ION GEOPHYSICAL CORP
Form 10-K
February 19, 2013
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UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549
Form 10-K
(Mark One)

þ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Fiscal Year Ended December 31, 2012
or

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

Commission file number 1-12691
ION Geophysical Corporation
(Exact Name of Registrant as Specified in Its Charter)

Delaware	22-2286646
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)

2105 CityWest Blvd
Suite 400
Houston, Texas 77042-2839
(Address of Principal Executive Offices, Including Zip Code)
(281) 933-3339
(Registrant's Telephone Number, Including Area Code)
Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.01 par value	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act:
None
Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes þ No ¨
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act Yes ¨ No þ
Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes þ No ¨
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes þ No ¨
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. þ
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):
Large accelerated filer þ Accelerated filer ¨ Non-accelerated filer ¨ Smaller reporting company ¨

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

As of June 29, 2012 (the last business day of the registrant's second quarter of fiscal 2012), the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was $1.0 billion based on the closing sale price on such date as reported on the New York Stock Exchange.

As of February 12, 2013, the number of shares of common stock, $0.01 par value, outstanding was 156,390,699 shares.

DOCUMENTS INCORPORATED BY REFERENCE

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Document	Parts Into Which Incorporated
Portions of the registrant's definitive Proxy Statement for its Annual Meeting of Stockholders scheduled to be held on May 22, 2013, to be filed pursuant to Regulation 14A	Part III

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PART I

Preliminary Note: This Annual Report on Form 10-K contains "forward-looking statements" as that term is defined in the Private Securities Litigation Reform Act of 1995. Forward-looking statements should be read in conjunction with the cautionary statements and other important factors included in this Form 10-K. See Item 1A. "Risk Factors" for a description of important factors which could cause actual results to differ materially from those contained in the forward-looking statements.

In this Form 10-K, "ION Geophysical," "ION," "the company," "we," "our," "ours" and "us" refer to ION Geophysical Corpor and its consolidated subsidiaries, except where the context otherwise requires or as otherwise indicated. Certain trademarks, service marks and registered marks of ION referred to in this Form 10-K are defined in Item 1. "Business — Intellectual Property."

Item 1. Business

We are a technology-focused seismic solutions company that provides planning and seismic processing services, software and advanced acquisition equipment to the global energy industry. Our services, technologies, and products are used by oil and gas exploration and production ("E&P") companies and seismic acquisition contractors to generate high-resolution images of the Earth's subsurface during exploration, exploitation, and production operations. We acquire and process seismic data from seismic surveys in regional data programs, which then become part of our seismic data library. Our services and products are intended to measure and interpret seismic data about rock and fluid properties within the Earth's subsurface to enable oil and gas companies to make improved drilling and production decisions. The seismic surveys for our data library business are pre-funded, or underwritten, in part by our customers, and we contract with third party seismic data acquisition companies to shoot and acquire the seismic data, all of which is intended to minimize our risk exposure. We serve customers in all major energy producing regions of the world from strategically located offices in 20 cities on five continents.

In March 2010, we formed a joint venture with BGP, Inc., China National Petroleum Corporation ("BGP"), a subsidiary of China National Petroleum Corporation ("CNPC"), and contributed most of our land seismic equipment businesses to INOVA Geophysical Equipment Limited ("INOVA Geophysical"), the joint venture entity. BGP is generally regarded as the world's largest land geophysical service contractor. BGP owns a 51% interest in INOVA Geophysical, and we own a 49% interest.

Our services and products include the following:

- Seismic data processing and reservoir imaging services,
- Seismic data libraries,
- Planning services for survey design and optimization,
- Navigation, command & control, and data management software products,
- Marine seismic data acquisition equipment, and
- Land seismic data acquisition equipment (principally through our 49% ownership in INOVA Geophysical).

Seismic imaging plays a fundamental role in hydrocarbon exploration and reservoir development by delineating structures, rock types, and fluid locations in the subsurface. Geoscientists interpret seismic data to identify new sources of hydrocarbons and pinpoint drilling locations for wells, which can be costly and involve high risk. As oil and gas reservoirs have become harder to find and more expensive to develop and exploit in recent years, the demand for advanced seismic imaging solutions has grown. In addition, seismic technologies are now being applied more broadly over the entire life cycle of a hydrocarbon reservoir to optimize production. For example, time-lapse seismic images (referred to as "4D" or "four-dimensional" surveys), in which the fourth dimension is time, can be made of producing reservoirs to track the movement of injected or produced fluids and/or to identify locations containing by-passed hydrocarbons.

ION has been involved in the seismic technology industry for over 40 years, starting in the 1960s when we designed and manufactured seismic equipment under our previous company name, Input/Output, Inc. In recent years, we have transformed our business from being solely a manufacturer and seller of seismic equipment to being a provider of a full range of seismic imaging services, technologies, and products.

We operate our company through three business segments: Solutions, Systems, and Software; and through our INOVA Geophysical joint venture.

- Solutions — advanced seismic data processing services for marine and land environments, reservoir solutions, onboard processing and quality control, seismic data libraries, and services by our GeoVentures™ services group.
- Systems — towed marine streamer and re-deployable ocean bottom cable seismic data acquisition systems and shipboard recorders, streamer positioning and control systems, energy sources and analog geophone sensors.

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- Software — software systems and related services for navigation and data management involving towed marine streamer and seabed operations.
- INOVA Geophysical — through our interest in INOVA Geophysical, cable-based, cableless and radio-controlled seismic data acquisition systems, digital sensors, vibroseis vehicles (i.e. vibrator trucks) and source controllers for detonator and energy sources business lines.

Our executive headquarters are located at 2105 CityWest Boulevard, Suite 400, Houston, Texas 77042-2839. Our international sales headquarters are located at LOB 16, office 504, Jebel Ali Free Zone, P.O. Box 18627, Dubai, United Arab Emirates. Our telephone number is (281) 933-3339. Our home page on the internet is www.iongeo.com. We make our website content available for information purposes only. Our website should not be relied upon for investment purposes, and it is not incorporated by reference into this Form 10-K.

In portions of this Form 10-K, we incorporate by reference information from parts of other documents filed with the Securities and Exchange Commission ("SEC"). The SEC allows us to disclose important information by referring to it in this manner, and you should review this information. We make our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, annual reports to stockholders, and proxy statements for our stockholders' meetings, as well as any amendments to those reports, available free of charge through our website as soon as reasonably practicable after we electronically file those materials with, or furnish them to, the SEC.

You can learn more about us by reviewing our SEC filings on our website. Our SEC reports can be accessed through the Investor Relations section on our website. The SEC also maintains a website at www.sec.gov that contains reports, proxy statements, and other information regarding SEC registrants, including our company.

Seismic Industry Overview

1930's – 1970's. Since the 1930s, oil and gas companies have sought to reduce exploration risk by using seismic data to create an image of the Earth's subsurface. Seismic data is recorded when listening devices placed on the Earth's surface or seabed floor, or carried within the streamer cable of a towed streamer vessel, measure how long it takes for sound vibrations to echo off rock layers underground. For seismic acquisition onshore, the acoustic energy producing the sound vibrations is generated by the detonation of small explosive charges or by large vibroseis (vibrator) vehicles. In marine acquisition, the energy is provided by a series of air guns that deliver highly compressed air into the water column.

The acoustic energy propagates through the subsurface as a spherical wave front, or seismic wave. Interfaces between different types of rocks will both reflect and transmit this wave front. Onshore, the reflected signals return to the surface where they are measured by sensitive receivers that may be either analog coil-spring geophones or digital accelerometers based on MEMS (micro-electro-mechanical systems) technology. Offshore, the reflected signals are recorded by either hydrophones towed in an array behind a streamer acquisition vessel or by multicomponent geophones or MEMS sensors that are placed directly on the seabed. Once the recorded seismic energy is processed using advanced algorithms and workflows, images of the subsurface can be created to depict the structure, lithology (rock type), fracture patterns, and fluid content of subsurface horizons, highlighting the most promising places to drill for oil and natural gas. This processing also aids in engineering decisions, such as drilling and completion methods, as well as decisions affecting overall reservoir production.

Typically, an E&P company engages the services of a geophysical acquisition company to prepare site locations, coordinate logistics, and acquire seismic data in a selected area. The E&P company generally relies upon third parties, such as ION, to provide the contractor with equipment, navigation and data management software, and field support services necessary for data acquisition. After the data is collected, the same geophysical contractor, a third-party data processing company, the Company's data processing services or the E&P company itself will process the data using proprietary algorithms and workflows to create a series of seismic images. Geoscientists then interpret the data by reviewing the images and integrating the geophysical data with other geological and production information such as well logs or core information.

During the 1960s, digital seismic data acquisition systems (which converted the analog output from the geophones into digital data for recording) and computers for seismic data processing were introduced. Using the new systems and computers, the signals could be recorded on magnetic tape and sent to data processors where they could be adjusted and corrected for known distortions. The final processed data was displayed in a form known as "stacked" data.

Computer filing, storage, database management, and algorithms used to process the raw data quickly grew more sophisticated, dramatically increasing the amount of subsurface seismic information.

1980's. Until the early 1980s, the primary commercial seismic imaging technology was two-dimensional ("2-D") technology. 2-D seismic data is recorded using straight lines of receivers crossing the surface of the Earth. Once processed, 2-D seismic data allows geoscientists to see only a thin vertical slice of the Earth. A geoscientist using 2-D seismic technology must speculate on the characteristics of the Earth between the slices and attempt to visualize the true three-dimensional ("3-D") structure of the subsurface.

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The commercial development of 3-D imaging technology in the early 1980s was an important technological milestone for the seismic industry. Previously, the high cost of 3-D seismic data acquisition techniques and the lack of computing power necessary to process, display, and interpret 3-D data on a commercial basis had slowed its widespread adoption. Today's 3-D seismic techniques record the reflected energy across a series of closely-spaced seismic lines that collectively provide a more holistic, spatially-sampled depiction of geological horizons and, in some cases, rock and fluid properties, within the Earth.

3-D seismic data and the associated computer-based interpretation platforms are designed to allow geoscientists to generate more accurate subsurface maps than could be constructed on the basis of the more widely spaced 2-D seismic lines. In particular, 3-D seismic data provided more detailed information about and higher-quality images of subsurface structures, including the geometry of bedding layers, salt structures, and fault planes. The improved 3-D seismic images allowed the oil and gas industry to discover new reservoirs, reduce finding and development costs, and lower overall hydrocarbon exploration risk. Driven by faster computers and more sophisticated mathematical equations to process the data, the technology advanced quickly.

1990's – present. As commodity prices decreased in the late 1990's and the pace of innovation in 3-D seismic imaging technology slowed, E&P companies slowed the commissioning of new seismic surveys. Also, business practices employed by geophysical contractors impacted demand for seismic data. In an effort to sustain higher utilization of existing capital assets, geophysical contractors increasingly began to collect speculative seismic data for their own account in the hopes of selling it later to E&P companies. These generic, speculative, multi-client surveys were not tailored to meet the unique imaging objectives of individual clients and caused an oversupply of seismic data in many regions. Additionally, since contractors incurred most of the costs of this speculative seismic data at the time of acquisition, contractors lowered prices to recover as much of their fixed investment as possible, which drove operating margins down.

These conditions continued to prevail until 2004-2005, when commodity prices began increasing and E&P companies increased their capital spending programs, which drove higher demand for our services and products. The financial crisis that occurred in 2008 and the resulting economic downturn drove hydrocarbon prices down sharply; this had the effect of sharply reducing exploration activities in North America and in many parts of the world. Since then, however, West Texas Intermediate ("WTI") crude oil prices have recovered, and were within a range of approximately $80 to $100 per barrel at the end of 2012. Brent crude oil prices have also recovered and finished 2012 near $110 per barrel; however, North American natural gas prices have remained depressed from their 2008 levels.

ION Geophysical's Business Strategy

Factors Affecting Long-Term Demand

We are now seeing increasing levels of capital spending related to E&P activity, and we believe that current conditions exist that favor increased seismic spending for the years ahead. These conditions include the following:

- Global demand for crude oil remains high;
- The decline in crude oil reserves in major producing fields around the world has continued, and the pace of reinvestment into exploration and development will need to increase to offset future production declines;
- Remaining oil reserves are proving harder to find, and the potential for large undiscovered or underdeveloped reservoirs in offshore locations should continue to drive demand by E&P companies and seismic contractors for improvements in marine equipment technology and offshore seismic data libraries;
- U.S. oil production surged in 2012 to 6.4 million barrels per day, a 15-year high and up from 5.6 million barrels a day in 2011, due mainly to the use of new technologies designed to locate and unlock deposits of oil and gas in formations previously thought to be unreachable;
- E&P expenditures are forecast to increase each year through 2015;
- Large E&P companies are focusing on hydrocarbon reservoirs that are located in complex shale geological formations and harder-to-access regions of the world, which should increase demand for newer and more efficient imaging processing and equipment technology solutions; and
- While North American natural gas prices remain at depressed levels, Henry Hub prices did increase during the second half of 2012, and investment in shale liquids markets should remain relatively strong in North America and in other

parts of the world.

The complex hydrocarbon reservoirs that have been developed in recent years generally have more subtle characteristics than the reservoirs that were discovered in prior decades. These unconventional reservoir types include shale plays, tight gas formations and oil sands. As a result, the process of finding and developing these hydrocarbon deposits is proving to be more challenging, which in turn results in escalating costs and increasing demands for newer and more efficient imaging

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technologies. Also, producers are increasingly using seismic data to enhance production from known fields by repeating time-lapse seismic surveys over a defined area. We believe that this trend should benefit seismic companies such as ION by extending the utility of subsurface imaging beyond exploration and into production monitoring, which can continue for decades.

We believe that E&P companies will, in the future, increasingly use seismic technology providers who will collaborate with them to tailor seismic surveys that address specific geophysical problems and to apply advanced imaging technologies to take into account the geologic peculiarities of a specific area. In the future, we expect that E&P companies will rely less on undifferentiated, mass seismic studies created using analog sensors and traditional processing technologies that do not adequately identify geologic complexities.

Becoming a Broad-Based Seismic Provider

Two acquisitions in 2004 — Concept Systems Holdings Limited ("Concept Systems") and GX Technology Corporation ("GXT") — were important in our evolution to becoming a broad-based seismic solutions company from primarily a seismic equipment provider. Concept Systems provided us our integrated planning, navigation, command & control, and data management software and solutions business for towed marine streamers and seabed operations. GXT provided us our advanced seismic data processing services and marine seismic data library business.

Through these and other acquisitions, along with our research and development efforts, we have broadened our offering to span the entire seismic workflow, which includes survey planning, acquisition, processing and interpretation. Our offerings include seismic data acquisition hardware, command and control software, value-added services associated with seismic survey design, seismic data processing and interpretation, and seismic data libraries. We currently do not own a fleet of boats or provide our own seismic crews to acquire marine or land surveys. Our strategy since 2004 has been to be an "asset light" seismic solutions company, focusing our capital on our people and technology.

In March 2010, we formed INOVA Geophysical, our joint venture with BGP. The scope of the joint venture's business is to design, develop, engineer and manufacture land-based equipment used in seismic data acquisition for the petroleum industry, and to conduct related research and development, distribution, sales and marketing and field support operations.

A key part of the strategy behind the joint venture was to leverage our research and development experience and expertise with the operational experience and global expertise of BGP. The R&D centers for the joint venture have remained primarily in the U.S. and Canada, although INOVA Geophysical intends to evaluate lower-cost manufacturing opportunities in China and pursue these opportunities when appropriate. In addition, we and BGP intend that BGP's geophysical crews will field test the joint venture's new technology and related equipment for operational feedback and quality improvements. Finally, we expect, over time, that BGP will eventually purchase more of its land equipment from the joint venture and will purchase more ION services and products from our other business segments.

A key element of our business strategy has been to understand the challenges faced by E&P companies in survey planning, acquisition, processing and interpretation, and to strive to develop and offer technology and services that enable us to work with the E&P companies to solve their challenges. We have found that a collaborative relationship with E&P companies, with a goal of better understanding their imaging challenges and then working with them and our contractor customers to assure that the right technologies are properly applied, is the most effective method for meeting our customers' needs. This strategy of being a full solutions provider to solve the most difficult challenges for our customers is an important element of our long term business strategy, and we are implementing this approach globally through local personnel in our regional organizations who understand the unique challenges in their areas.

Current Strategy – While we anticipate continuing to grow and refine our seismic data equipment businesses in marine and land (through INOVA Geophysical), our emphasis on growth will continue to be in our Solutions segment's data processing and GeoVentures multi-client businesses. This focus is consistent with our current asset-light strategy, whereby the majority of our investments will be devoted toward research and development and computing infrastructure for our data processing business, and in support of our GeoVentures multi-client projects. This focus better positions our company as a full-service technology company having increasing revenues coming from E&P company customers using our GXT data processing and GeoVentures services.

GeoVentures offers integrated design and management of proprietary and multi-client 2D and 3D surveys, from survey design and planning, to seismic data acquisition project management, advanced processing services and final image rendering. With GeoVentures, we outsource the physical field acquisition work to experienced seismic contractors, utilizing existing industry acquisition capacity while enabling us to focus on the most value-adding elements of the seismic process.

In this regard, we are currently concentrating on four key market sectors in our Solutions businesses:

- Challenging environments, such as the Arctic frontier: we have performed many successful surveys in the Arctic, and have returned to the North American Arctic region in 2012 for our seventh season of acquisition.

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- Complex and hard-to-image geologies, such as deepwater subsurface salt formations in the Gulf of Mexico and offshore West Africa and Brazil: we believe that GXT's technologies are well-suited to meet the depth imaging challenges presented by these formations.
- Unconventional reservoirs, such as those found in shale, tight gas and oil sand formations: principally focusing on oil plays and the more economically viable gas portions of hydrocarbon plays; our 3D ResSCAN™ reservoir characterization programs feature unique measurement techniques.
- Basin exploration; our BasinSPAN™ programs are offshore basin-wide seismic data programs acquired and imaged using advanced geological and geophysical technology; these custom-designed programs provide E&P companies with valuable insights into the regional geologies of offshore frontier areas; commencing in 2002, this business has grown into a substantial data library that covers many of the frontier basins in the world, including offshore East and West Africa, India and Brazil, as well as in the Arctic and the deepwater Gulf of Mexico.

E&P companies continue to be interested in technology that will increase production and improve their understanding of targeted reservoirs, in both the exploration and production phases. We believe that our technologies, such as DigiFIN®, DigiSTREAMER™, Ore®, our WiBand™ data processing technology, and INOVA Geophysical's lower-cost cableless Hawk™ land system, improved FireFly® system (FireFly DR31) and a new cabled system (G3i™), will continue to attract interest because they are designed to deliver improvements in both image quality and productivity. For more information regarding our services and products, see "— Services and Products" below.

In summary, our business strategy is predicated on successfully executing six key imperatives:

- Expanding our Solutions services business in new regions with new customers and new land and marine service offerings, including proprietary services for E&P producers;
- Globalizing our Solutions data processing business by opening advanced imaging centers in strategic locations, and expanding our presence in the land seismic processing segment, with emphasis on serving national oil companies;
- Developing and introducing our next generation of marine towed streamer products, with a goal of developing markets beyond the new vessel market;
- Developing a next generation of seabed seismic data imaging technology using our VectorSeis® Ocean ("VSO") seismic data acquisition system platform and derivative products to obtain technical and market leadership in what we continue to believe is a very important and expanding market;
- Managing our cost structure to reflect current market and economic conditions while keeping key strategic technology programs progressing; and
- Through our investment in INOVA Geophysical, (i) increasing market share and profitability in land data acquisition systems, as well as other land equipment technologies; and (ii) leveraging INOVA Geophysical's land equipment business to design and deliver lower cost, more reliable land imaging systems to our worldwide customer base of land acquisition contractors, while at the same time, tapping into a broader set of global geophysical opportunities associated with the exploration, asset development, and production operations of BGP's parent, CNPC.

Services and Products

Solutions Services

Our Solutions segment includes the following:

GeoVentures — Our GeoVentures services are designed to manage the entire seismic process, from survey planning and design to data acquisition and management, through pre-processing and final subsurface imaging. The GeoVentures services group focuses on the technologically intensive components of the image development process, such as survey planning and design and data processing and interpretation, and outsources the logistics components (such as field acquisition) to experienced seismic and other geological contractors.

We offer our GeoVentures services to customers on both a proprietary and multi-client basis. On both bases, the customers pre-fund a majority of the data acquisition costs. With our proprietary service, the customer also pays for the imaging and processing, but has exclusive ownership of the data after it has been processed. For multi-client surveys, we assume some of the processing costs but retain ownership of the marketing rights to the data and images and receive on-going license revenue from subsequent data license sales.

Since 2002, GeoVentures has acquired and processed a growing seismic data library consisting of non-exclusive marine and ocean bottom data from around the world. The majority of the data libraries licensed by GeoVentures

consist of ultra-deep 2-D seismic survey data that E&P companies use to better evaluate the evolution of petroleum systems at the basin level, including insights into the character of source rocks and sediments, migration pathways, and reservoir trapping

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mechanisms. In many cases, the availability of geoscience data extends beyond seismic information to include magnetic, gravity, well log, and electromagnetic information, which help to provide a more comprehensive picture of the subsurface. Particular attention is made to ensure the data obtained can integrate with legacy 2D and 3D datasets. Known as "SPANS," these geophysical data libraries currently exist for major offshore basins worldwide, including:

- the Gulf of Mexico,
- the Caribbean,
- off the north, east and west coasts of South America,
- off the east and west coasts of Africa,
- off the east and west coasts of India,
- the Arctic Ocean,
- offshore Australia, and
- offshore certain southeast Asian countries.

In 2012, we expanded our BasinSPAN library to add programs or expand programs, most significantly offshore Africa, Latin America, including Brazil and Uruguay, and the Arctic. In addition to our 2D multi-client programs, we initiated our first 3D marine proprietary program.

We have also begun to develop onshore reservoir imaging and characterization programs to provide E&P companies with the ability to better understand conventional and unconventional reservoirs. Known as "ResSCAN" programs, these 3D seismic data programs are designed, acquired and depth-imaged using advanced geophysical technology and proprietary processing techniques, resulting in high-definition images of the subsurface. By the end of 2012, we had five ResSCAN programs either complete or in progress across the Marcellus and Niobrara shale formation areas of the U.S. Other seismic programs are planned or under development for other regions of the world.

Seismic Data Processing Services — We believe that our GXT Imaging Solutions group is a leader in advanced land and marine seismic data processing services. E&P companies apply our solutions to produce high-quality subsurface images in marine, ocean bottom and land environments.

GXT offers processing and imaging services designed to help our E&P customers reduce exploration and production risk, appraise and develop reservoirs, and increase production. GXT develops a series of subsurface images by applying its processing technology to data owned or licensed by its customers and also provides its customers with support services (even onboard seismic vessels), such as data pre-conditioning for imaging and outsourced management, including quality control, of seismic data acquisition and image processing services.

GXT utilizes a globally distributed network of Linux-cluster processing centers throughout the world (including centers in North America, South America, Africa, Asia and Europe), scaled to local needs, which are combined with our major hub in Houston, to process seismic data by applying advanced proprietary algorithms and workflows that incorporate processing techniques such as illumination analysis, data conditioning and velocity modeling, and time and depth migration. These techniques help produce more detailed, higher-quality imaging of subsurface formations.

GXT pioneered pre-stack depth migration ("PreSDM") technology, a processing technique involving the application of advanced, computer-intensive processing algorithms, which convert time-based seismic information to a geological depth basis. While pre-stack depth migration is not required for every imaging situation, it generally provides the most accurate subsurface images in areas of complex geology. Our Reverse Time Migration ("RTM") technology was developed to improve imaging in areas where complex structural conditions or steeply dipping subsurface horizons have provided imaging challenges for oil and gas companies. Both PreSDM and RTM techniques have proved effective in their application to hard-to-image subsalt reservoirs in the Gulf of Mexico. In 2012, we introduced WiBand, a broadband processing technology designed to remove most of the ghost effects from conventional streamer data. This methodology, a combination of algorithms and workflows, uniquely tackles both the source and receiver ghosts to recover the full spectrum in data acquired using conventional towed streamers, delivering superior broadband images.

GXT has a broad portfolio of offerings throughout the entire seismic workflow. Our technologies are designed to allow us to clearly define a solution to ensure that our customers' goals are met, such as removing false reflections and identifying fractures in reservoirs.

Our AXIS Geophysics group (“AXIS”), based in Denver, Colorado, focuses on advanced seismic data processing for stratigraphically complex onshore environments. Many hydrocarbon plays, including shale plays, are impacted by subsurface anisotropy which causes seismic velocities to vary according to source-receiver direction. AXIS has developed a proprietary data processing technique called AZIM™ that is designed to better account for the anisotropic effects of the Earth

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(i.e., the fact that the speed of the seismic waves does not just depend on the subsurface location but also on the direction that the seismic waves travel, or propagate), which tend to distort seismic images. AZIM is designed to correct for these anisotropic effects by producing higher resolution images in areas where the velocity of seismic waves varies with compass direction (or azimuth). The AZIM technique is used to analyze fracture patterns within reservoirs and is particularly suitable for analyzing the geologies in shale formations.

We believe that the application of ION's advanced processing technologies and imaging techniques can better identify complex hydrocarbon-bearing structures and deeper exploration prospects. We also believe that the combination of GXT's capabilities in advanced velocity model building and depth imaging, along with AXIS' capability in anisotropic imaging, provides an advanced toolkit for maximizing full-wave data measurements.

At December 31, 2012, our Solutions segment backlog, which consists of commitments for (i) data processing work and (ii) both multi-client new venture and proprietary projects by our GeoVentures group that have been underwritten, was $151.3 million compared with $134.2 million at December 31, 2011, an increase of 13%. We anticipate that the majority of this backlog will be recognized as revenue over the first half of 2013.

Systems Products

Our Systems segment products include the following:

Marine Acquisition Systems — Our marine acquisition system consists of towed marine streamers and shipboard electronics that collect seismic data in water depths greater than 30 meters. Marine streamers, which contain hydrophones, electronic modules and cabling, may measure up to 12,000 meters in length and are towed (up to 20 at a time) behind a seismic acquisition vessel. The hydrophones detect acoustical energy transmitted through water from the Earth's subsurface structures. Our DigiSTREAMER system, our next-generation towed streamer system, uses solid streamer and integrated continuous acquisition technology for towed streamer operations.

The market for seabed seismic imaging is growing. E&P companies are showing increased interest in seabed seismic activities, consistent with their demand for higher-quality seismic imaging for complex geological formations and more detailed reservoir characteristics. During 2004, we introduced our VSO system, an advanced system for seismic data acquisition using re-deployable ocean bottom cable. Since then, we have sold a total of five VSO ocean-bottom systems, all to Reservoir Exploration Technology, ASA ("RXT"), a Norwegian seismic contractor. During 2010, we announced the launch of VSO II, which offered significant enhancements over the initial VSO system. During 2012, we had sales of VSO II replacement equipment to RXT and its affiliated joint venture. We continue to develop our seabed technology and expect to commercialize our next-generation ocean-bottom system, Calypso™, in late 2013.

Marine Positioning Systems — Our DigiCOURSE® marine streamer positioning system includes streamer cable depth control devices, lateral control devices, compasses, acoustic positioning systems, and other auxiliary sensors. This equipment is designed to control the vertical and horizontal positioning of the streamer cables and provides acoustic, compass, and depth measurements to allow processors to tie navigation and location data to geophysical data to determine the location of potential hydrocarbon reserves. DigiFIN is an advanced lateral streamer control system that we commercialized in 2008. Since 2008, we have sold and delivered 37 DigiFIN systems, and have completed multiple DigiFIN vessel expansions. DigiFIN is designed to maintain tighter, more uniform marine streamer separation along the entire length of the streamer cable, which allows for better sampling of seismic data and improved subsurface images. We believe that DigiFIN also enables faster line changes and minimizes the requirements for in-fill seismic work.

Source and Source Control Systems — We manufacture and sell air guns, which are the primary seismic energy source used in marine environments to initiate the acoustic energy transmitted through the Earth's subsurface. An air gun fires a high compression burst of air underwater to create an energy wave for seismic measurement. We offer a digital source control system (DigiSHOT®), which allows for reliable control of air gun arrays for 4-D exploration activities.

Geophones — Geophones are land analog sensor devices that measure acoustic energy reflected from rock layers in the Earth's subsurface using a mechanical, coil-spring element. We market a full suite of geophones and geophone test equipment that operate in most environments, including land, transition zone, and downhole. Our analog geophones are used in other industries as well.

Software Products and Services

Through this segment, we supply command-and-control software systems and services for towed marine streamer and seabed operations. Software developed by our subsidiary, Concept Systems, is installed on towed streamer marine vessels worldwide and is a component of many re-deployable and permanent seabed monitoring systems. Products and services for our Software segment include the following:

Marine Imaging — Our Concept Systems command and control software for towed streamer acquisition, Orca, integrates acquisition, positioning, source and QC systems data management and control into a seamless platform. Orca has

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made significant inroads into the towed streamer market and, together with legacy Spectra® installations, Concept Systems continued to maintain its leadership position in the towed streamer command and control software market in 2012, despite a period of low expansion in the vessel market. New modules for the efficient optimization of the acquisition for surveys were included in the latest release, with most clients taking the option as standard. For more complex surveys, Orca has even been installed by clients on a job-by-job basis, as required. Spectra is Concept Systems' predecessor to Orca. Sprint® processing software continues to be utilized in the market with a new platform IRIS™, to be released during 2013. Five of the seven known new-builds for 2013 to 2015 have already committed to Orca systems, and Concept continues to work in collaboration with the major seismic players to develop new techniques, enabling the market to expand its technological ambitions.

Seabed Imaging — Concept Systems' now offers the Gator® II product, which improves upon its former Gator® offering. This is an integrated navigation and data management software system for multi-vessel ocean bottom cable and transition zone (such as marshlands) operations, with a new software platform to enhance and simplify the user experience. The Gator system is designed to provide real-time, multi-vessel positioning and data management solutions for ocean-bottom, shallow-water, and transition zone crews. Gator II command and control software is designed to meet the unique challenges of distributed, multi-vessel seabed, transition zone, and electromagnetic data acquisition. The system is extremely flexible and scalable to configure and control single vessel operations to highly complex surveys spanning multiple vessels and acquisition systems. New radio solutions and rugged waterproof timing interfaces have been introduced to further aid the operation of these complex operations.

Survey Design, Planning and Optimization — Concept Systems offers consulting services for planning, designing and supervising complex surveys, including 4D and WATS (Wide Azimuth Towed Streamer) survey operations. Concept Systems' acquisition expertise and in-field software platforms and development capability are designed to allow their clients, including oil companies and seismic acquisition contractors, to optimize these complex surveys, improving image quality and reducing costs. Our Orca and Gator systems are designed to integrate with our post-survey tools for processing, analysis, and data quality control, including the use of our Reflex® software for seismic coverage and attribute analysis, and a technology planning tool called Optimiser.™

INOVA Geophysical Products

Products of INOVA Geophysical include the following:

Land Acquisition Systems — INOVA now provides two offerings for cableless land acquisition, FireFly and Hawk. By removing the constraints of cables, geophysicists can custom-design surveys for multiple subsurface targets and increase receiver station density to more fully sample the subsurface. Cableless systems enable contractors to efficiently operate in challenging, culturally-intensive environments. Other benefits include a decrease in system weight and, we believe, superior operational efficiencies, reduction in operational troubleshooting time and better defined sampled seismic data.

FireFly is INOVA's radio-based cableless system. It allows for a central location to communicate with the field units via radio and receive information back from the field units. This communication link allows for management of the equipment on the ground by relaying commands that respond to operational variables. It also provides valuable quality control information from the field as to the status of the equipment and geophysical attributes. In 2011, INOVA Geophysical introduced its improved FireFly DR31 system, providing increased ruggedness and protection through an aluminum enclosure, reduced power consumption and support for 3-channel analog or VectorSeis digital sensors within the same field electronics.

In 2011, INOVA Geophysical released its Hawk SN11 autonomous node cableless system. Hawk is a lower-priced version of FireFly that provides a wireless platform without radio infrastructure. Given its simpler infrastructure, it consumes less power in turn increasing battery life. The straight forward infrastructure is ideal for swift operations or as a complement to cable-based or FireFly systems. Hawk allows for the use of analog geophones as well as VectorSeis digital sensors.

VectorSeis is INOVA's digital multicomponent sensor and it can be used with all of its recording systems. In 2011, the VectorSeis ML21 was introduced with reinforced mechanical housing improved seal structure and lower power consumption. In 2012, INOVA Geophysical released the VectorSeis MT21 that has the versatility to be used in marsh

applications. Since 1999, VectorSeis full-wave technology has been used to acquire seismic data all over the world. INOVA Geophysical cable-based land acquisition systems, Scorpion®, ARIES® and G3i, consist of a central recording unit and multiple remote ground equipment modules that are connected by cable. The central recording unit is in a transportable enclosure that serves as the control center of each system and is typically mounted within a vehicle. The central recording unit receives digitized data, stores the data on storage media for subsequent processing and displays the data on optional monitoring devices. It also provides calibration, status and test functionality. The remote ground equipment consists of multiple remote modules and line taps positioned over the survey area. Seismic data is collected by analog geophones or VectorSeis digital sensors.

In 2012, INOVA Geophysical released the G3i cable-based recording system. G3i supports over 100,000 channels and can be used to capture 2D, high density 3D and time-lapse 4D data. The electronics of G3i's Remote Acquisition Module

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("RAM"), Fiber Tap Unit ("FTU") and Power Supply Unit ("PSU") are enclosed in a light weight, aluminum housing for extended durability and protection in harsh operating environments. G3i's power-down-the line technology distributes battery power to multiple RAM stations using the PSU and FTU, reducing the need for additional batteries on the spread and simplifying power management and logistics. G3i offers high productivity vibroseis capabilities to allow operators to obtain higher productivity levels than traditional vibroseis methods by recording more source points per hour and completing surveys faster. The G3i system is designed to help E&P companies and seismic contractors overcome their operational challenges while conducting the simplest or the most demanding acquisition projects.

INOVA Geophysical ARIES product line was originally acquired in connection with our acquisition of ARAM Systems Ltd. in September 2008. The product line consists of analog cable-based land acquisition systems and related peripherals and equipment. ARIES land system products include remote acquisition modules ("RAMs"), which acquire seismic data from the sensors and transmit the data digitally to the central processing equipment. Line tap units interconnect baseline cables from the recording equipment to multiple receiver lines and function to retransmit data from the RAMs to central recording equipment. ARIES products also include system batteries, central recording equipment, and baseline cables that connect the central recording equipment with the taps and receiver line cables.

The latest version of ARIES — the ARIES® II land recording system — features a 24-bit system architecture that is designed to dramatically improve channel capacity, ensure efficient equipment deployment, and maximize system performance. It is also enabled to work with analog geophones and VectorSeis digital sensors and provides continuous recording functionality for microseismic and high productivity vibroseis operations. ARIES II supports high channel count, source-driven, high productivity vibroseis acquisition.

The Scorpion system is also capable of recording digital multicomponent seismic data, as well as analog data. Digital sensors can provide increased response linearity and bandwidth, which translate into higher resolution images of the subsurface. In addition, one digital sensor can replace a string of six or more analog geophones, providing users with equipment weight reduction and improved operating efficiencies.

Source Products — Vibrators are devices carried by large vehicles and, along with dynamite, are used as energy sources for land seismic acquisition. INOVA Geophysical markets and sells the AHV-IV™, a line of articulated tire-based vibrator vehicles, and a tracked vibrator, the XVib®, for use in environmentally sensitive areas such as the Arctic tundra and desert environments. During 2011, INOVA launched the UNIVIB™, a smaller vibrator with up to 26,000 lb peak force that allows easier mobility in environmentally restricted or heavily urbanized areas. INOVA Geophysical also released its Connex™ Vib system that provides navigation and positioning of vibroseis vehicles with capabilities for integrated stakeless operations.

INOVA Geophysical is also a provider of energy source control and positioning technologies. The Vib Pro™ control system provides vibrator vehicles with digital technology for energy control and global positioning system technology for navigation and positioning. The Shot Pro™ dynamite firing system, released in 2007, is the equivalent technology for seismic operations using dynamite energy sources.

Product Research and Development

Our research and development efforts have continued to remain focused on improving the quality of the subsurface image and seismic data acquisition economics for our customers. Additionally, we have also focused on improving the type and quality of the information that can be extracted from the subsurface images. Our ability to compete effectively in the manufacture and sale of seismic equipment and data acquisition systems, as well as related processing services, depends principally upon continued technological innovation. Development cycles of most products, from initial conception through commercial introduction, may extend over several years.

During 2012, our product development efforts continued across selective business lines aimed at the development of strategic key technologies and products. A large part of our research and development efforts in 2012 were focused on development of our new Calypso re-deployable seabed acquisition system and our other marine technologies. In our data processing business, we are investing in continued improvements in productivity and in enhancing our applications to handle increasingly complex data acquisition environments and difficult-to-image geology. We have also invested in the development of a new processing based broadband marine seismic solution, WiBand, which we introduced at the 2012 European Association of Geoscientists & Engineers (EAGE) conference and exhibition. In addition, we have invested in research and development on the value of Full Wave data in extracting new and more

accurate information of the subsurface with special emphasis on its application to shale plays and marine seabed acquisition.

Because many of these new services and products are under development, their commercial feasibility or degree of commercial acceptance is not yet established. No assurance can be given concerning the successful development of any new service or product, any enhancements to them, the specific timing of their release or their level of acceptance in the marketplace.

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Markets and Customers

Based on historical revenues, we believe that we are a market leader in seismic data acquisition in the Arctic and in numerous product lines, including full-wave sensors based upon micro-electro magnetic systems ("MEMS"), navigation and data management software, marine positioning and streamer control systems, redeployable seabed recording systems and, through INOVA Geophysical, cableless land acquisition systems.

Our principal customers are E&P companies and seismic contractors. We market and offer services directly to E&P companies, primarily imaging-related processing services from our GXT subsidiary and multi-client seismic data libraries from our GeoVentures group, as well as consulting services from Concept Systems and GXT. Seismic contractors purchase our data acquisition systems and related equipment and software to collect data in accordance with their E&P company customers' specifications or for their own seismic data libraries. For each of 2012, 2011 and 2010, no single customer accounted for 10% or more of our consolidated annual net revenues.

A significant part of our marketing effort is focused on areas outside of the United States. Foreign sales are subject to special risks inherent in doing business outside of the United States, including the risk of armed conflict, civil disturbances, currency fluctuations, embargo and governmental activities, customer credit risks, and risk of non-compliance with U.S. and foreign laws, including tariff regulations and import/export restrictions.

We sell our services and products through a direct sales force consisting of employees and international third-party sales representatives responsible for key geographic areas. During 2012, 2011 and 2010, sales to destinations outside of North America accounted for approximately 69%, 66% and 60% of our consolidated net revenues, respectively. Further, systems and equipment sold to domestic customers are frequently deployed internationally and, from time to time, certain foreign sales require export licenses.

Traditionally, our business has been seasonal, with strongest demand typically in the fourth quarter of our fiscal year. For information concerning the geographic breakdown of our net revenues, see Note 2 of Notes to Consolidated Financial Statements.

Manufacturing Outsourcing and Suppliers

Since 2003, we have increased the use of contract manufacturers in our Systems segment as an alternative to manufacturing our own products. We have outsourced the manufacturing of our towed marine streamers, our re-deployable ocean bottom cables and various components of our VSO seabed system. We may experience supply interruptions, cost escalations, and competitive disadvantages if we do not monitor these relationships properly.

Competition

The GXT Imaging Solutions group within our Solutions segment competes with more than a dozen processing companies that are capable of providing pre-stack depth migration services to E&P companies. See " — Services and Products —Solutions Services." While the barriers to entry into this market are relatively low, the barriers to competing at the higher end of the market, the advanced pre-stack depth migration market where our efforts are focused, are significantly higher. At the higher end of this market, Compagnie General de Geophysique Veritas ("CGGVeritas") and WesternGeco L.L.C. (a wholly-owned subsidiary of Schlumberger Limited, a large integrated oilfield services company) are our Solutions segment's two primary competitors for advanced imaging services. Both of these companies are larger than ION in terms of revenues, number of processing locations, and sales, marketing and financial resources. In addition, both CGGVeritas and WesternGeco possess an advantage of being part of affiliated seismic contractor companies, providing them with access to customer relationships and seismic datasets that require processing. The GXT Imaging Solutions group also competes with companies that are capable of performing data processing services via internal resources. These companies, along with another competitor, TGS-Nopec, also develop and sell data libraries that compete with ION's BasinSPAN data library.

The market for seismic services and products is highly competitive and is characterized by continual changes in technology. Our principal competitor for land and marine seismic equipment is Societe d'Etudes Recherches et Construction Electroniques ("Sercel"), an affiliate of the French seismic contractor, CGGVeritas. Sercel possesses the advantage of being able to sell its products and services to an affiliated seismic contractor that operates both land crews and seismic acquisition vessels, providing it with a greater ability to test new technology in the field and to capture a captive internal market for product sales. Sercel has also demonstrated that it is willing to offer extended financing sales terms to customers in situations where we declined to do so due to credit risk. We also compete with

other seismic equipment companies on a product-by-product basis. Our ability to compete effectively in the manufacture and sale of seismic instruments and data acquisition systems depends principally upon continued technological innovation, as well as pricing, system reliability, reputation for quality, and ability to deliver on schedule.

Certain seismic contractors have designed, engineered, and manufactured seismic acquisition technology in-house (or through a network of third-party vendors) in order to achieve differentiation versus their competition. For example,

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WesternGeco relies heavily on its in-house technology development for designing, engineering, and manufacturing its "Q-Technology" platform, which includes seismic acquisition and processing systems. Although this technology competes directly with ION's technology for marine streamer, seabed, and land acquisition, WesternGeco does not provide Q-Technology services to other seismic acquisition contractors. However, the risk exists that other seismic contractors may decide to conduct more of their own seismic technology development, which would put additional pressures on the demand for ION acquisition equipment products.

In addition, over the last several years, we have seen both new-build and consolidation activity within the marine towed streamer segment, which could impact our business results in the future. We expect the number of 2-D and 3-D marine streamer vessels, including those in operation, under construction, or announced additions to capacity, to increase by 24, to approximately 150 in 2016, keeping net projections steady compared to December 31, 2011. We understand that 23 out of these estimated 24 vessels will be outfitted to perform 3-D seismic survey work. In addition, there has been an increase in acquisition activity within the sector, with the major vessel operators — CGGVeritas, WesternGeco, and Petroleum Geo-Services ASA ("PGS") — all moving to acquire new market entrants in the last several years. In 2012, CGGVeritas announced the acquisition of Fugro's geoscience division. This acquisition resulted in 75% of the high-end 3D seismic capacity being concentrated among the largest three companies — CGGVeritas, WesternGeco & PGS. Those three companies are, more and more, vertically integrated companies developing technology that uniquely differentiates them from the rest of the players. This consolidation in the sector reduces the number of potential customers and vessel outfitting opportunities for us.

Concept Systems provides advanced data integration software and services to seismic contractors acquiring data using either towed streamer vessels or ocean-bottom cable on the seabed. Vessels or ocean-bottom cable crews that do not use Concept Systems software either rely upon manual data integration, reconciliation, and quality control, or develop and maintain their own proprietary software packages. There is growing competition to Concept Systems' core command and control business from Sercel and other smaller companies. Concept Systems has signed long term (between two and five years) technology partnership agreements with many of its key clients and will continue to seek to develop key new technologies with these clients. An important competitive factor for companies in the same business as Concept Systems is the ability to provide advanced complex command and control software with a high level of reliability combined with expert systems and project support to ensure operations run cost-effectively.

Intellectual Property

We rely on a combination of patents, copyrights, trademark, trade secrets, confidentiality procedures, and contractual provisions to protect our proprietary technologies. Although our portfolio of patents is considered important to our operations, and particular patents may be material to specific business lines, no one patent is considered essential to our consolidated business operations.

Our patents, copyrights, and trademarks offer us only limited protection. Our competitors may attempt to copy aspects of our products despite our efforts to protect our proprietary rights, or may design around the proprietary features of our products. Policing unauthorized use of our proprietary rights is difficult, and we are unable to determine the extent to which such use occurs. Our difficulties are compounded in certain foreign countries where the laws do not offer as much protection for proprietary rights as the laws of the United States. From time to time, third parties inquire and claim that we have infringed upon their intellectual property rights and we make similar inquiries and claims to third parties. No material liabilities have resulted from these third party claims to date. For more information on current litigation related to the Company's intellectual property, see Item 3. "Legal Proceedings."

The information contained in this Annual Report on Form 10-K contains references to trademarks, service marks and registered marks of ION and our subsidiaries, as indicated. Except where stated otherwise or unless the context otherwise requires, the terms "VectorSeis," "FireFly," "ARIES," "ARIES II," "DigiSHOT," "DigiFIN," "XVib," "DigiCOURS "Gator," "Gator II" "Spectra," "Orca," "Sprint," "Scorpion," and "Reflex" refer to VECTORSEIS®, FIREFLY®, ARIES®, ARIES II®, DIGISHOT®, DIGIFIN®, XVIB®, DIGICOURSE®, GATOR®, GATOR® II, SPECTRA®, ORCA®, SPRINT®, SCORPION®, and REFLEX® registered marks owned by ION or INOVA Geophysical, and the terms "AZIM," "BasinSPAN," "DigiSTREAMER," "AHV-IV," "Vib Pro," "Shot Pro," "GeoVentures," "Optimiser," "ResSCAN," "Hawk," " "G3i," "Calypso," "Connex" and "WiBand" refer to AZIM™, BasinSPAN™, DigiSTREAMER™, AHV-IV™, Vib Pro™, Sh GeoVentures™, Optimiser™, ResSCAN™ , Hawk™, UNIVIB™, G3i™, Calypso™, Connex™ and WiBand™ trademarks an

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Regulatory Matters

Our operations are subject to various international conventions, laws and regulations in the countries in which we operate, including laws and regulations relating to the importation of and operation of seismic equipment, currency conversions and repatriation, oil and gas exploration and development, taxation of offshore earnings and earnings of expatriate personnel, environmental protection, the use of local employees and suppliers by foreign contractors and duties on the importation and exportation of equipment. Our operations are subject to government policies and product certification requirements worldwide. Governments in some foreign countries have become increasingly active in regulating the companies holding concessions, the exploration for oil and gas and other aspects of the oil and gas industries in their countries. In some areas of the world, this governmental activity has adversely affected the amount of exploration and development work done by major oil and gas companies and may continue to do so. Operations in less developed countries can be subject to legal systems that are not as mature or predictable as those in more developed countries, which can lead to greater uncertainty in legal matters and proceedings.

Changes in these conventions, regulations, policies or requirements could affect the demand for our services and products or result in the need to modify them, which may involve substantial costs or delays in sales and could have an adverse effect on our future operating results. Our export activities are subject to extensive and evolving trade regulations. Certain countries are subject to trade restrictions, embargoes, and sanctions imposed by the U.S. government. These restrictions and sanctions prohibit or limit us from participating in certain business activities in those countries.

Our operations are subject to numerous local, state, and federal laws and regulations in the United States and in foreign jurisdictions concerning the containment and disposal of hazardous materials, the remediation of contaminated properties, and the protection of the environment. While the industry has experienced an increase in general environmental regulation worldwide and laws and regulations protecting the environment have generally become more stringent, we do not believe compliance with these regulations will have a material adverse effect on our business or results of operations, and we do not currently foresee the need for significant expenditures to ensure our continued compliance with current environmental protection laws. Regulations in this area are subject to change, and there can be no assurance that future laws or regulations will not have a material adverse effect on us.

The Deepwater Horizon incident in the U.S. Gulf of Mexico in April 2010 resulted in a moratorium on certain offshore drilling activities by the Bureau of Ocean Energy Management, Regulation and Enforcement (“BOEMRE”). This moratorium and other regulatory initiatives in response to this incident adversely affected decisions of E&P companies to explore and drill in the Gulf of Mexico, and negatively impacted our Solutions segment in 2010 and 2011. During this time period, we experienced a significant reduction in data processing revenues attributable to the Gulf of Mexico. The BOEMRE has issued new safety and environmental guidelines and regulations for drilling in the Gulf of Mexico and other offshore regions, and may take other steps that could increase the costs of exploration and production, reduce the area of operations and result in additional permitting delays. In addition, there have been numerous other proposed changes in laws, regulations, guidance and policies in response to the Deepwater Horizon incident that could adversely affect E&P operations in the Gulf of Mexico. While the pace of drilling activities in the Gulf of Mexico has increased since late 2011, the Deepwater Horizon incident has resulted in heightened regulatory scrutiny, more stringent operating and safety standards, changes in equipment requirements and the availability and cost of insurance.

We do not engage in hydraulic fracturing services, a commonly used process in the completion of oil and natural gas wells in low permeability formations such as shales, which involves the injection of water, proppants, and chemicals under pressure into the target reservoir to stimulate hydrocarbon production. Our business, however, is dependent on the level of activity by our E&P customers, and hydrocarbons cannot be economically produced from certain reservoirs without extensive fracturing. Due to public concerns about any environmental impact that hydraulic fracturing may have, including potential impairment of groundwater quality, certain legislative and regulatory efforts at the federal, state, and local levels have been initiated to impose more stringent permitting and compliance obligations on these operations. Hydraulic fracturing typically is regulated by state oil and natural gas commissions, but the U.S. Environmental Protection Agency (the “EPA”) has asserted federal regulatory authority under the Safe Drinking Water Act over certain hydraulic fracturing. In addition, legislation has been introduced before Congress to

provide for federal regulation of hydraulic fracturing under the Safe Drinking Water Act and to require disclosure of the chemicals used in the hydraulic fracturing process. Several states are also considering implementing, and some states have implemented, new regulations pertaining to hydraulic fracturing, including the disclosure of chemicals used in fracturing operations. A number of state and local governments have also adopted or are considering adopting additional requirements relating to hydraulic fracturing. Certain governmental reviews are either underway or being proposed that focus on environmental aspects of hydraulic fracturing practices.

The EPA has commenced a study of the potential environmental effects of hydraulic fracturing on drinking water and groundwater, with final results expected to be released in late 2014. Other governmental agencies, including the U.S. Department of Energy and the U.S. Department of the Interior, are evaluating various other aspects of hydraulic fracturing.

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Any legislative and regulatory initiatives imposing significant additional restrictions on, or otherwise limiting, the hydraulic fracturing process could make it more difficult or costly to complete natural gas and oil wells. In the event such requirements are enacted, demand for our ResSCAN shale data libraries and seismic data acquisition services may be adversely affected.

Our customers' operations are also significantly impacted in other respects by laws and regulations concerning the protection of the environment and endangered species. For instance, many of our marine contractors have been affected by regulations protecting marine mammals in the Gulf of Mexico. To the extent that our customers' operations are disrupted by future laws and regulations, our business and results of operations may be materially adversely affected.

Employees

As of December 31, 2012, we had 1,071 regular, full-time employees, 698 of whom were located in the U.S. From time to time and on an as-needed basis, we supplement our regular workforce with individuals that we hire temporarily or as independent contractors in order to meet certain internal manufacturing or other business needs. Our U.S. employees are not represented by any collective bargaining agreement, and we have never experienced a labor-related work stoppage. We believe that our employee relations are satisfactory.

Financial Information by Segment and Geographic Area

For a discussion of financial information by business segment and geographic area, see Note 2 of Notes to Consolidated Financial Statements.

Item 1A. Risk Factors

This report contains or incorporates by reference statements concerning our future results and performance and other matters that are "forward-looking" statements within the meaning of Section 27A of the Securities Act of 1933, as amended ("Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended ("Exchange Act"). These statements involve known and unknown risks, uncertainties, and other factors that may cause our or our industry's results, levels of activity, performance, or achievements to be materially different from any future results, levels of activity, performance, or achievements expressed or implied by such forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "may," "will," "would," "should," "intend," "expec "plan," "anticipate," "believe," "estimate," "predict," "potential," or "continue" or the negative of such terms or other compara terminology. Examples of other forward-looking statements contained or incorporated by reference in this report include statements regarding:

- the expected outcome of litigation and other claims against us (see Item 3 -"Legal Proceedings" below);
- any future potential adverse effects on our liquidity from our being required to post an appeal bond in the WesternGeco litigation referred to in Item 3 - "Legal Proceedings" in the event that we are subject to a significant adverse judgment in the matter;
- the effects of current and future worldwide economic conditions and demand for oil and natural gas and seismic equipment and services;
- the effects of current and future unrest in the Middle East, North Africa and other regions;
- the effects of consolidation and vertical integration in the towed marine seismic streamers market;
- future benefits to be derived from our INOVA Geophysical joint venture;
- future increases of capital expenditures for seismic activities;
- the timing of anticipated sales and associated realized revenues;
- future levels of spending by our customers;
- the timing of future revenue realization of anticipated orders for seismic data processing work in our Solutions segment;
- future oil and gas commodity prices;
- future effects resulting from the April 2010 Deepwater Horizon incident, and any further slowdown in E&P activities in the Gulf of Mexico;
- expected net revenues, income from operations and net income;
- expected improved revenues from data processing services in our Solutions segment;
- expected gross margins for our services and products;

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- future demand for seismic equipment and services;
- future benefits to our customers to be derived from new services and products;
- future benefits to be derived from our investments in technologies and acquired companies;
- future growth rates for our services and products;
- the degree and rate of future market acceptance of our new services and products;
- our expectations regarding oil and gas exploration and production companies and contractor end-users purchasing our more technologically-advanced services and products;
- anticipated timing and success of commercialization and capabilities of services and products under development and start-up costs associated with their development;
- future cash needs and future availability of cash to fund our operations and pay our obligations;
- potential future acquisitions;
- future levels of capital expenditures;
- our ability to maintain our costs at consistent percentages of our revenues in the future;
- future seismic industry fundamentals;
- future opportunities for new products and projected research and development expenses;
- future success in integrating acquired businesses;
- future compliance with our debt financial covenants;
- expectations regarding realization of deferred tax assets; and
- anticipated results regarding accounting estimates we make.

These forward-looking statements reflect our best judgment about future events and trends based on the information currently available to us. Our results of operations can be affected by inaccurate assumptions we make or by risks and uncertainties known or unknown to us. Therefore, we cannot guarantee the accuracy of the forward-looking statements. Actual events and results of operations may vary materially from our current expectations and assumptions. While we cannot identify all of the factors that may cause actual results to vary from our expectations, we believe the following factors should be considered carefully:

An unfavorable judgment could have a material adverse effect on our financial results and liquidity.

In August 2012, a jury in the WesternGeco L.L.C. v. ION Geophysical Corporation litigation (see Item 3. “Legal Proceedings” below) returned a verdict of approximately $105.9 million in damages against us. As of the date of this filing, the federal district trial court had not entered its judgment in the matter. Because the jury concluded that our infringement was willful, the trial court judge will determine, in his independent judgment, whether we willfully infringed and he should declare this case to be “exceptional.” In order for the judge to find willful infringement and declare this case exceptional, WesternGeco must prove, by clear and convincing evidence, that we acted with objective recklessness and in bad faith, fraudulently or engaged in similar misconduct related to the case. If the judge finds willful infringement and declares this case to be exceptional, the judge has the discretion, but not the obligation, to enhance the damages amount, not to exceed a trebling of the final judgment damages award plus reasonable attorneys’ fees. We believe that, given our understanding and analysis of applicable law and the relevant facts and evidence in this case, and after considering the advice of counsel, it is unlikely that we will incur any additional loss as a result of the jury’s finding of willfulness. We also believe that the verdict is inconsistent with applicable law and the facts or evidence in the case, and we have filed motions with the trial court to overturn all or portions of the verdict. If the trial court enters a judgment that is adverse to us, we would continue to defend this matter vigorously and would intend to appeal the judgment to the United States Court of Appeals for the Federal Circuit.

In order to appeal the judgment, we may be required to post an appeal bond for the full amount of damages entered in the judgment. To post and collateralize a bond of that size, or if we become subject to a significant adverse judgment in this lawsuit, we might have to utilize a combination of cash on hand, undrawn balances available under our revolving line of credit under our senior debt facility and possibly incur additional debt and/or equity financing. The posting and collateralization of such an appeal bond could have a possible adverse effect on our liquidity. If we are unable to post the appeal bond, we may be unable to stay enforcement of the judgment or appeal the case. At this time, we are unable to determine whether an appeal bond would be required or the amount of such an appeal bond. Similarly, we are unable to predict the timing of the final judgment being entered by the trial court or the timing of

posting any required appeal bond.

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No assurances can be made whether our efforts to raise additional cash would be successful, and if so, whether the terms of such financings would be on favorable terms to us and our stockholders. If additional funds are raised through the issuance of debt and/or equity securities, these securities could have rights, preferences and privileges more favorable to those that holders of our current debt or equity securities currently have, and the terms of these securities could impose restrictions on our operations. If we are unable to raise additional capital under these circumstances, our business, operating results and financial condition may be harmed.

If our efforts to reverse or reduce the verdict substantially are unsuccessful, it would likely have the effect of reducing our capital resources available to fund our operations and take advantage of certain business opportunities, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

As a technology-focused company, we are continually exposed to risks related to complex, highly technical services and products.

We have made, and we will continue to make, strategic decisions from time to time as to the technologies in which we invest. If we choose the wrong technology, our financial results could be adversely impacted. Our operating results are dependent upon our ability to improve and refine our seismic imaging services and to successfully develop, manufacture, and market our products and other services and products. New technologies generally require a substantial investment before any assurance is available as to their commercial viability. If we choose the wrong technology, or if our competitors develop or select a superior technology, we could lose our existing customers and be unable to attract new customers, which would harm our business and operations.

The markets for our services and products are characterized by changing technology and new product introductions. We must invest substantial capital to develop and maintain a leading edge in technology, with no assurance that we will receive an adequate rate of return on those investments. If we are unable to develop and produce successfully and timely new or enhanced services and products, we will be unable to compete in the future and our business, our results of operations and our financial condition will be materially and adversely affected. Our business could suffer from unexpected developments in technology, or from our failure to adapt to these changes. In addition, the preferences and requirements of customers can change rapidly.

The businesses of our Solutions and Software segments, being more concentrated in software, processing services, and proprietary technologies, have also exposed us to various risks that these technologies typically encounter, including the following:

- future competition from more established companies entering the market;
- technology obsolescence;
- dependence upon continued growth of the market for seismic data processing;
- the rate of change in the markets for these segments' technology and services;
- research and development efforts not proving sufficient to keep up with changing market demands;
- dependence on third-party software for inclusion in these segments' services and products;
- misappropriation of these segments' technology by other companies;
- alleged or actual infringement of intellectual property rights that could result in substantial additional costs;
- difficulties inherent in forecasting sales for newly developed technologies or advancements in technologies;
- recruiting, training, and retaining technically skilled personnel that could increase the costs for these segments, or limit their growth; and
- the ability to maintain traditional margins for certain of their technology or services.

Seismic data acquisition and data processing technologies historically have progressed rather rapidly, and we expect this progression to continue. In order to remain competitive, we must continue to invest additional capital to maintain, upgrade and expand our seismic data acquisition and processing capabilities. However, due to potential advances in technology and the related costs associated with such technological advances, we may not be able to fulfill this strategy, thus possibly affecting our ability to compete.

Our customers often require demanding specifications for performance and reliability of our services and products. Because many of our products are complex and often use unique advanced components, processes, technologies, and techniques, undetected errors and design and manufacturing flaws may occur. Even though we attempt to assure that our systems are always reliable in the field, the many technical variables related to their operations can cause a

combination of factors that can, and have from time to time, caused performance and service issues with certain of our products. Product defects result in higher product service, warranty, and replacement costs and may affect our customer relationships and industry

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reputation, all of which may adversely impact our results of operations. Despite our testing and quality assurance programs, undetected errors may not be discovered until the product is purchased and used by a customer in a variety of field conditions. If our customers deploy our new products and they do not work correctly, our relationship with our customers may be materially and adversely affected.

As a result of our systems' advanced and complex nature, we expect to experience occasional operational issues from time to time. Generally, until our products have been tested in the field under a wide variety of operational conditions, we cannot be certain that performance and service problems will not arise. In that case, market acceptance of our new products could be delayed and our results of operations and financial condition could be adversely affected.

We are subject to intense competition, which could limit our ability to maintain or increase our market share or to maintain our prices at profitable levels.

Many of our sales are obtained through a competitive bidding process, which is standard for our industry. Competitive factors in recent years have included price, technological expertise, and a reputation for quality, safety and dependability. While no single company competes with us in all of our segments, we are subject to intense competition in each of our segments. New entrants in many of the markets in which certain of our services and products are currently strong should be expected. See Item 1. "Business — Competition." We compete with companies that are larger than we are in terms of revenues, number of processing locations and sales and marketing resources. A few of our competitors have a competitive advantage in being part of an affiliated seismic contractor company. In addition, we compete with major service providers and government-sponsored enterprises and affiliates. Some of our competitors conduct seismic data acquisition operations as part of their regular business, which we do not, and have greater financial and other resources than we do. These and other competitors may be better positioned to withstand and adjust more quickly to volatile market conditions, such as fluctuations in oil and natural gas prices, as well as changes in government regulations. In addition, any excess supply of services and products in the seismic services market could apply downward pressure on prices for our services and products. The negative effects of the competitive environment in which we operate could have a material adverse effect on our results of operations.

We may be unable to obtain broad intellectual property protection for our current and future products and we may become involved in intellectual property disputes.

We rely on a combination of patent, copyright, and trademark laws, trade secrets, confidentiality procedures, and contractual provisions to protect our proprietary technologies. We believe that the technological and creative skill of our employees, new product developments, frequent product enhancements, name recognition, and reliable product maintenance are the foundations of our competitive advantage. Although we have a considerable portfolio of patents, copyrights, and trademarks, these property rights offer us only limited protection. Our competitors may attempt to copy aspects of our products despite our efforts to protect our proprietary rights, or may design around the proprietary features of our products. Policing unauthorized use of our proprietary rights is difficult, and we are unable to determine the extent to which such use occurs. Our difficulties are compounded in certain foreign countries where the laws do not offer as much protection for proprietary rights as the laws of the United States.

Third parties inquire and claim from time to time that we have infringed upon their intellectual property rights. Many of our competitors own their own extensive global portfolio of patents, copyrights, trademarks, trade secrets, and other intellectual property to protect their proprietary technologies. We believe that we have in place appropriate procedures and safeguards to help ensure that we do not violate a third party's intellectual property rights. However, no set of procedures and safeguards is infallible. We may unknowingly and inadvertently take action that is inconsistent with a third party's intellectual property rights, despite our efforts to do otherwise. Any such claims from third parties, with or without merit, could be time consuming, result in costly litigation, result in injunctions, require product modifications, cause product shipment delays or require us to enter into royalty or licensing arrangements. Such claims could have a material adverse effect on our results of operations and financial condition.

Much of our litigation in recent years have involved disputes over our and others' rights to technology. See Item 3. "Legal Proceedings."

Our INOVA Geophysical joint venture with BGP involves numerous risks.

Our INOVA Geophysical joint venture with BGP is focused on designing, engineering, manufacturing, research and development, sales and marketing and field support of land-based equipment used in seismic data acquisition for the

oil and gas industry. Excluded from the scope of the joint venture's business are the analog sensor businesses of our company and BGP and the businesses of certain companies in which BGP or we are currently a minority owner. In addition to these excluded businesses, all of our other businesses — including our Solutions, Systems and Software segments — remain owned and operated by us and do not comprise a part of the joint venture.

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The INOVA Geophysical joint venture involves the integration of multiple product lines and business models contributed by us and BGP that previously have operated independently. This has been a complex and time-consuming process.

There can be no assurance that we will achieve the expected benefits of the joint venture. The INOVA Geophysical joint venture (and any future joint ventures or acquisitions that we may complete), may result in unexpected costs, expenses, and liabilities, which may have a material adverse effect on our business, financial condition or results of operations. INOVA Geophysical may encounter difficulties in developing and expanding its business. We may experience difficulties in funding any future capital contributions to the joint venture, exercising influence over the management and activities of the joint venture, quality control over joint venture products and services and potential conflicts of interest with the joint venture and our joint venture partner. Any inability to meet our obligations as a joint venture partner under the joint venture agreement could result in our being subject to penalties and reduced percentage interests in the joint venture for our company. Also, we could be disadvantaged in the event of disputes and controversies with our joint venture partner, since our joint venture partner is a relatively significant customer of our services and products and future services and products of the joint venture as well as a holder of approximately 15% of our common stock.

The joint venture is also subject to, and exposes us to, various additional risks that could adversely affect our results of operations. These risks include the following:

- as a condition in our senior secured credit facility, INOVA Geophysical provides a bank stand-by letter of credit as credit support for our obligations under the credit facility;
- increased costs associated with the integration and operation of the new business and the management of geographically dispersed operations;
- risks associated with the assimilation of new technologies (including incorporating BGP's land seismic equipment with our land seismic imaging product lines that we contributed to the joint venture), operations, sites, and personnel;
- difficulties in retaining and integrating key technical, sales and marketing personnel and the possible loss of such employees and costs associated with their loss;
- difficulties associated with preserving relationships with our customers, partners and vendors;
- risks that any technology developed by the joint venture may not perform as well as we had anticipated;
- the diversion of management’s attention and other resources from other business operations and related concerns;
- the potential inability to replicate operating efficiencies in the joint venture’s operations;
- potential impairments of goodwill and intangible assets;
- the requirement to maintain uniform standards, controls and procedures;
- the impairment of relationships with employees and customers as a result of the integration of management personnel from different companies;
- the divergence of our interests from BGP’s interests in the future, disagreements with BGP on ongoing manufacturing, research and development and operational activities, or the amount, timing or nature of further investments in the joint venture;
- the terms of our joint venture arrangements may turn out to be unfavorable to us;
- we currently own 49% of the total equity interests in INOVA Geophysical, so there are certain decisions affecting the business of the joint venture that we cannot control or influence;
- we may not be able to realize the operating efficiencies, cost savings or other benefits that we expect from the joint venture;
- the joint venture’s cash flows may be inadequate to fund its capital requirements, thereby requiring additional contributions to the capital of the joint venture by us and by BGP;
- joint venture profits and cash flows may prove inadequate to fund cash dividends from the joint venture to the joint venture partners; and
- the joint venture may experience difficulties and delays in production of the joint venture’s products.

If the INOVA Geophysical joint venture is not successful, our business, results of operations and financial condition will likely be adversely affected.

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In addition, the terms of the joint venture's governing instruments and the agreements regarding BGP's investment in our company contain a number of restrictive provisions affecting ION. For example, an investors' rights agreement grants pre-emptive rights to BGP with respect to certain future issuances of our stock. These restrictions may adversely affect our ability to quickly raise funds through a future issuance of our securities, and could have the effect of discouraging, delaying or preventing a merger or acquisition of our company that our stockholders may otherwise consider to be favorable.

We derive a substantial amount of our revenues from foreign operations and sales, which pose additional risks.

Sales to customer destinations outside of North America represented 69%, 66% and 60% of our consolidated net revenues for 2012, 2011 and 2010, respectively, of our consolidated net revenues. We believe that export sales will remain a significant percentage of our revenue. U.S. export restrictions affect the types and specifications of products we can export. Additionally, in order to complete certain sales, U.S. laws may require us to obtain export licenses, and we cannot assure you that we will not experience difficulty in obtaining these licenses.

Like many energy services companies, we have operations in and sales into certain international areas, including parts of the Middle East, West Africa, Latin America, Asia Pacific and the former Soviet Union, that are subject to risks of war, political disruption, civil disturbance, political corruption, possible economic and legal sanctions (such as possible restrictions against countries that the U.S. government may deem to sponsor terrorism) and changes in global trade policies. Our sales or operations may become restricted or prohibited in any country in which the foregoing risks occur. In particular, the occurrence of any of these risks could result in the following events, which in turn, could materially and adversely impact our results of operations:

- disruption of oil and natural gas E&P activities;
- restriction on the movement and exchange of funds;
- inhibition of our ability to collect receivables;
- enactment of additional or stricter U.S. government or international sanctions;
- limitation of our access to markets for periods of time;
- expropriation and nationalization of assets of our company or those of our customers;
- political and economic instability, which may include armed conflict and civil disturbance;
- currency fluctuations, devaluations, and conversion restrictions;
- confiscatory taxation or other adverse tax policies; and
- governmental actions that may result in the deprivation of our contractual rights.

Our international operations and sales increase our exposure to other countries' restrictive tariff regulations, other import/export restrictions and customer credit risk.

In addition, we are subject to taxation in many jurisdictions and the final determination of our tax liabilities involves the interpretation of the statutes and requirements of taxing authorities worldwide. Our tax returns are subject to routine examination by taxing authorities, and these examinations may result in assessments of additional taxes, penalties and/or interest.

If we do not effectively manage our transition into new services and products, our revenues may suffer.

Services and products for the seismic industry are characterized by rapid technological advances in hardware performance, software functionality and features, frequent introduction of new services and products, and improvement in price characteristics relative to product and service performance. Among the risks associated with the introduction of new services and products are delays in development or manufacturing, variations in costs, delays in customer purchases or reductions in price of existing products in anticipation of new introductions, write-offs or write-downs of the carrying costs of inventory and raw materials associated with prior generation products, difficulty in predicting customer demand for new product and service offerings and effectively managing inventory levels so that they are in line with anticipated demand, risks associated with customer qualification, evaluation of new products, and the risk that new products may have quality or other defects or may not be supported adequately by application software. The introduction of new services and products by our competitors also may result in delays in customer purchases and difficulty in predicting customer demand. If we do not make an effective transition from existing services and products to future offerings, our revenues and margins may decline.

Furthermore, sales of our new services and products may replace sales, or result in discounting of some of our current product or service offerings, offsetting the benefits of a successful introduction. In addition, it may be difficult to ensure performance of new services and products in accordance with our revenue, margin, and cost estimations and to achieve

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operational efficiencies embedded in our estimates. Given the competitive nature of the seismic industry, if any of these risks materializes, future demand for our services and products, and our future results of operations, may suffer.

We invest significant sums of money in acquiring and processing seismic data for our Solutions' multi-client data library.

We invest significant amounts in acquiring and processing new seismic data to add to our Solutions' multi-client data library. A majority of these investments are funded by our customers, while the remainder is recovered through future data licensing fees. In 2012, we invested approximately $146 million in our multi-client data library. Our customers generally commit to licensing the data prior to our initiating a new data library acquisition program. However, the aggregate amounts of future licensing fees for this data are uncertain and depend on a variety of factors, including the market prices of oil and gas, customer demand for seismic data in the library, and the availability of similar data from competitors.

By making these investments in acquiring and processing new seismic data for our Solutions' multi-client library, we are exposed to the following risks:

- We may not fully recover our costs of acquiring and processing seismic data through future sales. The ultimate amounts involved in these data sales are uncertain and depend on a variety of factors, many of which are beyond our control.
- The timing of these sales is unpredictable and can vary greatly from period to period. The costs of each survey are capitalized and then amortized as a percentage of sales and/or over the expected useful life of the data. This amortization will affect our earnings and, when combined with the sporadic nature of sales, will result in increased earnings volatility.
- Regulatory changes that affect companies' ability to drill, either generally or in a specific location where we have acquired seismic data, could materially adversely affect the value of the seismic data contained in our library.
- Technology changes could also make existing data sets obsolete. Additionally, each of our individual surveys has a limited book life based on its location and oil and gas companies' interest in prospecting for reserves in such location, so a particular survey may be subject to a significant decline in value beyond our initial estimates.
- The value of our multi-client data could be significantly adversely affected if any material adverse change occurs in the general prospects for oil and gas exploration, development and production activities.
- The cost estimates upon which we base our pre-commitments of funding could be wrong. The result could be losses that have a material adverse effect on our financial condition and results of operations. These pre-commitments of funding are subject to the creditworthiness of our clients. In the event that a client refuses or is unable to pay its commitment, we could incur a substantial loss on that project.
- As part of our asset-light strategy, we routinely charter vessels from third-party vendors to acquire seismic data for our multi-client business. As a result, our cost to acquire our multi-client data could significantly increase if vessel charter prices rise materially.

Any reduction in the market value of such data will require us to write down its recorded value, which could have a significant material adverse effect on our results of operations.

Global economic conditions, credit market uncertainties and lower natural gas prices could have an adverse effect on customer demand for certain of our services and products, which in turn would adversely affect our results of operations, our cash flows, our financial condition and our stock price.

The global recession resulting from the 2008 financial crisis contributed to weakened demand and lower prices for natural gas on a worldwide basis, which reduced the levels of exploration for natural gas. Historically, demand for our services and products has been sensitive to the level of exploration spending by E&P companies and geophysical contractors. The demand for our services and products will be lessened if exploration expenditures by E&P companies are reduced. During periods of reduced levels of exploration for oil and natural gas, there have been oversupplies of seismic data and downward pricing pressures on our seismic services and products, which, in turn, have limited our ability to meet sales objectives and maintain profit margins for our services and products. In the past, these then-prevailing industry conditions have had the effect of reducing our revenues and operating margins. The markets for oil and gas historically have been volatile and may continue to be so in the future.

Turmoil or uncertainty in the credit markets and its potential impact on the liquidity of major financial institutions may have an adverse effect on our ability to fund our business strategy through borrowings under either existing or new debt facilities in the public or private markets and on terms we believe to be reasonable. Likewise, there can be no assurance that our customers will be able to borrow money for their working capital or capital expenditures on a timely basis or on reasonable terms, which could have a negative impact on their demand for our services and products and impair their ability to pay us for our services and products on a timely basis, or at all.

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Our sales have historically been affected by interest rate fluctuations and the availability of liquidity, and we would be adversely affected by increases in interest rates or liquidity constraints. Rising interest rates may also make certain alternative services and products provided by our competitors more attractive to customers, which could lead to a decline in demand for our services and products. This could have a material adverse effect on our business, results of operations, financial condition and cash flows.

Our operating results may fluctuate from period to period, and we are subject to seasonality factors.

Our operating results are subject to fluctuations from period to period as a result of new product or service introductions, the timing of significant expenses in connection with customer orders, unrealized sales, levels of research and development activities in different periods, the product mix sold, and the seasonality of our business. Because many of our products feature a high sales price and are technologically complex, we generally have experienced long sales cycles for these products and historically incur significant expense at the beginning of these cycles for component parts and other inventory necessary to manufacture a product in anticipation of a future sale, which may not ultimately occur. In addition, the revenues from our sales can vary widely from period to period due to changes in customer requirements and demand. These factors can create fluctuations in our net revenues and results of operations from period to period. Variability in our overall gross margins for any period, which depend on the percentages of higher-margin and lower-margin services and products sold in that period, compounds these uncertainties. As a result, if net revenues or gross margins fall below expectations, our results of operations and financial condition will likely be adversely affected. Additionally, our business can be seasonal in nature, with strongest demand typically in the fourth calendar quarter of each year. Customer budgeting cycles at times result in higher spending activity levels by our customers at different points of the year.

Due to the relatively high sales price of many of our products and seismic data libraries, our quarterly operating results have historically fluctuated from period to period due to the timing of orders and shipments and the mix of services and products sold. This uneven pattern makes financial predictions for any given period difficult, increases the risk of unanticipated variations in our quarterly results and financial condition, and places challenges on our inventory management. Delays caused by factors beyond our control, such as the granting of permits for seismic surveys by third parties, the effect from disasters such as the Deepwater Horizon incident in the Gulf of Mexico and the availability and equipping of marine vessels, can affect our Solutions segment’s revenues from its processing and GeoVentures services from period to period. Also, delays in ordering products or in shipping or delivering products in a given period could significantly affect our results of operations for that period. Fluctuations in our quarterly operating results may cause greater volatility in the market price of our common stock.

The loss of any significant customer could materially and adversely affect our results of operations and financial condition.

We have traditionally relied on a relatively small number of significant customers. Consequently, our business is exposed to the risks related to customer concentration. No single customer represented 10% or more of our consolidated net revenues for 2012, 2011 and 2010; however, our top five customers in total represented approximately 28%, 30% and 28%, respectively, of our consolidated net revenues during those years. The loss of any of our significant customers or deterioration in our relations with any of them could materially and adversely affect our results of operations and financial condition.

During the last ten years, our traditional seismic contractor customers have been rapidly consolidating, thereby consolidating the demand for our services and products. In September 2012, CGGVeritas announced that it had agreed to acquire Fugro’s geoscience division; the transaction was closed in January 2013. This acquisition represents the further consolidation ongoing in this market, and could have the effect of reducing the number of our potential customers and vessel outfitting opportunities. The loss of any of our significant customers to further consolidation could materially and adversely affect our results of operations and financial condition.

Our business depends on the level of exploration and production activities by the oil and natural gas industry. If oil and natural gas prices or the level of capital expenditures by E&P companies were to decline, demand for our services and products would decline and our results of operations would be adversely affected.

Demand for our services and products depends upon the level of spending by E&P companies and seismic contractors for exploration and development activities, and those activities depend in large part on oil and gas prices. Spending by

our customers on services and products that we provide is highly discretionary in nature, and subject to rapid and material change. Any significant decline in oil and gas related spending on behalf of our customers could cause alterations in our capital spending plans, project modifications, delays or cancellations, general business disruptions or delays in payment, or non-payment of amounts that are owed to us and could have a material adverse effect on our financial condition and results of operations and on our ability to continue to satisfy all of the covenants in our loan agreements. Additionally, increases in oil and gas prices may not increase demand for our services and products or otherwise have a positive effect on our financial condition or results of operations. E&P companies' willingness to explore, develop and produce depends largely upon prevailing industry conditions that are influenced by numerous factors over which our management has no control, such as:

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- the supply of and demand for oil and gas;
- the level of prices, and expectations about future prices, of oil and gas;
- the cost of exploring for, developing, producing and delivering oil and gas;
- the expected rates of decline for current production;
- the discovery rates of new oil and gas reserves;
- weather conditions, including hurricanes, that can affect oil and gas operations over a wide area, as well as less severe inclement weather that can preclude or delay seismic data acquisition;
- domestic and worldwide economic conditions;
- political instability in oil and gas producing countries;
- technical advances affecting energy consumption;
- government policies regarding the exploration, production and development of oil and gas reserves;
- the ability of oil and gas producers to raise equity capital and debt financing; and
- merger and divestiture activity among oil and gas companies and seismic contractors.

Although we believe that the long-term trend is favorable, the level of oil and gas exploration and production activity has been volatile in recent years. Previously forecasted trends in oil and gas exploration and development activities may not continue and demand for our services and products may not reflect the level of activity in the industry. Any prolonged substantial reduction in oil and gas prices would likely affect oil and gas production levels and therefore adversely affect demand for the services we provide and products we sell.

The drilling moratorium in the U.S. Gulf of Mexico and the other regulatory initiatives undertaken in response to the Deepwater Horizon disaster and resulting oil spill in the U.S. Gulf of Mexico, has adversely affected, and could adversely affect in the future, our customers and our business.

In April 2010, the Deepwater Horizon drilling rig in the U.S. Gulf of Mexico sank following a catastrophic explosion and fire, which resulted in the release of millions of barrels of crude oil. In response to this incident, the Minerals Management Service (now known as the BOEMRE) of the U.S. Department of the Interior issued a notice in May 2010 implementing a six-month moratorium on certain drilling activities in the U.S.Gulf of Mexico. The moratorium was lifted in October 2010, but the BOEMRE has issued and is expected to issue new safety and environmental guidelines or regulations for drilling in the Gulf of Mexico and in other U.S. offshore locations. As a result of these changes, the permitting process for exploration and development activities in the U.S. Gulf of Mexico slowed considerably, reducing the level of E&P activity there. The reduced level of activity adversely affected our results of operations and financial condition. Our Solutions segment was particularly impacted negatively during 2010 and 2011 by a reduction in data processing business from the Gulf of Mexico and new venture and multi-client seismic data library sales from our GulfSPAN seismic dataset.

Future changes in laws or regulations regarding offshore oil and gas exploration and development activities and decisions by customers, governmental agencies, or other industry participants in response to these changes, could reduce demand for our services and products, which could have a negative impact on our financial position, results of operations or cash flows. We cannot reasonably or reliably estimate that such changes will occur, when they will occur, or whether they will impact us. Such changes can occur quickly within a region, similar to the Deepwater Horizon incident, which may impact both the affected region and global exploration and production, and we may not be able to respond quickly, or at all, to mitigate these changes In addition, these future laws and regulations could result in increased compliance costs or additional operating restrictions that may adversely affect the financial health of our customers and decrease the demand for our services and products.

See “– Our operations, and the operations of our customers, are subject to numerous government regulations, which could adversely limit our operating flexibility” below.

Our stock price has been volatile from time to time, declining precipitously from time to time during the period from 2008 through 2011, and it could decline again.

The securities markets in general and our common stock in particular have experienced significant price and volume volatility in recent years. The market price and trading volume of our common stock may continue to experience significant fluctuations due not only to general stock market conditions but also to a change in sentiment in the market regarding our operations or business prospects or those of companies in our industry. In addition to the other risk

factors discussed in this section, the price and volume volatility of our common stock may be affected by:

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- operating results that vary from the expectations of securities analysts and investors;
- factors influencing the levels of global oil and natural gas exploration and exploitation activities, such as depressed prices for natural gas in North America or disasters such as the Deepwater Horizon incident in the Gulf of Mexico in 2010;
- the operating and securities price performance of companies that investors or analysts consider comparable to us;
- announcements of strategic developments, acquisitions and other material events by us or our competitors; and
- changes in global financial markets and global economies and general market conditions, such as interest rates, commodity and equity prices and the value of financial assets.

To the extent that the price of our common stock remains at lower levels or it declines further, our ability to raise funds through the issuance of equity or otherwise use our common stock as consideration will be reduced. In addition, further increases in our leverage may make it more difficult for us to access additional capital. These factors may limit our ability to implement our operating and growth plans.

If we, our option holders or stockholders holding registration rights sell additional shares of our common stock in the future, the market price of our common stock could decline. Additionally, our outstanding shares of Series D Preferred Stock are convertible into shares of our common stock. The conversion of the Series D Preferred Stock and exercise of our stock options could result in substantial dilution to our existing stockholders. Sales in the open market of the shares of common stock acquired upon such conversion or exercises may have the effect of reducing the then current market price for our common stock.

The market price of our common stock could decline as a result of sales of a large number of shares of our common stock in the market in the future, or the perception that such sales could occur. These sales, or the possibility that these sales may occur, could make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate. As of February 12, 2013, we had 156,390,699 shares of common stock issued and outstanding. Substantially all of these shares are available for sale in the public market, subject in some cases to volume and other limitations or delivery of a prospectus. At February 12, 2013, we had outstanding stock options to purchase up to 7,860,850 shares of our common stock at a weighted average exercise price of $7.22 per share. We also had, as of that date, 1,026,449 shares of common stock reserved for issuance under outstanding restricted stock and restricted stock unit awards.

During 2009 we issued in a privately-negotiated transaction 18.5 million shares of our common stock to certain institutional investors. In March 2010 we issued 23.8 million shares to BGP in a privately-negotiated transaction in connection with the formation of our INOVA Geophysical joint venture. These shares may be resold into the public markets in sale transactions pursuant to currently-effective registration statements filed with the SEC or pursuant to another exemption from registration. Sales in the public market of a large number of shares of common stock (or the perception that such sales could occur) could apply downward pressure on the prevailing market price of our common stock.

As of February 12, 2013, there were 27,000 shares of our Seried D Cumulative Convertible Preferred Stock outstanding. In June 2012, the previous holder of these shares, Fletcher International, Ltd. (“Fletcher”), filed a voluntary petition for relief under Chapter 11 of the U.S. Bankruptcy Code in the U.S. Bankruptcy Court for the Southern District of New York. All of the shares of Series D Preferred Stock, which had been pledged by Fletcher to secure certain indebtedness, were sold by the pledgee to an affiliate of D.E. Shaw & Co., Inc. in June 2012. The shares of our Series D Preferred Stock are currently convertible into 6,065,075 shares of our common stock. A conversion of our outstanding shares of Series D Preferred Stock into shares of our common stock will dilute the ownership interests of existing stockholders. Sales in the public market of shares of common stock issued upon conversion would likely apply downward pressure on prevailing market prices of our common stock.

The conversion price of our outstanding Series D Preferred Stock is also subject to certain customary anti-dilution adjustments. For additional information regarding the terms of our Series D Preferred Stock, see Note 12 “— Cumulative Convertible Preferred Stock” of Notes to Consolidated Financial Statements contained elsewhere in this Form 10-K.

We currently have ongoing litigation with Fletcher in Delaware regarding certain issues concerning our Series D Preferred Stock. For more information regarding our litigation with Fletcher, see Item 3. “Legal Proceedings.”

Shares of our common stock are also subject to certain demand and piggyback registration rights held by Laitram, L.L.C., and an affiliate of one of our directors. We also may enter into additional registration rights agreements in the future in connection with any subsequent acquisitions or securities transactions we may undertake. Any sales of our common stock under these registration rights arrangements with Laitram or other stockholders could be negatively perceived in the trading markets and negatively affect the price of our common stock. Sales of a substantial number of our shares of common stock in the public

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market under these arrangements, or the expectation of such sales, could cause the market price of our common stock to decline.

Goodwill and intangible assets that we have recorded in connection with our acquisitions are subject to impairment evaluations and, as a result, we could be required to write-off additional goodwill and intangible assets, which may adversely affect our financial condition and results of operations.

In accordance with Accounting Standard Codification ("ASC") 350, "Intangibles – Goodwill and Other" ("ASC 350"), we are required to compare the fair value of our goodwill and intangible assets (when certain impairment indicators under ASC 350 are present) to their carrying amount. If the fair value of such goodwill or intangible assets is less than its carrying value, an impairment loss is recorded to the extent that the fair value of these assets within the reporting units is less than their carrying value. In 2008, we recorded an impairment charge of $252.2 million related to our goodwill and intangible assets and in 2009 we recorded an impairment charge of $38.0 million related to our intangible assets. Any further reduction in or impairment of the value of our goodwill or other intangible assets will result in additional charges against our earnings, which could have a material adverse effect on our reported results of operations and financial position in future periods. At December 31, 2012, our goodwill and other intangible asset balances were $55.3 million and $14.8 million, respectively.

Due to the international scope of our business activities, our results of operations may be significantly affected by currency fluctuations.

We derive a significant portion of our consolidated net revenues from international sales, subjecting us to risks relating to fluctuations in currency exchange rates. Currency variations can adversely affect margins on sales of our products in countries outside of the United States and margins on sales of products that include components obtained from suppliers located outside of the United States. Through our subsidiaries, we operate in a wide variety of jurisdictions, including the United Kingdom, China, Canada, the Netherlands, Brazil, Russia, the United Arab Emirates, Egypt and other countries. Certain of these countries have experienced geopolitical instability, economic problems and other uncertainties from time to time. To the extent that world events or economic conditions negatively affect our future sales to customers in these and other regions of the world, or the collectability of receivables, our future results of operations, liquidity and financial condition may be adversely affected. We currently require customers in certain higher risk countries to provide their own financing. We do not currently extend long-term credit through notes to companies in countries where we perceive excessive credit risk.

A majority of our foreign net working capital is within the United Kingdom. Our subsidiaries in the U.K. and in other countries receive their income and pay their expenses primarily in their local currencies. To the extent that transactions of these subsidiaries are settled in their local currencies, a devaluation of those currencies versus the U.S. dollar could reduce the contribution from these subsidiaries to our consolidated results of operations as reported in U.S. dollars. For financial reporting purposes, such depreciation will negatively affect our reported results of operations since earnings denominated in foreign currencies would be converted to U.S. dollars at a decreased value. In addition, since we participate in competitive bids for sales of certain of our services and products that are denominated in U.S. dollars, a depreciation of the U.S. dollar against other currencies could harm our competitive position relative to other companies. While we have employed economic cash flow and fair value hedges to minimize the risks associated with these exchange rate fluctuations, the hedging activities may be ineffective or may not offset more than a portion of the adverse financial impact resulting from currency variations. Accordingly, we cannot assure you that fluctuations in the values of the currencies of countries in which we operate will not materially adversely affect our future results of operations.

We rely on highly skilled personnel in our businesses, and if we are unable to retain or motivate key personnel or hire qualified personnel, we may not be able to grow effectively.

Our performance is largely dependent on the talents and efforts of highly skilled individuals. Our future success depends on our continuing ability to identify, hire, develop, motivate, and retain skilled personnel for all areas of our organization. We require highly skilled personnel to operate and provide technical services and support for our businesses. Competition for qualified personnel required for our data processing operations and our other segments' businesses has intensified in recent years. Our growth has presented challenges to us to recruit, train, and retain our

employees while managing the impact of potential wage inflation and the lack of available qualified labor in some markets where we operate. A well-trained, motivated and adequately-staffed work force has a positive impact on our ability to attract and retain business. Our continued ability to compete effectively depends on our ability to attract new employees and to retain and motivate our existing employees.

Certain of our facilities could be damaged by hurricanes and other natural disasters, which could have an adverse effect on our results of operations and financial condition.

Certain of our facilities are located in regions of the United States that are susceptible to damage from hurricanes and other weather events, and, during 2005, were impacted by hurricanes or other weather events. Our Systems segment leases 92,000 square feet of facilities located in Harahan, Louisiana, in the greater New Orleans metropolitan area. In late August

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2005, we suspended operations at these facilities and evacuated and locked down the facilities in preparation for Hurricane Katrina. These facilities did not experience flooding or significant damage during or after the hurricane. However, because of employee evacuations, power failures and lack of related support services, utilities and infrastructure in the New Orleans area, we were unable to resume full operations at the facilities until late September 2005. In September 2008, we lost power and related services for several days at our offices located in the Houston metropolitan area, which includes a substantial portion of our data processing infrastructure, and in Harahan, Louisiana as a result of Hurricane Ike and Hurricane Gustav.

Future hurricanes or similar natural disasters that impact our facilities may negatively affect our financial position and operating results for those periods. These negative effects may include reduced production, product sales and data processing revenues; costs associated with resuming production; reduced orders for our services and products from customers that were similarly affected by these events; lost market share; late deliveries; additional costs to purchase materials and supplies from outside suppliers; uninsured property losses; inadequate business interruption insurance and an inability to retain necessary staff. To the extent that climate change increases the severity of hurricanes and other weather events, as some have suggested, it could worsen the severity of these negative effects on our financial position and operating results.

Our operations, and the operations of our customers, are subject to numerous government regulations, which could adversely limit our operating flexibility.

In addition to the specific regulatory risks discussed elsewhere in this Item 1A. “Risk Factors” section, our operations are subject to other laws, regulations, government policies, and product certification requirements worldwide. Changes in such laws, regulations, policies or requirements could affect the demand for our products or result in the need to modify products, which may involve substantial costs or delays in sales and could have an adverse effect on our future operating results. Our export activities are also subject to extensive and evolving trade regulations. Certain countries are subject to restrictions, sanctions, and embargoes imposed by the United States government. These restrictions, sanctions, and embargoes also prohibit or limit us from participating in certain business activities in those countries. Our operations are subject to numerous local, state, and federal laws and regulations in the United States and in foreign jurisdictions concerning the containment and disposal of hazardous materials, the remediation of contaminated properties, and the protection of the environment. These laws have been changed frequently in the past, and there can be no assurance that future changes will not have a material adverse effect on us. In addition, our customers’ operations are also significantly impacted by laws and regulations concerning the protection of the environment and endangered species. Consequently, changes in governmental regulations applicable to our customers may reduce demand for our services and products. To the extent that our customers’ operations are disrupted by future laws and regulations, our business and results of operations may be materially and adversely affected.

Climate change regulations or legislation could result in increased operating costs and reduced demand for the oil and gas our clients intend to produce.

In response to concerns suggesting that emissions of and greenhouse gases (including carbon dioxide and methane) (“GHGs”) may be contributing to global climate change, legislative and regulatory measures to address the concerns are in various phases of discussion or implementation. We are aware of the increasing focus of local, state, national and international regulatory bodies on GHG emissions and climate change issues. The United States Congress may consider legislation to reduce GHG emissions. Although it is not possible at this time to predict whether proposed legislation or regulations will be adopted, any such future laws and regulations could result in increased compliance costs or additional operating restrictions. Any additional costs or operating restrictions associated with legislation or regulations regarding GHG emissions could have a material adverse impact on our business, financial condition and results of operations.

At least one-third of the states, either individually or through multi-state regional initiatives, have already taken legal measures intended to reduce GHG emissions, primarily through the planned development of GHG emission inventories and/or GHG cap and trade programs. More stringent regulations and laws relating to GHGs and climate change may be adopted in the future and could reduce the demand for our services and products. Reductions in our revenues or increases in our expenses as a result of climate control initiatives could have adverse effects on our business, financial position, results of operations and prospects.

Increased regulation of hydraulic fracturing could result in reductions or delays in drilling and completing new oil and natural gas wells, which could adversely impact our revenues by decreasing the demand for our data libraries and seismic acquisition services.

Hydraulic fracturing is a process used by oil and gas exploration and production operators in the completion of certain oil and gas wells, particularly in low permeability formations such as shales. The process involves the injection of water, sand, other proppants and chemicals under pressure into the target reservoir to stimulate hydrocarbon production. Our business is highly dependent on the level of activity by our oil and gas exploration and production customers, and hydrocarbons cannot be economically produced from certain reservoirs without extensive hydraulic fracturing.

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Due to public concerns about environmental impact that hydraulic fracturing may have, including potential impairment of groundwater quality, legislative and regulatory efforts at the federal, state, and local levels have been initiated to impose more stringent permitting and compliance obligations on these operations. Hydraulic fracturing typically is regulated by state oil and natural gas commissions, but the EPA has asserted federal regulatory authority under the Safe Drinking Water Act over certain hydraulic fracturing activities. In addition, legislation has been introduced before Congress to provide for federal regulation of hydraulic fracturing under the Safe Drinking Water Act and to require disclosure of the chemicals used in the hydraulic fracturing process. In addition, some states have implemented, and several states are considering implementing, new regulations pertaining to hydraulic fracturing, including the disclosure of chemicals used in fracturing operations. A number of state and local governments have also adopted or are considering adopting additional requirements relating to hydraulic fracturing. In certain areas of the country, new drilling permits for hydraulic fracturing have been put on hold pending the completion of studies and development of additional standards.

Further governmental reviews are underway or being proposed that focus on environmental aspects of hydraulic fracturing practices. The White House Council on Environmental Quality is coordinating an administration-wide review of hydraulic fracturing practices, and a committee of the U.S. House of Representatives has conducted an investigation of hydraulic fracturing practices. The EPA has commenced a study of the potential environmental effects of hydraulic fracturing on drinking water and groundwater, with final results expected to be released in late 2014. Moreover, the EPA is developing effluent limitations for the treatment and discharge of wastewater resulting from hydraulic fracturing activities and plans to propose these standards by 2014. Other governmental agencies, including the U.S. Department of Energy and the U.S. Department of the Interior, are evaluating various other aspects of hydraulic fracturing. These ongoing or proposed studies, depending on their degree of pursuit and any meaningful results obtained, could spur initiatives to further regulate hydraulic fracturing under the federal Safe Drinking Water Act or other regulatory mechanisms.

The adoption of legislation or regulations placing significant restrictions on hydraulic fracturing activities could impose operational delays and increased operating costs on our customers, making it more difficult and costly for them to complete natural gas and oil wells. In the event such requirements are enacted, demand for our shale data libraries and seismic data acquisition services and products may be adversely affected.

We have outsourcing arrangements with third parties to manufacture some of our products. If these third party suppliers fail to deliver quality products or components at reasonable prices on a timely basis, we may alienate some of our customers and our revenues, profitability, and cash flow may decline. Additionally, current global economic conditions could have a negative impact on our suppliers, causing a disruption in our vendor supplies. A disruption in vendor supplies may adversely affect our results of operations.

Our manufacturing processes require a high volume of quality components. We have increased our use of contract manufacturers as an alternative to our own manufacturing of products. We have outsourced the manufacturing of our towed marine streamers, our redeployable ocean bottom cables, MEMS components, and various components of VectorSeis Ocean. Certain components used by us are currently provided by only one supplier. If, in implementing any outsource initiative, we are unable to identify contract manufacturers willing to contract with us on competitive terms and to devote adequate resources to fulfill their obligations to us or if we do not properly manage these relationships, our existing customer relationships may suffer. In addition, by undertaking these activities, we run the risk that the reputation and competitiveness of our services and products may deteriorate as a result of the reduction of our control over quality and delivery schedules. We also may experience supply interruptions, cost escalations, and competitive disadvantages if our contract manufacturers fail to develop, implement, or maintain manufacturing methods appropriate for our products and customers.

Reliance on certain suppliers, as well as industry supply conditions, generally involves several risks, including the possibility of a shortage or a lack of availability of key components, increases in component costs and reduced control over delivery schedules. If any of these risks are realized, our revenues, profitability, and cash flows may decline. In addition, as we come to rely more heavily on contract manufacturers, we may have fewer personnel resources with expertise to manage problems that may arise from these third-party arrangements.

Additionally, our suppliers could be negatively impacted by current global economic conditions. If certain of our suppliers were to experience significant cash flow issues or become insolvent as a result of such conditions, it could result in a reduction or interruption in supplies to us or a significant increase in the price of such supplies and adversely impact our results of operations and cash flows.

Under some of our outsourcing arrangements, our manufacturing outsourcers purchase agreed-upon inventory levels to meet our forecasted demand. Our manufacturing plans and inventory levels are generally based on sales forecasts. If demand proves to be less than we originally forecasted and we cancel our committed purchase orders, our outsourcers generally will have the right to require us to purchase inventory which they had purchased on our behalf. Should we be required to purchase inventory under these terms, we may be required to hold inventory that we may never utilize.

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Our certificate of incorporation and bylaws, Delaware law, the terms of our Series D Preferred Stock and certain contractual obligations under our agreement with BGP contain provisions that could discourage another company from acquiring us.

Provisions of our certificate of incorporation and bylaws, Delaware law, the terms of our Series D Preferred Stock and our investor rights agreement with BGP may have the effect of discouraging, delaying or preventing a merger or acquisition that our stockholders may consider favorable, including transactions in which you might otherwise receive a premium for shares of our common stock. These provisions include:

- authorizing the issuance of "blank check" preferred stock without any need for action by stockholders;
- providing for a classified board of directors with staggered terms;
- requiring supermajority stockholder voting to effect certain amendments to our certificate of incorporation and bylaws;
- eliminating the ability of stockholders to call special meetings of stockholders;
- prohibiting stockholder action by written consent;
- establishing advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted on by stockholders at stockholder meetings; and
- requiring an acquiring party to assume all of our obligations under our agreement regarding our Series D Preferred Stock and the terms of the Series D Preferred Stock set forth in our certificates of rights and designations for those series, including the dividend, liquidation, conversion, voting and share registration provisions.

In addition, the terms of our INOVA Geophysical joint venture with BGP and BGP's investment in our company contain a number of provisions, such as certain pre-emptive rights granted to BGP with respect to certain future issuances of our stock, that could have the effect of discouraging, delaying or preventing a merger or acquisition of our company that our stockholders may otherwise consider to be favorable.

Failure to maintain effective internal controls in accordance with Section 404 of the Sarbanes-Oxley Act could have a material adverse effect on our stock price.

If, in the future, we fail to maintain the adequacy of our internal controls, as such standards are modified, supplemented or amended from time to time, we may not be able to ensure that we can conclude on an ongoing basis that we have effective internal controls over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act. Failure to achieve and maintain an effective internal control environment could have a material adverse effect on the price of our common stock.

Note: The foregoing factors pursuant to the Private Securities Litigation Reform Act of 1995 should not be construed as exhaustive. In addition to the foregoing, we wish to refer readers to other factors discussed elsewhere in this report as well as other filings and reports with the SEC for a further discussion of risks and uncertainties that could cause actual results to differ materially from those contained in forward-looking statements. We undertake no obligation to publicly release the result of any revisions to any such forward-looking statements, which may be made to reflect the events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

Item 1B. Unresolved Staff Comments

None.

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Item 2. Properties

Our principal operating facilities at December 31, 2012 were as follows:

Operating Facilities	Square Footage	Segment
Houston, Texas	185,000	Global Headquarters and Solutions
Harahan, Louisiana	92,000	Systems
Lacombe, Louisiana	87,000	Systems
Stafford, Texas	41,000	Systems
St. Rose, Louisiana	38,000	Systems
Denver, Colorado	27,000	Solutions
Voorschoten, The Netherlands	27,000	Systems
Edinburgh, Scotland	16,000	Software
Calgary, Canada	4,000	Solutions
Jebel Ali, Dubai, United Arab Emirates	2,000	International Sales Headquarters
	519,000	

Each of these operating facilities is leased by us under long-term lease agreements. These lease agreements have terms that expire ranging from 2013 to 2025. See Note 18 of Notes to Consolidated Financial Statements.

In addition, we lease offices in Cranleigh, England; Aberdeen, Scotland; Beijing, China; and Moscow, Russia to support our global sales force. We also lease offices for our seismic data processing centers in Egham, England; Port Harcourt, Nigeria; Luanda, Angola; Moscow, Russia; Cairo, Egypt; Villahermosa, Mexico; Rio de Janeiro, Brazil; Port of Spain, Trinidad; and Oklahoma City, Oklahoma. Our executive headquarters (utilizing approximately 23,100 square feet) is located at 2105 CityWest Boulevard, Suite 400, Houston, Texas. The machinery, equipment, buildings, and other facilities owned and leased by us are considered by our management to be sufficiently maintained and adequate for our current operations.

Item 3. Legal Proceedings

WesternGeco

In June 2009, WesternGeco L.L.C. (“WesternGeco”) filed a lawsuit against us in the United States District Court for the Southern District of Texas, Houston Division. In the lawsuit, styled WesternGeco L.L.C. v. ION Geophysical Corporation, WesternGeco alleged that we infringed several method and apparatus claims contained in four of its United States patents regarding marine seismic streamer steering devices. WesternGeco sought unspecified monetary damages and an injunction prohibiting us from making, using, selling, offering for sale or supplying any infringing products in the United States.

In June 2009, we filed an answer and counterclaims against WesternGeco, in which we denied that we had infringed WesternGeco’s patents and asserted that the WesternGeco patents were invalid or unenforceable. We also asserted that WesternGeco’s Q-Marine system, components and technology infringed upon our United States patent related to marine seismic streamer steering devices. In addition, we claimed that the lawsuit by WesternGeco was an illegal attempt by WesternGeco to control and restrict competition in the market for marine seismic surveys performed using laterally steerable streamers. In our counterclaims, we requested various remedies and relief, including a declaration that the WesternGeco patents were invalid or unenforceable, an injunction prohibiting WesternGeco from making, using, selling, offering for sale or supplying any infringing products in the United States, a declaration that the WesternGeco patents should be co-owned by us, and an award of unspecified monetary damages.

In June 2010, WesternGeco filed a lawsuit against various subsidiaries and affiliates of Fugro N.V. (“Fugro”), one of our seismic contractor customers, accusing Fugro of infringing the same United States patents regarding marine seismic streamer steering devices by planning to use certain equipment purchased from us on a survey located outside of U.S. territorial waters. The court approved the consolidation of the Fugro case with our case. Fugro filed a motion to dismiss the lawsuit, and in March 2011 the presiding judge granted Fugro’s motion to dismiss in part, on the basis that the alleged activities of Fugro would occur more than 12 miles from the U.S. coast and therefore are not actionable under U.S. patent infringement law.

In February 2012, the Court granted WesternGeco's motions for summary judgment, dismissing our claims as plaintiff against WesternGeco for infringement, inventorship and inequitable conduct. In response to a Motion for Summary Judgment filed jointly by us and Fugro, the Court ruled in April 2012 that we did not directly infringe WesternGeco's method patent claims. In a pre-trial ruling on June 29, 2012, the Court ruled that, if a particular patent claim of WesternGeco was held to be valid and enforceable at the upcoming trial, our DigiFIN lateral streamer control system, when combined with our lateral controller in the United States, would infringe one claim in one of WesternGeco's asserted patents, U.S. Patent No. 7,293,520.

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Trial began on July 23, 2012. During the trial, Fugro settled all claims asserted against it by WesternGeco and obtained a global license from WesternGeco. A verdict was returned by the jury on August 16, 2012, finding that we willfully infringed the claims contained in the four patents and awarding WesternGeco the sum of $105.9 million in damages, consisting of $12.5 million in reasonable royalty and $93.4 million in lost profits. We believe that the verdict is not consistent with applicable law or the facts or evidence in the case and, in September 2012, filed motions with the trial court to overturn all or portions of the verdict.

The ultimate outcome of the case in the trial court, and the content of the final judgment as a whole, rest with the presiding trial court judge, not the jury. The next step in the case is for the trial court judge to decide post-verdict motions filed by the parties and enter a judgment. The final judgment will determine the result of the trial prior to appeal. When he enters a judgment in the case, the judge can choose to follow the jury verdict or to take other actions, such as changing to a different result or ordering an entirely new trial. As of the filing date of this Annual Report on Form 10-K, the Court had not yet entered a judgment in the case.

If the Court enters a judgment that is adverse to us, we intend to appeal the judgment to the United States Court of Appeals for the Federal Circuit. WesternGeco would also have the right to elect to appeal any final judgment.

In rendering its verdict, the jury determined that our infringement was willful. Because the jury verdict indicated willfulness, the trial court judge will determine whether, in his independent judgment, we willfully infringed and he should declare this case to be “exceptional.” In order for the judge to find willful infringement and declare this case exceptional, WesternGeco must prove, by clear and convincing evidence, that we acted with objective recklessness and in bad faith, fraudulently or engaged in similar misconduct related to the case. If the judge finds willful infringement and declares this case to be exceptional, the judge has the discretion, but not the obligation, to enhance the damages amount, not to exceed a trebling of the final judgment damages award plus reasonable attorneys’ fees. We believe that, given our understanding and judgment of applicable law and the relevant facts and evidence in this case, and after considering the advice of counsel, it is unlikely that we will incur any additional loss as a result of the jury’s finding of willfulness.

Based on our understanding and judgment of relevant law and the facts and merits of this case, including appellate defenses, and after considering the advice of counsel, we have determined it is probable that, after exhaustion of all appeals, this lawsuit will result in a loss contingency to us in the amount of approximately $10 million, consisting of reasonable royalty damages, interest and court costs. We have adequately reserved for this loss contingency.

It is reasonably possible that we may not ultimately prevail in the litigation and appeals process and that our loss related to the lawsuit could exceed the amount currently accrued, up to the amount of the damages in the jury verdict plus interest and court costs, or even higher if the Court decides to enhance the damages as described above. However, we do not believe that a loss of this magnitude is probable. Our assessment of our potential loss contingency may change in the future due to developments at the trial court or appellate court and other events, such as changes in applicable law, and such re-assessment could lead to the determination that no loss contingency is probable or that a greater loss contingency is probable, which could have a material effect on our financial condition or results of operations.

As stated above, we intend to appeal the judgment to the United States Court of Appeals for the Federal Circuit if the trial court enters a judgment adverse to us. In order to appeal the judgment, we may be required to post an appeal bond for the full amount of damages entered in the judgment. In order to post and collateralize a bond of that size, we might need to utilize a combination of cash on hand, undrawn balances available under the revolving line of credit and possibly incur additional debt and/or equity financing. The posting and collateralization of such an appeal bond could have a possible adverse effect on our liquidity. If we are unable to post the appeal bond, we may be unable to stay enforcement of the judgment or appeal the case. At this time, we are unable to determine whether an appeal bond would be required or the amount of such an appeal bond. Similarly, we are unable to predict the timing of the final judgment being entered by the trial court or the timing of posting any required appeal bond.

Fletcher

In November 2009, Fletcher International Ltd. (“Fletcher”), the holder of the shares of our outstanding Series D Preferred Stock until June 2012, filed a lawsuit against us and certain of our directors in the Delaware Court of Chancery. In the lawsuit, styled Fletcher International, Ltd. v. ION Geophysical Corporation, et al, Fletcher alleged,

among other things, that we violated Fletcher's consent rights contained in the Series D Preferred Stock Certificates of Designation, by (a) the execution and delivery of a convertible promissory note to the Bank of China, New York Branch by one of our subsidiaries (incorporated in Luxembourg), in connection with a bridge loan funded in October 2009 by Bank of China, and (b) a Canadian subsidiary of ours executing and delivering several promissory notes in 2008 in connection with our acquisition of ARAM Systems Ltd. Fletcher also alleged that our directors violated their fiduciary duties by allowing the subsidiaries to deliver the notes without Fletcher's consent. In a Memorandum Opinion issued in May 2010 in response to a motion for partial summary judgment, the judge dismissed all of Fletcher's claims against our named directors but also concluded that, because the bridge loan note executed by our Luxembourg subsidiary in 2009 was convertible into our common stock, Fletcher had the right to consent to

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the issuance of the note and that we had violated Fletcher's consent rights by that subsidiary's issuing the note without Fletcher's consent. In March 2011, the judge dismissed certain additional claims asserted by Fletcher.

In May 2012, the judge ruled that Fletcher did not have the right to consent with respect to two promissory notes executed and delivered by the Canadian subsidiary in September 2008 in connection with our purchase of ARAM Systems Ltd., but that Fletcher did have the right to consent to the execution and delivery in December 2008 of a replacement promissory note in the principal amount of $35 million, and that we had violated Fletcher's consent right by the subsidiary's executing and delivering the replacement promissory note without Fletcher's consent.

In June 2012, Fletcher filed a voluntary petition for relief under Chapter 11 of the U.S. Bankruptcy Code in the U.S. Bankruptcy Court for the Southern District of New York. Fletcher's shares of Series D Preferred Stock, which had been pledged by Fletcher to secure certain indebtedness, were sold by the pledgee to the affiliate of D.E. Shaw & Co., Inc. in June 2012. We do not believe that the acquisition of the shares by an affiliate of D. E. Shaw & Co., Inc. or the bankruptcy filing by Fletcher will have a material impact on Fletcher's lawsuit against us.

We believe that the monetary damages suffered by Fletcher as a result of our subsidiaries executing and delivering the convertible note and the replacement note without Fletcher's consent are nonexistent or nominal, and that the ultimate outcome of the lawsuit will not result in a material adverse effect on our financial condition or results of operations.

Sercel

In January 2010, the jury in a patent infringement lawsuit filed by us against seismic equipment provider Sercel, Inc. in the United States District Court for the Eastern District of Texas returned a verdict in our favor. In the lawsuit, styled Input/Output, Inc. et al v. Sercel, Inc., (5-06-cv-00236), we alleged that Sercel's 408, 428 and SeaRay digital seismic sensor units infringe our United States Patent No. 5,852,242, which is incorporated in our VectorSeis sensor technology. Products of our company or INOVA Geophysical that are compatible with the VectorSeis technology include Scorpion, ARIES II, FireFly, Hawk and VectorSeis Ocean seismic acquisition systems. The jury concluded that Sercel infringed our patent and that our patent was valid, and the jury awarded us $25.2 million in compensatory past damages. In response to post-verdict motions made by the parties, in September 2010, the presiding judge issued a series of rulings that (a) granted our motion for a permanent injunction to be issued prohibiting the manufacture, use or sale of the infringing Sercel products, (b) confirmed that our patent was valid, (c) confirmed that the jury's finding of infringement was supported by the evidence and (d) disallowed $5.4 million of lost profits that were based on infringing products that were manufactured and delivered by Sercel outside of the United States, but were offered for sale by Sercel in the United States and involved underlying orders and payments received by Sercel in the United States. In addition, the judge concluded that the evidence supporting the jury's finding that we were entitled to be awarded $9.0 million in lost profits associated with certain infringing pre-verdict marine sales by Sercel was too speculative and therefore disallowed that award of lost profits. As a result of the judge's ruling, we were entitled to be awarded an additional amount of damages equal to a reasonable royalty on the infringing pre-verdict Sercel marine sales. After we learned that Sercel continued to make sales of infringing products after the January 2010 jury verdict was rendered, we filed motions with the court to seek additional compensatory damages for the post-verdict infringing sales and enhanced damages as a result of the willful nature of Sercel's post-verdict infringement. In February 2011, the Court entered a final judgment and permanent injunction in the case. The final judgment awarded us $10.7 million in damages, plus interest, and the permanent injunction prohibits Sercel and parties acting in concert with Sercel from making, using, offering to sell, selling, or importing in the United States (which includes territorial waters of the United States) Sercel's 408UL, 428XL and SeaRay digital sensor units, and all other products that are only colorably different from those products. Each of the parties appealed portions of the final judgment, and on February 17, 2012, the appellate court upheld the final judgment. In April 2012, Sercel paid us $12.0 million pursuant to the final judgment.

In its judgment, the Court also ordered that the additional damages to be paid by Sercel as a reasonable royalty on the infringing pre-verdict Sercel marine sales and the additional damages to be paid by Sercel resulting from post-verdict infringing sales would be determined in a separate proceeding to be conducted in the future. In December 2012, we and Sercel settled all remaining claims in exchange for $19.0 million and an agreement by Sercel to pay us royalties on future sales.

Other Litigation

We have been named in various other lawsuits or threatened actions that are incidental to our ordinary business. Litigation is inherently unpredictable. Any claims against us, whether meritorious or not, could be time-consuming, cause us to incur costs and expenses, require significant amounts of management time and result in the diversion of significant operational resources. The results of these lawsuits and actions cannot be predicted with certainty. We currently believe that the ultimate resolution of these matters will not have a material adverse effect on our financial condition or results of operations.

Item 4. Mine Safety Disclosures

Not applicable.

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PART II

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

Our common stock trades on the New York Stock Exchange ("NYSE") under the symbol "IO." The following table sets forth the high and low sales prices of the common stock for the periods indicated, as reported in NYSE composite tape transactions.

	Price Range	
Period	High	Low
Year ended December 31, 2012:		
Fourth Quarter	$7.32	$5.52
Third Quarter	7.87	6.17
Second Quarter	7.74	5.29
First Quarter	8.79	6.09
Year ended December 31, 2011:		
Fourth Quarter	$8.24	$4.20
Third Quarter	11.16	4.57
Second Quarter	13.92	8.07
First Quarter	13.20	7.77

We have not historically paid, and do not intend to pay in the foreseeable future, cash dividends on our common stock. We presently intend to retain cash from operations for use in our business, with any future decision to pay cash dividends on our common stock dependent upon our growth, profitability, financial condition and other factors our board of directors consider relevant. In addition, the terms of our credit facility prohibit us from paying dividends on or repurchasing shares of our common stock without the prior consent of the lenders.

The terms of our credit facility also contain covenants that restrict us, subject to certain exceptions, from (i) paying cash dividends on our common stock and (ii) repurchasing and acquiring shares of our common stock unless there is no event of default under our credit agreement and the amount of such repurchases in any year does not exceed an amount equal to (A) 25% of our consolidated net income for the prior fiscal year, less (B) the amount of any permitted cash dividends paid on our common stock during such year.

On December 31, 2012, there were 804 holders of record of our common stock.

During the three months ended December 31, 2012, we withheld and subsequently canceled shares of our common stock to satisfy minimum statutory income tax withholding obligations on the vesting of restricted stock for employees. The date of cancellation, number of shares and average effective acquisition price per share, were as follows:

Period	(a) Total Number of Shares Acquired	(b) Average Price Paid Per Share	(c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Program	(d) Maximum Number (or Approximate Dollar Value) of Shares That May Yet Be Purchased Under the Plans or Program
October 1, 2012 to October 31, 2012	—	$—	Not applicable	Not applicable
November 1, 2012 to November 30, 2012	—	$—	Not applicable	Not applicable
December 1, 2012 to December 31, 2012	81,622	$5.97	Not applicable	Not applicable
Total	81,622	$5.97		

Item 6. Selected Financial Data

The selected consolidated financial data set forth below with respect to our consolidated statements of operations for 2012, 2011, 2010, 2009 and 2008, and with respect to our consolidated balance sheets at December 31, 2012, 2011, 2010, 2009 and 2008 have been derived from our audited consolidated financial statements.

Our results of operations and financial condition have been affected by legal settlements, dispositions, debt refinancings and impairments of assets during the periods presented, which affect the comparability of the financial information shown. In particular, our results of operations for the years in the 2008 – 2012 time period were impacted by the following items (before tax):

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	Years Ended December 31,				
	2012	2011	2010	2009	2008
	(In thousands)				
Operating expenses:					
Impairment of goodwill and intangible assets	$—	$—	$—	$(38,044)	$(252,283)
Interest expense:					
Write-down of deferred financing charges, including amortization of non-cash debt discounts	—	—	(18,777)	(6,732)	—
Other income (expense):					
Gain on legal settlements, net	20,895	—	24,500	—	—
Equity in earnings (losses) of INOVA Geophysical	297	(22,862)	(23,724)	—	—
Loss on disposition of land equipment division	—	—	(38,115)	—	—
Fair value adjustments of a warrant associated with certain bridge financing arrangements	—	—	12,788	(29,401)	—
Beneficial conversion charge associated with our outstanding convertible preferred stock	—	—	—	—	(68,786)

This information should not be considered as being indicative of future operations, and should be read in conjunction with Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and the consolidated financial statements and the notes thereto included elsewhere in this Form 10-K.

	Years Ended December 31,				
	2012	2011	2010	2009	2008
	(In thousands, except for per share data)				
Statement of Operations Data:					
Net revenues	$526,317	$454,621	$444,322	$419,781	$679,523
Gross profit	215,801	173,445	165,733	132,138	207,748
Income (loss) from operations	74,527	66,795	52,847	(58,216)	(212,823)
Net income (loss) applicable to common shares	61,963	23,422	(38,774)	(113,559)	(293,713)
Net income (loss) per basic share	$0.40	$0.15	$(0.27)	$(1.03)	$(3.06)
Net income (loss) per diluted share	$0.39	$0.15	$(0.27)	$(1.03)	$(3.06)
Balance Sheet Data (end of year):					
Working capital[1]	$164,693	$163,677	$171,851	$(59,018)	$267,155
Total assets	820,583	674,058	631,857	748,186	861,431
Notes payable and long-term debt	105,328	105,112	108,660	277,381	291,909
Total equity	499,019	425,812	380,447	282,468	325,070
Other Data:					
Investment in multi-client library	$145,627	$143,782	$64,426	$89,635	$110,362
Capital expenditures	14,877	11,060	7,372	2,966	17,539
Depreciation and amortization (other than multi-client library)	16,202	13,917	24,795	47,911	33,052
Amortization of multi-client library	89,080	77,317	85,940	48,449	80,532

[1] The negative working capital position as of December 31, 2009 shown above was the result of the re-classification of the majority of our then outstanding long-term debt as current and as a result of the fair value of a warrant associated with our prior bridge financing arrangements.

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

Note: The following should be read in conjunction with our Consolidated Financial Statements and related Notes to Consolidated Financial Statements that appear elsewhere in this Annual Report on Form 10-K. References to “Notes” in the discussion below refer to the numbered Notes to Consolidated Financial Statements.

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Executive Summary

Our Business

We are a technology-focused seismic solutions company that provides planning and seismic processing services, software and advanced acquisition equipment to the global energy industry. Our services, technologies and products are used by oil and gas exploration and production ("E&P") companies and seismic acquisition contractors to generate high-resolution images of the Earth's subsurface during exploration, exploitation, and production operations. Our services and products are intended to measure and interpret seismic data about rock and fluid properties within the Earth's subsurface to enable oil and gas companies to make improved drilling and production decisions.

We acquire and process seismic data from seismic surveys in regional data programs, which then become part of our seismic data library. The seismic surveys for our data library business are pre-funded, or underwritten, in part by our customers, and we contract with third party seismic data acquisition companies to shoot and acquire the seismic data, all of which is intended to minimize our risk exposure. We serve customers in all major energy-producing regions of the world from strategically located offices in 20 cities on five continents.

In 2010, we formed a joint venture with BGP, Inc., China National Petroleum Corporation ("BGP"), a subsidiary of China National Petroleum Corporation, and contributed most of our land seismic equipment businesses to INOVA Geophysical Equipment Limited ("INOVA Geophysical"), the joint venture entity. In a related transaction, we issued to BGP 23.8 million shares of our common stock, which represents approximately 15.2% of our outstanding shares at December 31, 2012. BGP is generally regarded as the world's largest land geophysical service contractor. BGP owns a 51% interest in INOVA Geophysical and we own a 49% interest.

Our services and products include the following:

- Seismic data processing and reservoir imaging services,
- Seismic data libraries,
- Planning services for survey design and optimization,
- Navigation, command & control, and data management software products,
- Marine seismic data acquisition equipment, and
- Land seismic data acquisition equipment (principally through our 49% ownership in INOVA Geophysical).

We operate our company through three business segments: Solutions, Systems, and Software, and through our INOVA Geophysical joint venture.

- Solutions — advanced seismic data processing services for marine and land environments, reservoir solutions, onboard processing and quality control, seismic data libraries, and services by our GeoVentures services group.
- Systems — towed streamer and redeployable ocean bottom cable seismic data acquisition systems and shipboard recorders, streamer positioning and control systems, energy sources and analog geophone sensors.
- Software — software systems and related services for navigation and data management involving towed marine streamer and seabed operations.
- INOVA Geophysical — through our interest in INOVA Geophysical, cable-based, cableless and radio-controlled seismic data acquisition systems, digital sensors, vibroseis vehicles (i.e. vibrator trucks) and source controllers for detonator and energy sources business lines.

Economic Conditions

Demand for our seismic data acquisition services and products has traditionally been cyclical and substantially dependent upon activity levels in the oil and gas industry, particularly our customers' willingness and ability to expend their capital for oil and natural gas exploration and development projects. This demand is sensitive to current and expected future crude oil and natural gas prices. During 2012, WTI spot crude oil prices rose to approximately $110 per barrel in the first quarter, declined to just below $80 per barrel near the end of the second quarter, and then steadily increased to nearly $100 per barrel near the end of the third quarter. During the fourth quarter of 2012, WTI spot crude oil prices traded in a narrower range of $85 to $93 per barrel; finishing the year near $90 per barrel. Brent crude oil prices followed a similar pattern to WTI, initially rising to approximately $126 per barrel in the first quarter, followed by a steady decline to $90 per barrel by the end of the second quarter, then steadily rising to approximately $116 per barrel late in the third quarter; it traded in a narrower range during 2012's fourth quarter of $106 to $114 per barrel, finishing the year near $110 per barrel.

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Energy price forecasts are by their nature highly uncertain, but external reports indicate that WTI crude oil prices and Brent crude oil prices are expected to remain in price ranges of $80 to $110 and $100 to $130 per barrel, respectively, for 2013 as demand outpaces supply.

U.S. natural gas prices appeared to reverse their downward trend in 2012. U.S. Henry Hub natural gas prices decreased to approximately $1.90 per MMBtu in April 2012, but during the third quarter, natural gas prices traded in a range from $2.65 to $3.40 per MMBtu, and during the fourth quarter in a higher range of $3.30 to $4.00. While it may be too early to tell if this change in price direction is in fact a trend reversal, demand for natural gas has not deteriorated. We believe demand for natural gas will continue to grow and that industry investment in shale-based gas production will increase and be facilitated by new investment in technologies to locate and extract the reserves.

For 2012, our Solutions segment revenues increased over 2011 results, due to improved data processing revenues and higher sales by our GeoVentures business. During 2012, our participation in oil and gas shale plays continued to expand, with the completion of our second land multi-client new venture project in the Marcellus shale area, and with four other projects underway, including a land project in Poland. In the process, we are increasing our technical understanding of both oil and gas shale plays and we intend to leverage this expertise to broaden our oil and gas shale footprint geographically in both the U.S. and international markets. In addition, customer demand remains high for seismic data acquired by our GeoVentures business in offshore areas around the globe where E&P companies have demonstrated a strong interest for exploration, including frontier basins offshore Latin America, Africa, and in the Arctic, as well as ResSCAN land programs in North America. At December 31, 2012, our Solutions segment backlog, which consists of commitments for (i) data processing work and (ii) both multi-client new venture and proprietary projects by our GeoVentures group that have been underwritten, was $151.3 million compared with $134.2 million at December 31, 2011, an increase of 13%. We anticipate that the majority of this backlog will be recognized as revenue over the first half of 2013.

Revenues for our Systems segment decreased in 2012 compared to 2011. While this segment benefited from healthy marine repair and replacement sales and improved ocean bottom cable sales, we experienced soft streamer positioning sales in 2012, primarily attributable to modest capital spending by our contractor customers. This reduced level of spending was principally related to a lower number of new vessels (on which our Systems equipment and software are often installed) introduced in 2012, compared to the number of new vessels introduced in 2011. In 2011, we also recognized revenue from the sale to BGP of a DigiSTREAMER twelve-streamer system; there was no similar sale of that magnitude in 2012. In January 2013, CGGVeritas closed its acquisition of Fugro’s geoscience division, further consolidating the marine towed streamer industry market segment, which could lead to a reduction in the number of our potential customers and vessel outfitting opportunities. Our Software segment revenues increased in 2012 compared to 2011 due to steady subscription sales of Orca and Gator software.

Our land seismic business, particularly INOVA Geophysical’s business in North America and Russia, continues to show progress, reporting a sizable increase in revenues and gross profits for the twelve-month period from October 1, 2011 to September 30, 2012, compared to the twelve-month period ended September 30, 2011. With the recent launches of its lower-cost cableless Hawk land system, an improved FireFly system (“FireFly DR31”) and a new cabled system (G3i), INOVA has positive momentum heading into the next twelve-month period.

It is our view that technologies that add a competitive advantage through improved imaging, cost reductions or improvements in well productivity will continue to be valued in our marketplace. We believe that our newest technologies such as DigiFIN, DigiSTREAMER, Orca, our WiBand data processing technology and INOVA Geophysical’s newest technologies (including FireFly DR31, Hawk SN11, UNIVIB, a new VectorSeis ML21 digital sensor, upgrades to its ARIES II product with digital sensor capabilities and its new G3i cabled system), will continue to attract customer interest, because those technologies are designed to deliver improvements in image quality within more productive delivery systems.

We expect the growth in demand for seismic services to continue to remain positive for the foreseeable future, and we remain positioned to achieve year-over-year improvement in both our revenue and profitability for 2013 as compared to 2012. However, in stating these expectations, we are assuming that (i) the global and U.S. economies will not slip back into a recession, (ii) the prices of WTI and Brent crude oil will remain predominantly above $80 and $100 per barrel, respectively, (iii) the level of exploration and development activities in the US Gulf of Mexico will continue to

increase, and (iv) there will be increasing demand for seismic services in the Middle East and North Africa resulting from improved geopolitical stability in those areas.

WesternGeco Legal Proceedings

The trial in this lawsuit began on July 23, 2012. A verdict was returned by the jury on August 16, 2012, finding that we willfully infringed the claims contained in four patents and awarding WesternGeco the sum of $105.9 million in damages, consisting of $12.5 million in reasonable royalty and $93.4 million in lost profits. We believe that the verdict is not consistent with applicable law or the facts or evidence in the case and, on September 28, 2012, filed motions with the trial court to overturn all or portions of the verdict. See further discussion at Part I, Item 3. – “Legal Proceedings.”

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The ultimate outcome of the case in the trial court, and the content of the final judgment as a whole, presently rest with the presiding trial court judge. The next step in the case is for the trial court judge to decide post-verdict motions filed by the parties and enter a judgment. The final judgment will determine the result of the trial prior to appeal. When he enters a judgment in the case, the judge can choose to follow the jury verdict or to take other actions, such as changing to a different result or ordering an entirely new trial. As of the filing date of this Annual Report on Form 10-K, the Court had not yet entered a judgment in the case. If the Court enters a judgment that is adverse to us, we intend to appeal the judgment to the United States Court of Appeals for the Federal Circuit. WesternGeco would also have the right to elect to appeal any final judgment.

Key Financial Metrics

The following table provides an overview of key financial metrics for our company as a whole and our three business segments during 2012, 2011 and 2010. In order to assist with the comparability to our historical results of operations, the financial tables and discussion below for 2010, segregate the results of operations of our disposed legacy land seismic equipment segment (which we refer to below as our "Legacy Land Systems" segment). For tabular information on the operating results of our INOVA Geophysical joint venture, see "Equity in Earnings (Losses) of INOVA Geophysical" in the discussion below.

Our "multi-client" business in our Solutions segment includes "New Venture" activities and our "Data Library." "New Venture" activities involve acquiring and processing data in our regional seismic data programs using advanced geophysical technology. Once the data is processed, the program moves into our Data Library category.

	Years Ended December 31,		
	2012	2011	2010
	(in thousands, except per share amounts)		
Net revenues:			
Solutions:			
New Venture	$147,346	$98,335	$81,293
Data Library	88,085	76,332	87,664
Total multi-client revenues	235,431	174,667	168,957
Data Processing	115,834	88,783	107,997
Total	$351,265	$263,450	$276,954
Systems:			
Towed Streamer	$77,769	$111,453	$83,567
Ocean bottom	14,823	960	1,876
Other	39,404	40,591	28,783
Total	$131,996	$153,004	$114,226
Software:			
Software Systems	$39,738	$36,031	$34,465
Services	3,318	2,136	2,166
Total	$43,056	$38,167	$36,631
Legacy Land Systems (INOVA)	$—	$—	$16,511
Total	$526,317	$454,621	$444,322
Gross profit:			
Solutions	$132,950	$84,647	$93,804
Systems	50,790	61,109	48,557
Software	32,061	27,689	24,356
Legacy Land Systems (INOVA)	—	—	(984)
Total	$215,801	$173,445	$165,733
Gross margin:			
Solutions	38%	32%	34%
Systems	38%	40%	43%
Software	74%	73%	66%

Legacy Land Systems (INOVA)	—	—	(6)%
Total	41%	38%	37%

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	Years Ended December 31,		
	2012	2011	2010
	(in thousands, except per share amounts)		
Income from operations:			
Solutions	$88,589	$50,620	$60,632
Systems	10,132	33,034	27,749
Software	28,129	24,463	21,936
Corporate and other	(52,323)	(41,322)	(47,847)
Legacy Land Systems (INOVA)	—	—	(9,623)
Total	$74,527	$66,795	$52,847
Operating Margin:			
Solutions	25%	19%	22%
Systems	8%	22%	24%
Software	65%	64%	60%
Corporate and other	(10)%	(9)%	(11)%
Legacy Land Systems (INOVA)	—	—	(58)%
Total	14%	15%	12%
Net income (loss) applicable to common shares	$61,963	$23,422	$(38,774)
Basic net income (loss) per common share	$0.40	$0.15	$(0.27)
Diluted net income per (loss) common share	$0.39	$0.15	$(0.27)

We intend that the following discussion of our financial condition and results of operations will provide information that will assist in understanding our consolidated financial statements, the changes in certain key items in those financial statements from year to year, and the primary factors that accounted for those changes.

We account for our 49% interest in INOVA Geophysical as an equity method investment and record our share of earnings of INOVA Geophysical on a one fiscal quarter lag basis. Thus, for 2012, 2011 and 2010, we recognized in our consolidated results of operations our share of earnings (losses) in INOVA Geophysical of approximately $0.3 million, $(22.9) million, and $(23.7) million, which represent joint venture operations for the periods from October 1, 2011 through September 30, 2012, October 1, 2010 through September 30, 2011, and March 26, 2010 (inception) through September 30, 2010, respectively.

We expect to file an amendment on Form 10-K/A to this Annual Report on Form 10-K within the six-month period following December 31, 2012 in order to file separate consolidated financial statements for INOVA Geophysical for the fiscal year ended December 31, 2012, as required under SEC Regulation S-X.

For a discussion of factors that could impact our future operating results and financial condition, see Item 1A. “Risk Factors” above.

Results of Operations

Year Ended December 31, 2012 Compared to Year Ended December 31, 2011

	Years Ended December 31,	
	2012	2011
	(In thousands)	
Net revenues	$526,317	$454,621
Cost of sales	310,516	281,176
Gross profit	215,801	173,445
Gross margin	41%	38%
Operating expenses:		
Research, development and engineering	34,080	24,569
Marketing and sales	35,240	31,269
General, administrative and other operating expenses	71,954	50,812
Total operating expenses	141,274	106,650
Income from operations	$74,527	$66,795

Our total net revenues of $526.3 million for 2012 increased $71.7 million, or 16%, compared to total net revenues for 2011. Our overall gross profit percentage for 2012 was 41%, compared to 2011's gross profit percentage of 38%. Total operating expenses as a percentage of net revenues for 2012 and 2011 were 27% and 23%, respectively. During 2012, we recorded income from operations of $74.5 million compared to $66.8 million for 2011.

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Net Revenues, Gross Profits and Gross Margins

Solutions — Net revenues for 2012 increased by $87.8 million, or 33%, to $351.3 million, compared to $263.5 million for 2011. This increase was predominantly driven by improved data processing revenues due to post-Macondo recovery in the Gulf of Mexico and continued international expansion; higher GeoVentures revenue related to growth in new venture activity, including programs offshore Latin America, Africa, and in the Arctic, as well as ResSCAN land programs in North America, and growth in data library sales related to programs offshore Latin America, Africa, Australia and in the Arctic. Gross profit increased by $48.3 million to $133.0 million, representing a 38% gross margin, compared to $84.6 million, or a 32% gross margin, for 2011, primarily attributable to the recovery and expansion of our data processing business during 2012 and a more profitable mix of programs in GeoVentures.

Systems — Net revenues for 2012 decreased by $21.0 million, or 14%, to $132.0 million, compared to $153.0 million for 2011. This decrease was driven primarily by lower volumes of towed marine streamer positioning equipment, and was offset by improved ocean bottom cable sales. In 2011, we recognized revenue from the sale to BGP of a DigiSTREAMER twelve-streamer system, which was not replicated in 2012. Gross profit for 2012 decreased by $10.3 million to $50.8 million, representing a 38% gross margin, compared to $61.1 million, representing a 40% gross margin, for 2011. The decrease in gross margins in our Systems segment was primarily due to reduced sales of towed marine streamer positioning equipment.

Software — Net revenues for 2012 increased by $4.9 million, or 13%, to $43.1 million, compared to $38.2 million for 2011. Excluding the effects of foreign currency translation, revenues increased 11% due to continued demand for the Orca and Gator software platforms. Gross profit for 2012 increased by $4.4 million to $32.1 million, representing a 74% gross margin, compared to $27.7 million, for 2011, which represented a 73% gross margin. Gross profit increased in line with revenue while gross margins increased only slightly from 2011 to 2012. Gross margins remained high due to significantly higher software sales, which carry a much higher gross margin than other products and services. Software sales represented 65% of total sales in this segment for 2012 in local currency, compared to 58% of total sales in 2011.

Operating Expenses

Research, Development and Engineering — Research, development and engineering expense was $34.1 million, or 6% of net revenues, for 2012, an increase of $9.5 million compared to $24.6 million, or 5% of net revenues, for 2011. This increase in research and development expense was primarily due to increased investment of labor and technology related to product development. Related to this, our Systems and Solutions segments increased expenditures on field tests in 2012 versus 2011.

Marketing and Sales — Marketing and sales expense of $35.2 million, or 7% of net revenues, for 2012, increased $4.0 million compared to $31.3 million, or 7% of net revenues, for 2011. This increase in marketing and sales expense was primarily due to investment in our Solutions sales teams to support the continued growth in the Solutions segment.

General, Administrative and Other Operating Expenses — General, administrative and other operating expenses of $72.0 million for 2012 increased $21.1 million compared to $50.8 million, for the corresponding period of 2011. General, administrative and other operating expenses as a percentage of net revenues for 2012 and 2011 were 14% and 11%, respectively. This increase in expense was primarily due to significantly higher legal fees ($9.0 million) and the write-down of marine equipment and receivables totaling $11.6 million. In 2012, we had experienced increased legal fees and expenses defending the lawsuit brought against us by WesternGeco and pursuing the lawsuit brought by us against Sercel. See further discussion at Part I, Item 3. “Legal Proceedings.”

Non-operating Items

Interest Expense, net — Interest expense, net, of $5.3 million for 2012 decreased slightly compared to $5.8 million for 2011. For additional information, please refer to “— Liquidity and Capital Resources — Sources of Capital” below.

Equity in Earnings (Losses) of INOVA Geophysical — We account for our 49% interest in INOVA Geophysical as an equity method investment and record our share of earnings and losses of INOVA Geophysical on a one fiscal quarter-lag basis. Thus, our share of INOVA Geophysical’s earnings (losses) for the periods from October 1, 2011 to September 30, 2012 (“Fiscal 2012”) and from October 1, 2010 to September 30, 2011 (“Fiscal 2011”) were included in our consolidated financial results for fiscal 2012 and fiscal 2011, respectively. For 2012 and 2011, we recorded our 49% share of equity (i) earnings of approximately $0.3 million, and (ii) losses of approximately $22.9 million

(including $7.7 million that represented our share of a write-down of excess inventory), respectively.

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The following table reflects the summarized financial information for INOVA Geophysical for Fiscal 2012 and Fiscal 2011 (in thousands):

	Fiscal 2012	Fiscal 2011
Total net revenues	$188,336	$138,735
Gross profit	$39,320	$5,765
Income (loss) from operations	$3,241	$(41,836)
Net income (loss)	$2,197	$(46,033)

Other Income (Expense) — Other income for 2012 was $17.1 million compared to other expense of $3.4 million for 2011. The difference primarily relates to the settlements of litigation. See further discussion at Part 1, Item 3, “Legal Proceedings.”

The following table reflects the significant items of other income (expense) is as follows (in thousands):

	Years Ended December 31,	
	2012	2011
Gain on legal settlements, net	$20,895	$—
Write-down of investments	(556)	(1,312)
Other income (expense)	(3,215)	(2,135)
Total other income (expense)	$17,124	$(3,447)

Income Tax Expense — Income tax expense for 2012 was $23.9 million compared to $10.1 million for 2011. Our effective tax rates for 2012 and 2011 were 27.5% and 29.2%, respectively. The change in our effective tax rate between 2012 and 2011 was due to a reduction in the valuation allowance on U.S. federal net deferred tax assets, partially offset by changes in the distribution of earnings between U.S. and foreign jurisdictions. We continue to maintain a valuation allowance for a portion of our U.S. federal net deferred tax assets that relate to capital losses and basis differences that will create capital losses.

Preferred Stock Dividends — The preferred stock dividend relates to our Series D Preferred Stock. Quarterly dividends must be paid in cash. Dividends are paid at a rate equal to the greater of (i) 5.0% per annum or (ii) the three month LIBOR rate on the last day of the immediately preceding calendar quarter plus 2.5% per annum. The Series D Preferred Stock dividend rate was 5.0% at December 31, 2012. The total amount of dividends paid on our preferred stock in 2012 was the same as in 2011.

Year Ended December 31, 2011 Compared to Year Ended December 31, 2010

Revenues, costs and expenses for 2010 that are identified as “adjusted” or “as adjusted” in the discussion below reflect exclusion of the revenues, costs and expenses from our disposed land equipment segment's business, or “Legacy Land Systems.”

	Year Ended December 31, 2011	Year Ended December 31, 2010	
		As Reported	As Adjusted[1]
	(In thousands)		
Net revenues	$454,621	$444,322	$427,811
Cost of sales	281,176	278,589	261,094
Gross profit	173,445	165,733	166,717
Gross margin	38 %	37 %	39 %
Operating expenses:			
Research, development and engineering	24,569	25,227	21,046
Marketing and sales	31,269	30,405	28,846
General, administrative and other operating expenses	50,812	57,254	54,355
Total operating expenses	106,650	112,886	104,247
Income from operations	$66,795	$52,847	$62,470

[1] Excluding Legacy Land Systems (INOVA).

Our total net revenues of $454.6 million for 2011 increased $10.3 million, or 2%, compared to total net revenues for 2010. Excluding the results of operations of the Legacy Land Systems (INOVA) business, total net revenues increased

$26.8 million, or 6%, for 2011. Our overall gross profit percentage for 2011 was 38%, fairly comparable to 2010's percentage, as

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adjusted. Total operating expenses as a percentage of net revenues for 2011 and 2010 (as adjusted) were 23% and 24%, respectively. During 2011, we recorded income from operations of $66.8 million compared to $62.5 million for 2010, as adjusted.

Net Revenues, Gross Profits and Gross Margins (as adjusted, excluding Legacy Land Systems results for 2010)

Solutions — Net revenues for 2011 decreased by $13.5 million, to $263.5 million, compared to $277.0 million for 2010. This decrease was primarily due to lower data processing revenues as our data processing business was negatively impacted by the lagging effects of the slowdown in the Gulf of Mexico. This decrease was partially offset by increased demand for access to our multi-client new venture projects and licensing of data libraries in Greenland, East Africa and in North American shale plays, although overall data library sales were down. Gross profit decreased by $9.2 million to $84.6 million, representing a 32% gross margin, compared to $93.8 million, or a 34% gross margin, for 2010, primarily attributable to lower data processing revenues.

Systems — Net revenues for 2011 increased by $38.8 million to $153.0 million, compared to $114.2 million for 2010. This increase was driven primarily by higher sales of towed streamer and other marine products, including revenue recognized from the sale to BGP of a DigiSTREAMER twelve-streamer system. Gross profit for 2011 increased by $12.5 million to $61.1 million, representing a 40% gross margin, compared to $48.6 million, representing a 43% gross margin, for 2010. The decrease in gross margins in our Systems segment was primarily due to changes in product mix, with the large DigiSTREAMER system sale having a lower margin relative to our other marine streamer products, such as our streamer positioning equipment.

Software — Net revenues for 2011 increased by $1.5 million, or 4%, to $38.2 million, compared to $36.6 million for 2010. The increase in revenues as expressed in U.S. Dollars was principally due to the effect of foreign currency exchange rate fluctuations. Expressed in British pounds sterling (the local currency), net revenues were flat. Gross profit increased by $3.3 million to $27.7 million compared to $24.4 million for 2010, while gross margins increased by 7% to 73% due to changes in product mix (there was a relative increase in software sales during 2011, which have higher margins than the associated hardware sales in this segment).

Operating Expenses (as adjusted, excluding Legacy Land Systems results for 2010)

Research, Development and Engineering — Research, development and engineering expense was $24.6 million, or 5% of net revenues, for 2011, an increase of $3.6 million compared to $21.0 million, or 5% of net revenues, for 2010, as adjusted. This increase in research and development expense was due to increased investment by our Systems segment to develop our next-generation marine technologies. We continue to strategically invest in our next generation of seismic data acquisition services and products, particularly in shale formation technologies and marine platforms, and we expect this investment will continue in the future.

Marketing and Sales — Marketing and sales expense of $31.3 million, or 7% of net revenues, for 2011 increased $2.5 million compared to $28.8 million, or 7% of net revenues, for 2010, as adjusted. This increase in marketing and sales expense was due to higher advertising and employment-related expenses. We intend to continue investing significant sums in our marketing efforts as we seek to penetrate markets with our latest services and products.

General, Administrative and Other Operating Expenses — General, administrative and other operating expenses of $50.8 million for 2011 decreased $3.6 million compared to $54.4 million, for the corresponding period of 2010, as adjusted. General, administrative and other operating expenses as a percentage of net revenues for 2011 and 2010 were 11% and 13%, respectively. This decrease in expense was due to lower legal costs, and lower stock-based compensation and employment-related expenses. This decrease was partially offset by $2.9 million of severance charges primarily related to the restructuring of geophone operations in the Netherlands as we moved our geophone manufacturing operations to lower-cost centers in Asia.

Non-operating Items

Interest Expense, net — Interest expense, net, of $5.8 million for 2011 decreased $25.0 million compared to $30.8 million for 2010. Our interest expense in 2010 included accretion costs of approximately $8.7 million of non-cash debt discount (fully amortized in the first quarter of 2010) associated with two promissory notes payable to our senior credit bank lender, Bank of China, New York Branch, that we had signed and delivered to the bank in October 2009, and a write-off of $10.1 million of deferred financing charges related to our debt refinancing transactions during the first quarter of 2010. After excluding these two non-cash items, our 2010 interest expense, net, was $12.0 million for

the year. As a result of our March 2010 debt refinancing transactions, our interest expense was significantly lower in 2011 than we experienced in 2010.

Equity in Losses of INOVA Geophysical — We account for our 49% interest in INOVA Geophysical as an equity method investment and record our share of earnings of INOVA Geophysical on a one fiscal quarter-lag basis. Thus, our share of INOVA Geophysical's losses for the periods from October 1, 2010 to September 30, 2011 ("Fiscal 2011") and from March 26, 2010 through September 30, 2010 ("Fiscal 2010") are included in our consolidated financial results for 2011 and 2010, respectively. For 2011 and 2010, we recorded our 49% share of equity losses of approximately $22.9 million (including $7.7 million that

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represents our share of a write-down of excess inventory) and $23.7 million (including $9.5 million that represents our share of a write-down of excess inventory), respectively. The global land seismic equipment business continued to be negatively impacted by reduced demand, particularly in North America and Russia during 2011 and 2010.

The following table reflects the summarized financial information for INOVA Geophysical for Fiscal 2011 and Fiscal 2010 (in thousands):

	Fiscal 2011	Fiscal 2010
Total net revenues	$138,735	$47,609
Gross profit (loss)	$5,765	$(21,574)
Loss from operations	$(41,836)	$(45,423)
Net loss	$(46,033)	$(48,416)

Other Income (Expense) — Other expense for 2011 was $3.4 million compared to other expense of $8.2 million for 2010. The difference between 2011's and 2010's totals primarily results from the disposition of the Legacy Land System in 2010, offset by the fair value adjustment of a warrant we had issued to BGP and the gain on a legal settlement in 2010.

The following table reflects the significant items of other income (expense) is as follows (in thousands):

	Years Ended December 31,	
	2011	2010
Gain on a legal settlement	$—	$24,500
Loss on disposition of land division	—	(38,115)
Fair value adjustment of warrant	—	12,788
Write-down of investments	(1,312)	(7,650)
Other income (expense)	(2,135)	228
Total other expense	$(3,447)	$(8,249)

Income Tax Expense — Income tax expense for 2011 was $10.1 million compared to $26.9 million for 2010. Income tax expense for 2011 included the establishment of $8.5 million of valuation allowance related to our share of INOVA Geophysical's 2011 net loss and write-down of investments. We continued to maintain a valuation allowance for a significant portion of our U.S. federal net deferred tax assets. Our effective tax rates for 2011 and 2010 were 29.2% and 272.2% (provision on a loss), respectively. The change in our effective tax rate between 2011 and 2010 was due primarily to the transactions related to the formation of INOVA Geophysical in 2010, the establishment of additional valuation allowances and changes in the distribution of earnings between U.S. and foreign jurisdictions. Excluding the impact of these items, our effective tax rates would have been 17.2% and 14.5% for 2011 and 2010, respectively.

Liquidity and Capital Resources

Sources of Capital

Our cash requirements include our working capital requirements, cash required for our debt service payments, multi-client seismic data acquisition activities and capital expenditures. As of December 31, 2012, we had working capital of $164.7 million, which included $61.0 million of cash on hand. Working capital requirements are primarily driven by our continued investment in our multi-client seismic data library ($145.6 million in 2012) and, to a lesser extent, our inventory purchase obligations. At December 31, 2012, our outstanding inventory purchase obligations were $26.5 million. Also, our headcount has traditionally been a significant driver of our working capital needs. Because a significant portion of our business is involved in the planning, processing and interpretation of seismic data services, one of our largest investments is in our employees, which involves cash expenditures for their salaries, bonuses, payroll taxes and related compensation expenses.

Our working capital requirements may change from time to time depending upon many factors, including our operating results and adjustments in our operating plan required in response to industry conditions, competition, acquisition opportunities and unexpected events, such as an adverse judgment in our WesternGeco litigation, which is further discussed at Part I, Item 3. "Legal Proceedings." In recent years, our primary sources of funds have been cash flows generated from our operations, our existing cash balances, debt and equity issuances and borrowings under our revolving credit facilities. At December 31, 2012, our principal outstanding credit facility consisted of a revolving line of credit providing for borrowings of up to $175.0 million, which $97.3 million was outstanding as of that date,

leaving $77.7 million of unused and available capacity.

Revolving Line of Credit — On May 29, 2012, we amended the terms of our senior secured credit facility (the “Credit Facility”) with China Merchants Bank Co., Ltd., New York Branch, as administrative agent and lender (“CMB”). The First

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Amendment to Credit Agreement and Loan Documents (the "First Amendment") modified certain provisions of our senior credit agreement with CMB that we had entered into in March 2010.

As amended by the First Amendment, the Credit Facility now provides that we may make revolving credit borrowings in U.S. Dollars, Euros, British Pounds Sterling or Canadian Dollars up to an amount not to exceed the U.S. Dollar equivalent of $175.0 million. In addition, all then-outstanding term loan indebtedness under the Credit Facility was converted to revolving credit indebtedness, such that as of May 29, 2012, there was $98.3 million in total revolving credit indebtedness outstanding under the Credit Facility. For further information on our Credit Facility, see Note 11 "Long-term Debt, Lease Obligations and Interest Rate Caps" at Notes to Consolidated Financial Statements.

Meeting our Liquidity Requirements

We have historically financed our operations from internally generated cash, funds from equity and debt financings, and borrowings under revolving credit facilities. As of December 31, 2012, our total outstanding indebtedness (including capital lease obligations) was approximately $105.3 million, consisting of approximately $97.3 million outstanding under our revolving line of credit, $2.3 million relating to our facility lease obligations and $5.7 million of capital leases. As of December 31, 2012, we had $77.8 million undrawn and available on our revolving line of credit under our Credit Facility, and had approximately $61.0 million of cash on hand.

For 2012, total capital expenditures, including investments in our multi-client data library, were $160.5 million, and we are projecting capital expenditures for 2013 to be between $160 million to $190 million. Of the total projected 2013 capital expenditures, we are estimating that approximately $140 million to $160 million will be spent on investments in our multi-client data library.

We currently believe that our existing cash, cash generated from operations and our sources of working capital will be sufficient for us to meet our anticipated cash needs for at least the next 12 months. However, as further described in Part I, Item 3. "Legal Proceedings," there are possible scenarios involving a judgment to be rendered in the WesternGeco lawsuit that would adversely affect our liquidity. If we become subject to a significant adverse judgment in the WesternGeco lawsuit, we might have to utilize a combination of cash on hand, undrawn balances available under our revolving line of credit under our senior debt facility and possibly incur additional debt and/or equity financing.

Cash Flow from Operations

Net cash provided by operating activities was $169.1 million for 2012, compared to $130.0 million for 2011. The increase in our cash flows from operations was due in part to the increase in our income from operations for 2012 compared to 2011. Also positively impacting our cash flows was an increase in accrued expenses related to our GeoVentures projects. This is partially offset by an increase in unbilled revenues related to GeoVentures.

Net cash provided by operating activities was $130.0 million for 2011, which was comparable to the $133.4 million of net cash provided by operating activities in 2010. Similar to 2010, our increase in sales activity during the fourth quarter of 2011, resulted in an increase in our accounts receivable and then had a positive impact to our cash balances in the first quarter of 2012, as we converted our receivables into cash.

Cash Flow from Investing Activities

Net cash flow used in investing activities was $144.3 million for 2012, compared to net cash used in investing activities of $181.6 million for 2011. The principal uses of cash in our investing activities during 2012 were $145.6 million of continued investments in our multi-client data library and $14.9 million in investments in property, plant and equipment. These uses of cash were offset by the cash provided by the maturity of $20.0 million in short-term bank certificates of deposit.

Net cash flow used in investing activities was $181.6 million for 2011, compared to net cash provided by investing activities of $27.5 million for 2010. The principal uses of cash in our investing activities during 2011 were $143.8 million of continued investments in our multi-client data library, our net investment of $20.0 million of excess cash in short-term bank certificates of deposit, our $11.1 million investment in property, plant and equipment and our $6.5 million investment in a convertible note.

Cash Flow from Financing Activities

Net cash flow used in financing activities was $6.5 million for 2012, compared to $9.8 million of net cash flow provided by financing activities for 2011. The net cash flow used in financing activities during 2012 was primarily

related to repayment of our term loan of $98.3 million, offset by net borrowings under our amended revolving line of credit of $97.3 million. We also paid $1.4 million in cash dividends on our outstanding Series D Preferred Stock in 2012.

Net cash flow provided by financing activities was $9.8 million for 2011, compared to $92.7 million of net cash flow used in financing activities for 2010. The net cash flow provided by financing activities during 2011 was primarily related to

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proceeds from stock option exercises of $13.1 million and an excess tax benefit from stock-based compensation of $3.3 million. This cash inflow was partially offset by payments on our long-term debt of $6.1 million. We also paid $1.4 million in cash dividends on our outstanding Series D Preferred Stock in 2011.

Inflation and Seasonality

Inflation in recent years has not had a material effect on our costs of goods or labor, or the prices for our products or services. Traditionally, our business has been seasonal, with strongest demand typically in the fourth quarter of our fiscal year. We experienced increased demand in the fourth quarters of both 2011 and 2012 driven by increased capital expenditures from our E&P customers, consistent with our historical seasonality.

Future Contractual Obligations

The following table sets forth estimates of future payments of our consolidated contractual obligations, as of December 31, 2012 (in thousands):

Contractual Obligations	Total	Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
Long-term debt	$99,584	$ 832	$98,752	$—	$ —
Interest on long-term debt obligations	5,800	2,597	3,203	—	—
Equipment capital lease obligations	5,744	2,664	3,080	—	—
Operating leases	102,753	8,641	16,197	17,878	60,037
Purchase obligations	26,451	26,451	—	—	—
Total	$240,332	$ 41,185	$121,232	$17,878	$ 60,037

The long-term debt and lease obligations at December 31, 2012 included $97.3 million under our term loan scheduled to mature in 2015 and $2.3 million of indebtedness related to our Stafford, Texas facility sale-leaseback arrangement. The $5.7 million of capital lease obligations relates to GXT's financing of computer and other equipment purchases. The operating lease commitments at December 31, 2012 relate to our leases for certain equipment, offices, processing centers, and warehouse space under non-cancelable operating leases. Our purchase obligations primarily relate to our committed inventory purchase orders under which deliveries of inventory are scheduled to be made in 2013.

Critical Accounting Policies and Estimates

The preparation of consolidated financial statements in conformity with generally accepted accounting principles in the United States requires management to make choices between acceptable methods of accounting and to use judgment in making estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities, and the reported amounts of revenue and expenses. The following accounting policies are based on, among other things, judgments and assumptions made by management that include inherent risk and uncertainties. Management's estimates are based on the relevant information available at the end of each period. We believe that all of the judgments and estimates used to prepare our financial statements were reasonable at the time we made them, but circumstances may change requiring us to revise our estimates in ways that could be materially adverse to our results of operations and financial condition. Management has discussed these critical accounting estimates with the Audit Committee of our Board of Directors and the Audit Committee has reviewed our disclosures relating to the estimates in this Management's Discussion and Analysis.

Revenue Recognition

We derive revenue from the sale of (i) multi-client and proprietary surveys, licenses of "on-the-shelf" data libraries and imaging services, within our Solutions segment; (ii) seismic data acquisition systems and other seismic equipment within our Systems segment; and (iii) navigation, survey and quality control software systems within our Software segment.

Multi-Client and Proprietary Surveys, Data Libraries and Imaging Services — As our multi-client surveys are being designed, acquired or processed (referred to as the "new venture" phase), we enter into non-exclusive licensing arrangements with our customers. License revenues from these new venture survey projects are recognized during the new venture phase as the seismic data is acquired and/or processed on a proportionate basis as work is performed. Under this method, we recognize revenues based upon quantifiable measures of progress, such as kilometers acquired or days processed. Upon completion of a multi-client seismic survey, the seismic survey is considered "on-the-shelf," and licenses to the survey data are granted to customers on a non-exclusive basis. Revenues on licenses of completed multi-client data surveys are recognized when (a) a signed final master geophysical data license agreement and

accompanying supplemental license agreement are returned by the customer; (b) the purchase price for the license is fixed or determinable; (c) delivery or performance has occurred; and (d) no significant uncertainty exists as to the customer's obligation, willingness or ability to pay. In limited situations, we have

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provided the customer with a right to exchange seismic data for another specific seismic data set. In these limited situations, we recognize revenue at the earlier of the customer exercising its exchange right or the expiration of the customer's exchange right.

We also perform seismic surveys under contracts to specific customers, whereby the seismic data is owned by those customers. We recognize revenue as the seismic data is acquired and/or processed on a proportionate basis as work is performed. We use quantifiable measures of progress consistent with our multi-client surveys.

Revenues from all imaging and other services are recognized when persuasive evidence of an arrangement exists, the price is fixed or determinable, and collectibility is reasonably assured. Revenues from contract services performed on a day-rate basis are recognized as the service is performed.

Acquisition Systems and Other Seismic Equipment — For the sales of seismic data acquisition systems and other seismic equipment, we follow the requirements of ASC 605-10 "Revenue Recognition" and recognize revenue when (a) evidence of an arrangement exists; (b) the price to the customer is fixed and determinable; (c) collectibility is reasonably assured; and (d) the acquisition system or other seismic equipment is delivered to the customer and risk of ownership has passed to the customer, or, in the case in which a substantive customer-specified acceptance clause exists in the contract, the later of delivery or when the customer-specified acceptance is obtained

Software — For the sales of navigation, survey and quality control software systems, we follow the requirements for these transactions of ASC 985-605 "Software Revenue Recognition" ("ASC 985-605"). We recognize revenue from sales of these software systems when (a) evidence of an arrangement exists; (b) the price to the customer is fixed and determinable; (c) collectibility is reasonably assured; and (d) the software is delivered to the customer and risk of ownership has passed to the customer, or, in the limited case in which a substantive customer-specified acceptance clause exists, the later of delivery or when the customer-specified acceptance is obtained. These arrangements generally include us providing related services, such as training courses, engineering services and annual software maintenance. We allocate revenue to each element of the arrangement based upon vendor-specific objective evidence ("VSOE") of fair value of the element or, if VSOE is not available for the delivered element, we apply the residual method.

In addition to perpetual software licenses, we offer time-based software licenses. For time-based licenses, we recognize revenue ratably over the contract term, which is generally two to five years.

Multiple-element Arrangements — When separate elements (such as an acquisition system, other seismic equipment and/or imaging services) are contained in a single sales arrangement, or in related arrangements with the same customer, we follow the requirements of ASC 605-25 "Accounting for Multiple-Element Revenue Arrangement" ("ASC 605-25'). We adopted this guidance as of January 1, 2010, and applied the guidance to transactions initiated or materially modified on or after January 1, 2010. The guidance does not apply to software sales accounted for under ASC 985-605. We also adopted, in the same period, guidance within ASC 985-605 that excludes from its scope revenue arrangements that include both tangible products and software elements, such that the tangible products contain both software and non-software components that function together to deliver the tangible product's essential functionality.

This guidance requires that arrangement consideration be allocated at the inception of an arrangement to all deliverables using the relative selling price method. We allocate arrangement consideration to each deliverable qualifying as a separate unit of accounting in an arrangement based on its relative selling price. We determine selling price using VSOE, if it exists, and otherwise, third-party evidence ("TPE"). If neither VSOE nor TPE of selling price exists for a unit of accounting, we use estimated selling price ("ESP"). We generally expect that we will not be able to establish TPE due to the nature of the markets in which we compete, and, as such, we typically will determine selling price using VSOE or if not available, ESP. VSOE is generally limited to the price charged when the same or similar product is sold on a standalone basis. If a product is seldom sold on a standalone basis, it is unlikely that we can determine VSOE for the product.

The objective of ESP is to determine the price at which we would transact if the product were sold by us on a standalone basis. Our determination of ESP involves a weighting of several factors based on the specific facts and circumstances of the arrangement. Specifically, we consider the anticipated margin on the particular deliverable, the selling price and profit margin for similar products and our ongoing pricing strategy and policies.

We believe this guidance principally impacts our Systems division in which a typical arrangement might involve the sale of various products of our acquisition systems and other seismic equipment. Products under these arrangements are often delivered to the customer within the same period, but in certain situations, depending upon product availability and the customer's delivery requirements, the products could be delivered to the customer at different times. In these situations, we consider our products to be separate units of accounting provided the delivered product has value to the customer on a standalone basis. We consider a deliverable to have standalone value if the product is sold separately by us or another vendor or could be resold by the customer. Further, our revenue arrangements generally do not include a general right of return relative to the delivered products.

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Multi-Client Data Library

Our multi-client data library consists of seismic surveys that are offered for licensing to customers on a non-exclusive basis. The capitalized costs include the costs paid to third parties for the acquisition of data and related activities associated with the data creation activity and direct internal processing costs, such as salaries, benefits, computer-related expenses, and other costs incurred for seismic data project design and management. For 2012, 2011 and 2010, we capitalized, as part of our multi-client data library, $3.8 million, $2.4 million, and $2.8 million, respectively, of direct internal processing costs.

Our method of amortizing the costs of an in-process multi-client data library (the period during which the seismic data is being acquired or processed, referred to as the "new venture" phase) consists of determining the percentage of actual revenue recognized to the total estimated revenues (which includes both revenues estimated to be realized during the new venture phase and estimated revenues from the licensing of the resulting "on-the-shelf" data survey), and multiplying that percentage by the total cost of the project (the sales forecast method). We consider a multi-client data survey to be complete when all work on the creation of the seismic data is finished and that data survey is available for licensing.

Once a multi-client data survey is completed, the data survey is considered "on-the-shelf" and our method of amortization is then the greater of (i) the sales forecast method or (ii) the straight-line basis over a four-year period. The greater amount of amortization resulting from the sales forecast method or the straight-line amortization policy is applied on a cumulative basis at the individual survey level. Under this policy, we first record amortization using the sales forecast method. The cumulative amortization recorded for each survey is then compared with the cumulative straight-line amortization. The four-year period utilized in this cumulative comparison commences when the data survey is determined to be complete. If the cumulative straight-line amortization is higher for any specific survey, additional amortization expense is recorded, resulting in the accumulated amortization being equal to the cumulative straight-line amortization for that survey. We have determined the amortization period to be four years based upon our historical experience that indicates that the majority of our revenues from multi-client surveys are derived during the acquisition and processing phases and during the four years subsequent to survey completion.

Estimated sales are determined based upon discussions with our customers, our experience, and our knowledge of industry trends. Changes in sales estimates may have the effect of changing the percentage relationship of cost of services to revenue. In applying the sales forecast method, an increase in the projected sales of a survey will result in lower cost of services as a percentage of revenue, and higher earnings when revenue associated with that particular survey is recognized, while a decrease in projected sales will have the opposite effect. Assuming that the overall volume of sales mix of surveys generating revenue in the period was held constant in 2012, an increase in 10% in the sales forecasts of all surveys would have decreased our amortization expense by approximately $5.9 million.

We estimate the ultimate revenue expected to be derived from a particular seismic data survey over its estimated useful economic life to determine the costs to amortize, if greater than straight-line amortization. That estimate is made by us at the project's initiation. For a completed multi-client survey, we review the estimate quarterly. If during any such review, we determine that the ultimate revenue for a survey is expected to be materially more or less than the original estimate of total revenue for such survey, we decrease or increase (as the case may be) the amortization rate attributable to the future revenue from such survey. In addition, in connection with such reviews, we evaluate the recoverability of the multi-client data library, and if required under ASC 360-10 "Impairment and Disposal of Long-Lived Assets," ("ASC 360-10") record an impairment charge with respect to such data. There were no significant impairment charges during 2012, 2011 and 2010.

Reserve for Excess and Obsolete Inventories

Our reserve for excess and obsolete inventories is based on historical sales trends and various other assumptions and judgments, including future demand for our inventory, the timing of market acceptance of our new products and the risk of obsolescence driven by new product introductions. When we record a charge for excess and obsolete inventories, the amount is applied as a reduction in the cost basis of the specific inventory item for which the charge was recorded. Should these assumptions and judgments not be realized for these or for other reasons, our reserve would be adjusted to reflect actual results. Our industry is subject to technological change and new product development that could result in obsolete inventory. Our reserve for inventory at December 31, 2012 was $14.2

million compared to $13.0 million at December 31, 2011.

Goodwill and Other Intangible Assets

Goodwill is allocated to our reporting units, which is either the operating segment or one reporting level below the operating segment. For purposes of performing the impairment test for goodwill as required by ASC 350 “Intangibles — Goodwill and Other” (“ASC 350”), we established the following reporting units: Solutions, Software and Marine Systems. To determine the fair value of our reporting units, we use a discounted future returns valuation method. If we had established different reporting units or utilized different valuation methodologies, our impairment test results could differ. Additionally, we compared the sum of the estimated fair values of the individual reporting units less consolidated debt to our overall market capitalization as reflected by the our stock price.

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In accordance with ASC 350, we are required to evaluate the carrying value of our goodwill at least annually for impairment, or more frequently if facts and circumstances indicate that it is more likely than not impairment has occurred. We formally evaluate the carrying value of our goodwill for impairment as of December 31 for each of our reporting units. We first perform a qualitative assessment by evaluating relevant events or circumstances to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If we are unable to conclude qualitatively that it is more likely than not that a reporting unit's fair value exceeds its carrying value, then we will use a two-step quantitative assessment of the fair value of a reporting unit. If the carrying value of a reporting unit of an entity that includes goodwill is determined to be more than the fair value of the reporting unit, there exists the possibility of impairment of goodwill. An impairment loss of goodwill is measured in two steps by first allocating the fair value of the reporting unit to net assets and liabilities including recorded and unrecorded other intangible assets to determine the implied carrying value of goodwill. The next step is to measure the difference between the carrying value of goodwill and the implied carrying value of goodwill, and, if the implied carrying value of goodwill is less than the carrying value of goodwill, an impairment loss is recorded equal to the difference.

We completed our annual goodwill impairment testing as of December 31, 2012 noting no impairments. Our goodwill as of December 31, 2012 was comprised of $27.0 million in our Marine Systems, $25.2 million in our Software and $2.9 million in our Solutions reporting units. Our 2012 qualitative assessment indicated that it is more likely than not that the fair value of our Software reporting unit exceeds its carrying value. Our 2012 quantitative assessment indicated that the fair values of our Solutions and Marine Systems reporting units significantly exceeded their carrying values. Our analyses are based upon our internal operating forecasts, which include assumptions about market and economic conditions. However, if our estimates or related projections associated with the reporting units significantly change in the future, we may be required to record further impairment charges. If the operational results of our segments are lower than forecasted or the economic conditions are worse than expected, then the fair value of our segments will be adversely affected.

Our intangible assets, other than goodwill, relate to our customer relationships and intellectual property rights. We amortize our intellectual property rights over the estimated periods of benefit (ranging from 4 to 5 years). We amortize our customer relationship intangible assets on an accelerated basis over a 10- to 15-year period, using the undiscounted cash flows of the initial valuation models. We use an accelerated basis as these intangible assets were initially valued using an income approach, with an attrition rate that resulted in a pattern of declining cash flows over a 10- to 15-year period.

Following the guidance of ASC 360, we review the carrying values of these intangible assets for impairment if events or changes in the facts and circumstances indicate that it is more likely than not their carrying value may not be recoverable. Any impairment determined is recorded in the current period and is measured by comparing the fair value of the related asset to its carrying value.

Similar to our treatment of goodwill, in making these assessments, we rely on a number of factors, including operating results, business plans, internal and external economic projections, anticipated future cash flows and external market data. However, if our estimates or related projections associated with the reporting units significantly change in the future, we may be required to record further impairment charges.

Stock-Based Compensation

We account for stock-based compensation under the recognition provisions of ASC 718 "Compensation – Stock Compensation" ("ASC 718"). We estimate the value of stock option awards on the date of grant using the Black-Scholes option pricing model. The determination of the fair value of stock-based payment awards on the date of grant using an option-pricing model is affected by our stock price as well as assumptions regarding a number of subjective variables. These variables include, but are not limited to, our expected stock price volatility over the term of the awards, actual and projected employee stock option exercise behaviors, risk-free interest rate, and expected dividends.

In 2012, 2011 and 2010, we recognized $6.6 million, $6.3 million and $8.1 million, respectively, of stock-based compensation expense related to our employees' outstanding stock-based awards. The total expense in 2012 was comprised of $1.3 million reflected in cost of sales, $0.5 million in research, development and engineering expense, $0.8 million in marketing and sales expense, and $4.0 million in general, administrative and other operating expense.

Deferred Tax Assets

In 2012, we released approximately $6.6 million of valuation allowance, as we were no longer in a recent cumulative loss position and our projections indicated that these deferred tax assets would likely be realized. However, additional valuation allowances were established on certain U.S. deferred tax assets related to capital losses and basis differences that will result in capital losses. We determine the valuation allowance in accordance with the provisions of ASC 740, “Income Taxes,” which requires that a valuation allowance be established or maintained when it is “more likely than not” that all or a portion of deferred tax assets will not be realized. We will continue to record a valuation allowance for items that relate to capital losses or basis differences that will create capital losses until there is sufficient evidence to warrant reversal. In the event that our

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expectations of future operating results change, an additional valuation allowance may be required to be established on our unreserved net deferred tax assets.

Foreign Sales Risks

For 2012, we recognized $200.6 million of sales to customers in Europe, $55.0 million of sales to customers in Asia Pacific, $46.2 million of sales to customers in Latin American countries, $37.5 million of sales to customers in the Middle East, $18.5 million of sales to customers in Africa and $4.4 million of sales to customers in the Commonwealth of Independent States, or former Soviet Union (CIS). The majority of our foreign sales are denominated in U.S. dollars. For 2012, 2011 and 2010, international sales comprised 69%, 66% and 60%, respectively, of total net revenues. Since 2008, global economic problems and uncertainties have generally increased in scope and nature. To the extent that world events or economic conditions negatively affect our future sales to customers in many regions of the world, as well as the collectability of our existing receivables, our future results of operations, liquidity, and financial condition may be adversely affected.

Certain Relationships and Related Party Transactions

For 2012, 2011 and 2010, we recorded revenues from BGP for purchases of services and products of $13.7 million, $34.5 million and $16.9 million, respectively. A majority of the revenues from BGP for 2011 related to the sale of a twelve-streamer DigiSTREAMER system. Trade receivables due from BGP were $1.6 million and $15.2 million at December 31, 2012 and 2011, respectively. BGP owned (purchased in March 2010) approximately 15.2% of our outstanding common stock as of December 31, 2012. For 2012, we paid BGP $2.0 million for seismic acquisition services provided on one of the our new venture projects. At December 31, 2012, we owed BGP $9.3 million for unpaid services received on that project.

Until June 2012, we were a party to a support and transition agreement to provide INOVA Geophysical with certain administrative services, including tax, legal, information technology, treasury, human resources, bookkeeping, facilities and marketing services. The terms of the arrangement provided for INOVA Geophysical to pay us approximately $0.3 million per month (beginning in April 2010) for services and to reimburse us for third-party and lease costs we incurred directly related to the support of INOVA Geophysical. We were paid $3.5 million under this arrangement in 2012. The term of the agreement was for two years and it terminated on June 30, 2012.

James M. Lapeyre, Jr. is the Chairman of the Board on our board of directors. He is also the chairman and a significant equity owner of Laitram, L.L.C. (Laitram), and he has served as president of Laitram and its predecessors since 1989. Laitram is a privately-owned, New Orleans-based manufacturer of food processing equipment and modular conveyor belts. Mr. Lapeyre and Laitram together owned approximately 6.4% of our outstanding common stock as of December 31, 2012.

We acquired DigiCourse, Inc., our marine positioning products business, from Laitram in 1998. In connection with that acquisition, we entered into a Continued Services Agreement with Laitram under which Laitram agreed to provide us certain bookkeeping, software, manufacturing, and maintenance services. Manufacturing services consist primarily of machining of parts for our marine positioning systems. The term of this agreement expired in September 2001 but we continue to operate under its terms. In addition, from time to time, when we have requested, the legal staff of Laitram has advised us on certain intellectual property matters with regard to our marine positioning systems.

Under an amended lease of commercial property dated February 1, 2006, between Lapeyre Properties, L.L.C. (an affiliate of Laitram) and ION, we have leased certain office and warehouse space from Lapeyre Properties through January 2014, with the right to terminate the lease sooner upon 12 months' notice. During 2012, we paid Laitram and its affiliates a total of approximately $4.1 million, which consisted of approximately $3.2 million for manufacturing services, $0.6 million for rent and other pass-through third party facilities charges, and $0.3 million for reimbursement for costs related to providing administrative and other back-office support services in connection with our Louisiana marine operations. For the 2011 and 2010 fiscal years, we paid Laitram and its affiliates a total of approximately $6.3 million and $3.1 million, respectively, for these services. In the opinion of our management, the terms of these services are fair and reasonable and as favorable to us as those that could have been obtained from unrelated third parties at the time of their performance.

Off-Balance Sheet Arrangements

As of December 31, 2012, we did not have any off-balance-sheet arrangements, as defined in Item 303(a)(4)(ii) of SEC Regulation S-K.

Indemnification

In the ordinary course of our business, we enter into contractual arrangements with our customers, suppliers, and other parties under which we may agree to indemnify the other party to such arrangement from certain losses it incurs relating to our products or services or for losses arising from certain events as defined within the particular contract. Some of these indemnification obligations may not be subject to maximum loss limitations. Historically, payments we have made related to these indemnification obligations have been immaterial.

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Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Market risk is the risk of loss from adverse changes in market prices and rates. Our primary market risks include risks related to interest rates and foreign currency exchange rates.

Interest Rate Risk

As of December 31, 2012, we had outstanding total indebtedness of approximately $105.3 million, including capital lease obligations. Of that indebtedness, approximately $97.3 million accrues interest under rates that fluctuate based upon market rates plus an applicable margin. As of December 31, 2012, the $97.3 million in outstanding revolving loan indebtedness under the Credit Facility accrued interest at a rate of 2.67% per annum. Each 100 basis point increase in the interest rate would have the effect of increasing the annual amount of interest to be paid by approximately $1.0 million.

As our borrowings under the revolving credit facility are subject to variable interest rates, we are subject to interest rate risk. We are therefore impacted by changes in LIBOR and/or our bank's base rates. We may, from time to time, use derivative financial instruments (e.g., interest rate caps), to help mitigate rising interest rates under our credit facility. We do not use derivatives for trading or speculative purposes and only enter into contracts with major financial institutions based on their credit rating and other factors.

Foreign Currency Exchange Rate Risk

Our operations are conducted in various countries around the world, and we receive revenue from these operations in a number of different currencies with the most significant of our international operations using British pounds sterling. As such, our earnings are subject to movements in foreign currency exchange rates when transactions are denominated in currencies other than the U.S. dollar, which is our functional currency, or the functional currency of many of our subsidiaries, which is not necessarily the U.S. dollar. To the extent that transactions of these subsidiaries are settled in currencies other than the U.S. dollar, a devaluation of these currencies versus the U.S. dollar could reduce the contribution from these subsidiaries to our consolidated results of operations as reported in U.S. dollars.

Through our subsidiaries, we operate in a wide variety of jurisdictions, including the United Kingdom, China, Canada, the Netherlands, Brazil, Russia, the United Arab Emirates, Egypt and other countries. Our financial results may be affected by changes in foreign currency exchange rates. Our consolidated balance sheet at December 31, 2012 reflected approximately $29.2 million of net working capital related to our foreign subsidiaries, a majority of our which is within the United Kingdom. Our foreign subsidiaries receive their income and pay their expenses primarily in their local currencies. To the extent that transactions of these subsidiaries are settled in the local currencies, a devaluation of these currencies versus the U.S. dollar could reduce the contribution from these subsidiaries to our consolidated results of operations as reported in U.S. dollars.

Item 8. Financial Statements and Supplementary Data

The financial statements and related notes thereto required by this item begin at page F-1 hereof.

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

Not applicable.

Item 9A. Controls and Procedures

(a) Evaluation of Disclosure Controls and Procedures. Disclosure controls and procedures are designed to ensure that information required to be disclosed in the reports we file with or submit to the SEC under the Exchange Act is recorded, processed, summarized and reported within the time period specified by the SEC’s rules and forms. Disclosure controls and procedures, include, without limitation, controls and procedures designed to ensure that information required to be disclosed under the Exchange Act is accumulated and communicated to management, including the principal executive officer and the principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

Our management carried out an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) as of December 31, 2012. Based upon that evaluation, our principal executive officer and our principal financial officer concluded that our disclosure controls and procedures were effective as of December 31, 2012.

(b) Management’s Report on Internal Control Over Financial Reporting. Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) under the

Exchange Act. Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes those policies and procedures that:

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(i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company;

(ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of our management and directors; and

(iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

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

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we assessed the effectiveness of our internal control over financial reporting as of December 31, 2012 based upon criteria established in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based upon their assessment, management concluded that the internal control over financial reporting was effective as of December 31, 2012.

The independent registered public accounting firm that has also audited the Company’s consolidated financial statements included in this Annual Report on Form 10-K has issued an audit report on our internal control over financial reporting. This report appears below.

(c) Changes in Internal Control over Financial Reporting. There was not any change in our internal control over financial reporting that occurred during the three months ended December 31, 2012, which has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of ION Geophysical Corporation and Subsidiaries

We have audited ION Geophysical Corporation and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2012, based on criteria established in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (the COSO criteria). The Company's management is responsible for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the financial statements.

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

In our opinion, ION Geophysical Corporation and subsidiaries maintained, in all material respects, effective internal control over financial reporting as of December 31, 2012, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of ION Geophysical Corporation and subsidiaries as of December 31, 2012 and 2011 and the related consolidated statements of operations, comprehensive income (loss), cash flows, and stockholders' equity for each of the three years in the period ended December 31, 2012 of ION Geophysical Corporation and subsidiaries and our report dated February 19, 2013 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Houston, Texas

February 19, 2013

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Item 9B. Other Information

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Reference is made to the information appearing in the definitive proxy statement, under "Item 1 — Election of Directors," for our annual meeting of stockholders to be held on May 22, 2013 (the "2013 Proxy Statement") to be filed with the SEC with respect to Directors, Executive Officers and Corporate Governance, which is incorporated herein by reference and made a part hereof in response to the information required by Item 10.

Item 11. Executive Compensation

Reference is made to the information appearing in the 2013 Proxy Statement, under "Executive Compensation," to be filed with the SEC with respect to Executive Compensation, which is incorporated herein by reference and made a part hereof in response to the information required by Item 11.

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

Reference is made to the information appearing in the 2013 Proxy Statement, under "Item 1 — Ownership of Equity Securities of ION" and "Equity Compensation Plan Information," to be filed with the SEC with respect to Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters, which is incorporated herein by reference and made a part hereof in response to the information required by Item 12.

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

Reference is made to the information appearing in the 2013 Proxy Statement, under "Item 1 — Certain Transactions and Relationships," to be filed with the SEC with respect to Certain Relationships and Related Transactions and Director Independence, which is incorporated herein by reference and made a part hereof in response to the information required by Item 13.

Item 14. Principal Accountant Fees and Services

Reference is made to the information appearing in the 2013 Proxy Statement, under "Principal Auditor Fees and Services," to be filed with the SEC with respect to Principal Accountant Fees and Services, which is incorporated herein by reference and made a part hereof in response to the information required by Item 14.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) List of Documents Filed

(1) Financial Statements

The financial statements filed as part of this report are listed in the "Index to Consolidated Financial Statements" on page F-1 hereof.

(2) Financial Statement Schedules

The following financial statement schedule is listed in the "Index to Consolidated Financial Statements" on page F-1 hereof, and is included as part of this Annual Report on Form 10-K:

Schedule II — Valuation and Qualifying Accounts

All other schedules are omitted because they are not applicable or the requested information is shown in the financial statements or noted therein.

(3) Exhibits

3.1	—	Restated Certificate of Incorporation dated September 24, 2007 filed on September 24, 2007 as Exhibit 3.4 to the Company's Current Report on Form 8-K and incorporated herein by reference.
3.2	—	Amended and Restated Bylaws of ION Geophysical Corporation filed on September 24, 2007 as Exhibit 3.5 to the Company's Current Report on Form 8-K and incorporated herein by reference.

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3.3	—	Certificate of Ownership and Merger merging ION Geophysical Corporation with and into Input/Output, Inc. dated September 21, 2007, filed on September 24, 2007 as Exhibit 3.1 to the Company's Current Report on Form 8-K and incorporated herein by reference.
4.1	—	Certificate of Rights and Designations of Series D-1 Cumulative Convertible Preferred Stock, dated February 16, 2005 and filed on February 17, 2005 as Exhibit 3.1 to the Company's Current Report on Form 8-K and incorporated herein by reference.
4.2	—	Certificate of Elimination of Series B Preferred Stock dated September 24, 2007, filed on September 24, 2007 as Exhibit 3.2 to the Company's Current Report on Form 8-K and incorporated herein by reference.
4.3	—	Certificate of Elimination of Series C Preferred Stock dated September 24, 2007, filed on September 24, 2007 as Exhibit 3.3 to the Company's Current Report on Form 8-K and incorporated herein by reference.
4.4	—	Certificate of Designation of Series D-2 Cumulative Convertible Preferred Stock dated December 6, 2007, filed on December 6, 2007 as Exhibit 3.1 to the Company's Current Report on Form 8-K and incorporated herein by reference.
4.5	—	Certificate of Designations of Series A Junior Participating Preferred Stock of ION Geophysical Corporation effective as of December 31, 2008, filed on January 5, 2009 as Exhibit 3.1 to the Company's Current Report on Form 8-K and incorporated herein by reference.
4.6	—	Form of Senior Indenture, filed on December 19, 2008 as Exhibit 4.3 to the Company's Registration Statement on Form S-3 (Registration No. 333-156362) and incorporated herein by reference.
4.7	—	Form of Senior Note, filed on December 19, 2008 as Exhibit 4.4 to the Company's Registration Statement on Form S-3 (Registration No. 333-156362) and incorporated herein by reference.
4.8	—	Form of Subordinated Indenture, filed on December 19, 2008 as Exhibit 4.5 to the Company's Registration Statement on Form S-3 (Registration No. 333-156362) and incorporated herein by reference.
4.9	—	Form of Subordinated Note, filed on December 19, 2008 as Exhibit 4.6 to the Company's Registration Statement on Form S-3 (Registration No. 333-156362) and incorporated herein by reference.
4.10	—	Certificate of Elimination of Series A Junior Participating Preferred Stock dated February 10, 2012, filed on February 13, 2012 as Exhibit 3.1 to the Company's Current Report on Form 8-K and incorporated herein by reference.
**10.1	—	Amended and Restated 1990 Stock Option Plan, filed on June 9, 1999 as Exhibit 4.2 to the Company's Registration Statement on Form S-8 (Registration No. 333-80299), and incorporated herein by reference.
10.2	—	Office and Industrial/Commercial Lease dated June 2005 by and between Stafford Office Park II, LP as Landlord and Input/Output, Inc. as Tenant, filed on March 31, 2006 as Exhibit 10.2 to the Company's Annual Report on Form 10-K for the year ended December 31, 2005, and incorporated herein by reference.
10.3	—	Office and Industrial/Commercial Lease dated June 2005 by and between Stafford Office Park District as Landlord and Input/Output, Inc. as Tenant, filed on March 31, 2006 as Exhibit 10.3 to the Company's Annual Report on Form 10-K for the year ended December 31, 2005, and incorporated herein by reference.
**10.4	—	Input/Output, Inc. Amended and Restated 1996 Non-Employee Director Stock Option Plan, filed on June 9, 1999 as Exhibit 4.3 to the Company's Registration Statement on Form S-8 (Registration No. 333-80299), and incorporated herein by reference.
**10.5	—	Amendment No. 1 to the Input/Output, Inc. Amended and Restated 1996 Non-Employee Director Stock Option Plan dated September 13, 1999 filed on November 14, 1999 as Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended August 31, 1999 and

		incorporated herein by reference.
**10.6	—	Input/Output, Inc. Employee Stock Purchase Plan, filed on March 28, 1997 as Exhibit 4.4 to the Company's Registration Statement on Form S-8 (Registration No. 333-24125), and incorporated herein by reference.
**10.7	—	Fifth Amended and Restated - 2004 Long-Term Incentive Plan, filed as Appendix A to the definitive proxy statement for the 2010 Annual Meeting of Stockholders of ION Geophysical Corporation, filed on April 21, 2010, and incorporated herein by reference.
10.8	—	Registration Rights Agreement dated as of November 16, 1998, by and among the Company and The Laitram Corporation, filed on March 12, 2004 as Exhibit 10.7 to the Company's Annual Report on Form 10-K for the year ended December 31, 2003, and incorporated herein by reference.

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**10.9	—	Input/Output, Inc. 1998 Restricted Stock Plan dated as of June 1, 1998, filed on June 9, 1999 as Exhibit 4.7 to the Company's Registration Statement on S-8 (Registration No. 333-80297), and incorporated herein by reference.
**10.10	—	Input/Output Inc. Non-qualified Deferred Compensation Plan, filed on April 1, 2002 as Exhibit 10.14 to the Company's Annual Report on Form 10-K for the year ended December 31, 2001, and incorporated herein by reference.
**10.11	—	Input/Output, Inc. 2000 Restricted Stock Plan, effective as of March 13, 2000, filed on August 17, 2000 as Exhibit 10.27 to the Company's Annual Report on Form 10-K for the fiscal year ended May 31, 2000, and incorporated herein by reference.
**10.12	—	Input/Output, Inc. 2000 Long-Term Incentive Plan, filed on November 6, 2000 as Exhibit 4.7 to the Company's Registration Statement on Form S-8 (Registration No. 333-49382), and incorporated by reference herein.
**10.13	—	Employment Agreement dated effective as of March 31, 2003, by and between the Company and Robert P. Peebler, filed on March 31, 2003 as Exhibit 10.1 to the Company's Current Report on Form 8-K and incorporated herein by reference.
**10.14	—	First Amendment to Employment Agreement dated September 6, 2006, between Input/Output, Inc. and Robert P. Peebler, filed on September 7, 2006, as Exhibit 10.1 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
**10.15	—	Second Amendment to Employment Agreement dated February 16, 2007, between Input/Output, Inc. and Robert P. Peebler, filed on February 16, 2007 as Exhibit 10.1 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
**10.16	—	Third Amendment to Employment Agreement dated as of August 20, 2007 between Input/Output, Inc. and Robert P. Peebler, filed on August 21, 2007 as Exhibit 10.2 to the Company's Current Report on Form 8-K and incorporated herein by reference.
**10.17	—	Fourth Amendment to Employment Agreement, dated as of January 26, 2009, between ION Geophysical Corporation and Robert P. Peebler, filed on January 29, 2009 as Exhibit 10.1 to the Company's Current Report on Form 8-K and incorporated herein by reference.
**10.18	—	Employment Agreement dated effective as of June 15, 2004, by and between the Company and David L. Roland, filed on August 9, 2004 as Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2004, and incorporated herein by reference.
**10.19	—	GX Technology Corporation Employee Stock Option Plan, filed on August 9, 2004 as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2004, and incorporated herein by reference.
10.20	—	Concept Systems Holdings Limited Share Acquisition Agreement dated February 23, 2004, filed on March 5, 2004 as Exhibit 2.1 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
10.21	—	Registration Rights Agreement by and between ION Geophysical Corporation and 1236929 Alberta Ltd. dated September 18, 2008, filed on November 7, 2008 as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q and incorporated herein by reference.
**10.22	—	Form of Employment Inducement Stock Option Agreement for the Input/Output, Inc. — Concept Systems Employment Inducement Stock Option Program, filed on July 27, 2004 as Exhibit 4.1 to the Company's Registration Statement on Form S-8 (Reg. No. 333-117716), and incorporated herein by reference.
**10.23	—	Form of Employee Stock Option Award Agreement for ARAM Systems Employee Inducement Stock Option Program, filed on November 14, 2008 as Exhibit 4.4 to the Company's Registration Statement on Form S-8 (Registration No. 333-155378) and incorporated herein by reference.
10.24	—	Agreement dated as of February 15, 2005, between Input/Output, Inc. and Fletcher International, Ltd., filed on February 17, 2005 as Exhibit 10.1 to the Company's Current Report on Form 8-K and incorporated herein by reference.

10.25	—	First Amendment to Agreement, dated as of May 6, 2005, between the Company and Fletcher International, Ltd., filed on May 10, 2005 as Exhibit 10.2 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
**10.26	—	Input/Output, Inc. 2003 Stock Option Plan, dated March 27, 2003, filed as Appendix B of the Company's definitive proxy statement filed with the SEC on April 30, 2003, and incorporated herein by reference.
**10.27	—	Form of Employment Inducement Stock Option Agreement for the Input/Output, Inc. — GX Technology Corporation Employment Inducement Stock Option Program, filed on April 4, 2005 as Exhibit 4.1 to the Company's Registration Statement on Form S-8 (Reg. No. 333-123831), and incorporated herein by reference.

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**10.28	—	ION Stock Appreciation Rights Plan dated November 17, 2008, filed as Exhibit 10.47 to the Company's Annual Report on Form 10-K for the year ended December 31, 2008, and incorporated herein by reference.
10.29	—	Canadian Master Loan and Security Agreement dated as of June 29, 2009 by and among ICON ION, LLC, as lender, ION Geophysical Corporation and ARAM Rentals Corporation, a Nova Scotia corporation, filed on August 6, 2009 as Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2009, and incorporated herein by reference.
10.30	—	Master Loan and Security Agreement (U.S.) dated as of June 29, 2009 by and among ICON ION, LLC, as lender, ION Geophysical Corporation and ARAM Seismic Rentals, Inc., a Texas corporation, filed on August 6, 2009 as Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2009, and incorporated herein by reference.
10.31	—	Registration Rights Agreement dated as of October 23, 2009 by and between ION Geophysical Corporation and BGP Inc., China National Petroleum Corporation filed on March 1, 2010 as Exhibit 10.54 to the Company's Annual Report on Form 10-K for the year ended December 31, 2009, and incorporated herein by reference.
10.32	—	Stock Purchase Agreement dated as of March 19, 2010, by and between ION Geophysical Corporation and BGP Inc., China National Petroleum Corporation, filed on March 31, 2010 as Exhibit 10.1 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
10.33	—	Investor Rights Agreement dated as of March 25, 2010, by and between ION Geophysical Corporation and BGP Inc., China National Petroleum Corporation, filed on March 31, 2010 as Exhibit 10.2 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
10.34	—	Share Purchase Agreement dated as of March 24, 2010, by and among ION Geophysical Corporation, INOVA Geophysical Equipment Limited and BGP Inc., China National Petroleum Corporation, filed on March 31, 2010 as Exhibit 10.3 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
10.35	—	Joint Venture Agreement dated as of March 24, 2010, by and between ION Geophysical Corporation and BGP Inc., China National Petroleum Corporation, filed on March 31, 2010 as Exhibit 10.4 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
10.36	—	Credit Agreement dated as of March 25, 2010, by and among ION Geophysical Corporation, ION International S.À R.L. and China Merchants Bank Co., Ltd., New York Branch, as administrative agent and lender, filed on March 31, 2010 as Exhibit 10.5 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
**10.37	—	Fifth Amendment to Employment Agreement dated June 1, 2010, between ION Geophysical Corporation and Robert P. Peebler, filed on June 1, 2010 as Exhibit 10.1 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
**10.38	—	Employment Agreement dated August 2, 2011, effective as of January 1, 2012, between ION Geophysical Corporation and R. Brian Hanson, filed on November 3, 2011 as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2011, and incorporated herein by reference.
**10.39	—	Employment Agreement dated effective as of November 28, 2011, between ION Geophysical Corporation and Gregory J. Heinlein, filed on December 1, 2011 as Exhibit 10.1 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
**10.40	—	First Amendment to Credit Agreement and Loan Documents dated May 29, 2012, filed on May 29, 2012 as Exhibit 10.1 to the Company's Current Report on Form 8-K, and incorporated herein by reference.
**10.41	—	Consulting Services Agreement dated January 1, 2013, between ION Geophysical Corporation and The Peebler Group LLC, filed on January 4, 2013 as Exhibit 10.1 to the Company's Current Report on Form

8-K, and incorporated herein by reference.

*21.1	—	Subsidiaries of the Company.
*23.1	—	Consent of Ernst & Young LLP.
*24.1	—	The Power of Attorney is set forth on the signature page hereof.
*31.1	—	Certification of Chief Executive Officer Pursuant to Rule 13a-14(a) or Rule 15d-14(a).
*31.2	—	Certification of Chief Financial Officer Pursuant to Rule 13a-14(a) or Rule 15d-14(a).
*32.1	—	Certification of Chief Executive Officer Pursuant to 18 U.S.C. §1350.
*32.2	—	Certification of Chief Financial Officer Pursuant to 18 U.S.C. §1350.

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101	—	The following materials are formatted in Extensible Business Reporting Language (XBRL): (i) Consolidated Balance Sheets at December 31, 2012 and 2011, (ii) Consolidated Statements of Operations for the years ended December 31, 2012, 2011 and 2010, (iii) Comprehensive Income (Loss) for the years ended December 31, 2012, 2011 and 2010, (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2012, 2011 and 2010, (v) Consolidated Statements of Stockholders' Equity for the years ended December 31, 2012, 2011 and 2010, (vi) Notes to Consolidated Financial Statements and (vii) Schedule II – Valuation and Qualifying Accounts.***

* Filed herewith.

** Management contract or compensatory plan or arrangement.

*** In accordance with Rule 406T of Regulation S-T, the XBRL-related information in Exhibit 101 to this Annual Report on Form 10-K is deemed not filed or part of a registration statement or prospectus for purposes of sections 11 or 12 of the Securities Act, is deemed not filed for purposes of section 18 of the Exchange Act and otherwise is not subject to liability under these sections.

(b) Exhibits required by Item 601 of Regulation S-K.
Reference is made to subparagraph (a) (3) of this Item 15, which is incorporated herein by reference.

(c) Not applicable.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Houston, State of Texas, on February 19, 2013.

ION GEOPHYSICAL CORPORATION

By /s/ R. Brian Hanson
R. Brian Hanson
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints R. Brian Hanson and David L. Roland and each of them, as his or her true and lawful attorneys-in-fact and agents with full power of substitution and re-substitution for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all documents relating to the Annual Report on Form 10-K for the year ended December 31, 2012, including any and all amendments and supplements thereto, and to file the same with all exhibits thereto and other documents in connection therewith with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully as to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or their or his substitute or substitutes may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Annual Report on Form 10-K has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

Name	Capacities	Date
/S/ R. BRIAN HANSON R. Brian Hanson	President, Chief Executive Officer and Director (Principal Executive Officer)	February 19, 2013
/S/ GREGORY J. HEINLEIN Gregory J. Heinlein	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	February 19, 2013
/S/ MICHAEL L. MORRISON Michael L. Morrison	Vice President and Corporate Controller (Principal Accounting Officer)	February 19, 2013
/S/ JAMES M. LAPEYRE, JR. James M. Lapeyre, Jr.	Chairman of the Board of Directors and Director	February 19, 2013
/S/ DAVID H. BARR David H. Barr	Director	February 19, 2013
/S/ HAO HUIMIN Hao Huimin	Director	February 19, 2013

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Name	Capacities	Date
/S/ MICHAEL C. JENNINGS Michael C. Jennings	Director	February 19, 2013
/S/ FRANKLIN MYERS Franklin Myers	Director	February 19, 2013
/S/ S. JAMES NELSON, JR. S. James Nelson, Jr.	Director	February 19, 2013
/S/ JOHN N. SEITZ John N. Seitz	Director	February 19, 2013

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ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of ION Geophysical Corporation and Subsidiaries

We have audited the accompanying consolidated balance sheets of ION Geophysical Corporation and subsidiaries as of December 31, 2012 and 2011, and the related consolidated statements of operations, comprehensive income (loss), cash flows, and stockholders' equity for each of the three years in the period ended December 31, 2012. Our audits also included the financial statement schedule listed in the Index at Item 15(a). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of ION Geophysical Corporation and subsidiaries at December 31, 2012 and 2011, and the consolidated results of their operations and their cash flows for each of the three years in the period ended December 31, 2012, in conformity with U.S. generally accepted accounting principles. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), ION Geophysical Corporation and subsidiaries' internal control over financial reporting as of December 31, 2012, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 19, 2013 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Houston, Texas

February 19, 2013

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ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

	December 31,	
	2012	2011
	(In thousands, except share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	$60,971	$42,402
Short-term investments	—	20,000
Accounts receivable, net	127,136	130,612
Unbilled receivables	89,784	25,628
Inventories	70,675	70,145
Prepaid expenses and other current assets	25,605	13,460
Total current assets	374,171	302,247
Deferred income tax asset	28,414	17,645
Property, plant, equipment and seismic rental equipment, net	33,772	24,771
Multi-client data library, net	230,315	175,768
Investment in INOVA Geophysical	73,925	72,626
Goodwill	55,349	53,963
Intangible assets, net	14,841	17,716
Other assets	9,796	9,322
Total assets	$820,583	$674,058
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Current maturities of long-term debt	$3,496	$5,770
Accounts payable	28,688	22,296
Accrued expenses	124,095	61,384
Accrued multi-client data library royalties	26,300	15,318
Deferred revenue	26,899	33,802
Total current liabilities	209,478	138,570
Long-term debt, net of current maturities	101,832	99,342
Other long-term liabilities	8,131	7,719
Total liabilities	319,441	245,631
Redeemable noncontrolling interests	2,123	2,615
Commitments and contingencies		
Stockholders' equity:		
Cumulative convertible preferred stock	27,000	27,000
Common stock, $0.01 par value; authorized 200,000,000 shares; outstanding 156,356,949 and 155,479,776 shares at December 31, 2012 and 2011, respectively, net of treasury stock	1,564	1,555
Additional paid-in capital	848,669	843,271
Accumulated deficit	(360,297)	(423,612)
Accumulated other comprehensive loss	(11,886)	(16,193)
Treasury stock, at cost, 849,539 shares at both December 31, 2012 and 2011	(6,565)	(6,565)
Total stockholders' equity	498,485	425,456
Noncontrolling interests	534	356
Total equity	499,019	425,812

Total liabilities and equity	$820,583	$674,058

See accompanying Notes to Consolidated Financial Statements.

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ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended December 31,		
	2012	2011	2010
	(In thousands, except per share data)		
Service revenues	$354,583	$265,586	$279,120
Product revenues	171,734	189,035	165,202
Total net revenues	526,317	454,621	444,322
Cost of services	219,324	177,956	183,931
Cost of products	91,192	103,220	94,658
Gross profit	215,801	173,445	165,733
Operating expenses:			
Research, development and engineering	34,080	24,569	25,227
Marketing and sales	35,240	31,269	30,405
General, administrative and other operating expenses	71,954	50,812	57,254
Total operating expenses	141,274	106,650	112,886
Income from operations	74,527	66,795	52,847
Interest expense, net	(5,265)	(5,784)	(30,770)
Equity in earnings (losses) of INOVA Geophysical	297	(22,862)	(23,724)
Other income (expense)	17,124	(3,447)	(8,249)
Income (loss) before income taxes	86,683	34,702	(9,896)
Income tax expense	23,857	10,136	26,942
Net income (loss)	62,826	24,566	(36,838)
Net income attributable to noncontrolling interests	489	208	—
Net income (loss) attributable to ION	63,315	24,774	(36,838)
Preferred stock dividends	1,352	1,352	1,936
Net income (loss) applicable to common shares	$61,963	$23,422	$(38,774)
Net income (loss) per share:			
Basic	$0.40	$0.15	$(0.27)
Diluted	$0.39	$0.15	$(0.27)
Weighted average number of common shares outstanding:			
Basic	155,801	154,811	144,278
Diluted	162,765	156,090	144,278

See accompanying Notes to Consolidated Financial Statements.

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ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

	Years Ended December 31,		
	2012	2011	2010
	(In thousands)		
Net income (loss)	$62,826	$24,566	$(36,838)
Other comprehensive income (loss), net of taxes, as appropriate:			
Foreign currency translation adjustments	2,756	(28)	(266)
Equity interest in INOVA Geophysical's other comprehensive income (loss)	1,003	315	(103)
Unrealized income (loss) on available-for-sale securities	425	(730)	—
Other changes in other comprehensive (loss)	123	(220)	(60)
Other comprehensive income (loss), net of taxes	4,307	(663)	(429)
Comprehensive net income (loss)	67,133	23,903	(37,267)
Comprehensive income attributable to noncontrolling interest	489	208	—
Comprehensive net income (loss) attributable to ION	$67,622	$24,111	$(37,267)

See accompanying Notes to Consolidated Financial Statements.

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ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended December 31,		
	2012	2011	2010
	(In thousands)		
Cash flows from operating activities:			
Net income (loss)	$62,826	$24,566	$(36,838)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization (other than multi-client library)	16,202	13,917	24,795
Amortization of multi-client data library	89,080	77,317	85,940
Stock-based compensation expense	6,598	6,344	8,147
Equity in (earnings) losses of INOVA Geophysical	(297)	22,862	23,724
Write-down of marine equipment	5,928	—	—
Write-down of investments	556	1,312	7,650
Write-down of unamortized debt issuance costs and debt discount	—	—	18,777
Fair value adjustment of warrant	—	—	(12,788)
Loss on disposition of land division	—	—	38,115
Deferred income taxes	3,686	(8,131)	22,207
Excess tax benefit from stock-based compensation	(193)	(3,294)	—
Change in operating assets and liabilities:			
Accounts receivable	4,006	(52,955)	9,515
Unbilled receivables	(64,156)	44,962	(48,935)
Inventories	(7,039)	(6,641)	(16,138)
Accounts payable, accrued expenses and accrued royalties	61,873	(7,546)	9,550
Deferred revenue	(6,957)	15,957	7,281
Other assets and liabilities	(3,032)	1,314	(7,634)
Net cash provided by operating activities	169,081	129,984	133,368
Cash flows from investing activities:			
Investment in multi-client data library	(145,627)	(143,782)	(64,426)
Purchase of property, plant and equipment	(14,877)	(11,060)	(7,372)
Investment in seismic rental equipment	(1,773)	—	—
Maturity (net purchases) of short-term investments	20,000	(20,000)	—
Investment in convertible notes	(2,000)	(6,500)	—
Proceeds from disposition of land division, net of fees paid	—	—	99,790
Other investing activities	—	(280)	(500)
Net cash provided by (used in) investing activities	(144,277)	(181,622)	27,492
Cash flows from financing activities:			
Borrowings under revolving line of credit	148,250	—	104,000
Repayments under revolving line of credit	(51,000)	—	(193,429)
Payments on notes payable and long-term debt	(101,702)	(6,145)	(145,558)
Net proceeds from issuance of debt	—	—	105,695
Net proceeds from issuance of stock	—	—	38,039
Payment of preferred dividends	(1,352)	(1,352)	(1,936)
Proceeds from employee stock purchases and exercise of stock options	807	13,105	1,071
Excess tax benefit from stock-based compensation	193	3,294	—
Contribution from noncontrolling interests	212	961	—

Other financing activities	(1,862)	(59)	(612)
Net cash provided by (used in) financing activities	(6,454)	9,804	(92,730)
Effect of change in foreign currency exchange rates on cash and cash equivalents	219	(183)	72
Net increase (decrease) in cash and cash equivalents	18,569	(42,017)	68,202
Cash and cash equivalents at beginning of period	42,402	84,419	16,217
Cash and cash equivalents at end of period	$60,971	$42,402	$84,419

See accompanying Notes to Consolidated Financial Statements.

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ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

(In thousands, except shares)	Cumulative Convertible Preferred Stock		Common Stock		Additional Paid - In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Treasury Stock	Noncontrolling Interests	Total Stockholders' Equity
	Shares	Amount	Shares	Amount						
Balance at January 1, 2010	70,000	$68,786	118,688,702	$1,187	$666,928	$(411,548)	$ (36,320)	$(6,565)	$ —	$282,468
Net loss	—	—	—	—	—	(36,838)	—	—	—	(36,838