$ 2.17
Third	\$ 2.31	\$ 1.67
Fourth	\$ 1.84	\$ 1.08

On March 31, 2021, there were 20,634,372 shares of common stock outstanding. As of the latest record date, the Company had 723 holders of record. This number does not include beneficial owners of our common stock whose shares are held in the names of various dealers, clearing agencies, banks, brokers and other fiduciaries.

ITEM 6. SELECTED FINANCIAL DATA.

This information is not required for smaller reporting companies.

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

GSE is a leading provider of professional and technical engineering, staffing services and simulation software to clients in the power and process industries. We provide customers with simulation, engineering and plant services that help clients reduce risks associated with operating their plants, increase revenue through improved plant and employee performance, and lower costs through improved operational efficiency. In addition, we provide professional services that systematically help clients fill key vacancies in the organization on a short-term basis, primarily in procedures, engineering, technical support and training focused on regulatory compliance and certification in the nuclear power industry. Our operations also include interactive computer-based tutorials and simulation software for the refining, chemical, and petrochemical industries.

Early in 2020 as the pandemic unfolded, the end markets that GSE serves, namely the power industries, delayed the essential services it could and dramatically cut back on non-essential services. Although this impacted GSE, as an essential services provider to an essential industrial base, GSE benefited from maintaining a baseline of business to continue and align itself to the realities of the pandemic. As GSE enters 2021, the effects of the pandemic are still impacting the end markets we serve, but those effects may be mitigated for a number of factors, including the following: the pandemic largely has had a targeted effect on the population; there now are number of vaccines in the market being distributed and, despite logistical challenges, making solid progress for those in most need; the economy of the United States has not had as much disruption as was initially feared which has benefited our end markets; and most importantly the end markets of GSE seem poised to spend to catch up on essential services that had been delayed as a result of the pandemic. As GSE ended 2020 and began 2021, we have had a number of significant contract wins that have been publicly announced, which we hope is a harbinger of a more solid 2021 business environment.

On April 23, 2020, we received funds under the Paycheck Protection Program, a part of the Coronavirus Aid, Relief and Economic Security Act (the "CARES Act"). The loan is serviced by Citizens Bank (the "Bank"), and the application for these funds required us to, in good faith, certify that the current economic uncertainty made the loan necessary to support our ongoing operations. We used funds for payroll and related costs, rent and utilities. The receipt of these funds, and the forgiveness of the PPP Loan attendant to these funds, is dependent on our ability to adhere to the forgiveness criteria. The PPP Loan bears interest at a rate of 1% per annum and matures on April 23, 2022, with the first payment deferred until August 9, 2021. Under the terms of the PPP Loan, certain amounts may be forgiven if they are used in accordance with the CARES Act. As of the period end, we have maintained compliance with all of the requirements to obtain forgiveness of the full amount of the PPP Loan. We believe that our use of the proceeds and other conditions consistent with the requirements for forgiveness have been met but are unable to determine the amount that may be ultimately forgiven.

Results of Operations.

The following table sets forth the results of operations for the periods presented expressed as a percentage of revenue.

(\$ in thousands)

	Years ended December 31,			
	2020	%	2019	%
Revenue	\$ 57,620	100.0%	\$ 82,975	100.0%
Cost of revenue	42,835	74.3%	62,677	75.5%
Gross profit	14,785	25.7%	20,298	24.5%
Operating expenses				
Selling, general and administrative	15,765	27.4%	16,169	19.5%
Research and development	686	1.2%	710	0.9%
Restructuring charges	1,297	2.3%	2,478	3.0%
Loss on impairment	4,302	7.5%	5,597	6.7%
Depreciation	330	0.6%	363	0.4%
Amortization of definite-lived intangible assets	1,943	3.4%	2,400	2.9%
Total operating expenses	24,323	42.2%	27,717	33.4%
Operating loss	(9,538)	(16.6%)	(7,419)	(8.9%)
Interest expense	(623)	(1.1%)	(988)	(1.2%)
Loss on derivative instruments, net	(17)	0.0%	(13)	0.0%
Other (expense) income, net	(4)	0.0%	2,068	2.5%
Loss before income taxes	(10,182)	(17.7%)	(6,352)	(7.7%)
Provision for income taxes	355	0.6%	5,733	6.9%
Net loss	\$ (10,537)	(18.3%)	\$ (12,085)	(14.6%)

Comparison of the Years Ended December 31, 2020 to December 31, 2019.

Revenue. Revenue for the year ended December 31, 2020, totaled \$57.6 million, which was 30.6% less than the \$83.0 million of revenue for the year ended December 31, 2019.

(in thousands)

	Year ended December 31,			
	2020	2019	Change	
Revenue:			\$	%
Performance Improvement Solutions	\$ 32,790	\$ 45,776	(12,986)	(28.4)%
Nuclear Industry Training and Consulting	24,830	37,199	(12,369)	(33.3)%
Total revenue	\$ 57,620	\$ 82,975	(25,355)	(30.6)%

Performance Improvement Solutions revenue decreased 28.4% from \$45.8 million to \$32.8 million for the years ended December 31, 2019 and 2020, respectively. The decrease of revenue was primarily due to several significant projects ending in the prior fiscal year and delays in commencing new contracts remotely due to the COVID-19 pandemic. We recorded total Performance Improvement Solutions orders of \$26.2 million and \$27.4 million for the years ended December 31, 2020 and 2019, respectively.

For the year ended December 31, 2020, Nuclear Industry Training and Consulting revenue decreased 33.3% to \$24.8 million compared to revenue of \$37.2 million for the year ended December 31, 2019. The decrease in revenue was primarily due to stoppage of existing projects and delays in commencing new contracts due to the COVID-19 pandemic resulting a reduction in demand for staffing from our major customers. We recorded total new orders of \$19.1 million and \$31.7 million for the years ended December 31, 2020 and 2019, respectively.

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At December 31, 2020, the Company's backlog was \$40.4 million, \$30.3 million was attributed to the Performance Improvement Solutions segment and \$10.1 million was attributed to the Nuclear Industry Training and Consulting segment. At December 31, 2019, the Company's backlog was \$52.7 million with \$37.2 million attributed to the Performance Improvement Solutions segment and \$15.5 million attributed to the Nuclear Industry Training and Consulting segment. The decrease in our backlog over fiscal year 2019 was primarily due to lower orders during fiscal year 2020.

Gross profit. Gross profit was \$14.8 million, or 25.7%, for the year ended December 31, 2020 compared to \$20.3 million, or 24.5%, for the year ended December 31, 2019.

(\$ in thousands)

	Years ended December 31,			
	2020	%	2019	%
Gross profit:				
Performance Improvement Solutions	\$ 11,395	34.8%	\$ 15,231	33.3%
Nuclear Industry Training and Consulting	3,390	13.7%	5,067	13.6%
Consolidated gross profit	\$ 14,785	25.7%	\$ 20,298	24.5%

The Performance Improvement Solutions segment's gross profit decreased by \$3.8 million during fiscal year 2020 over fiscal year 2019. The decrease is primarily related to lower revenue and several significant projects completed in the prior year that were not replaced with new orders, while overall profitability of remaining and new smaller projects increased the profit margin.

The Nuclear Industry Training and Consulting segment's gross profit decreased by \$1.7 million during fiscal year 2020 over fiscal year 2019. The decrease in gross profit was primarily driven by a decrease in revenue in the NITC business partially offset by a reduction in direct costs.

Selling, general and administrative expenses. Selling, general and administrative (SG&A) expenses totaled \$15.8 million and \$16.2 million for the years ended December 31, 2020 and 2019, respectively. Fluctuations in the components of SG&A spending were as follows:

(\$ in thousands)

	Years ended December 31,			
	2020	%	2019	%
Selling, general and administrative expenses:				
Corporate charges	\$ 11,358	72.0%	\$ 12,217	75.6%
Business development	3,364	21.3%	3,779	23.4%
Facility operation & maintenance (O&M)	928	5.9%	1,334	8.3%
Contingent consideration	-	0.0%	(1,200)	(7.4)%
Bad debt expense	103	0.7%	31	0.2%
Other	12	0.1%	8	0.0%
Total	\$ 15,765	100.0%	\$ 16,169	100.0%

Corporate charges decreased \$0.9 million in 2020 compared to 2019. The decrease was primarily due to a reduction in the use of external contractors for accounting and finance support services of \$0.2 million and the corporate development charges of \$0.8 million during fiscal year 2019 for the acquisition of DP Engineering, with no similar charges during fiscal year 2020.

Business development charges decreased \$0.4 million in 2020 compared to 2019. The decrease was primarily due to lower commission costs and reduced headcount in 2020.

Facility O&M expenses decreased \$0.4 million for the year ended December 31, 2020 compared to the year ended December 31, 2019. The decrease during fiscal year 2020 was mainly due to lease abandonments in fiscal year 2019 and lease terminations in fiscal year 2020.

As a result of the triggering event with our subsidiary DP Engineering in fiscal year 2019, we determined the fair value of the contingent consideration recorded in connection with the acquisition in February 2019 was zero. We recorded the reduction in the contingent consideration as an offset to selling, general and administrative expenses in the amount of \$1.2 million.

Bad debt expense. We recorded bad debt expense of \$103 thousand and \$31 thousand for the years ended December 31, 2020 and December 31, 2019, respectively. GSE's bad debt allowance is based on historical trends of past due accounts, write-offs, and specific identification and review of customer accounts.

Research and development. Research and development costs consist primarily of software engineering personnel and other related costs. Research and development costs, net of capitalized software, totaled \$0.7 million for both the years ended December 31, 2020 and 2019, respectively.

Restructuring charges. Restructuring charges totaled \$1.3 million and \$2.5 million for the years ended December 31, 2020 and 2019, respectively. On December 27, 2017, the Board of GSE Systems, Inc. approved an international restructuring plan to streamline and optimize the Company's global operations. Under this international restructuring plan, we have incurred cumulative restructuring charges of \$3.1 million. The Company expects no future charges relating to the international restructuring plan, excluding any tax impacts and cumulative translation adjustments from the final disposal of foreign entities. Additionally, during the third quarter of 2019, the Company implemented a restructuring plan as a result of the work suspension of DP Engineering's largest customer and subsequent notification on August 6, 2019 that the EOC contract was being terminated. This plan was put in place to align the workforce with the expected level of business moving forward. Under this restructuring plan, we have incurred total restructuring of \$2.6 million. In the twelve months ended December 31, 2019, we recorded a severance expense of \$0.7 million, lease termination fee of \$1.6 million and \$0.1 million related to international restructuring. In the twelve months ending December 31, 2020, we recorded \$1.0 million to international restructuring, and \$0.2 million of related employee termination benefits. The increase in our 2020 restructuring plan charges resulted, in part from the continuation of rightsizing the Company due to the impact of the work suspension of DP Engineering's largest customer in 2019.

Depreciation. Depreciation expense totaled \$0.3 million and \$0.4 million for the years ended December 31, 2020 and 2019, respectively. The decrease was primarily due to fully depreciated assets in 2020 and no additional acquisitions in the current fiscal year.

Amortization of definite-lived intangible assets. Amortization expense related to definite-lived intangible assets totaled \$1.9 million and \$2.4 million for the years ended December 31, 2020 and 2019, respectively. The decrease in amortization expense was primarily due to the reduction in the carrying value of DP Engineering's intangible assets, due to the \$4.3 million impairment in Q1 2020.

Interest expense. Interest expense totaled \$0.6 million and \$1.0 million for the year ended December 31, 2020 and 2019. The decrease is due to a paydown of the outstanding credit revolver in 2020.

Loss on derivative instruments, net. The Company periodically enters into forward foreign exchange contracts to manage market risks associated with the fluctuations in foreign currency exchange rates on foreign-denominated trade receivables. The Company had not designated the contracts as hedges and recognized a loss on the change in the estimated fair value of the contracts of \$17 thousand and \$6 thousand for the year ended December 31, 2020, and 2019, respectively. We had no foreign exchange contracts outstanding as of December 31, 2020.

The foreign currency denominated trade receivables, unbilled receivables, billings in excess of revenue earned and subcontractor accruals that are related to the outstanding foreign exchange contracts are remeasured at the end of each period into the functional currency using the current exchange rate at the end of the period. The gain or loss resulting from such remeasurement is also included in gain (loss) on derivative instruments net in the consolidated statements of operations. For the years ended December 31, 2020 and 2019, the Company incurred gain of \$15 thousand and \$38 thousand, respectively, from the remeasurement of such assets and liabilities.

Other income (expense), net. The Company recognized \$4 thousand of other expense, net and \$2.1 million of other income, net for the years ended December 31, 2020 and 2019, respectively. The decrease is due to the DP Engineering settlement and release agreement on December 30, 2019 in the amount of \$2.0 million related to the loss of a major customer post acquisition.

Provision for Income Taxes. The Company files tax returns in the United States federal jurisdiction and in several state and foreign jurisdictions. Because of the net operating loss carryforwards, the Company is subject to U.S. federal and state income tax examinations for tax years 2000, and forward, and is subject to foreign tax examinations by tax authorities for the years 2015 and forward. Open tax years related to state and foreign jurisdictions remain subject to examination but are not considered material to our financial position, results of operations or cash flows.

The Company's tax expense in 2020 was \$0.4 million, representing an annual effective tax rate of (3.5)%, and consisted of \$0.4 million of current tax provision. The Company's tax expense in 2019 was \$5.7 million, representing an annual effective rate of (90.3)% and consisted of \$0.4 million of current tax provision and \$5.3 million of deferred taxes. The difference between the effective rate and statutory rate in 2020 primarily resulted from a change in valuation allowance, permanent differences, accruals related to uncertain tax positions for certain foreign tax contingencies, foreign restructuring and the tax impact of stock compensation forfeitures.

The significant change of \$5.4 million in deferred tax expense was primarily driven by the prior year recognition of \$6.8 million of valuation allowance against the deferred tax assets related to the U.S. and foreign entities which was partially offset by the generation of a deferred tax asset related to the GAAP goodwill and intangible impairment in the U.S. entities.

The difference between the effective rate and statutory rate primarily resulted from a change in valuation allowance, permanent differences, accruals related to uncertain tax positions for certain foreign tax contingencies, foreign restructuring and the tax impact of stock compensation forfeitures. Please see Note 15 for additional information.

Coronavirus Aid, Relief and Economic Security Act

On March 27, 2020, the United States enacted the Coronavirus Aid, Relief and Economic Security Act (CARES Act). The Cares Act is an emergency economic stimulus package that includes spending and tax breaks to strengthen the United States economy and fund a nationwide effort to curtail the effect of COVID-19. While the CARES Act provides sweeping tax changes in response to the COVID-19 pandemic, some of the more significant provisions which are expected to impact the Company's financial statements include removal of certain limitations on utilization of net operating losses and increasing the ability to deduct interest expense, as well as amending certain provisions of the previously enacted Tax Cuts and Jobs Act. The Company has evaluated the CARES Act and has determined that it does not have a material benefit on its business.

Consolidated Appropriations Act

On December 27, 2020, the Consolidated Appropriations Act, 2021 (CAA) was signed into law. The CAA included additional funding through tax credits as part of its economic package for 2021. The Company evaluated these items in its tax computation as of December 31, 2020 and determined that the items do not have a material benefit on the Company's consolidated financial statements as of December 31, 2020.

Critical Accounting Policies and Estimates

In preparing the Company's consolidated financial statements, management makes several estimates and assumptions that affect the Company's reported amounts of assets, liabilities, revenues and expenses. Those accounting estimates that have the most significant impact on the Company's operating results and place the most significant demands on management's judgment are discussed below. For all of these policies, management cautions that future events rarely develop exactly as forecast, and the best estimates may require adjustment.

Revenue Recognition. The Company derives its revenue through three broad revenue streams: 1) System Design and Build (SDB), 2) Software, and 3) Training and Consulting services. We recognize revenue from SDB and software contracts mainly through the Performance Improvement Solutions segment and the training and consulting service contracts through both the Performance Improvement Solutions segment and Nuclear Industry Training and Consulting segment.

The SDB contracts are typically fixed-price and consist of initial design, engineering, assembly and installation of training simulators which include hardware, software, labor, and post contract support (PCS) on the software. We generally have two main performance obligations for an SDB contract: the training simulator build and PCS. The training simulator build performance obligation generally includes hardware, software, and labor. The transaction price under the SDB contracts is allocated to each performance obligation based on its standalone selling price. We recognize the training simulator build revenue over the construction and installation period using the cost-to-cost input method as our performance creates or enhances assets with no alternative use to the Company, and we have an enforceable right to payment for performance completed to date. Cost-to-cost input method best measures the progress toward complete satisfaction of the performance obligation. PCS revenue is recognized ratably over the service period, as PCS is deemed as a stand-ready obligation.

In applying the cost-to-cost input method, we use the actual costs incurred to date relative to the total estimated costs to measure the work progress toward the completion of the performance obligation and recognize revenue accordingly. Estimated contract costs are reviewed and revised periodically as the work progresses, and the cumulative effect of any change in estimates is recognized in the period in which the change is identified. Estimated losses are recognized in the period such losses are identified. Uncertainties inherent in the performance of contracts include labor availability and productivity, material costs, change order scope and pricing, software modification and customer acceptance issues. The reliability of these cost estimates is critical to the Company's revenue recognition as a significant change in the estimates can cause the Company's revenue and related margins to change significantly from the amounts estimated in the early stages of the project.

The SDB contracts generally provide a one-year base warranty on the systems. The base warranty is not accounted for as a separate performance obligation under the contract because it does not provide the customer with a service in addition to the assurance that the completed project complies with agreed-upon specifications. Warranties extended beyond our typical one-year period, if any, are evaluated on a case by case basis to determine if it provides more than just assurance that the product operates as intended, which would require carve-out as a separate performance obligation.

Revenue from the sale of perpetual standalone and term software licenses, which do not require significant modification or customization, is recognized upon its delivery to the customer. Revenue from the sale of cloud-based subscription-based software licenses is recognized ratably over the term of such licenses following delivery to the customer. Delivery is considered to have occurred when the customer receives a copy of the software and is able to use and benefit from the software.

A software license sale contract with multiple performance obligations typically includes the following elements: license, installation and training services and PCS. The total transaction price of a software license sale contract is typically fixed, and is allocated to the identified performance obligations based on their relative standalone selling prices. Revenue is recognized as the performance obligations are satisfied. Specifically, license revenue is recognized when the software license is delivered to the customer; installation and training revenue is recognized when the installation and training is completed without regard to a detailed evaluation of the point in time criteria due to the short-term nature of the installation and training services (one to two days on average); and PCS revenue is recognized ratably over the service period, as PCS is deemed as a stand-ready obligation.

The contracts within the training and consulting services revenue stream are either time and materials (T&M) based or fixed-price based. Under a typical T&M contract, the Company is compensated based on the number of hours of approved time provided by workers and the bill rates which are fixed per type of work, as well as approved expenses incurred. The customers are billed on a regular basis, such as weekly, biweekly or monthly. In accordance with Accounting Standards Codification (ASC) 606-10-55-18, we elected to apply the "right to invoice" practical expedient, under which we recognize revenue in the amount to which we have the right to invoice. The invoice amount represents the number of hours of approved time worked by each worker multiplied by the bill rate for the type of work, as well as approved expenses incurred. Under a typical fixed-price contract, we recognize the revenue on a Percentage of Completion basis as it relates to GSE Construction Contracts with revenue recognized based on project delivery over time. Revenue from the sale of short-term contracts with a delivery period of one month or less is recognized in the month completed.

For contracts with multiple performance obligations, we allocate the contract price to each performance obligation based on its relative standalone selling price. We generally determine standalone selling prices based on the prices charged to customers.

Impairment of Intangible Assets, including Goodwill. The Company's intangible assets impairment analysis includes the use of undiscounted cash flow and discounted cash flow models that require management to make assumptions regarding estimates of revenue growth rates and operating margins used to calculate projected future cash flows, risk-adjusted discount rates and future economic that may impact each asset group. We review goodwill and intangible assets for impairment annually as of December 31 and whenever events or changes in circumstances indicate the carrying value of an asset may not be recoverable. We test goodwill at the reporting unit level. A reporting unit is an operating segment, or one level below an operating segment, as defined by U.S. GAAP (See Note 7).

Accounting Standards Update (ASU) 2011-08, *Intangibles — Goodwill and Other (Topic 350): Testing Goodwill for Impairment* (ASU 2011-08) permits an entity to first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform the two-step goodwill impairment test. An entity is not required to perform step one of the goodwill impairment test for a reporting unit if it is more likely than not that its fair value is greater than its carrying amount (Step 0). If the Step 0 test indicates the fair value of a reporting unit is less than its carrying value, then additional impairment testing is required in accordance with the provisions of ASC 350, *Intangibles — Goodwill and Other*.

Accounting Standards Update ("ASU") 2017-04, *Simplifying the Test for Goodwill Impairment* ("ASU 2017-04"). ASU 2017-04 simplifies the accounting for goodwill impairment by eliminating Step 2 of the current goodwill impairment test, which required a hypothetical purchase price allocation. Goodwill impairment will now be the amount by which the reporting unit's carrying value exceeds its fair value, limited to the carrying value of the goodwill.

At December 31, 2020, we performed a quantitative step 1 analysis and have concluded that the estimated fair values of each of our reporting units as of December 31, 2020, is more likely than not, greater than their respective carrying values. At December 31, 2019, we performed a quantitative step 1 analysis and have concluded that the estimated fair values of each of our reporting units as of December 31, 2019, exceeded their respective carrying values. Following the February 23, 2019 event occurring at a DP Engineering customer location and subsequent receipt of the Notice of Suspension on February 28, 2019, the Company concluded that DP Engineering's relationship with its largest customer has been adversely impacted. The DP Engineering customer contracts and relationships were the major components of the definite-lived intangible assets recognized in connection with the acquisition. Accordingly, the Company determined that a triggering event had occurred requiring an interim assessment of whether a potential impairment of definite-lived intangible asset impairment test was necessary in accordance with the related impairment guidance. As a result, it was determined that a material impairment had occurred, requiring an impairment of \$5.6 million of goodwill recorded in 2019.

Our goodwill impairment analysis includes the use of a discounted cash flow model that requires management to make assumptions regarding estimates of growth rates used to forecast revenue, operating margin and terminal value as well as determining the appropriate risk-adjusted discount rates and other factors that impact fair value determinations. Determining the fair value of a reporting unit is judgmental in nature and involves the use of significant estimates and assumptions. These estimates and assumptions include revenue growth rates and operating margins used to calculate projected future cash flows, risk-adjusted discount rates, future economic and market conditions and determination of appropriate market comparables. We base our fair value estimates on assumptions we believe to be reasonable but that are unpredictable and inherently uncertain. Actual future results may differ from those estimates. In addition, we make certain judgments and assumptions in allocating shared assets and liabilities to determine the carrying values for each of our reporting units. The timing and frequency of our goodwill impairment tests are based on an ongoing assessment of events and circumstances that would indicate a possible impairment. We will continue to monitor our goodwill and intangible assets for impairment and conduct formal tests when impairment indicators are present.

Capitalization of Computer Software Development Costs. In accordance with U.S. GAAP, the Company capitalizes computer software development costs incurred after technological feasibility has been established, but prior to the release of the software product for sale to customers. Once the product is available to be sold, the Company amortizes the costs, on a straight-line method, over the estimated useful life of the product, which is typically three years. As of December 31, 2020, the Company has net capitalized software development costs of \$0.6 million. On an annual basis, and more frequently as conditions indicate, the Company assesses the recovery of the unamortized software development costs by estimating the net undiscounted cash flows expected to be generated by the sale of the product. If the undiscounted cash flows are not sufficient to recover the unamortized software costs, the Company will write-down the investment to its estimated fair value based on future discounted cash flows. The excess of any unamortized computer software costs over the related net realizable value is written down and charged to operations. Included in capitalized software development costs are certain expenses associated with the development software services. These are similarly capitalized, although not subjected to the same recoverability considerations. Significant changes in the sales projections could result in an impairment with respect to the capitalized software that is reported on the Company's consolidated balance sheets.

Deferred Income Tax Valuation Allowance. Deferred income taxes arise from temporary differences between the tax basis of assets and liabilities and their reported amounts in the consolidated financial statements. Management makes a regular assessment of the realizability of the Company's deferred tax assets. In making this assessment, management considers whether it is more likely than not that some 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 periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities and projected future taxable income of the Company in making this assessment. A valuation allowance is recorded to reduce the total deferred income tax asset to its realizable value. At December 31, 2020, the Company's largest deferred tax asset was \$6.2 million of net operating losses, excluding the impact of uncertain tax positions. It primarily relates to a U.S. net operating loss carryforward of \$6.2 million; \$4.6 million of the net operating loss carryforward expires in various amounts between 2023 and 2037; \$1.6 million of the net operating loss carryforward is an indefinite lived deferred tax asset. The Company does not believe that it is more likely than not that it will be able to realize its deferred tax assets for its U.S. and foreign deferred tax assets at December 31, 2020, therefore we have recorded a \$9.2 million valuation allowance for our net deferred tax assets.

Liquidity and Capital Resources.

As of December 31, 2020, GSE had cash and cash equivalents of \$6.7 million compared to \$11.7 million at December 31, 2019.

For the years ended December 31, 2020 and 2019, net cash provided by operating activities totaled \$1.1 million and \$4.0 million, respectively. The year over year decrease in cash provided by operating activities was largely driven by:

- A \$0.8 million increase in net inflows from changes in net working capital primarily due to a lower accounts receivable balance as of December 31, 2020 compared to prior year.
- A \$0.6 million decrease in operating expenses (excluding non-cash operating expenses) mainly driven by higher administrative cost in 2019 due to acquisitions.
- A \$5.5 million decrease in gross profit, primarily driven by lower revenue due to COVID-19.

Net cash used in investing activities. For the year ended December 31, 2020, net cash used in investing activities was \$0.3 million compared to net cash of \$14.1 million used in investing activities in the prior year. The increase in cash outflow in 2019 was primarily due to the acquisition of DP Engineering, which resulted in a cash outflow of \$13.5 million.

Net cash (used in) provided by financing activities. For the years ended December 31, 2020 and 2019, net cash (used in) provided by financing activities totaled \$(6.1) million and \$9.7 million, respectively. The increase in the cash used by financing activities is largely driven by the repayment of a long-term debt of \$18.5 million, net of the proceeds from Paycheck Protection Program loan of \$10.0 million and from line of credit of \$3.0 million.

Paycheck Protection Program Loan ("PPP Loan")

We entered into the PPP Loan agreement with the Bank, which was approved and funded on April 23, 2020, pursuant to the Paycheck Protection Program under the Coronavirus Aid, Relief and Economic Security Act (the "CARES Act"). The PPP Loan matures on April 23, 2022 and bears interest at a rate of 1.0% per annum. Monthly amortized principal and interest payments are due for any portion of the loan balance that is not forgiven and are automatically deferred or ten months after the last day of our covered period through August 9, 2021.

The PPP Loan contains events of default and other provisions customary for a loan of this type, including: (1) the use of PPP Loan amount shall be limited to certain qualifying expenses, (2) 100% of the principal amount of the loan is guaranteed by the Small Business Administration ("SBA") and (3) an amount up to the full principal amount may qualify for loan forgiveness in accordance with the terms of CARES Act. We have accumulated forgivable expenses beyond our loan amount and provided all prescribed support with our application for forgiveness with our Bank. Our Bank has reviewed our application for forgiveness and associated documentation, forwarding it to the SBA with their determination that the loan is fully forgivable on February 26, 2021. However, we are ultimately subject to the SBA's process and conclusion for forgiveness. To the extent the loan amount is not forgiven under the PPP, we are obligated to make equal monthly payments of principal and interest, beginning after determination of forgiveness by the SBA.

As of December 31, 2020, we have classified the \$10.0 million of outstanding PPP Loan and accrued interest of \$69 thousand as debt in our consolidated balance sheets. We classified \$5.0 million as current and \$5.0 million as noncurrent in our consolidated balance sheets. We recorded \$69 thousand of interest expense during the year ended December 31, 2020.

The Company notes the short term liability value for its PPP Loan in the Q3 2020 financial statements was reported as \$447 thousand and should have been \$1,256 thousand, a \$809 thousand change off-set by an equal amount in its long term liability value for the PPP Loan. The Company has made this correction in the Q4 consolidated balance sheets and deems it to be immaterial.

As of December 31, 2020, the Company was in full compliance with all requirements in order to apply for forgiveness under the PPP Loan.

Credit Facilities

On December 29, 2016, we entered into a 3-year \$5.0 million revolving line of credit facility (“RLOC”) with the Bank to fund general working capital needs and provide funding for acquisitions. The credit facility agreement was subject to certain financial covenants and reporting requirements.

On May 11, 2018, we entered into the Amended and Restated Credit and Security Agreement (“the Credit Agreement”) with the Bank to include (a) a \$5.0 million revolving credit facility, not be subject to a borrowing base, with a letter of credit sub-facility, and (b) a \$25.0 million delayed draw term loan facility available to be drawn upon for up to 18 months to finance certain permitted acquisitions. The credit facilities had a term of five years and accrued interest at one-month USD LIBOR plus a margin that varies depending on our overall leverage ratio. Revolving loans are interest-only with principal due at maturity, while term loans require monthly payments of principal and interest based on an amortization schedule. Our obligations under the Credit Agreement are guaranteed by our wholly owned subsidiaries Hyperspring, Absolute, True North, DP Engineering and by any future material domestic subsidiaries (collectively, the Guarantors).

On January 6, 2020, due to a projected violation of our covenants, we entered into the Sixth Amendment and Reaffirmation Agreement and effective on December 31, 2019 with our Bank to relax the fixed charge coverage ratio and leverage ratio and delay testing of both financial covenants. We agreed to an additional covenant, requiring us to maintain a consolidated Adjusted EBITDA target of \$4.3 million, tested quarterly as of December 31, 2019, March 31, 2020 and June 30, 2020. Further, we agreed to maintain a minimum USA liquidity of at least \$5.0 million in the aggregate, tested bi-weekly as of the fifteenth and the last day of each month, beginning on December 31, 2019 and until June 30, 2020. In addition to the revised covenants, we agreed to make accelerated principal payments of \$3.0 million on January 6, 2020; \$1.0 million on March 31, 2020; and \$1.0 million on June 30, 2020. We incurred \$20 thousand of debt issuance costs related to this amendment.

On April 17, 2020, effective March 31, 2020, we entered into the Seventh Amendment and Reaffirmation Agreement, which requires us to maintain a minimum fixed charge coverage ratio of 1.25 to 1.00, tested quarterly as of the last day of each quarter, beginning with the quarter ending June 30, 2021. In addition, we agreed to not exceed a maximum leverage ratio, tested quarterly as of the last day of each quarter and beginning with the quarter ending September 30, 2020 as follows: (i) 3.00 to 1.00 for the period ending September 30, 2020; (ii) 2.50 to 1.00 for the period ending December 31, 2020; and (iii) 2.25 to 1.00 for the period ending March 31, 2021 and for the periods ending December 31, March 31, June 30 and September 30, thereafter. We additionally agreed to make accelerated principal payments of \$0.75 million on April 17, 2020 and \$0.5 million on June 30, 2020. We incurred \$50 thousand of debt issuance costs related to this amendment.

On August 28, 2020, we signed the Eighth Amendment and Reaffirmation Agreement, with an effective date of June 29, 2020, due to violating our minimum Adjusted EBITDA covenant during the three months ended June 30, 2020. As part of the amendment, we agreed to pay \$10 million to the Bank during the year ended December 31, 2020, of which \$0.7 million was paid to reduce our RLOC and \$9.1 million to pay-off the term debt. We paid out \$0.2 million for the unwinding of the interest rate swap agreement during the year. We incurred \$10 thousand in additional debt issuance costs related to the amendment, which we expensed along with a \$70 thousand previously deferred debt issuance cost during the year ended December 31, 2020.

The amendment removed our minimum Adjusted EBITDA covenant and changed our other debt covenants on an ongoing basis as follows: our maximum fixed charge coverage ratio will be tested quarterly as of the last day of each quarter, beginning with the quarter ending December 31, 2021 and must be 1.00 to 1.00; our leverage ratio will be tested quarterly, starting on March 31, 2021 as follows: (i) 3.00 to 1.00 for the period ending March 31, 2021; (ii) 2.75 to 1.00 for the period ending June 30, 2021, (iii) 2.50 to 1.00 for the period ending September 30, 2021, and (iv) 2.00 to 1.00 for the period ending December 31, 2021 and for the periods ending each December 31st, March 31st, June 30th and September 30th thereafter. We are also required to maintain a minimum of \$3.5 million in aggregate USA liquidity, which was tested on September 15, 2020 and will be tested bi-weekly on an on-going basis. We are currently projecting to be in violation of our Q1 2021 leverage ratio and are considering several options at our disposal to address the matter (See Note 1).

On March 29, 2021, due to a projected violation of Q1 2021 leverage ratio, we signed the Ninth Amendment and Reaffirmation Agreement with an effective date of March 29, 2021 (See Note 25).

The PPP Loan does not factor into the expenses or liabilities used in the calculation of our debt covenants, unless we determine that more than \$1 million of the original PPP Loan balance will not be forgiven. The Bank agreed to remove its collateral agreement with the Company's subsidiaries as part of the repayment of our outstanding term loans during the year ended December 31, 2020.

As of December 31, 2020, we had outstanding borrowings of \$3.0 million under the RLOC and three letters of credit totaling \$933 thousand outstanding to certain of our customers. After consideration of letters of credit, the amount available under the RLOC was approximately \$1.1 million as of December 31, 2020. At December 31, 2019, there were no outstanding borrowings under the RLOC and four letters of credit totaling \$1.2 million. The amount available at December 31, 2019, after consideration of the letters of credit was approximately \$3.8 million.

We intend to continue using the RLOC for short-term working capital needs and the issuance of letters of credit in connection with business operations. Letter of credit issuance fees range between 1.25% and 2.00% of the value of the letter of credit, depending on our overall leverage ratio. We pay an unused RLOC fee quarterly based on the average daily unused balance.

Going Concern Consideration

In 2019, our operating results were negatively impacted by the loss of a major customer in our DP Engineering subsidiary. In 2020, we had several projects delayed and new orders postponed because of the COVID-19 pandemic. We have amended our credit facility with Citizens Bank in 2020 based upon expected covenant violations and have been required to curtail term debt in exchange for revised financial covenants. Scheduled term loan repayments and agreed upon curtailment required us to use \$18.5 million in available cash to pay-off our term debt in 2020. As such, our working capital position on December 31, 2020 was a deficit of \$2.7 million. This working capital deficit includes \$5.0 million from current maturities on our PPP loan, which we expect will be forgiven and have not received any indications to the contrary (See Note 4). If the PPP loan is not forgiven, in part or in whole, we will work with our bank to extend repayment terms as permitted to mitigate the impact on our cashflows. However, if unforgiven and unamended, our PPP loan would be due April 23, 2022 in part or in whole and may stress our free cash flow and the business to a degree that may cause our covenants to fail.

The COVID-19 macroeconomic environment is considered fluid and although recovery is anticipated to steadily occur over the next 12 months, a further decline will stress our ability to meet covenant requirements. Further continuance of delays in commencing work on outstanding orders or a continued loss of orders, further disruption of our business because of worker illness or mandated shutdowns may also exacerbate the situation. Jurisdictions where our businesses operate across the country are pushing toward re-opening places of business and government support, through the American Rescue Plan Act of 2021, will continue support the broad economy on that path. However, the timing of these elements taking place are not predictable and may not serve to mitigate our situation or improve our specific company's health.

We signed the Ninth Amendment and Reaffirmation Agreement (the "Ninth Amendment"), with our bank on March 29, 2021 to waive the fixed charge coverage ratio and leverage ratio for the quarters ending March 31 and June 30, 2021, and to adjust the thresholds for future covenants to ease the risk of non-compliance experienced in previous quarters (See Note 25). However, our new covenant compliance is dependent on meeting future projections which are subject to the variability and unknown speed and extent of post-COVID-19 recovery.

The company also maintains options to compensate for a further decline in operations to bolster cash positions by raising capital through its access to the public markets or entering alternative finance arrangements afforded to it through established financial relationships. Impact to net income could be mitigated through one or many of the various cost cutting measures at its disposal, directed at compensation, vendor augmentation or delay of investment initiatives in its corporate office.

These actions and options, which are further supported by positively trending macroeconomic conditions, and the potential to see recovering business and orders ease the risk to the bank covenants experienced in previous quarters. However, when considering the unpredictability of the above, there continues to be substantial doubt the Company will continue as a going concern over the next twelve months.

Foreign Exchange.

A portion of the Company's international sales revenue has been and may be received in a currency other than the currency in which the expenses relating to such revenue are paid. Accordingly, the Company periodically enters into forward foreign exchange contracts to manage the market risks associated with the fluctuations in foreign currency exchange rates. As of December 31, 2020, the Company did not hold a position in forward foreign exchange contracts.

Off-balance Sheet Obligations.

The Company has no off-balance sheet obligations as of December 31, 2020, except for its operating lease commitments and outstanding letters of credit and surety bonds.

Other Matters.

Management believes inflation has not had a material impact on the Company's operations.

EBITDA and Adjusted EBITDA Reconciliation (in thousands)

References to “EBITDA” mean net (loss) income, before taking into account interest expense (income), provision for income taxes, depreciation and amortization. References to Adjusted EBITDA exclude the impact of loss on impairment, change in fair value of contingent consideration, restructuring charges, stock-based compensation expense, change in fair value of derivative instruments, acquisition-related expense, acquisition-related legal settlement. EBITDA and Adjusted EBITDA are not measures of financial performance under generally accepted accounting principles (GAAP). Management believes EBITDA and Adjusted EBITDA, in addition to operating profit, net income and other GAAP measures, are useful to investors to evaluate the Company’s results because it excludes certain items that are not directly related to the Company’s core operating performance that may, or could, have a disproportionate positive or negative impact on our results for any particular period. Investors should recognize that EBITDA and Adjusted EBITDA might not be comparable to similarly-titled measures of other companies. This measure should be considered in addition to, and not as a substitute for or superior to, any measure of performance prepared in accordance with GAAP. A reconciliation of non-GAAP EBITDA and Adjusted EBITDA to the most directly comparable GAAP measure in accordance with SEC Regulation G follows:

	Three Months Ended		Twelve Months Ended	
	December 31,		December 31,	
	2020	2019	2020	2019
Net loss	\$ (1,469)	\$ (6,349)	\$ (10,537)	\$ (12,085)
Interest expense	67	176	623	988
Provision for income taxes	189	6,607	355	5,733
Depreciation and amortization	582	732	2,612	3,129
EBITDA	(631)	1,166	(6,947)	(2,235)
Litigation	568	-	477	-
Loss on impairment	-	133	4,302	5,597
Change in fair value of contingent consideration	-	-	-	(1,200)
Restructuring charges	1,102	1,736	1,297	2,478
Stock-based compensation expense	21	270	378	1,420
Change in fair value of derivative instruments	52	(56)	17	13
Acquisition-related expense	1	-	192	744
Acquisition-related legal settlement	-	(2,025)	-	(2,025)
Adjusted EBITDA	\$ 1,113	\$ 1,224	\$ (284)	\$ 4,792

Adjusted Net (Loss) Income and Adjusted EPS Reconciliation *(in thousands, except per share amounts)*

References to Adjusted net (loss) income exclude the change in fair value of contingent consideration, loss on impairment, restructuring charges, stock-based compensation expense, change in fair value of derivative instruments, acquisition-related expense, acquisition-related legal settlement, amortization of intangible assets related to acquisitions, release of valuation allowance, and income tax expense impact of adjustments. Adjusted Net Income and adjusted earnings per share (adjusted EPS) are not measures of financial performance under GAAP. Management believes adjusted net income and adjusted EPS, in addition to other GAAP measures, are useful to investors to evaluate the Company's results because they exclude certain items that are not directly related to the Company's core operating performance and non-cash items that may, or could, have a disproportionate positive or negative impact on our results for any particular period. These measures should be considered in addition to, and not as a substitute for or superior to, any measure of performance prepared in accordance with GAAP. A reconciliation of non-GAAP adjusted net income and adjusted EPS to GAAP net income, the most directly comparable GAAP financial measure, is as follows:

	Three Months ended		Twelve Months ended	
	December 31,		December 31,	
	2020	2019	2020	2019
	<i>(unaudited)</i>	<i>(unaudited)</i>	<i>audited</i>	<i>audited</i>
Net loss	\$ (1,469)	\$ (6,349)	\$ (10,537)	\$ (12,085)
Litigation	568	-	477	-
Loss on impairment	-	133	4,302	5,597
Change in fair value of contingent consideration	-	-	-	(1,200)
Restructuring charges	1,102	1,736	1,297	2,478
Stock-based compensation expense	21	270	378	1,420
Change in fair value of derivative instruments	52	(56)	17	13
Acquisition-related expense	1	-	192	744
Acquisition-related legal settlement	-	(2,025)	-	(2,025)
Amortization of intangible assets related to acquisitions	415	596	1,943	2,400
Valuation allowance	1,589	6,820	1,589	6,820
Income tax expense impact of adjustments	345	5,612	345	3,851
Adjusted net income	<u>\$ 2,624</u>	<u>\$ 6,737</u>	<u>\$ 3</u>	<u>\$ 8,013</u>
Diluted earnings (loss) per common share	<u>\$ (0.07)</u>	<u>\$ (0.31)</u>	<u>\$ (0.52)</u>	<u>\$ (0.60)</u>
Adjusted earnings (loss) per common share – Diluted	<u>\$ 0.13</u>	<u>\$ 0.33</u>	<u>\$ 0.00</u>	<u>\$ 0.39</u>
Weighted average shares outstanding – Diluted	<u>20,646,910</u>	<u>20,560,399</u>	<u>20,439,157</u>	<u>20,376,255</u>

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

Not required of a smaller reporting company.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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Report of Independent Registered Public Accounting Firm

Shareholders and the Board of Directors of GSE Systems, Inc.

Opinion on the Consolidated Financial Statement

We have audited the accompanying consolidated balance sheet of GSE Systems, Inc. (the “Company”) as of December 31, 2020, the related consolidated statements of operations, comprehensive loss, changes in stockholders’ equity, and cash flows, for the year ended December 31, 2020, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and the results of its operations and its cash flows for the year ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

Going Concern Uncertainty

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has incurred losses from operations for the years ended December 31, 2020 and 2019 and has negative working capital as of December 31, 2020. In addition, the continued impact of the COVID-19 pandemic on the Company’s operating results and compliance with future debt covenant requirements under the Company’s credit facility raises substantial doubt about the Company’s ability to continue as a going concern. Management’s plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

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

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

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

Critical Audit Matters

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

Goodwill Impairment Assessment

At December 31, 2020, the Company's goodwill was \$13.3 million. As discussed in Notes 1 and 7 of the consolidated financial statements, the Company reviews goodwill for impairment at the reporting unit level annually as of December 31 and whenever events or changes in circumstances indicate the carrying value of goodwill may not be recoverable.

During the first quarter of fiscal 2020, the Company determined that the impact of the COVID-19 pandemic on its operations was an indicator of a triggering event that could result in potential impairment of goodwill. As such, the Company performed a Step 1 goodwill analysis whereby, they compared the fair value of each reporting unit to its respective carrying value. In performing this analysis, the Company makes certain judgments and assumptions in allocating assets and liabilities to each reporting unit for purposes of determining the respective carrying values. Based upon this analysis, the Company determined the fair value of goodwill at the reporting unit levels exceeded the carrying value and thus there was no impairment as of the period ended March 31, 2020. The Step 1 analysis was updated as of December 31, 2020 for the Company's annual impairment test; this analysis also noted no impairment of goodwill as of such date.

The Company's goodwill impairment analysis includes the use of a discounted cash flow model that requires management to make various assumptions and estimates, the most significant of which are revenue growth rates and operating margins used to calculate projected future cash flows, and risk-adjusted discount rates.

We identified the goodwill impairment assessment as a critical audit matter. The principal considerations for our determination are the high degree of auditor judgment and subjectivity in evaluating management's significant assumptions used in the discounted cash flow model, particularly as it relates to evaluating revenue growth rates and operating margins.

The primary procedures we performed to address this critical audit matter included:

- Obtained an understanding of management's process for developing fair value estimates including testing the completeness, accuracy, and relevance of underlying data and evaluating significant management assumptions by comparing historical revenue and operating results to budgeted amounts; and reviewing backlog and projected revenues giving consideration to the impact the COVID-19 pandemic has had on the Company's operations.
- Performed a sensitivity analysis of significant assumptions, particularly as it relates to revenue growth rates and operating margin, and evaluated the impact on future cash flows that form the basis of fair value for the reporting units.
- Utilized personnel with specialized knowledge and skills in valuation to assist in: (i) assessing the appropriateness of the fair value methodology, (ii) evaluating the reasonableness of certain assumptions used including the discount rates, and (iii) testing the mathematical accuracy of the discounted cash flow model.

Intangible Assets Impairment

At December 31, 2020, the Company's intangible assets were \$4.2 million. As discussed in Notes 1 and 7 of the consolidated financial statements, the Company's intangible assets include amounts recognized in connection with business acquisitions. These intangibles include customer relationships, trade names, non-compete agreements and alliance agreements. Due to the impact of the COVID-19 pandemic as discussed above, definite-lived intangible assets were reviewed for impairment as of March 31, 2020. The undiscounted cash flows evidenced impairment for the DP Engineering asset group. As such, the Company used a discounted cash flow model to determine the fair value of the DP Engineering asset group and recorded an impairment charge of \$4.3 million as of the three months ended March 31, 2020. The Company updated its intangible asset impairment testing as of December 31, 2020. As a result of that analysis, the Company concluded there was no impairment for intangible assets as of such date.

The Company's intangible asset impairment analysis includes the use of undiscounted and discounted cash flow models that require management to make assumptions regarding estimates of revenue growth rates and operating margins used to calculate projected future cash flows.

We identified the intangible assets impairment assessment as a critical audit matter. The principal considerations for our determination are the high degree of auditor judgment and subjectivity in evaluating management assumptions used in the cash flow models, particularly as it relates to evaluating revenue growth rates and operating margins.

The primary procedures we performed to address this critical audit matter included:

- Obtained an understanding of management's process for developing fair value estimates including testing the completeness, accuracy, and relevance of underlying data and evaluating significant management assumptions by comparing historical revenue and operating results to budgeted amounts; and reviewing backlog and projected revenues giving consideration to the impact the COVID-19 pandemic has had on the Company's operations.
- Performed a sensitivity analysis of significant assumptions, particularly as it relates to revenue growth rates and operating margins, and evaluating the impact on the fair values that would result from changes in the assumptions.
- Utilized personnel with specialized knowledge and skills in valuation to assist in: (i) assessing the appropriateness of the fair value methodology, (ii) evaluating the reasonableness of certain assumptions used including the discount rates, and (iii) testing the mathematical accuracy of the discounted cash flow model.

Revenue recognition -Estimates-at-Completion

As described in Notes 1 and 5 to the consolidated financial statements, the Company derives its revenue through three broad revenue streams: 1) System Design and Build (SDB), 2) Software, and 3) Training and Consulting services. The Company recognizes revenue from SDB and software contracts mainly through the Performance Improvement Solutions segment and the training and consulting service contracts through both the Performance Improvement Solutions segment and Nuclear Industry Training and Consulting segment.

The SDB contracts are typically fixed-price and consist of initial design, engineering, assembly and installation of training simulators which include hardware, software, labor, and post contract support (PCS). The Company generally has two main performance obligations for an SDB contract: the training simulator build and PCS. The transaction price under the SDB contracts is allocated to each performance obligation based on its standalone selling price. The Company recognizes revenue for the training simulator build over the construction and installation period, using the cost-to-cost input method.

In applying the cost-to-cost input method, the Company uses the actual costs incurred to date, relative to the total estimated costs, to measure the work progress towards the completion of the performance obligation, and recognizes revenue over time as control is transferred to a customer. Estimated contract costs are reviewed and revised periodically during the contract period, and the cumulative effect of any change in estimates is recognized in the period in which the change is identified.

Management's judgments and estimates involved in the initial creation and subsequent updates to the Company's estimates-at-completion and related profit recognized are critical for revenue recognition associated with SDB contracts. Inputs and assumptions requiring significant management judgments included anticipated direct labor, subcontract labor, and other direct costs required to deliver on unfinished performance obligations. Significant changes to cost estimates can result in variances in revenue and related margins.

We identified the revenue recognition associated with SDB contracts as a critical audit matter. The principal considerations for our determination are the high degree of auditor judgment and subjectivity in evaluating management's judgments involved in the creation and subsequent updates to the Company's estimates-at-completion and related profit recognition, particularly as it relates to evaluating anticipated direct labor, subcontract labor, and other direct costs. We also considered the material weakness identified by management over the management review of reconciliations over unbilled receivables and billings in excess of revenue earned on our audit procedures.

The primary procedures we performed to address this critical audit matter included:

- We obtained an understanding of management’s process for applying the cost-to-cost method to SBD contracts, including management’s process for developing, revising, and applying estimates-at-completion and the on-going monitoring.
- For a sample of contracts, we evaluated inputs and assumptions requiring significant management judgments included within the Company’s estimation of costs to complete by performed the following:
 - Inspected the underlying contract, related amendments, and change orders (if any) to test the existence of customer arrangements and obtain an understanding of the contractual requirements and related performance obligations.
 - Tested actual costs incurred to-date and assessed the relative progress toward satisfying the performance obligation(s) of the contract.
 - Evaluated the estimation of costs to complete including anticipated direct labor, subcontract labor, and other direct cost by:
 - Inquiring of financial and operational personnel of the Company and evaluating factors within the cost to complete estimates that may demonstrate indication of potential management bias.
 - Inspecting correspondences, if any, between the Company and the customer regarding actual to- date and expected performance.
 - Evaluating the sufficiency of the Company’s assessment of contract performance risks included within the estimated costs to complete.
 - Performing a “look back” analysis by comparing the Company’s historical estimates of costs to complete to actual costs incurred in subsequent documentation to assess the Company’s ability to develop reliable cost estimates.
- In response to the material weakness noted above, we obtained account reconciliations of unbilled receivables and billings in excess of revenue earned as of December 31, 2020, evaluated the accuracy and completeness of the schedules, and agreed such reconciliations to the trial balance to determine whether reconciling items were appropriate.

/S/ DIXON HUGHES GOODMAN LLP

We have served as the Company’s auditor since 2020.

Tysons, Virginia
April 13, 2021

Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors
GSE Systems, Inc.
Columbia, Maryland

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheet of GSE Systems, Inc. (the “Company”) as of December 31, 2019, the related consolidated statements of operations and comprehensive loss, stockholders’ equity, and cash flows for the year then ended, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2019, and the results of its operations and its cash flows for the year then ended, in conformity with accounting principles generally accepted in the United States of America.

Going Concern Uncertainty

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the 2019 Form 10-K and accompanying consolidated financial statements, the Company has suffered recurring losses from operations and has negative working capital as of December 31, 2019. In addition, the risk of future covenant defaults under the Company’s credit agreement raises substantial doubt about the Company’s ability to continue as a going concern. Management’s plans in regard to these matters were also described in Note 1 to the 2019 consolidated financial statements. The 2019 consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

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

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

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

/S/ BDO USA, LLP

We served as the Company’s auditor from 2014 through 2020.

McLean, Virginia
June 11, 2020

PART I - FINANCIAL INFORMATION**Item 1. Financial Statements**

GSE SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

	December 31,	
	2020	2019
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 6,702	\$ 11,691
Contract receivables, net	10,494	17,207
Prepaid expenses and other current assets	1,554	1,880
Total current assets	<u>18,750</u>	<u>30,778</u>
Equipment, software and leasehold improvements, net	616	939
Software development costs, net	630	641
Goodwill	13,339	13,339
Intangible assets, net	4,234	10,479
Deferred tax assets	-	57
Operating lease right-of-use assets, net	1,562	2,215
Other assets	59	61
Total assets	<u>\$ 39,190</u>	<u>\$ 58,509</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Line of credit	\$ 3,006	\$ -
Paycheck Protection Program Loan, current portion	5,034	-
Debt, net of issuance costs and discount	-	18,481
Accounts payable	570	1,097
Accrued expenses	1,297	1,871
Accrued compensation	1,505	1,876
Billings in excess of revenue earned	5,285	7,613
Accrued warranty	665	921
Income taxes payable	1,621	1,341
Other current liabilities	2,498	1,234
Total current liabilities	<u>21,481</u>	<u>34,434</u>
Paycheck Protection Program Loan, noncurrent portion	5,034	-
Operating lease liabilities noncurrent	1,831	3,000
Other noncurrent liabilities	339	956
Total liabilities	<u>28,685</u>	<u>38,390</u>
Commitments and contingencies		
Stockholders' equity:		
Preferred stock \$.01 par value; 2,000,000 shares authorized; no shares issued and outstanding	-	-
Common stock \$.01 par value; 60,000,000 shares authorized, 22,192,569 and 21,838,963 shares issued, 20,593,658 and 20,240,052 shares outstanding, respectively	222	218
Additional paid-in capital	79,687	79,400
Accumulated deficit	(65,191)	(54,654)
Accumulated other comprehensive loss	(1,214)	(1,846)
Treasury stock at cost, 1,598,911 shares	(2,999)	(2,999)
Total stockholders' equity	<u>10,505</u>	<u>20,119</u>
Total liabilities and stockholders' equity	<u>\$ 39,190</u>	<u>\$ 58,509</u>

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

GSE SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	Years ended December 31,	
	2020	2019
Revenue	\$ 57,620	\$ 82,975
Cost of revenue	42,835	62,677
Gross profit	<u>14,785</u>	<u>20,298</u>
Operating expenses		
Selling, general and administrative	15,765	16,169
Research and development	686	710
Restructuring charges	1,297	2,478
Loss on impairment	4,302	5,597
Depreciation	330	363
Amortization of definite-lived intangible assets	1,943	2,400
Total operating expenses	<u>24,323</u>	<u>27,717</u>
Operating loss	(9,538)	(7,419)
Interest expense	(623)	(988)
Loss on derivative instruments, net	(17)	(13)
Other (expense) income, net	(4)	2,068
Loss before income taxes	(10,182)	(6,352)
Provision for income taxes	355	5,733
Net loss	<u>\$ (10,537)</u>	<u>\$ (12,085)</u>
Net loss per common share - basic	<u>\$ (0.52)</u>	<u>\$ (0.60)</u>
Diluted loss per common share	<u>\$ (0.52)</u>	<u>\$ (0.60)</u>
Weighted average shares outstanding used to compute net loss per share - basic	<u>20,439,157</u>	<u>20,062,021</u>
Weighted average shares outstanding - Diluted	<u>20,439,157</u>	<u>20,062,021</u>

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

GSE SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Years ended December 31,	
	2020	2019
Net loss	\$ (10,537)	\$ (12,085)
Cumulative translation adjustment	632	(211)
Comprehensive loss	<u>\$ (9,905)</u>	<u>\$ (12,296)</u>

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

GSE SYSTEMS, INC, AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
(in thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Treasury Stock		Total
	Shares	Amount				Shares	Amount	
Balance, January 1, 2019	21,485	\$ 214	\$ 78,118	\$ (42,569)	\$ (1,635)	(1,599)	\$ (2,999)	\$ 31,129
Stock-based compensation expense	-	-	1,513	-	-	-	-	1,513
Common stock issued for options exercised	9	1	-	-	-	-	-	1
Common stock issued for RSUs vested	345	3	(3)	-	-	-	-	-
Shares withheld to pay taxes	-	-	(228)	-	-	-	-	(228)
Foreign currency translation adjustment	-	-	-	-	(211)	-	-	(211)
Net loss	-	-	-	(12,085)	-	-	-	(12,085)
Balance, December 31, 2019	<u>21,839</u>	<u>\$ 218</u>	<u>\$ 79,400</u>	<u>\$ (54,654)</u>	<u>\$ (1,846)</u>	<u>(1,599)</u>	<u>\$ (2,999)</u>	<u>\$ 20,119</u>
Stock-based compensation expense	-	-	378	-	-	-	-	378
Common stock issued for RSUs vested	354	4	(4)	-	-	-	-	-
Shares withheld to pay taxes	-	-	(87)	-	-	-	-	(87)
Foreign currency translation adjustment	-	-	-	-	632	-	-	632
Net loss	-	-	-	(10,537)	-	-	-	(10,537)
Balance, December 31, 2020	<u>22,193</u>	<u>\$ 222</u>	<u>\$ 79,687</u>	<u>\$ (65,191)</u>	<u>\$ (1,214)</u>	<u>(1,599)</u>	<u>\$ (2,999)</u>	<u>\$ 10,505</u>

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

GSE SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Years ended December 31,	
	2020	2019
Cash flows from operating activities:		
Net loss	\$ (10,537)	\$ (12,085)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:		
Loss on impairment	4,302	5,597
Depreciation	330	363
Amortization of intangible assets	1,943	2,400
Amortization of deferred financing costs	82	-
Amortization of capitalized software development costs	339	366
Change in fair value of contingent consideration	-	(1,200)
Stock-based compensation expense	378	1,513
Bad debt expense	103	31
Loss on derivative instruments, net	17	13
Deferred income taxes	-	5,349
Gain on sale of assets	(5)	(66)
Changes in assets and liabilities:		
Contract receivables, net	6,901	6,754
Prepaid expenses and other assets	81	532
Accounts payable, accrued compensation and accrued expenses	(1,498)	(3,458)
Billings in excess of revenue earned	(2,374)	(3,051)
Accrued warranty	(721)	(294)
Other liabilities	1,777	1,240
Net cash provided by operating activities	1,118	4,004
Cash flows from investing activities:		
Capital expenditures	(13)	(131)
Proceeds from sale of equipment	11	13
Capitalized software development costs	(328)	(392)
Acquisition of DP Engineering, net of cash acquired	-	(13,542)
Net cash used in investing activities	(330)	(14,052)
Cash flows from financing activities:		
Proceeds from line of credit	4,752	-
Repayment of line of credit	(1,746)	-
Payment of insurance premium	(204)	-
Proceeds from issuance of long-term debt	-	14,263
Repayment of long-term debt	(18,481)	(4,294)
Proceeds from Paycheck Protection Program Loan	10,000	-
Proceeds from issuance of common stock	-	1
Termination fee on Interest rate swap agreement	(209)	-
Shares withheld to pay taxes	(87)	(228)
Deferred financing costs	(91)	-
Net cash (used in) provided by financing activities	(6,066)	9,742
Effect of exchange rate changes on cash	289	(126)
Net decrease in cash and cash equivalents	(4,989)	(432)
Cash, cash equivalents at beginning of year	11,691	12,123
Cash, cash equivalents at end of year	<u>\$ 6,702</u>	<u>\$ 11,691</u>

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

GSE SYSTEMS, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
December 31, 2020 and 2019

1. Summary of Significant Accounting Policies

Principles of consolidation

GSE Systems, Inc. is a leading provider of professional and technical engineering, staffing services, and simulation software to clients in the power and process industries. References in this report to “GSE,” the “Company,” “we” and “our” are to GSE Systems and its subsidiaries, collectively. All intercompany balances and transactions have been eliminated in consolidation.

Accounting estimates

The preparation of the consolidated financial statements in conformity with generally accepted accounting principles in the United States of America (U.S. GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenue and expenses during the reporting period. On an ongoing basis, the Company evaluates the estimates used, including, but not limited to those related to revenue recognition on long-term contracts, allowance for doubtful accounts, product warranties, valuation of goodwill and intangible assets acquired, impairment of long-lived assets to be disposed of, valuation of contingent consideration issued in business acquisitions, valuation of stock-based compensation awards and the recoverability of deferred tax assets. Actual results could differ from these estimates.

Business combinations

Business combinations are accounted for in accordance with the Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”), ASC 805, *Business Combinations*, using the acquisition method. Under the acquisition method, the identifiable assets acquired, liabilities assumed and any non-controlling interest in the acquiree are recognized at fair value on the acquisition date, which is the date on which control is transferred to the Company. Any excess purchase price is recorded as goodwill. Transaction costs associated with business combinations are expensed as incurred.

Revenues and the results of operations of the acquired business are included in the accompanying consolidated statements of operations commencing on the date of acquisition.

Acquisitions may include contingent consideration payments based on future financial measures of an acquired company. Under ASC 805, contingent consideration is required to be recognized at fair value as of the acquisition date. We estimate the fair value of these liabilities based on financial projections of the acquired companies and estimated probabilities of achievement. At each reporting date, the contingent consideration obligation is revalued to estimated fair value, and changes in fair value subsequent to the acquisition are reflected in income or expense in the consolidated statements of operations, and could cause a material impact to our operating results. Changes in the fair value of contingent consideration obligations may result from changes in discount periods and rates, changes in the timing and amount of revenue and/or earnings estimates, and changes in probability assumptions with respect to the likelihood of achieving the various earn-out criteria.

Revenue recognition

The Company derives its revenue through three broad revenue streams: 1) System Design and Build (SDB), 2) Software, and 3) Training and Consulting services. We recognize revenue from SDB and software contracts mainly through the Performance Improvement Solutions segment and the training and consulting service contracts through both the Performance Improvement Solutions segment and Nuclear Industry Training and Consulting segment.

The SDB contracts are typically fixed-price and consist of initial design, engineering, assembly and installation of training simulators which include hardware, software, labor, and post contract support (PCS) on the software. We generally have two main performance obligations for an SDB contract: the training simulator build and PCS. The training simulator build performance obligation generally includes hardware, software, and labor. The transaction price under the SDB contracts is allocated to each performance obligation based on its standalone selling price. We recognize the training simulator build revenue over the construction and installation period using the cost-to-cost input method. In applying the cost-to-cost input method, we use the actual costs incurred to date relative to the total estimated costs to measure the work progress toward the completion of the performance obligation and recognize revenue over time as control transfers to a customer. Estimated contract costs are reviewed and revised periodically during the contract period, and the cumulative effect of any change in estimates is recognized in the period in which the change is identified. Estimated losses are recognized in the period such losses become known.

Uncertainties inherent in the performance of contracts include labor availability and productivity, material costs, change order scope and pricing, software modification and customer acceptance issues. The reliability of these cost estimates is critical to the Company's revenue recognition as a significant change in the estimates can cause the Company's revenue and related margins to change significantly from previous estimates.

Management judgments and estimates involved in the initial creation and subsequent updates to the Company's estimates-at-completion and related profit recognized are critical for our revenue recognition associated with SDB contracts. Inputs and assumptions requiring significant management judgment included anticipated direct labor, subcontract labor, and other direct costs required to deliver on unfinished performance obligations.

The SDB contracts generally provide a one-year base warranty on the systems. The base warranty will not be accounted for as a separate performance obligation under the contract because it does not provide the customer with a service in addition to the assurance that the completed project complies with agreed-upon specifications. Warranties extended beyond our typical one-year period will be evaluated on a case by case basis to determine if it provides more than just assurance that the product operates as intended, which requires carve-out as a separate performance obligation.

Revenue from the sale of perpetual standalone and term software licenses, which do not require significant modification or customization, is recognized upon its delivery to the customer. Revenue from the sale of cloud-based, subscription-based software licenses is recognized ratably over the term of such licenses following delivery to the customer. Delivery is considered to have occurred when the customer receives a copy of the software and is able to use and benefit from the software.

A software license sale contract with multiple deliverables typically includes the following elements: license, installation and training services, and PCS. The total transaction price of a software license sale contract is typically fixed, and is allocated to the identified performance obligations based on their relative standalone selling prices. Revenue is recognized as the performance obligations are satisfied. Specifically, license revenue is recognized when the software license is delivered to the customer; installation and training revenue are recognized when the installation and training are completed without regard to a detailed evaluation of the point in time criteria due to the short-term nature of the installation and training services (one to two days on average); and PCS revenue is recognized ratably over the service period, as PCS is deemed as a stand-ready obligation.

The contracts within the training and consulting services revenue stream are either time and materials (T&M) based or fixed-price based. Under a typical T&M contract, the Company is compensated based on the number of hours of approved time provided by temporary workers and the bill rates which are fixed by type of work, as well as approved expenses incurred. The customers are billed on a regular basis, such as weekly, biweekly or monthly. In accordance with ASC 606-10-55-18, *Revenue from contracts with customers*, we elected to apply the "right to invoice" practical expedient, under which we recognize revenue in the amount to which we have the right to invoice. The invoice amount represents the number of hours of approved time worked by each temporary worker multiplied by the bill rate for the type of work, as well as approved expenses incurred. Under a typical fixed-price contract, we recognize the revenue on a Percentage of Completion basis as it relates to GSE Construction Contracts with revenue recognized based on project delivery over time. Revenue from the sale of short-term contracts with a delivery period of one month or less is recognized in the month completed.

For contracts with multiple performance obligations, we allocate the contract price to each performance obligation based on its relative standalone selling price. We generally determine standalone selling prices based on the prices charged to customers.

The transaction price for Software contracts is generally fixed, and we recognize revenue upon delivery of the software, with fees due in advance or shortly after delivery of the software.

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We recognize Training and Consulting Services revenue as services are performed and bill our customers for services that we have provided on a regular basis (i.e. weekly, biweekly or monthly) and in time with revenue recognition.

Contract asset, which we classify as unbilled receivables, relates to performance under the contract for obligations that are satisfied but not yet billed. Contract assets are recognized as revenue as they occur.

Contract liability, which we classify as billing-in-excess of revenue earned, relates to payments received in advance of performance under the contract. Contract liabilities are recognized as revenue as performance obligations are satisfied.

Cash and cash equivalents

Cash and cash equivalents represent cash and highly liquid investments including money market accounts with maturities of three months or less at the date of purchase.

Contract receivables, net and contract asset and liabilities

Contract receivables include recoverable costs and accrued profit not billed which represents revenue recognized in excess of amounts billed. Contract asset (unbilled receivables) include amounts earned in performance of services that have not been invoiced. Contract liabilities include billings in excess of revenue earned on uncompleted contracts in the accompanying consolidated balance sheets represent advanced billings to clients on contracts in advance of work performed. Generally, such amounts will be earned and recognized over the next twelve months.

Billed receivables are recorded at invoiced amounts. The allowance for doubtful accounts is based on historical trends of past due accounts, write-offs, specific identification and review of customer accounts.

Impairment of long-lived assets

Long-lived assets, such as equipment, purchased software, capitalized software development costs, and intangible assets subject to amortization, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated undiscounted future cash flows, an impairment charge is recognized at the amount by which the carrying amount of the asset exceeds its fair value. Assets to be disposed of would be separately presented in the consolidated balance sheets and reported at the lower of the carrying amount or fair value less costs to sell, and would no longer be depreciated.

Development expenditures

Development expenditures incurred to meet customer specifications under contracts are charged to cost of revenue. Company sponsored development expenditures are either charged to operations as incurred and are included in research and development expenses or are capitalized as software development costs. The amounts incurred for Company sponsored development activities relating to the development of new products and services or the improvement of existing products and services, were approximately \$1.0 million and \$1.1 million for the years ended December 31, 2020 and 2019, respectively. Of these amounts, the Company capitalized approximately \$0.3 million and \$0.4 million for the years ended December 31, 2020 and 2019, respectively.

Equipment, software and leasehold improvements, net

Equipment and purchased software are recorded at cost and depreciated using the straight-line method with estimated useful lives ranging from three years to ten years. Leasehold improvements are amortized over the term of the lease or the estimated useful life, whichever is shorter, using the straight-line method. Upon sale or retirement, the cost and related depreciation are eliminated from the respective accounts and any resulting gain or loss is included in operations. Maintenance and repairs are charged to expense as incurred.

Software development costs

Certain computer software development costs, including direct labor cost, are capitalized in the accompanying consolidated balance sheets. Capitalization of computer software development costs begins upon the establishment of technological feasibility. Capitalization ceases and amortization of capitalized costs begins when the software product is commercially available for general release to customers. Amortization of capitalized computer software development costs is included in cost of revenue and is determined using the straight-line method over the remaining estimated economic life of the product, typically three years. On an annual basis, or more frequently as conditions indicate, the Company assesses the recovery of the unamortized software development costs by estimating the net undiscounted cash flows expected to be generated by the sale of the product. If the undiscounted cash flows are not sufficient to recover the unamortized software costs the Company will write-down the carrying amount of such asset to its estimated fair value based on the future discounted cash flows. The excess of any unamortized computer software costs over the related fair value is written down and charged to operations. Included in capitalized software development costs are certain expenses associated with the development software as a service. Significant changes in the sales projections could result in an impairment with respect to the capitalized software that is reported on the Company's consolidated balance sheets.

Goodwill and intangible assets

The Company's intangible assets include amounts recognized in connection with business acquisitions, including customer relationships, trade names, non-compete agreements and alliance agreements. Due to the impact of the COVID-19 pandemic, definite-lived intangible assets were reviewed for impairment in the first quarter of 2020. The undiscounted cash flows evidenced impairment for the DP Engineering asset group as such, we used a discounted cash flow model to determine the fair value of the DP Engineering asset group and recorded an impairment charge of \$4.3 million as of the period ended March 31, 2020.

The Company's intangible assets impairment analysis includes the use of undiscounted and discounted cash flow models that requires management to make assumptions regarding estimates of revenue growth rates and operating margins used to calculate projected future cash flows.

Intangible assets are initially valued at fair value using generally accepted valuation methods appropriate for the type of intangible asset. Amortization is recognized on a straight-line basis over the estimated useful life of the intangible asset, except for contract backlog and contractual customer relations, which are recognized in proportion to the related project revenue streams. Intangible assets with definite lives are reviewed for impairment if indicators of impairment arise. The Company does not have any intangible assets with indefinite useful lives.

We review goodwill for impairment annually as of December 31 and whenever events or changes in circumstances indicate the carrying value of goodwill may not be recoverable. We test goodwill at the reporting unit level. A reporting unit is an operating segment, or one level below an operating segment, as defined by U.S. GAAP. We have determined that we have two reporting units, which are the same as our two operating segments: (i) Performance Improvement Solutions ("Performance") and (ii) Nuclear Industry Training and Consulting ("NITC").

Goodwill represents the excess of costs over fair value of assets of businesses acquired. The Company reviews goodwill for impairment annually as of December 31 and whenever events or changes in circumstances indicate the carrying value of goodwill may not be recoverable in accordance with Accounting Standards Update ("ASU") 2011-08, *Intangibles - Goodwill and Other (Topic 350): Testing Goodwill for Impairment*. The Company tests goodwill at the reporting unit level.

ASU 2011-08 permits an entity to first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform impairment testing. Under ASU 2011-08, an entity is not required to perform step one of the goodwill impairment test for a reporting unit if it is more likely than not that its fair value is greater than its carrying amount. Additionally, ASU 2017-04, *Simplifying the Test for Goodwill Impairment* by eliminating two step approach when there is indication of impairment.

On February 15, 2019, we acquired DP Engineering and preliminarily recorded goodwill and identified intangible assets as part of the acquisition. On February 23, 2019, an unexpected event occurred at one of DP Engineering's significant customers and all pending work for that customer was terminated as a result of a root cause analysis on February 28, 2019. On May 10, 2019, the Company determined that a material impairment had occurred, requiring an assessment for impairment to be completed related to \$5.6 million of goodwill recorded in the acquisition. (See Note 7).

During the first quarter of fiscal 2020, We determined that the impact of the COVID-19 pandemic on its operations was an indicator of a triggering event that could result in potential impairment of goodwill. As such we performed a Step 1 goodwill analysis whereby we compared the fair value of each reporting unit to its respective carrying value. Based upon this analysis, we determined the fair value of goodwill at the reporting unit levels exceeded the carrying value and thus there was no impairment as of the period ended March 31, 2020. The Step 1 analysis was updated as of December 31, 2020 for our annual impairment test, and did not identify any impairment of goodwill as of such date. In addition, we make certain judgments and assumptions in allocating shared assets and liabilities to determine the carrying values for each of our reporting units. As of December 31, 2019, we performed a quantitative step 1 goodwill impairment test and concluded that the fair values of each of our reporting units exceeded their respective carrying values.

Our goodwill impairment analysis includes the use of a discounted cash flow model that requires management to make assumptions regarding estimates of revenue growth rates and operating margins used to calculate projected future cash flows, and risk-adjusted discount rates.

Foreign currency translation

The United States Dollar (USD) is the functional currency of GSE and subsidiaries operating in the United States. The functional currency of each of our foreign subsidiaries is the currency of the economic environment in which the subsidiary primarily does business. Our foreign subsidiaries' financial statements are translated into USD using the exchange rates applicable to the dates of the financial statements. Assets and liabilities are translated into USD using the period-end spot foreign exchange rates. Income and expenses are translated at the average exchange rate for the year. Equity accounts are translated at historical exchange rates. The effects of these translation adjustments are cumulative translation adjustments, which are reported as a component of accumulated other comprehensive income (loss) included in the consolidated statements of changes in stockholders' equity.

For any business transaction that is in a currency different from the entity's functional currency, we record a gain or loss based on the difference between the exchange rate at the transaction date and the exchange rate at the transaction settlement date (or rate at period end, if unsettled) to the foreign currency realized gain (loss) account in the consolidated statements of operations.

Income taxes

Income taxes are provided under the asset and liability method. Under this method, deferred income taxes are determined based on the differences between the consolidated financial statements and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. Valuation allowances are established, when necessary, to reduce deferred tax assets to the amounts expected to be realized. A provision is made for the Company's current liability for federal, state and foreign income taxes and the change in the Company's deferred income tax assets and liabilities.

We establish accruals for uncertain tax positions taken or expected to be taken in a tax return when it is not more likely than not (i.e., a likelihood of more than fifty percent) that the position would be sustained upon examination by tax authorities that have full knowledge of all relevant information. A recognized tax position is then measured at the largest amount of benefit that is greater than 50% likely of being realized upon ultimate settlement. Favorable or unfavorable adjustment of the accrual for any particular issue would be recognized as an increase or decrease to income tax expense in the period of a change in facts and circumstances. Interest and penalties related to income taxes are accounted for as income tax expense.

Stock-based compensation

Stock-based compensation expense is based on the grant-date fair value estimated in accordance with the provisions of ASC 718, *Compensation-Stock Compensation*. Compensation expense related to stock-based awards is recognized on a pro rata straight-line basis based on the fair value of share awards that are scheduled to vest during the requisite service period.

Significant customers and concentration of credit risk

For the year ended December 31, 2020, we have a concentration of revenue from one individual customer, which accounted for 14.1% of our consolidated revenue. For the year ended December 31, 2019, we had a concentration of revenue from one customer, which accounted for 27.8% of our consolidated revenue. This customer is part of both Performance and NITC segments. No other individual customer accounted for more than 10% of our consolidated revenue in 2020 or 2019.

As of December 31, 2020, we have no customer that accounted over 10% of the Company's consolidated contract receivables. As of December 31, 2019, the Company had two customers that accounted for 12.6% and 10.3% of the Company's consolidated contract receivables.

Fair values of financial instruments

The carrying amounts of current assets and current liabilities reported in the consolidated balance sheets approximate fair value due to their short term duration.

Derivative instruments

Occasionally, the Company utilizes forward foreign currency exchange contracts to manage market risks associated with the fluctuations in foreign currency exchange rates. It is the Company's policy to use such derivative financial instruments to protect against market risk arising in the normal course of business in order to reduce the impact of these exposures. The Company minimizes credit exposure by limiting counterparties to nationally recognized financial institutions. We do not have such derivative instruments as of December 31, 2020.

COVID-19

GSE employees began working remotely during the first quarter of 2020 due to the COVID-19 pandemic and will continue to do so when practical and as mandated by local, state and federal directives and regulations. Employees almost entirely work from home within our Performance Improvement Solutions ("Performance") segment, except when required to be at the client site for essential project work. Our Performance contracts, which are considered an essential service, are permitted to and mostly continue without pause; however, we have experienced certain delays in new business. For our staff augmentation business, we have seen certain contracts for our Nuclear Industry Training and Consulting ("NITC") customers paused or delayed as clients shrink their own on-premise workforces to the minimum operating levels in response to the pandemic; as a result, our NITC segment has experienced a decline in its billable employee base since the start of the pandemic. Although we cannot fully estimate the length or gravity of the impact of the COVID-19 pandemic to our business at this time, we have experienced delays in commencing new projects and thus our ability to recognize revenue has been delayed for some contracts. We have also experienced order reductions or other negative changes to orders due to the pandemic. We routinely monitor our operating expenses as a result of contract delays and have made adjustments to keep our gross profit at a sustainable level.

Going Concern

In 2019, our operating results were negatively impacted by the loss of a major customer in our DP Engineering subsidiary. In 2020, we had several projects delayed and new orders postponed because of the COVID-19 pandemic. We have amended our credit facility with Citizens Bank in 2020 based upon expected covenant violations and have been required to curtail term debt in exchange for revised financial covenants. Scheduled term loan repayments and agreed upon curtailment required us to use \$18.5 million in available cash to pay-off our term debt in 2020. As such, our working capital position on December 31, 2020 was a deficit of \$2.7 million. This working capital deficit includes \$5.0 million from current maturities on our PPP loan, which we expect will be forgiven and have not received any indications to the contrary (See Note 4). If the PPP loan is not forgiven, in part or in whole, we will work with our bank to extend repayment terms as permitted to mitigate the impact on our cashflows. However, if unforgiven and unamended, our PPP loan would be due April 23, 2022, in part or in whole, and may stress our free cash flow and the business to a degree that may cause our covenants to fail.

The COVID-19 macroeconomic environment is considered fluid and although recovery is anticipated to steadily occur over the next 12 months, a further decline will stress our ability to meet covenant requirements. Further continuance of delays in commencing work on outstanding orders or a continued loss of orders, further disruption of our business because of worker illness or mandated shutdowns may also exacerbate the situation. Jurisdictions where our businesses operate across the country are pushing toward re-opening places of business and government support, through the American Rescue Plan Act of 2021, will continue support the broad economy on that path. However, the timing of these elements taking place are not predictable and may not serve to mitigate our situation or improve our specific company's health.

We signed the Ninth Amendment and Reaffirmation Agreement (the "Ninth Amendment") with our bank on March 29, 2021 to waive the fixed charge coverage ratio and leverage ratio for the quarters ending March 31 and June 30, 2021, and to adjust the thresholds for future covenants to ease the risk of non-compliance experienced in previous quarters (See Note 25). However, our new covenant compliance is dependent on meeting future projections, which are subject to the variability and unknown speed and extent of post-COVID-19 recovery.

The Company also maintains options to compensate for a further decline in operations to bolster cash positions by raising capital through its access to the public markets or entering alternative finance arrangements afforded to it through established financial relationships. Impact to net income could be mitigated through one or many of the various cost cutting measures at its disposal, directed at compensation, vendor augmentation or delay of investment initiatives in its corporate office.

These actions and options, which are further supported by positively trending macroeconomic conditions, and the potential to see recovering business and orders ease the risk to the bank covenants experienced in previous quarters. However, when considering the unpredictability of the above, there continues to be substantial doubt the Company will continue as a going concern over the next twelve months.

2. Recent Accounting Pronouncements

Accounting pronouncements recently adopted

In January 2017, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2017-04, *Simplifying the Test for Goodwill Impairment* ("ASU 2017-04"). ASU 2017-04 simplifies the accounting for goodwill impairment by eliminating Step 2 of the current goodwill impairment test, which required hypothetical purchase price allocation. Goodwill impairment will now be the amount by which the reporting unit's carrying value exceeds its fair value, limited to the carrying value of the goodwill. We adopted the new standard and began using the simplified approach on January 1, 2020.

Accounting pronouncements not yet adopted

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit Losses*, which introduces new guidance for credit losses on instruments within its scope. The new guidance introduces an approach based on expected losses to estimate credit losses on certain types of financial instruments, including, but not limited to, trade and other receivables, held-to-maturity debt securities, loans and net investments in leases. The new guidance also modifies the impairment model for available-for-sale debt securities and requires the entities to determine whether all or a portion of the unrealized loss on an available-for-sale debt security is a credit loss. The standard also indicates that entities may not use the length of time a security has been in an unrealized loss position as a factor in concluding whether a credit loss exists. Early adoption is permitted for all entities for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. On October 16, 2019, the FASB voted to defer the deadlines for private companies and certain small public companies, including smaller reporting companies, to implement the new accounting standards on credit losses. The new effective date is January 1, 2023. As a smaller reporting company, we have elected to defer adoption in line with new deadlines and are currently evaluating the effects, if any, that the adoption of this guidance will have on our consolidated financial position, results of operations and cash flows.

In January 2020, the FASB issued ASU 2020-01, *Investments – Equity Securities, Investments – Equity Method and Joint Ventures, and Derivatives and Hedging*, which provides clarity for companies that holds equity securities at cost to first update the fair value of an investment, immediately prior to applying the Equity Method of Accounting; or clarity for companies that enter into forward contracts to purchase additional shares of an equity security that would then require the investee to account for the investment via the Equity Method. This ASU is applicable for public companies starting with fiscal years beginning after December 31, 2020 and interim periods within those fiscal years. The Company plans to adopt ASU 2020-01 in Q1 of Fiscal 2021 and does not currently hold any investments at cost, and thus expects no impact to its financial statements.

In September 2020, the FASB issued ASU 2020-10, *Codification Improvements*, which is part of an ongoing attempt to improve the consistency of the codification. Previously the option to disclose information in the footnotes to the financial statements was in one of two sections: Disclosure Section (Section 50) or Other Presentation Matters (Section 45). ASU 2020-10 conforms the disclosure requirements into Section 50 and provides additional information on specific guidance that was previously unclear or not included in the codification. This ASU is applicable for public companies starting with fiscal years beginning after December 15, 2020, with early adoption available for interim and annual financial statements not already filed and using the retrospective approach. Currently, the Company is reviewing the guidance for applicability; however, the FASB does not believe that this should change any of the current reporting or disclosure requirements. The Company plans to adopt ASU 2020-10 starting in Q1 of Fiscal 2021 and expects no material impact to its consolidated financial statements.

Management has evaluated other recently issued accounting pronouncements and does not believe that any of these pronouncements will have a significant impact on our consolidated financial statements and related disclosures.

3 Earnings per share

Basic earnings per share is based on the weighted average number of outstanding common shares for the period. Diluted earnings per share adjusts the weighted average shares outstanding for the potential dilution that could occur if outstanding vested stock options were exercised. Basic and diluted earnings per share are based on the weighted average number of outstanding shares for the period.

The number of common shares and common share equivalents used in the determination of basic and diluted (loss) earnings per share were as follows:

<i>(in thousands, except for per share data)</i>	Years ended December	
	31,	
	2020	2019
Numerator:		
Net (loss) income attributed to common stockholders	\$ (10,537)	\$ (12,085)
Denominator:		
Weighted-average shares outstanding for basic earnings per share	20,439,157	20,062,021
Effect of dilutive securities:		
Employee stock options and warrants	-	-
Adjusted weighted-average shares outstanding and assumed conversions for diluted earnings per share	<u>20,439,157</u>	<u>20,062,021</u>
Shares related to dilutive securities excluded because inclusion would be anti-dilutive	<u>-</u>	<u>314,234</u>

4 Paycheck Protection Program Loan

On March 27, 2020, the United States enacted the Coronavirus Aid, Relief and Economic Security Act (“CARES Act”). The CARES Act’s purpose is to extend liquidity to small businesses and assist in retaining employees during the COVID-19 pandemic. On April 23, 2020, GSE was approved for and on the next day received a \$10 million PPP Loan (“PPP Loan” or “Loan”) from the Small Business Administration (SBA) as part of the CARES Act from the Bank. On June 5, 2020, the Paycheck Protection Program Flexibility Act (“PPPFA”) was signed into law. This new law acted to ease some of the burden of the first legislation in order to expand the amount of forgiveness available.

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The aim of the PPP Loan is to provide funding for businesses for certain payroll and nonpayroll costs. Proceeds for the PPP Loan are eligible for complete forgiveness, if used at least 60% for payroll cost with up to 40% for certain other nonpayroll costs. Forgiveness for amounts less than the total amount of the PPP Loan (\$10 million) is allowed, retaining 60/40 requirements, but will be limited based upon the amount of funds used for payroll costs and further reduced by a full-time employee and salary/hourly rate wage reduction limitation. GSE has relied primarily on eligible wages and expenses and is well within the ratios.

The SBA has stated that PPP loans above \$2 million will be subjected to audited for appropriate usage of the funds and confirmation of loan forgiveness. GSE stated, as part of the initial application, that the receipt of such funds was required in order to maintain its employees during the pandemic, and GSE was confident in its ability to report on the proper use of the funds and obtain full forgiveness. GSE has also prepared and performed extensive review in its submission of the mandated Form 3590 – PPP Loan Necessity Questionnaire and remains confident to that end.

The terms of the loan are as follows: The July 5 legislation provides for an automatic 10 months deferment, after the coverage period, on the first payment, placing it on August 9, 2021. Subsequent payments, in accordance with our loan documentation, will occur monthly in equal monthly proportions, beginning with the first full month following the deferment period and will be comprised of principal and interest, with the loan fully due on April 23, 2022. Although the first payment is not required until September 2021, the loan balance accrues at an interest rate of 1% from April 23, 2020. If the loan is forgiven, the related interest incurred is also forgiven.

We realized all possible PPP Loan (“PPP Loan” or “Loan”) forgiveness expenses through the 24 week coverage period during the 2020 fiscal year. We have applied for forgiveness in Q1 of 2021, with expected response in Q2 of 2021. Any balance unforgiven by the SBA and accruing 1% interest since inception will be payable starting on the date instructed by the SBA and in equal monthly payments with the final balance due by April 23, 2022. Loan forgiveness is achieved by applying for forgiveness with the Company’s lender, the Bank, with costs eligible for forgiveness as incurred and receiving final clearance from the SBA. The Bank has successfully completed their review and provided the loan forgiveness application and support to the SBA on February 26, 2021 for their process to begin, legislated to take no more than an additional 90 days. Upon receipt of the funds, a Loan Payable – PPP balance of \$10 million was recorded and a related interest was accrued and booked through Q4 2020. As of December 31, 2020, GSE reported half of the loan balance and accrued interest as a short term payable.

The PPP Loan contains events of default and other provisions customary for a loan of this type. The Payroll Protection Program provides that (1) the use of PPP Loan amount shall be limited to certain qualifying expenses, (2) 100% of the principal amount of the loan is guaranteed by the Small Business Administration.

The SBA provides for certain customary events of default, including if the Company (i) fails to do anything required by the Note and other Loan Documents; (ii) does not disclose, or anyone acting on its behalf does not disclose, any material fact to the Bank or the SBA; (iii) makes, or anyone acting on its behalf makes, a materially false or misleading representation to lender or the SBA; (iv) reorganizes, merges, consolidates or otherwise changes ownership or business structure without the Bank’s prior written consent; (v) takes certain prohibited actions after the Bank makes a determination that the PPP Loan is not entitled to full forgiveness. Upon default the Bank may require immediate payment of all amounts owing under the PPP Loan or file suit and obtain judgment.

As of December 31, 2020, we had \$10.0 million of outstanding PPP Loan and accrued interest of \$69 thousand as debt in our consolidated balance sheets. We classified \$5.0 million as current and \$5.0 million as noncurrent in our consolidated balance sheets. We recorded \$69 thousand of interest expense during the year end December 31, 2020.

As of December 31, 2020, management believes the Company was in full compliance with all requirements in order to apply for forgiveness under the PPP Loan.

5. Revenue

We account for revenue in accordance with ASC 606, *Revenue from Contracts with Customers*. We primarily generate revenue through three distinct revenue streams: (1) System Design and Build (“SDB”), (2) Software and (3) Training and Consulting Services across our Performance and NITC segments. We recognize revenue from SDB and software contracts mainly through our Performance segment. We recognize training and consulting service contracts through both segments.

The following table represents a disaggregation of revenue by type of goods or services for the years ended December 31, 2020 and 2019, along with the reportable segment for each category:

(in thousands)

	Twelve Months Ended December 31,	
	2020	2019
Performance Improvement Solutions segment		
System Design and Build	\$ 11,197	\$ 19,573
Point in time	316	299
Over time	10,881	19,274
Software	3,873	2,883
Point in time	1,411	386
Over time	2,462	2,497
Training and Consulting Services	17,720	23,320
Point in time	110	68
Over time	17,610	23,252
Nuclear Industry Training and Consulting segment		
Training and Consulting Services	24,830	37,199
Point in time	21	63
Over time	24,809	37,136
Total revenue	\$ 57,620	\$ 82,975

SDB contracts are typically fixed-priced, and we receive payments based on a billing schedule established in our contracts. We generally have two main performance obligations: (1) the training simulator build and (2) the Post Contract Support (“PCS”) period. Fees for PCS are normally paid in advance of the related service period. The training simulator build performance obligation generally includes hardware, software, and labor. The transaction price under the SDB contracts is allocated to each performance obligation based on its standalone selling price. We recognize the training simulator build revenue over the construction and installation period using the cost-to-cost input method. In applying the cost-to-cost input method, we use the actual costs incurred to date relative to the total estimated costs to measure the work progress toward the completion of the performance obligation and recognize revenue over time as control transfers to a customer. Estimated contract costs are reviewed and revised periodically during the contract period, and the cumulative effect of any change in estimates is recognized in the period in which the change is identified. Estimated losses are recognized in the period such losses become known.

Uncertainties inherent in the performance of contracts include labor availability and productivity, material costs, change order scope and pricing, software modification and customer acceptance issues. The reliability of these cost estimates is critical to the Company’s revenue recognition as a significant change in the estimates can cause the Company’s revenue and related margins to change significantly from previous estimates.

Management judgments and estimates involved in the initial creation and subsequent updates to the Company’s estimates-at-completion and related profit recognized are critical to our revenue recognition associated with SDB contracts. Inputs and assumptions requiring significant management judgment included anticipated direct labor, subcontract labor, and other direct costs required to deliver on unfinished performance obligations.

The transaction price for Software contracts is generally fixed, and we recognize revenue upon delivery of the software, with fees due in advance or shortly after delivery of the software.

We recognize Training and Consulting Services revenue as services are performed and bill our customers for services that we have provided on a regular basis (i.e. weekly, biweekly or monthly) and in time with revenue recognition.

Contract asset, which we classify as unbilled receivables, relates to performance under the contract for obligations that are satisfied but not yet billed. Contract assets are recognized as revenue as they occur.

Contract liability, which we classify as billing-in-excess of revenue earned, relates to payments received in advance of performance under the contract. Contract liabilities are recognized as revenue as performance obligations are satisfied.

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The following table reflects the balance of contract liabilities and the revenue recognized in the reporting period that was included in the contract liabilities from contracts with customers:

(in thousands)

	December 31, 2020	December 31, 2019
Billings in excess of revenue earned (BIE)	\$ 5,285	\$ 7,613
Revenue recognized in the period from amounts included in BIE at the beginning of the period	\$ 6,691	9,089

For the year ended December 31, 2020, the Company recognized revenue of \$0.3 million related to performance obligations satisfied in previous periods.

As of December 31, 2020, the aggregate amount of transaction price allocated to the remaining performance obligations of SDB, software and fixed-price training and consulting services contracts is \$22.1 million. The Company will recognize the revenue as the performance obligations are satisfied, which is expected to occur over the next twelve months.

Part of the training and consulting services contracts are T&M based. Under a typical T&M contract, the Company is compensated based on the number of hours of approved time provided by temporary workers and the bill rates, which are fixed by type of work, as well as approved expenses incurred. As part of our adoption of ASU 2014-09, we have elected to use the optional exemption under ASC 606-10-50-14(b) *Revenue from contracts with customers*, pursuant to which we have excluded disclosures of transaction prices allocated to remaining performance obligations under such contracts and when we expect to recognize the revenue.

6. Restructuring expenses

International Restructuring

On December 27, 2017, the Board of Directors approved an international restructuring plan to streamline and optimize the Company's global operations. Beginning in December 2017, GSE has been in the process of consolidating its engineering services and R&D activities to Maryland and ceasing an unprofitable non-core business in the United Kingdom (UK). As a result, the Company closed its offices in Nyköping, Sweden; Chennai, India; and Stockton-on-Tees, UK. These actions are designed to improve Company productivity by eliminating duplicate employee functions, increasing GSE's focus on its core business, improving efficiency and maintaining the full range of engineering capabilities while reducing costs and organizational complexity.

GSE eliminated approximately 40 positions due to these changes, primarily in Europe and India, and has undertaken other related cost-savings measures. As a result of these efforts, GSE has recorded total restructuring charges of approximately \$3.1 million, primarily related to workforce reductions, contracts termination costs and asset write-offs due to the exit activities. We recorded a restructuring charge of \$0.1 million and \$1.0 million for the years ended December 31, 2019 and December 31, 2020, respectively. In addition to the restructuring costs incurred to date, the Company has an estimated \$1.2 million of cumulative translation adjustments that will be charged against net income (loss) and an estimated \$0.8 million of tax benefit that will be realized upon liquidation of these foreign entities. GSE expects to recognize the remaining restructuring costs, currency translation adjustments, and tax benefits in 2021.

DP Engineering Restructuring

During the third quarter of 2019, the Company implemented a restructuring plan as a result of the work suspension of DP Engineering's largest customer and subsequent notification on August 6, 2019 that the EOC contract was being terminated. Accordingly, the Company took the necessary measures to reduce DP's workforce by approximately 12 FTE's and in addition terminated one of its office leases early resulting in one-time costs of \$0.3 million being paid in the third quarter 2019. As a result of this plan, we incurred \$0.2 million and \$0.7 million restructuring cost to align the workforce to the expected level of business for the years ended December 31, 2020 and 2019, respectively.

Lease abandonment

As of December 31, 2019, management decided to cease-use, abandoned, a portion of several operating lease right of use lease assets in long idled space in our Sykesville office and in DP Engineering's Fort Worth office. This was decided as part of the on-going international restructuring plans to right size the organization. Management determined the square footage which would remain in use and took steps to ensure the abandoned space was separated from the remaining in use space, end access of all employees to the abandoned sections, and remove any remaining office furniture assets. We applied the abandonment guidance in ASC 360-10-35. We believe "abandonment" means ceasing to use the underlying asset and lacking either the intent or the ability to sublease the underlying asset. Accordingly, lease abandonment restructuring charges incurred relating to the right of use assets for the year ended December 31, 2019 totaled \$1.5 million. No additional charges were incurred for the year ended December 31, 2020.

The following table shows the abandoned square footage and right out use asset details:

	<u>Sykesville</u>	<u>DP Engineering</u>	<u>Total</u>
Square Ft in use December 1, 2019	36,549	19,871	56,420
Square Ft in use December 31, 2019	14,636	9,936	24,572
Abandoned Square Ft	21,913	9,936	31,849
<i>(in thousands)</i>			
Pre-Abandonment ROU Balance	\$ 1,474	\$ 1,291	\$ 2,765
Post-Abandonment Balance	590	646	1,236
Abandonment ROU	884	646	1,529

The following table shows the total restructuring costs:

	<u>Total 2020 Restructuring Costs</u>	<u>Total 2019 Restructuring Costs</u>
<i>Restructuring Costs</i>		
Lease termination costs	\$ -	\$ 1,625
International restructuring	1,119	106
Employee termination benefits	178	747
Total	<u>\$ 1,297</u>	<u>\$ 2,478</u>

Expected Restructuring Costs

GSE expects no additional restructuring costs under the international restructuring plan, except currency translation adjustments and the related tax benefits upon liquidation of foreign entities in 2021. As a part of the DP restructuring, the right sizing effort had led to the lease abandonment and related impairment as mentioned above. In a continuing effort to align the Company's workforce and by extension the available workspace, we expect future restructuring as we continue to migrate out of the Sykesville office. At this time management is unable to estimate the ultimate restructuring costs or timeline over which these costs will be recognized.

7. Goodwill and Intangible Assets*Intangible Assets Subject to Amortization*

During the first quarter of fiscal 2020, We determined that the impact of the COVID-19 pandemic on the Company's operations was an indicator of a triggering event that could result in potential impairment of goodwill. As such we performed a Step 1 goodwill analysis whereby we compared the fair value of each reporting unit to its respective carrying value, Based upon this analysis, we determined the fair value of goodwill at the reporting unit levels exceeded the carrying value and thus there was no impairment for the period ended March 31, 2020. The Step 1 analysis was updated as of December 31, 2020 for our annual impairment test, and did not identify any impairment of goodwill as of such date. We also had no goodwill impairment for the year ended December 31, 2019.

Our goodwill impairment analysis includes the use of a discounted cash flow model that requires management to make assumptions regarding estimates of growth rates used to forecast revenue, operating margin and terminal value as well as determining the appropriate risk-adjusted discount rates and other factors that impact fair value determinations.

We recognized definite-lived intangible assets of \$6.8 million upon acquisition of DP Engineering on February 15, 2019, including customer contracts and relationships, trademarks and non-compete agreements, with amortization periods of 5 to 15 years. Amortization of our definite-lived intangible assets is recognized on a straight-line basis over the estimate useful life of the associated assets.

Following the February 23, 2019 event occurring at a DP Engineering customer location and subsequent receipt of the Notice of Suspension on February 28, 2019, the Company concluded that DP Engineering's relationship with its largest customer has been adversely impacted. The DP Engineering customer contracts and relationships were the major components of the definite-lived intangible assets recognized in connection with the acquisition. Accordingly, the Company determined that a triggering event had occurred requiring an interim assessment of whether a potential impairment of definite-lived intangible asset impairment test was necessary in accordance with the related impairment guidance. As a result, it was determined that a material impairment had occurred, requiring an impairment of \$5.6 million of goodwill recorded in 2019.

Due to the impact of the COVID-19 pandemic, definite-lived intangible assets were reviewed for impairment. The undiscounted cash flows evidenced impairment for the DP Engineering asset group as such, we used a discounted cash flow model to determine the fair value of the DP Engineering asset group and recorded an impairment charge of \$4.3 million as of the period ended March 31, 2020.

The Company's intangible assets impairment analysis includes the use of undiscounted cash flow and discounted cash flow models that requires management to make assumptions regarding estimates of growth rates used to forecast revenue, operating margin and terminal value as well as determining the appropriate risk-adjusted discount rates and other factors that impact fair value determinations.

Management determined no additional triggering impact occurred during the year ended December 31, 2020.

The following table shows the gross carrying amount and accumulated amortization of definite-lived intangible assets:

(in thousands)

	As of December 31, 2020			
	Gross Carrying Amount	Accumulated Amortization	Impact of Impairment	Net
<i>Amortized intangible assets:</i>				
Customer relationships	\$ 11,730	\$ (5,504)	\$ (3,102)	\$ 3,124
Trade names	2,467	(1,020)	(778)	669
Developed technology	471	(471)	-	-
Non-contractual customer relationships	433	(433)	-	-
Noncompete agreement	949	(336)	(422)	191
Alliance agreement	527	(277)	-	250
Others	167	(167)	-	-
Total	<u>\$ 16,744</u>	<u>\$ (8,208)</u>	<u>\$ (4,302)</u>	<u>\$ 4,234</u>

(in thousands)

	As of December 31, 2019		
	Gross Carrying Amount	Accumulated Amortization	Net
<i>Amortized intangible assets:</i>			
Customer relationships	\$ 11,730	\$ (4,079)	\$ 7,651
Trade names	2,467	(727)	1,740
Developed technology	471	(471)	-
Non-contractual customer relationships	433	(433)	-
Noncompete agreement	949	(217)	732
Alliance agreement	527	(171)	356
Others	167	(167)	-
Total	<u>\$ 16,744</u>	<u>\$ (6,265)</u>	<u>\$ 10,479</u>

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Amortization expense related to definite-lived intangible assets totaled 1.9 million and \$2.4 million for the years ended December 31, 2020 and 2019, respectively. The following table shows the estimated amortization expense of the definite-lived intangible assets for the next five years:

(in thousands)

Years ended December 31:

2021	\$	1,213
2022		911
2023		640
2024		435
Thereafter		1,035
	\$	<u>4,234</u>

Goodwill

The change in the net carrying amount of goodwill from January 1, 2019 through December 31, 2019 is noted below, there were no changes in goodwill during 2020:

(in thousands)

	Performance Improvement Solutions	Nuclear Industry Training and Consulting	Total
Net book value at January 1, 2019	\$ 4,739	\$ 8,431	\$ 13,170
Acquisition	5,766	-	5,766
Dispositions	-	-	-
Goodwill impairment loss	(5,597)	-	(5,597)
Net book value at December 31, 2019	<u>\$ 4,908</u>	<u>\$ 8,431</u>	<u>\$ 13,339</u>

8. Contract Receivables

Contract receivables represent the Company's unconditional rights to consideration due from a broad base of both domestic and international customers. Net contract receivables are considered to be collectible within twelve months.

Recoverable costs and accrued profit not billed represent costs incurred and associated profit accrued on contracts that will become billable upon future milestones or completion of contracts. The components of contract receivables are as follows:

(in thousands)

	December 31,	
	2020	2019
Billed receivables	\$ 5,694	\$ 11,041
Unbilled receivables	5,160	6,624
Allowance for doubtful accounts	(360)	(458)
Total contract receivables, net	<u>\$ 10,494</u>	<u>\$ 17,207</u>

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Management reviews collectability of receivables periodically and records an allowance for doubtful accounts to reduce our receivables to their net realizable value when it is probable that the Company will not be able to collect all amounts due according to the contractual terms of the receivable. The allowance for doubtful accounts is based on historical trends of past due accounts, write-offs, and specific identification and review of customer accounts. During the years ended December 31, 2020 and 2019, the Company recorded allowances for doubtful accounts of \$103 thousand and \$31 thousand, respectively.

During January 2021, the Company invoiced \$3.7 million of the unbilled amounts related to the balance at December 31, 2020.

The activity in the allowance for doubtful accounts is as follows:

(in thousands)

	As of and for the	
	Years ended December 31,	
	2020	2019
Beginning balance	\$ 458	\$ 427
Current year provision	103	31
Current year write-offs	(201)	-
Ending balance	<u>\$ 360</u>	<u>\$ 458</u>

9. Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consist of the following:

(in thousands)

	December 31,	
	2020	2019
Income tax receivable	\$ 136	\$ 237
Prepaid expenses	883	861
Other current assets	535	782
Total	<u>\$ 1,554</u>	<u>\$ 1,880</u>

Other current assets primarily include value-added tax receivables and cash deposited in a Swedish tax account. Prepaid expenses primarily include prepayment for insurance and other subscription-based services.

10. Equipment, Software and Leasehold Improvements

Equipment, software and leasehold improvements, net consist of the following:

(in thousands)

	December 31,	
	2020	2019
Computer and equipment	\$ 2,229	\$ 2,266
Software	1,695	1,693
Leasehold improvements	660	664
Furniture and fixtures	848	900
	<u>5,432</u>	<u>5,523</u>
Accumulated depreciation	(4,816)	(4,584)
Equipment, software and leasehold improvements, net	<u>\$ 616</u>	<u>\$ 939</u>

Depreciation expense was \$0.3 million and \$0.4 million for the years ended December 31, 2020 and 2019, respectively.

11. Product Warranty

Accrued warranty

For contracts that contain a warranty provision, the Company provides an accrual for estimated future warranty costs based on historical experience and projected claims. The Company's contracts may contain warranty provisions ranging from one year to five years. The current portion of the accrued warranty is presented separately on the consolidated balance sheets within current liabilities whereas the noncurrent portion is included in other liabilities.

In the final quarter of 2019, management reassessed the warranty percentage used in determining project budgets for warranty projects which were active at the end of 2019 and used in project budgets for non-warranty projects active at the end of 2019. In 2018 and prior periods, the GSE standard warranty was 4% of non-physical material cost of an individual project. Physical material is excluded from this target as the associated vendor typically provides their own warranty. Based on historical warranty costs, trends in actual expenses incurred and discussions with sales managers, it is management's determination that a 3% warranty provision is a conservative estimate for all warranty costs both for active warranty projects and active non-warranty projects. The adjustment of this change resulted in a \$0.2 million decrease in warranty provision.

The activity in the accrued warranty accounts is as follows:

(in thousands)

	As of and for the years ended December 31,	
	2020	2019
Beginning balance	\$ 1,323	\$ 1,621
Current year provision	(205)	(133)
Current year claims	(203)	(164)
Currency adjustment	7	(1)
Ending balance	\$ 922	\$ 1,323

The current and non-current warranty balance is as follows:

	December 31,	
	2020	2019
Current	\$ 665	\$ 921
Non-current	257	402
Total Warranty	\$ 922	\$ 1,323

12. Fair Value of Financial Instruments

ASC 820, *Fair Value Measurement* (ASC 820) defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. ASC 820 also establishes a fair value hierarchy which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value.

The levels of the fair value hierarchy established by ASC 820 are:

Level 1: inputs are quoted prices, unadjusted, in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date.

Level 2: inputs are other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. A Level 2 input must be observable for substantially the full term of the asset or liability. For 2019, the Monte Carlo model was used to calculate the fair value of level 2 instruments. The inputs used are current stock price, expected term, risk-free rate, number of trials, volatility and interest rates.

Level 3: inputs are unobservable and reflect the reporting entity's own assumptions about the assumptions that market participants would use in pricing the asset or liability.

As of December 31, 2020 and 2019, we considered the recorded value of certain of our financial assets and liabilities, which consist primarily of cash and cash equivalents, contract receivable and accounts payable, to approximate fair value based upon their short-term nature.

During the years ended December 31, 2020 and 2019, the Company did not have any transfers into or out of Level 3.

The following table presents assets measured at fair value at December 31, 2020:

<i>(in thousands)</i>	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Money market funds	\$ 435	\$ -	\$ -	\$ 435
Total assets	<u>\$ 435</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 435</u>

The following table presents assets and liabilities measured at fair value at December 31, 2019:

<i>(in thousands)</i>	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Money market funds	\$ 434	\$ -	\$ -	\$ 434
Foreign exchange contracts	-	49	-	49
Total assets	<u>\$ 434</u>	<u>\$ 49</u>	<u>\$ -</u>	<u>\$ 483</u>
Liability awards	\$ -	\$ (9)	\$ -	\$ (9)
Interest rate swap contract	-	(160)	-	(160)
Total liabilities	<u>\$ -</u>	<u>\$ (169)</u>	<u>\$ -</u>	<u>\$ (169)</u>

As of December 31, 2019, we had classified our foreign exchange contracts within other assets. Our interest rate swap contract and liability awards were classified within other noncurrent assets as of the period ended December 31, 2019.

13. Debt

On December 29, 2016, we entered a 3-year \$5.0 million revolving line of credit facility with the Bank to fund general working capital needs and acquisitions. On May 11, 2018, we entered into the Amended and Restated Credit and Security Agreement (the “Credit Agreement” or the “Credit Facility”) to (a) expand the \$5.0 million revolving line of credit (the “RLOC”) to include a letter of credit sub-facility and not be subject to a borrowing base and (b) to add a \$25 million term loan facility, available to finance permitted acquisitions over the following 18 months. The credit facility was subject to certain financial covenants and reporting requirements and was scheduled to mature in five years on May 11, 2023 and accrued interest at the one-month USD LIBOR, plus a margin that varies depending on our overall leverage ratio. The RLOC had required monthly payments of only interest, with principal due at maturity, while our term loan draws required monthly payments of principal and interest based on an amortization schedule. Our obligations under the Credit Agreement was guaranteed by our wholly owned subsidiaries Hyperspring, Absolute, True North, DP Engineering and by any future material domestic subsidiaries (collectively, “the Guarantors”).

On January 6, 2020, due to an expected violation of our covenants, we entered into the Sixth Amendment and Reaffirmation Agreement with an effective date of December 31, 2019, with our Bank to relax the fixed charge coverage ratio and leverage ratio and delay testing of both financial covenants. We agreed to an additional covenant, requiring us to maintain a consolidated Adjusted EBITDA target of \$4.3 million, tested quarterly as of December 31, 2019, March 31, 2020 and June 30, 2020. Further, we agreed to maintain a minimum USA liquidity of at least \$5.0 million in the aggregate, tested bi-weekly as of the fifteenth and the last day of each month, beginning on December 31, 2019 and until June 30, 2020. In addition to the revised covenants, we agreed to make accelerated principal payments of \$3.0 million on January 6, 2020; \$1.0 million on March 31, 2020; and \$1.0 million on June 30, 2020. We incurred \$20 thousand of debt issuance costs related to this amendment.

On April 17, 2020, effective March 31, 2020, we entered into the Seventh Amendment and Reaffirmation Agreement, which required us to maintain a minimum fixed charge coverage ratio of 1.25 to 1.00, tested quarterly as of the last day of each quarter, beginning with the quarter ending June 30, 2021. In addition, we agreed to not exceed a maximum leverage ratio, tested quarterly as of the last day of each quarter and beginning with the quarter ending September 30, 2020 as follows: (i) 3.00 to 1.00 for the period ending on September 30, 2020; (ii) 2.50 to 1.00 for the period ending on December 31, 2020; and (iii) 2.25 to 1.00 for the period ending on March 31, 2021 and for the periods ending December 31, March 31, June 30 and September 30, thereafter. We additionally agreed to make accelerated principal payments of \$0.75 million on April 17, 2020 and \$0.5 million on June 30, 2020. We incurred \$50 thousand of debt issuance costs related to this amendment.

On August 28, 2020, we signed the Eighth Amendment and Reaffirmation Agreement, “the Eighth Amendment”, with an effective date of June 29, 2020, due to violating our minimum Adjusted EBITDA covenant during the three months ended June 30, 2020. As part of the amendment, we agreed to pay \$10 million to the Bank during the three months ended September 30, 2020, of which \$0.7 million was paid to reduce our RLOC. We paid \$9.1 million of our long-term debt and paid out \$0.2 million for the unwinding of the interest rate swap agreement during the quarter. We incurred \$10 thousand in additional debt issuance costs related to the amendment, which we expensed along with a \$70 thousand previously deferred debt issuance cost during the year ended December 31, 2020.

The Eighth Amendment removed our minimum Adjusted EBITDA covenant and changed our other debt covenants on an ongoing basis as follows: our maximum fixed charge coverage ratio will be tested quarterly as of the last day of each quarter, beginning with the quarter ending December 31, 2021 and must be 1.00 to 1.00; our leverage ratio will be tested quarterly, starting on March 31, 2021 as follows: (i) 3.00 to 1.00 for the period ending March 31, 2021; (ii) 2.75 to 1.00 for the period ending on June 30, 2021, (iii) 2.50 to 1.00 for the period ending on September 30, 2021, and (iv) 2.00 to 1.00 for the period ending on December 31, 2021 and for the periods ending on each December 31st, March 31st, June 30th and September 30th thereafter. We are also required to maintain a minimum of \$3.5 million in aggregate USA liquidity, which was tested on September 15, 2020 and will be tested bi-weekly on an on-going basis.

On March 29, 2021, due to a projected violation of Q1 2021 leverage ratio, we signed the Ninth Amendment and Reaffirmation Agreement with an effective date of March 29, 2021 (See Note 25).

Revolving Line of Credit (“RLOC”)

During the year ended December 31, 2020, we paid down \$0.7 million on our RLOC as part of the Eighth Amendment, discussed above. Subsequently, we were able to draw down \$0.7 million on the RLOC to fund our working capital needs. As of December 31, 2020, we had outstanding borrowings of \$3.0 million under the RLOC and three letters of credit totaling \$933 thousand outstanding to certain of our customers. After consideration of letters of credit, the amount available under the RLOC was approximately \$1.1 million as of December 31, 2020. At December 31, 2019, there were no outstanding borrowings under the RLOC and four letters of credit totaling \$1.2 million were outstanding. The amount available at December 31, 2019, after consideration of the letters of credit was approximately \$3.8 million.

We intend to continue using the RLOC for short-term working capital needs and the issuance of letters of credit in connection with business operations provided, we remain in compliance with our covenants. As discussed in Note 25, we entered into a 9th Amendment on our credit facility, as such our covenants have been waived through June 30, 2021. Letter of credit issuance fees range between 1.25% and 2.00% of the value of the letter of credit, depending on our overall leverage ratio. We pay an unused RLOC fee quarterly based on the average daily unused balance.

Term Loans

We acquired DP Engineering on February 15, 2019 for approximately \$13.5 million in cash, mainly from proceeds of \$14.3 million from a term loan with our Bank. As of September 30, 2020, the loan is fully repaid including all accrued interest at the adjusted USD LIBOR, plus a margin ranging between 2.00% and 2.75% depending on our overall leverage ratio. There were no debt issuance costs or loan origination fees associated with this payoff.

As part of the Eighth Amendment discussed above, we repaid all of \$9.1 million outstanding balance on our term loan during the year ended December 31, 2020.

The Bank also agreed to remove its collateral agreement with the Company's subsidiaries as part of the Eighth Amendment and repayment of our outstanding term loans during the year ended December 31, 2020.

Paycheck Protection Program Loan

We entered into the PPP Loan agreement with the Bank which was approved by the Bank and funded on April 23, 2020, pursuant to the Paycheck Protection Program under the Coronavirus Aid, Relief and Economic Security Act (the "CARES Act"). The PPP Loan matures on April 24, 2022 and bears interest at a rate of 1.0% per annum. Monthly amortized principal and interest payments are deferred for ten months after the last day of the covered period, August 9, 2021. The PPP Loan funds were received on April 24, 2020. The PPP Loan contains events of default and other provisions customary for a loan of this type. The Payroll Protection Program provides that (1) the use of PPP Loan amount shall be limited to certain qualifying expenses, (2) 100% of the principal amount of the loan is guaranteed by the Small Business Administration and (3) an amount up to the full principal amount may qualify for loan forgiveness in accordance with the terms of CARES Act. We are not yet able to determine the amount that might be forgiven. As of December 31, 2020, the Company was in full compliance with respect to the PPP Loan and believes the eligible expenses accumulated during the coverage period satisfy forgiveness criteria.

14. Derivative Instruments

In the normal course of business, our operations are exposed to fluctuations in foreign currency values and interest rate changes. We may seek to control a portion of these risks through a risk management program that includes the use of derivative instruments.

Foreign Currency Risk Management

Our foreign currency denominated contract receivables, billings in excess of revenue earned and subcontractor accruals that are related to the outstanding foreign exchange contracts are remeasured at the end of each period into our functional currency, using the current exchange rate at the end of the period. The gain or loss resulting from such remeasurement is also included in loss on derivative instruments, net in the consolidated statements of operations.

We utilize foreign currency exchange contracts to manage market risks associated with fluctuations in foreign currency exchange rates and to minimize credit exposure by limiting counterparties to nationally recognized financial institutions.

As of December 31, 2020, we had no foreign exchange contracts outstanding.

Interest Rate Risk Management

In June 2018, as part of our overall risk management policies, we entered into a pay-fixed, receive-floating interest rate swap contract with a notional amount of \$9.0 million to reduce the impact associated with interest rate fluctuations on our outstanding term loans (see Note 13). The notional value amortizes monthly in equal amounts based on the 5-year principal repayment terms. Per the terms of the swap, we are required to pay interest on the basis of a fixed rate of 3.02%, and we receive interest on the basis of one-month USD LIBOR.

As discussed in Note 13, we signed the Eighth Amendment with our Bank and repaid the \$9.1 million outstanding balance on our term loan. Accordingly, we exited the swap agreement related to this loan and paid \$0.2 million in cash.

For the periods presented, we did not elect to designate any of our derivative contracts as hedges. Changes in the fair value of the derivative contracts are included in loss on derivative instruments, net in the consolidated statements of operations.

For the years ended December 31, 2020 and 2019, the Company recognized a net (loss) gain on its derivative instruments as outlined below:

<i>(in thousands)</i>	Years ended December 31,	
	2020	2019
Foreign exchange contracts- change in fair value	\$ 17	\$ 6
Interest rate swap - change in fair value	(49)	(57)
Remeasurement of related contract receivables and billings in excess of revenue earned	15	38
	<u>\$ (17)</u>	<u>\$ (13)</u>

15. Income Taxes

The consolidated income before income taxes, by domestic and foreign sources, is as follows:

<i>(in thousands)</i>	Years ended December 31,	
	2020	2019
Domestic	\$ (13,834)	\$ (6,671)
Foreign	3,652	319
Total	<u>\$ (10,182)</u>	<u>\$ (6,352)</u>

The provision (benefit) for income taxes is as follows:

<i>(in thousands)</i>	Years ended December 31,	
	2020	2019
Current:		
<i>Federal</i>	\$ 3	\$ (30)
<i>State</i>	67	60
<i>Foreign</i>	285	354
Subtotal	<u>355</u>	<u>384</u>
Deferred:		
<i>Federal</i>	-	4,686
<i>State</i>	-	663
<i>Foreign</i>	-	-
Subtotal	<u>-</u>	<u>5,349</u>
Total	<u>\$ 355</u>	<u>\$ 5,733</u>

The effective income tax rate for the years ended December 31, 2020 and 2019 differed from the statutory federal income tax rate as presented below:

	Effective Tax Rate percentage (%)	
	Years ended December 31,	
	2020	2019
Statutory federal income tax rate	21.0%	21.0%
State income taxes, net of federal tax benefit	3.7%	(12.1)%
Effect of foreign operations	(0.9)%	(0.3)%
Effect of foreign restructuring	(6.7)%	0.0%
Change in valuation allowance	(15.6)%	(93.1)%
Meals and Entertainment	(0.4)%	(1.4)%
Stock based compensation	(2.2)%	(1.4)%
GILTI Inclusion	(0.2)%	0.0%
Other permanent differences	0.0%	(0.6)%
Uncertain Tax Positions	(2.5)%	0.9%
Prior year reconciling items	0.3%	(3.3)%
Effective tax rate	<u>(3.5)%</u>	<u>(90.3)%</u>

The difference between the effective rate and statutory rate in 2020 primarily resulted from a change in valuation allowance, permanent differences, accruals related to uncertain tax positions for certain foreign tax contingencies, foreign restructuring and the tax impact of stock compensation forfeitures.

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Deferred income taxes arise from temporary differences between the tax bases of assets and liabilities and their reported amounts in the consolidated financial statements. A summary of the tax effect of the significant components of the deferred income tax assets and liabilities is as follows:

(in thousands)

	As of December 31,	
	2020	2019
Deferred tax assets:		
Net operating loss carryforwards	\$ 5,406	\$ 4,396
Accruals	387	247
Reserves	309	408
Alternative minimum tax credit carryforwards	69	126
Stock-based compensation expense	251	539
Intangible assets	2,362	1,021
Goodwill	995	1,037
Operating lease liability	747	998
Other	271	464
Total deferred tax asset	10,797	9,236
Valuation allowance	(9,165)	(7,576)
Total deferred tax asset less valuation allowance	1,632	1,660
Deferred tax liabilities:		
Software development costs	(164)	(161)
Fixed assets	(22)	(7)
Intangible assets	-	(22)
Indefinite-lived intangibles	(967)	(728)
Operating lease - right of use asset	(379)	(510)
Other	(100)	(175)
Total deferred tax liability	(1,632)	(1,603)
Net deferred tax asset	\$ -	\$ 57

As of December 31, 2019, the Company had a deferred tax asset of \$57 thousand for alternative minimum tax credits which became fully refundable in the first quarter of 2020 with the enactment of the CARES Act. Accordingly, the entire balance was reclassified to a Federal Tax Receivable account during the first quarter.

The Company files tax returns in the United States federal jurisdiction and in several state and foreign jurisdictions. Because of the net operating loss carryforwards, the Company is subject to U.S. federal and state income tax examinations for tax years 2000, and forward, and is subject to foreign tax examinations by tax authorities for the years 2015 and forward. Open tax years related to state and foreign jurisdictions remain subject to examination but are not considered material to our financial position, results of operations or cash flows.

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some or all of the deferred tax assets will not be realized. The Company's ability to realize its deferred tax assets depends primarily upon the preponderance of positive evidence that could be demonstrated by three year cumulative positive earnings, reversal of existing deferred temporary differences, and generation of sufficient future taxable income to allow for the utilization of deductible temporary differences.

As of each reporting date, the Company's management considers new evidence, both positive and negative, that could impact management's view with regard to future realization of deferred tax assets to estimate if sufficient future taxable income will be generated to use the existing deferred tax assets. This analysis is performed on a jurisdiction by jurisdiction basis.

The Company performed an analysis of the valuation allowance position for its worldwide deferred tax assets and determined that a valuation allowance continues to be necessary on its U.S. and foreign deferred tax assets at December 31, 2020.

At December 31, 2020, the Company's largest deferred tax asset was \$6.2 million of net operating losses, excluding the impact of uncertain tax positions. It primarily relates to a U.S. net operating loss carryforward of \$6.2 million; \$4.6 million of the net operating loss carryforward expires in various amounts between 2023 and 2037; \$1.6 million of the net operating loss carryforward is an indefinite lived deferred tax asset. The Company does not believe that it is more likely than not that it will be able to realize its deferred tax assets for its U.S. and foreign deferred tax assets at December 31, 2020, therefore we have maintained a \$9.2 million valuation allowance for our net deferred tax assets.

As of December 31, 2020 and 2019, the Company's consolidated cash and cash equivalents totaled \$6.7 million and \$11.7 million, respectively, including cash and cash equivalents held at non-U.S. entities totaling \$3.1 million and \$4.4 million, respectively. The non-U.S. entities include operating subsidiaries located in China. The Company does not assert permanent reinvestment in China. Accordingly, the Company analyzed the cumulative earnings and profits and determined no US deferred liability exists given aggregated accumulated deficits.

Uncertain Tax Positions

During 2020 and 2019, the Company recorded tax liabilities for certain foreign tax contingencies. The Company recorded these uncertain tax positions in other current liabilities on the consolidated balance sheets.

The following table outlines the Company's uncertain tax liabilities, including accrued interest and penalties for each jurisdiction:

<i>(in thousands)</i>	China		Ukraine		South Korea		UK		U.S.		Total
	Interest and Penalties		Interest and Penalties		Interest and Penalties		Interest and Penalties		Interest and Penalties		
	Tax	Penalties									
Balance, January 1, 2019	\$ 204	\$ 285	\$ 82	\$ 72	\$ 461	\$ 111	\$ -	\$ -	\$ 996	\$ 4	\$ 2,215
Increases	-	33	-	-	93	67	-	-	-	2	195
Decreases	3	-	4	12	-	-	-	-	203	-	222
Balance, December 31, 2019	\$ 201	\$ 318	\$ 78	\$ 60	\$ 554	\$ 178	\$ -	\$ -	\$ 793	\$ 6	\$ 2,188
Increases	13	60	-	-	128	96	45	21	-	3	366
Decreases	-	-	64	50	-	-	-	-	-	-	114
Balance, December 31, 2020	\$ 214	\$ 378	\$ 14	\$ 10	\$ 682	\$ 274	\$ 45	\$ 21	\$ 793	\$ 9	\$ 2,440

16. Capital Stock

The Company's Board of Directors has authorized 62,000,000 total shares of stock of which 60,000,000 are designated as common stock and 2,000,000 are designated as preferred stock. The Board of Directors has the authority to establish one or more classes of preferred stock and to determine, within any class of preferred stock, the preferences, rights and other terms of such class.

As of December 31, 2020, the Company has reserved 6,017,632 shares of common stock for issuance; zero are reserved for shares upon exercise of outstanding stock options and 1,719,732 are reserved for shares upon vesting of restricted stock units. The Company has 1,482,368 shares available for future grants under the Company's 1995 Long-Term Incentive Plan.

17. Stock-Based Compensation

Long-term incentive plan

During 1995, the Company established the 1995 Long-Term Incentive Stock Option Plan (the Plan), which permits the granting of stock options (including incentive stock options and nonqualified stock options) stock appreciation rights, restricted or unrestricted stock awards, phantom stock, performance awards or any combination of these to employees, directors or consultants. The Plan was amended and restated effective April 22, 2016 and expires on April 21, 2026; the total number of shares that could be issued under the Plan is 7,500,000. As of December 31, 2020, 4,297,900 shares have been issued under the Plan, zero stock options and 1,719,732 restricted stock units (RSUs) were outstanding under the Plan, while 1,482,368 shares remain for future grants under the Plan.

The Company recognizes compensation expense on a pro rata straight-line basis over the requisite service period for stock-based compensation awards with both graded and cliff vesting terms. The Company recognizes the cumulative effect of a change in the number of awards expected to vest in compensation expense in the period of change. The Company has not capitalized any portion of its stock-based compensation. The Company's forfeiture rate is based on actuals.

During the years ended December 31, 2020 and 2019, the Company recognized \$0.4 million and \$1.4 million, respectively, of stock-based compensation expense under the fair value method. Accordingly, the Company recognized associated deferred income tax expense (benefits) of \$220 thousand and \$86 thousand, respectively, during the years ended December 31, 2020 and 2019. During the years ended December 31, 2020 and 2019, there were approximately zero and \$93 thousand of stock-based compensation expense related to the change in fair value of cash-settled RSUs, which the Company accounts for as a liability.

Stock options

Options to purchase shares of the Company's common stock under the Plan expire in either seven years or ten years from the date of grant and become exercisable in three, five, or seven installments with a certain percentage of options vesting on the first anniversary of the grant date and additional options vesting on each of the subsequent anniversaries of the grant date, subject to acceleration under certain circumstances.

Information with respect to stock option activity as of and for the year ended December 31, 2020 is as follows:

	Number of Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value (in thousands)	Weighted Average Remaining Contractual Life (Years)
Options outstanding at January 1, 2020	5,000	\$ 1.65		
Options expired	(5,000)	-		
Options outstanding at December 31, 2020	<u>-</u>	-	\$ -	-
Options exercisable at December 31, 2020	<u>-</u>	\$ -	\$ -	-

Information with respect to stock option activity as of and for the year ended December 31, 2019 is as follows:

	Number of Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value (in thousands)	Weighted Average Remaining Contractual Life (Years)
Options outstanding at January 1, 2019	55,000	\$ 1.87		
Options exercised	(50,000)	1.89		
Options outstanding at December 31, 2019	<u>5,000</u>	1.65	\$ -	0.87
Options exercisable at December 31, 2019	<u>5,000</u>	\$ -	\$ -	-

The Company did not grant stock options during the years ended December 31, 2020, and 2019,

The Company received cash for the exercise price associated with stock options exercised of \$0 and \$127 thousand during the years ended December 31, 2020 and 2019, respectively. The total intrinsic value realized by participants on stock options exercised was zero during the years ended December 31, 2020 and 2019, respectively.

Restricted Stock Units

During the years ended December 31, 2020 and 2019, the Company issued RSUs to employees which vest upon the achievement of specific market-based or time-based measures. The fair value for RSU's is calculated based on the stock price on the grant date and expensed ratably over the requisite service period, which ranges between one year and five years. The following table summarizes the information about vested and unvested restricted stock units for the years ended December 31, 2020 and 2019.

	<u>Number of Shares</u>	<u>Weighted Average Fair Value</u>
Nonvested RSUs at January 1, 2019	1,571,525	\$ 1.96
RSUs granted	918,459	2.56
RSUs forfeited	(64,172)	3.12
RSUs vested	<u>(452,087)</u>	<u>3.30</u>
Nonvested RSUs at December 31, 2019	<u>1,973,725</u>	<u>\$ 1.49</u>
Nonvested RSUs at January 1, 2020	1,973,725	\$ 1.49
RSUs granted	689,000	1.09
RSUs forfeited	(534,052)	2.49
RSUs vested	<u>(408,941)</u>	<u>1.67</u>
Nonvested RSUs at December 31, 2020	<u>1,719,732</u>	<u>\$ 1.36</u>

As of December 31, 2020, the Company had \$0.1 million of unrecognized compensation expense related to the RSUs expected to be recognized on a pro-rata straight line basis over a weighted average remaining service period of approximately 0.63 years.

18. Leases

According to ASC 842 *Leases (Topic 842)*, for leases with a term of 12 months or less, a lessee is permitted to make an accounting policy election by class of underlying asset not to recognize lease assets and lease liabilities. If a lessee makes this election, it should recognize lease expense for such leases generally on a straight-line basis over the lease term. Leases generally have remaining terms of one to six years, whereas leases with an initial term of twelve months or less are not recognized on our consolidated balance sheet. We recognize lease expense for minimum lease payments on a straight-line basis over the term of the lease. We maintain leases of office facilities and equipment, and certain leases include options to renew or terminate. Renewal options are exercisable based upon our discretion and vary based on the nature of each lease, with renewal periods generally ranging from one to five years. The term of the lease includes renewal periods, only if we are reasonably certain that we will exercise the renewal option. When determining if a renewal option is reasonably certain of being exercised, we consider several factors, including but not limited to, the cost of moving to another location, the cost of disruption to our operations, the purpose or location of the leased asset and the terms associated with extending the lease.

Operating lease Right-of-Use ("ROU") assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. The operating lease ROU assets represent the lease liability, plus any lease payments made at or before the commencement date, less any lease incentives received. Our real estate leases, which are comprised primarily of office spaces, represent most of our remaining lease liability. Most of our lease payments are fixed, although an immaterial portion of payments are variable in nature. Variable lease payments vary based on changes in facts and circumstances related to the use of the ROU and are recorded as incurred. We use an incremental borrowing rate based on rates available at commencement in determining the present value of future payments.

Lease abandonment

As discussed in Note 6, as of December 31, 2019, management decided to cease-use, abandoned, a portion of several operating lease right of use lease assets in long idled space in our Sykesville office and in DP Engineering’s Fort Worth office. This was decided as part of on the on-going international restructuring plans to right size the organization. Management took steps to ensure the abandoned space was separated from the remaining in use space, end access of all employees to the abandoned sections, and remove any remaining office furniture assets. We applied the abandonment guidance in ASC 360-10-35. We believe “abandonment” means ceasing to use the underlying asset and lacking either the intent or the ability to sublease the underlying asset. Accordingly, lease abandonment restructuring charges incurred relating to the right of use assets for the year ended December 31, 2019 totaled \$1.5 million.

We have lease agreements with lease and non-lease components, which are accounted for as a single lease. We apply a portfolio approach to effectively account for the operating lease ROU assets and liabilities. Lease contracts are evaluated at inception to determine whether they contain a lease and whether we obtain the right to control an identified asset.

The following table summarizes the classification of operating ROU assets and lease liabilities on the consolidated balance sheets (*in thousands*):

Operating Leases	Classification	December 31, 2020	December 31, 2019
Leased Assets			
Operating lease - right of use assets	Long term assets	\$ 1,562	\$ 2,215
Lease Liabilities			
Operating lease liabilities - Current	Other current liabilities	1,138	1,153
Operating lease liabilities	Long term liabilities	1,831	3,000
		<u>\$ 2,969</u>	<u>\$ 4,153</u>

During September 2020, we notified the landlord of our consolidated subsidiary Absolute’s home office of our decision not to renew the lease.

The Company executed a sublease agreement with a tenant to rent out 3,650 square feet from the lease at its Sykesville office on May 1, 2019. This agreement is in addition to the 3,822 of square feet previously subleased, which was entered into on April 1, 2017. The sublease does not relieve the Company of its primary lease obligation. The lessor agreements are both considered operating leases, maintaining the historical classification of the underlying lease. The Company does not recognize any underlying assets for the subleases as a lessor of operating leases. The net amount received from the sublease is recorded within selling, general and administrative expenses.

The table below summarizes the lease income and expenses recorded in the consolidated statements of operations incurred year to date ended December 31, 2020 , (*in thousands*):

Lease Cost	Classification	Twelve months ended December 31, 2020
Operating lease cost (1)	Selling, general and administrative expenses	\$ 780
Short-term leases costs (2)	Selling, general and administrative expenses	36
Sublease income (3)	Selling, general and administrative expenses	(129)
Net lease cost		<u>\$ 687</u>

(1) Includes variable lease costs which are immaterial.

(2) Include leases maturing less than twelve months from the report date.

(3) Sublease portfolio consists of 2 tenants, which sublease parts of our principal executive office located at 1332 Londontown Blvd, Suite 200, Sykesville, MD.

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The Company is obligated under certain noncancelable operating leases for office facilities and equipment. Future minimum lease payments under noncancelable operating leases as of December 31, 2020 are as follows:

(in thousands)

	Gross Future Minimum Lease Payments
2021	\$ 1,260
2022	1,166
2023	631
2024	116
2025	3
Thereafter	-
Total	\$ 3,176
Less: Interest	207
Present value of lease payments	\$ 2,969

The Company has calculated the weighted-average remaining lease term, presented in years below, and the weighted-average discount rate for our operating leases. As noted in our lease accounting policy, the Company uses the incremental borrowing rate as the lease discount rate:

Lease Term and Discount Rate	Twelve months ended December 31, 2020
Weighted-average remaining lease term (years)	
Operating leases	2.64
Weighted-average discount rate	
Operating leases	5.00%

The table below sets out the classification of lease payments in the consolidated statements of cash flows. There was no right-of-use assets obtained in exchange for operating lease liabilities represent new operating leases obtained through our business combination during the year to date ended December 31, 2020:

(in thousands)

Cash paid for amounts included in measurement of liabilities	Twelve months ended December 31,	
	2020	2019
Cash paid for amounts included in measurement of liabilities	\$ 1,314	\$ 1,275
Right-of-use assets obtained in exchange for new operating lease liabilities	\$ -	\$ 1,777

19. Employee Benefits

The Company has a qualified defined contribution plan that covers all U.S. employees under Section 401(k) of the Internal Revenue Code. Under this plan, the Company's stipulated basic contribution matches a portion of the participants' contributions based upon a defined schedule for GSE Performance Improvement Solutions employees. The Company's contributions to the plan were approximately \$260 thousand and \$290 thousand for the years ended December 31, 2020 and 2019, respectively.

20. Segment Information

The Company has two reportable business segments.

The Performance Improvement Solutions segment provides simulation, training and engineering products and services delivered across the breadth of industries we serve. Solutions include simulation for both training and engineering applications. Example engineering services include, but are not limited to, plant design verification and validation, thermal performance evaluation and optimization programs, and engineering programs for plants for ASME code and ASME Section XI. The Company provides these services across all market segments through our Performance, True North consulting, and DP Engineering subsidiaries. Example training applications include turnkey and custom training services. Contract terms are typically less than two years.

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On February 15, 2019, through our wholly-owned subsidiary GSE Performance Solutions, Inc., the Company entered into the DP Engineering Purchase Agreement, to purchase 100% of the membership interests in DP Engineering. DP Engineering is a provider of value-added technical engineering solutions and consulting services to nuclear power plants with an emphasis on preparation and implementation of design modifications during plant outages. For reporting purposes, DP Engineering is included in our Performance segment due to similarities in services provided including engineering solutions and implementation of design modifications to the nuclear power sector.

The Nuclear Industry Training and Consulting segment provides specialized workforce solutions primarily to the nuclear industry, working at clients' facilities. This business is managed through our Hyperspring and Absolute subsidiaries. The business model, management focus, margins and other factors clearly separate this business line from the rest of the GSE product and service portfolio.

The following table sets forth the revenue and operating results attributable to each reportable segment and includes a reconciliation of segment revenue to consolidated revenue and operating results to consolidated income before income tax expense (benefit). Inter-segment revenue is eliminated in consolidation and is not significant.

(in thousands)

	Years ended December 31,	
	2020	2019
Revenue:		
Performance Improvement Solutions	\$ 32,790	\$ 45,776
Nuclear Industry Training and Consulting	24,830	37,199
Total revenue	\$ 57,620	\$ 82,975
Operating loss		
Performance Improvement Solutions	\$ (2,683)	\$ (205)
Nuclear Industry Training and Consulting	(2,076)	(1,617)
Litigation	(477)	-
Loss on impairment	(4,302)	(5,597)
Operating loss	\$ (9,538)	\$ (7,419)
Interest expense	(623)	(988)
Loss on derivative instruments, net	(17)	(13)
Other (expense) income, net	(4)	2,068
Loss before income taxes	\$ (10,182)	\$ (6,352)

Additional information relating to segments is as follows:

(in thousands)

	December 31,	
	2020	2019
Performance Improvement Solutions	\$ 25,845	\$ 41,550
Nuclear Industry Training and Consulting	13,345	16,959
Total assets	\$ 39,190	\$ 58,509

For the years ended December 31, 2020 and 2019, 89% and 90%, respectively, of the Company's consolidated revenue was from customers in the nuclear power industry. The Company designs, develops and delivers business and technology solutions to the energy industry worldwide. Revenue, operating income (loss) and total assets for the Company's United States, European, and Asian subsidiaries as of and for the years ended December 31, 2020 and 2019 are as follows:

(in thousands)

	Year ended December 31, 2020				
	United States	Europe	Asia	Eliminations	Consolidated
Revenue	\$ 56,628	\$ -	\$ 992	\$ -	\$ 57,620
Transfers between geographic locations	465	-	31	(496)	-
Total revenue	\$ 57,093	\$ -	\$ 1,023	\$ (496)	\$ 57,620
Operating income (loss)	\$ (13,041)	\$ 3,231	\$ 272	\$ -	\$ (9,538)
Total assets, at December 31	\$ 161,672	\$ 2,679	\$ 3,191	\$ (128,352)	\$ 39,190

(in thousands)

	Year ended December 31, 2019				
	United States	Europe	Asia	Eliminations	Consolidated
Revenue	\$ 81,597	\$ -	\$ 1,378	\$ -	\$ 82,975
Transfers between geographic locations	623	-	124	(747)	-
Total revenue	\$ 82,220	\$ -	\$ 1,502	\$ (747)	\$ 82,975
Operating income (loss)	\$ (7,710)	\$ 54	\$ 237	\$ -	\$ (7,419)
Total assets, at December 31	\$ 184,115	\$ 3,526	\$ 2,805	\$ (131,937)	\$ 58,509

Revenues by geographic location above are attributed to the contracting entity. Therefore, revenues from a foreign customer that contracted directly with our U.S. entity are included in revenues from the United States. All revenues in Asia were attributable to our Chinese subsidiary.

Alternatively, revenue from customers domiciled in foreign countries were approximately 17% and 16%, of the Company's consolidated 2020 and 2019 revenue, respectively. Revenue from foreign countries where our customers reside were all individually less than 10% of the Company's consolidated revenue during 2020 and 2019.

21. Supplemental Disclosure of Cash Flow Information

(in thousands)

	Year ended December 31,	
	2020	2019
Cash paid for interest and income taxes:		
Interest	\$ 532	\$ 989
Income taxes	\$ 194	\$ 489
Noncash activity of financing insurance premium	\$ 813	\$ -

22. Non-consolidated Variable Interest Entity

The Company, through its wholly owned subsidiary DP Engineering, effectively holds a 48% membership interest in DP-NXA Consultants LLC ("DP-NXA").

DP-NXA was established to provide industrial services that include civil, structural, architectural, electrical, fire protection, plumbing, mechanical consulting engineering services to customers. DP-NXA sub-contracts their work to its two owners, NXA Consultants LLC ("NXA"), which owns 52% of the entity, and DP Engineering. DP Engineering and NXA contributed \$48 and \$52, respectively, for 48% and 52% interest in DP-NXA. DP Engineering recorded the contributed cash as an equity investment.

The Company evaluated the nature of DP Engineering's investment in DP-NXA and determined that DP-NXA is a variable interest entity ("VIE"). Since the Company does not have the power to direct activities that most significantly impact DP-NXA, it cannot be DP-NXA's primary beneficiary. Furthermore, the Company concluded that it did not hold a controlling financial interest in DP-NXA since NXA, the VIE's majority owner, makes all operational and business decisions. The Company accounts for its investment in DP-NXA using the equity method of accounting due to the fact the Company exerts significant influence with its 48% of membership interest, but does not control the financial and operating decisions.

The Company's maximum exposure to any losses incurred by DP-NXA is limited to its investment. As of December 31, 2020, the Company has not made any additional contributions to DP-NXA and believes its maximum exposure to any losses incurred by DP-NXA was not material. As of December 31, 2020, the Company does not have existing guarantee with or to DP-NXA, or any third-party work contracted with it.

For the year ended December 31, 2020, the carrying value of the investment in DP-NXA was zero. We do not have any investment income or loss from DP-NXA for the year ended December 31, 2020.

23. Commitments and Contingencies

Joyce v. Absolute Consulting, Inc.

On March 29, 2019, a former employee of Absolute Consulting, Inc., filed a putative class action against Absolute and the Company, *Joyce v. Absolute Consulting Inc.*, case number 1:19 cv 00868 RDB, in the United States District Court for the District of Maryland. The lawsuit alleged that the plaintiff and certain other employees were not properly compensated for overtime hours worked. The Company was subsequently dismissed from the case, leaving Absolute as the sole defendant.

On August 17, 2020, Absolute entered into a Settlement Agreement with the plaintiffs, with a maximum settlement amount of \$1.5 million, which required Court approval. On September 8, 2020, the Settlement Agreement between Absolute and the plaintiffs was ratified by the Court, and the case was dismissed, although the parties remain bound by the terms of the settlement agreement. Following Court approval, Absolute made an initial payment toward the settlement amount, including legal fees, of \$625 thousand. After the passing of an opt-in notice period expired, the final cost of settling this case, including plaintiff's attorney fees was approximately \$1.4 million. Approximately \$713 thousand of the settlement amount was paid out prior to December 31, 2020, with approximately \$715 thousand of the remaining balance paid out in 2021.

On September 29, 2020, the Company received \$952 thousand from a general escrow account, originally set up as part of the Company's purchase of Absolute during fiscal 2017. The Company presented the loss on Joyce legal settlement and the benefit from the proceeds from the release of escrow from the Absolute transaction in selling, general and administrative expenses, in the amount of \$477 thousand for the year ended December 31, 2020.

Per *ASC 450 Accounting for Contingencies*, the Company reviews potential items and areas where a loss contingency could arise. In the opinion of management, we are not a party to any legal proceeding, the outcome of which, in management's opinion, individually or in the aggregate, would have a material effect on our consolidated results of operations, financial position or cash flows, other than as noted above. We expense legal defense costs as incurred.

The Company is involved in litigation in the ordinary course of business. While it is too early to determine the outcome of such matters, management does not expect the resolution of these matters to have a material impact on the Company's financial position or results of operations.

24. Contingent Consideration

Acquisitions may include contingent consideration payments based on future financial measures of an acquired company. Under *ASC 805, Business Combinations*, contingent consideration is required to be recognized at fair value as of the acquisition date. We estimate the fair value of these liabilities based on financial projections of the acquired companies and estimated probabilities of achievement. At each reporting date, the contingent consideration obligation is revalued to estimated fair value and changes in fair value subsequent to the acquisition are reflected in income or expense in the consolidated statements of operations and could cause a material impact to our operating results. Changes in the fair value of contingent consideration obligations may result from changes in discount periods and rates, changes in the timing and amount of revenue and/or earnings estimates and changes in probability assumptions with respect to the likelihood of achieving the various earn-out criteria.

In connection with the acquisition of DP Engineering on February 15, 2019, the Company recognized the estimated fair value of contingent consideration for \$1.2 million. During the year ended December 31, 2019, as a result of the triggering event described in Note 7, an impairment test was conducted on DP Engineering's goodwill and definite-lived intangible assets and the Company determined the \$1.2 million of contingent consideration recognized upon acquisition of DP Engineering has reduced to zero since the related earn-out payment is no longer expected to be paid. We have recorded this reduction as an offset to selling, general and administrative expenses in the 2019 consolidated statements of operations. There was zero contingent liability as of December 31, 2020.

25. Subsequent Events

On March 29, 2021, due to a projected violation of Q1 2021 leverage ratio, we signed the Ninth Amendment and Reaffirmation Agreement with an effective date of March 29, 2021, with our bank to waive the fixed charge coverage ratio and leverage ratio for the quarters ending March 31 and June 30, 2021, and we agreed, for each quarter hereafter, fixed charge coverage ratio shall not be less than 1.10 to 1.00. In addition, we agreed to not exceed a maximum leverage ratio and starting on September 30, 2021 as follows: (i) 3.25 to 1.00 for the period ending September 30, 2021; (ii) 3.00 to 1.00 for the period ending on December 31, 2021, (iii) 2.75 to 1.00 for the period ending March 31, 2022; (iv) 2.50 to 1.00 for the period ending June 30, 2022 and (iv) 2.00 to 1.00 for the periods ending September 30, 2022 and each December 31st, March 31st, June 30th and September 30th thereafter. We are also required to maintain a minimum of \$2.5 million in aggregate USA liquidity. As part of the amendment, we agreed, at closing, (i) to make a \$0.5 million pay down of RLOC; (ii) RLOC commitment to be reduced to \$4.25 million; and (iii) \$0.5 million of RLOC will only be available for issuance of Letters of Credit. We also agreed to pay \$0.5 million to reduce RLOC to \$3.75 million by June 30, 2021 and to \$3.5 million by September 30, 2021. Commencing December 31, 2021 and on the last day of each quarter, we will pay \$75 thousand to reduce the RLOC. We incurred \$25 thousand of amendment fee related to this amendment. December 31, 2020.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE.

None.

ITEM 9A. CONTROLS AND PROCEDURES.

(a) Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures that are designed to ensure that information required to be disclosed by it in its reports filed or submitted pursuant to the Securities Exchange Act of 1934, as amended (the Exchange Act), is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms and that information required to be disclosed by the Company in its Exchange Act reports is accumulated and communicated to management, including the Company's Chief Executive Officer (CEO), who is its principal executive officer, and Chief Financial Officer (CFO), who is its principal financial officer, to allow timely decisions regarding required disclosure. Based on an evaluation of our disclosure controls and procedures as of December 31, 2020, our CEO and CFO concluded that, as of such date, our disclosure controls and procedures were effective.

(b) Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Our internal control over financial reporting is a process designed by, or under the supervision of, our CEO and CFO, 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.

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Management, including our CEO and CFO, assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2020. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013). Based on management's assessment, management has concluded that the Company's internal control over financial reporting was not effective as of December 31, 2020 due to the existence of the material weakness in internal control over management review of reconciliations over unbilled receivables and billings in excess of revenue earned.

We evaluated the severity of the identified errors resulting from this material weakness and expanded our analysis to assess if the root cause of the issue impacted other controls or account balances. We concluded that the material weakness was limited to the reconciliation of the accounts noted above. No further issues were identified through expanded testing. Management recognizes there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements might not be prevented or detected timely.

Through the work to identify and isolate the errors in our balance sheet reconciliation controls, new procedures have been implemented for the reconciliations that failed to establish full documentation for reconciling items and plan their resolution. In concert with remediation, redesign and reperformance of these reconciliations, we have initiated these new procedures to ensure their continued performance.

As a result of the material weakness described above, our CEO and CFO concluded that the Company did not maintain effective internal control over financial reporting as of December 31, 2020, based on the Internal Control - Integrated Framework (2013) issued by the COSO.

(c) Changes in Internal Control over Financial Reporting

In connection with the preparation of our consolidated financial statements as of and for the year ended December 31, 2019, we had identified two material weaknesses in our internal control (1) misapplication of U.S. GAAP guidance in our evaluation of significant or unusual transactions (2) inadequate design and effectiveness of controls in our financial reporting closing process relating to journal entry review and approval, balance sheet reconciliation preparation and review, and monthly flux variance analysis controls.

To remediate these material weaknesses as of December 31, 2020 Management (i) hired dedicated staffing including a permanent Controller, (ii) made revisions of controls to facilitate proper application of guidance, and (iii) implemented substantial remedial measures including shortening the close process, creating new revenue process tools and controls, and expanding its mitigating controls. Further, Management redesigned the tools used in its monthly flux reviews to evaluate differences at a more precise level in order to identify and prevent errors in the financial close process.

Through Management's evaluation of controls as of December 31, 2020 it was determined that the prior year material weakness related to misapplication of U.S. GAAP was fully remediated. For the material weaknesses related to controls over financial reporting close, management has remediated all but a subset of the underlying internal controls weaknesses. The remaining unremediated component of the material weakness is management's review of reconciliations over unbilled receivables and billings in excess of revenue earned. Our remediation of the remaining control weakness includes the hiring of additional skilled personnel to prepare and review reconciliations over unbilled receivables and billings in excess of revenue earned. In the interim, we will utilize members of the financial management team to perform the review of such reconciliations.

Other than described above, there were no changes in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2020 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION.

The Board of Directors of GSE Systems, Inc., a Delaware corporation (the "Company"), has set the date of the 2021 Annual Meeting of Stockholders (the "2021 Annual Meeting") for June 15, 2021, at 9:00 am Eastern Time, with a record date of April 16, 2021, to be held at 6724 Alexander Bell Drive, Hub Spot Conference Center, Suite 105, Columbia, Maryland 21046. The deadline for the receipt of any stockholder proposals and director nominations to be considered at the 2021 Annual Meeting are set forth below.

Because the annual meeting is being advanced by more than 30 calendar days, any stockholder proposal submitted pursuant to Rule 14a-8 under the Securities Exchange Act of 1934, as amended ("Rule 14a-8"), for inclusion in the Company's proxy materials for the 2021 Annual Meeting must be received by our Secretary at our principal executive offices (GSE Systems, Inc., c/o Secretary, 6940 Columbia Gateway Drive, Suite 470, Columbia, Maryland 21046) a reasonable time before the company begins to print and send its proxy materials, and must otherwise comply with the requirements of Rule 14a-8 of the Exchange Act. The Company presently intends to print its proxy materials on approximately April 23, 2021.

In addition, the Company's Third Amended and Restated Bylaws (the "Bylaws") establish an advance notice procedure for stockholders who wish to present certain matters before an annual meeting of stockholders without including those matters in the Company's proxy statement. Such proposals, including the information required by the Bylaws, must be received at the Company's principal executive offices c/ GSE Systems, Inc., c/o Secretary, 6940 Columbia Gateway Drive, Suite 470, Columbia, Maryland 21046, no later than April 23, 2021, at 5:00 pm ET (*i.e.*, the close of business on the 10th day following the day on which the Company's notice of the date of the meeting was mailed or other public disclosure of the annual meeting date is first made). A stockholder's notice to the Company must set forth, as to each matter the stockholder proposes to bring before an annual meeting, the information required by the Bylaws.

If a stockholder fails to give notice of a stockholder proposal as required by the Bylaws or other applicable requirements (including those attendant to the Exchange Act), then the proposal will not be included in the proxy statement for our 2021 annual meeting of stockholders and the proposal will not be presented to the stockholders for a vote at the 2021 annual meeting of stockholders.

Copies of the Company's Bylaws are available to stockholders without charge upon request to the Corporate Secretary at the Company's address set forth above.

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.

The information required by this item, including items 401, 405, 406 and 407 of Regulation S-K, is incorporated by reference to the section captioned “Directors and Executive Officers” in the definitive Proxy Statement for the Company’s 2021 Annual Meeting of Shareholders and incorporated herein by reference or will be provided in an amendment to this Annual Report on Form 10-K.

The Company has adopted a Conduct of Business Policy that applies to its directors, officers, and employees, including its principal executive officer, and principal financial officer. The Conduct of Business Policy is available on the Company’s website at www.gses.com. In addition, the Company has adopted a Code of Ethics for its principal executive officer and senior financial officers which is also available on the Company’s website. The Company will post on its website information about any amendment to, or waiver from, any provision of the Code of Ethics that applies to its principal executive officer, principal financial officer, or principal accounting officer.

ITEM 11. EXECUTIVE COMPENSATION.

The information required by this item will either be set forth under the “*Executive Compensation*” section in the definitive Proxy Statement for the 2021 Annual Meeting of Shareholders and incorporated herein by reference or will be provided in an amendment to this Annual Report on Form 10-K.

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

The information required by this item will be either set forth under the sections captioned “*Voting Securities and Principal Holders Thereof*,” and “*Executive Compensation*” in the definitive Proxy Statement for the 2021 Annual Meeting of Shareholders and incorporated herein by reference or will be provided in an amendment to this Annual Report on Form 10-K.

The following table sets forth the equity compensation plan information for the year ended December 31, 2020:

Plan Category		Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights (a)	Weighted Average Exercise Price of Outstanding Options, Warrants and Rights (b)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)) (c)
Equity compensation plans approved by security holders	Options	-	\$ -	
	RSUs	1,719,732	\$ 1.36	
		1,719,732	\$ 1.36	1,482,368
Equity compensation plans not approved by security holders		-	\$ -	-
Total		1,719,732	\$ 1.36	1,482,368

Table above excludes 180,000 RSUs granted under the Company’s 1995 Long-Term Incentive Plan that are settled in cash instead of shares.

For a description of the material terms of our stock-based compensation plans, see Notes to the consolidated financial statements in Item 8 of this report.

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

The information required by this item will be either set forth under the “*Directors and Executive Officers*” section in the definitive Proxy Statement for the 2021 Annual Meeting of Shareholders and incorporated herein by reference or will be provided in an amendment to this Annual Report on Form 10-K.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES.

The information required by this item will be either set forth under the “*Audit Committee Pre-Approval of Audit and Non-Audit Services*” section in the definitive Proxy Statement for the 2021 Annual Meeting of Shareholders and incorporated herein by reference or will be provided in an amendment to this Annual Report on Form 10-K.

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

(a) (1) List of Financial Statements

The following financial statements are included in Item 8:

GSE Systems, Inc. and Subsidiaries

Report of Independent Registered Public Accounting Firms
Consolidated Balance Sheets as of December 31, 2020 and 2019
Consolidated Statements of Operations for the years ended December 31, 2020 and 2019
Consolidated Statements of Comprehensive Loss for the years ended December 31, 2020 and 2019
Consolidated Statements of Changes in Stockholders' Equity for the years ended December 31, 2020 and 2019
Consolidated Statements of Cash Flows for the years ended December 31, 2020 and 2019
Notes to Consolidated Financial Statements

(a) (2) List of Schedules

All other schedules to the consolidated financial statements are omitted as the required information is presented in the consolidated financial statements or related notes.

(a) (3) List of Exhibits

The Exhibits which are filed with this report or which are incorporated by reference are set forth in the Exhibit index hereto.

ITEM 16. FORM 10-K SUMMARY.

None.

Exhibit Description of Exhibits

2. Plan of acquisition, reorganization, arrangement, liquidation, or succession

[2.1](#) Membership Interests Purchase Agreement, dated as of November 14, 2014, by and between Dale Jennings, Paul Abbott, Shawn McKeever and Mickey Ellis and GSE Performance Solutions, Inc. Incorporated herein by reference to Exhibit 2.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on November 17, 2014.

[2.2](#) Amendment to Membership Interests Purchase Agreement, dated as of May 13, 2015. Incorporated herein by reference to Exhibit 10.2 of GSE Systems, Inc. Form 10-Q filed with the Securities and Exchange Commission on May 14, 2015.

[2.3](#) Stock Purchase Agreement, dated as of September 20, 2017, by and among GSE Systems, Inc., through its wholly owned subsidiary GSE Performance Solutions, Inc., Richard and Cynthia Linton (and certain trusts owned thereby) and Absolute Consulting, Inc. Incorporated herein by reference to Exhibit 2.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on September 20, 2017.

[2.4](#) Membership Interest Purchase Agreement, dated as of May 11, 2018, between True North Consulting LLC, Donald R. Horn, Jenny C. Horn, GSE Performance Solutions, Inc., and Donald R. Horn in his capacity as Seller Representative. Incorporated herein by reference to Exhibit 2.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on May 14, 2018.

[2.5](#) Membership Interest Purchase Agreement, dated as of February 15, 2019, between DP Engineering Co. Ltd., Steven L. Pellerin, Christopher A. Davenport, GSE Performance Solutions, Inc., and Steven L. Pellerin in his capacity as Seller Representative. Incorporated herein by reference to Exhibit 2.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on February 19, 2019.

3. Articles of Incorporation and Bylaws

[3.1](#) Restatement of Certificate of Incorporation dated November 14, 2016. Incorporated herein by reference to Exhibit 3.1 of GSE Systems, Inc. Form 10-Q filed with the Securities and Exchange Commission on November 14, 2016.

[3.2](#) Amendment to the Certificate of Incorporation of GSE Systems, Inc. Incorporated herein by reference to Exhibit 3.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on June 15, 2018.

[3.3](#) Third Amended and Restated Bylaws of GSE Systems, Inc. Incorporated herein by reference to Exhibit 3.2 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on September 16, 2016.

[3.4](#) First Amendment to the Third Amended and Restated Bylaws of GSE Systems, Inc. Incorporated herein by reference to Exhibit 3.2 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on June 15, 2018.

10. Material Contracts

[10.1](#) Office Lease Agreement between 1332 Londontown, LLC and GSE Systems, Inc. (dated as of February 27, 2008). Incorporated herein by reference to Exhibit 10.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on March 11, 2008.

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10.2	Amendment of Lease to Office Lease Agreement, dated May 28, 2008. Incorporated herein by reference to Exhibit 10.20 of GSE Systems, Inc. Form 10-K filed with the Securities and Exchange Commission on March 19, 2015.
10.3	Second Amendment of Lease to Office Lease Agreement, dated July 22, 2010. Incorporated herein by reference to Exhibit 10.21 of GSE Systems, Inc. Form 10-K filed with the Securities and Exchange Commission on March 19, 2015.
10.4	Third Amendment of Lease to Office Lease Agreement, dated May 15, 2012. Incorporated herein by reference to Exhibit 10.22 of GSE Systems, Inc. Form 10-K filed with the Securities and Exchange Commission on March 19, 2015.
10.5	Fourth Amendment of Lease to Office Lease Agreement, dated April 15, 2014. Incorporated herein by reference to Exhibit 10.1 of GSE Systems, Inc. Form 10-Q filed with the Securities and Exchange Commission on May 15, 2014.
10.6	GSE Systems, Inc. 1995 Long-Term Incentive Plan, amended and restated, dated as of March 6, 2014. Incorporated herein by reference to Exhibit A of GSE Systems, Inc. Form DEF 14A filed with the Securities and Exchange Commission on April 29, 2014. *
10.7	Form of Option Agreement Under the GSE Systems, Inc. 1995 Long-Term Incentive Plan. Incorporated herein by reference to GSE Systems, Inc. Form 10-K filed with the Securities and Exchange Commission on March 31, 1997. *
10.8	Form of Restricted Share Unit Agreement pursuant to the GSE Systems, Inc. 1995 Long-Term Incentive Plan, as amended and restated, dated as of April 22, 2016. Incorporated herein by reference to Exhibit 10.2 of GSE Systems, Inc. Form 10-Q filed with the Securities and Exchange Commission on November 14, 2016.*
10.9	Form of Amendment to Restricted Share Unit Agreement, dated July 1, 2016. Incorporated herein by reference to Exhibit 99.8 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on July 1, 2016. *
10.10	Employment Agreement, dated July 1, 2016, between GSE Systems, Inc. and Emmett A. Pepe. Incorporated herein by reference to Exhibit 99.2 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on July 5, 2016. *
10.11	Amendment to Employment Agreement between Emmett Pepe and GSE Systems, Inc. dated as of June 12, 2017. Incorporated herein by reference to Exhibit 99.4 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on June 16, 2017.*
10.12	Amendment No. 2 to Employment Agreement between GSE Systems, Inc. and Emmett Pepe, dated as of January 11, 2019. Incorporated herein by reference to Exhibit 99.3 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on January 11, 2019.*
10.13	Employment Agreement between Bahram Meyssami and GSE Systems, Inc. dated as of December 1, 2015. Incorporated herein by reference to Exhibit 10.1 of GSE Systems, Inc. Form 10-Q filed with the Securities and Exchange Commission on May 15, 2017.*
10.14	Amendment to Employment Agreement between Bahram Meyssami and GSE Systems, Inc. dated as of June 12, 2017. Incorporated herein by reference to Exhibit 99.3 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on June 16, 2017.*

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10.15	Employment Agreement between Kyle J. Loudermilk and GSE Systems, Inc., dated as of July 1, 2015. Incorporated herein by reference to Exhibit 10.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on July 31, 2015.*
10.16	Amendment to Employment Agreement between Kyle J. Loudermilk and GSE Systems, Inc., dated as of June 12, 2017. Incorporated herein by reference to Exhibit 99.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on July 1, 2016.*
10.17	Amendment No. 2 to Employment Agreement between Kyle Loudermilk and GSE Systems, Inc. dated as of June 12, 2017. Incorporated herein by reference to Exhibit 99.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on June 16, 2017.*
10.18	Amendment No. 3 to Employment Agreement, dated January 11, 2019, between GSE Systems, Inc. and Kyle J. Loudermilk. Incorporated herein by reference to Exhibit 99.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on January 11, 2019.*
10.19	Restricted Share Unit Agreement between Kyle J. Loudermilk and GSE Systems, Inc., dated as of July 1, 2015. Incorporated herein by reference to Exhibit 10.2 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on July 31, 2015.*
10.20	Amendment to Restricted Share Unit Agreement between Kyle J. Loudermilk and GSE Systems, Inc., dated as of July 1, 2016. Incorporated herein by reference to Exhibit 99.2 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on July 1, 2016.*
10.21	Restricted Share Unit Agreement (Cash Award) between Kyle J. Loudermilk and GSE Systems, Inc., dated as of July 1, 2016. Incorporated herein by reference to Exhibit 99.3 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on July 1, 2016.*
10.22	Restricted Share Unit Agreement (Common Stock Award) between Kyle J. Loudermilk and GSE Systems, Inc., dated as of July 1, 2016. Incorporated herein by reference to Exhibit 99.4 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on July 1, 2016.*
10.23	Restricted Share Unit Agreement between Emmett A. Pepe and GSE Systems, Inc., dated as of July 1, 2016. Incorporated herein by reference to Exhibit 99.3 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on July 5, 2016.*
10.24	Restricted Share Unit Agreement between Bahram Meyssami and GSE Systems, Inc. dated as of December 1, 2015. Incorporated herein by reference to Exhibit 10.2 of GSE Systems, Inc. Form 10-Q filed with the Securities and Exchange Commission on May 15, 2017.*
10.25	Amendment to Restricted Share Unit Agreement between Bahram Meyssami and GSE Systems, Inc. dated as of July 1, 2016. Incorporated herein by reference to Exhibit 10.3 of GSE Systems, Inc. Form 10-Q filed with the Securities and Exchange Commission on May 15, 2017.*
10.26	Credit and Security Agreement, by and between Citizens Bank, National Association, GSE Systems, Inc. and GSE Performance Solutions, Inc., dated December 29, 2016. Incorporated herein by reference to Exhibit 99.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on January 4, 2017.

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10.27	Amended and Restated Credit and Security Agreement, dated as of May 11, 2018, by and among Citizens Bank, National Association, as Bank, and GSE Systems, Inc. and GSE Performance Solutions, Inc., as Borrower. Incorporated herein by reference to Exhibit 99.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on May 14, 2018.
10.28	Amendment and Reaffirmation Agreement, dated February 22, 2017, and effective as of December 29, 2016. Incorporated herein by reference to Exhibit 10.36 of GSE Systems, Inc. Form 10-K filed with the Securities and Exchange Commission on March 28, 2017.
10.29	Second Amendment and Reaffirmation Agreement dated as of May 25, 2018. Incorporated herein by reference to Exhibit 10.35 of Form 10-K filed with the Securities and Exchange Commission on June 11, 2020.
10.30	Third Amendment and Reaffirmation Agreement dated as of February 15, 2019, by and among GSE Systems, Inc. and GSE Performance Solutions, Inc., as Borrowers, GSE True North Consulting, LLC, Hyperspring, LLC, Absolute Consulting, Inc. and DP Engineering Ltd. Co., as Guarantors, and Citizens Bank, National Association, as Bank. Incorporated herein by reference to Exhibit 99.1 of GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on February 19, 2019.
10.31	Form of Indemnification Agreement. Incorporated herein by reference to Exhibit 10.38 of Form 10-K filed with the Securities and Exchange Commission on June 11, 2020.
10.32	Fourth Amendment and Reaffirmation Agreement dated as of March 20, 2019, by and among GSE Systems, Inc., and GSE Performance Solutions, Inc., as Borrowers, GSE True North Consulting, LLC, Hyperspring, LLC, Absolute Consulting, Inc., and DP Engineering LLC, as Guarantors, and Citizens Bank, National Association, as Bank. Incorporated herein by reference to Exhibit 10.39 of Form 10-K filed with the Securities and Exchange Commission on June 11, 2020.
10.33	Fifth Amendment and Reaffirmation Agreement, dated as of June 28, 2019, by and among Citizens Bank, National Association, as Bank, and GSE Systems, Inc. and GSE Performance Solutions, Inc. as Borrower, GSE True North Consulting, LLC, Hyperspring, LLC, Absolute Consulting, Inc. and DP Engineering, LLC as Guarantor. Incorporated herein by reference to Exhibit 99.1 of our Current Report on Form 8-K filed with the Securities and Exchange Commission on July 1, 2019.
10.34	Settlement and Release Agreement, dated as of December 30, 2019, by GSE Performance Solutions, Inc., GSE Systems, Inc. and their subsidiaries and affiliate, on the one hand, and Christopher A. Davenport and Steven L. Pellerin, on the other hand, incorporated herein by reference to Exhibit 99.1 of our Current Report on Form 8-K filed with the Securities and Exchange Commission on January 6, 2020.
10.35	Sixth Amendment and Reaffirmation Agreement, dated as of December 31, 2019, by and among Citizens Bank, National Association, as Bank, and GSE Systems, Inc. and GSE Performance Solutions, Inc. as Borrower, GSE True North Consulting, LLC, Hyperspring, LLC, Absolute Consulting, Inc. and DP Engineering, LLC as Guarantor. Incorporated herein by reference to Exhibit 99.1 of our Current Report on Form 8-K filed with the Securities and Exchange Commission on January 8, 2020.
10.36	Seventh Amendment and Reaffirmation Agreement, dated as of March 31 2020, by and among Citizens Bank, National Association, as Bank, and GSE Systems, Inc. and GSE Performance Solutions, Inc. as Borrower, GSE True North Consulting, LLC, Hyperspring, LLC, Absolute Consulting, Inc. and DP Engineering, LLC as Guarantor. Incorporated herein by reference to Exhibit 99.1 of our Current Report on Form 8-K filed with the Securities and Exchange Commission on April 17, 2020.
10.37	Collateral assignment of Rights Under Escrow Agreement dated March 31, 2020, is made by GSE Performance Solutions Inc., in favor of Citizens Bank, National Association. Incorporated herein by reference to Exhibit 10.45 of Form 10-K filed with the Securities and Exchange Commission on June 11, 2020.
10.38	Eighth Amendment and Reaffirmation Agreement, dated as of June 29, 2020, by and among Citizens Bank, National Association, as Bank, and GSE Systems, Inc. and GSE Performance Solutions, Inc. as Borrower, GSE True North Consulting, LLC, Hyperspring, LLC, Absolute Consulting, Inc. and DP Engineering, LLC as Guarantor. Incorporated herein by reference to Exhibit 10.1 of Form 10-Q filed with the Securities and Exchange Commission on November 16, 2020.
10.39	Ninth Amendment and Reaffirmation Agreement, dated as of March 29, 2021, by and among Citizens Bank, National Association, as Bank, and GSE Systems, Inc. and GSE Performance Solutions, Inc. as Borrower, GSE True North Consulting, LLC, Hyperspring, LLC, Absolute Consulting, Inc. and DP Engineering, LLC as Guarantor. Incorporated herein by reference to Exhibit 99.1 of our Current Report on Form 8-K filed with the Securities and Exchange Commission on April 2, 2021.
10.40	Paycheck Protection Note, by and between GSE Systems, Inc. and Citizens Bank, N.A., dated April 23, 2020,. Incorporated herein by reference to Exhibit 99.1 of our Current Report on Form 8-K filed with the Securities and Exchange Commission on April 30, 2020.
14	Code of Ethics
14.1	Code of Ethics for the Principal Executive Officer and Senior Financial Officers. Previously filed in connection with the GSE Systems, Inc. Form 10-K filed with the Securities and Exchange Commission on March 31, 2006 and incorporated herein by reference.

NINTH AMENDMENT AND REAFFIRMATION AGREEMENT

THIS NINTH AMENDMENT AND REAFFIRMATION AGREEMENT is dated as of March 29, 2021 (this "Agreement"), by and among GSE SYSTEMS, INC., a Delaware corporation ("Parent"), GSE PERFORMANCE SOLUTIONS, INC., a Delaware corporation ("GSE Performance" and collectively with Parent, the "Borrowers" and each a "Borrower"), GSE TRUE NORTH CONSULTING, LLC, a Delaware limited liability company ("True North"), HYPERSPRING, LLC, a Delaware limited liability company ("Hyperspring"), ABSOLUTE CONSULTING, INC., a Delaware corporation ("Absolute" and together with True North and Hyperspring collectively, the "Original Guarantors" and each an "Original Guarantor"), DP ENGINEERING, LLC, formerly DP Engineering Ltd. Co., a Delaware limited liability company ("DP Engineering" and together with the Original Guarantors collectively, the "Guarantors" and each a "Guarantor" and together with the Borrowers collectively, the "Loan Parties" and each a "Loan Party"), and CITIZENS BANK, NATIONAL ASSOCIATION (the "Bank"). Capitalized terms used herein but not otherwise defined herein shall have the meanings ascribed to such terms in the Credit Agreement (as defined below) or the Guaranty (as defined below), as applicable.

WHEREAS, pursuant to the terms of that certain Credit and Security Agreement, dated as of December 29, 2016 (as the same may have been amended, renewed, replaced, or supplemented from time to time prior to the Closing Date (as defined in the Credit Agreement), the "Original Credit Agreement"), by and among Borrowers and Bank, the Bank agreed to provide a revolving line of credit to Borrowers in an amount not to exceed \$5,000,000 pursuant to a revolving line of credit note dated as of the Initial Closing Date (as defined in the Credit Agreement) of the Borrowers payable to the order of the Bank (the "RLOC Note");

WHEREAS, Hyperspring executed and delivered a Guaranty and Suretyship Agreement (as the same may have been amended, restated or modified from time to time, the "Hyperspring Guaranty") dated as of December 29, 2016 in favor of Bank in connection with Borrower entering into the Original Credit Agreement;

WHEREAS, Absolute executed and delivered a Guaranty and Suretyship Agreement (as the same may have been amended, restated or modified from time to time, the "Absolute Guaranty") dated as of September 20, 2017 in favor of Bank in connection with the Original Credit Agreement;

WHEREAS, True North executed and delivered a Guaranty and Suretyship Agreement (as the same may have been amended, restated or modified from time to time, the "True North Guaranty") dated as of May 11, 2018 in favor of Bank in connection with the Credit Agreement;

WHEREAS, GSE Performance executed and delivered a Pledge Agreement (as the same may have been amended, restated or modified from time to time, the "GSE Performance Pledge Agreement") dated as of September 20, 2017 in favor of Bank in connection with the Original Credit Agreement;

WHEREAS, Borrowers and Bank entered into that certain Amended and Restated Credit Agreement (as the same may have been amended, restated or modified from time to time, the "Credit Agreement") dated as of May 11, 2018 to continue the RLOC and to provide for a Term Loan Facility in a principal amount up to \$25,000,000;

WHEREAS, Original Guarantors and Bank entered into that certain Security Agreement (as the same may have been amended, restated or modified from time to time, the "Security Agreement") dated as of May 11, 2018;

WHEREAS, pursuant to that certain Amendment and Reaffirmation Agreement dated as of May 11, 2018, the Borrowers, the Original Guarantors and the Bank agreed to amend the terms and conditions of the RLOC Note and the GSE Performance Pledge Agreement;

WHEREAS, pursuant to that certain Second Amendment and Reaffirmation Agreement dated as of May 25, 2018, the Borrowers, the Original Guarantors and the Bank agreed to amend certain terms and conditions of the Credit Documents to reflect the conversion of True North to a Delaware limited liability company;

WHEREAS, on February 15, 2019, (i) GSE Performance acquired all of the membership interests of DP Engineering, (ii) the Borrowers, the Guarantors and the Bank executed that certain Third Amendment and Reaffirmation Agreement dated as of such date and (iii) DP Engineering executed and delivered a (a) Guaranty and Suretyship Agreement (the "DP Engineering Guaranty" and together with the True North Guaranty, the Hyperspring Guaranty and Absolute Guaranty collectively, the "Guaranty") in favor of Bank in connection with the Credit Agreement and (b) Pledge Agreement in favor of Bank in connection with the Credit Agreement;

WHEREAS, pursuant to that certain Fourth Amendment and Reaffirmation Agreement dated as of March 20, 2019, the Borrowers, the Guarantors and the Bank agreed to amend certain terms and conditions of the Credit Documents to reflect the conversion of DP Engineering to a Delaware limited liability company;

WHEREAS, pursuant to that certain Fifth Amendment and Reaffirmation Agreement dated as of June 28, 2019, the Borrowers, the Guarantors and the Bank agreed to amend certain financial covenants in the Credit Agreement;

WHEREAS, pursuant to that certain Sixth Amendment and Reaffirmation Agreement dated December 31, 2019, the Borrowers, the Guarantors and the Bank agreed to amend certain financial covenants in the Credit Agreement;

WHEREAS, pursuant to that certain Seventh Amendment and Reaffirmation Agreement dated March 31, 2020, the Borrowers, the Guarantors, and the Bank agreed to amend certain financial covenants, definitions, and other provisions in the Credit Agreement;

WHEREAS, pursuant to that certain Eighth Amendment and Reaffirmation Agreement dated June 29, 2020, the Borrowers, the Guarantors, and the Bank agreed to the Loan Repayment (as defined therein) and to amend certain financial covenants and other provisions in the Credit Agreement; and

WHEREAS, the parties hereto intend to pay down the RLOC, reduce the RLOC Amount and amend certain financial covenants, definitions, and other provisions in the Credit Agreement as set forth herein.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree, under seal, as follows:

ARTICLE I

Section 1.01 Amendments to Credit Agreement. The Credit Agreement is hereby amended as follows:

(a) The reference to “\$5,000,000 (the “RLOC Amount”)” in Background Paragraph B of the Credit Agreement is hereby deleted and replaced with “the RLOC Amount.”

(b) Subsection 1.1.8 of the Credit Agreement is hereby deleted and replaced with the following new Subsection 1.1.8:

“1.1.8. “Availability Amount” means as of any date of determination, an amount equal to the sum of (a) the RLOC Amount, minus (b) the outstanding principal balance of any Advances, minus (c) the aggregate amount available to be drawn on outstanding Letters of Credit, minus (d) the positive difference between \$500,000 and the aggregate amount to be drawn on outstanding Letters of Credit issued after the Ninth Amendment Date.”

(c) Subsection 1.1.26 of the Credit Agreement is hereby deleted and replaced with the following new Subsection 1.1.26:

“1.1.26. “Consolidated Adjusted EBITDA” means, (i) for the Measurement Period ending September 30, 2021, Consolidated Adjusted EBITDA for the quarters ending June 30, 2021 and September 30, 2021 multiplied by two, (ii) for the Measurement Period ending December 31, 2021, Consolidated Adjusted EBITDA for the quarters ending June 30, 2021, September 30, 2021 and December 31, 2021, multiplied by 4/3rds and (iii) for the Measurement Period ending March 31, 2022 and each period of determination thereafter, Consolidated Net Income for such period plus, without duplication and to the extent reflected as a charge in the statement of such Consolidated Net Income for such period, the sum of (a) income tax expense, (b) interest expense, amortization or write-off of debt discount and debt issuance costs and commissions, discounts and other fees and charges associated with Indebtedness (including the Loan), (c) depreciation and amortization expense, (d) amortization of intangibles (including, but not limited to, goodwill) and organization costs, (e) any extraordinary, unusual or non-recurring non-cash expenses or losses including impairment charges to goodwill and assets classified as discontinued operations, (f) any cash expenditures for extraordinary, unusual or non-recurring costs, expenses, charges or losses not to exceed \$500,000 over any period of four (4) fiscal quarters of the Borrower and its Subsidiaries (including, without limitation, charges incurred in connection with Permitted Acquisitions and unusual or non-recurring operating expenses directly attributable to the implementation of cost savings initiatives, severance costs, relocation costs, integration costs, restructuring costs, other business optimization expenses or reserves, signing costs, retention or completion bonuses, transition costs, costs related to closure/consolidation of facilities or of discontinued operations and curtailments or modifications to pension and post-retirement employee benefit plans), (g) costs, fees and expenses incurred in connection with Permitted Acquisitions or the incurrence, amendment or modification of Indebtedness permitted under this Agreement (including a refinancing thereof), in each case, whether or not successful, (h) any costs, fees and expenses associated with any acquisition, investments, disposition or equity issuance not prohibited by this Agreement, (i) any non-cash losses associated with any disposition not prohibited by this Agreement, (j) any non-cash loss attributable to the mark-to-market movement in the valuation of obligations pursuant to Hedging Contracts, and (k) any non-cash charges related to any deferred compensation plans and minus, (i) to the extent included in the statement of such Consolidated Net Income for such period, the sum of (1) interest income, (2) any extraordinary, unusual or non-recurring income or gains (including, whether or not otherwise includable as a separate item in the statement of such Consolidated Net Income for such period, gains on the sales of assets outside of the ordinary course of business), (3) income tax credits (to the extent not netted from income tax expense), (4) any non-cash gain attributable to the mark-to-market movement in the valuation of obligations pursuant to Hedging Contracts, (5) any cash payments related to any deferred compensation plans, (6) any non-cash gains associated with any disposition not prohibited by this Agreement, and (7) any other non-cash income and (ii) any cash payments made during such period in respect of items described in clause (e) above subsequent to the fiscal quarter in which the relevant non-cash expenses or losses were reflected as a charge in the statement of Consolidated Net Income, all as determined on a consolidated basis; provided, however, that Borrower and Bank shall agree on deemed “Consolidated Adjusted EBITDA” for Subsidiaries acquired by Borrower in a Permitted Acquisition at the time of such Permitted Acquisition for the purpose of calculating “Consolidated Adjusted EBITDA” for the three (3) fiscal quarters following such Permitted Acquisition and thereafter, the actual Consolidated Net Income of Subsidiaries acquired by Borrower in Permitted Acquisitions shall be used for purposes of calculating the financial covenants set forth herein.”

(d) Subsection 1.1.52 of the Credit Agreement is hereby deleted and replaced with the following new Subsection 1.1.52.

“1.1.52. “Fixed Charge Coverage Ratio” means the ratio resulting from dividing (a) Consolidated Adjusted EBITDA for the most recent Measurement Period minus the aggregate cash Unfinanced Capital Expenditures, only to the extent Unfinanced Capital Expenditures exceed \$500,000 for the Measurement Period, minus the aggregate amount of any Distributions, by (b) the sum of Current Portion of Long Term Debt for the most recent Measurement Period plus scheduled maturities of Capital Leases (to the extent not included in Current Portion of Long Term Debt) plus Consolidated Cash Interest Charges for the most recent Measurement Period plus the aggregate amount of federal, state, local and foreign income, valued added, franchise, use or equivalent income type tax expense paid in cash (including any state single business unitary and similar taxes imposed in lieu of income taxes) for the applicable period plus required \$75,000 quarterly payments on RLOC commencing on December 31, 2021.”

(e) The chart in the definition of “Letter of Credit Issuance Fee” in Section 1.1.68 of the Credit Agreement is hereby deleted and replaced with the following chart:

Leverage Ratio	Issuance Fee Percentage
<i>Category 1</i> Greater than or equal to 3.25 to 1.00	3.00%
<i>Category 2</i> Greater than or equal to 3.00 to 1.00, but less than 3.25 to 1.00	2.75%
<i>Category 3</i> Greater than or equal to 2.75 to 1.00, but less than 3.0 to 1.00	2.50%
<i>Category 4</i> Greater than or equal to 2.00 to 1.00, but less than 2.75 to 1.00	2.25%
<i>Category 5</i> Greater than or equal to 1.00 to 1.00, but less than 2.00 to 1.00	2.00%
<i>Category 6</i> Less than 1.00 to 1.00	1.75%

(f) Subsection 1.1.93 of the Credit Agreement is hereby deleted and replaced with the following new Subsection 1.1.93:

“1.1.93. “RLOC Amount” means (i) on the Ninth Amendment Date, \$4,250,000, (ii) on the earlier of June 30, 2021 or the date Borrower makes the second \$500,000 payment required by Subsection 2.1.5(d) hereof, \$3,750,000, (iii) on September 30, 2021, \$3,500,000 and (iv) on December 31, 2021 and on each March 31, June 30, September 30 and December 31 thereafter, the RLOC Amount immediately prior to each such date reduced by \$37,500.”

(g) Subsection 1.1.105 of the Credit Agreement is hereby deleted and replaced with the following new Subsection 1.1.105:

“1.1.105. “Unused Fee Percentage” means 0.55%.

(h) Section 1.1 of the Credit Agreement is hereby amended to add the following definition in the appropriate alphabetical order:

““Ninth Amendment Date” means March 29, 2021.”

(i) Section 2.1.4 of the Credit Agreement is hereby amended to append the following sentence to Section 2.1.4.: “Without limiting the foregoing, on or after the Ninth Amendment Date, the Bank shall have no obligation to issue one or more Letters of Credit to the extent that the sum of (a) the face amount of any Letter of Credit requested to be issued after the Ninth Amendment Date, plus (b) the aggregate amount to be drawn on all outstanding Letters of Credit issued after the Ninth Amendment Date would exceed \$500,000.”

(j) The Credit Agreement is hereby amended to add the following new Subsection 2.1.5(d):

“(d) On the Ninth Amendment Date, Borrower shall pay Bank \$500,000 to be applied to the principal amount outstanding under the RLOC. By June 30, 2021, Borrower shall pay Bank an additional \$500,000 to be applied to the principal amount outstanding under the RLOC. Commencing on December 31, 2021 and on each March 31, June 30, September 30 and December 31 thereafter, Borrower shall pay Bank \$75,000 to be applied to the principal amount outstanding under the RLOC.”

(k) Section 7.1 of the Credit Agreement is hereby deleted and replaced with the following new Section 7.1:

“Section 7.1 Fixed Charge Coverage Ratio. Borrower and its Subsidiaries shall maintain a minimum Fixed Charge Coverage Ratio of 1.10 to 1.00, to be tested quarterly as of the last day of each quarter beginning with the quarter ending September 30, 2021, on rolling four-quarter basis, calculated based on the financial statements received by the Bank in accordance with the terms of this Agreement. Notwithstanding the foregoing, the Borrower’s liabilities and expenses under the PPP Loan shall be excluded in the calculation of Fixed Charge Coverage Ratio for any period of time of determination unless, until and only to the extent it has been finally determined that all or any portion of the Borrower’s PPP Loan will not be forgiven pursuant to Section 1106 of the CARES Act.”

(l)Section 7.2 of the Credit Agreement is hereby deleted and replaced with the following new Section 7.2:

“Section 7.2. Leverage Ratio. Borrower and its Subsidiaries shall not exceed a maximum Leverage Ratio, to be tested quarterly as of the last day of each quarter beginning with the quarter ending September 30, 2021, on a rolling four-quarter basis, calculated based on the financial statements received by the Bank in accordance with the terms of this Agreement, as follows: (i) 3.25 to 1.00 for the period ending on September 30, 2021, (ii) 3.00 to 1.00 for the period ending on December 31, 2021, (iii) 2.75 to 1.00 for the period ending on March 31, 2022, (iv) 2.50 to 1.00 for the period ending on June 30, 2022 and (v) 2.00 to 1.00 for the period ending on September 30, 2022 for the periods ending on each December 31st, March 31st, June 30th and September 30th thereafter. Notwithstanding the foregoing, the Borrower’s liabilities and expenses under the PPP Loan shall be excluded in the calculation of Leverage Ratio for any period of time of determination unless, until and only to the extent it has been finally determined that all or any portion of the Borrower’s PPP Loan will not be forgiven pursuant to Section 1106 of the CARES Act.”

(m)Section 7.4 of the Credit Agreement is hereby deleted and replaced with the following new Section 7.4:

“Section 7.4 Capital Expenditures. Borrower and its Subsidiaries shall not make Capital Expenditures, financed with Indebtedness having an original term longer than twelve (12) months, in excess of Five Hundred Thousand Dollars (\$500,000) in the aggregate, tested quarterly based on the financial statements received by Bank in accordance with this Agreement.”

(n)Section 7.5 of the Credit Agreement is hereby deleted and replaced with the following new Section 7.5: “Section 7.5 Minimum USA Liquidity. Borrower and its Subsidiaries shall maintain a minimum USA Liquidity of at least \$2,500,000.00 in the aggregate, to be tested bi-weekly as of the fifteenth (15th) and the last day of each month beginning on March 31, 2021 and thereafter and to be reported by Borrower to Bank within five (5) Business Days of such measurement date.”

(o)Schedule 8.1 to the Credit Agreement is hereby deleted and replaced with Schedule 8.1 attached hereto.

(p)The chart in the definition of the “Applicable Margin” on Exhibit C to the Credit Agreement is hereby deleted and replaced with the following:

Leverage Ratio	Margin
<i>Category 1</i> Greater than or equal to 3.25 to 1.00	4.00%
<i>Category 2</i> Greater than or equal to 3.00 to 1.00, but less than 3.25 to 1.00	3.75 %
<i>Category 3</i> Greater than or equal to 2.75 to 1.00, but less than 3.00 to 1.00	3.50%
<i>Category 4</i> Greater than or equal to 2.00 to 1.00, but less than 2.75 to 1.00	3.25%
<i>Category 5</i> Greater than or equal to 1.00 to 1.00, but less than 2.00 to 1.00	3.00%
<i>Category 6</i> Less than 1.00 to 1.00	2.75%

ARTICLE II

Reaffirmation

Section 2.01 Reaffirmation.

(a) Each Guarantor hereby: (i) affirms and confirms its guarantee and other commitments and obligations, under the Guaranty, the Security Agreement and any other Credit Documents executed by such Guarantor and (ii) confirms that each guarantee and other commitments and obligations under the Guaranty, the Security Agreement and any other Credit Documents executed by such Guarantor shall continue to be in full force and effect and shall continue to accrue to the benefit of the Bank notwithstanding the effectiveness of the Credit Agreement.

(b) Each Borrower hereby affirms the execution and delivery to Bank of the Credit Documents, and the Credit Documents are continued in full force and effect and are in all respects hereby affirmed and ratified.

ARTICLE III

Representations and Warranties

Each Loan Party, to the extent applicable, hereby represents and warrants, which representations and warranties shall survive execution and delivery of this Agreement, as follows:

Section 3.01 Organization. Each Loan Party is duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization.

Section 3.02 Authority; Enforceability. Each Loan Party has the corporate or limited liability company power to execute, deliver and carry out the terms and provisions of this Agreement and has taken all necessary corporate and other action, to authorize the execution, delivery and performance by it of this Agreement. Each Loan Party has duly executed and delivered this Agreement, and this Agreement constitutes a legal, valid and binding obligation of such Loan Party, enforceable against it in accordance with the terms hereof.

Section 3.03 Credit Documents. The representations and warranties made by each Loan Party and set forth in the Credit Documents are true and correct on and as of the date hereof with the same effect as though made on and as of such date, except to the extent such representations and warranties expressly relate to an earlier date (in which case any such representation and warranty shall have been true and correct as of such earlier date).

ARTICLE IV

Miscellaneous

Section 4.01 Conditions to Effectiveness of Agreement. The Bank's willingness to agree to the amendments set forth in this Agreement is subject to (a) the execution and delivery to the Bank of this Agreement by the Borrowers and Guarantors and (b) the payment by Borrowers to the Bank of (i) \$500,000 to be applied to the principal amount outstanding under the RLOC, (ii) a \$25,000 amendment fee, and (iii) the reasonable fees and expenses of the Bank's outside and in-house counsel in connection with this Agreement.

Section 4.02 Notices. All communications and notices hereunder shall be in writing and given as provided in Section 10.9 of the Credit Agreement or Section 13 of the Guaranty, as applicable.

Section 4.03 Expenses. Each Loan Party acknowledges and agrees that the Bank shall be entitled to reimbursement of expenses as provided in Section 10.2 of the Credit Agreement and Section 10 of the Guaranty, as applicable.

Section 4.04 Credit Document. This Agreement is a "Credit Document" executed pursuant to the Credit Agreement and shall be construed, administered and applied in accordance with the terms and provisions thereof.

Section 4.05 Successors and Assigns. The provisions of this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

Section 4.06 No Novation. Nothing herein contained shall be construed as a substitution or novation of the obligations outstanding under the Credit Documents, which shall remain in full force and effect except as modified by this Agreement and the Credit Agreement.

Section 4.07 Governing Law; Waiver of Jury Trial. This Agreement shall be construed in accordance with and governed by the laws of the State of Delaware. EACH LOAN PARTY HEREBY KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVES ANY RIGHT TO A TRIAL BY JURY IN ANY SUIT, ACTION OR PROCEEDING BROUGHT OR INSTITUTED BY ANY PARTY HERETO OR ANY SUCCESSOR OR ASSIGN OF ANY PARTY, ON OR WITH RESPECT TO THIS AGREEMENT, ANY OF THE OTHER DOCUMENTS, THE COLLATERAL OR THE DEALINGS OF THE PARTIES WITH RESPECT HERETO OR THERETO, WHETHER BY CLAIM OR COUNTERCLAIM.

Section 4.08 Remaining Force and Effect. Except as specifically amended hereby, the Credit Documents remain in full force and effect in accordance with their original terms and conditions.

IN WITNESS WHEREOF, each of the parties hereto has caused this Agreement to be duly executed under seal by its respective authorized officers as of the day and year first above written.

Witness/Attest:

BANK:

CITIZENS BANK, NATIONAL ASSOCIATION

By: */s/ Joseph R. Sileo* (SEAL)
Joseph R. Sileo
Senior Vice President

Witness/Attest:

/s/ Leah Brewster

BORROWERS:

GSE SYSTEMS, INC.

By: */s/ Emmett Pepe* (SEAL)
Emmett Pepe
Chief Financial Officer

Witness/Attest:

/s/ Leah Brewster

GSE PERFORMANCE SOLUTIONS, INC.

By: */s/ Emmett Pepe* (SEAL)
Emmett Pepe
Treasurer

Witness/Attest:

/s/ Leah Brewster

GUARANTORS:

ABSOLUTE CONSULTING, INC.

By: */s/ Emmett Pepe* (SEAL)
Emmett Pepe
Treasurer

Witness/Attest:

/s/ Leah Brewster

HYPERSPRING, LLC

By: */s/ Emmett Pepe* (SEAL)
Emmett Pepe
Treasurer

Witness/Attest:

/s/ Leah Brewster

GSE TRUE NORTH CONSULTING, LLC

By: */s/ Emmett Pepe* (SEAL)
Emmett Pepe
Treasurer

Witness/Attest:

/s/ Leah Brewster

DP ENGINEERING, LLC

By: */s/ Emmett Pepe* (SEAL)
Emmett Pepe
Treasurer

SUBSIDIARIES OF REGISTRANT AT DECEMBER 31, 2020

The following are significant subsidiaries of GSE Systems, Inc. as of December 31, 2020, and the states or jurisdictions in which they are organized. GSE Systems, Inc. owns, directly or indirectly, at least 99% of the voting securities of substantially all of the subsidiaries included below. The names of particular subsidiaries have been omitted because, considered in the aggregate as a single subsidiary, they would not constitute, as of the end of the year covered by this report, a "significant subsidiary" as that term is defined in Regulation S-X under the Securities Exchange Act of 1934.

Name	Place of Incorporation or Organization
GSE Systems Engineering (Beijing) Company, Ltd	Peoples Republic of China
GSE Power Systems AB	Sweden
GSE Process Solutions, Inc.	State of Delaware
GSE Services Company L.L.C.	State of Delaware
GSE Performance Solutions, Inc.	State of Delaware
Hyperspring, LLC	State of Delaware
Absolute Consulting, Inc.	State of Delaware
GSE True North Consulting, LLC	State of Delaware
DP Engineering, LLC	State of Delaware
GSE Systems Slovakia s.r.o	Slovakia

Consent of Independent Registered Public Accounting Firm

GSE Systems, Inc.

We consent to the incorporation by reference in the Registration Statements on Forms S-8 (Nos. 333- 212241, 333-183427, 333-150249 and 333-138702, etc.) of GSE Systems, Inc. of our report dated April 13, 2021, with respect to the consolidated financial statements, which is included in this Annual Report on Form 10-K for the year ended December 31, 2020. Our report contains an explanatory paragraph regarding the Company's ability to continue as a going concern.

/s/ Dixon Hughes Goodman LLP

Tysons, Virginia

April 13, 2021

Consent of Independent Registered Public Accounting Firm

GSE Systems, Inc.
Columbia, Maryland

We hereby consent to the incorporation by reference in the Registration Statements on Forms S-8 (No. 333-212241, 333-183427, 333-150249 and 333-138702) of GSE Systems, Inc. of our report dated June 11, 2020, relating to the consolidated financial statements, which appears in this Form 10-K. Our report contains an explanatory paragraph regarding the Company's ability to continue as a going concern.

/s/ BDO USA, LLP
McLean, Virginia
April 13, 2021

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Kyle J. Loudermilk and Emmett A. Pepe, and each of them, with full power of substitution and reconstitution and each with full power to act for him and without the other, as his true and lawful attorney-in-fact and agent, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission or any state, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their, his or her substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Security Exchange Act of 1934, this Annual Report on Form 10-K has been signed by the following persons in the capacities and on the date indicated.

Date: April 12, 2021

/s/ Kyle J. LoudermilkKyle J. Loudermilk
Chief Executive Officer

Date: April 12, 2021

/s/ Emmett A. PepeEmmett A. Pepe
Chief Financial Officer

Date: April 12, 2021

/s/ Barnie BeasleyBarnie Beasley
Chairman of the Board

Date: April 12, 2021

/s/ William CoreyWilliam Corey
Chairman of the Audit Committee

Date: April 12, 2021

/s/ Kathryn O'Connor GardnerKathryn O'Connor Gardner
Director

Date: April 12, 2021

/s/ Suresh SundaramSuresh Sundaram
Director

Certification of the Chief Executive Officer

I, Kyle J. Loudermilk, certify that:

1. I have reviewed this annual report on Form 10-K of GSE Systems, 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 annual 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 fourth quarter that has materially affected or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors:
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 13, 2021

/s/ Kyle J. Loudermilk
Kyle J. Loudermilk
Chief Executive Officer
(Principal Executive Officer)

Certification of the Chief Financial Officer

I, Emmett A. Pepe, certify that:

1. I have reviewed this annual report on Form 10-K of GSE Systems, 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 registrant's board of directors:
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 13, 2021

/s/ Emmett A. Pepe

Emmett A. Pepe
Chief Financial Officer
(Principal Financial and Accounting Officer)

**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 on Form 10-K of GSE Systems, Inc. (the "Company") for the year ended December 31, 2020 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Kyle J. Loudermilk, Chief Executive Officer of the Company, and I, Emmett A. Pepe, Chief Financial Officer, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that,

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. To my knowledge, the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: April 13, 2021

/s/ Kyle J. Loudermilk
Kyle J. Loudermilk
Chief Executive Officer

/s/ Emmett A. Pepe
Emmett A. Pepe
Chief Financial Officer