

ION GEOPHYSICAL CORP  
Form 10-K  
February 24, 2012  
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**UNITED STATES SECURITIES AND EXCHANGE COMMISSION**

**Washington, DC 20549**

**Form 10-K**

(Mark One)

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

**For the Fiscal Year Ended December 31, 2011**

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**

*(State or Other Jurisdiction of Incorporation or Organization)*

**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)*

**22-2286646**

*(I.R.S. Employer Identification No.)*

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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  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

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

Indicate by check mark whether the registrant has submitted electronically 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  No

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer 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  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

As of June 30, 2011 (the last business day of the registrant's second quarter of fiscal 2011), the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was \$1.4 billion based on the closing sale price on such date as reported on the New York Stock Exchange.

As of February 17, 2012, the number of shares of common stock, \$0.01 par value, outstanding was 155,585,036 shares.

DOCUMENTS INCORPORATED BY REFERENCE

Document	Parts Into Which Incorporated
Portions of the Proxy Statement for the Annual Meeting of Stockholders to be held May 23, 2012	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 Corporation 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 advanced acquisition equipment, software and planning and seismic processing services to the global energy industry. Our products, technologies, and services 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 products and services 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 also 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 acquire the 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 19 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. It owns a 51% interest and we own a 49% interest in INOVA Geophysical.

Our products and services include the following:

Seismic data processing and reservoir imaging services,

Seismic data libraries,

Planning services for survey design and optimization,

Marine seismic data acquisition equipment,

Navigation, command & control, and data management software products, 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.

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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 products, technologies, and services.

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

*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 (formerly known as the Integrated Seismic Solutions services group).

*Systems* towed streamer and redeployable ocean bottom cable seismic data acquisition systems and shipboard recorders, streamer positioning and control systems and energy sources (such as air guns and air gun controllers) 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. 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](http://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](http://www.sec.gov) that contains reports, proxy statements, and other information regarding SEC registrants, including our company.

## **Seismic Industry Overview**

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



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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.

Until the early 1980s, the primary commercial seismic imaging technology was two-dimensional, or 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.

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.

As commodity prices decreased in the late 1990s 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.

However, beginning in 2004, commodity prices began increasing and E&P companies increased their capital spending programs, which drove higher demand for our products and services. The financial crisis that occurred in 2008 and the resulting economic downturn drove hydrocarbon prices down sharply, which had the effect of sharply reducing exploration activities in North America and in many parts of the world. Since then, crude oil prices have recovered, and were within a range of approximately \$80 to \$100 per barrel at the end of 2011; North American natural gas prices have remained depressed due in part to the excess supply of natural gas in the market.



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### **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 even though there is little spare production capacity at this time, particularly considering the geopolitical conditions in North Africa and the Middle East, which have had the effect of placing a risk premium on crude oil prices;

The decline in large oil reserves 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;

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 U.S. natural gas prices may remain at depressed levels, investment in shale liquid markets should remain relatively strong in North America and in other parts of the world. In addition, E&P companies will be under increasing pressure to find ways (including new technologies) to locate, find and produce shale oil and gas on a more cost-efficient basis.

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 tar sand deposits, shale gas or oil formations. 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 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 have remained an asset light seismic solutions company by not owning a fleet of boats or crews to acquire marine or land surveys.



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In March 2010, we completed the formation of 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 we intend to evaluate lower-cost manufacturing opportunities in China and pursue these opportunities when appropriate. In addition, the joint venture partners 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 products and services 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 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.

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, including programs in the Beaufort Sea, Greenland and most recently, a scientific study in the Russian high Arctic Sea area.

Complex and hard-to-image geologies, such as deepwater subsurface salt formations in the Gulf of Mexico and off of West Africa and Brazil: we believe that GXT's technologies are well-suited to meet depth imaging challenges.

Unconventional reservoirs, such as those in shale-producing areas: we have gained valuable experience in China, where our technology has been successful in imaging deep-fractured tight gas sands. In 2011, we devoted approximately one-third of our GeoVentures capital expenditures on North American shale oil and natural gas geologies; our shale libraries, called ResSCAN programs, feature unique measurement techniques, such as recording full-wave seismic data resulting in higher-definition images of the subsurface, and proprietary processing techniques. We expect that shale plays will grow in increasing importance around the world.

Basin exploration, which encompasses our GeoVentures business: we believe that our BasinSPAN programs can provide E&P companies with a better comprehensive understanding of the regional geologies in offshore frontier areas; this business, beginning in 2003, has grown to a substantial data library that covers many of the frontier basins in the world, including offshore East and West Africa and Brazil, as well as in the Arctic and the deepwater Gulf of Mexico.

E&P companies continue to be interested in technology to increase production and in improving their understanding of targeted reservoirs, in both the exploration and production phases. We believe that our

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technologies, such as DigiFIN<sup>®</sup>, DigiSTREAMER<sup>®</sup>, O<sup>®</sup> and INOVA Geophysical's FireFly<sup>®</sup>, will continue to attract interest because they are designed to deliver improvements in both image quality and productivity. For more information regarding our products and services, see *Products and Services* below.

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

Expanding our Solutions 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<sup>®</sup> 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.

## **Products and Services**

### ***Solutions Services***

Services for our Solutions segment include the following:

*GeoVentures* Formerly named Integrated Seismic Solutions (ISS) services, 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 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 component to geophysical logistics contractors. ION offers its 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 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

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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,

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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,

off Australia, and

off certain southeast Asian coasts.

During 2011, we announced expansions of our (i) East AfricaSPAN data library, acquiring approximately 8,700 kilometers of regional seismic data offshore Tanzania, Mozambique, and Comoros, and (ii) ArcticSPAN data library, acquiring an additional 5,200 kilometers of regional seismic data offshore Northeast Greenland.

In addition, we have designed reservoir imaging and characterization programs, or SCANS, 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. We have designed and acquired two SCAN programs: (i) MarcellusSCAN, for a portion of the Marcellus shale area in the Appalachian Basin, and (ii) NiobraraSCAN, for the Niobrara formation in northwestern Colorado.

Other seismic and non-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.

The Solutions segment 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.



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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 (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.

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's capability in anisotropic imaging, provides an advanced toolkit for maximizing full-wave data measurements.

For information regarding our backlog of commitments for certain Solutions services as of December 31, 2011, see Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations*, *Executive Summary*, *Economic Conditions*.

### ***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 towed streamer 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. We delivered a twelve-streamer DigiSTREAMER system to BGP in 2011.

E&P companies are showing increased interest in seabed seismic activities for mature fields in which the companies are seeking more detailed reservoir characteristics. During 2004, we introduced our VectorSeis Ocean (VSO) system, an advanced system for seismic data acquisition using redeployable ocean bottom cable. Since then, we have sold a total of five VSO ocean-bottom systems, all sold to Reservoir Exploration Technology, ASA (RXT), a Norwegian seismic contractor. We made no sales or deliveries of ocean-bottom VSO systems in 2010 or 2011. During 2010, we announced the launch of VSO II, which offered significant enhancements over the initial VSO system. We continue to actively develop our seabed technology.

***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. Between 2008 and 2011, we have sold and delivered 35 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.



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*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 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. We believe our Sensor group is the leading designer and manufacturer of precision analog geophones used in seismic data acquisition. 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 redeployable and permanent seabed monitoring systems. Products and services for our Software segment include the following:

*Marine Imaging* Orca is our next-generation software product for towed streamer navigation and integrated data management applications. We believe that Orca has made significant inroads into the towed streamer market with several major seismic contractors adopting the technology for their new, high-end seismic vessels. We currently estimate our market share to be in excess of 40%, having outfitted our 51<sup>st</sup> vessel in 2011. During 2011, we outfitted 7 streamer vessels with Orca software, a number of these installations were replacements of legacy Concept Systems products. Orca was initially targeted at larger scale vessels shooting highly complex surveys, but is now making inroads into smaller vessels working in less complex configurations. Orca includes modules designed to manage marine acquisition surveys integrating the navigation, source control, and streamer control functions. Orca manages complex marine surveys such as time-lapse 4-D surveys and WATS (Wide Azimuth Towed Streamer) surveys. WATS is an advanced acquisition technique for imaging complex structures (for example, subsalt formations) in the marine environment, generally implemented with multiple source vessels that shoot at some distance from the streamer recording vessel. Orca is designed to function with our DigiFIN product, which enables streamer lateral control, and DigiSTREAMER, our new marine streamer acquisition system. SPECTRA® is Concept Systems' legacy integrated navigation and survey control software system for towed streamer-based 2-D, 3-D, and 4-D seismic survey operations.

*Seabed Imaging* Concept Systems offers GATOR®, an integrated navigation and data management software system for multi-vessel ocean bottom cable and transition zone (such as marshlands) operations. 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. During 2011, Concept released its GATOR II® software system, with enhanced functionality for seabed operations. The first sale of the new system was concluded in June 2011; it is now available for sale to all seabed clients. GATOR II command and control 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.

*Survey Design, Planning and Optimization* Concept Systems offers consulting services for planning, designing and supervising complex surveys, including 4D and WATS 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 by our experts' use of our REFLEX® software for seismic coverage and attribute analysis, and our Optimiser™ technology planning tool.

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### ***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. 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® and ARIES®, 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.

INOVA Geophysical ARIES product line was originally acquired in connection with our acquisition of ARAM 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.

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**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 and offers options for vibroseis or accelerated impulse source generation.

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 focused on improving both the quality of the subsurface image and the seismic data acquisition economics for our customers. 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 2011, our product development efforts continued across selective business lines aimed at the development of strategic key products and technologies. A large part of our research and development efforts in 2011 were focused on development of our Digi- line of marine streamers and our other marine technologies. Also, 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 also expect to devote increasing research and development emphasis on shale play technologies and marine seabed platform technologies. For a summary of our research and development expenditures during the past five years, see Item 6. *Selected Financial Data* below.

Because many of these new products and services 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 products or services, any enhancements to them, the specific timing of their release or their level of acceptance in the marketplace.

## **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 oil companies, seismic contractors and E&P companies. We market and sell products 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. During 2011, 2010 and 2009, no single customer accounted for 10% or more of our consolidated 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 products and services through a direct sales force consisting of employees and international third-party sales representatives responsible for key geographic areas. During 2011, 2010 and 2009, sales to destinations outside of North America accounted for approximately 66%, 60% and 64% of our consolidated net revenues, respectively. Further, systems sold to domestic customers are frequently deployed internationally and, from time to time, certain foreign sales require export licenses.

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Traditionally, our business has been seasonal, with strongest demand in the fourth quarter of our fiscal year.

For information concerning the geographic breakdown of our net revenues, see Note 4 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 redeployable ocean bottom cables and various components of VectorSeis Ocean. 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 *Products and Services 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.

The market for seismic products and services 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 controlled network of third-party vendors) in order to achieve differentiation versus their competition. For example, 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 25, to approximately 150 in 2016 compared to approximately 125 at December 31, 2011. We understand that 23 out of these estimated 25 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 Schlumberger, CGGVeritas, and Petroleum Geo-Services ASA (PGS) all moving to acquire new market entrants in the last several years. Many of these incumbent operators develop their own marine streamer technologies, such that consolidation in the sector reduces the number of potential customers and vessel outfitting opportunities for us.

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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 partnerships 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, XVib, DigiCOURSE, GATOR, GATOR II SPECTRA, Orca, Scorpion, and REFLEX refer to VECTORSEIS, FIREFLY®, ARIES®, ARIES II®, DIGISHOT®, XVIB®, DIGICOURSE®, GATOR®, GATOR II®, SPECTRA®, ORCA®, 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, UniVib and DigiFIN refer to AZIM, BasinSPAN, DigiSTREAMER, AHV-IV, Shot Pro, GeoVentures, Optimiser, ResSCAN, Hawk, UniVib and DigiFIN trademarks and service marks owned by ION or INOVA Geophysical.

**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.

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Changes in these conventions, regulations, policies or requirements could affect the demand for our products and services 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 we have 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, or 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 during the second half of 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 and is expected to issue additional new safety and environmental guidelines or 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 permitting delays. The Deepwater Horizon incident is likely to have a significant and lasting effect on the US offshore energy industry, and will likely result in a number of fundamental changes, including heightened regulatory scrutiny, more stringent operating and safety standards, changes in equipment requirements and the availability and cost of insurance, as well as increased politicization of the industry. These changes may result in increases in our and our customers' operating costs.

We do not engage in hydraulic fracturing services, a commonly used process in the completion of oil and natural gas wells, particularly in low permeability formations such as shales, that involves the injection of water, proppants, and chemicals under pressure into the target reservoir to stimulate hydrocarbon production. Our business, however, 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 fracturing. Due to public concerns about any 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 such operations. In the U.S. Congress, for example, there is a pending bill entitled the Fracturing Responsibility and Awareness of Chemicals Act, or the FRAC Act, that would amend the federal Safe Drinking Water Act, or the SDWA, to repeal an existing exemption from underground injection control permitting for hydraulic fracturing that does not utilize diesel fuels. In early 2010, the U.S. Environmental Protection Agency (the EPA) indicated that it intended to regulate hydraulic fracturing utilizing diesel fuels under the SDWA and require permitting for any well where such hydraulic fracturing was conducted. While industry groups have challenged the EPA's action as improper rulemaking, the Agency's position, if upheld, could result in additional permitting. The EPA also has commenced a study of the potential adverse effects that hydraulic fracturing may have on water quality and public health, indicated that it intends to develop standards for discharges of hydraulic fracturing wastewaters, proposed air standards for certain hydraulic fracturing operations, and initiated a process for collecting health information and other data about fracturing additives. Separately, the United States Department of the Interior has announced its intention to propose new rules regulating hydraulic fracturing activities on federal lands, including requirements for disclosure, well bore integrity, and handling of flowback water. A number of state and local governments, moreover, have adopted or are considering adopting additional requirements relating to hydraulic fracturing. 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 shale data libraries and seismic acquisition services may be adversely affected.

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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, 2011, we had 937 regular, full-time employees, 615 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 4 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*, *expect*, *plan*, *anticipate*, *believe*, *potential*, or *continue* or the negative of such terms or other comparable terminology. Examples of other forward-looking statements contained or incorporated by reference in this report include statements regarding:

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;

future benefits to be derived from our INOVA Geophysical joint venture;

future increases of capital expenditures for seismic activities;

the expected outcome of litigation and other claims against us;

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;

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future oil and gas commodity prices;

the duration of the slowdown in exploration and development activities in the Gulf of Mexico resulting from the April 2010 Deepwater Horizon incident, which affects us and our customers;



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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 products and services;

future demand for seismic equipment and services;

future benefits to our customers to be derived from new products and services;

future benefits to be derived from our investments in technologies and acquired companies;

future growth rates for our products and services;

the degree and rate of future market acceptance of our new products and services;

our expectations regarding oil and gas exploration and production companies and contractor end-users purchasing our more technologically-advanced products and services;

anticipated timing and success of commercialization and capabilities of products and services 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:

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

We have made, and we will continue to make, strategic decisions from time to time as to the technologies in which we invest, and 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 products and services, 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.

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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' products and services;

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 products and services. 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 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.

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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 products and services 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 products and services in the seismic services market could apply downward pressure on prices for our products and services. The negative effects of the competitive environment in which we operate could have a material adverse effect on our results of operations.

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*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 Systems and Software segments and our Solutions division, which includes our Imaging Solutions, GeoVentures and BasinSPAN and seismic data library businesses remain owned and operated by us and do not comprise a part of the joint venture.

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 and will continue to be 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 products and services and future products and services of the joint venture as well as a shareholder of 15.3% of our common stock.

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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:

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 existing land seismic imaging product lines that were contributed to the joint venture), operations, sites, and personnel. In 2010 and 2011, INOVA Geophysical has had significant write-downs of inventory from the time of the joint venture formation;

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.

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.

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*Continued depressed general economic conditions, credit market uncertainties and lower natural gas prices could have an adverse effect on customer demand for certain of our products and services, 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 products and services has been sensitive to the level of exploration spending by E&P companies and geophysical contractors. The demand for our products and services will be reduced if exploration expenditures remain low. 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 products and services, which in turn, have limited our ability to meet sales objectives and maintain profit margins for our products and services. 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 on a timely basis or on reasonable terms, which could have a negative impact on their demand for our products and impair their ability to pay us for our products and services on a timely basis, or at all. Our sales are 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 products and services provided by our competitors more attractive to customers, which could lead to a decline in demand for our products and services. This could have a material adverse effect on our business, results of operations, financial condition and cash flows.

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

Sales to customers outside of North America accounted for approximately 66% of our consolidated net revenues for 2011, and 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, 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 Commonwealth of Independent States, that are subject to risks of war, political disruption (such as the political turmoil during 2011 in Tunisia, Egypt and Libya), 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;

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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.

***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 gallons of hydrocarbons. 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 on May 30, 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. In addition, as a result of these changes, the permitting process for exploration and development activities in the U.S. Gulf of Mexico slowed considerably, resulting in very limited levels of activity there. These new safety and environmental regulations will expose our customers, and could expose us, to significant additional costs and liabilities. In addition, these and any such similar future laws and regulations could result in increased compliance costs or additional operating restrictions that may adversely affect the financial health of our customers or decrease the demand for our products and services. While certain new drilling plans and drilling permits were approved during 2011, we cannot predict when the pace at which operators in the U.S. Gulf of Mexico will be able to satisfy these requirements and return to previous levels of active drilling. Further, we cannot predict what the continuing effects from the U.S. government regulations on offshore deepwater drilling projects may have on offshore oil and gas exploration and development activity, or what actions may be taken by our customers or other industry participants in response to these regulations. Changes in laws or regulations regarding offshore oil and gas exploration and development activities and decisions by customers and other industry participants could reduce demand for our products and services, which would have a negative impact on our operations.

A prolonged suspension of drilling activity in the Gulf of Mexico, new regulations and increased liability for companies operating in this sector would adversely affect many of our customers who operate in the Gulf. This could, in turn, adversely affect our business, results of operations and financial condition, particularly regarding sales of our marine seismic equipment and our Solutions segment's survey and processing activities. Our Solutions segment was negatively impacted during 2010 and into 2011 by its experiencing 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. The uncertainties that have resulted from the incident's aftermath adversely affect us, our customers and other providers of equipment and services to E&P companies, due to the lack of visibility as to which companies will continue to be active in U.S. Gulf of Mexico deepwater exploration and development. As a result, we cannot currently predict the extent to which these events may adversely affect our future business, the extent and length of time that any such adverse impact will be felt.

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*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 products and services would decline and our results of operations would be adversely affected.*

Demand for our products and services 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 products and services 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 products and services 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:

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 products and

services 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 products and services we provide.

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

Products and services for the seismic industry are characterized by rapid technological advances in hardware performance, software functionality and features, frequent introduction of new products and services, and improvement in price characteristics relative to product and service performance. Among the risks associated with the introduction of new products and services 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 products and services 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 products and services to future offerings, our revenues and margins may decline.

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Furthermore, sales of our new products and services may replace sales, or result in discounting of some of our current product or service offerings, offsetting the benefit of a successful introduction. In addition, it may be difficult to ensure performance of new products and services in accordance with our revenue, margin, and cost estimations and to achieve operational efficiencies embedded in our estimates. Given the competitive nature of the seismic industry, if any of these risks materializes, future demand for our products and services, 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 2011, we invested \$143.8 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.

### ***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

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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

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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 products and services 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 products and services 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 2011, 2010 and 2009; however, our top five customers in total represented approximately 30%, 28% and 29%, 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 products and services. The loss of any of our significant customers to further consolidation could materially and adversely affect our results of operations and financial condition.

***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:

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.





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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 17, 2012, we had 155,585,036 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 17, 2012, we had outstanding stock options to purchase up to 6,761,575 shares of our common stock at a weighted average exercise price of \$7.42 per share. We also had, as of that date, 1,151,713 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. Sales in the public market of a large number of shares of common stock could apply downward pressure on the prevailing market price of our common stock. The market price of our common stock could decline as a result of such sales in the public markets 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 17, 2012, Fletcher International, Ltd., the holder of our Series D Preferred Stock, held 22,000 shares of our Series D-1 Cumulative Convertible Preferred Stock and 5,000 shares of our Series D-2 Cumulative Convertible Preferred Stock. Under the terms of the agreement with Fletcher by which it purchased the Series D Preferred Stock, Fletcher has the ability to sell, under currently effective registration statements, the shares of our common stock acquired by it upon conversion of its remaining shares of Series D Preferred Stock. The shares of our Series D Preferred Stock held by Fletcher as of February 17, 2012 are convertible into 6,065,075 shares of our common stock. The 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 14 *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 issues involving 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. 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 market under these arrangements, or the expectation of such sales, could cause the market price of our common stock to decline.

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***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 ) Topic 350, *Goodwill and Other Intangible Assets* (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, 2011, our goodwill and other intangible asset balances were \$54.0 million and \$17.7 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 products and services 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

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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 93,000-square feet of facilities located in Harahan, Louisiana, in the greater New Orleans metropolitan area. In late August 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 products and services 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.*

Our operations are subject to 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 products and services. 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.*

More stringent regulations and laws relating to climate change and greenhouse gases ( GHGs ) may be adopted in the future and could reduce the demand for our products and services. In December 2009, the U.S. Environmental Protection Agency (the EPA ) officially concluded that atmospheric concentrations of carbon dioxide, methane and certain other GHGs present an endangerment to public health and welfare because such gases are, according to the EPA, contributing to warming of the earth's atmosphere and other climatic changes. Consistent with its findings, the EPA has proposed or adopted various regulations under the Clean Air Act to

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address GHGs. Among other things, the EPA is limiting emissions of greenhouse gases from new cars and light duty trucks beginning with the 2012 model year. In addition, the EPA has adopted requirements for certain industrial plants and other stationary sources that emit large quantities of GHGs to obtain construction and operating permits.

The EPA also has published final rules requiring the reporting of GHG emissions from specified large sources and suppliers in the United States on an annual basis, beginning in 2011 for emissions occurring after January 1, 2010. In a November 2010 final rule, the EPA extended those reporting requirements to include onshore oil and natural gas production, and natural gas processing, transmission, storage and distribution facilities. The information collected under these reporting requirements could become the basis for future GHG regulations.

The U.S. Congress, moreover, from time to time has considered a variety of new legislative proposals to reduce emissions of GHGs. In addition, some proponents of GHG controls have advocated mandating a national clean energy standard. In 2011, President Obama encouraged Congress to adopt a goal of generating 80% of U.S. electricity from clean energy by 2035 with credits for renewable and nuclear power and partial credits for clean coal and efficient natural gas; the President also has proposed ending tax breaks for the oil industry. Because of the lack of any comprehensive federal legislative program expressly addressing GHGs, there currently is uncertainty as to how and when additional federal regulation of GHGs might take place and as to whether the EPA should continue with its existing regulations in the absence of more specific Congressional direction.

A number of states, individually and regionally, have implemented or are considering their own GHG regulatory programs. These initiatives have included so-called cap-and-trade programs, under which overall GHG emissions are limited and GHG emissions allowances are then allocated and sold, clean energy standards and other regulatory requirements.

New climate change and related clean energy regulatory initiatives could result in our customers incurring material compliance costs, e.g., by being required to purchase or to surrender allowances for GHGs resulting from their operations, or adversely affect the marketability of the oil and natural gas that our customers produce. The impact of such future programs cannot be predicted, but we do not expect our operations to be affected any differently than other similarly situated domestic competitors.

***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 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 whereby water, sand and chemicals are injected under pressure into subsurface formations to stimulate gas and, to a lesser extent, oil production. Due to concerns that hydraulic fracturing may adversely affect drinking water supplies, the EPA is undertaking a comprehensive research study to investigate any potential adverse impact that hydraulic fracturing may have on water quality and public health. The initial study results are expected to be available in late 2012. The EPA also has indicated that it intends to regulate hydraulic fracturing utilizing diesel fuels under its underground injection control permitting program, announced plans to develop standards for discharges of hydraulic fracturing wastewaters, proposed air standards for certain hydraulic fracturing operations and initiated a process for collecting health information and other data about fracturing additives. Separately, the U.S. Department of the Interior has announced plans to develop new rules for hydraulic fracturing on public lands that would address disclosure of chemicals used in the process, well bore integrity and handling of flowback water. Aside from these federal initiatives, several state and local governments have moved to require disclosure of fracturing fluid components or otherwise to regulate their use more closely. In certain areas of the country, new drilling permits for hydraulic fracturing have been put on hold pending development of additional standards. Adoption of legislation or regulations placing restrictions on hydraulic fracturing activities could impose operational delays, increased operating costs and additional regulatory burdens on operators, which could reduce their production of natural gas and, in turn, adversely affect our revenues and results of operations by decreasing the demand for our seismic data acquisition and processing services and products.

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*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, our 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 products and services 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.

***Our certificate of incorporation and bylaws, Delaware law, the terms of our Series D Preferred Stock and certain contractual obligations under our agreements with Fletcher and 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, our agreement with Fletcher 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;



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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 with Fletcher 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.

**Item 2. Properties**

Our principal operating facilities at December 31, 2011 were as follows:

Operating Facilities	Square Footage	Segment
Houston, Texas	132,000	Global Headquarters and Solutions
Harahan, Louisiana	93,000	Systems
Lacombe, Louisiana	87,000	Systems
Stafford, Texas	41,000	Systems
St. Rose, Louisiana	38,000	Systems
Denver, Colorado	29,000	Solutions
Voorschoten, The Netherlands	27,000	Systems
Edinburgh, Scotland	16,000	Software
Jebel Ali, Dubai, United Arab Emirates	12,000	International Sales Headquarters and Systems
Calgary, Canada	5,000	Solutions
	480,000	

Each of these operating facilities is leased by us under long-term lease agreements. These lease agreements have terms that expire ranging from 2012 to 2023. See Note 18 of *Notes to Consolidated Financial Statements*.





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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 and in Port of Spain, Trinidad. 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 alleges that we have infringed several United States patents regarding marine seismic streamer steering devices that are owned by WesternGeco. WesternGeco is seeking unspecified monetary damages and an injunction prohibiting us from making, using, selling, offering for sale or supplying any infringing products in the United States. Based on our review of the lawsuit filed by WesternGeco and the WesternGeco patents at issue, we believe that our products do not infringe the WesternGeco patents, that the claims asserted against us by WesternGeco are without merit and that the ultimate outcome of the claims against us will not result in a material adverse effect on our financial condition or results of operations. We intend to defend the claims against us vigorously.

In June 2009, we filed an answer and counterclaims against WesternGeco, in which we deny that we have infringed WesternGeco's patents and assert that the WesternGeco patents are invalid or unenforceable. We also asserted that WesternGeco's Q-Marine system, components and technology infringe upon a United States patent owned by us related to marine seismic streamer steering devices. The claims by us also assert that WesternGeco tortiously interfered with our relationship with our customers. In addition, we claim that the lawsuit by WesternGeco is 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 are requesting various remedies and relief, including a declaration that the WesternGeco patents are 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 the case against us. 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. On February 21, 2012, the Court granted WesternGeco's motions for summary judgment related to our claims against WesternGeco for infringement, inventorship and inequitable conduct.

#### **Fletcher**

In November 2009, Fletcher, the holder of shares of our outstanding Series D Preferred Stock, 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 ION Sàrl's execution and delivery of a convertible promissory note to the Bank of China, New York Branch, in connection with a bridge loan funded in October 2009 by Bank of China, and that the directors violated their fiduciary duty to us by allowing ION Sàrl to issue the convertible note without Fletcher's consent. A total of \$10.0 million was advanced to ION Sàrl under the bridge loan, and ION Sàrl repaid \$10.0 million on the following day. Fletcher sought a court order requiring ION Sàrl to repay the \$10 million advanced to ION Sàrl under the bridge loan and unspecified monetary damages. In March 2010, the presiding judge in the case denied Fletcher's request for the court order. 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,

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because the bridge loan note issued by ION Sàrl was convertible into ION common stock, Fletcher technically had the right to consent to the issuance of the note and that we violated Fletcher's consent right by ION Sàrl issuing the note without Fletcher's consent. In December 2010, the presiding judge in the case recused himself from the case and a new presiding judge was appointed to the case. We believe that the remaining claims asserted by Fletcher in the lawsuit are without merit. We further believe that the monetary damages suffered by Fletcher as a result of ION Sàrl issuing the bridge loan 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. We intend to defend the remaining claims against us in this lawsuit vigorously.

**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 are now 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. The Court 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 future proceeding. Each of the parties appealed portions of the final judgment, and on February 17, 2012, the appellate court upheld the final judgment. We have not recorded any amounts related to this gain contingency as of December 31, 2011.

**Greatbatch**

In 2002, we filed a lawsuit against operating subsidiaries of battery manufacturer Greatbatch, Inc., including its Electrochem division (collectively Greatbatch), in the 24th Judicial District Court for the Parish of Jefferson in the State of Louisiana. In the lawsuit, styled *Input/Output, Inc. and I/O Marine Systems, Inc. v. Wilson Greatbatch Technologies, Inc., Wilson Greatbatch, Ltd. d/b/a Electrochem Lithium Batteries, and WGL Intermediate Holdings, Inc., Civil Action No. 578-881, Division A*, we alleged that Greatbatch had fraudulently misappropriated our product designs and other trade secrets related to the batteries and battery pack used in our DigiBIRD® marine towed streamer vertical control device and used our confidential information to manufacture and market competing batteries and battery packs. After a trial, on October 1, 2009 the jury concluded that Greatbatch had committed fraud, violated the Louisiana Unfair Trade Practices Act and breached a trust and nondisclosure agreement between us and Greatbatch, and awarded us \$21.7 million in compensatory damages. A judgment was entered consistent with the jury verdict. In December 2010, we and Greatbatch settled the lawsuit,

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pursuant to which Greatbatch paid us \$25.0 million in full satisfaction of the judgment. Upon the cash receipt, we recorded a gain on legal settlement of \$24.5 million, net of fees paid to attorneys, for the year ended December 31, 2010.

**Other**

We have been named in various other lawsuits and threatened claims that are incidental to our ordinary business. Such lawsuits and claims could increase in number in the event our business continues to expand and we grow larger. 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 impact on our financial condition, results of operations or liquidity.

**Item 4. Mine Safety Disclosures**

Not applicable.

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

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.

Period	Price Range	
	High	Low
Year ended December 31, 2011:		
Fourth Quarter	\$ 8.09	\$ 4.33
Third Quarter	11.04	4.73
Second Quarter	13.76	8.18
First Quarter	12.95	7.94
Year ended December 31, 2010:		
Fourth Quarter	\$ 8.71	\$ 4.71
Third Quarter	5.14	3.42
Second Quarter	6.35	3.48
First Quarter	6.90	4.26

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, 2011, there were 435 holders of record of our common stock.

Our stockholder rights plan, adopted on December 30, 2008, expired in accordance with its terms on December 29, 2011. The plan, which had provided for a distribution to holders of our common stock of rights to purchase shares of our Series A Junior Participating Preferred Stock, and rights agreement governing the terms of



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the plan, were terminated effective as of that date, and on February 10, 2012, we filed a Certificate of Elimination to eliminate all references to the Series A Junior Participating Preferred Stock from our certificate of incorporation.

During the three months ended December 31, 2011, we withheld and subsequently cancelled 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, 2011 to October 31, 2011			Not applicable	Not applicable
November 1, 2011 to November 30, 2011	9	\$ 6.76	Not applicable	Not applicable
December 1, 2011 to December 31, 2011	71,327	\$ 5.81	Not applicable	Not applicable
Total	71,336	\$ 5.81		

**Item 6. Selected Financial Data**

The selected consolidated financial data set forth below with respect to our consolidated statements of operations for 2011, 2010, 2009, 2008 and 2007, and with respect to our consolidated balance sheets at December 31, 2011, 2010, 2009, 2008 and 2007 have been derived from our audited consolidated financial statements.

Our results of operations and financial condition have been affected by 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 – 2011 time period were impacted by the following items:

The loss on disposition of our land division in 2010 totaling \$38.1 million;

The equity in losses of INOVA Geophysical in 2011 and 2010 totaling \$22.9 million and \$23.7 million, respectively;

The gain on a legal settlement in 2010 totaling \$24.5 million;

Fair value adjustments in 2010 and 2009 of a warrant associated with certain bridge financing arrangements, totaling \$12.8 million and (\$29.4) million, respectively;

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The write-off of deferred financing charges, including amortization of non-cash debt discounts, totaling \$18.8 million and \$6.7 million, in 2010 and 2009, respectively;

The impairment of our goodwill and intangible assets in 2009 and 2008 totaling \$38.0 million and \$252.3 million, respectively; and

The beneficial conversion charge of \$68.8 million associated with our outstanding convertible preferred stock for 2008.

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.

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	2011	Years Ended December 31,			2007
		2010	2009	2008	
(In thousands, except for per share data)					
<b>Statement of Operations Data:</b>					
Product revenues	\$ 189,035	\$ 165,202	\$ 237,664	\$ 417,511	\$ 537,691
Service revenues	265,586	279,120	182,117	262,012	175,420
Net revenues	454,621	444,322	419,781	679,523	713,111
Cost of products	103,220	94,658	165,923	289,795	386,849
Cost of services	177,956	183,931	121,720	181,980	119,679
Gross profit	173,445	165,733	132,138	207,748	206,583
Operating expenses:					
Research, development and engineering	24,569	25,227	44,855	49,541	49,965
Marketing and sales	31,269	30,405	34,945	47,854	43,877
General and administrative	50,812	57,254	72,510	70,893	48,847
Impairment of goodwill and intangible assets			38,044	252,283	
Total operating expenses	106,650	112,886	190,354	420,571	142,689
Income (loss) from operations	66,795	52,847	(58,216)	(212,823)	63,894
Interest expense, net	(5,784)	(30,770)	(33,950)	(11,284)	(4,435)
Equity in losses of INOVA Geophysical	(22,862)	(23,724)			
Loss on disposition of land division		(38,115)			
Fair value adjustment of warrant		12,788	(29,401)		
Gain on legal settlement		24,500			
Impairment of cost method investments	(1,312)	(7,650)	(4,454)		
Other income (expense)	(2,135)	228	(4,023)	4,200	(3,992)
Income (loss) before income taxes	34,702	(9,896)	(130,044)	(219,907)	55,467
Income tax expense (benefit)	10,136	26,942	(19,985)	1,131	12,823
Net income (loss)	24,566	(36,838)	(110,059)	(221,038)	42,644
Net income (loss) attributable to noncontrolling interests	208				
Net income (loss) attributable to ION	24,774	(36,838)	(110,059)	(221,038)	42,644
Preferred stock dividends and accretion	1,352	1,936	3,500	3,889	2,388
Preferred stock beneficial conversion charge				68,786	
Net income (loss) applicable to common shares	\$ 23,422	\$ (38,774)	\$ (113,559)	\$ (293,713)	\$ 40,256
Net income (loss) per basic share	\$ 0.15	\$ (0.27)	\$ (1.03)	\$ (3.06)	\$ 0.49
Net income (loss) per diluted share	\$ 0.15	\$ (0.27)	\$ (1.03)	\$ (3.06)	\$ 0.45
Weighted average number of common shares outstanding	154,811	144,278	110,516	95,887	81,941
Weighted average number of diluted shares outstanding	156,090	144,278	110,516	95,887	97,321

**Balance Sheet Data (end of year):**

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Working capital <sup>1</sup>	\$ 163,677	\$ 171,851	\$ (59,018)	\$ 267,155	\$ 220,522
Total assets	674,058	631,857	748,186	861,431	709,149
Notes payable and long-term debt	105,112	108,660	277,381	291,909	24,713
Total equity	425,812	380,447	282,468	325,070	476,240
<b>Other Data:</b>					
Capital expenditures	\$ 11,060	\$ 7,372	\$ 2,966	\$ 17,539	\$ 11,375
Investment in multi-client library	143,782	64,426	89,635	110,362	64,279
Depreciation and amortization (other than multi-client library)	13,917	24,795	47,911	33,052	26,767
Amortization of multi-client library	77,317	85,940	48,449	80,532	37,662



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<sup>1</sup> 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.*

## **Executive Summary**

### ***Our Business***

We are a leading provider of geophysical technology, services, and solutions for the global oil and gas industry, offering advanced acquisition equipment, software and planning and seismic processing services to the global energy industry. Our product and service offerings allow exploration and production ( E&P ) company operators to obtain higher resolution images of the subsurface to reduce the risk of exploration and reservoir development, and to enable seismic contractors to acquire geophysical data more efficiently.

We serve customers in all major energy producing regions of the world from strategically located offices in 19 cities on five continents. In March 2010, we contributed most of our land seismic equipment business to a joint venture we formed with BGP Inc., China National Petroleum Corporation ( BGP ), a wholly-owned oilfield geophysical services subsidiary of China National Petroleum Corporation ( CNPC ). The resulting joint venture company, organized under the laws of the People's Republic of China, is named INOVA Geophysical Equipment Limited ( INOVA Geophysical ). We believe that this joint venture will provide us the opportunity to further extend the geographic scope of our business through the sales and service facilities of BGP, especially in Africa, the Middle East, China and Southeast Asia.

Our products and services include the following:

Seismic data processing and reservoir imaging services,

Seismic data libraries,

Planning services for survey design and optimization,

Marine seismic data acquisition equipment,

Navigation, command & control, and data management software products, and

Land seismic data acquisition equipment (principally through our 49% ownership in INOVA Geophysical).

We operate our company through four business segments: Solutions, Systems, Software and 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.

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*Systems* towed streamer and redeployable ocean bottom cable seismic data acquisition systems and shipboard recorders, streamer positioning and control systems and energy sources (such as air guns and air gun controllers) and analog geophone sensors.

*Software* software systems and related services for navigation and data management involving towed marine streamer and seabed operations.

*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.

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**Table of Contents*****Economic Conditions***

Demand for our seismic data acquisition products and services is 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 oil and natural gas prices. During 2011, West Texas Intermediate ( WTI ) spot crude oil prices initially rose above \$100 per barrel, followed by declines to approximately \$80 per barrel near the end of the third quarter; during the fourth quarter of 2011, WTI spot crude oil prices rose again to end the year at around \$100 per barrel. Brent crude oil prices have remained above \$100 per barrel during most of 2011 ending the year at around \$110 per barrel. During the middle of 2011, there was notable price divergence between the Brent and WTI benchmarks, as Brent oil prices were decoupled from the impact of excess oil inventories in the U.S. and WTI oil prices are decoupled from the political unrest in North Africa and the Middle East. Energy price forecasts are by their nature highly uncertain, but external reports indicate that oil prices are expected to remain resilient in 2012 as demand outpaces supply, particularly in developing countries in Asia. Unlike the recovery in oil prices, U.S. natural gas prices have remained depressed relative to 2008 levels, due to the excess supply of natural gas in the North American market. This trend continued in early 2012 as natural gas prices dipped below \$3.00 per MMBtu. However, demand for natural gas has not deteriorated and industry interest in natural gas and oil shale opportunities continues to increase, along with developments in the technologies employed to locate and extract shale reserves.

Oil companies, seismic contractors and the E&P companies that are users of our products, services and technology reduced their capital spending levels in 2009 and 2010. However, we saw increased levels of capital spending related to E&P activity during the second half of 2010, which continued into 2011. We expect that exploration and production expenditures will continue to recover to the extent E&P companies and seismic contractors continue to see improved activity levels related to their business. The land seismic equipment business, particularly INOVA Geophysical's business in North America and Russia, continues to experience softness, but is trending in the right direction. According to external reports, global rig counts are at the highest levels in over two decades and are expected to grow over the next few years. Global E&P spend continues to grow to record amounts.

For 2011, our Solutions segment experienced a slight decrease in revenues compared to 2010, as decreases in data processing revenues and seismic data library sales could not be completely offset by improved strong multi-client new venture revenues. Our footprint in U.S. shale plays continues to expand with the completion of our first land multi-client new venture project, and with several other projects underway. In the process, we are increasing our technical understanding of shale plays and intend to leverage this expertise to broaden our shale footprint in both the U.S. and international markets in 2012. Although data library sales for 2011 did not reach 2010's levels, customer demand remains high for our data libraries covering offshore areas around the globe in which E&P companies have demonstrated a strong interest for exploration, including frontier basins off of East and West Africa, Brazil and in the Arctic. Throughout 2011, our Solutions segment's data processing business was negatively impacted by the slowdown in Gulf of Mexico exploration and production activities resulting from the Deepwater Horizon incident in April 2010. However, our data processing revenues grew sequentially in each quarter of 2011 and we ended the year with record backlog, which included receiving the single largest data processing contract award in our history during the fourth quarter. At December 31, 2011, our Solutions segment backlog, which consists of commitments for (i) data processing work by GXT and (ii) multi-client new venture projects by our GeoVentures group that have been underwritten, was \$134.2 million compared with \$80.9 million at December 31, 2010. We anticipate that the majority of this backlog will be recognized over the next 12 months. Based on the sequential improvements by our data processing business and the growing demand represented by the data processing component of our Solutions backlog, we expect our data processing business to return to its historical growth rates in 2012.

Our Software segment revenues increased slightly for 2011 compared to 2010, solely due to favorable foreign currency exchange rates. In terms of the segment's functional currency (British Pounds Sterling), Software segment revenues remained consistent with 2010 due to steady subscription sales of Orca software.

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Revenues for our Systems segment increased significantly in 2011 compared to 2010, with strong demand for our marine products supported by slightly higher sales of our sensor geophone products. In addition, we recognized revenue from the twelve-streamer system sale to BGP in the fourth quarter of 2011.

Our land seismic business, particularly INOVA Geophysical's business in North America and Russia, continues to show signs of recovery. Due to the recent launches of Hawk and an improved FireFly system, we continue to see sequential quarterly improvement and expect INOVA to be break even in 2012.

Although the U.S. economic recovery has been slower than initially expected and global geopolitical tensions and regulatory uncertainties have adversely affected customers' purchasing plans with respect to certain regions of the world, we believe that several conditions currently exist that favor increased seismic spending for the years ahead. These conditions include the following:

Demand for crude oil remains high and there is little spare production capacity at this time, particularly considering the geopolitical conditions in North Africa and the Middle East that have had the effect of placing a risk premium on crude oil prices;

The natural decline in large oil reserves around the world has continued, and the pace of reinvestment into exploration and development will need to increase in order to minimize future rates of decline;

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;

Large E&P companies are focusing on hydrocarbon reservoirs that are located in complex shale geological formations and more-difficult-to-access regions of the world, which should increase demand for newer and more efficient imaging processing and equipment technology solutions; and

While U.S. natural gas prices may remain at depressed levels, investment in shale liquid markets should remain relatively strong in North America, and there is currently a high degree of interest in potentially productive shale areas in other parts of the world; in addition, companies will be under increasing pressure to find ways (including new technologies) to locate, find and produce shale gas on a more cost-efficient basis.

We believe 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 and INOVA Geophysical's recently announced technologies (including FireFly DR31, Hawk SN11, UniVib, VectorSeis ML21 and upgrading its ARIES II product with digital sensor capabilities), will continue to attract customer interest, because those technologies are designed to deliver improvements in image quality within more productive delivery systems.

We are seeing increasing levels of demand for seismic services, and expect that 2012 will be a year of growth across all business segments for us. However, in stating these expectations, we are assuming that (i) the global economy will not slip back into a recession, (ii) the price of crude oil will remain above \$80 per barrel, (iii) there will be an increase in the level of exploration and production activities in the US Gulf of Mexico and (iv) there will be increasing demand for seismic services in the Middle East and North Africa provided the geopolitical instability does not deteriorate further.

**Table of Contents****Key Financial Metrics**

The following table provides an overview of key financial metrics for our company as a whole and our four business segments during the twelve months ended December 31, 2011, compared to those for 2010 and 2009 (in thousands, except per share amounts):

	Years Ended December 31,		
	2011	2010	2009
<b>Net revenues:</b>			
<b>Solutions:</b>			
Data Processing	\$ 88,783	\$ 107,997	\$ 82,330
New Venture	98,335	81,293	71,135
Data Library	76,332	87,664	26,520
<b>Total</b>	<b>\$ 263,450</b>	<b>\$ 276,954</b>	<b>\$ 179,985</b>
<b>Systems:</b>			
Towed Streamer	\$ 111,453	\$ 83,567	\$ 83,398
Other	41,551	30,659	44,891
<b>Total</b>	<b>\$ 153,004</b>	<b>\$ 114,226</b>	<b>\$ 128,289</b>
<b>Software:</b>			
Software Systems	\$ 36,031	\$ 34,465	\$ 31,601
Services	2,136	2,166	2,132
<b>Total</b>	<b>\$ 38,167</b>	<b>\$ 36,631</b>	<b>\$ 33,733</b>
Legacy Land Systems (INOVA)	\$	\$ 16,511	\$ 77,774
<b>Total</b>	<b>\$ 454,621</b>	<b>\$ 444,322</b>	<b>\$ 419,781</b>
<b>Gross profit:</b>			
Solutions	\$ 84,647	\$ 93,804	\$ 59,844
Systems	61,109	48,557	52,934
Software	27,689	24,356	21,998
Legacy Land Systems (INOVA)		(984)	(2,638)
<b>Total</b>	<b>\$ 173,445</b>	<b>\$ 165,733</b>	<b>\$ 132,138</b>
<b>Gross margin:</b>			
Solutions	32%	34%	33%
Systems	40%	43%	41%
Software	73%	66%	65%
Legacy Land Systems (INOVA)		(6%)	(3%)
<b>Total</b>	<b>38%</b>	<b>37%</b>	<b>31%</b>
<b>Income (loss) from operations:</b>			
Solutions	\$ 50,620	\$ 60,632	\$ 27,746
Systems	33,034	27,749	31,209
Software	24,463	21,936	19,970
Legacy Land Systems (INOVA)		(9,623)	(40,881)
Corporate and other	(41,322)	(47,847)	(58,216)

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Impairment of intangible assets			(38,044)
Total	\$ 66,795	\$ 52,847	\$ (58,216)
Net income (loss) applicable to common shares	\$ 23,422	\$ (38,774)	\$ (113,559)
Basic net income (loss) per common share	\$ 0.15	\$ (0.27)	\$ (1.03)
Diluted net income per (loss) common share	\$ 0.15	\$ (0.27)	\$ (1.03)

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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.

Our results of operations have been materially affected by the disposition of our land seismic equipment businesses to INOVA Geophysical in connection with its formation in March 2010, which affects the comparability of certain of the financial information contained in this Form 10-K. In order to assist with the comparability to our historical results of operations, certain of the financial tables and discussion below exclude the results of operations of our disposed legacy land equipment segment (which we refer to below as our Legacy Land Systems segment). The revenues, costs and expenses shown below that are identified as Adjusted reflect the exclusion of the revenues, costs and expenses of our disposed land equipment segment's business.

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 2011 and 2010, we recognized in our consolidated results of operation our share of losses in INOVA Geophysical of approximately \$22.9 million, which represents joint venture activity for the period from October 1, 2010 through September 30, 2011, and \$23.7 million, which represents joint venture activity for the period from March 26, 2010 through September 30, 2010, respectively.

We expect to file an amendment to this Annual Report on Form 10-K on Form 10-K/A within six months after December 31, 2011 in order to file separate consolidated financial statements for INOVA Geophysical for the fiscal year ended December 31, 2011, 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, 2011 Compared to Year Ended December 31, 2010***

	Year Ended December 31, 2011	Year Ended December 31, 2010	
		As Reported (In thousands)	As Adjusted <sup>1</sup>
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 and administrative	50,812	57,254	54,355
Total operating expenses	106,650	112,886	104,247
Income from operations	\$ 66,795	\$ 52,847	\$ 62,470

<sup>1</sup> Excluding Legacy Land Systems (INOVA).

Our overall 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%, comparable to 2010's percentage, as 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.





**Table of Contents*****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 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 products and services, 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 products and services.

**General and Administrative** General and administrative 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 and administrative expenses as a percentage of net revenues for 2011 and 2010 were 11% and 13%, respectively. This decrease in general and administrative 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 manufacturing 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 the accretion 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 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. Because of our March 2010 debt refinancing transactions, our interest expense was significantly

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lower in 2011 than we experienced in 2010 or 2009. For additional information, please refer to *Liquidity and Capital Resources* *Sources of Capital* below.

*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 and from March 26, 2010 through September 30, 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 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 continues to be negatively impacted by reduced demand, particularly in North America and Russia. These businesses are starting to see an increase in tender activities from customers and we expect INOVA Geophysical to break even in 2012.

The following table reflects the summarized financial information for INOVA Geophysical for the period from October 1, 2010 through September 30, 2011 and the period from the formation of INOVA Geophysical on March 26, 2010 through September 30, 2010 (in thousands):

	October 1, 2010 through September 30, 2011	March 26, 2010 through September 30, 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)

*Impairment of Cost Method Investments* In 2011 and 2010, we recorded non-cash write-downs of \$1.3 million and \$7.6 million, respectively, related to other-than-temporary impairments of our investment in the equity of Reservoir Exploration Technology, ASA (RXT), a Norwegian seismic contractor. For additional information, please refer to Note 9 *Long-term Investments*.

*Other Income (Expense)* Other expense for 2011 was (\$2.1) million compared to other income of \$0.2 million for 2010. This difference primarily related to changes in foreign currency exchange rates associated with our operations in the United Kingdom.

*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 the additional write-down of our investment in RXT. We continue to maintain a valuation allowance for a significant portion of our U.S. federal net deferred tax assets. In the event our expectations of future operating results change, an additional valuation allowance may be required to be established on our existing unreserved net U.S. deferred tax assets, which totaled \$11.9 million at December 31, 2011. 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.

*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, 2011. The total amount of dividends paid on our preferred stock in 2011 was less than in 2010 due to the conversion by the holder of the preferred stock in April 2010 of 43,000 shares of preferred stock into 9,659,231 shares of common stock.

**Table of Contents****Year Ended December 31, 2010 Compared to Year Ended December 31, 2009**

	Year Ended December 31, 2010		Year Ended December 31, 2009	
	As Reported	As Adjusted <sup>1</sup>	As Reported	As Adjusted <sup>1</sup>
	(In thousands)			
Net revenues	\$ 444,322	\$ 427,811	\$ 419,781	\$ 342,007
Cost of sales	278,589	261,094	287,643	207,231
Gross profit	165,733	166,717	132,138	134,776
Gross margin	37%	39%	31%	39%
Operating expenses:				
Research, development and engineering	25,227	21,046	44,855	23,496
Marketing and sales	30,405	28,846	34,945	29,363
General and administrative	57,254	54,355	72,510	61,208
Impairment of intangible assets			38,044	
Total operating expenses	112,886	104,247	190,354	114,067
Income (loss) from operations	\$ 52,847	\$ 62,470	\$ (58,216)	\$ 20,709

<sup>1</sup> Excluding Legacy Land Systems (INOVA).

Our overall total net revenues of \$444.3 million for 2010 increased \$24.5 million, or 6%, compared to total net revenues for 2009. Excluding Legacy Land Systems (INOVA), total net revenues increased \$85.8 million, or 25%, for the same comparative period. Our overall gross profit percentage for 2010 and 2009, as adjusted, was 39% for both years. Total operating expenses as a percentage of net revenues for 2010 and 2009, as adjusted, were, 24% and 33%, respectively. During 2010, as adjusted, we recorded income from operations of \$62.5 million, compared to \$20.7 million, during 2009, as adjusted.

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

**Solutions** Net revenues for 2010 increased by \$97.0 million, to \$277.0 million, compared to \$180.0 million for 2009. This increase was primarily due to greater seismic data library sales, particularly during the fourth quarter of 2010, driven by higher capital expenditures from our E&P customers. This increase in data library sales resulted from increased demand for seismic datasets from many regions across the world, including East and West Africa, Brazil and the Arctic. Our data processing services group delivered record revenues in 2010 while new venture revenues increased primarily due to successful completion of data acquisition for our Arctic programs in the third quarter. Gross profit increased by \$34.0 million to \$93.8 million, or a 34% gross margin, compared to \$59.8 million, or a 33% gross margin, for 2009.

**Systems** Net revenues for 2010 decreased by \$14.1 million to \$114.2 million, compared to \$128.3 million for 2009. This decrease was driven primarily by lower geophone string sales as a result of the softness in land seismic activity. Gross profit for 2010 decreased by \$4.3 million to \$48.6 million, representing a 43% gross margin, compared to \$52.9 million, representing a 41% gross margin, for 2009. The increase in gross margins in our Systems segment in 2010 was primarily due to changes in product mix, with proportionately higher sales of marine towed streamer products, which generally experienced higher margins compared to our other Systems products.

**Software** Net revenues for 2010 increased by \$2.9 million, or 9%, to \$36.6 million, compared to \$33.7 million for 2009. The increase was primarily due to the continued increased demand for our Orca software systems products. The increase, as expressed in U.S. Dollars, was partially offset by the effect of foreign currency exchange rate fluctuations. Expressed in British pounds sterling (the local currency), net revenues increased by £2.3 million, or 11%. Gross profit increased by \$2.4 million to \$24.4 million compared to \$22.0 million for 2009, as gross margins of 66% remained fairly consistent for both years.

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

**Research, Development and Engineering** Research, development and engineering expense was \$21.0 million, or 5% of net revenues, for 2010, as adjusted, a decrease of \$2.5 million compared to \$23.5 million, or



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7% of net revenues, for 2009, as adjusted. This decrease in research and development expense was due to decreased salary and payroll expenses related to our reduced headcount, lower professional fees related to our previously implemented cost reduction measures, and lower supply and equipment costs due to the focus on our cost reduction measures. We continue to strategically invest in our next generation of seismic data acquisition products and services, and we expect this investment will continue in the future.

*Marketing and Sales* Marketing and sales expense of \$28.8 million, or 7% of net revenues, for 2010, as adjusted, decreased \$0.6 million compared to \$29.4 million, or 9% of net revenues, for the corresponding period of 2009, as adjusted. Even though our 2010 revenues, as adjusted, increased 25%, our 2010 marketing and sales expenses remained flat compared to the prior year's expenses due in part to the previously implemented cost reduction measures taken in 2009.

*General and Administrative* General and administrative expenses of \$54.4 million, for 2010, as adjusted, decreased \$6.8 million compared to \$61.2 million, for 2009, as adjusted. General and administrative expenses as a percentage of net revenues for 2010 and 2009 were 13% and 18%, respectively. A portion of this decrease in general and administrative expense was due to a \$3.3 million stock-based compensation expense (with respect to an out-of-period item) recorded in 2009, related to financial accounting adjustments resulting from certain differences between estimated and actual forfeitures of stock-based compensation awards. The remainder of the decrease was due to lower salary and payroll expenses related to our reduced headcount, and by lower bad debt expense, compared to the prior year.

**Non-operating Items**

*Interest Expense, net* Interest expense, net, of \$30.8 million for 2010 decreased \$3.2 million compared to \$34.0 million for 2009. Our interest expense in 2010 included the accretion of approximately \$8.7 million of non-cash debt discount (fully amortized in the first quarter of 2010) associated with two convertible promissory notes payable to Bank of China, New York Branch, that we had executed and delivered to that 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. For additional information, please refer to *Liquidity and Capital Resources Sources of Capital* below.

*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 and losses of INOVA Geophysical on a one fiscal quarter-lag basis. Thus, our share of INOVA Geophysical's losses for the period from March 26, 2010 to September 30, 2010 is included in our consolidated financial results for 2010. For 2010, we recorded our 49% share of equity losses of approximately \$23.7 million (including \$9.5 million that represents our share of a write-down of excess inventory).

*Loss on Disposition of Land Division* As a result of the formation of our INOVA Geophysical joint venture and our contribution of most of our land equipment assets to the joint venture, we deconsolidated certain land equipment assets and liabilities from our consolidated financial statements, and recognized a net loss on disposition. The majority of the loss (\$21.2 million) recognized from this transaction related to accumulated foreign currency translation adjustments (effect of exchange rates) for our foreign subsidiaries, mainly in Canada. For additional information, please refer to Note 3 *Formation of INOVA Geophysical and Related Financing Transactions*.

*Fair Value Adjustment of Warrant* In October 2009, we issued to BGP a warrant to purchase shares of our common stock (the Warrant) in connection with certain bridge financing arrangements. BGP elected not to exercise the Warrant and, on March 25, 2010, BGP terminated the Warrant and surrendered it to ION. Prior to its termination, the Warrant was required to be accounted for as a liability at its fair value. During the fourth quarter of 2009, we recorded a negative non-cash fair value adjustment of \$29.4 million, reflecting the increase in fair value of the Warrant from its date of issuance through December 31, 2009. During the first quarter of 2010, we recorded a positive non-cash fair value adjustment of \$12.8 million, reflecting the decrease in the fair value of the Warrant from January 1, 2010 through March 25, 2010. For additional information, please refer to Note 3 *Formation of INOVA Geophysical and Related Financing Transactions*.

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*Gain on Legal Settlement* In 2010, we recorded a gain related to cash received from our legal settlement with Greatbatch, Inc. For additional information, please refer to Note 20 *Legal Matters*.

*Impairment of Cost Method Investments* In 2010, we recorded a non-cash write-down of \$7.6 million related to an other-than-temporary impairment of our investment in RXT shares. For additional information, please refer to Note 9 *Long-term Investments*.

*Other Income (Expense)* Other income for 2010 was \$0.2 million compared to other expense of (\$4.0) million for 2009. This difference primarily related to changes in foreign currency exchange rates associated with our operations in the United Kingdom.

*Income Tax Expense (Benefit)* Income tax expense for 2010 was \$26.9 million compared to a tax benefit of (\$20.0) million for 2009. Income tax expense for 2010 included \$16.3 million of expense related to the transactions involved in the formation of INOVA Geophysical as well as the establishment of \$11.0 million of valuation allowance related to our share of INOVA Geophysical's 2010 net loss and the write-down of an investment we made in the equity of Reservoir Exploration Technology, ASA (RXT). Also included in income tax expense for 2010 was \$3.9 million of benefit related to alternative minimum tax. As of December 31, 2010, our existing unreserved net U.S. deferred tax assets totalled \$7.2 million. Our effective tax rates for 2010 and 2009 were 272.2% (provision on a loss) and 15.4% (benefit on a loss), respectively. The change in our effective tax rate for 2010 was due primarily to the transactions involved in the formation of the INOVA Geophysical, the establishment of valuation allowances and changes in the distribution of earnings between U.S. and foreign jurisdictions, partially offset by recognition of a benefit related to alternative minimum tax. Excluding the impact of these transactions, our effective tax rate would have been 14.5% (provision on income) for 2010.

*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, 2010. The total amount of dividends paid on our preferred stock in 2010 was less than in 2009 due to the conversion by the holder of the preferred stock of 43,000 shares of preferred stock into 9,659,231 shares of common stock in April 2010.

## **Liquidity and Capital Resources**

### ***Sources of Capital***

Our cash requirements include our working capital requirements, and cash required for our debt service payments, dividend payments on our preferred stock, seismic data acquisitions and capital expenditures. As of December 31, 2011, we had working capital of \$163.7 million, which included \$42.4 million of cash on hand and \$20.0 million of short-term investments. Working capital requirements are primarily driven by our continued investment in our multi-client seismic data library (\$143.8 million in fiscal 2011) and, to a lesser extent, our inventory purchase obligations. At December 31, 2011, our outstanding inventory purchase obligations were \$16.5 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. 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 and term loan facilities (see *Revolving Line of Credit and Term Loan Facility* below)

At December 31, 2011, our principal outstanding credit facility included:

A revolving line of credit sub-facility providing for borrowings of up to \$100.0 million (no borrowings were outstanding as of that date); and

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A \$99.3 million remaining principal amount of a term loan sub-facility.

*Revolving Line of Credit and Term Loan Facility* On March 25, 2010, we, our Luxembourg subsidiary, ION International S.à r.l. ( ION Sàrl ), and certain of our other U.S. and foreign subsidiaries entered into a new credit facility (the Credit Facility ). The terms of the Credit Facility are set forth in a credit agreement dated March 25, 2010 (the Credit Agreement ), by and among us, ION Sàrl and China Merchants Bank Co., Ltd., New York Branch ( CMB ), as administrative agent and lender. Our obligations under the Credit Facility are guaranteed by certain of our material U.S. subsidiaries and the obligations of ION Sàrl under the Credit Facility are guaranteed by certain of our material U.S. and foreign subsidiaries, in each case that are parties to the Credit Agreement. INOVA Geophysical is also providing a bank stand-by letter of credit as credit support for our obligations under the Credit Agreement.

The Credit Facility provides us with a revolving line of credit of up to \$100.0 million in borrowings (including borrowings for letters of credit), and refinanced our outstanding term loan under our previous syndicated credit facility with a new term loan in the original principal amount of \$106.3 million. The Credit Facility permits direct borrowings by ION Sàrl for use by our foreign subsidiaries.

Under the Credit Facility, up to \$75.0 million is available for revolving line of credit borrowings by us, and up to \$60.0 million (or its equivalent in foreign currencies) is available for revolving line of credit borrowings by ION Sàrl, but the total amounts borrowed may not exceed \$100.0 million. Borrowings under the Credit Facility are not subject to a borrowing base. As of December 31, 2011, we had no indebtedness outstanding under the revolving line of credit.

Revolving credit borrowings under the Credit Facility may be utilized to fund the working capital needs of ION and our subsidiaries, to finance acquisitions and investments and for general corporate purposes. In addition, the Credit Facility includes a \$35.0 million sub-limit for the issuance of documentary and stand-by letters of credit.

The revolving credit indebtedness and term loan indebtedness under the Credit Facility are each scheduled to mature on March 24, 2015. The principal amount under the term loan is subject to scheduled quarterly amortization payments of \$1.0 million per quarter until the maturity date, with the remaining unpaid principal balance due upon the maturity date. The indebtedness under the Credit Facility may sooner mature on a date that is 18 months after the earlier of (i) any dissolution of INOVA Geophysical, or (ii) the administrative agent determining in good faith that INOVA Geophysical is unable to perform its obligations under its credit support obligations that it has provided under the Credit Facility.

The interest rate per annum on borrowings under the Credit Facility will be, at our option:

An alternate base rate equal to the sum of (i) the greatest of (a) the prime rate of CMB, (b) a federal funds effective rate plus 0.50%, or (c) an adjusted LIBOR-based rate plus 1.0%, and (ii) an applicable interest margin of 2.5%; or

For eurodollar borrowings and borrowings in Euros, Pounds Sterling or Canadian Dollars, the sum of (i) an adjusted LIBOR-based rate, and (ii) an applicable interest margin of 3.5%.

As of December 31, 2011, the \$99.3 million in outstanding term loan indebtedness under the Credit Facility accrued interest at a rate of 4.1% per annum.

Our obligations and the guarantee obligations of the U.S. guarantors are secured by a first-priority security interest in 100% of the stock of all U.S. guarantors and 65% of the stock of certain first-tier foreign subsidiaries and by substantially all other assets of ION and the U.S. guarantors. The obligations of ION Sàrl and the foreign guarantors are secured by a first-priority security interest in 100% of the stock of the foreign guarantors and the U.S. guarantors and substantially all other assets of the foreign guarantors, the U.S. guarantors and ION.

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The agreements governing the Credit Facility contain covenants that restrict the borrowers, the guarantors and their subsidiaries, subject to certain exceptions, from:

Incurring additional indebtedness (including capital lease obligations), granting or incurring additional liens on our properties, pledging shares of our subsidiaries, entering into certain merger or other change-in-control transactions, entering into transactions with our affiliates, making certain sales or other dispositions of assets, making certain investments, acquiring other businesses and entering into sale-leaseback transactions with respect to our properties;

Paying cash dividends on our common stock; and

Repurchasing and acquiring our capital stock, unless there is no event of default under the Credit Agreement and the amount of such repurchases does not exceed an amount equal to (i) 25% of our consolidated net income for the prior fiscal year, less (ii) the amount of any cash dividends paid on our common stock.

The Credit Facility requires compliance with certain financial covenants, including certain requirements that became effective on June 30, 2011 and are in effect for each fiscal quarter thereafter for ION and its U.S. subsidiaries to:

Maintain a minimum fixed charge coverage ratio in an amount equal to at least 1.125 to 1;

Not exceed a maximum leverage ratio of 3.25 to 1; and

Maintain a minimum tangible net worth of at least 60% of ION's tangible net worth as of March 31, 2010.

The fixed charge coverage ratio is defined as the ratio of (i) our consolidated EBITDA less cash income tax expense and non-financed capital expenditures, to (ii) the sum of scheduled payments of lease payments and payments of principal indebtedness, interest expense actually paid and cash dividends, in each case for the four consecutive fiscal quarters most recently ended. The leverage ratio is defined as the ratio of (x) total funded consolidated debt, capital lease obligations and issued letters of credit (net of cash collateral) to (y) our consolidated EBITDA for the four consecutive fiscal quarters most recently ended. As of December 31, 2011, we were in compliance with these financial covenants and we expect to remain in compliance with these financial covenants throughout 2012.

The Credit Agreement contains customary event of default provisions (including a change of control event affecting us), the occurrence of which could lead to an acceleration of ION's obligations under the Credit Facility. The Credit Agreement also provides that certain acts of bankruptcy, insolvency or liquidation of INOVA Geophysical or BGP would constitute additional events of default under the Credit Facility.

*Interest Rate Caps* We use derivative financial instruments to manage our exposure to the interest rate risks related to the variable rate debt under our term loan indebtedness. 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.

In August 2010, we entered into an interest rate cap agreement and purchased interest rate caps having an initial notional amount of \$103.3 million with a three-month average LIBOR cap of 2.0%. If and when the three-month average LIBOR rate exceeds 2.0%, the LIBOR portion of interest owed by us would be effectively capped at 2.0%. This initial notional amount was set to equal the projected outstanding balance under our term loan facility at December 31, 2010. The notional amount was then set so as not to exceed the outstanding balance of our term loan facility over a period that extends through March 29, 2013. We purchased these interest rate caps for an amount equal to approximately \$0.4 million. We designated the interest rate caps as cash flow hedges.

In July 2011, we purchased additional interest rate caps related to our term loan facility. The notional amounts, together with the notional amounts of the interest rate caps purchased in August 2010, were set so as not to exceed the outstanding balance of our term loan facility over a period that extends through March 31, 2014. We purchased these interest rate caps for an amount equal to approximately \$0.3 million and



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designated the interest rate caps as cash flow hedges. See further discussion regarding these interest rate caps at Note 13 *Long-term Debt, Lease Obligations and Interest Rate Caps.*

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### **Meeting our Liquidity Requirements**

As of December 31, 2011, our total outstanding indebtedness (including capital lease obligations) was approximately \$105.1 million, consisting of approximately \$99.3 million outstanding under the term loan, \$3.0 million relating to our facility lease obligation and \$2.8 million of capital leases. As of December 31, 2011, we had no amounts drawn on our revolving line of credit under our Credit Facility, and had approximately \$42.4 million of cash on hand and \$20.0 million of short-term investments.

For 2011, total capital expenditures, including investments in our multi-client data library, were \$143.8 million, and we are projecting capital expenditures for the year 2012 to be between \$150 million to \$170 million. Of the total projected 2012 capital expenditures, we are estimating that approximately \$130 million to \$150 million will be spent on investments in our multi-client data library, but we are anticipating that most of these investments will be underwritten by our customers. To the extent our customers' commitments do not reach an acceptable level of pre-funding, the amount of our anticipated investment in these data libraries could be significantly less.

### ***Cash Flow from Operations***

We have historically financed our operations from internally-generated cash and funds from equity and debt financings. Cash and cash equivalents were \$42.4 million, which excludes \$20.0 million of excess cash invested in short-term bank certificates of deposit, at December 31, 2011, compared to \$84.4 million at December 31, 2010. Net cash provided by operating activities was \$130.0 million for 2011, compared to \$133.4 million for 2010. Similar to last year, we expect that our increase in sales activity during the fourth quarter of the year, resulting in an increase in our accounts receivable balances at year end, will have a positive impact to our cash balances in the first quarter of 2012 as we convert these receivables into cash.

Cash and cash equivalents were \$84.4 million at December 31, 2010, compared to \$16.2 million at December 31, 2009. Net cash provided by operating activities was \$133.4 million for 2010, compared to \$52.0 million for 2009. The increase in our cash flows from operations was due in part to the increase in our income from operations for 2010 compared to our loss from operations for 2009. Also positively impacting 2010 cash flows was a legal settlement of \$24.5 million cash collected in the fourth quarter of 2010. Further positively impacting our cash provided by operations was our cash collections in 2010 related to increased sales of data libraries during the fourth quarter of 2010; the investment in these data libraries had been made prior to 2010.

### ***Cash Flow from Investing Activities***

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 was \$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.

Net cash flow provided by investing activities was \$27.5 million for 2010, compared to a net use of cash for investing activities of \$91.6 million for 2009. The principal source of cash in our investing activities during 2010 was \$99.8 million in net proceeds received by us from BGP in exchange for BGP's purchase from us of a 51% equity interest in INOVA Geophysical. This source of cash was partially offset by \$64.4 million of investments we made in our multi-client data library.

### ***Cash Flow from Financing Activities***

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 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.

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Net cash flow used in financing activities was \$92.7 million for 2010, compared to \$19.7 million of net cash flow provided by financing activities for 2009. The net cash flow used in financing activities during 2010 was primarily related to net repayments on our prior revolving credit facility of \$89.4 million and payments on our notes payable and long-term debt of \$145.6 million. This cash outflow was partially offset by proceeds of \$38.0 million from the issuance of shares of our common stock to BGP in March 2010 and net proceeds of \$105.7 million related to the funding of the refinanced term loan under the Credit Facility. We also paid \$1.9 million in cash dividends on our outstanding Series D Preferred Stock in 2010.

**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 in the fourth quarter of our fiscal year. We experienced increased demand in the fourth quarters of both 2010 and 2011 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, 2011 (in thousands):

<b>Contractual Obligations</b>	<b>Total</b>	<b>Less Than 1 Year</b>	<b>1-3 Years</b>	<b>3-5 Years</b>	<b>More Than 5 Years</b>
Long-term debt	\$ 102,297	\$ 4,714	\$ 9,798	\$ 87,785	\$
Interest on long-term debt obligations	12,901	4,283	7,796	822	
Equipment capital lease obligations	2,815	1,056	1,759		
Operating leases	48,990	11,368	10,018	6,558	21,046
Product warranty	715	715			
Purchase obligations	16,496	16,496			
<b>Total</b>	<b>\$ 184,214</b>	<b>\$ 38,632</b>	<b>\$ 29,371</b>	<b>\$ 95,165</b>	<b>\$ 21,046</b>

The long-term debt and lease obligations at December 31, 2011 included \$99.3 million under our term loan scheduled to mature in 2015 and \$3.0 million of indebtedness related to our Stafford, Texas facility sale-leaseback arrangement. The \$2.8 million of capital lease obligations relates to GXT's financing of computer and other equipment purchases.

The operating lease commitments at December 31, 2011 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 for which deliveries are scheduled to be made in 2012.

**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) seismic data acquisition systems and other seismic equipment within our Systems segment; (ii) multi-client surveys, licenses of off-the-shelf data libraries and imaging services, within our Solutions segment; and (iii) navigation, survey and quality control software systems within our Software segment.



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*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

*Multi-Client Surveys, Data Libraries and Imaging Services* Revenues from multi-client surveys are recognized 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 survey data is considered on-the-shelf, and licenses to the survey data are sold to customers on a non-exclusive basis. The license of a completed multi-client survey is represented by the license of one standard set of data. 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 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.

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.

*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*. 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 certain 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). The multiple element arrangements guidance codified in ASC 605-25 was modified as a result of the final consensus reached in Accounting Standards Update ( ASU ) 2009-13, *Revenue Arrangements with Multiple Deliverables*. We adopted this new guidance as of January 1, 2010. Accordingly, we applied this guidance to transactions initiated or materially modified on or after January 1, 2010. The new guidance does not apply to software sales accounted for under ASC 985-605. There was no material impact as a result of adopting this guidance to our results of operations for 2010.

This guidance eliminates the residual method of allocation for multiple-deliverable revenue arrangements and 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

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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.

In July 2010, we contracted with BGP for the sale of a twelve-streamer DigiSTREAMER system. BGP deployed the system into its commercial operations during the fourth quarter of 2011. The contract included customer-specified acceptance criteria, which we met and BGP accepted in the fourth quarter of 2011. The contract contained multiple deliverables, of which the streamer system, related system components and certain services were delivered or performed in 2011, and additional streamers and certain services are expected to be delivered or performed during 2012. We determined that the deliverables in this transaction had value to BGP on a standalone basis and allocated the arrangement consideration to each separate deliverable based on its relative selling price using ESP. In the fourth quarter of 2011, we had recognized the majority of revenues related to this sale. See further discussion of related party revenues at *Certain Relationships and Related Party Transactions*.

In addition, pursuant to the transitional requirements of the new multiple element revenue guidance, we adopted the guidance codified by ASU 2009-14, *Certain Arrangements That Include Software Elements*, as of January 1, 2010. This guidance amended the accounting model for revenue arrangements that includes both tangible products and software elements, such that tangible products containing both software and non-software components that function together to deliver the tangible product's essential functionality are no longer within the scope of software revenue guidance. There was not a material impact to our financial statements of adopting this guidance.

### ***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 2011, 2010 and 2009, we capitalized, as part of our multi-client data library, \$2.4 million, \$2.8 million, and \$3.8 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 and/or processed) is the percentage of actual revenue recognized to the total estimated revenue (or ultimate revenue) multiplied by the total cost of the project (the sales forecast method). Once a multi-client data library is complete, the survey data 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 sales forecast method is our primary method of calculating amortization. We have determined the amortization period of 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 four years subsequent to survey completion.

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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 2011, an increase in 10% in the sales forecasts of all surveys would have decreased our amortization expense by approximately \$4.6 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 *Accounting for the Impairment and Disposal of Long-Lived Assets*, (ASC 360) record an impairment charge with respect to such data. There were no impairment charges during 2011, 2010 and 2009.

***Equity Method Investment***

We use the equity method of accounting for investments in entities in which we have an ownership interest between 20% and 50% and exercise significant influence. Under this method, an investment is carried at the acquisition cost, plus our equity in undistributed earnings or losses since acquisition. As provided by ASC 815 *Investments*, we record our share of earnings or losses of INOVA Geophysical on a one fiscal quarter lag basis. Thus, our share of INOVA Geophysical's results for the period from October 1, 2010 through September 30, 2011 and from March 26, 2010 through September 30, 2010 are included in our financial results for the twelve months ended December 31, 2011 and 2010, respectively.

***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 and the timing of market acceptance of our new products. Should these assumptions and judgments not be realized for reasons such as delayed market acceptance of our new products, our valuation allowance 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 valuation reserve for inventory at December 31, 2011 was \$13.0 million compared to \$12.9 million at December 31, 2010.

***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: Marine Systems, Sensor Geophone, Software, and Solutions. 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.

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. 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.

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We completed our annual goodwill impairment testing as of December 31, 2011 and 2010 noting no impairments. Our goodwill as of December 31, 2011 was comprised of \$27.0 million in our Marine Systems, \$24.3 million in our Software and \$2.7 million in our Solutions reporting units. The goodwill in our Solutions reporting unit related to our acquisition of a controlling interest in a data processing business that occurred in December 2011. Our 2011 and 2010 annual impairment tests both indicated that the fair value of our Marine Systems and Software 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 proprietary technology, patents, customer relationships and trade names that are amortized over the estimated periods of benefit (ranging from 4 to 20 years). 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. For 2009, we determined that certain of the intangible assets (customer relationships and proprietary technology) associated with our ARAM acquisition (now part of INOVA Geophysical) were impaired and recorded impairment charges of \$38.0 million.

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 *Share-Based Payment* (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 2011, 2010 and 2009, we recognized \$6.3 million, \$8.1 million and \$12.7 million, respectively, of stock-based compensation expense related to our employees' outstanding stock-based awards. The total expense in 2011 was comprised of \$1.0 million reflected in cost of sales, \$0.4 million in research, development and engineering expense, \$0.6 million in marketing and sales expense, and \$4.3 million in general and administrative expense. In addition to the stock-based compensation expense related to the Company's plans, we recorded less than \$0.3 million of stock-based compensation expense in 2011 related to employee stock appreciation rights. Pursuant to ASC 718, the stock appreciation rights are considered liability awards and, as such, these amounts are accrued in the liability section of the balance sheet.

The accompanying financial statements for 2009 include approximately \$3.3 million of stock-based compensation expense related to 2008, 2007 and 2006. ASC 718 requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The prior-period stock-based compensation expense relates to adjustments between estimated and actual forfeitures, which should have been recognized over the vesting period of such awards. Such amounts were not deemed material with respect to either the results of prior years or the results and the trend of earnings for 2009 and were therefore recorded in 2009.

### **Recent Accounting Pronouncements**

See Note 1 of *Notes to Consolidated Financial Statements*.



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### **Credit and Sales Risks**

No single customer represented 10% or more of our consolidated net revenues for 2011, 2010 and 2009; however, our top five customers in the aggregate represented approximately 30%, 28% and 29%, respectively of our consolidated net revenues. The loss of any significant customers or deterioration in our relationship with these customers could have a material adverse effect on our results of operations and financial condition.

For 2011, we recognized \$160.2 million of sales to customers in Europe, \$78.8 million of sales to customers in Asia Pacific, \$28.2 million of sales to customers in the Middle East, \$12.2 million of sales to customers in Latin American countries, \$11.4 million of sales to customers in the Commonwealth of Independent States, or former Soviet Union (CIS) and \$7.9 million of sales to customers in Africa. The majority of our foreign sales are denominated in U.S. dollars. For 2011, 2010 and 2009, international sales comprised 66%, 60% and 64%, respectively, of total net revenues. For a number of years, the CIS and certain Latin American countries have experienced economic problems and uncertainties. However, given the global downturn that commenced in 2008, more countries and areas of the world have also experienced economic problems and uncertainties. In addition, the geopolitical turmoil that affected many countries in the Middle East and North Africa during 2011 has resulted in economic downturns in many of these countries. 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 our existing receivables, our future results of operations, liquidity, and financial condition may be adversely affected.

### **Certain Relationships and Related Party Transactions**

For 2011, 2010 and 2009, we recorded revenues from BGP for purchases of products and services of \$34.5 million, \$16.9 million and \$32.2 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 \$15.2 million (approximately \$13.2 million of this receivable was collected in January 2012) and \$3.0 million at December 31, 2011 and 2010, respectively. BGP owned (purchased in March 2010) approximately 15.3% of our outstanding common stock as of December 31, 2011.

We are 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 provide 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 have incurred directly related to the support of INOVA Geophysical. The term of the agreement is for two years and will automatically renew for one-year periods, unless either party provides notice of its intent to terminate the agreement. At December 31, 2011, INOVA Geophysical owed us approximately \$0.9 million that we reflected in the balance of Accounts Receivable, net. The majority of these shared services we provide are reflected as reductions to general and administrative expense. INOVA Geophysical has provided notice of its intent to terminate the agreement and services are expected to end by June 30, 2012.

James M. Lapeyre, Jr. is the Lead Independent Director on our board of directors and the former chairman of 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 6.0% of our outstanding common stock as of December 31, 2011.

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

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sooner upon 12 months' notice. During 2011, we paid Laitram and its affiliates a total of approximately \$6.3 million, which consisted of approximately \$5.4 million for manufacturing services, \$0.7 million for rent and other pass-through third party facilities charges, and \$0.1 million for reimbursement for costs related to providing administrative and other back-office support services in connection with our Louisiana marine operations. For the 2010 and 2009 fiscal years, we paid Laitram and its affiliates a total of approximately \$3.1 million and \$4.0 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, 2011, 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.

### **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, 2011, we had outstanding total indebtedness of approximately \$105.1 million, including capital lease obligations. Of that indebtedness, approximately \$99.3 million accrues interest under rates that fluctuate based upon market rates plus an applicable margin. As of December 31, 2011, the \$99.3 million in term loan indebtedness outstanding under the Credit Facility accrued interest at a LIBOR-based interest rate of 4.1% per annum. The average effective interest rate for the quarter ended December 31, 2011 with respect to the LIBOR-based rates for the term loan indebtedness was 4.9% 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 outstanding term loan facility and any borrowings under the revolving credit facility are subject to variable interest rates, we are subject to interest rate risk. We are therefore vulnerable to changes in three-month LIBOR interest rates. We use a derivative financial instrument (interest rate caps), to manage our exposure to interest rate risks related to the floating rate of our term loan 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. We have entered into two interest rate cap agreements for our term loan facility with an initial notional amount of \$103.3 million and with a LIBOR cap of 2.0%. At December 31, 2011, the three-month LIBOR rate applicable to us was 0.56% thereby making the cap for the term loan facility out-of-the-money. Subject to the cap, as of December 31, 2011, an increase in market rates of interest by 0.125% would have increased our annual interest expense related to the term loan facility by \$0.1 million, and a decrease in market interest rates by 0.125% would have decreased our annual interest expense related to the term loan facility by \$0.1 million.

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**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 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, 2011 reflected approximately \$19.8 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, 2011. 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, 2011.

*(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:

- (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



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- (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, 2011 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, 2011.

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, 2011, 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, 2011, 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, 2011, 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, 2011 and 2010 and the related consolidated statements of operations, cash flows, stockholders’ equity and comprehensive income (loss) for each of the three years in the period ended December 31, 2011 of ION Geophysical Corporation and subsidiaries and our report dated February 24, 2012 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Houston, Texas

February 24, 2012

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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 23, 2012 (the 2012 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 2012 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 2012 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 2012 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 2012 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





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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*

ate 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.  
stated 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.  
nership 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.

nts 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.

mination 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.

mination 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.

ignation 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.

ignations 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.

ndenture, 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.

ote, 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.

ated 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.

ated 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.

mination 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.

stated 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.

rial/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 3.1 to the Company's Current Report on Form 8-K for the year ended December 31, 2005, and incorporated herein by reference.

rial/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 3.1 to the Company's Current Report on Form 8-K for the year ended December 31, 2005, and incorporated herein by reference.

. 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 and incorporated herein by reference.

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**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.
**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.

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**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.
**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.

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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.
*21.1	Subsidiaries of the Company.
*23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm.
*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.
101	The following materials are formatted in Extensible Business Reporting Language (XBRL): (i) Consolidated Balance Sheets at December 31, 2011 and 2010, (ii) Consolidated Statements of Operations for the years ended December 31, 2011, 2010 and 2009, (iii) Consolidated Statements of Cash Flows for the years ended December 31, 2011, 2010 and 2009, (iv) Consolidated Statements of Stockholders' Equity and Comprehensive Income (Loss) for the years ended December 31, 2011, 2010 and 2009, (v) Notes to Consolidated Financial Statements and (vi) 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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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 24, 2012.

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, 2011, 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.

<b>Name</b>	<b>Capacities</b>	<b>Date</b>
/s/ R. BRIAN HANSON R. Brian Hanson	President, Chief Executive Officer and Director  (Principal Executive Officer)	February 24, 2012
/s/ GREGORY J. HEINLEIN Gregory J. Heinlein	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	February 24, 2012
/s/ MICHAEL L. MORRISON Michael L. Morrison	Vice President and Corporate Controller  (Principal Accounting Officer)	February 24, 2012
/s/ ROBERT P. PEEBLER Robert P. Peebler	Executive Chairman of the Board of Directors and Director	February 24, 2012
/s/ JAMES M. LAPEYRE, JR. James M. Lapeyre, Jr.	Lead Independent Director	February 24, 2012
/s/ DAVID H. BARR David H. Barr	Director	February 24, 2012

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/s/ HAO HUIMIN

Director

February 24, 2012

Hao Huimin

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<b>Name</b>	<b>Capacities</b>	<b>Date</b>
/s/ MICHAEL C. JENNINGS Michael C. Jennings	Director	February 24, 2012
/s/ FRANKLIN MYERS Franklin Myers	Director	February 24, 2012
/s/ S. JAMES NELSON, JR. S. James Nelson, Jr.	Director	February 24, 2012
/s/ JOHN N. SEITZ John N. Seitz	Director	February 24, 2012

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**ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES**

**INDEX TO CONSOLIDATED FINANCIAL STATEMENTS**

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<u>Report of Independent Registered Public Accounting Firm</u>	F-2
<u>Consolidated Balance Sheets December 31, 2011 and 2010</u>	F-3
<u>Consolidated Statements of Operations Years ended December 31, 2011, 2010, and 2009</u>	F-4
<u>Consolidated Statements of Cash Flows Years ended December 31, 2011, 2010, and 2009</u>	F-5
<u>Consolidated Statements of Stockholders Equity and Comprehensive Income (Loss) Years ended December 2011, 2010, and 2009</u>	F-6
<u>Notes to Consolidated Financial Statements</u>	F-7
<u>Schedule II Valuation and Qualifying Accounts</u>	S-1
All other schedules are omitted because they are not applicable or the required information is shown in the financial statements or notes thereto.	



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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, 2011 and 2010, and the related consolidated statements of operations, cash flows, stockholders' equity and comprehensive income (loss) for each of the three years in the period ended December 31, 2011. 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, 2011 and 2010, and the consolidated results of their operations and their cash flows for each of the three years in the period ended December 31, 2011, 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, 2011, 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 24, 2012, expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Houston, Texas

February 24, 2012

**Table of Contents****ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES****CONSOLIDATED BALANCE SHEETS**

	December 31, 2011      2010 (In thousands, except share data)	
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 42,402	\$ 84,419
Short-term investments	20,000	
Accounts receivable, net	130,612	77,576
Unbilled receivables	25,628	70,590
Inventories	70,145	66,882
Prepaid expenses and other current assets	13,460	13,165
<b>Total current assets</b>	<b>302,247</b>	<b>312,632</b>
Deferred income tax asset	17,645	16,413
Property, plant and equipment, net	24,771	20,145
Multi-client data library, net	175,768	112,620
Investment in INOVA Geophysical	72,626	95,173
Goodwill	53,963	51,333
Intangible assets, net	17,716	20,317
Other assets	9,322	3,224
<b>Total assets</b>	<b>\$ 674,058</b>	<b>\$ 631,857</b>
<b>LIABILITIES AND STOCKHOLDERS EQUITY</b>		
Current liabilities:		
Current maturities of long-term debt	\$ 5,770	\$ 6,073
Accounts payable	22,296	30,940
Accrued expenses	61,384	67,250
Accrued multi-client data library royalties	15,318	18,667
Deferred revenue	33,802	17,851
<b>Total current liabilities</b>	<b>138,570</b>	<b>140,781</b>
Long-term debt, net of current maturities	99,342	102,587
Other long-term liabilities	7,719	8,042
<b>Total liabilities</b>	<b>245,631</b>	<b>251,410</b>
Redeemable noncontrolling interests	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 155,479,776 and 152,870,679 shares at December 31, 2011 and 2010, respectively, net of treasury stock	1,555	1,529
Additional paid-in capital	843,271	822,399
Accumulated deficit	(423,612)	(448,386)
Accumulated other comprehensive loss	(16,193)	(15,530)
Treasury stock, at cost, 849,539 shares at both December 31, 2011 and 2010	(6,565)	(6,565)
<b>Total stockholders' equity</b>	<b>425,456</b>	<b>380,447</b>
Noncontrolling interests	356	

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Total equity	425,812	380,447
Total liabilities and equity	\$ 674,058	\$ 631,857

See accompanying Notes to Consolidated Financial Statements.

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**Table of Contents****ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES****CONSOLIDATED STATEMENTS OF OPERATIONS**

	Years Ended December 31,		
	2011	2010	2009
	(In thousands, except per share data)		
Product revenues	\$ 189,035	\$ 165,202	\$ 237,664
Service revenues	265,586	279,120	182,117
<b>Total net revenues</b>	<b>454,621</b>	<b>444,322</b>	<b>419,781</b>
Cost of products	103,220	94,658	165,923
Cost of services	177,956	183,931	121,720
<b>Gross profit</b>	<b>173,445</b>	<b>165,733</b>	<b>132,138</b>
<b>Operating expenses:</b>			
Research, development and engineering	24,569	25,227	44,855
Marketing and sales	31,269	30,405	34,945
General and administrative	50,812	57,254	72,510
Impairment of intangible assets			38,044
<b>Total operating expenses</b>	<b>106,650</b>	<b>112,886</b>	<b>190,354</b>
<b>Income (loss) from operations</b>	<b>66,795</b>	<b>52,847</b>	<b>(58,216)</b>
Interest expense, net	(5,784)	(30,770)	(33,950)
Equity in losses of INOVA Geophysical	(22,862)	(23,724)	
Loss on disposition of land division		(38,115)	
Fair value adjustment of warrant		12,788	(29,401)
Gain on legal settlement		24,500	
Impairment of cost method investments	(1,312)	(7,650)	(4,454)
Other income (expense)	(2,135)	228	(4,023)
<b>Income (loss) before income taxes</b>	<b>34,702</b>	<b>(9,896)</b>	<b>(130,044)</b>
Income tax expense (benefit)	10,136	26,942	(19,985)
<b>Net income (loss)</b>	<b>24,566</b>	<b>(36,838)</b>	<b>(110,059)</b>
Net income attributable to noncontrolling interests	208		
<b>Net income (loss) attributable to ION</b>	<b>24,774</b>	<b>(36,838)</b>	<b>(110,059)</b>
Preferred stock dividends	1,352	1,936	3,500
<b>Net income (loss) applicable to common shares</b>	<b>\$ 23,422</b>	<b>\$ (38,774)</b>	<b>\$ (113,559)</b>
<b>Net income (loss) per share:</b>			
Basic	\$ 0.15	\$ (0.27)	\$ (1.03)
Diluted	\$ 0.15	\$ (0.27)	\$ (1.03)
<b>Weighted average number of common shares outstanding:</b>			
Basic	154,811	144,278	110,516
Diluted	156,090	144,278	110,516

See accompanying Notes to Consolidated Financial Statements.



**Table of Contents****ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES****CONSOLIDATED STATEMENTS OF CASH FLOWS**

	Years Ended December 31		
	2011	2010	2009
	(In thousands)		
Cash flows from operating activities:			
Net income (loss)	\$ 24,566	\$ (36,838)	\$ (110,059)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization (other than multi-client library)	13,917	24,795	47,911
Amortization of multi-client data library	77,317	85,940	48,449
Stock-based compensation expense related to stock options, nonvested stock, and employee stock purchases	6,344	8,147	12,671
Bad debt expense	597	1,689	3,528
Equity in losses of INOVA Geophysical	22,862	23,724	
Amortization of debt discount		8,656	6,732
Write-off of unamortized debt issuance costs		10,121	
Fair value adjustment of warrant		(12,788)	29,401
Loss on disposition of land division		38,115	
Impairment of intangible assets			38,044
Impairment of cost method investments.	1,312	7,650	4,454
Deferred income taxes	(8,131)	22,207	(38,150)
Excess tax benefit from stock-based compensation	(3,294)		
Change in operating assets and liabilities:			
Accounts receivable	(53,552)	7,826	41,936
Unbilled receivables	44,962	(48,935)	14,817
Inventories	(6,641)	(16,138)	18,582
Accounts payable, accrued expenses and accrued royalties	(7,546)	9,550	(72,140)
Deferred revenue	15,957	7,281	(4,188)
Other assets and liabilities	1,314	(7,634)	9,998
Net cash provided by operating activities	129,984	133,368	51,986
Cash flows from investing activities:			
Purchase of property, plant and equipment	(11,060)	(7,372)	(2,966)
Investment in multi-client data library	(143,782)	(64,426)	(89,635)
Purchase of short-term investments	(80,000)		
Proceeds from sale of short-term investments	60,000		
Investment in a convertible note	(6,500)		
Business acquisition, net of cash acquired	(330)		
Proceeds from disposition of land division, net of fees paid		99,790	
Other investing activities	50	(500)	963
Net cash provided by (used in) investing activities	(181,622)	27,492	(91,638)
Cash flows from financing activities:			
Borrowings under revolving line of credit		104,000	77,000
Repayments under revolving line of credit		(193,429)	(25,000)
Net proceeds from issuance of debt		105,695	19,218
Net proceeds from issuance of stock		38,039	38,220
Payments on notes payable and long-term debt	(6,145)	(145,558)	(81,517)
Costs associated with debt amendments			(4,630)
Payment of preferred dividends	(1,352)	(1,936)	(3,500)
Proceeds from employee stock purchases and exercise of stock options	13,105	1,071	283
Excess tax benefit from stock-based compensation	3,294		
Contribution from noncontrolling interests	961		
Restricted stock cancelled for employee minimum income taxes	(59)	(612)	(345)
Net cash provided by (used in) financing activities	9,804	(92,730)	19,729

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Effect of change in foreign currency exchange rates on cash and cash equivalents	(183)	72	968
Net increase (decrease) in cash and cash equivalents	(42,017)	68,202	(18,955)
Cash and cash equivalents at beginning of period	84,419	16,217	35,172
Cash and cash equivalents at end of period	\$ 42,402	\$ 84,419	\$ 16,217

See accompanying Notes to Consolidated Financial Statements.

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

	Cumulative Convertible Preferred Stock		Common Stock		Additional Paid - In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income		Treasury Stock	Noncontrolling Interests	Total Stockholders Equity
	Shares	Amount	Shares	Amount			(Loss)				
Balance at January 1, 2009	70,000	\$ 68,786	99,621,926	\$ 996	\$ 619,198	\$ (301,489)	\$ (55,859)	\$ (6,562)	\$	\$ 325,070	
Comprehensive income (loss):											
Net loss						(110,059)				(110,059)	
Translation adjustment							19,539			19,539	
<b>Total comprehensive loss</b>										(90,520)	
Preferred stock dividends					(3,500)					(3,500)	
Stock-based compensation expense					12,671					12,671	
Purchase of treasury stock			(1,117)					(3)		(3)	
Issuance of stock			18,500,000	185	38,035					38,220	
Exercise of stock options			9,837		21					21	
Vesting of restricted stock units/awards			528,284	5	(5)						
Restricted stock cancelled for employee minimum income taxes			(79,878)		(99)					(99)	
Issuance of stock for the ESPP			109,650	1	263					264	
Tax benefits from stock-based compensation					344					344	
<b>Balance at December 31, 2009</b>	<b>70,000</b>	<b>68,786</b>	<b>118,688,702</b>	<b>1,187</b>	<b>666,928</b>	<b>(411,548)</b>	<b>(36,320)</b>	<b>(6,565)</b>		<b>282,468</b>	
Comprehensive income (loss):											
Net loss						(36,838)				(36,838)	
Translation adjustment							(266)			(266)	
Change in fair value of effective cash flow hedges (net of taxes)							(60)			(60)	
Equity interest in INOVA Geophysical's other comprehensive income							(103)			(103)	
<b>Total comprehensive loss</b>										(37,267)	
Accumulated translation adjustments recognized through earnings upon disposition of land division							21,219			21,219	
Preferred stock dividends					(1,936)					(1,936)	
Stock-based compensation expense					8,147					8,147	
Modification of stock awards (disposed of land division)					1,713					1,713	



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Issuance of stock to BGP			23,789,536	238	105,406					105,644
Exercise of stock options			323,610	3	1,068					1,071
Vesting of restricted stock units/awards			486,168	5	(5)					
Restricted stock cancelled for employee minimum income taxes			(76,568)	(1)	(611)					(612)
Conversion of cumulative convertible preferred stock	(43,000)	(41,786)	9,659,231	97	41,689					
Balance at December 31, 2010	27,000	27,000	152,870,679	1,529	822,399	(448,386)	(15,530)	(6,565)		380,447
Comprehensive income (loss):										
Net income (a)						24,774		(123)		24,651
Translation adjustment (ION)						(60)				(60)
Translation adjustment (noncontrolling interests)							32			32
Change in fair value of effective cash flow hedges (net of taxes)							(220)			(220)
Equity interest in INOVA Geophysical's other comprehensive income								315		315
Unrealized net income (loss) on available-for-sale securities								(730)		(730)
Total comprehensive income										23,988
Preferred stock dividends						(1,352)				(1,352)
Stock-based compensation expense										6,344
Exercise of stock options			2,145,792	21	13,084					13,105
Vesting of restricted stock units/awards			449,231	5	(5)					
Restricted stock cancelled for employee minimum income taxes			(93,488)	(1)	(682)					(683)
Issuance of stock for the ESPP			107,562	1	623					624
Tax benefits from stock-based compensation								2,860		2,860
Translation adjustment (noncontrolling interests)								(32)		(32)
Contribution from noncontrolling interests									511	511
Balance at December 31, 2011	27,000	\$ 27,000	155,479,776	\$ 1,555	\$ 843,271	\$ (423,612)	\$ (16,193)	\$ (6,565)	\$ 356	\$ 425,812

(a) Net income attributable to noncontrolling interests for 2011 excludes \$(0.1) million related to the redeemable noncontrolling interests, which is reported in the mezzanine equity section of the Consolidated Balance Sheet at December 31, 2011.

See accompanying Notes to Consolidated Financial Statements.

**Table of Contents****ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS****(1) Summary of Significant Accounting Policies*****General Description and Principles of Consolidation***

ION Geophysical Corporation and its subsidiaries offer a full suite of related products and services for seismic data acquisition and processing. The consolidated financial statements include the accounts of ION Geophysical Corporation and its majority-owned subsidiaries (collectively referred to as the Company or ION). Inter-company balances and transactions have been eliminated. Certain reclassifications were made to previously reported amounts in the consolidated financial statements and notes thereto to make them consistent with the current presentation format.

***Use of Estimates***

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant estimates are made at discrete points in time based on relevant market information. These estimates may be subjective in nature and involve uncertainties and matters of judgment and, therefore, cannot be determined with precision. Areas involving significant estimates include, but are not limited to, accounts and unbilled receivables, inventory valuation, sales forecasts related to multi-client data libraries, goodwill and intangible asset valuation and deferred taxes. Actual results could materially differ from those estimates.

***Cash and Cash Equivalents***

The Company considers all highly liquid investments with an original maturity of three months or less to be cash equivalents. At December 31, 2011 and 2010, there was \$3.3 million and \$2.5 million, respectively, of short-term restricted cash used to secure standby and commercial letters of credit, which is included within Other Current Assets.

***Accounts and Unbilled Receivables***

Accounts and unbilled receivables are recorded at cost, less the related allowance for doubtful accounts. The Company considers current information and events regarding the customers' ability to repay their obligations, such as the length of time the receivable balance is outstanding, the customers' credit worthiness and historical experience. Unbilled receivables relate to revenues recognized on multi-client surveys and imaging services on a proportionate basis and on licensing of multi-client data libraries for which invoices have not yet been presented to the customer.

***Inventories***

Inventories are stated at the lower of cost (primarily first-in, first-out method) or market. The Company provides reserves for estimated obsolescence or excess inventory equal to the difference between cost of inventory and its estimated market value based upon assumptions about future demand for the Company's products and market conditions.

***Property, Plant and Equipment***

Property, plant and equipment are stated at cost. Depreciation expense is provided straight-line over the following estimated useful lives:

	<b>Years</b>
Machinery and equipment	3-7
Buildings	5-25
Rental equipment	5
Leased equipment and other	1-10



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Expenditures for renewals and betterments are capitalized; repairs and maintenance are charged to expense as incurred. The cost and accumulated depreciation of assets sold or otherwise disposed of are removed from the accounts and any gain or loss is reflected in operating expenses.

The Company evaluates the recoverability of long-lived assets, including property, plant and equipment, when indicators of impairment exist, relying on a number of factors including operating results, business plans, economic projections, and anticipated future cash flows. Impairment in the carrying value of an asset held for use is recognized whenever anticipated future cash flows (undiscounted) from an asset are estimated to be less than its carrying value. The amount of the impairment recognized is the difference between the carrying value of the asset and its fair value. There were no significant impairment charges with respect to the Company's property, plant and equipment during 2011, 2010 and 2009.

**Multi-Client Data Library**

The multi-client data library consists of seismic surveys that are offered for licensing to customers on a non-exclusive basis. The capitalized costs include 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 2011, 2010, and 2009, the Company capitalized, as part of its multi-client data library, \$2.4 million, \$2.8 million, and \$3.8 million, respectively, of direct internal processing costs. At December 31, 2011 and 2010, multi-client data library costs and accumulated amortization consisted of the following (in thousands):

	December 31,	
	2011	2010
Gross costs of multi-client data creation	\$ 545,836	\$ 405,371
Less accumulated amortization	(370,068)	(292,751)
<b>Total</b>	<b>\$ 175,768</b>	<b>\$ 112,620</b>

The Company's method of amortizing the costs of an in-process multi-client data library (the period during which the seismic data is being acquired and/or processed) is the percentage of actual revenue recognized to the total estimated revenue (or ultimate revenue) multiplied by the total cost of the project (the sales forecast method). Once a multi-client data library is complete, the survey data is considered "on-the-shelf" and the Company's 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 of the sales forecast method or the straight-line amortization policy is applied on a cumulative basis at the individual survey level. Under this policy, the Company first records amortization using the sales forecast method. The cumulative amortization recorded for each survey is then compared with the cumulative straight-line amortization. If the cumulative straight-line amortization is higher for any specific survey, additional amortization expense is recorded, resulting in accumulated amortization being equal to the cumulative straight-line amortization for such survey.

The Company estimates 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 the Company at the project's initiation. For a completed multi-client survey, the Company reviews the estimate quarterly. If during any such review, the Company determines that the ultimate revenue for a survey is expected to be materially more or less than the original estimate of ultimate revenue for such survey, the Company decreases or increases (as the case may be) the amortization rate attributable to the future revenue from such survey. In addition, in connection with such reviews, the Company evaluates the recoverability of the multi-client data library, and, if required under Accounting Standards Codification (ASC) 360 *Accounting for the Impairment and Disposal of Long-Lived Assets* (ASC 360), records an impairment charge with respect to such data. There were no impairment charges associated with the Company's multi-client data library during 2011, 2010 and 2009.

**Investments**

**Short-term Investments.** Short-term investments are comprised solely of bank certificates of deposit denominated in U.S. dollars with original maturities in excess of three months and represent the investment of



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excess cash that is available for current operations. The Company recorded these investments on its balance sheet at cost based on its intent and ability to hold these investments to maturity, which is scheduled to occur through January 2012.

*Long-term Investments.* The Company purchased a convertible note from a privately-owned U.S.-based technology company in May 2011. The Company classifies this investment as available-for-sale and has recorded the fair value of this investment as a noncurrent asset included in other assets on its consolidated balance sheet with unrealized gains and losses reflected in accumulated other comprehensive income until realized. The Company acquired an investment in the common stock of Reservoir Exploration Technology, ASA ( RXT ) in April 2010. The Company accounts for its shares in RXT as available-for-sale and measures the fair value of this investment using quoted market prices. See further discussion regarding the Company's long-term investments at Note 9 *Long-term Investments*.

***Equity Method Investments***

The Company uses the equity method of accounting for investments in entities in which the Company has an ownership interest between 20% and 50% and exercises significant influence. Under this method, an investment is carried at the acquisition cost, plus the Company's equity in undistributed earnings or losses since acquisition, less distributions received. As provided by ASC 815 *Investments*, the Company accounts for its share of earnings in INOVA Geophysical on a one fiscal quarter lag basis. See further discussion regarding the Company's equity method investment in INOVA Geophysical at Note 2 *Equity Method Investment in INOVA Geophysical*.

***Noncontrolling Interests***

The Company has both redeemable and non-redeemable noncontrolling interests. Non-redeemable noncontrolling interests in majority-owned affiliates is reported as a separate component of equity in *Noncontrolling interests* in the Consolidated Balance Sheets. Redeemable noncontrolling interests includes noncontrolling ownership interests which the holders have the rights, at certain times, to require the Company to acquire their ownership interest in those entities. These interests are not considered to be permanent equity and are reported in the mezzanine section of the Consolidated Balance Sheets at the greater of their carrying value or redemption value at the balance sheet date. Net income (loss) in the Consolidated Statements of Operations is attributable to both controlling and noncontrolling interests.

***Derivative Instruments (Interest Rate Caps)***

The Company's objective in using derivative instruments is to add stability to its interest expense and to manage its exposure to interest rate movements or other identified risks. To accomplish this objective, the Company is using interest rate caps, designated as cash flow hedges, which involve the receipt of fixed-rate payments in exchange for variable-rate amounts over the life of the agreement.

The Company records all derivatives on the balance sheet at fair value. Derivatives used to hedge the exposure to variability in expected future cash flows, or other types of forecasted transactions, are considered cash flow hedges. For derivatives designated as cash flow hedges (such as interest rate caps), the effective portion of changes in the fair value of the derivative is initially reported in other comprehensive income (outside of earnings) and subsequently reclassified to earnings when the hedged transaction affects earnings, and the ineffective portion of changes in the fair value of the derivative is recognized directly in earnings.

The Company assesses the effectiveness of each hedging relationship under the hypothetical derivative method, which means that the Company compares the cumulative change in fair value of the actual cap to the cumulative change in fair value of a hypothetical cap having terms that exactly match the critical terms of the hedged transaction. For derivatives that do not qualify for hedge accounting or when hedge accounting is discontinued, the changes in fair value of the derivative instrument are recognized directly in earnings. See further discussion at Note 13 *Long-term Debt, Lease Obligations and Interest Rate Caps*.

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Additionally, in 2009, 2010 and 2011, the Company periodically entered into economic cash flow and fair value hedges designed to minimize the risks associated with exchange rate fluctuations. The impact to the financial statements is insignificant for all periods with any gains and losses included in the income statement.

**Goodwill and Other Intangible Assets**

Goodwill is allocated to reporting units, which are 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) the Company established the following reporting units: Marine Systems, Sensor Geophone, Software, and Solutions. To determine the fair value of these reporting units, the Company uses a discounted future returns valuation model, which includes a variety of level three inputs. The key inputs for the model included the operational five-year forecast for the Company and the then-current market discount factor.

In accordance with ASC 350, the Company is required to evaluate the carrying value of its goodwill at least annually for impairment, or more frequently if facts and circumstances indicate that it is more likely than not impairment has occurred. The Company formally evaluates the carrying value of its goodwill for impairment as of December 31 for each of its reporting units. 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. See further discussion below at Note 10 *Goodwill*.

The intangible assets other than goodwill relate to proprietary technology, patents, customer relationships and trade names that are amortized over the estimated periods of benefit (ranging from 4 to 20 years). Following the guidance of ASC 360, the Company reviews the carrying values of these intangible assets for impairment if events or changes in the facts and circumstances indicate that 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. See further discussion, including the impairment of intangible assets in 2009, below at Note 11 *Intangible Assets*.

Intangible assets amortized on a straight-line basis are:

	Estimated Useful Life (Years)
Proprietary technology	4-7
Patents	5-20
Trade names	5
Intellectual property rights	5

The Company amortizes its 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. The Company uses 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.

**Financial Instruments**

The Company's financial instruments include cash and cash equivalents, short-term bank certificates of deposit, accounts and unbilled receivables, accounts payable, accrued multi-client data library royalties, an investment in a convertible note, an investment in RXT common stock, interest rate caps and long-term debt. The carrying amount of cash and cash equivalents, short-term bank certificates of deposit, accounts and unbilled receivables, accounts payable and accrued multi-client data library royalties approximates fair value due to the highly liquid nature of these instruments. The carrying value of the Company's long-term debt as of





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December 31, 2011 and 2010 was \$105.1 million and \$108.7 million, respectively, compared to fair value of \$106.5 million and \$103.2 million, respectively.

The following table provides additional information related to assets and liabilities measured at fair value on a recurring basis at December 31, 2011 and 2010. The reference to level within the table relates to the level of inputs used to determine fair value, which the key inputs are then described below. The table (in thousands) is as follows:

	Level 1	Level 2	Level 3
<b>2011:</b>			
Investment in a convertible note	\$	\$	\$ 5,770
Investment in RXT common stock	556		
Interest rate caps		91	
<b>2010:</b>			
Investment in RXT common stock	1,868		
Interest rate caps		286	

The Company performed a fair value analysis on its investment in a convertible note based upon Level 3 inputs, including the investee's expectations of the terms and likelihood of a future financing event, time to liquidity, and stock price volatility. The Company performed a fair value analysis of its investment in RXT based upon Level 1 inputs, utilizing quoted prices from active markets. For further information, see Note 9 *Long-term Investments*.

The Company performed a valuation of its interest rate caps based on Level 2 inputs, such as interest rates and yield curves that are observable at commonly quoted intervals.

**Revenue Recognition**

The Company derives revenue from the sale of (i) acquisition systems and other seismic equipment within its Systems segment; (ii) multi-client surveys, licenses of on-the-shelf data libraries and imaging services within its Solutions segment; and (iii) navigation, survey and quality control software systems within its Software segment. All revenues of the Solutions segment and the services component of revenues for the Software segment are classified as services revenues. All other revenues are classified as product revenues.

*Acquisition Systems and Other Seismic Equipment* For the sales of acquisition systems and other seismic equipment, the Company follows the requirements of ASC 605-10 *Revenue Recognition* and recognizes 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.

*Multi-Client Surveys, Data Libraries and Imaging Services* Revenues from multi-client surveys are recognized as the seismic data is acquired and/or processed on a proportionate basis as work is performed. Under this method, the Company recognizes revenues based upon quantifiable measures of progress, such as kilometers acquired or days processed. Upon completion of a multi-client seismic survey, the survey data is considered on-the-shelf, and licenses to the survey data are sold to customers on a non-exclusive basis. The license of a completed multi-client survey is represented by the license of one standard set of data. 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; (d) and no significant uncertainty exists as to the customer's obligation, willingness or ability to pay. In limited situations, the Company has provided the customer with a right to exchange seismic data for another specific seismic data set. In these limited situations, the Company recognizes revenue at the earlier of the customer exercising its exchange right or the expiration of the customer's exchange right.

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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.

*Software* For the sales of navigation, survey and quality control software systems, the Company follows the requirements of ASC 985-605 *Software Revenue Recognition*. The Company recognizes 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 the Company providing related services, such as training courses, engineering services and annual software maintenance. The Company allocates 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, the Company applies the residual method.

In addition to perpetual software licenses, the Company offers certain time-based software licenses. For time-based licenses, the Company recognizes 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, the Company follows the requirements of ASC 605-25 *Accounting for Multiple-Element Revenue Arrangement* (ASC 605-25). The multiple element arrangements guidance codified in ASC 605-25 was modified as a result of the final consensus reached in Accounting Standards Update ( ASU ) 2009-13, *Revenue Arrangements with Multiple Deliverables*. The Company adopted this new guidance as of January 1, 2010. Accordingly, the Company applied this guidance to transactions initiated or materially modified on or after January 1, 2010. The new guidance does not apply to software sales accounted for under ASC 985-605. There was not a material impact of adopting this guidance to the Company's results for the year ended December 31, 2010.

This guidance eliminated the residual method of allocation for multiple-deliverable revenue arrangements and requires that arrangement consideration be allocated at the inception of an arrangement to all deliverables using the relative selling price method. The Company allocates arrangement consideration to each deliverable qualifying as a separate unit of accounting in an arrangement based on its relative selling price. The Company determines its selling price using VSOE, if it exists, or otherwise third-party evidence ( TPE ). If neither VSOE nor TPE of selling price exists for a unit of accounting, the Company uses estimated selling price ( ESP ). The Company generally expects that it will not be able to establish TPE due to the nature of the markets in which the Company competes, and, as such, the Company typically will determine its 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 the Company can determine VSOE for the product.

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

The Company believes this guidance principally impacts its Systems segment. A typical arrangement within the Systems segment might involve the sale of various products of the Company's 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, the Company considers its products to be separate units of accounting provided the delivered product has value to the customer on a standalone basis. The Company considers a deliverable to have standalone value if the product is sold separately by the Company or another vendor or could be resold by the customer. Further, the Company's revenue arrangements generally do not include a general right of return relative to the delivered products.

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In July 2010, the Company contracted with BGP, Inc., China National Petroleum Corporation ( BGP ) for the sale of a twelve-streamer DigiSTREAMER system. BGP deployed the system into its commercial operations during the fourth quarter of 2011. The contract included customer-specified acceptance criteria, which the Company met and BGP accepted in the fourth quarter of 2011. The contract contained multiple deliverables, of which the streamer system, related system components and certain services were delivered or performed in 2011, and additional streamers and certain services are expected to be delivered or performed during 2012. The Company determined that the deliverables in this transaction had value to BGP on a standalone basis and allocated the arrangement consideration to each separate deliverable based on its relative selling price using ESP. In the fourth quarter of 2011, the Company had recognized the majority of the revenues related to this sale. See further discussion of related party revenues at Note 23 *Certain Relationships and Related Party Transactions*.

In addition, pursuant to the transitional requirements of the new multiple element revenue guidance, the Company adopted the guidance codified by ASU 2009-14, *Certain Arrangements That Include Software Elements*, as of January 1, 2010. This guidance amended the accounting model for revenue arrangements that includes both tangible products and software elements, such that tangible products containing both software and non-software components that function together to deliver the tangible product's essential functionality are no longer within the scope of software revenue guidance. There was not a material impact to the Company's financial statements of adopting this guidance.

*Product Warranty* The Company generally warrants that its manufactured equipment will be free from defects in workmanship, materials and parts. Warranty periods generally range from 30 days to three years from the date of original purchase, depending on the product. The Company provides for estimated warranty as a charge to costs of sales at the time of sale. However, new information may become available, or circumstances (such as applicable laws and regulations) may change, thereby resulting in an increase or decrease in the amount required to be accrued for such matters (and therefore a decrease or increase in reported net income in the period of such change). In limited cases, the Company has provided indemnification of customers for intellectual property infringement claims.

***Research, Development and Engineering***

Research, development and engineering costs primarily relate to activities that are designed to improve the quality of the subsurface image and overall acquisition economics of the Company's customers. The costs associated with these activities are expensed as incurred. These costs include prototype material and field testing expenses, along with the related salaries and stock-based compensation, facility costs, consulting fees, tools and equipment usage, and other miscellaneous expenses associated with these activities.

***Income Taxes***

Income taxes are accounted for under the liability method. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases, including operating loss and tax credit carry-forwards. Deferred income tax assets and liabilities are measured using enacted tax rates expected to apply in the years in which those temporary differences are expected to be recovered or settled. The Company records a valuation allowance for a significant portion of U.S. deferred tax assets and will continue to reserve for a significant portion of U.S. deferred tax assets until there is sufficient evidence to warrant reversal (see Note 16 *Income Taxes*). The effect on deferred income tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date.

***Comprehensive Net Income (Loss)***

Comprehensive net income (loss) as shown in the Consolidated Statements of Stockholders' Equity and Comprehensive Income (Loss) and the balance in Accumulated Other Comprehensive Income (Loss) as shown in the Consolidated Balance Sheets as of December 31, 2011 and 2010, consist of foreign currency translation adjustments, changes in fair value of cash flow hedges, equity interest in INOVA Geophysical's accumulated other comprehensive income and unrealized gains or losses on available-for-sale securities.

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**Table of Contents*****Foreign Currency Gains and Losses***

Assets and liabilities of the Company's subsidiaries operating outside the United States that account in a functional currency other than the U.S. dollar have been translated to U.S. dollars using the exchange rate in effect at the balance sheet date. Results of foreign operations have been translated using the average exchange rate during the periods of operation. Resulting translation adjustments have been recorded as a component of Accumulated Other Comprehensive Income (Loss). Foreign currency transaction gains and losses are included in the Consolidated Statements of Operations in other income (expense) as they occur. Total foreign currency transaction gains (losses) were \$(1.7) million, \$1.1 million and \$(3.8) million for 2011, 2010 and 2009, respectively.

***Concentration of Major Customers and Credit and Foreign Sales Risk***

No single customer represented 10% or more of the Company's consolidated net revenues for 2011, 2010 and 2009; however, the Company's top five customers in the aggregate represented approximately 30%, 28% and 29%, respectively, of the Company's consolidated net revenues. The loss of any significant customers or deterioration in the Company's relationship with these customers could have a material adverse effect on the Company's results of operations and financial condition.

The majority of the Company's foreign sales are denominated in U.S. dollars. For 2011, 2010 and 2009, international sales comprised 66%, 60% and 64%, respectively, of total net revenues. For a number of years, the CIS and certain Latin American countries have experienced economic problems and uncertainties. However, given the global downturn that commenced in 2008, more countries and areas of the world have also experienced economic problems and uncertainties. In addition, the geopolitical turmoil that affected many countries in the Middle East and North Africa during 2011 has resulted in economic downturns in many of these countries. To the extent that world events or economic conditions negatively affect the Company's future sales to customers in these and other regions of the world or the collectability of the Company's existing receivables, the Company's future results of operations, liquidity, and financial condition would be adversely affected.

***Stock-Based Compensation***

The Company accounts for stock-based compensation under the provisions of ASC 718, *Share-Based Payment* (ASC 718). The Company estimates 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 the Company's stock price as well as assumptions regarding a number of subjective variables. These variables include, but are not limited to, 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. The Company recognizes stock-based compensation on the straight-line basis over the service period of each award (generally the award's vesting period).

The Consolidated Statement of Operations for 2009 included approximately \$3.3 million of stock-based compensation expense related to prior years. ASC 718 requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The prior-period stock-based compensation expense relates to adjustments between estimated and actual forfeitures that should have been recognized over the vesting period of such awards. Such amounts were not deemed material with respect to either the results of prior years or the results and the trend of earnings for 2009 and were therefore recorded in 2009.

***Recent Accounting Pronouncements***

In September 2011, the Financial Accounting Standards Board ( FASB ) issued revised guidance on testing goodwill for impairment. Under the revised guidance, entities testing goodwill for impairment have the option of performing a qualitative assessment before calculating the fair value of the reporting unit. If the entity determines, based on qualitative factors, that the fair value of the reporting unit is more likely than not less than the carrying amount, the two-step impairment test would be required. The guidance does not change how goodwill is calculated or assigned to reporting units, nor does it revise the requirements to test goodwill annually

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for impairment. In addition, the guidance does not amend the requirement to test goodwill for impairment between annual tests if events or circumstances warrant; however, it does revise the examples of events and circumstances that an entity should consider. The guidance is effective for annual and interim goodwill impairment tests performed for annual periods beginning after December 15, 2011. Early adoption of the guidance is permitted. The Company does not anticipate the adoption of this revised guidance will have a material impact on its financial position, results of operations or cash flow.

In June 2011, the FASB issued revised guidance on the presentation of other comprehensive income that will be effective for the Company beginning in 2012. This guidance eliminates the option to present the components of other comprehensive income as part of the statement of shareholders' equity and also requires presentation of reclassification adjustments from other comprehensive income to net income on the face of the financial statements. In December 2011, the FASB issued additional guidance that defers the requirement that companies present reclassification adjustments for each component of accumulated other comprehensive income in both net income and other comprehensive income on the face of the financial statements. The implementation of this guidance in 2012 will change the presentation of the Company's financial statements, but will not have any impact on the Company's financial position, results of operations or cash flows.

**(2) Equity Method Investment in INOVA Geophysical**

On March 25, 2010, the Company completed the disposition of most of its land seismic equipment businesses in connection with its formation of a land equipment joint venture with BGP. BGP is a subsidiary of China National Petroleum Corporation (CNPC) and is a leading global geophysical services contracting company. The resulting joint venture company, organized under the laws of the People's Republic of China, was named INOVA Geophysical Equipment Limited (INOVA Geophysical). BGP owns a 51% interest in INOVA Geophysical, and the Company owns a 49% interest. INOVA Geophysical is managed through a Board of Directors consisting of four members appointed by BGP and three members appointed by the Company. The results of operations and financial condition of the Company as of and for the twelve months ended December 31, 2010 have been materially affected by this disposition, which affects the comparability of certain of the financial information contained in these Consolidated Financial Statements. The Company accounts for its 49% interest in INOVA Geophysical as an equity method investment. The Company accounts for its share of earnings in INOVA Geophysical on a one fiscal quarter lag basis. Thus, the Company's share of INOVA Geophysical's results for the period from March 26, 2010 through September 30, 2010, are included in the Company's financial results for the year ended December 31, 2010 and the Company's share of INOVA Geophysical's results for the period from October 1, 2010 through September 30, 2011, are included in the Company's financial results for the year ended December 31, 2011.

The following table reflects summarized financial information for INOVA Geophysical as of September 30, 2011 and 2010 and for the periods from October 1, 2010 through September 30, 2011 and March 26, 2010 through September 30, 2010 (in thousands):

	2011	September 30, 2010
Current assets	\$ 104,291	\$ 132,438
Non-current assets	108,039	124,665
Current liabilities	38,849	35,231
Non-current liabilities	25,701	28,869
Equity	\$ 147,780	\$ 193,003

	October 1, 2010 through September 30, 2011	March 26, 2010 through September 30, 2010
Total net revenues	\$ 138,735	\$ 47,609
Gross profit (loss)	\$ 5,765(A)	\$ (21,574)(B)
Loss from operations	\$ (41,836)	\$ (45,423)
Net loss	\$ (46,033)	\$ (48,416)



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(A) Includes approximately \$15.7 million of excess inventory charge reflected in INOVA's third quarter of 2011 and ION's fourth quarter of 2011.

(B) Includes approximately \$19.3 million of excess inventory charge reflected in INOVA's third quarter of 2010 and ION's fourth quarter of 2010.

The difference between the amount of the Company's share in INOVA Geophysical's net loss for the period of October 1, 2010 through September 30, 2011 and the Equity in losses of INOVA Geophysical reflected on the Consolidated Statement of Operations for the year ended December 31, 2011 is primarily due to transactions between the Company's multi-client data library business and INOVA Geophysical, specifically the Company's rental of land seismic equipment to acquire seismic data for its new venture projects. The Company initially defers its 49% of the net income related to these intercompany sales, which will then be recognized over time in proportion to the amortization expense of the associated data library.

**(3) Formation of INOVA Geophysical and Related Financing Transactions**

On March 25, 2010, the Company completed the transactions contemplated under two definitive agreements relating to its proposed joint venture and related transactions with BGP:

A Stock Purchase Agreement with BGP dated as of March 19, 2010 (the Stock Purchase Agreement), under which ION agreed to sell 23,789,536 shares of ION's common stock to BGP; and

A Share Purchase Agreement with BGP dated as of March 24, 2010 (the Share Purchase Agreement), under which ION agreed to sell to BGP a 51% equity interest in INOVA Geophysical, thereby forming the joint venture with BGP.

The transactions under the Stock Purchase Agreement and the Share Purchase Agreement had been contemplated under the terms of a binding Term Sheet (the Term Sheet) dated as of October 23, 2009 between ION and BGP.

***Proceeds from the Sales of ION Common Stock and Equity Interests in INOVA Geophysical***

As provided in the Stock Purchase Agreement, on March 25, 2010, ION issued to BGP 23,789,536 shares of ION's common stock in a privately-negotiated transaction at an effective purchase price of \$2.80 per share. The \$2.80 price per share had been agreed to by the parties in the Term Sheet.

The 23,789,536 shares of ION common stock issued by ION to BGP consisted of (i) 10,204,082 shares acquired upon BGP's conversion of the approximately \$28.6 million principal balance of indebtedness outstanding under a Convertible Promissory Note dated as of October 23, 2009 made by the Company under its then-current credit facility (the Domestic Convertible Note) to the order of Bank of China, New York Branch (Bank of China) and (ii) 13,585,454 shares that BGP purchased for \$2.80 cash per share under the Stock Purchase Agreement, resulting in total gross cash proceeds to ION from this sale of approximately \$38.0 million.

The Domestic Convertible Note, along with a Convertible Promissory Note made by the Company's subsidiary, ION International S.à r.l., to the order of Bank of China on October 23, 2009 under its then-current credit facility (the Foreign Convertible Note) and together with the Domestic Convertible Note, the Convertible Notes) had been held by Bank of China in connection with bridge loan financing provided to ION by Bank of China in October 2009. On March 19, 2010, Bank of China assigned the Convertible Notes to BGP. On March 24, 2010, BGP delivered a notice to ION of its election to convert the entire outstanding principal amount under the Domestic Convertible Note into 10,204,082 shares of ION's common stock at the \$2.80 per share conversion price, simultaneously with and conditioned upon the closing of the transactions under the Stock Purchase Agreement. BGP did not convert any of the outstanding amount under the Foreign Convertible Note. The total outstanding indebtedness owed by the Company under the Foreign Convertible Note, and all unpaid interest and fees on the Domestic Convertible Note, were repaid by the Company, along with the other revolving credit loans under the Company's existing bank credit facility, using amounts borrowed under the Company's new Credit Facility and the \$38.0 million proceeds from the sale of 13,585,454 shares of ION common stock to BGP.





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In October 2009, ION issued to BGP a warrant (the Warrant) to purchase shares of ION common stock. BGP elected not to exercise the Warrant and, on March 25, 2010, BGP terminated the Warrant and surrendered it to ION. After giving effect to the issuance of the total 23,789,536 shares of common stock of ION, BGP beneficially owned as of March 25, 2010, approximately 16.6% of the outstanding shares of ION common stock.

As part of the re-financing of the Company's debt, the Company, contemporaneously with the formation of INOVA Geophysical, entered into a new credit facility, which provided the Company with approximately \$106.3 million under a new five-year term loan and approximately \$100.0 million under a new revolving line of credit (the Credit Facility). In connection with the approximately \$38.0 million in cash received from BGP for BGP's purchase of 13,585,454 shares of ION common stock, the Company borrowed approximately \$191.3 million in new borrowings under the new Credit Facility, consisting of approximately \$106.3 million under a new five-year term loan and approximately \$85.0 million under a new revolving line of credit. These funds, along with certain cash on hand, were applied to repay a total of approximately \$226.0 million in indebtedness, including (i) approximately \$89.4 million in outstanding revolving indebtedness under ION's prior bank senior credit facility, (ii) approximately \$101.6 million in outstanding indebtedness under a five-year term loan under ION's prior bank senior credit facility and (iii) approximately \$35.0 million of outstanding indebtedness under an amended and restated subordinated promissory note dated December 30, 2008 that had been payable to one of the selling shareholders in connection with ION's acquisition of ARAM Systems Ltd. in 2008.

ION then applied a portion of the \$108.5 million in cash proceeds (\$99.8 million, net of transaction and professional fees and cash balances, which were part of the disposed land divisions contributed to INOVA Geophysical) it received for BGP's purchase of the 51% equity interest in INOVA Geophysical (see *Formation of ION Geophysical* below) to repay the \$85.0 million of revolving loans that ION had borrowed to pay off the revolving indebtedness under ION's prior bank senior credit facility.

In connection with the Stock Purchase Agreement transactions, the Company entered into an Investor Rights Agreement with BGP that provides that, among other items:

for so long as BGP owns as least 10% of the Company's outstanding shares of common stock, BGP will have the right to nominate one director to serve on the Board of Directors;

subject to customary exceptions, BGP will have certain pre-emptive rights to subscribe for a number of shares of the Company's common stock or other securities that the Company is then offering as may be necessary to retain BGP's proportionate ownership of common stock that exists before that issuance; and

BGP will have certain demand and piggyback registration rights with respect to resales of its shares.

### ***Formation of INOVA Geophysical***

On March 25, 2010, ION and BGP formed the INOVA Geophysical joint venture pursuant to the Share Purchase Agreement. The business of INOVA Geophysical is to design, develop, manufacture and sell land-based seismic data acquisition equipment for the petroleum industry worldwide. The joint venture was formed to combine ION's land seismic equipment business and technology with BGP's expertise and experience in land seismic operations and thereby create a new enterprise that would have the resources, technology and experience required to provide advanced products and services on a global basis.

The assets of each party contributed to the joint venture included land seismic recording systems, inventory, certain intellectual property rights and contract rights necessary to or principally used in the conduct or operation of the land equipment businesses as conducted or operated by BGP or ION prior to closing. Under the Share Purchase Agreement, the Company sold BGP a 51% equity interest in INOVA Geophysical for total consideration of \$108.5 million cash (\$99.8 million net of fees and contributed cash balances) and BGP's transfer to the Company of a 49% equity interest in a Chinese subsidiary that held land seismic equipment assets and related liabilities. The Company and BGP then contributed their respective interests in the Chinese subsidiary to INOVA Geophysical.



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INOVA Geophysical also assumed certain liabilities related to the transferred businesses. Among these liabilities was approximately \$18.4 million (as of March 25, 2010) in indebtedness under the rental land equipment secured financing that ION and its rental equipment subsidiaries had entered into in June 2009 with ICON Capital Inc. ION remains liable on its guarantee of this indebtedness, but ION has received a back-up guaranty from INOVA Geophysical with respect to any defaults on this transferred indebtedness for which ION is called upon to remedy. INOVA Geophysical also assumed approximately \$2.3 million in capital lease liabilities related to certain equipment contributed to the joint venture.

***Accounting Impact to the Formation of INOVA Geophysical and Related Financing Transactions***

At the closing of the joint venture, the Company recorded a loss on disposition of its land division of approximately \$38.1 million in the first quarter of 2010. The following components comprise this loss on disposition:

The Company received cash proceeds from BGP of \$99.8 million, net of \$5.6 million of transaction and professional fees and \$3.1 million of cash balances, which were part of the disposed land divisions contributed to INOVA Geophysical.

The Company retained a 49% interest in INOVA Geophysical, which was recorded at its fair value of \$119.0 million. The fair value was determined on a discounted cash flow basis based upon operating forecasts, which included assumptions about future market and economic conditions. The valuation utilized Level 3 inputs, and the main drivers in the calculation were INOVA Geophysical's operational five-year forecast, which included revenues, operating expenses and capital expenditures. The Company corroborated its discounted cash flow analysis with a fair value analysis of the cash and other assets contributed by BGP for its 51% interest in INOVA Geophysical.

The Company deconsolidated \$221.7 million of net assets associated with its land division.

The Company recognized \$21.2 million of accumulated foreign currency translation losses, primarily related to its Canada land operations.

The Company recognized \$7.0 million of expense resulting from the sale of ION common stock to BGP at a discount to market under BGP's equity purchase commitment as an inducement for BGP to enter into the transaction.

The Company recognized \$5.0 million of expense related to its permanently ceasing the use of certain leased facilities previously occupied by its land division. See further discussion at Note 21 *Restructuring Activities*.

The Company recognized \$2.0 million of other expenses associated with the formation of INOVA Geophysical. The following represents the impact of the other related financing transactions in the first quarter of 2010:

The Company recorded a non-cash fair value adjustment of \$12.8 million, reflecting the decrease in the fair value of the Warrant issued to BGP in October 2009, from January 1, 2010 through March 25, 2010, the date of the formation of INOVA Geophysical. At that date, the remaining \$32.0 million liability representing the Warrant's fair value was reclassified to additional paid-in-capital. The fair value of the Warrant was based on Level 2 inputs, using a Black-Scholes model. The key inputs for the Black-Scholes model included the current market price of the Company's common stock, the yield on the common stock dividend payments (0%), risk-free interest rates, the expected term (March 2010) and the Company stock's historical and implied volatility.

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The Company recognized in interest expense the remaining non-cash debt discount of \$8.7 million, which was associated with the Company's execution and delivery of the Convertible Notes to BGP in October 2009.

As part of the repayment of the previous revolving line of credit and term loan, the Company wrote-off to interest expense, \$10.1 million of unamortized debt issuance costs.

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The following represents the impact of the related financing transaction in the fourth quarter of 2009:

At issuance of the Warrant to BGP in October 2009, the Company determined that the Warrant was not considered indexed to the Company's own stock and was required to be accounted for as a liability at its fair value. As a result, the Company recorded a \$15.4 million non-cash discount on the Bank of China Convertible Notes. This non-cash discount was associated with the day-one fair value of the Warrant, which was being amortized over the expected term of the Convertible Notes (expiring March 2010). Approximately \$6.7 million of the non-cash debt discount was recognized to interest expense during the fourth quarter of 2009. The Company also recorded a subsequent non-cash fair value adjustment of \$29.4 million, reflecting the increase in the fair value of the Warrant from its issuance through December 31, 2009.

**(4) Segment and Geographic Information**

The Company evaluates and reviews its results based on four segments: Solutions, Systems, Software and Legacy Land Systems (INOVA). The Company measures segment operating results based on income from operations. The Legacy Land Systems (INOVA) segment represents the disposed land division operations through March 25, 2010, the date of the closing of INOVA Geophysical.

A summary of segment information is as follows (in thousands):

	Years Ended December 31,		
	2011	2010	2009
<b>Net revenues:</b>			
<b>Solutions:</b>			
Data Processing	\$ 88,783	\$ 107,997	\$ 82,330
New Venture	98,335	81,293	71,135
Data Library	76,332	87,664	26,520
<b>Total</b>	<b>\$ 263,450</b>	<b>\$ 276,954</b>	<b>\$ 179,985</b>
<b>Systems:</b>			
Towed Streamer	\$ 111,453	\$ 83,567	\$ 83,398
Other	41,551	30,659	44,891
<b>Total</b>	<b>\$ 153,004</b>	<b>\$ 114,226</b>	<b>\$ 128,289</b>
<b>Software:</b>			
Software Systems	\$ 36,031	\$ 34,465	\$ 31,601
Services	2,136	2,166	2,132
<b>Total</b>	<b>\$ 38,167</b>	<b>\$ 36,631</b>	<b>\$ 33,733</b>
<b>Legacy Land Systems (INOVA)</b>	<b>\$</b>	<b>\$ 16,511</b>	<b>\$ 77,774</b>
<b>Total</b>	<b>\$ 454,621</b>	<b>\$ 444,322</b>	<b>\$ 419,781</b>

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<b>Gross profit:</b>			
Solutions	\$ 84,647	\$ 93,804	\$ 59,844
Systems	61,109	48,557	52,934
Software	27,689	24,356	21,998
Legacy Land Systems (INOVA)		(984)	(2,638)
<b>Total</b>	<b>\$ 173,445</b>	<b>\$ 165,733</b>	<b>\$ 132,138</b>
<b>Gross margin:</b>			
Solutions	32%	34%	33%
Systems	40%	43%	41%
Software	73%	66%	65%
Legacy Land Systems (INOVA)		(6%)	(3%)
<b>Total</b>	<b>38%</b>	<b>37%</b>	<b>31%</b>
<b>Income (loss) from operations:</b>			
Solutions	\$ 50,620	\$ 60,632	\$ 27,746
Systems	33,034	27,749	31,209
Software	24,463	21,936	19,970
Legacy Land Systems (INOVA)		(9,623)	(40,881)
Corporate and other	(41,322)	(47,847)	(58,216)
Impairment of intangible assets			(38,044)
Income (loss) from operations	66,795	52,847	(58,216)
Interest expense, net	(5,784)	(30,770)	(33,950)
Equity in losses of INOVA Geophysical	(22,862)	(23,724)	
Loss on disposition of land division		(38,115)	
Fair value adjustment of warrant		12,788	(29,401)
Gain on legal settlement		24,500	
Impairment of cost method investments	(1,312)	(7,650)	(4,454)
Other income (expense)	(2,135)	228	(4,023)
<b>Income (loss) before income taxes</b>	<b>\$ 34,702</b>	<b>\$ (9,896)</b>	<b>\$ (130,044)</b>
<b>Depreciation and amortization (including multi-client data library):</b>			
Solutions	\$ 84,958	\$ 96,271	\$ 62,930
Systems	3,229	2,992	2,572
Software	1,116	2,461	2,665
Legacy Land Systems (INOVA)		6,367	25,136
Corporate and other	1,931	2,644	3,057
<b>Total</b>	<b>\$ 91,234</b>	<b>\$ 110,735</b>	<b>\$ 96,360</b>

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	December 31,	
	2011	2010
Total assets:		
Solutions	\$ 321,384	\$ 255,528
Systems	179,154	139,844
Software	38,949	41,888
Corporate and other	134,571	194,597
 Total	 \$ 674,058	 \$ 631,857

	December 31,	
	2011	2010
Total assets by geographic area:		
North America	\$ 463,287	\$ 448,015
Europe	59,730	56,507
Middle East	111,336	75,351
Latin America	28,692	43,363
Other	11,013	8,621
 Total	 \$ 674,058	 \$ 631,857

Intersegment sales are insignificant for all periods presented. Corporate assets include all assets specifically related to corporate personnel and operations, a majority of cash and cash equivalents, and the investment in INOVA Geophysical. Depreciation and amortization expense is allocated to segments based upon use of the underlying assets.

A summary of net revenues by geographic area follows (in thousands):

	Years Ended December 31,		
	2011	2010	2009
North America	\$ 155,877	\$ 177,480	\$ 152,995
Europe	160,230	136,846	92,760
Asia Pacific	78,777	51,496	67,199
Latin America	12,199	45,954	34,250
Africa	7,926	18,417	25,435
Middle East	28,227	10,536	42,403
Commonwealth of Independent States (CIS)	11,385	3,593	4,739
 Total	 \$ 454,621	 \$ 444,322	 \$ 419,781

Net revenues are attributed to geographical locations on the basis of the ultimate destination of the equipment or service, if known, or the geographical area imaging services are provided. If the ultimate destination of such equipment is not known, net revenues are attributed to the geographical location of initial shipment.

**(5) Net Income (Loss) per Common Share**

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Basic net income (loss) per common share is computed by dividing net income (loss) applicable to common shares by the weighted average number of common shares outstanding during the period. Diluted net income (loss) per common share is determined based on the assumption that dilutive restricted stock and restricted stock unit awards have vested and outstanding dilutive stock options have been exercised and the aggregate proceeds were used to reacquire common stock using the average price of such common stock for the period. The total number of shares issuable under anti-dilutive options at December 31, 2011, 2010 and 2009 were 2,974,886, 7,721,792 and 7,766,188, respectively.

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There were 27,000 shares of Series D Cumulative Convertible Preferred Stock outstanding as of December 31, 2011, which may be converted, at the holder's election, into up to 6,065,075 shares of common stock. See further discussion of the Series D Preferred Stock conversion provisions at Note 14 *Cumulative Convertible Preferred Stock*. The outstanding shares of all Series D Preferred Stock were anti-dilutive for all periods presented.

The Convertible Notes and Warrant entered into on October 23, 2009 were anti-dilutive. See further discussion of these transactions at Note 3 *Formation of INOVA Geophysical and Related Financing Transactions*.

The following table summarizes the computation of basic and diluted net income (loss) per common share (in thousands, except per share amounts):

	Years Ended December 31,		
	2011	2010	2009
Net income (loss) applicable to common shares	\$ 23,422	\$ (38,774)	\$ (113,559)
Weighted average number of common shares outstanding	154,811	144,278	110,516
Effect of dilutive stock awards	1,279		
Weighted average number of diluted common shares outstanding	156,090	144,278	110,516
Basic net income (loss) per share	\$ 0.15	\$ (0.27)	\$ (1.03)
Diluted net income (loss) per share	\$ 0.15	\$ (0.27)	\$ (1.03)

**(6) Accounts Receivable**

A summary of accounts receivable is as follows (in thousands):

	December 31,	
	2011	2010
Accounts receivable, principally trade	\$ 131,810	\$ 78,421
Less allowance for doubtful accounts	(1,198)	(845)
Accounts receivable, net	\$ 130,612	\$ 77,576

**(7) Inventories**

A summary of inventories is as follows (in thousands):

	December 31,	
	2011	2010
Raw materials and purchased subassemblies	\$ 45,829	\$ 39,412
Work-in-process	8,294	4,605
Finished goods	29,059	35,741

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Reserve for excess and obsolete inventories	(13,037)	(12,876)
<b>Total</b>	<b>\$ 70,145</b>	<b>\$ 66,882</b>

The Company provides for estimated obsolescence or excess inventory charges in amounts equal to the difference between the cost of inventory and market based upon assumptions about future demand for the Company's products and market conditions. For 2011, 2010 and 2009, the Company recorded inventory obsolescence and excess inventory charges of approximately \$0.6 million, \$1.6 million, and \$9.0 million, respectively.

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**Table of Contents****(8) Property, Plant and Equipment**

A summary of property, plant and equipment is as follows (in thousands):

	December 31,	
	2011	2010
Buildings	\$ 15,130	\$ 13,963
Machinery and equipment	71,550	73,663
Lease and seismic rental equipment	2,986	3,721
Furniture and fixtures	3,377	3,810
Other	1,727	738
Total	94,770	95,895
Less accumulated depreciation	(69,999)	(75,750)
Property, plant and equipment, net	\$ 24,771	\$ 20,145

Total depreciation expense, including amortization of assets recorded under capital leases, for 2011, 2010 and 2009 was \$9.4 million, \$15.7 million and \$32.6 million, respectively.

**(9) Long-term Investments**

In May 2011, the Company purchased a convertible note from a privately-owned U.S.-based technology company. The principal amount of the note is \$6.5 million, and it bears interest at a rate of 4% per annum. The maturity date of the note is two years; however, the note will automatically convert into shares of common stock of the investee on the earlier to occur of (a) the maturity date of the note and (b) the date funds are invested into the investee by any venture capital firm or other investor. Upon the occurrence of a conversion event, the note will convert into a number of shares of common stock equal to 15% of the total post-conversion outstanding shares of common stock of the investee, excluding any shares issued after the date of the note to third party investors who have made equity investments in the investee. The investee does not have the right to prepay any principal on the note without the Company's consent; therefore, it is expected that the note will automatically convert within two years from the date of issuance. Interest on the note will be paid in cash upon the maturity date, or conversion, if sooner.

The Company classifies this investment as available-for-sale and has recorded the fair value of this investment as a noncurrent asset included in other assets on its consolidated balance sheet with unrealized gains and losses reflected in accumulated other comprehensive income until realized. As of December 31, 2011, the fair value of this investment was approximately \$5.8 million with \$0.7 million of unrealized losses recorded in accumulated other comprehensive income.

In April 2010, the Company received in satisfaction of its outstanding trade receivables owed to it by Reservoir Exploration Technology, ASA ( RXT ), 351,096,180 shares (3,510,960 shares after RXT's reverse stock split effective on December 22, 2010) of RXT common stock having a fair value of approximately \$9.5 million. The Company accounts for its shares in RXT as available-for-sale. Between April 2010 and December 31, 2010, the investment declined in value. As of December 31, 2010, the Company determined that the decline in the fair value of the RXT shares was other-than-temporary, which resulted in a write-down of the investment to a fair value of \$1.9 million with a charge to earnings of \$7.6 million. The shares have since declined to a fair value of approximately \$0.6 million at December 31, 2011, which resulted in a further write-down of the investment to fair value with a charge to earnings of \$1.3 million as the Company determined the decline was other-than-temporary.

In 2009, as part of its periodic cost method investment impairment review, the Company identified its investment in Colibrys, Ltd. as meeting impairment indicators. The Company then calculated the fair value of its investment using Level 3 inputs, which included current financial data and operational forecasts with the main drivers in the calculation being the investment's forecasted cash flows and its current obligations. Based upon the Company's analysis, the Company determined that its investment was fully impaired from its original cost of \$4.5 million.



**Table of Contents****(10) Goodwill**

On December 31, 2011 and 2010, the Company completed the annual reviews of the carrying value of goodwill in its Marine Systems and Software reporting units and noted no impairments. The goodwill in the Company's Solutions reporting unit related to the acquisition of a controlling interest in a data processing business that occurred in December 2011. The annual impairment tests for 2011 and 2010 both indicated that the fair value of the Marine Systems and Software reporting units significantly exceeded their carrying values. However, if the estimates or related projections associated with the reporting units significantly change in the future, the Company may be required to record impairment charges.

The following is a summary of the changes in the carrying amount of goodwill for the years ended December 31, 2011 and 2010 (in thousands):

	Systems	Software	Solutions	Total
Balance at January 1, 2010	\$ 26,984	\$ 25,068	\$	\$ 52,052
Impact of foreign currency translation adjustments		(719)		(719)
Balance at December 31, 2010	26,984	24,349		51,333
Goodwill acquired during the year			2,701	2,701
Impact of foreign currency translation adjustments		(71)		(71)
Balance at December 31, 2011	\$ 26,984	\$ 24,278	\$ 2,701	\$ 53,963

**(11) Intangible Assets**

A summary of intangible assets, net, is as follows (in thousands):

	December 31, 2011		
	Gross Amount	Accumulated Amortization	Net
Customer relationships	\$ 42,194	\$ (25,529)	\$ 16,665
Intellectual property rights	3,350	(2,299)	1,051
Proprietary technology	14,242	(14,242)	
Trade names	4,041	(4,041)	
Patents	702	(702)	
Total	\$ 64,529	\$ (46,813)	\$ 17,716

	December 31, 2010		
	Gross Amount	Accumulated Amortization	Net
Customer relationships	\$ 40,211	\$ (22,115)	\$ 18,096
Intellectual property rights	3,350	(1,987)	1,363
Proprietary technology	14,242	(13,384)	858
Trade names	4,043	(4,043)	
Patents	702	(702)	

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Total	\$ 62,548	\$ (42,231)	\$ 20,317
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In the first quarter of 2009, the Company recorded an impairment charge of \$38.0 million, before tax, associated with a portion of its proprietary technology and the remainder of its customer relationships related to the ARAM acquisition. This impairment was the result of the continued overall economic and financial crisis, which continued to adversely affect the demand for the Company's products and services, especially for its land analog acquisition products within North America and Russia. The valuation was performed using Level 3 inputs. The fair value of these assets was estimated using a discounted cash flow model, which included a variety of inputs. The key inputs for the model included the operational five-year forecast for the Company, the then-current market discount factor, and the forecasted cash flows related to each intangible asset. The forecasted

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operational and cash flow amounts were determined using the current activity levels in the Company as well as the current and expected short-term market conditions.

Total amortization expense for intangible assets for 2011, 2010 and 2009 was \$4.5 million, \$7.4 million, and \$13.7 million, respectively. A summary of the estimated amortization expense for the next five years is as follows (in thousands):

<b>Years Ended December 31,</b>	
2012	\$ 3,881
2013	\$ 3,079
2014	\$ 2,573
2015	\$ 2,164
2016	\$ 1,894

**(12) Accrued Expenses**

A summary of accrued expenses is as follows (in thousands):

	<b>December 31,</b>	
	<b>2011</b>	<b>2010</b>
Compensation, including compensation-related taxes and commissions	\$ 19,398	\$ 28,024
Accrued multi-client data library acquisition costs	26,871	15,434
Deferred income tax liability	5,695	12,451
Other	9,420	11,341
<b>Total accrued expenses</b>	<b>\$ 61,384</b>	<b>\$ 67,250</b>

A summary of warranty activity is as follows (in thousands):

	<b>Years Ended December 31,</b>		
	<b>2011</b>	<b>2010</b>	<b>2008</b>
Balance at beginning of period	\$ 784	\$ 5,088	\$ 10,526
Reduction of warranties for disposal of land division		(3,821)	
Accruals (expirations) for warranties issued/expired during the period	1,165	443	(2,121)
Settlements made (in cash or in kind) during the period	(1,234)	(926)	(3,317)
<b>Balance at end of period</b>	<b>\$ 715</b>	<b>\$ 784</b>	<b>\$ 5,088</b>

**(13) Long-term Debt, Lease Obligations and Interest Rate Caps**

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Obligations (in thousands)	December 31,	
	2011	2010
\$100.0 million revolving line of credit	\$	\$
Term loan facility	99,250	103,250
Facility lease obligation	3,047	3,657
Equipment capital leases	2,815	1,753
<b>Total</b>	<b>105,112</b>	<b>108,660</b>
Current portion of long-term debt and lease obligations	(5,770)	(6,073)
<b>Non-current portion of long-term debt and lease obligations</b>	<b>\$ 99,342</b>	<b>\$ 102,587</b>

***Revolving Line of Credit and Term Loan Facility***

On March 25, 2010, ION, its Luxembourg subsidiary, ION International S.à r.l. ( ION Sàrl ), and certain of its other U.S. and foreign subsidiaries entered into a new credit facility (the Credit Facility ). The terms of the

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Credit Facility are set forth in a credit agreement dated March 25, 2010 (the "Credit Agreement"), by and among ION, ION Sàrl and China Merchants Bank Co., Ltd., New York Branch ("CMB"), as administrative agent and lender. The obligations of ION under the Credit Facility are guaranteed by certain of ION's material U.S. subsidiaries and the obligations of ION Sàrl under the Credit Facility are guaranteed by certain of ION's material U.S. and foreign subsidiaries, in each case that are parties to the Credit Agreement. INOVA Geophysical is also providing a bank stand-by letter of credit as credit support for our obligations under the Credit Agreement.

The Credit Facility provides ION with a revolving line of credit of up to \$100.0 million in borrowings (including borrowings for letters of credit), and refinanced ION's outstanding term loan under the its previous syndicated credit facility with a new term loan in the original principal amount of \$106.3 million. The Credit Facility permits direct borrowings by ION Sàrl for use by ION's foreign subsidiaries.

Under the Credit Facility, up to \$75.0 million is available for revolving line of credit borrowings by ION, and up to \$60.0 million (or its equivalent in foreign currencies) is available for revolving line of credit borrowings by ION Sàrl, but the total amounts borrowed may not exceed \$100.0 million. Borrowings under the Credit Facility are not subject to a borrowing base. As of December 31, 2011, ION had no indebtedness outstanding under the revolving line of credit.

Revolving credit borrowings under the Credit Facility may be utilized to fund the working capital needs of ION and its subsidiaries, to finance acquisitions and investments and for general corporate purposes. In addition, the Credit Facility includes a \$35.0 million sub-limit for the issuance of documentary and stand-by letters of credit.

The revolving credit indebtedness and term loan indebtedness under the Credit Facility are each scheduled to mature on March 24, 2015. The principal amount under the term loan is subject to scheduled quarterly amortization payments of \$1.0 million per quarter until the maturity date, with the remaining unpaid principal balance due upon the maturity date. The indebtedness under the Credit Facility may sooner mature on a date that is 18 months after the earlier of (i) any dissolution of INOVA Geophysical, or (ii) the administrative agent determining in good faith that INOVA Geophysical is unable to perform its obligations under its credit support obligations it has provided under the Credit Facility.

The interest rate per annum on borrowings under the Credit Facility will be, at ION's option:

An alternate base rate equal to the sum of (i) the greatest of (a) the prime rate of CMB, (b) a federal funds effective rate plus 0.50%, or (c) an adjusted LIBOR-based rate plus 1.0%, and (ii) an applicable interest margin of 2.5%; or

For eurodollar borrowings and borrowings in Euros, Pounds Sterling or Canadian Dollars, the sum of (i) an adjusted LIBOR-based rate, and (ii) an applicable interest margin of 3.5%.

As of December 31, 2011, the \$99.3 million in outstanding term loan indebtedness under the Credit Facility accrued interest at a rate of 4.1% per annum.

The obligations of ION and the guarantee obligations of the U.S. guarantors are secured by a first-priority security interest in 100% of the stock of all U.S. guarantors and 65% of the stock of certain first-tier foreign subsidiaries and by substantially all other assets of ION and the U.S. guarantors. The obligations of ION Sàrl and the foreign guarantors are secured by a first-priority security interest in 100% of the stock of the foreign guarantors and the U.S. guarantors and substantially all other assets of the foreign guarantors, the U.S. guarantors and ION.

The agreements governing the Credit Facility contain covenants that restrict the borrowers, the guarantors and their subsidiaries, subject to certain exceptions, from:

Incurring additional indebtedness (including capital lease obligations), granting or incurring additional liens on ION's properties, pledging shares of ION's subsidiaries, entering into certain merger or other

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change-in-control transactions, entering into transactions with ION's affiliates, making certain sales or other dispositions of assets, making certain investments, acquiring other businesses and entering into sale-leaseback transactions with respect to ION's properties;

Paying cash dividends on ION's common stock; and

Repurchasing and acquiring ION's capital stock, unless there is no event of default under the Credit Agreement and the amount of such repurchases does not exceed an amount equal to (i) 25% of ION's consolidated net income for the prior fiscal year, less (ii) the amount of any cash dividends paid on ION's common stock.

The Credit Facility requires compliance with certain financial covenants, including certain requirements that became effective on June 30, 2011 and are in effect for each fiscal quarter thereafter for ION and its U.S. subsidiaries to:

Maintain a minimum fixed charge coverage ratio in an amount equal to at least 1.125 to 1;

Not exceed a maximum leverage ratio of 3.25 to 1; and

Maintain a minimum tangible net worth of at least 60% of ION's tangible net worth as of March 31, 2010.

The fixed charge coverage ratio is defined as the ratio of (i) ION's consolidated EBITDA less cash income tax expense and non-financed capital expenditures, to (ii) the sum of scheduled payments of lease payments and payments of principal indebtedness, interest expense actually paid and cash dividends, in each case for the four consecutive fiscal quarters most recently ended. The leverage ratio is defined as the ratio of (x) total funded consolidated debt, capital lease obligations and issued letters of credit (net of cash collateral) to (y) ION's consolidated EBITDA for the four consecutive fiscal quarters most recently ended. As of December 31, 2011, ION was in compliance with these financial covenants and the Company expects to remain in compliance with these financial covenants throughout 2012.

The Credit Agreement contains customary event of default provisions (including a change of control event affecting ION), the occurrence of which could lead to an acceleration of ION's obligations under the Credit Facility. The Credit Agreement also provides that certain acts of bankruptcy, insolvency or liquidation of INOVA Geophysical or BGP would constitute additional events of default under the Credit Facility.

***Interest Rate Caps***

In August 2010, the Company entered into an interest rate cap agreement and purchased interest rate caps (the August 2010 Caps) having an initial notional amount of \$103.3 million with a three-month average LIBOR cap of 2.0%. If and when the three-month average LIBOR rate exceeds 2.0%, the LIBOR portion of interest owed by the Company would be capped at 2.0%. The initial notional amount was set to equal the projected outstanding balance under the Company's term loan facility at December 31, 2010. The notional amount was then set so as not to exceed the Company's outstanding balance of its term loan facility over a period extending through March 29, 2013. The Company purchased these interest rate caps for approximately \$0.4 million and designated the interest rate caps as cash flow hedges.

In July 2011, the Company purchased additional interest rate caps (the July 2011 Caps) related to its term loan facility. The notional amounts of the July 2011 Caps, together with the notional amounts of the August 2010 Caps, were set so as not to exceed the outstanding balance of the Company's term loan facility over a period that extends through March 31, 2014. The Company purchased these interest rate caps for an amount equal to approximately \$0.3 million and designated the interest rate caps as cash flow hedges.

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As of December 31, 2011, the Company held interest rate caps as follows (amounts in thousands):

Payment Date	September 28, 2012 Cap Rate	September 28, 2012 August 2010 Caps	September 28, 2012 Notional Amounts July 2011 Caps	September 28, 2012 Total
March 29, 2012	2.0%	\$ 89,325	\$	\$ 89,325
June 29, 2012	2.0%	\$ 68,775	\$ 18,850	\$ 87,625
September 28, 2012	2.0%	\$ 68,075	\$ 18,650	\$ 86,725
December 31, 2012	2.0%	\$ 67,375	\$ 18,450	\$ 85,825
March 29, 2013	2.0%	\$ 66,675	\$ 18,250	\$ 84,925
June 28, 2013	2.0%	\$	\$ 63,175	\$ 63,175
September 30, 2013	2.0%	\$	\$ 62,475	\$ 62,475
December 31, 2013	2.0%	\$	\$ 61,775	\$ 61,775
March 31, 2014	2.0%	\$	\$ 61,075	\$ 61,075

These interest rate caps have been designated as cash flow hedges according to ASC 815 ( *Derivatives and Hedging* ) and, accordingly, the effective portion of the change in fair value of these interest rate caps are recognized in other comprehensive income in the Company's consolidated financial statements. The Company has recorded the fair value of these interest rate caps as a noncurrent asset included in other assets on its condensed consolidated balance sheet. As of December 31, 2011, the total fair value of the interest rate caps was \$0.1 million. For the year ended December 31, 2011 and 2010, there was approximately \$0.2 million, net of tax, and \$0.1 million, net of tax, respectively, related to the change in fair value included in other comprehensive income. Unrealized gains or losses included in other comprehensive income related to these interest rate caps will be reclassified into earnings as each interest rate caplet settles on the contractual payment dates as shown in the table above. During 2011, \$0.1 million of unrealized losses were reclassified into earnings.

**Facility Lease Obligation**

In 2001, the Company sold its facilities, located in Stafford, Texas. Simultaneously with the sale, the Company entered into a non-cancelable twelve-year lease with the purchaser of the property. Because the Company retained a continuing involvement in the property that precluded sale-leaseback treatment for financial accounting purposes, the sale-leaseback transaction was accounted for as a financing transaction.

In June 2005, the owner sold the facilities to two parties, which were unrelated to each other as well as unrelated to the seller. In conjunction with the sale of the facilities, the Company entered into two separate lease arrangements for each of the facilities with the new owners. One lease, which was classified as an operating lease, has a twelve-year lease term. The second lease continues to be accounted for as a financing transaction due to the Company's continuing involvement in the property as a lessee, and has a ten-year lease term. The Company recorded the commitment under the second lease as a \$5.5 million lease obligation at an implicit rate of 11.7% per annum, of which \$3.0 million was outstanding at December 31, 2011. Both leases have renewal options allowing the Company to extend the leases for up to an additional twenty-year term, which the Company does not expect to renew.

**Equipment Capital Leases**

The Company has entered into two capital leases that are due in installments for the purpose of financing the purchase of computer equipment through 2014. Interest accrues under these leases at the rate of 6.0% per annum, and the leases are collateralized by liens on the computer equipment. The assets are amortized over the lesser of their related lease terms or their estimated productive lives and such charges are reflected within depreciation expense.

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A summary of future principal obligations under long-term debt and equipment capital lease obligations are as follows (in thousands):

Years Ended December 31,	Long-Term Debt	Capital Lease Obligations
2012	\$ 4,714	\$ 1,069
2013	4,832	967
2014	4,966	793
2015	87,785	
<b>Total</b>	<b>\$ 102,297</b>	<b>2,829</b>
Imputed interest		(14)
<b>Net present value of equipment capital lease obligations</b>		<b>2,815</b>
Current portion of equipment capital lease obligations		1,056
<b>Long-term portion of equipment capital lease obligations</b>		<b>\$ 1,759</b>

**(14) Cumulative Convertible Preferred Stock**

During 2005, the Company entered into an Agreement with Fletcher International, Ltd. (this Agreement, as amended, is referred to as the Fletcher Agreement ) and issued to Fletcher 30,000 shares of Series D-1 Cumulative Convertible Preferred Stock ( Series D-1 Preferred Stock ) in a privately-negotiated transaction, receiving \$29.8 million in net proceeds. The Fletcher Agreement also provided to Fletcher an option to purchase up to an additional 40,000 shares of additional series of preferred stock from time to time, with each series having a conversion price that would be equal to 122% of an average daily volume-weighted market price of the Company's common stock over a trailing period of days at the time of issuance of that series. In 2007 and 2008, Fletcher exercised this option and purchased 5,000 shares of Series D-2 Cumulative Convertible Preferred Stock ( Series D-2 Preferred Stock ) for \$5.0 million (in December 2007) and the remaining 35,000 shares of Series D-3 Cumulative Convertible Preferred Stock ( Series D-3 Preferred Stock ) for \$35.0 million (in February 2008). The shares of Series D-1 Preferred Stock, Series D-2 Preferred Stock and Series D-3 Preferred Stock are sometimes referred to herein as the Series D Preferred Stock.

Dividends on the shares of Series D Preferred Stock must be paid in cash on a quarterly basis. Dividends are payable 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, 2011.

Under the Fletcher Agreement, if a 20-day volume-weighted average trading price per share of the Company's common stock fell below \$4.4517 (the Minimum Price ), the Company was required to deliver a notice (the Reset Notice ) to Fletcher. On November 28, 2008, the volume-weighted average trading price per share of the Company's common stock on the New York Stock Exchange for the previous 20 trading days was calculated to be \$4.328, and the Company delivered the Reset Notice to Fletcher in accordance with the terms of the Fletcher Agreement. In the Reset Notice, the Company elected to reset the conversion prices for the Series D Preferred Stock to the Minimum Price (\$4.4517 per share), and Fletcher's rights to redeem the Series D Preferred Stock were terminated. The adjusted conversion price resulting from this election was effective on November 28, 2008.

In addition, under the Fletcher Agreement, the aggregate number of shares of common stock issued or issuable to Fletcher upon conversion or redemption of, or as dividends paid on, the Series D Preferred Stock could not exceed a designated maximum number of shares (the Maximum Number ), and such Maximum Number could be increased by Fletcher providing the Company with a 65-day notice of increase, but under no circumstance could the total number of shares of common stock issued or issuable to Fletcher with respect to the Series D Preferred Stock ever exceed 15,724,306 shares. The Fletcher Agreement had designated 7,669,434 shares as the original Maximum Number. In November 2008, Fletcher delivered a notice to the Company to



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increase the Maximum Number to 9,669,434 shares, effective February 1, 2009. On November 8, 2010, Fletcher delivered a notice to the Company to increase the Maximum Number to the full 15,724,306 shares, effective January 12, 2011.

On April 8, 2010, Fletcher converted 8,000 of its shares of the outstanding Series D-1 Preferred Stock and all of the outstanding 35,000 shares of the Series D-3 Preferred Stock into a total of 9,659,231 shares of the Company's common stock. The conversion price for these shares was \$4.4517 per share, in accordance with the terms of these series of preferred stock. Fletcher continues to own 22,000 shares of the Series D-1 Preferred Stock and 5,000 shares of the Series D-2 Preferred Stock. As a result of Fletcher's delivery of its notice to increase the Maximum Number to the full 15,724,306 shares in November 2010, under the terms of the Fletcher Agreement, Fletcher's remaining 27,000 shares of Series D Preferred Stock are convertible into 6,065,075 shares of the Company's common stock. The conversion prices and number of shares of common stock to be acquired upon conversion are also subject to customary anti-dilution adjustments. Fletcher remains the sole holder of all of the outstanding shares of Series D Preferred Stock.

**(15) Stockholders' Equity and Stock-Based Compensation**

***Stockholder Rights Plan***

In December 2008, the Company's Board of Directors adopted a stockholder rights plan. The stockholder rights plan was adopted to give the Company's Board increased power to negotiate in the Company's best interests and to discourage appropriation of control of the Company at a price that was unfair to its stockholders. The stockholder rights plan involved the distribution of one preferred share purchase right as a dividend on each outstanding share of the Company's common stock to all holders of record on January 9, 2009. Each right entitled the holder to purchase one one-thousandth of a share of the Company's Series A Junior Participating Preferred Stock at a purchase price of \$21.00 per one one-thousandth of a share of Series A Preferred Stock, subject to adjustment. The rights traded in tandem with the Company's common stock until, and would become exercisable beginning upon a distribution date that would occur shortly following, among other things, the acquisition of 20% or more of the Company's common stock by an acquiring person. The rights plan and the rights expired in accordance with the terms of the plan on December 29, 2011.

***Stock Option Plans***

The Company has adopted stock option plans for eligible employees, directors, and consultants, which provide for the granting of options to purchase shares of common stock. As of December 31, 2011, there were 6,791,300 outstanding options under the Company's stock option plans, and 4,793,640 shares available for future grant and issuance.

The options under these plans generally vest in equal annual installments over a four-year period and have a term of ten years. These options are typically granted with an exercise price per share equal to or greater than the current market price and, upon exercise, are issued from the Company's unissued common shares or its treasury shares. In August 2006, the Compensation Committee of the Board of Directors of the Company approved fixed pre-established quarterly grant dates for all future grants of options.

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Transactions under the stock option plans are summarized as follows:

	Option Price per Share	Outstanding	Vested	Available for Grant
January 1, 2009	\$ 1.73-\$16.39	7,893,275	4,149,341	835,407
Granted	1.07-5.44	635,750		(635,750)
Vested			1,089,478	
Exercised	1.73-3.00	(9,837)	(9,837)	
Cancelled/forfeited	3.00-16.39	(753,000)	(186,300)	564,950
Restricted stock granted out of option plans				(568,874)
Restricted stock forfeited or cancelled for employee minimum income taxes and returned to the plans				215,140
December 31, 2009	1.07-16.39	7,766,188	5,042,682	410,873
Increase in shares authorized				2,500,000
Granted	3.42-7.19	1,249,900		(1,249,900)
Vested			1,370,897	
Exercised	1.07-7.31	(323,610)	(323,610)	
Cancelled/forfeited	1.07-16.12	(970,686)	(700,561)	674,363
Restricted stock granted out of option plans				(762,680)
Restricted stock forfeited or cancelled for employee minimum income taxes and returned to the plans				76,044
December 31, 2010	2.49-16.39	7,721,792	5,389,408	1,648,700
Increase in shares authorized				5,000,000
Granted	5.81-10.09	1,559,400		(1,559,400)
Vested			851,222	
Exercised	2.49-11.51	(2,145,792)	(2,145,792)	
Cancelled/forfeited	3.00-15.43	(344,100)	(250,300)	262,513
Restricted stock granted out of option plans				(651,661)
Restricted stock forfeited or cancelled for employee minimum income taxes and returned to the plans				93,488
December 31, 2011	\$ 2.49-\$16.39	6,791,300	3,844,538	4,793,640

Stock options outstanding at December 31, 2011 are summarized as follows:

Option Price per Share	Outstanding	Weighted Average Exercise Price of Outstanding Options	Weighted Average Contract Life	Vested	Weighted Average Exercise Price of Vested Options
\$2.49 - \$3.85	1,228,325	\$ 3.02	6.7	885,013	\$ 3.01
4.11 - 6.42	2,105,700	\$ 5.53	8.9	449,175	\$ 5.11
6.75 - 10.50	2,311,325	\$ 7.94	6.3	1,374,400	\$ 8.42

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10.81 - 16.39	1,145,950	\$ 14.52	5.9	1,135,950	\$ 14.51
Totals	6,791,300	\$ 7.41	7.1	3,844,538	\$ 8.59

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Additional information related to the Company's stock options is as follows:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value (000 \$)
Total outstanding at January 1, 2011	7,721,792	\$ 7.44		6.1	
Options granted	1,559,400	\$ 6.10	\$ 4.00		
Options exercised	(2,145,792)	\$ 6.11			
Options cancelled	(93,800)	\$ 6.84			
Options forfeited	(250,300)	\$ 11.37			
Total outstanding at December 31, 2011	6,791,300	\$ 7.41		7.1	\$ 5,096
Options exercisable and vested at December 31, 2011	3,844,538	\$ 8.59		5.6	\$ 3,227

The total intrinsic value of options exercised during 2011, 2010 and 2009 was \$13.3 million, \$0.9 million and less than \$0.1 million, respectively. Cash received from option exercises under all share-based payment arrangements for 2011, 2010 and 2009 was \$13.1 million, \$1.1 million and less than \$0.3 million, respectively. The weighted average grant date fair value for stock option awards granted during 2011, 2010 and 2009 was \$4.00, \$3.81, and \$3.17 per share, respectively.

**Restricted Stock and Restricted Stock Unit Plans**

The Company has issued restricted stock and restricted stock units under the Company's 2004 Long-Term Incentive Plan, 2000 Restricted Stock Plan (which expired in 2010), 1998 Restricted Stock Plan (which expired in 2008) and other applicable plans. Restricted stock units are awards that obligate the Company to issue a specific number of shares of common stock in the future if continued service vesting requirements are met. Non-forfeitable ownership of the common stock will vest over a period as determined by the Company in its sole discretion, generally in equal annual installments over a three-year period. Shares of restricted stock awarded may not be sold, assigned, transferred, pledged or otherwise encumbered by the grantee during the vesting period.

The status of the Company's restricted stock and restricted stock unit awards for 2011 is as follows:

	Number of Shares/Units
Total nonvested at January 1, 2011	977,178
Granted	651,661
Vested	(449,231)
Forfeited	(24,813)
Total nonvested at December 31, 2011	1,154,795

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At December 31, 2011, the intrinsic value of restricted stock and restricted stock unit awards was approximately \$7.1 million. The weighted average grant date fair value for restricted stock and restricted stock unit awards granted during 2011, 2010 and 2009 was \$6.34, \$6.30, and \$4.79 per share, respectively. The total fair value of shares vested during 2011, 2010 and 2009 was \$3.3 million, \$3.3 million, and \$4.7 million, respectively.

### ***Employee Stock Purchase Plan***

In June 2010, the Company adopted an Employee Stock Purchase Plan ( ESPP ) to replace the prior ESPP, which terminated on December 31, 2008. The ESPP allows all eligible employees to authorize payroll deductions at a rate of 1% to 10% of base compensation (or a fixed amount per pay period) for the purchase of the

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Company's common stock. Each participant is limited to purchase no more than 500 shares per offering period or 1,000 shares annually. Additionally, no participant may purchase shares in any calendar year that exceeds \$10,000 in fair market value based on the fair market value of the stock on the offering commencement date. The purchase price of the common stock is the lesser of 85% of the closing price on the first day of the applicable offering period (or most recently preceding trading day) or 85% of the closing price on the last day of the offering period (or most recently preceding trading day). Each offering period is six months and commences on February 1 and August 1 of each year. The ESPP is considered a compensatory plan under ASC 718, and the Company recorded compensation expense of approximately \$0.3 million during 2011. The expense represents the estimated fair value of the look-back purchase option. The fair value was determined using the Black-Scholes option pricing model and was recognized over the purchase period. The total number of shares of common stock authorized and available for issuance under ESPP is 1,392,438. The maximum number of shares of common stock that may be purchased for each offering period is 100,000 (200,000 annually).

**Stock Appreciation Rights Plan**

The Company has adopted a stock appreciation rights plan which provides for the award of stock appreciation rights (SARs) to directors and selected key employees and consultants. The awards under this plan are subject to the terms and conditions set forth in agreements between the Company and the holders. The exercise price per SAR is not to be less than one hundred percent (100%) of the fair market value of a share of common stock on the date of grant of the SAR. The term of each SAR shall not exceed ten years from the grant date. Upon exercise of a SAR, the holder shall receive a cash payment in an amount equal to the spread specified in the SAR agreement for which the SAR is being exercised. In no event will any shares of common stock be issued, transferred or otherwise distributed under the plan.

As of December 31, 2011, the Company had outstanding 140,000 SAR awards to one individual with an exercise price of \$3.00. The Company recorded \$0.3 million, less than \$0.1 million and \$0.8 million, respectively, of share-based compensation expense during 2011, 2010 and 2009 related to employee stock appreciation rights. Pursuant to ASC 718, the stock appreciation rights are considered liability awards and as such, these amounts are accrued in the liability section of the balance sheet.

**Valuation Assumptions**

The Company calculated the fair value of each stock option on the date of grant using the Black-Scholes option pricing model. The following assumptions were used for each respective period:

	Years Ended December 31					
	2011		2010		2009	
Risk-free interest rates	1.1%	1.9%	1.5%	2.5%	1.6%	2.4%
Expected lives (in years)	5.5		5.5		3.6 5.5	
Expected dividend yield	0%		0%		0%	
Expected volatility	65.9%	80.2%	67.4%	71.6%	75.0%	91.9%

The computation of expected volatility during 2011, 2010 and 2009 was based on an equally weighted combination of historical volatility and market-based implied volatility. Historical volatility was calculated from historical data for a period of time approximately equal to the expected term of the option award, starting from the date of grant. Market-based implied volatility was derived from traded options on the Company's common stock having a term of six months. The Company's computation of expected life in 2011, 2010 and 2009 was determined based on historical experience of similar awards, giving consideration to the contractual terms of the stock-based awards, vesting schedules, and expectations of future employee behavior. The risk-free interest rate assumption is based upon the U.S. Treasury yield curve in effect at the time of grant for periods corresponding with the expected life of the option.

**Table of Contents****(16) Income Taxes**

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

	Years Ended December 31,		
	2011	2010	2009
Domestic	\$ 12,674	\$ (55,547)	\$ (91,646)
Foreign	22,028	45,651	(38,398)
<b>Total</b>	<b>\$ 34,702</b>	<b>\$ (9,896)</b>	<b>\$ (130,044)</b>

Components of income taxes are as follows (in thousands):

	Years Ended December 31,		
	2011	2010	2009
<b>Current:</b>			
Federal	\$ 6,594	\$ (3,489)	\$ 526
State and local	493	665	74
Foreign	11,180	7,559	17,565
<b>Deferred:</b>			
Federal	(4,893)	21,665	(15,258)
Foreign	(3,238)	542	(22,892)
<b>Total income tax expense (benefit)</b>	<b>\$ 10,136</b>	<b>\$ 26,942</b>	<b>\$ (19,985)</b>

A reconciliation of the expected income tax expense on income (loss) before income taxes using the statutory federal income tax rate of 35% for 2011, 2010 and 2009 to income tax expense is as follows (in thousands):

	Years Ended December 31,		
	2011	2010	2009
Expected income tax expense (benefit) at 35%	\$ 12,146	\$ (3,464)	\$ (45,515)
Alternate minimum tax provision		67	526
Foreign tax rate differential	(7,858)	(11,914)	5,341
Foreign tax differences	(2,511)		(1,053)
Formation of INOVA Geophysical		10,507	
Nondeductible financings		1,015	12,646
State and local taxes	493	665	74
Nondeductible expenses	1,091	492	1,465
<b>Deferred tax asset valuation allowance:</b>			
Deferred tax asset valuation allowance on formation of INOVA Geophysical		20,213	
Deferred tax asset valuation allowance on equity in losses of INOVA Geophysical	8,002	8,303	
Deferred tax asset valuation allowance on write-down of RXT shares	459	2,677	

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Deferred tax asset valuation allowance on operations	(1,686)	(1,619)	6,531
Total income tax expense (benefit)	\$ 10,136	\$ 26,942	\$ (19,985)

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The tax effects of the cumulative temporary differences resulting in the net deferred income tax asset (liability) are as follows (in thousands):

	December 31,	
	2011	2010
Current deferred:		
Deferred income tax assets:		
Accrued expenses	\$ 3,701	\$ 8,600
Allowance accounts	3,900	3,725
Inventory	457	483
Total current deferred income tax asset	8,058	12,808
Valuation allowance	(6,148)	(9,486)
Net current deferred income tax asset	1,910	3,322
Deferred income tax liabilities:		
Unbilled receivables	(7,592)	(15,723)
Net current deferred income tax (liability) asset	\$ (5,682)	\$ (12,401)
Non-current deferred:		
Deferred income tax assets:		
Net operating loss carryforward	\$ 6,598	\$ 6,849
Capital loss carryforward	19,005	19,005
Equity method investment	33,409	25,407
Cost method investments	3,843	3,384
Basis in identified intangibles	3,606	(601)
Basis in research and development	2,045	2,804
Basis in property, plant and equipment	1,234	2,271
Tax credit carryforwards and other	10,386	9,770
Total non-current deferred income tax asset	80,126	68,889
Valuation allowance	(63,327)	(53,214)
Net non-current deferred income tax asset (liability)	\$ 16,799	\$ 15,675

In 2002, the Company established a valuation allowance for substantially all of its deferred tax assets. Since that time, the Company has continued to record a valuation allowance. In 2011, additional valuation allowance was established on certain U.S. deferred tax assets related to the Company's investment in INOVA Geophysical and its write-down of RXT shares. The valuation allowance was calculated in accordance with the provisions of ASC 740-10, *Accounting for 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. The Company will continue to record a valuation allowance for a significant portion of U.S. net deferred tax assets of \$11.9 million until there is sufficient evidence to warrant reversal. In the event the Company's expectations of future operating results change, an additional valuation allowance may be required to be established on the Company's existing unreserved net U.S. deferred tax assets. At December 31, 2011, the Company had net operating loss carry-forwards outside of the U.S. of approximately \$24.0 million, the majority of which expires beyond 2027.

As of December 31, 2011, the Company has no significant unrecognized tax benefits and does not expect to recognize any significant increases in unrecognized tax benefits during the next twelve month period. Interest and penalties, if any, related to unrecognized tax benefits are recorded in income tax expense.

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The Company's U.S. federal tax returns for 2007 and subsequent years remain subject to examination by tax authorities. The Company is no longer subject to IRS examination for periods prior to 2007, although

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carryforward attributes that were generated prior to 2007 may still be adjusted upon examination by the IRS if they either have been or will be used in a future period. In the Company's foreign tax jurisdictions, tax returns for 2008 and subsequent years generally remain open to examination.

United States income taxes have not been provided on the cumulative undistributed earnings of the Company's foreign subsidiaries in the amount of approximately \$16.6 million as it is the Company's intention to reinvest such earnings indefinitely. The Company's U.S. operations are expected to be fully supported by existing cash balances and U.S. generated cash flows. These foreign earnings could become subject to additional tax if remitted, or deemed remitted, to the United States as a dividend; however, it is not practicable to estimate the additional amount of taxes payable.

**(17) Supplemental Cash Flow Information and Non-cash Activity**

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

	Years Ended December 31		
	2011	2010	2009
Cash paid during the period for:			
Interest	\$ 6,440	\$ 11,798	\$ 24,051
Income taxes	15,473	7,263	22,184
Non-cash items from investing and financing activities:			
Sale of rental equipment financed with a note receivable	\$ 3,578	\$	\$
Transfer of inventory to rental equipment	2,978	3,606	48,560
Exchange of receivable related to a business acquisition	2,000		
Reduction in multi-client data library related to finalization of accrued liabilities	1,888		
Expiration of BGP warrant		32,001	
Conversion of BGP Domestic Convertible Note to equity		28,571	
Investment in INOVA Geophysical		119,000	
Exchange of Reservoir Exploration Technology receivables into shares		9,516	
Investment in multi-client data library financed through trade payables		3,429	
Purchase of computer equipment financed through capital leases	2,597	555	373

**(18) Operating Leases**

*Lessee.* The Company leases certain equipment, offices, and warehouse space under non-cancelable operating leases. Rental expense was \$18.6 million, \$17.2 million, and \$16.7 million for 2011, 2010 and 2009, respectively.

A summary of future rental commitments over the next five years under non-cancelable operating leases is as follows (in thousands):

Years Ended December 31,	
2012	\$ 11,368
2013	6,319
2014	3,699
2015	3,295
2016	3,263
Total	\$ 27,944





**Table of Contents****(19) Benefit Plans**

The Company has a 401(k) retirement savings plan, which covers substantially all employees. Employees may voluntarily contribute up to 60% of their compensation, as defined, to the plan. Effective June 1, 2000, the Company adopted a company matching contribution to the 401(k) plan. The Company matched the employee contribution at a rate of 50% of the first 6% of compensation contributed to the plan. In April 2009, the Company suspended its match to employee's 401(k) plan contributions, but reinstated its matching contributions in April 2010. Company contributions to the plans were \$1.4 million, \$0.9 million, and \$0.7 million, during 2011, 2010 and 2009, respectively.

**(20) Legal Matters*****WesternGeco***

In June 2009, WesternGeco L.L.C. ( WesternGeco ) filed a lawsuit against the Company 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 alleges that the Company has infringed several United States patents regarding marine seismic streamer steering devices that are owned by WesternGeco. WesternGeco is seeking unspecified monetary damages and an injunction prohibiting the Company from making, using, selling, offering for sale or supplying any infringing products in the United States. Based on the Company's review of the lawsuit filed by WesternGeco and the WesternGeco patents at issue, the Company believes that its products do not infringe any WesternGeco patents, that the claims asserted against the Company by WesternGeco are without merit and that the ultimate outcome of the claims against it will not result in a material adverse effect on the Company's financial condition or results of operations. The Company intends to defend the claims against it vigorously.

In June 2009, the Company filed an answer and counterclaims against WesternGeco, in which the Company denies that it has infringed WesternGeco's patents and asserts that the WesternGeco patents are invalid or unenforceable. The Company also asserted that WesternGeco's Q-Marine system, components and technology infringe upon a United States patent owned by the Company related to marine seismic streamer steering devices. The claims by the Company also assert that WesternGeco tortiously interfered with the Company's relationship with its customers. In addition, the Company claims that the lawsuit by WesternGeco is an illegal attempt by WesternGeco to control and restrict competition in the market for marine seismic surveys performed using laterally steerable streamers. In its counterclaims, the Company is requesting various remedies and relief, including a declaration that the WesternGeco patents are 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 the Company, and an award of unspecified monetary damages.

In June 2010, WesternGeco filed a lawsuit against various subsidiaries and affiliates of Fugro N.V. ( Fugro ), a seismic contractor customer of the Company, accusing Fugro of infringing the same United States patents regarding marine seismic streamer steering devices by planning to use certain equipment purchased from the Company on a survey located outside of U.S. territorial waters. The court approved the consolidation of the Fugro case with the case against the Company. 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. On February 21, 2012, the Court granted WesternGeco's motions for summary judgment related to the Company's claims against WesternGeco for infringement, inventorship and inequitable conduct.

***Fletcher***

In November 2009, Fletcher, the holder of shares of the Company's outstanding Series D Preferred Stock, filed a lawsuit against the Company and certain of its 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 the Company violated Fletcher's consent rights contained in the Series D Preferred Stock Certificates of Designation, by ION Sàrl's execution and delivery of a convertible promissory note to the Bank of China, New York Branch, in connection with a bridge loan funded in October 2009 by Bank of China, and that the directors violated their fiduciary duty to the Company by allowing ION Sàrl to issue the convertible note without

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Fletcher's consent. A total of \$10.0 million was advanced to ION Sàrl under the bridge loan, and ION Sàrl repaid \$10.0 million on the following day. Fletcher sought a court order requiring ION Sàrl to repay the \$10.0 million advanced to ION Sàrl under the bridge loan and unspecified monetary damages. In March 2010, the presiding judge in the case denied Fletcher's request for the court order. 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 the named Company directors but also concluded that, because the bridge loan note issued by ION Sàrl was convertible into ION common stock, Fletcher technically had the right to consent to the issuance of the note and that the Company violated Fletcher's consent right by ION Sàrl issuing the note without Fletcher's consent. In December 2010, the presiding judge in the case recused himself from the case and a new presiding judge was appointed to the case. In March 2011, the judge dismissed certain of the claims asserted by Fletcher. The Company believes that the remaining claims asserted by Fletcher in the lawsuit are without merit. The Company further believes that the monetary damages suffered by Fletcher as a result of ION Sàrl issuing the bridge loan 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 the Company's financial condition or results of operations. The Company intends to defend the remaining claims against it in this lawsuit vigorously.

***Sercel***

In January 2010, the jury in a patent infringement lawsuit filed by the Company against seismic equipment provider Sercel, Inc. in the United States District Court for the Eastern District of Texas returned a verdict in the Company's favor. In the lawsuit, styled *Input/Output, Inc. et al v. Sercel, Inc.*, (5-06-cv-00236), the Company alleged that Sercel's 408, 428 and SeaRay digital seismic sensor units infringe the Company's United States Patent No. 5,852,242, which is incorporated in the Company's VectorSeis® sensor technology. Products of the 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 the Company's patent and that the Company's patent was valid, and the jury awarded the Company \$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 the Company's motion for a permanent injunction to be issued prohibiting the manufacture, use or sale of the infringing Sercel products, (b) confirmed that the Company's 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 the Company was 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, the Company is now entitled to be awarded an additional amount of damages equal to a reasonable royalty on the infringing pre-verdict Sercel marine sales. After the Company learned that Sercel continued to make sales of infringing products after the January 2010 jury verdict was rendered, the Company 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 the Company \$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. The Court 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 future proceeding. Sercel and the Company appealed portions of the final judgment, and on February 17, 2012, the appellate court upheld the final judgment. The Company has not recorded any amounts related to this gain contingency as of December 31, 2011.

***Greatbatch***

In 2002, the Company filed a lawsuit against operating subsidiaries of battery manufacturer Greatbatch, Inc., including its Electrochem division (collectively Greatbatch ), in the 24th Judicial District Court for the

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Parish of Jefferson in the State of Louisiana. In the lawsuit, styled *Input/Output, Inc. and I/O Marine Systems, Inc. v. Wilson Greatbatch Technologies, Inc., Wilson Greatbatch, Ltd. d/b/a Electrochem Lithium Batteries, and WGL Intermediate Holdings, Inc., Civil Action No. 578-881, Division A*, the Company alleged that Greatbatch had fraudulently misappropriated the Company's product designs and other trade secrets related to the batteries and battery pack used in the Company's DigiBIRD<sup>®</sup> marine towed streamer vertical control device and used the Company's confidential information to manufacture and market competing batteries and battery packs. After a trial, on October 1, 2009 the jury concluded that Greatbatch had committed fraud, violated the Louisiana Unfair Trade Practices Act and breached a trust and nondisclosure agreement between Greatbatch and the Company, and awarded the Company approximately \$21.7 million in compensatory damages. A judgment was entered consistent with the jury verdict. In December 2010, the Company and Greatbatch settled the lawsuit, pursuant to which Greatbatch paid the Company \$25.0 million in full satisfaction of the judgment. Upon the cash receipt, the Company recorded a gain on legal settlement of \$24.5 million, net of fees paid to attorneys, for the year ended December 31, 2010.

### ***Other***

The Company has been named in various other lawsuits or threatened actions that are incidental to its ordinary business. Litigation is inherently unpredictable. Any claims against the Company, whether meritorious or not, could be time-consuming, cause the Company 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. Management currently believes that the ultimate resolution of these matters will not have a material adverse impact on the financial condition, results of operations or liquidity of the Company.

### **(21) Restructuring Activities**

Due to the formation of INOVA Geophysical, the Company consolidated certain of its Stafford, Texas-based operations, which resulted in the Company permanently ceasing to use certain leased facilities as of March 31, 2010. The Company determined that the fair value of its remaining costs to be incurred under its lease of these facilities was approximately \$8.2 million. After considering all deferred items on the Company's balance sheet associated with this lease, the Company recorded a charge to its loss on the disposition of its land equipment businesses of \$5.0 million. As of January 1, 2011, the Company had a liability of \$6.7 million. For 2011, the Company made cash payments of \$1.2 million and accrued approximately \$0.4 million related to accretion expense, resulting in a remaining liability of \$5.9 million as of December 31, 2011.

In the fourth quarter of 2011, the Company initiated a restructuring of its Sensor geophone operations in the Netherlands, which included reducing headcount at this location by approximately 30%. As of December 31, 2011, the Company accrued a liability of \$2.4 million associated with severance costs for these employees and recorded the corresponding expense within general and administrative expenses.

**Table of Contents****(22) Selected Quarterly Information (Unaudited)**

A summary of selected quarterly information is as follows (in thousands, except per share amounts):

Year Ended December 31, 2011	Three Months Ended			
	March 31	June 30	September 30	December 31
Product revenues	\$ 32,387	\$ 39,016	\$ 41,760	\$ 75,872
Service revenues	58,165	49,516	73,894	84,011
Total net revenues	90,552	88,532	115,654	159,883
Gross profit	31,139	33,631	44,058	64,617
Income from operations	6,071	8,800	18,496	33,428
Interest expense, net	(1,615)	(1,187)	(1,382)	(1,600)
Equity in losses of INOVA Geophysical	(860)	(4,173)	(4,811)	(13,018)
Impairment of cost method investment				(1,312)
Other income (expense)	(2,999)	497	199	168
Income tax expense	147	1,085	3,484	5,420
Net income attributable to noncontrolling interests	25	44	34	105
Preferred stock dividends	338	338	338	338
Net income applicable to common shares	\$ 137	\$ 2,558	\$ 8,714	\$ 12,013
Net income per share:				
Basic	\$ 0.00	\$ 0.02	\$ 0.06	\$ 0.08
Diluted	\$ 0.00	\$ 0.02	\$ 0.06	\$ 0.08

Year Ended December 31, 2010	Three Months Ended			
	March 31	June 30	September 30	December 31
Product revenues	\$ 40,242	\$ 39,433	\$ 34,299	\$ 51,228
Service revenues	48,477	35,953	87,295	107,395
Total net revenues	88,719	75,386	121,594	158,623
Gross profit	22,366	28,062	48,948	66,357
Income (loss) from operations	(10,977)	5,984	23,369	34,471
Interest expense, net	(25,643)(A)	(1,373)	(1,861)	(1,893)
Loss on disposition of land division	(38,115)			
Fair value adjustment of warrant	12,788			
Equity in losses of INOVA Geophysical		(179)	(8,004)	(15,541)
Gain on legal settlement				24,500
Impairment of cost method investment				(7,650)
Other income (expense)	3,217	(799)	(3,229)	1,039
Income tax expense (benefit)	12,160	2,174	(1,934)	14,542
Preferred stock dividends	875	385	338	338
Net income (loss) applicable to common shares	\$ (71,765)	\$ 1,074	\$ 11,871	\$ 20,046
Net income (loss) per share:				
Basic	\$ (0.60)	\$ 0.01	\$ 0.08	\$ 0.13
Diluted	\$ (0.60)	\$ 0.01	\$ 0.08	\$ 0.13

(A) Includes approximately \$18.8 million of write-offs of debt discount and debt issuance costs.

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**(23) Certain Relationships and Related Party Transactions**

For 2011, 2010 and 2009, the Company recorded revenues from BGP of \$34.5 million, \$16.9 million and \$32.2 million, respectively. A majority of the revenues from BGP for 2011 related to the sale of a twelve-streamer DigiSTREAMER system. Receivables due from BGP were \$15.2 million (approximately \$13.2 million of this receivable was collected in January 2012) and \$3.0 million at December 31, 2011 and 2010, respectively. BGP owned approximately 15.3% (purchased in March 2010) of the Company's outstanding common stock as of December 31, 2011.

The Company was 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 provide for INOVA Geophysical to pay approximately \$0.3 million per month (beginning in April 2010) for services and to reimburse the Company for third-party and lease costs incurred by the Company directly related to the administrative support of INOVA Geophysical. The term of the agreement is for two years and will automatically renew for one-year periods, unless either party provides notice of its intent to terminate the agreement. At December 31, 2011, approximately \$0.9 million was owed by INOVA Geophysical under the support and transition agreement and reflected in the balance of Accounts Receivable, net. The majority of these shared services provided by the Company are reflected as reductions to general and administrative expense. INOVA Geophysical has provided notice of its intent to terminate the agreement and services are expected to end by June 30, 2012.

Mr. James M. Lapeyre, Jr. is the Lead Independent Director on ION's board of directors, the former chairman of ION's board of directors 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 6.0% of the Company's outstanding common stock as of December 31, 2011.

The Company acquired DigiCourse, Inc., the Company's marine positioning products business, from Laitram in 1998. In connection with that acquisition, the Company entered into a Continued Services Agreement with Laitram under which Laitram agreed to provide the Company certain bookkeeping, software, manufacturing, and maintenance services. Manufacturing services consist primarily of machining of parts for the Company's marine positioning systems. The term of this agreement expired in September 2001 but the Company continues to operate under its terms. In addition, from time to time, when the Company has requested, the legal staff of Laitram has advised the Company on certain intellectual property matters with regard to the Company's 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, the Company has 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 2011, the Company paid Laitram and its affiliates a total of approximately \$6.3 million, which consisted of approximately \$5.4 million for manufacturing services, \$0.7 million for rent and other pass-through third party facilities charges, and \$0.1 million for reimbursement for costs related to providing administrative and other back-office support services in connection with the Company's Louisiana marine operations. For the 2010 and 2009 fiscal years, the Company paid Laitram and its affiliates a total of approximately \$3.1 million and \$4.0 million, respectively, for these services. In the opinion of the Company's management, the terms of these services are fair and reasonable and as favorable to the Company as those that could have been obtained from unrelated third parties at the time of their performance.

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## SCHEDULE VALUATION AND QUALIFYING ACCOUNTS

## SCHEDULE II

## ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES

## VALUATION AND QUALIFYING ACCOUNTS

Year Ended December 31, 2009	Balance at Beginning of Year	Charged (Credited) to Costs and Expenses	Deductions	Balance at End of Year
			(In thousands)	
Allowances for doubtful accounts	\$ 5,685	\$ 3,457	\$ (3,468)	\$ 5,674
Allowances for doubtful notes		71		71
Warranty	10,526	(2,121)	(3,317)	5,088
Valuation allowance on deferred tax assets	29,098	6,531	(2,503)	33,126

  

Year Ended December 31, 2010	Balance at Beginning of Year	Disposed Reserves During the Period	Charged (Credited) to Costs and Expenses	Deductions	Balance at End of Year
			(In thousands)		
Allowances for doubtful accounts	\$ 5,674	\$ (4,273)	\$ 1,689	\$ (2,245)	\$ 845
Allowances for doubtful notes	71	(71)			
Warranty	5,088	(3,821)	443	(926)	784
Valuation allowance on deferred tax assets	33,126	(15,897)	45,471		62,700

  

Year Ended December 31, 2011	Balance at Beginning of Year	Charged (Credited) to Costs and Expenses	Deductions	Balance at End of Year
			(In thousands)	
Allowances for doubtful accounts	\$ 845	\$ 597	\$ (244)	\$ 1,198
Warranty	784	1,165	(1,234)	715
Valuation allowance on deferred tax assets	62,700	6,775		69,475

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**EXHIBIT INDEX**

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.
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.

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**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.
**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.

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**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.
**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.

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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.
*21.1	Subsidiaries of the Company.
*23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm.
*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.
101	The following materials are formatted in Extensible Business Reporting Language (XBRL): (i) Consolidated Balance Sheets at December 31, 2011 and 2010, (ii) Consolidated Statements of Operations for the years ended December 31, 2011, 2010 and 2009, (iii) Consolidated Statements of Cash Flows for the years ended December 31, 2011, 2010 and 2009, (iv) Consolidated Statements of Stockholders' Equity and Comprehensive Income (Loss) for the years ended December 31, 2011, 2010 and 2009, (v) Notes to Consolidated Financial Statements and (vi) 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.