

GSE SYSTEMS INC
Form 424B5
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Registration No. 333-161121

Prospectus Supplement
(To Prospectus dated August 21, 2009)

GSE SYSTEMS, INC.

2,500,000 Shares of Common Stock

We are offering 2,500,000 shares of our common stock, par value \$0.01 per share, at a price of \$6.00 per share.

Our common stock trades on the NYSE Amex under the symbol "GVP." The last reported sale price of our common stock on the NYSE Amex on August 31, 2009 was \$6.57 per share.

Investing in our common stock involves risk. See "Risk Factors" beginning on page S-5 of this prospectus supplement and page 5 of the accompanying prospectus.

We will receive the proceeds from all securities sold in this offering less underwriting commissions and discounts and less other expenses we incur in connection with the offering of our common stock.

| | Per Share | Total |
|--|-----------|--------------|
| Price to the public | \$6.00 | \$15,000,000 |
| Underwriting discounts and commissions | \$0.36 | \$900,000 |
| Proceeds, before expenses, to us | \$5.64 | \$14,100,000 |

We have granted the underwriter an option for a period of 30 days from the date of this prospectus supplement to purchase up to an additional 375,000 shares of our common stock from us to cover over-allotments. If the underwriter exercises this option in full, the total underwriting discounts and commissions will be \$1,035,000, and our net proceeds, before expenses, will be \$16,215,000.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The underwriter expects to deliver the shares of our common stock on or about September 4, 2009.

Roth Capital Partners

The date of this prospectus supplement is August 31, 2009.

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You should rely on the information contained in this prospectus supplement, the accompanying prospectus and in the documents incorporated by reference in this prospectus supplement. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not making an offer to sell these securities in any jurisdiction where their offer or sale is not permitted. You should assume that the information appearing in this prospectus supplement is accurate only at the date on the front cover of this prospectus supplement, regardless of the time of delivery of this prospectus supplement or of any sale of the securities. Our business, financial condition, results of operations and prospects may have changed since the date indicated on the front cover of this prospectus supplement.

This prospectus supplement contains summaries of certain provisions contained in some of the documents described herein, and reference is made to the actual documents filed with the United States Securities and Exchange Commission, or SEC, for complete information. You may obtain copies of those documents as described below under "Where You Can Find More Information."

Additional information, including our financial statements for the quarter ended June 30, 2009 and years ended December 31, 2008 and 2007 and the notes related thereto, is incorporated by reference to our periodic reports filed with the SEC.

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a “shelf” registration statement on Form S-3 (File No. 333-161121) that we filed with the Securities and Exchange Commission, or the SEC, and that was declared effective by the SEC on August 21, 2009. This prospectus supplement describes the specific details regarding this offering, including the price, the amount of our common stock being offered, the risks of investing in our common stock and other items. The accompanying prospectus provides more general information. You should read this entire prospectus supplement as well as the accompanying prospectus and the documents incorporated by reference that are described under “Where You Can Find More Information” in this prospectus supplement and the accompanying prospectus. In the event that the description of the offering varies between this prospectus supplement and the accompanying prospectus, you should rely on the information contained in this prospectus supplement.

You should rely only on the information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus prepared by or on behalf of us, or information to which we have referred you. We have not, and the underwriter has not, authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it.

We are not, and the underwriter is not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted.

You should assume that the information appearing in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference is accurate only as of the respective dates of those documents in which the information is contained. Our business, financial condition, results of operations and prospects may have changed since those dates.

Unless otherwise indicated or unless the context otherwise requires, all references in this prospectus supplement and the accompanying prospectus to “our company”, “GSE” or “GSE Systems” or “we” or “us” refer collectively to GSE Systems, Inc., a corporation incorporated in the State of Delaware.

PROSPECTUS SUPPLEMENT SUMMARY

The following summary highlights selected information contained elsewhere in this prospectus supplement, the accompanying prospectus and the documents incorporated herein by reference. This summary does not contain all the information you should consider before investing in our common stock. You should read this prospectus supplement, the accompanying prospectus and the documents, especially the discussion of “Risk Factors” and our consolidated financial statements and the related notes, before deciding to invest in shares of our common stock. In this prospectus supplement, when we use phrases such as “we,” “us,” “our,” “our company” “GSE” or “GSE Systems” we are referring to GSE Systems, Inc.

About GSE Systems

GSE Systems is incorporated under the laws of the State of Delaware and is a leader in real-time, high fidelity simulation.

We provide simulation solutions and services to the nuclear and fossil electric utility industry and the chemical and petrochemical industries. In addition, we provide plant monitoring and signal analysis monitoring and optimization software primarily to the power industry.

Our executive offices are located at 1332 Londontown Boulevard, Suite 200, Sykesville, MD 21784 and our telephone number at that location is (410) 970-7800.

The Offering

| | |
|---|--|
| Issuer | GSE Systems, Inc. |
| Common stock offered by us | 2,500,000 shares |
| Over-allotment option | We have granted the underwriter an option to purchase up to 375,000 additional shares of common stock to cover over-allotments, if any, within 30 days of the date of this prospectus supplement. |
| Common stock estimated to be outstanding immediately after this offering* | 18,545,372 shares (18,920,372 shares if the underwriter exercises in full its option to purchase 375,000 additional shares of common stock) |
| NYSE Amex market symbol | GVP |
| Use of proceeds | We estimate that the net proceeds from the sale of the shares of our common stock in this offering will be \$13,800,000 (\$15,915,000 if the underwriter exercises its over-allotment in full) after payment of underwriting discounts, commissions and our estimated offering expenses. We intend to use all of the net proceeds of this offering for general working capital purposes and to fund acquisitions and other strategic opportunities. See "Use of Proceeds." |
| Risk factors | See "Risk Factors" immediately following this prospectus supplement summary to read about factors you should carefully consider before purchasing shares of our common stock. |

*The total number of shares of common stock outstanding after this offering is based on 16,045,372 shares outstanding as of August 31, 2009, and does not give effect to options and warrants we have granted that are exercisable for 2,229,993 shares of our common stock.

RISK FACTORS

An investment in our common stock involves a high degree of risk. You should carefully consider the following information about these risks, together with the other information contained in this prospectus supplement and accompanying prospectus and in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus, before investing in our common stock. If any of the events anticipated by the risks described below occur, our results of operations and financial condition could be adversely affected which could result in a decline in the market price of our common stock, causing you to lose all or part of your investment.

Risks Related to our Business

Our company's global growth is subject to a number of economic and political risks.

We conduct our operations in North America, Europe, Asia and the Middle East. Global economic developments affect businesses such as GSE, and our operations are subject to the effects of global competition. Our global business is affected by local economic environments, including inflation, recession and currency volatility. Political changes, some of which may be disruptive, can interfere with GSE Systems' supply chain, its customers and all of its activities in a particular location. While some of these risks can be hedged using derivatives or other financial instruments and some are insurable, such attempts to mitigate these risks are costly and not always successful. The current global recession has not yet had a material impact on GSE Systems' business. GSE Systems' backlog as of June 30, 2009 totaled \$62.2 million, a 114% increase over GSE Systems' backlog at June 30, 2008. GSE Systems has seen no significant delays or cancellations to the projects it is currently working on. However, as the recession continues, we may see a significant impact on our operations.

Our company's expense levels are based upon its expectations as to future revenue, so it 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.

GSE Systems' revenue for the six months ended June 30, 2009 was \$18.8 million and was \$29.0 million, and \$31.9 million, for the years ended December 31, 2008 and 2007, respectively. GSE Systems' operating income (loss) was \$1.2 million for the six months ended June 30, 2009 and \$(12,000) and \$2.2 million for the years ended December 31, 2008 and 2007, respectively. GSE Systems' 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 new products and enhancements by GSE Systems and its competitors, and fluctuating global economic conditions. Since GSE Systems' expense levels are based in part on its expectations as to future revenue and includes certain fixed costs, GSE Systems may be unable to adjust spending in a timely manner to compensate for any revenue shortfall and such revenue shortfalls would likely have a disproportionate adverse effect on operating results.

Risk of International Sales and Operations.

Sales of products and services to end users outside the United States accounted for approximately 62% of GSE Systems' consolidated revenue for the six months ended June 30, 2009, 63% of consolidated revenue in 2008, and 71% of consolidated revenue in 2007. GSE Systems anticipates that international sales and services will continue to account for a significant portion of its revenue in the foreseeable future. As a result, GSE Systems may be subject to certain risks, including risks associated with the application and imposition of protective legislation and regulations relating to import or export (including export of high technology products) or otherwise resulting from trade or foreign policy and risks associated with exchange rate fluctuations. Additional risks include potentially adverse tax consequences, tariffs, quotas and other barriers, potential difficulties involving GSE Systems' strategic alliances and managing foreign sales agents or representatives and potential difficulties in accounts receivable collection. GSE Systems currently sells products and provides services to customers in emerging market economies. The following emerging markets have provided more than 10% of GSE Systems' revenue for the indicated period:

| | Six months ended June 30, | Year ended December 31, | |
|----------------------------|---------------------------------|----------------------------|------|
| | 2009 | 2008 | 2007 |
| Peoples' Republic of China | 10% | 15% | 4% |
| Russian Federation | 10% | 4% | 9% |
| United Arab Emirates | 0% | 4% | 31% |
| Slovak Republic | 10% | 0% | 0% |

GSE Systems has taken steps designed to reduce the additional risks associated with doing business in these countries, but GSE Systems believes that such risks may still exist and include, among others, general political and economic instability, lack of currency convertibility, as well as uncertainty with respect to the efficacy of applicable legal systems. There can be no assurance that these and other factors will not have a material adverse effect on our business, financial condition or results of operations.

GSE Systems' business is largely dependent on sales to the nuclear power industry. Any disruption in this industry would have a material adverse effect upon our revenue.

In the six months ended June 30, 2009, 66% of our revenue was from customers in the nuclear power industry (54% in 2008 and 45% in 2007). We expect to derive a significant portion of our revenue from customers in the nuclear power industry for the foreseeable future. GSE Systems' ability to supply nuclear power plant simulators and related products and services is dependent on the continued operation of nuclear power plants 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 and regulatory environment, the availability and cost of alternative means of power generation, the occurrence of future nuclear incidents, and general economic conditions.

GSE Systems' line of credit agreement imposes operating and financial restrictions on GSE Systems which may prevent it from capitalizing on business opportunities.

GSE's line of credit agreement with Bank of America (BOA) imposes operating and financial restrictions. These restrictions affect, and in certain cases limit, among other things, GSE Systems' ability to:

- incur additional indebtedness and liens;
- make investments and acquisitions; and
- consolidate, merge or sell all or substantially all of its assets.

There can be no assurance that these restrictions will not adversely affect our company's ability to finance its future operations or capital needs or to engage in other business activities that may be in the interest of stockholders. GSE Systems' available borrowing base under the two lines of credit was \$5.4 million at June 30, 2009, of which \$484,000 had been utilized to collateralize a standby letter of credit.

GSE Systems is dependent on product innovation and research and development, which costs are incurred prior to revenue for new products and improvements.

GSE Systems believes that its success will depend in large part on its ability to maintain and enhance its current product line, develop new products, maintain technological competitiveness and meet an expanding range of customer needs. GSE Systems' product development activities are aimed at the development and expansion of its library of software modeling tools, the improvement of its display systems and workstation technologies, and the advancement and upgrading of its simulation technology. The life cycles for software modeling tools, graphical user interfaces, and simulation technology are variable and largely determined by competitive pressures. Consequently, GSE Systems will need to continue to make significant investments in research and development to enhance and expand its capabilities in these areas and to maintain its competitive advantage.

GSE Systems relies upon its intellectual property rights for the success of its business; however, the steps it has taken to protect its intellectual property may be inadequate.

Although GSE Systems believes that factors such as the technological and creative skills of its personnel, new product developments, frequent product enhancements and reliable product maintenance are important to establishing and maintaining a technological leadership position, GSE Systems' business depends, in part, on its intellectual property rights in its proprietary technology and information. GSE Systems relies upon a combination of trade secret, copyright, and trademark law, contractual arrangements and technical means to protect its intellectual property rights. GSE Systems enters into confidentiality agreements with its employees, consultants, joint venture and alliance partners, customers and other third parties that are granted access to its proprietary information, and limits access to and distribution of its proprietary information. There can be no assurance, however, that GSE Systems has protected or will be able to protect its proprietary technology and information adequately, that the unauthorized disclosure or use of GSE Systems' proprietary information will be prevented, that others have not or will not develop similar technology or information independently, or, to the extent GSE Systems owns 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 GSE Systems' products are sold do not protect GSE Systems' products and intellectual property rights to the same extent as the laws of the United States.

The industries in which we operate are highly competitive. This competition may prevent GSE Systems from raising prices at the same pace as its costs increase.

Our business operates in highly competitive environments with both domestic and foreign competitors, many of whom have substantially greater financial, marketing and other resources than GSE Systems. The principal factors affecting competition include price, technological proficiency, ease of system configuration, product reliability, applications expertise, engineering support, local presence and financial stability. GSE Systems believes that competition in the simulation fields may further intensify in the future as a result of advances in technology, consolidations and/or strategic alliances among competitors, increased costs required to develop new technology and the increasing importance of software content in systems and products. As GSE Systems' business has a significant international component, changes in the value of the dollar could adversely affect GSE Systems' ability to compete internationally.

GSE may pursue new acquisitions and joint ventures, and any of these transactions could adversely affect its operating results or result in increased costs or related issues.

GSE Systems intends to pursue new acquisitions and joint ventures, a pursuit which could consume substantial time and resources. Identifying appropriate acquisition candidates and negotiating and consummating acquisitions can be a lengthy and costly process. GSE Systems may also encounter substantial unanticipated costs or other related issues such as compliance with new regulations and regulatory schemes, additional oversight, elimination of redundancy, and increased employee benefit costs associated with the acquired businesses. The risks inherent in this strategy could have an adverse impact on GSE Systems' results of operation or financial condition.

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

GSE Systems' business could expose it to third party claims with respect to product, environmental and other similar liabilities. Although GSE Systems has sought to protect itself 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 GSE Systems' products and services are used by the nuclear power industry primarily in operator training. Although GSE Systems' contracts for such products and services typically contain provisions designed to protect GSE Systems from potential liabilities associated with such use, there can be no assurance that GSE Systems would not be materially adversely affected by claims or actions which may potentially arise.

The use of derivative instruments by GSE Systems in the normal course of business could result in financial losses that negatively impact GSE Systems' net income.

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. GSE Systems could recognize financial losses as a result of volatility in the market values of these contracts or if a counterparty fails to perform. GSE Systems minimizes credit exposure by limiting counterparties to internationally recognized financial institutions.

GSE Systems, as a 10% owner of ESA, has provided a partial guarantee totaling \$1.2 million for the credit facility that Union National Bank has extended to ESA. ESA is a start-up entity; if it is unable to generate sufficient cash flow from operations and defaults on its credit facility, GSE may have to provide up to \$1.2 million to Union National Bank to cover ESA's obligations.

In May 2007, GSE Systems deposited \$1.2 million into a restricted, interest-bearing account at Union National Bank ("UNB") in the United Arab Emirates as a partial guarantee for the \$11.8 million credit facility that UNB has extended to ESA. The guarantee will be in place until the expiration of the ESA credit facility on December 31, 2014 or earlier if ESA pays down and terminates the facility. Both of the other two owners of ESA, Al Qudra Holding PJSC and the Centre of Excellence for Applied Research and Training, both located in the United Arab Emirates, have each provided to UNB a bank guarantee for 100% of the \$11.8 million ESA credit facility. In the event that ESA should default upon their UNB loan, UNB can utilize all or a portion of the guarantees that the three owners have provided to cover ESA's outstanding borrowings against the credit facility and accrued interest payable. Thus, if such a default were to occur, GSE may incur a loss of up to \$1.2 million.

In January 2006, GSE Systems received a \$15.1 million contract from ESA to supply five simulators and an integrated training program. GSE Systems received change orders totaling \$1.8 million from ESA which increased the total order value to \$16.9 million. Under the terms of the contract, GSE Systems provided a \$2.1 million performance bond to ESA that will remain outstanding until September 30, 2009, the end of the contract warranty period.

GSE Systems has provided a cash-collateralized standby letter of credit to ESA which can be drawn upon by ESA in the event GSE Systems fails to cure a material breach of the contract within 30 days of receiving written notice from ESA regarding the nature of the breach. The project is currently in the one-year warranty period which ends on September 30, 2009, and GSE Systems expects no such material breach, however, if ESA were to draw upon the standby letter of credit, GSE would incur a loss of up to \$2.1 million.

GSE Systems accounts for its investment in ESA using the equity method. Accordingly, GSE Systems will record 10% of ESA's net income (loss) as an adjustment of its investment.

As ESA is a start-up entity (it had its formal opening on January 14, 2009), it is likely that it will incur net losses for some period of time. Under the equity method, GSE Systems is required to record 10% of such losses as a charge to other income (expense) and as a reduction of its investment in ESA; for the six months ended June 30, 2009 and in 2008 and 2007 GSE Systems recorded an equity loss of \$313,000, \$213,000 and \$54,000, respectively. At June 30, 2009, and December 31, 2008 and 2007, GSE Systems' investment in ESA totaled \$405,000, \$718,000 and \$445,000. Depending on ESA's future performance, GSE Systems may be required to impair a portion or all of this investment.

GSE Systems is subject to a wide variety of laws and regulations.

GSE Systems' businesses are subject to regulation by U.S. federal and state laws and foreign laws, regulations and policies. Changes to laws or regulations may require GSE Systems to modify its business objectives if existing practices become more restricted, subject to escalating costs or prohibited outright. Particular risks include regulatory risks arising from federal laws, such as laws regarding export of sensitive technologies or technical information. GSE Systems' business and the industries in which it operates 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.

Risks Related to an Investment in our Stock.

If our common stock were delisted and determined to be a “penny stock,” a broker-dealer may find it more difficult to trade our common stock and an investor may find it more difficult to acquire or dispose of our common stock in the secondary market.

If our common stock were removed from listing with the NYSE Amex, it may be subject to the so-called “penny stock” rules. The SEC has adopted regulations that define a “penny stock” to be any equity security that has a market price per share of less than \$5.00, subject to certain exceptions, such as any securities listed on a national securities exchange. For any transaction involving a “penny stock,” unless exempt, the rules impose additional sales practice requirements on broker-dealers, subject to certain exceptions. If our common stock were delisted and determined to be a “penny stock,” a broker-dealer may find it more difficult to trade our common stock and an investor may find it more difficult to acquire or dispose of our common stock on the secondary market. Investors in penny stocks should be prepared for the possibility that they may lose their whole investment.

Our common stock is subject to price volatility unrelated to our operations.

The market price of our common stock could fluctuate substantially due to a variety of factors, including market perception of our ability to achieve our planned growth, quarterly operating results of other companies in the same industry, trading volume in our common stock, changes in general conditions in the economy and the financial markets or other developments affecting our competitors or us. In addition, the stock market is subject to extreme price and volume fluctuations. During the past fifty-two weeks, our stock price has fluctuated from a low of \$4.67 to a high of \$8.09. This volatility has had a significant effect on the market price of securities issued by many companies for reasons unrelated to their operating performance and could have the same effect on our common stock.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement and the documents incorporated by reference herein contain “forward-looking” statements within the meaning of Section 27A of the Securities Act of 1993 (the “Securities Act”) and Section 21E of the Securities Exchange Act of 1934 that are based on management’s assumptions, expectations and projections about us, and the industry within which we operate, that have been made pursuant to the Private Securities Litigation Reform Act of 1995 and which reflect 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 “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 statements. Discussions containing these forward-looking statements may be found, among other places, in “Business” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” incorporated by reference from our most recent annual report on Form 10-K and in our most recent quarterly report on Form 10-Q subsequent to the filing of our most recent annual report on Form 10-K with the SEC, as well as any amendments thereto reflected in subsequent filings with the SEC. 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 under the heading “Risk Factors” and the following, 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 and the U.S. military;

- changes in the financial condition of our customers;
- changes in regulatory environment;
- 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 or where equipment or services are or may be provided;
- outcomes of future litigation;
- protection and validity of our patents 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; and
- changes in estimates used in our critical accounting policies.

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 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, annual reports on Form 10-K and current reports on Form 8-K filed with the SEC.

USE OF PROCEEDS

We expect to receive net proceeds of approximately \$13,800,000 million from the sale of 2,500,000 shares of our common stock in this offering, or \$15,915,000 million if the underwriter exercises its over-allotment option in full, based on a public offering price of \$6.00 per share after deducting the estimated expenses related to this offering and the underwriting discounts and commissions payable by us.

We intend to use all of the net proceeds from this offering for general working capital purposes and to fund acquisitions and other strategic opportunities. Pending such uses, we plan to invest the net proceeds of this offering in short term, investment grade, interest bearing securities.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and capitalization as of June 30, 2009:

- on an actual basis; and
- on an as adjusted basis to give effect to our sale of 2,500,000 shares of common stock in this offering, based on the public offering price of \$6.00 per share, and after deducting underwriting commissions and estimated offering expenses paid or payable by us, assuming the underwriter does not exercise its over-allotment option.

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This table should be read in conjunction with our financial statements and the related notes, which are incorporated by reference in this prospectus supplement and the accompanying prospectus.

| | June 30, 2009 | |
|--|---------------|-------------|
| | Actual | As Adjusted |
| (in thousands, except share data) | | |
| Cash and cash equivalents | \$ 5,324 | \$ 19,124 |
| Indebtedness: | | |
| Short term loans | — | — |
| Total indebtedness | — | — |
| Shareholders' Equity: | | |
| Preferred stock, \$0.01 par value, 2,000,000 shares authorized, none issued and outstanding, actual and as adjusted | — | — |
| Common stock, \$0.01 par value, 30,000,000 shares authorized, 16,045,372 shares of common stock issued and outstanding actual; and 18,545,372 shares issued and outstanding, as adjusted | 160 | 185 |
| Additional paid-in capital | 51,234 | 65,009 |
| Accumulated deficit | (27,914) | (27,914) |
| Accumulated other comprehensive loss | (1,185) | (1,185) |
| Total shareholders' equity | \$ 22,295 | \$ 36,095 |

DESCRIPTION OF THE SECURITIES WE ARE OFFERING

Common Stock

In this offering, we are offering 2,500,000 shares of our common stock. The following summary description of our common stock is based on the provisions of our articles of incorporation and bylaws, which are incorporated by reference, and the applicable provisions of the Delaware General Corporation Law. This information is only a summary and is qualified in its entirety by reference to our articles of incorporation and bylaws and the applicable provisions of the Delaware General Corporation Law.

As of the date of this prospectus supplement, there were 30,000,000 shares of common stock, par value \$0.01 per share, authorized for issuance. As of August 31, 2009, there were 16,045,372 shares of common stock outstanding. All outstanding shares of common stock are fully paid and non-assessable.

Voting. Holders of shares of common stock are entitled to one vote for each share on all matters to be voted on by the stockholders. They are not entitled to cumulative voting rights.

Dividends and Other Distributions. Subject to the prior rights of holders of any preferred shares issued and outstanding, holders of our common stock are entitled to share in an equal amount per share in any dividends declared by our board of directors on the common stock and paid out of legally available assets.

Distributions on Dissolution. Subject to any preferential rights of any issued and outstanding preferred stock, in the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in the assets remaining after payment of liabilities and the liquidation preferences of any outstanding preferred stock.

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Other Rights. Our common stock does not carry any preemptive rights enabling a holder to subscribe for, or receive shares of, any class of our common stock or any other securities convertible into shares of any class of our common stock. There are no conversion or redemption rights or sinking funds provided for our stockholders.

For additional information regarding our common stock, see the section entitled “Description of Capital Stock” in the accompanying prospectus.

Transfer Agent and Registrant for our Common Stock

The transfer agent and registrar for our common stock is Continental Stock Transfer & Trust Co., 17 Battery Place, New York, NY 10004, and its telephone number is (212) 509-4000.

Listing on NYSE Amex

Our common stock is listed on NYSE Amex under the symbol “GVP.”

UNDERWRITING

We have entered into an underwriting agreement with Roth Capital Partners, LLC with respect to the offering set forth in this prospectus supplement. Under the terms of an underwriting agreement, which we will file as an exhibit to a current report on Form 8-K, we have agreed to sell to the underwriter, and the underwriter has agreed to purchase from us, in each case subject to certain closing conditions, 2,500,000 shares of our common stock.

The underwriting agreement provides that the obligation of the underwriter to purchase the shares offered hereby is subject to certain conditions and that the underwriter is obligated to purchase all of the shares of common stock offered hereby if any of the shares are purchased.

If the underwriter sells more shares than the above number, the underwriter has a 30-day option to buy up to an additional 375,000 shares from us at the public offering price, less the underwriting commissions and discounts to cover these sales.

Commissions and Expenses

The underwriter proposes to offer to the public the shares of common stock purchased pursuant to the underwriting agreement at the public offering price on the cover page of this prospectus supplement. After the shares are released for sale to the public, the underwriter may change the offering price and other selling terms at various times. In connection with the sale of the shares of common stock to be purchased by the underwriter, the underwriter will be deemed to have received compensation in the form of underwriting commissions and discounts. The underwriter’s commissions and discounts will be 6% of the proceeds, or \$0.36 per share of common stock, from shares sold to purchasers. In addition, we have agreed to reimburse the underwriter for the fees incurred by them in connection with the offering. Pursuant to a requirement by the Financial Industry Regulatory Authority, or FINRA, the maximum commission or discount to be received by any FINRA member or independent broker/dealer may not be greater than 8.0% of the gross proceeds received by us for the sale of any securities being registered pursuant to SEC Rule 415.

We estimate the total expenses of the offering to us, excluding underwriting commissions and discounts, to be \$300,000.

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The following table shows the underwriting discounts and commissions to be paid by us. The information assumes either no exercise or full exercise by the underwriters of their option to purchase additional shares.

| | Per Share | | Total | |
|---|----------------|-------------|----------------|-------------|
| | Without Option | With Option | Without Option | With Option |
| Underwriting discounts and commissions paid by us | \$0.36 | \$0.36 | \$900,000 | \$1,035,000 |

In connection with this offering, the underwriter has agreed to pay 10% of the net fees actually retained by the underwriter to Feagans Consulting, Inc. in consideration for assistance in arranging for the underwriter to be engaged as sole manager of this offering.

Indemnification

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments which the underwriter or such other indemnified parties may be required to make in respect of any such liabilities.

Lock-up Arrangements

In the underwriting agreement we have agreed, for a period of 90 days after the date of the underwriting agreement, to not directly or indirectly, without the prior written consent of the underwriter:

- offer to sell, hypothecate, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase (to the extent such option or contract to purchase is exercisable within one year from the intended settlement date of the offering), purchase any option or contract to sell, grant any option, right or warrant to purchase or otherwise transfer or dispose of, directly or indirectly, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Exchange Act, with respect to, any shares of our common stock, or any securities convertible into or exercisable or exchangeable for shares of common stock;
 - file or cause to become effective a registration statement under the Securities Act relating to the offer and sale of any shares of our common stock or securities convertible into or exercisable or exchangeable for shares of our common stock; or
 - enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the common stock;
- subject to certain exceptions, including:
- the issuance of options pursuant to an existing equity compensation plan;
 - the issuance of shares of common stock upon the exercise of options or warrants outstanding as of the date of the underwriting agreement or to satisfy other pre-existing issuance obligations disclosed in our periodic SEC filings prior to the date of the underwriting agreement; and
 - issuances by us of common stock as consideration for mergers, acquisitions, other business combinations, or strategic alliances, occurring after the date of the underwriting agreement, upon five business days notice to the underwriter.

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In addition, each of our directors and officers (within the meaning of Rule 16a-1(f) under the Exchange Act) has signed a lock-up agreement with the underwriter in which such persons have agreed that, for a period beginning on the date of this prospectus and ending on the date that is 90 days after the date of the final prospectus supplement relating to this offering, without the prior written consent of the underwriter, they will not (i) sell, offer to sell, contract or agree to sell, hypothecate, pledge, grant any option to purchase or otherwise dispose of or agree to dispose of, directly or indirectly, or file (or participate in the filing of) a registration statement with the Securities and Exchange Commission (the "Commission") in respect of, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Exchange Act with respect to, our common stock or any other securities of the Company that are substantially similar to common stock, or any securities convertible into or exchangeable or exercisable for, or any warrants or other rights to purchase, the foregoing, (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of our common stock or any other securities of the Company that are substantially similar to common stock, or any securities convertible into or exchangeable or exercisable for, or any warrants or other rights to purchase, the foregoing, whether any such transaction is to be settled by delivery of our common stock or such other securities, in cash or otherwise or (iii) publicly announce an intention to effect any transaction specified in clause (i) or (ii); provided, during the period beginning on the date that is 11 days after the date of the final prospectus supplement relating to this offering, Mr. Tawes, a director of the Company, may sell up to 225,000 shares of our common stock.

The lock-up periods applicable to each of our directors and officers (within the meaning of Rule 16a-1(f) under the Exchange Act) will automatically be extended if (1) during the last 15 calendar days plus 3 business days of the 90-day lock-up period, we issue an earnings release or material news or a material event relating to us occurs, or (2) prior to the expiration of the lock-up period, we announce that we will release earnings results during the 16-day period beginning on the last day of the lock-up period, then the lockup period shall automatically be extended and the restrictions described above shall continue to apply until the expiration of the 15 calendar days plus 3 business days after the date on which the issuance of the earnings release or the announcement of the material news or the material event occurs, as applicable, unless (i) the safe harbor provided by Rule 139 under the Act is available in the manner contemplated by Rule 2711(f)(4) of the Financial Industry Regulatory Authority, Inc. ("FINRA") and (ii) within the 3 business days preceding the 15th calendar day before the last day of the Lock-Up Period, we deliver (in accordance with Section 9 of the Underwriting Agreement) to the Underwriter a certificate, signed by the Chief Financial Officer or Chief Executive Officer of GSE Systems, certifying on behalf of GSE Systems that GSE Systems' shares of Common Stock are "actively traded securities," within the meaning of Rule 2711(f)(4) of FINRA.

The underwriter may release any of the securities subject to these lock-up arrangements at any time without notice.

Stabilization, Short Positions and Penalty Bids

In connection with the offering the underwriter may engage in stabilizing transactions, over-allotment transactions, syndicate covering transactions and penalty bids in accordance with Regulation M under the Exchange Act:

- Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum.
- Over-allotment involves sales by the underwriter of shares in excess of the number of shares the underwriter is obligated to purchase, which creates a syndicate short position. The short position may be either a covered short position or a naked short position. In a covered short position, the number of shares over-allotted by the underwriter is not greater than the number of shares that it may purchase in the over-allotment option. In a naked short position, the number of shares involved is greater than the number of shares in the over-allotment option. The underwriter may close out any covered short position by either exercising its over-allotment option and/or purchasing shares in the open market.

- Syndicate covering transactions involve purchases of the common shares in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of shares to close out the short position, the underwriter will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which it may purchase shares through the over-allotment option. If the underwriter sells more shares than could be covered by the over-allotment option, a naked short position, the position can only be closed out by buying shares in the open market. A naked short position is more likely to be created if the underwriter is concerned that there could be downward pressure on the price of the shares in the open market after pricing that could adversely affect investors who purchase in the offering.
- Penalty bids permit the representative to reclaim a selling concession from a syndicate member when the common shares originally sold by the syndicate member is purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.

These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of the common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. Neither we nor the underwriter makes any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of the common stock. In addition, neither we nor the underwriter makes representation that the representative will engage in these stabilizing transactions or that any transaction, once commenced, will not be discontinued without notice.

Electronic Distribution

A prospectus supplement and the accompanying prospectus in electronic format may be made available on the Internet sites or through other online services maintained by the underwriter or by its affiliates. In those cases, prospective investors may view offering terms online and may be allowed to place orders online.

Other than the prospectus supplement and the accompanying prospectus in electronic format, the information on the underwriter's web site and any information contained in any other web site maintained by the underwriter is not part of the prospectus supplement, the accompanying prospectus or the registration statement of which this prospectus supplement and the accompanying prospectus forms a part, has not been approved and/or endorsed by us or the underwriter in its capacity as underwriter and should not be relied upon by investors.

Other Relationships

The underwriter and its affiliates has in the past and may in the future provide various investment banking, commercial banking and other financial services for us for which services they may receive in the future, customary fees.

CERTAIN LEGAL MATTERS

The validity of the shares of common stock offered in this prospectus supplement are being passed upon for us by Duane Morris LLP. Lowenstein Sandler PC, Roseland, NJ, is acting as counsel for the underwriter in connection with certain legal matters related to this offering.

EXPERTS

The consolidated financial statements of GSE Systems, Inc. as of December 31, 2008 and 2007, and for each of the years in the three-year period ended December 31, 2008, and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2008 have been incorporated by reference herein and in the registration statement in reliance upon the reports of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing. The audit report covering the December 31, 2008 financial statements refers to the *adoption of FASB Interpretation No. 48, Accounting for Uncertainty in Income Taxes – An Interpretation of FASB Statement No. 109*, on January 1, 2007. The audit report on the effectiveness of internal control over financial reporting as of December 31, 2008, expresses an opinion that GSE Systems, Inc. did not maintain effective internal control over financial reporting as of December 31, 2008 because of the effect of a material weakness on the achievement of the objectives of the control criteria and contains an explanatory paragraph to a material weakness related to the accounting for derivative instruments.

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WHERE YOU CAN FIND ADDITIONAL INFORMATION

We file annual reports, quarterly reports, current reports, proxy statements and other information with the SEC. You may read and copy any of our SEC filings at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You may call the SEC at 1-800-SEC-0330 for further information about the Public Reference Room. Our SEC filings are also available to the public on the SEC's web site at www.sec.gov.

We have filed a registration statement on Form S-3 with the SEC to register the securities that may be offered pursuant to this prospectus. This prospectus supplement is part of that registration statement and, as permitted by the SEC's rules, does not contain all of the information included in the registration statement. For further information about us, this offering and our common stock, you may refer to the registration statement and its exhibits and schedules as well as the documents described herein or incorporated herein by reference. You can review and copy these documents, without charge, at the public reference facilities maintained by the SEC or on the SEC's website as described above, or you may obtain a copy from the SEC upon payment of the fees prescribed by the SEC.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" in this prospectus supplement the information in the documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus supplement. Any information that is part of this prospectus supplement that speaks as of a later date than any other information that is part of this prospectus supplement updates or supersedes such other information. We incorporate by reference in this prospectus supplement the documents listed below and any documents or portions thereof that we file with the SEC after the date of the initial registration statement under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 until we sell, or otherwise terminate the offering of, all of the securities that may be offered by this prospectus supplement. We do not, however, incorporate by reference in this prospectus supplement any documents or portions thereof, or any other information, that we furnish or are deemed to furnish, and not file, with the SEC in accordance with the SEC rules.

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2008, as amended by Amendment No. 1 thereto filed on June 30, 2009;
- Our Proxy Statement filed on April 30, 2009 (with respect to information contained in such Proxy Statement that is incorporated into Part III of the Company's Annual Report on Form 10-K only);
- Our Quarterly Reports on Form 10-Q for the fiscal quarter ended March 31, 2009 and June 30, 2009;
- Our Current Reports on Form 8-K filed on March 16, 2009, May 11, 2009 and August 10, 2009; and
- The description of our common stock contained in the Registration Statement on Form 8-A filed on July 24, 1995, under Section 12(g) of the Securities Exchange Act of 1934, as amended.

You may obtain, free of charge, a copy of any of these documents (other than exhibits to these documents unless the exhibits specifically are incorporated by reference into these documents or referred to in this prospectus supplement) by writing or calling us at the following address and telephone number:

GSE Systems, Inc.
1332 Londontown Boulevard, Suite 200
Sykesville, MD 21784
Attn: Corporate Secretary
Tel: (410) 970-7800

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Also incorporated by reference into this prospectus supplement are all documents that we may file with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act after the date of filing of this prospectus supplement, until all of the common stock to which this prospectus supplement relates has been sold or the offering is otherwise terminated. These documents include periodic reports, such as annual reports on Form 10-K, quarterly reports on Form 10-Q, and current reports on Form 8-K, as well as proxy statements. Pursuant to General Instruction B of Form 8-K, any information submitted under Item 2.02, Results of Operations and Financial Condition, or Item 7.01, Regulation FD Disclosure, of Form 8-K is not deemed to be "filed" for the purpose of Section 18 of the Exchange Act, and we are not subject to the liabilities of Section 18 with respect to information submitted under Item 2.02 or Item 7.01 of Form 8-K. We are not incorporating by reference any information submitted under Item 2.02 or Item 7.01 of Form 8-K into any filing under the Securities Act or the Exchange Act or into this prospectus supplement. Any statement contained herein or in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement.

We will provide without charge to each person, including any beneficial owner, to whom this prospectus supplement is delivered, upon written or oral request of such person, a copy of any or all of the information that is incorporated by reference in this prospectus supplement. Requests for such documents should be directed to: GSE Systems, Inc., 1332 Londontown Blvd., Suite 200, Sykesville, MD 21784, Attn: Investor Relations, Tel: (410) 970-7800.

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PROSPECTUS

GSE SYSTEMS, INC.

\$25,000,000

Preferred Stock

Common Stock

Warrants

We may offer from time to time to sell common stock, preferred stock or warrants pursuant to this prospectus. The securities covered by this prospectus may be offered and sold by us in one or more offerings. The preferred stock and warrants may be convertible into or exercisable or exchangeable for common stock or preferred stock or other of our securities.

Shares of our common stock are traded on the NYSE Amex Stock Exchange under the symbol "GVP."

We may offer and sell these securities to or through one or more underwriters, dealers and agents, or directly to purchasers, on a continuous or delayed basis.

This prospectus describes some of the general terms that may apply to these securities. The specific terms of any securities to be offered will be described in a supplement to this prospectus.

You should refer to the risk factors that may be included in a prospectus supplement and in our periodic reports and other information we file with the Securities and Exchange Commission and carefully consider that information before investing in our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is August 21, 2009.

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The registration statement containing this prospectus, including the exhibits to the registration statement, provides additional information about us and the securities offered under this prospectus. The registration statement, including the exhibits and the documents incorporated herein by reference, can be read on the SEC website or at the SEC offices mentioned under the heading “Where You Can Find More Information.”

ABOUT THIS PROSPECTUS

We may from time to time sell the securities in one or more offerings. This prospectus provides you with a general description of the securities. Each time we offer the securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also supplement, modify, or supersede other information contained in this prospectus. You should read both this prospectus and any prospectus supplement together with the information incorporated by reference as described below under the heading "Incorporation by Reference."

You should rely only on the information provided in this prospectus and in any prospectus supplement, including the information incorporated by reference. We have not authorized anyone to provide you with different information. We are not offering the securities in any state where the offer is not permitted. You should not assume that the information in this prospectus, or any supplement to this prospectus, is accurate at any date other than the date indicated on the cover page of these documents.

ABOUT GSE SYSTEMS

GSE Systems, Inc. (the "Company", "GSE" or "GSE Systems" or "we" or "us") is incorporated under the laws of the State of Delaware and is a leader in real-time, high fidelity simulation. The Company provides simulation solutions and services to the nuclear and fossil electric utility industry and the chemical and petrochemical industries. In addition, the Company provides plant monitoring and signal analysis monitoring and optimization software primarily to the power industry.

Our executive offices are located at 1332 Londontown Boulevard, Suite 200, Sykesville, MD 21784 and our telephone number at that location is (410) 970-7800.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public from the SEC's website at www.sec.gov. You may also read and copy any document we file at the SEC's public reference room in Washington, D.C., located at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference room. Information about us is also available at our website at www.gses.com. However, the information on our website is not part of this prospectus.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" in this prospectus the information in the documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus. Any information that is part of this prospectus or any prospectus supplement that speaks as of a later date than any other information that is part of this prospectus or any prospectus supplement updates or supersedes such other information. We incorporate by reference in this prospectus the documents listed below and any documents or portions thereof that we file with the SEC after the date of the initial registration statement under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 until we sell, or otherwise terminate the offering of, all of the securities that may be offered by this prospectus. We do not, however, incorporate by reference in this prospectus any documents or portions thereof, or any other information, that we furnish or are deemed to furnish, and not file, with the SEC in accordance with the SEC rules.

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2008, as amended by Amendment No. 1 thereto filed on June 30, 2009;
- Our Quarterly Reports on Form 10-Q for the fiscal quarter ended March 31, 2009 and June 30, 2009;
- Our Current Reports on Form 8-K filed on March 16, 2009, May 11, 2009 and August 10, 2009; and
- The description of our common stock contained in the Registration Statement on Form 8-A filed on July 24, 1995, under Section 12(g) of the Securities Exchange Act of 1934, as amended.

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You may obtain, free of charge, a copy of any of these documents (other than exhibits to these documents unless the exhibits specifically are incorporated by reference into these documents or referred to in this prospectus) by writing or calling us at the following address and telephone number:

GSE Systems, Inc.
1332 Londontown Boulevard, Suite 200
Sykesville, MD 21784
Attn: Corporate Secretary
Tel: (410) 970-7800

FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference herein contain “forward-looking” statements within the meaning of Section 27A of the Securities Act of 1993 (the “Securities Act”) and Section 21E of the Securities Exchange Act of 1934 that are based on management’s assumptions, expectations and projections about us, and the industry within which we operate, that have been made pursuant to the Private Securities Litigation Reform Act of 1995 and which reflect 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 “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 statements. Discussions containing these forward-looking statements may be found, among other places, in “Business” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” incorporated by reference from our most recent annual report on Form 10-K and in our most recent quarterly report on Form 10-Q subsequent to the filing of our most recent annual report on Form 10-K with the SEC, as well as any amendments thereto reflected in subsequent filings with the SEC. 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 under the heading “Risk Factors” and the following, 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 and the U.S. military;
- changes in the financial condition of our customers;
- changes in regulatory environment;
- 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 or where equipment or services are or may be provided;
- outcomes of future litigation;
- protection and validity of our patents 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; and
- changes in estimates used in our critical accounting policies.

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 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, annual reports on Form 10-K and current reports on Form 8-K filed with the SEC.

RISK FACTORS

An investment in our securities involves a high degree of risk. Before making an investment decision, you should carefully read and consider the risk factors incorporated by reference in this prospectus, as well as those contained in the applicable prospectus supplement, as the same may be updated from time to time by our future filings with the SEC under the Securities Exchange Act of 1934. You should also refer to other information contained in or incorporated by reference in this prospectus and any applicable prospectus supplement, including our financial statements and the related notes incorporated by reference herein. Additional risks and uncertainties not presently known to us at this time or that we currently deem immaterial may also materially and adversely affect our business and operations.

DESCRIPTION OF CAPITAL STOCK

Our authorized capital stock consists of 30,000,000 shares of common stock, par value \$0.01 per share, and 2,000,000 shares of preferred stock, par value \$0.01 per share.

Common Stock

Subject to the restrictions described below, the holders of our common stock are entitled to receive dividends from funds legally available when, as and if declared by our board of directors, and are entitled upon our liquidation, dissolution or winding up to receive pro rata our net assets after satisfaction in full of the prior rights of our creditors and holders of any preferred stock.

Except as otherwise provided by law and subject to the voting rights of our preferred stock of any series that may be outstanding from time to time, the holders of common stock are entitled to one vote for each share held on all matters as to which stockholders are entitled to vote. The holders of common stock do not have cumulative voting rights. The holders of common stock do not have any preferential, subscription or preemptive rights to subscribe to or purchase any new or additional issue of shares of any class of stock or of securities convertible into our stock or any conversion rights with respect to any of our securities. Our common stock is not subject to redemption. All of our issued and outstanding common stock is fully paid and non-assessable.

Preferred Stock

Our certificate of incorporation authorizes our board of directors to establish one or more series of preferred stock and to determine, with respect to any series of preferred stock, the terms and rights of the series, including the following:

- the designation of the series;
- the rate and time of, and conditions and preferences with respect to, dividends, and whether the dividends will be cumulative;
- the voting rights, if any, of shares of the series;
- the price, timing and conditions regarding the redemption of shares of the series and whether a sinking fund should be established for the series;
- the rights and preferences of shares of the series in the event of voluntary or involuntary dissolution, liquidation or winding up of our affairs; and
- the right, if any, to convert or exchange shares of the series into or for stock or securities of any other series or class.

We currently do not have any shares of preferred stock issued and outstanding.

Purposes and Effects of Certain Provisions of Our Certificate of Incorporation and Bylaws

General

Our certificate of incorporation and bylaws contain provisions that could make more difficult the acquisition of control of our company by means of a tender offer, open market purchases, a proxy contest or otherwise. A description of these provisions is set forth below.

Preferred Stock

Our certificate of incorporation and bylaws contain certain provisions, some of which are intended to enhance the likelihood of continuity and stability in the composition of our board of directors and the policies formulated by our board of directors, and to discourage certain types of coercive takeover practices. However, these provisions, as well as certain provisions of Delaware law, may deter, hinder or delay a change of control of us. These provisions could discourage attempts to acquire us or remove incumbent management even if some or a majority of our stockholders believe that action is in their best interest.

Classified Board of Directors; Removal of Directors

Our certificate of incorporation divides our board of directors into three classes of directors, with each class serving staggered, three-year terms. Our certificate of incorporation provides that our directors may be removed from office for cause by a vote of a majority in voting power of the then-outstanding shares of our voting stock entitled to vote in the election of directors, voting together as a single group. The classification of our board of directors means that, unless directors are removed by stockholders, it could require at least two annual meetings of stockholders for a majority of stockholders to make a change of control of the board of directors, because only a portion of the directors will be elected at each meeting. In addition, our bylaws provides that the number of directors cannot be increased by 50% or more in any 12-month period without the approval of at least 66-2/3% of the directors then in office. A significant effect of these provisions may be to deter hostile takeover attempts, because an acquiror could experience delay in replacing a majority of the directors. A classified board of directors also makes it more difficult for stockholders to effect a change of control of the board of directors, even if such a change of control were to be sought due to dissatisfaction with the performance of our company's directors.

Limitation of Director Liability

Our certificate of incorporation limits the liability of directors to us and our stockholders to the fullest extent permitted by Delaware law. Specifically, a director will not be personally liable for monetary damages for breach of his or her fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- acts or omissions which involve intentional misconduct, fraud or a knowing violation of law;
- violations under Section 174 of the Delaware General Corporation Law, which relates to unlawful distributions to stockholders or unlawful stock repurchases or redemptions; or
- any transaction from which the director derived an improper personal benefit.

These provisions in our certificate of incorporation may have the effect of reducing the likelihood of derivative litigation against our directors and officers and may discourage or deter stockholders or management from bringing a lawsuit against our directors or officers for breach of their duty of care, even though such an action, if successful, might otherwise have benefited our company and its stockholders. These provisions do not limit or affect a stockholder's ability to seek and obtain relief under federal securities laws.

Special Meetings of Stockholders

Our bylaws provide that special meetings of stockholders may be called only by our board of directors or by one or more stockholders holding shares which, in the aggregate, entitle them to cast not less than 25% of the votes at the meeting.

Delaware Takeover Statute

We are subject to Section 203 of the DGCL, which, subject to certain exceptions, prohibits a Delaware corporation from engaging in any "business combination" with any "interested stockholder" (both as defined below) for a period of three years following the date that such stockholder became an interested stockholder, unless: (i) prior to such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder, (ii) on consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding those shares owned (x) by persons who are directors and also officers and (y) by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or (iii) on or subsequent to such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 % of the outstanding voting stock that is not owned by the interested stockholder.

Section 203 of the DGCL defines generally "business combination" to include: (i) any merger or consolidation involving the corporation and the interested stockholder; (ii) any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder; (iii) subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder; (iv) any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or (v) the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation. In general, Section 203 defines an "interested stockholder" as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by such entity or person.

Transfer Agent

The transfer agent for our common stock is Continental Stock Transfer & Trust Company.

DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of preferred stock or common stock, or any combination thereof. We may issue warrants independently or together with any other securities offered by a prospectus supplement. Warrants may be attached to or separate from such securities. Each series of warrants will be issued under a separate warrant agreement we will enter into with a warrant agent specified in the applicable prospectus supplement. The warrant agent will act solely as our agent in connection with the warrants of a particular series and will not assume any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants.

The applicable prospectus supplement will describe the terms of the warrants in respect of which this prospectus is being delivered, including, to the extent applicable, the following:

- the title of the warrants;
- the aggregate number of the warrants;
- the price or prices at which the warrants will be issued;
- the designation, number or principal amount and terms of the preferred stock and/or common stock, purchasable upon exercise of the warrants;
- the designation and terms of the other securities, if any, with which the warrants are issued and the number of warrants issued with each security;
- the date, if any, on and after which the warrants and the related underlying securities will be separately transferable;
- whether the warrants will be issued in registered form or bearer form;
- the price at which each underlying security purchasable upon exercise of the warrants may be purchased;
- the date on which the right to exercise the warrants will commence and the date on which that right will expire;
- the identity of the warrant agent;
- the maximum or minimum number of the warrants that may be exercised at any one time;
- information with respect to book-entry procedures, if any;
- a discussion of any material federal income tax considerations; and
- any other terms of the warrants, including terms, procedures, and limitations relating to the transferability, exchange, and exercise of the warrants.

RATIO OF EARNINGS TO FIXED CHARGES

If we offer preferred stock under this prospectus, then we will, at that time, provide a ratio of combined fixed charges and preference dividends to earnings in the applicable prospectus supplement for such offering.

USE OF PROCEEDS

We intend to use the net proceeds from the sales of the securities as set forth in the applicable prospectus supplement.

PLAN OF DISTRIBUTION

We may sell the securities described in this prospectus to or through one or more agents, underwriters, dealers, "in 'at the market offerings', within the meaning of Rule 415(a)(4) of the Securities Act, to or through a market maker or into an existing trading market or an exchange or otherwise, or directly to purchasers on a continuous or delayed basis or through a combination of these methods.

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The distribution of the securities may be effected from time to time in one or more transactions at a fixed price or prices, which may be changed from time to time, at market prices prevailing at the times of sale, at prices related to such prevailing market prices or at negotiated prices.

Each time that we use this prospectus to sell our securities, we will also provide a prospectus supplement. For each series of securities, the applicable prospectus supplement will set forth the terms of the offering including:

- the public offering price;
- the name or names of any underwriters, dealers or agents;
- the purchase price of the securities;
- the proceeds from the sale of the securities to us;
- any underwriting discounts, agency fees or other compensation payable to underwriters or agents;
- any discounts or concessions allowed or reallowed or repaid to dealers; and
- the securities exchange on which the securities will be listed, if any.

If we use underwriters in the sale of securities, the securities will be acquired by the underwriters for their own account. The underwriters may then resell the securities in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale or thereafter. The securities may be either offered to the public through underwriting syndicates represented by managing underwriters, or directly by underwriters. Unless set forth in the prospectus supplement, the obligations of the underwriters to purchase the securities will be subject to certain conditions. Unless set forth in the prospectus supplement, the underwriters will be obligated to purchase all the securities offered if they purchase any securities. The public offering price and any discounts or concessions allowed or re-allowed or paid to dealers may be changed from time to time.

If we use dealers in the sale of securities, we will sell securities to such dealers as principals. The dealers may then resell the securities to the public at varying prices to be determined by such dealers at the time of resale. We may solicit offers to purchase the securities directly, and we may sell the securities directly to institutional or other investors, who may be deemed underwriters within the meaning of the Securities Act with respect to any resales of those securities. The terms of these sales will be described in the applicable prospectus supplement. If we use agents in the sale of securities, unless otherwise indicated in the prospectus supplement, they will use their reasonable best efforts to solicit purchases for the period of their appointment. Unless otherwise indicated in a prospectus supplement, if we sell directly, no underwriters, dealers or agents would be involved. We will not make an offer of securities in any jurisdiction that does not permit such an offer.

We may grant underwriters who participate in the distribution of securities an option to purchase additional securities to cover overallocments, if any, in connection with the distribution. Any underwriter may engage in overallocation, stabilizing transactions, short covering transactions and penalty bids in accordance with SEC orders, rules and regulations and applicable law. To the extent permitted by applicable law and SEC orders, rules and regulations, an overallocation involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. To the extent permitted by applicable law and SEC orders, rules and regulations, short covering transactions involve purchases of the common stock in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer is purchased in a covering transaction to cover syndicate short positions in stabilization transactions or otherwise. Those activities may cause the price of the common stock to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time.

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Any underwriters who are qualified market makers on the NYSE Amex Stock Exchange may engage in passive market making transactions in the common stock on the NYSE Amex Stock Exchange in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the common stock. Passive market makers must comply with the applicable volume and price limitations and must be identified as passive market makers. In general a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

Underwriters, dealers and agents that participate in any distribution of securities may be deemed to be underwriters as defined in the Securities Act. Any discounts, commissions or profit they receive when they resell the securities may be treated as underwriting discounts and commissions under the Securities Act. We will identify in the applicable prospectus supplement any underwriters, dealers and agents and will describe their compensation. Only underwriters named in the prospectus supplement are underwriters of the securities offered in the prospectus supplement. We may have agreements with underwriters, dealers and agents to indemnify them against certain civil liabilities, including certain liabilities under the Securities Act, or to contribute with respect to payments that they may be required to make.

We may authorize underwriters, dealers or agents to solicit offers from certain institutions whereby the institution contractually agrees to purchase the securities from us on a future date at a specific price. This type of contract may be made only with institutions that we specifically approve. Such institutions could include banks, insurance companies, pension funds, investment companies and educational and charitable institutions. The underwriters, dealers or agents will not be responsible for the validity or performance of these contracts.

Each series of securities will be a new issue of securities and will have no established trading market, other than our common stock, which is listed on the American Stock Exchange. Unless otherwise specified in the applicable prospectus supplement, the securities will not be listed on any exchange. It has not presently been established whether the underwriters, if any, of the securities will make a market in the securities. If the underwriters make a market in the securities, such market making may be discontinued at any time without notice. No assurance can be given as to the liquidity of the trading market for the securities.

Agents, dealers and underwriters may be entitled to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments which the agents, dealers or underwriters may be required to make in respect thereof. Agents, dealers or underwriters may be customers of, engage in transactions with, or perform services for us and our subsidiaries in the ordinary course of business.

Pursuant to a requirement of the Financial Industry Regulatory Authority, or FINRA, the maximum commission or discount to be received by any FINRA member or independent broker/dealer may not be greater than 8.0% of the gross proceeds received by us for the sale of any securities being registered pursuant to SEC Rule 415.

CERTAIN LEGAL MATTERS

In connection with particular offerings of the securities in the future, and if stated in the applicable prospectus supplements, the validity of those securities may be passed upon for us by Duane Morris LLP. If securities are distributed in an underwritten offering, certain legal matters will be passed upon for the underwriters by counsel identified in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements of GSE Systems, Inc. as of December 31, 2008 and 2007, and for each of the years in the three-year period ended December 31, 2008, and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2008 have been incorporated by reference herein and in the registration statement in reliance upon the reports of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing. The audit report covering the December 31, 2008 financial statements refers to the *adoption of FASB Interpretation No. 48, Accounting for Uncertainty in Income Taxes – An Interpretation of FASB Statement No. 109*, on January 1, 2007. The audit report on the effectiveness of internal control over financial reporting as of December 31, 2008, expresses an opinion that GSE Systems, Inc. did not maintain effective internal control over financial reporting as of December 31, 2008 because of the effect of a material weakness on the achievement of the objectives of the control criteria and contains an explanatory paragraph to a material weakness related to the accounting for derivative instruments.

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GSE SYSTEMS, INC.

2,500,000 Shares of Common Stock

PROSPECTUS SUPPLEMENT

August 31, 2009
