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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
FOR THE QUARTERLY PERIOD ENDED MARCH 31, 2019
OR

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

COMMISSION FILE NUMBER: 1-12691

ION GEOPHYSICAL CORPORATION

(EXACT NAME OF REGISTRANT AS SPECIFIED IN ITS CHARTER)

DELAWARE 22-2286646

(State or other jurisdiction of (I.R.S. Employer incorporation or organization) Identification No.)

2105 CityWest Blvd. Suite 100

Houston, Texas 77042-2839

(Address of principal executive offices) (Zip Code)

REGISTRANT'S TELEPHONE NUMBER, INCLUDING AREA CODE: (281) 933-3339

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

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

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

Large accelerated filer Accelerated filer

Non-accelerated filer Smaller reporting company

Emerging growth company

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

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

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

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Title of each class	Trading symbol(s)	Name of each exchange on which registered
Common Stock, \$0.01 par value	IO	New York Stock Exchange

At April 29, 2019, there were 14,069,520 shares of common stock, par value \$0.01 per share, outstanding.

1

ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
 TABLE OF CONTENTS FOR FORM 10-Q
 FOR THE QUARTER ENDED MARCH 31, 2019

	PAGE
PART I. Financial Information	
Item 1. Financial Statements (Unaudited)	
Condensed Consolidated Balance Sheets as of March 31, 2019 and December 31, 2018	<u>3</u>
Condensed Consolidated Statements of Operations for the three months ended March 31, 2019 and 2018	<u>4</u>
Condensed Consolidated Statements of Comprehensive Loss for the three months ended March 31, 2019 and 2018	<u>5</u>
Condensed Consolidated Statements of Cash Flows for the three months ended March 31, 2019 and 2018	<u>6</u>
Condensed Consolidated Statements of Stockholders' (Deficit) Equity for the three months ended March 31, 2019 and 2018	<u>7</u>
Footnotes to Condensed Consolidated Financial Statements	<u>8</u>
Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations	<u>25</u>
Item 3. Quantitative and Qualitative Disclosures about Market Risk	<u>33</u>
Item 4. Controls and Procedures	<u>33</u>
PART II. Other Information	
Item 1. Legal Proceedings	<u>34</u>
Item 1A. Risk Factors	<u>35</u>
Item 2. Unregistered Sales of Equity Securities and Use of Proceeds	<u>36</u>
Item 5. Other Information	<u>37</u>
Item 6. Exhibits	<u>38</u>

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS
(UNAUDITED)

	March 31, 2019	December 31, 2018
	(In thousands, except share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 38,407	\$ 33,551
Accounts receivable, net	29,104	26,128
Unbilled receivables	14,442	44,032
Inventories, net	14,094	14,130
Prepaid expenses and other current assets	7,486	7,782
Total current assets	103,533	125,623
Deferred income tax asset, net	8,594	7,191
Property, plant and equipment, net	13,257	13,041
Multi-client data library, net	66,932	73,544
Goodwill	23,592	22,915
Right-of-use assets	44,979	47,803
Other assets	1,819	2,435
Total assets	\$ 262,706	\$ 292,552
LIABILITIES AND (DEFICIT) EQUITY		
Current liabilities:		
Current maturities of long-term debt	\$ 1,787	\$ 2,228
Accounts payable	30,384	34,913
Accrued expenses	32,277	31,411
Accrued multi-client data library royalties	26,310	29,256
Deferred revenue	7,410	7,710
Current maturities of operating lease liabilities	11,964	12,214
Total current liabilities	110,132	117,732
Long-term debt, net of current maturities	119,482	119,513
Operating lease liabilities, net of current maturities	42,721	45,592
Other long-term liabilities	1,810	1,891
Total liabilities	274,145	284,728
(Deficit) Equity:		
Common stock, \$0.01 par value; authorized 26,666,667 shares; outstanding 14,069,520 and 14,015,615 shares at March 31, 2019 and December 31, 2018, respectively.	141	140
Additional paid-in capital	953,679	952,626
Accumulated deficit	(947,452)	(926,092)
Accumulated other comprehensive loss	(19,472)	(20,442)
Total stockholders' (deficit) equity	(13,104)	6,232
Noncontrolling interest	1,665	1,592
Total (deficit) equity	(11,439)	7,824
Total liabilities and (deficit) equity	\$ 262,706	\$ 292,552

See accompanying Footnotes to Condensed Consolidated Financial Statements.

ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(UNAUDITED)

	Three Months Ended March 31,	
	2019	2018
	(In thousands, except per share data)	
Service revenues	\$28,128	\$25,086
Product revenues	8,828	8,422
Total net revenues	36,956	33,508
Cost of services	22,446	22,329
Cost of products	4,598	4,326
Gross profit	9,912	6,853
Operating expenses:		
Research, development and engineering	5,357	4,255
Marketing and sales	5,793	5,098
General, administrative and other operating expenses	14,699	10,140
Total operating expenses	25,849	19,493
Loss from operations	(15,937)	(12,640)
Interest expense, net	(3,112)	(3,836)
Other expense, net	(792)	(791)
Loss before income taxes	(19,841)	(17,267)
Income tax expense	1,407	1,072
Net loss	(21,248)	(18,339)
Net income attributable to noncontrolling interest	(112)	(87)
Net loss attributable to ION	\$(21,360)	\$(18,426)
Net loss per share:		
Basic	\$(1.52)	\$(1.44)
Diluted	\$(1.52)	\$(1.44)
Weighted average number of common shares outstanding:		
Basic	14,033	12,813
Diluted	14,033	12,813

See accompanying Footnotes to Condensed Consolidated Financial Statements.

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

	Three Months Ended March 31,	
	2019	2018
	(In thousands)	
Net loss	\$(21,248)	\$(18,339)
Other comprehensive loss, net of taxes, as appropriate:		
Foreign currency translation adjustments	970	1,825
Comprehensive net loss	(20,278)	(16,514)
Comprehensive income attributable to noncontrolling interest	(112)	(87)
Comprehensive net loss attributable to ION	\$(20,390)	\$(16,601)

See accompanying Footnotes to Condensed Consolidated Financial Statements.

ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
 CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
 (UNAUDITED)

	Three Months Ended March 31,	
	2019	2018
	(In thousands)	
Cash flows from operating activities:		
Net loss	\$(21,248)	\$(18,339)
Adjustments to reconcile net loss to cash provided by operating activities:		
Depreciation and amortization (other than multi-client data library)	1,035	2,523
Amortization of multi-client data library	11,100	9,793
Stock-based compensation expense	1,293	812
Deferred income taxes	(1,398)	(117)
Changes in operating assets and liabilities:		
Accounts receivable	(2,870)	(10,084)
Unbilled receivables	29,498	20,919
Inventories	81	(164)
Accounts payable, accrued expenses and accrued royalties	(2,013)	(10,155)
Deferred revenue	(333)	2,381
Other assets and liabilities	253	3,039
Net cash provided by operating activities	15,398	608
Cash flows from investing activities:		
Investment in multi-client data library	(8,767)	(9,240)
Purchase of property, plant and equipment	(807)	(61)
Net cash used in investing activities	(9,574)	(9,301)
Cash flows from financing activities:		
Payments under revolving line of credit	—	(10,000)
Payments on notes payable and long-term debt	(715)	(29,144)
Net proceeds from issuance of stock	—	47,219
Other financing activities	(239)	(575)
Net cash (used in) provided by financing activities	(954)	7,500
Effect of change in foreign currency exchange rates on cash, cash equivalents and restricted cash	81	(113)
Net increase (decrease) in cash, cash equivalents and restricted cash	4,951	(1,306)
Cash, cash equivalents and restricted cash at beginning of period	33,854	52,419
Cash, cash equivalents and restricted cash at end of period	\$38,805	\$51,113

The following table is a reconciliation of cash, cash equivalents, and restricted cash to the condensed consolidated balance sheets:

	March 31,	
	2019	2018
	(In thousands)	
Cash and cash equivalents	\$38,407	\$50,750
Restricted cash included in prepaid expenses and other current assets	398	60
Restricted cash included in other long-term assets	—	303
Total cash, cash equivalents, and restricted cash shown in statements of cash flows	\$38,805	\$51,113

See accompanying Footnotes to Condensed Consolidated Financial Statements.

ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' (DEFICIT) EQUITY
(UNAUDITED)

(In thousands, except shares)	Three Months Ended March 31, 2019						
	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Noncontrolling Interests	Total Equity (Deficit)
Balance at January 1, 2019	14,015,615	\$ 140	\$952,626	\$(926,092)	\$(20,442)	\$ 1,592	\$7,824
Net (loss) income	—	—	—	(21,360)	—	112	(21,248)
Translation adjustments	—	—	—	—	970	(39)	931
Stock-based compensation expense	—	—	1,293	—	—	—	1,293
Exercise of stock options	5,750	—	18	—	—	—	18
Vesting of restricted stock units/awards	68,199	1	(1)	—	—	—	—
Restricted stock cancelled for employee minimum income taxes	(20,044)	—	(257)	—	—	—	(257)
Balance at March 31, 2019	14,069,520	\$ 141	\$953,679	\$(947,452)	\$(19,472)	\$ 1,665	\$(11,439)
(In thousands, except shares)	Three Months Ended March 31, 2018						
	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Noncontrolling Interests	Total Equity
Balance at January 1, 2018	12,019,701	\$ 120	\$903,247	\$(854,921)	\$(18,879)	\$ 1,239	\$30,806
Net (loss) income	—	—	—	(18,426)	—	87	(18,339)
Translation adjustments	—	—	—	—	1,825	(9)	1,816
Stock-based compensation expense	—	—	812	—	—	—	812
Exercise of stock options	11,250	—	35	—	—	—	35
Vesting of restricted stock units/awards	81,014	1	(1)	—	—	—	—
Restricted stock cancelled for employee minimum income taxes	(22,456)	—	(610)	—	—	—	(610)
Public equity offering	1,820,000	18	46,981	—	—	—	46,999
Balance at March 31, 2018	13,909,509	\$ 139	\$950,464	\$(873,347)	\$(17,054)	\$ 1,317	\$61,519

ION GEOPHYSICAL CORPORATION AND SUBSIDIARIES
FOOTNOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(UNAUDITED)

(1) Summary of Significant Accounting Policies

Basis of Presentation

The condensed consolidated balance sheet of ION Geophysical Corporation and its subsidiaries (collectively referred to as the “Company” or “ION,” unless the context otherwise requires) at December 31, 2018, has been derived from the Company’s audited consolidated financial statements at that date. The condensed consolidated balance sheet at March 31, 2019, and the condensed consolidated statements of operations, comprehensive loss and cash flows for the three months ended March 31, 2019 and 2018, are unaudited. In the opinion of management, all adjustments of a normal recurring nature that are necessary for a fair presentation of the results of the interim period have been included. Interim results are not necessarily indicative of the operating results for a full year or of future operations.

Intercompany transactions and balances have been eliminated.

The Company’s condensed consolidated financial statements reflect a non-redeemable noncontrolling interest in a majority-owned affiliate which is reported as a separate component of equity in “Noncontrolling interest” in the condensed consolidated balance sheets. Net income attributable to noncontrolling interest is stated separately in the condensed consolidated statements of operations. The activity for this noncontrolling interest relates to proprietary processing projects in Brazil.

These condensed consolidated financial statements have been prepared using accounting principles generally accepted in the United States (“GAAP”) for interim financial information and the instructions to Form 10-Q and applicable rules of Regulation S-X of the Securities and Exchange Commission (the “SEC”). Certain information and footnote disclosures normally included in annual financial statements presented in accordance with GAAP have been omitted. The accompanying condensed consolidated financial statements should be read in conjunction with the Company’s Annual Report on Form 10-K for the year ended December 31, 2018.

Certain prior period amounts have been reclassified to conform to the current period presentation, including the change in reportable segments presentation which had no impact on the condensed consolidated financial statements and the recognition of right-of-use (“ROU”) assets and operating lease liabilities on the condensed consolidated balance sheets as a result of the adoption of the new lease standard.

Significant Accounting Policies

The Company’s significant accounting policies are disclosed in Note 1 “Summary of Significant Accounting Policies.” of the Annual Report on Form 10-K for the year ended December 31, 2018. There have been no changes in such policies or the application of such policies during the three months ended March 31, 2019 except as discussed in Note 2 “Recent Accounting Pronouncements” and Note 11 “Lease Obligations.”

Use of Estimates

The preparation of condensed consolidated financial statements in conformity with GAAP requires the use of estimates and assumptions by management that affects the reported amounts in the condensed consolidated financial statements and accompanying notes. Areas involving significant estimates include, but not limited to, accounts and unbilled receivables, inventory valuation, sales forecast related to multi-client data libraries, impairment of property, plant and equipment and goodwill and deferred taxes. Actual results could materially differ from those estimates.

(2) Recent Accounting Pronouncements

Accounting Pronouncements Recently Adopted

On January 1, 2019, the Company adopted ASU 2016-2, “Leases (Topic 842)” using the modified retrospective method. This ASU requires the recognition of lease assets and lease liabilities by lessees for those leases classified as operating leases under the previous guidance. The Company used January 1, 2018, the beginning of the earliest comparative period presented in its condensed consolidated financial statements, as the date of initial application. The Company elected the practical expedients upon transition which will retain the lease classification for leases and any unamortized initial direct costs that existed prior to the adoption of the standard.

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The adoption of the standard resulted in ROU assets of \$59.5 million and operating lease liabilities of \$70.6 million on the condensed consolidated balance sheets as of January 1, 2018. The difference between the ROU assets and operating lease liabilities is due to the derecognition of \$11.1 million in deferred rent recorded within other long-term liabilities. There was no impact on the condensed consolidated statements of operations and cash flows. The standard had no impact on the debt

8

covenant compliance under existing agreements. Short-term leases, which are leases with a duration of twelve months or less, have not been recorded in the condensed consolidated balance sheets.

Accounting Pronouncements Not Yet Adopted

In June 2016, the FASB issued Accounting Standards Update (“ASU”) No. 2016-13, “Financial Instruments - Credit Losses: Measurement of Credit Losses on Financial Instruments.” The guidance will replace the incurred loss impairment methodology under current GAAP with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. The guidance is effective for public companies for interim and annual periods beginning after December 15, 2019, with early adoption permitted for interim and annual periods beginning after December 15, 2018. The Company is in the initial stages of evaluating the impact of this standard on the condensed consolidated financial statements.

(3) Segment Information

During the current quarter, the Company consolidated its operating segments from three into two therefore eliminating the separate presentation of Ocean Bottom Integrated Technologies segment. This consolidation aligns with the Company’s asset light business model and evolved strategy to commercialize components of the Company’s next generation ocean bottom nodal system, 4Sea, instead of operating a crew with vessel and equipment assets. The Company is offering 4Sea components more broadly to the growing number of OBS service providers under recurring revenue commercial strategies to enable it to share in the value the technology delivers. The Company may also license the right to manufacture and use the 4Sea nodal technology to a service provider on a value-based pricing model, such as a royalty stream. Such licensing would be recognized through the relevant segments, either E&P Technology & Services or Operations Optimization.

Accordingly, effective for the first quarter of 2019, the Company evaluates and reviews its results of operations based on two reporting segments: E&P Technology & Services and Operations Optimization. Refer to Item 2. “Management’s Discussion and Analysis of Financial Condition and Results of Operations” for information about each business segment’s business, products and services.

The segments represent components of the Company for which separate financial information is available that is utilized on a regular basis by the Chief Operating Decision Maker in determining how to allocate resources and evaluate performance. The Company measures segment operating results based on income (loss) from operations. Previously reported segment information has been retrospectively revised throughout the condensed consolidated financial statements, as applicable, for all periods presented to reflect the changes in the Company’s reporting segments. These changes did not have an impact on the Company’s condensed consolidated financial statements. These changes did not affect the Company’s reporting units used for allocating and testing goodwill for impairment.

The following table is a summary of segment information (in thousands):

	Three Months Ended			
	March 31,			
	2019		2018	
Net revenues:				
E&P Technology & Services:				
New Venture	\$13,471		\$13,726	
Data Library	9,948		5,948	
Total multi-client revenues	23,419		19,674	
Imaging Services	3,684		4,894	
Total	27,103		24,568	
Operations Optimization:				
Devices	4,820		4,158	
Optimization Software & Services	5,033		4,782	
Total	9,853		8,940	
Total	\$36,956		\$33,508	
Gross profit (loss):				
E&P Technology & Services	\$5,440		\$4,343	
Operations Optimization	4,516		4,311	
Segment gross profit	9,956		8,654	
Other	(44)	(a)	(1,801)	(a)
Total	\$9,912		\$6,853	
Gross margin:				
E&P Technology & Services	20	%	18	%
Operations Optimization	46	%	48	%
Segment gross margin	27	%	26	%
Other	—	%	—	%
Total	27	%	20	%
Income (loss) from operations:				
E&P Technology & Services	\$(1,615)	)	\$(794))
Operations Optimization	170		786	
Support and other	(14,492)	(b)	(12,632)	(b)
Loss from operations	(15,937)	)	(12,640))
Interest expense, net	(3,112)	)	(3,836))
Other expense, net	(792)	)	(791))
Loss before income taxes	\$(19,841)		\$(17,267)	

(a) Relates to gross loss of previously reported Ocean Bottom Integrated Technologies segment.

(b) Includes loss from operations of previously reported Ocean Bottom Integrated Technologies segment of \$0.8 million and \$2.8 million for the three months ended March 31, 2019 and 2018, respectively, which includes item (a) above and operating expenses of \$0.8 million and \$1.0 million for the three months ended March 31, 2019 and 2018, respectively.

(4) Revenue From Contracts With Customers

The Company derives revenue from the (i) sale or license of multi-client and proprietary data, imaging services and E&P Advisors consulting services within its E&P Technologies & Services segment; (ii) sale, license and repair of seismic data acquisition systems and other seismic equipment; and (iii) sale or license of seismic command and control software systems and software solutions for operations management within its Operations Optimization segment. All E&P Technology & Services' revenues and the services component of Optimization Software & Services' revenues under Operations Optimization segment are classified as service revenues. All other revenues are classified as product revenues.

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The Company uses a five-step model to determine proper revenue recognition from customer contracts. Revenue is recognized when (i) a contract is approved by all parties; (ii) the goods or services promised in the contract are identified; (iii) the consideration we expect to receive in exchange for the goods or services promised is determined; (iv) the consideration is allocated to the goods and services in the contract; and (v) control of the promised goods or services is transferred to the customer. The Company does not disclose the value of contractual future performance obligations such as backlog with an original expected length of one year or less within the footnotes.

Revenue by Geographic Area

The following table is a summary of net revenues by geographic area (in thousands):

	Three months ended March 31,	
	2019	2018
Latin America	\$13,531	\$9,852
Europe	10,392 ^(a)	5,549
North America	7,157	8,048
Africa	2,389	5,019
Asia Pacific	1,867	3,934
Middle East	1,359	749
Commonwealth of Independent States	261	357
Total	\$36,956	\$33,508

^(a) Increase is primarily attributable to data library sales to European customers.

See Footnote 3 "Segment Information" of footnotes to condensed consolidated financial statements for revenue by segment for the three months ended March 31, 2019 and 2018.

Unbilled Receivables

Unbilled receivables relate to revenues recognized on multi-client surveys, imaging services and devices equipment repairs on a proportionate basis, and on licensing of multi-client data libraries for which invoices have not yet been presented to the customer. The following table is a summary of unbilled receivables (in thousands):

	March 31, December 31,	
	2019	2018
New Venture	\$ 7,342	\$ 38,430
Imaging Services	6,159	5,075
Devices	941	527
Total	\$ 14,442	\$ 44,032

The changes in unbilled receivables are as follows (in thousands):

Unbilled receivables at December 31, 2018	\$	44,032	
Recognition of unbilled receivables	36,376		
Revenues billed to customers	(65,966)	
Unbilled receivables at March 31, 2019	\$	14,442	

Deferred Revenue

Billing practices are governed by the terms of each contract based upon achievement of milestones or pre-agreed schedules. Billing does not necessarily correlate with revenue recognized on a proportionate basis as work is performed and control is transferred to the customer. Deferred revenue represents cash received in excess of revenue not yet recognized as of the reporting period, but will be recognized in future periods. The following table is a summary of deferred revenues (in thousands):

	March 31, December 31,	
	2019	2018
New Venture	\$ 6,059	\$ 5,797
Imaging Services	51	307
Devices	562	626
Optimization Software & Services	738	980
Total	\$ 7,410	\$ 7,710

The changes in deferred revenues are as follows (in thousands):

Deferred revenue at December 31, 2018	\$7,710
Cash collected in excess of revenue recognized	280
Recognition of deferred revenue ^(a)	(580)
Deferred revenue at March 31, 2019	\$7,410

^(a) The majority of deferred revenue recognized relates to Company's Ventures group.

The Company expects to recognize all deferred revenue within the next 12 months.

Credit Risks

The Company had one customer with sales that exceeded 10% of the Company's consolidated net revenues for the three months ended March 31, 2019. The Company had two customers with sales that each exceeded 10% of the Company's consolidated net revenues for the three months ended March 31, 2018. Revenues related to these customers are included within the E&P Technology & Services segment.

At March 31, 2019, the Company had two customers that accounted for 26% of the Company's total combined accounts receivable and unbilled receivable balances. At March 31, 2018, the Company had no customers with a balance greater than 10% of the Company's total combined accounts receivable and unbilled receivable balances.

(5) Long-term Debt

The following table is a summary of long-term debt (in thousands):

	March 31, 2019	December 31, 2018
Senior secured second-priority lien notes (maturing December 15, 2021)	\$120,569	\$120,569
Revolving credit facility (maturing August 16, 2023) ^(a)	—	—
Equipment finance leases (Note 11)	2,658	2,938
Other debt	724	1,159
Costs associated with issuances of debt	(2,682)	(2,925)
Total	121,269	121,741
Current maturities of long-term debt	(1,787)	(2,228)
Long-term debt, net of current maturities	\$119,482	\$119,513

^(a) The maturity of the Credit Facility will accelerate to October 31, 2021 if the Company is unable to repay or extend the maturity of the Second Lien Notes.

Revolving Credit Facility

On August 16, 2018, ION Geophysical Corporation and its material U.S. subsidiaries; GX Technology Corporation, ION Exploration Products (U.S.A) Inc. and I/O Marine Systems Inc. (the "Material U.S. Subsidiaries"), along with GX Geoscience Corporation, S. de R.L. de C.V., a limited liability company (Sociedad de Responsabilidad Limitada de Capital Variable) organized under the laws of Mexico, and a subsidiary of the Company (the "Mexican Subsidiary"), (the Material U.S. Subsidiaries and the Mexican Subsidiary are collectively, the "Subsidiary Borrowers", together with ION Geophysical Corporation are the "Borrowers"), the financial institutions party thereto, as lenders, and PNC Bank, National Association ("PNC"), as agent for the lenders, entered into that certain Third Amendment and Joinder to Revolving Credit and Security Agreement (the "Third Amendment"), amending the Revolving Credit and Security Agreement, dated as of August 22, 2014 (as previously amended by the First Amendment to Revolving Credit and Security Agreement, dated as of August 4, 2015 and the Second Amendment to Revolving Credit and Security Agreement, dated as of April 28, 2016, the "Credit Agreement"). The Credit Agreement, as amended by the First Amendment, the Second Amendment and the Third Amendment is herein called the "Credit Facility").

The Credit Facility is available to provide for the Borrowers' general corporate needs, including working capital requirements, capital expenditures, surety deposits and acquisition financing.

The Third Amendment amended the Credit Agreement to, among other things:

extend the maturity date of the Credit Facility by approximately four years (from August 22, 2019 to August 16, 2023), subject to the Company's retirement or extension of the maturity date of its Second Lien Notes, as defined below, which mature on December 15, 2021;

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increase the maximum revolver amount by \$10.0 million (from \$40.0 million to \$50.0 million);
increase the borrowing base percentage of the net orderly liquidation value as it relates to the multi-client data library
(not to exceed \$28.5 million, up from the previous maximum of \$15.0 million for the multi-client data library
component);

12

include the eligible billed receivables of the Mexican Subsidiary up to a maximum of \$5.0 million in the borrowing base calculation and joins the Mexican Subsidiary as a borrower thereunder (with a maximum exposure of \$5.0 million) and require the equity and assets of the Mexican Subsidiary to be pledged to secure obligations under the facility;

modify the interest rate such that the maximum interest rate remains consistent with the fixed interest rate prior to the Third Amendment (that is, 3.00% per annum for domestic rate loans and 4.00% per annum for LIBOR rate loans), but now lowers the range down to a minimum interest rate of 2.00% for domestic rate loans and 3.00% for LIBOR rate loans based on a leverage ratio for the preceding four-quarter period;

decrease the minimum excess borrowing availability threshold which (if the Borrowers have minimum excess borrowing availability below any such threshold) triggers the agent's right to exercise dominion over cash and deposit accounts; and

modify the trigger required to test for compliance with the fixed charges coverage ratio, which is further described below.

The maximum amount under the Credit Facility is the lesser of \$50.0 million or a monthly borrowing base. The borrowing base under the Credit Facility will increase or decrease monthly using a formula based on certain eligible receivables, eligible inventory and other amounts, including a percentage of the net orderly liquidation value of the Borrowers' multi-client library. As of March 31, 2019, the borrowing base under the Credit Facility was \$39.7 million, and there was no indebtedness under the Credit Facility.

The obligations of Borrowers under the Credit Facility are secured by a first-priority security interest in 100% of the stock of the Subsidiary Borrowers and 65% of the equity interest in ION International Holdings L.P., and by substantially all other assets of the Borrowers. However, the first-priority security interest in the other assets of the Mexican Subsidiary is capped to a maximum exposure of \$5.0 million.

The Credit Facility contains covenants that, among other things, limit or prohibit the Borrowers, subject to certain exceptions and qualifications, from incurring additional indebtedness in excess of permitted indebtedness (including capital lease obligations), repurchasing equity, paying dividends or distributions, granting or incurring additional liens on the Borrowers' properties, pledging shares of the Borrowers' subsidiaries, entering into certain merger transactions, entering into transactions with the Company's affiliates, making certain sales or other dispositions of the Borrowers' assets, making certain investments, acquiring other businesses and entering into sale-leaseback transactions with respect to the Borrowers' property.

The Credit Facility requires that the Borrowers maintain a minimum fixed charge coverage ratio of 1.1 to 1.0 as of the end of each fiscal quarter during the existence of a covenant testing trigger event. The fixed charge coverage ratio is defined as the ratio of (i) ION Geophysical Corporation's EBITDA, minus unfunded capital expenditures made during the relevant period, minus distributions (including tax distributions) and dividends made during the relevant period, minus cash taxes paid during the relevant period, to (ii) certain debt payments made during the relevant period. A covenant testing trigger event occurs upon (a) the occurrence and continuance of an event of default under the Credit Facility or (b) by a two-step process based on (i) a minimum excess borrowing availability threshold (excess borrowing availability less than \$6.25 million for five consecutive days or \$5.0 million on any given day), and (ii) the Borrowers' unencumbered cash maintained in a PNC deposit account is less than the Borrowers' then outstanding obligations.

At March 31, 2019, ION Geophysical Corporation was in compliance with all of the covenants under the Credit Facility.

The Credit Facility contains customary event of default provisions (including a "change of control" event affecting ION Geophysical Corporation), the occurrence of which could lead to an acceleration of ION Geophysical Corporation's obligations under the Credit Facility.

Senior Secured Notes

ION Geophysical Corporation's 9.125% Senior Secured Second Priority Notes due December 2021 (the "Second Lien Notes") are senior secured second-priority obligations guaranteed by the Material U.S. Subsidiaries and the Mexican Subsidiary (each as defined above and herein below, with the reference to the Second Lien Notes, the "Guarantors"). Interest on the Second Lien Notes is payable semiannually in arrears on June 15 and December 15 of each year during

their term, except that the interest payment otherwise payable on June 15, 2021 will be payable on December 15, 2021.

The April 2016 indenture governing the Second Lien Notes contains certain covenants that, among other things, limits or prohibits ION Geophysical Corporation's ability and the ability of its restricted subsidiaries to take certain actions or permit certain conditions to exist during the term of the Second Lien Notes, including among other things, incurring additional indebtedness in excess of permitted indebtedness, creating liens, paying dividends and making other distributions in respect of ION Geophysical Corporation's capital stock, redeeming ION Geophysical Corporation's capital stock, making investments or certain other restricted payments, selling certain kinds of assets, entering into transactions with affiliates, and effecting mergers or consolidations. These and other restrictive covenants contained in the Second Lien Notes Indenture are subject to certain exceptions and qualifications. All of ION Geophysical Corporation's subsidiaries are currently restricted subsidiaries.

As of March 31, 2019, the Company was in compliance with the covenants with respect to the Second Lien Notes.

On or after December 15, 2019, the Company may, on one or more occasions, redeem all or a part of the Second Lien Notes at the redemption prices set forth below, plus accrued and unpaid interest and special interest, if any, on the Second Lien Notes redeemed during the twelve-month period beginning on December 15th of the years indicated below:

Date	Percentage
2019	105.500%
2020	103.500%
2021 and thereafter	100.000%

(6) Net Loss Per Share

Basic net loss per share is computed by dividing net loss applicable to common shares by the weighted average number of common shares outstanding during the period. Diluted net 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 pursuant to outstanding stock options at March 31, 2019 and 2018 of 778,875 and 871,757, respectively, were excluded as their inclusion would have an anti-dilutive effect. The total number of shares issuable pursuant to restricted stock units awards outstanding at March 31, 2019 and 2018 of 988,426 and 182,053, respectively, were excluded as their inclusion would have an anti-dilutive effect.

(7) Income Taxes

The Company maintains a valuation allowance for substantially all of its deferred tax assets. A valuation allowance is 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 the substantial majority of its deferred tax assets until there is sufficient evidence to warrant reversal.

The tax provision for the three months ended March 31, 2019 has been calculated using the Company’s overall estimated annual effective tax rate based on projected 2019 full year results. The Company’s effective tax rates for the three months ended March 31, 2019 and 2018 were (7.1)% and (6.2)%, respectively. The Company’s effective tax rates for the three months ended March 31, 2019 and 2018 were negatively impacted by the change in valuation allowance related to U.S. operating losses for which the Company cannot currently recognize a tax benefit. The Company’s income tax expense for the three months ended March 31, 2019 of \$1.4 million primarily relates to results from the Company’s non-U.S. businesses.

As of March 31, 2019, the Company has approximately \$0.4 million of unrecognized tax benefits and does not expect to recognize 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.

As of March 31, 2019, the Company’s U.S. federal tax returns for 2015 and subsequent years remain subject to examination by tax authorities. In the Company’s foreign tax jurisdictions, tax returns for 2012 and subsequent years generally remain open to examination.

(8) Litigation

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 (the “District Court”). In the lawsuit, styled WesternGeco L.L.C. v. ION Geophysical Corporation, WesternGeco alleged that the Company had infringed four of their patents concerning marine seismic surveys.

Trial began in July 2012, and the jury returned a verdict in August 2012. The jury found that the Company infringed the “claims” contained in four of WesternGeco’s patents by supplying its DigiFIN® lateral streamer control units from the United States, and awarded WesternGeco more than \$100 million in damages. (In patent law, a “claim” is a technical legal term; an infringer infringes on one or more “claims” of a given patent.)

In May 2014, the District Court entered a Final Judgment against the Company in the amount of \$123.8 million. This included the jury award (\$12.5 million in reasonable royalties plus \$93.4 million in lost profits), \$10.9 million in pre-judgment interest on lost profits, and \$9.4 million in supplemental damages that the judge imposed for DigiFIN units that were supplied from the U.S. during the trial and during other periods that the jury did not consider. The Final Judgment also enjoined the Company from supplying DigiFINs or any parts unique to DigiFINs in or from the United States. The Company has conducted its business in compliance with the District Court's orders, and has reorganized its operations such that it no longer supply DigiFINs or any parts unique to DigiFINs in or from the United States.

On July 2, 2015, the United States Court of Appeals for the Federal Circuit in Washington, D.C. (the "Court of Appeals") reversed, in part, the District Court, holding that the lost profits, which were attributable to foreign seismic surveys, were not available to WesternGeco under the Patent Act. The Company had recorded a loss contingency accrual of \$123.8 million because of the District Court's ruling. As a result of the reversal by the Court of Appeals, the Company reduced the loss contingency accrual to \$22.0 million.

On November 14, 2016, the District Court ordered our sureties to pay principal and interest on the royalty damages previously awarded. On November 25, 2016, the Company paid WesternGeco the \$20.8 million due pursuant to the order, and it reduced its loss contingency accrual to zero.

On March 14, 2017, the District Court held a hearing on whether impose additional damages for willfulness. The Judge found that the Company's infringement was willful, and awarded enhanced damages of \$5.0 million to WesternGeco (WesternGeco had sought \$43.6 million in such damages.) The District Court also ordered the appeal bond to be released and discharged. On June 30, 2017, the Company and WesternGeco agreed that neither would appeal the District Court's award of \$5.0 million in enhanced damages. Upon assessment of the enhanced damages, the Company accrued \$5.0 million in the first quarter of 2017 which was paid in full in 2018.

WesternGeco filed a petition in the Supreme Court on February 17, 2017, appealing the Court of Appeal's decision that had eliminated lost profits. On January 12, 2018, the Supreme Court agreed to hear the appeal. The specific issue before the Supreme Court was whether lost profits arising from use of prohibited combinations occurring outside of the United States are categorically unavailable in cases where patent infringement is proven under 35 U.S.C. § 271(f)(2) (the statute under which the Company was held to have infringed WesternGeco's patents, and upon which the District Court and Court of Appeals relied in entering their rulings).

The Supreme Court heard oral arguments on April 16, 2018. The Company argued that the Court of Appeals' decision that eliminated lost profits ought to be affirmed. WesternGeco and the U.S. Solicitor General argued that the Court of Appeals' decision that eliminated lost profits ought to be reversed.

On June 22, 2018, the Supreme Court reversed the judgment of the Court of Appeals, held that the award of lost profits to WesternGeco by the District Court was a permissible application of Section 284 of the Patent Act, and remanded the case back to the Court of Appeals for further proceedings consistent with its (the Supreme Court's) opinion.

On July 27, 2018, the Court of Appeals vacated its earlier decision with respect to lost profits damages, and ordered WesternGeco and the Company to submit supplemental briefing on what relief would be appropriate in light of the Supreme Court's decision.

The Company argued to the Court of Appeals that lost profits were not available to WesternGeco because the jury instructions required the jury to find that the Company had been WesternGeco's direct competitor in the survey markets where WesternGeco had lost profits, and that the jury could not have found so. Additionally, the Company argued that the award of lost profits and reasonable royalties ought to be vacated and retried on separate grounds due to the outcome of an Inter Partes Review ("IPR") filed with the Patent Trial and Appeal Board ("PTAB") of the Patent and Trademark Office, in which the PTAB invalidated four of the six patent claims that formed the basis for the lawsuit judgment against the Company. (The Court of Appeals affirmed the PTAB's findings, and on February 19, 2019, the Supreme Court declined to hear WesternGeco's appeal on that issue.)

On January 11, 2019, the Court of Appeals issued its ruling. In its ruling, the Court of Appeals refused to disturb the award of reasonable royalties to WesternGeco (which the Company paid in 2016), and rejected the Company's "direct competitor" argument, but vacated the District Court's award of lost profits damages and remanded the case back to the

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District Court to determine whether to hold a new trial as to lost profits. The Court of Appeals also ruled that its affirmance of the PTAB's decision eliminated four of the five patent claims that could have supported the award of lost profits, leaving only one remaining patent claim that could support an award of lost profits.

15

The Court of Appeals further held that the lost profits award can be reinstated by the District Court if the existing trial record establishes that the jury must have found that the technology covered by the one remaining patent claim was essential for performing the surveys upon which lost profits were based. To make such a finding, the District Court must conclude that the present trial record establishes that there was no dispute that the technology covered by the one remaining patent claim, independent of the technology of the now-invalid claims, was required to perform the surveys. The Court of Appeals ruling further provides that if, but only if, the District Court concludes that WesternGeco established at trial, with undisputed evidence, that the remaining claim covers technology that was necessary to perform the surveys, then the District Court may deny a new trial and reinstate lost profits.

On February 19, 2019, the Company filed a motion for a new trial as to lost profits in the District Court. In the motion, the Company argued that a new trial on lost profits is necessary, since WesternGeco cannot demonstrate that it established, at trial, with undisputed evidence, that the one remaining patent claim covers technology that was necessary to perform the surveys upon which the lost profits award was based. On March 20, 2019, WesternGeco filed an opposition to our motion for a new trial, arguing that undisputed evidence established that the one remaining patent claim was necessary to perform the ten lost profits surveys. On that same date, WesternGeco filed a cross motion for entry of a judgment of \$105.4 million in lost profits and pre- and post-judgment interest. The Company filed a reply to WesternGeco's opposition motion on April 9, 2019 and an opposition to WesternGeco's cross motion on April 18, 2019.

The Company may not ultimately prevail in the litigation and it could be required to pay some or all of the lost profits that were awarded by the District Court, plus interest, if the District Court denies a new trial on lost profits, or if a new trial is granted and a new judgment issues. The Company's assessment that it does not have a loss contingency may change in the future due to developments at the Supreme Court, Court of Appeals, or District Court, and other events, such as changes in applicable law, and such reassessment could lead to the determination that a significant loss contingency is probable, which could have a material effect on the Company's business, financial condition and results of operations. The Company's assessments disclosed in this Quarterly Report on Form 10-Q or elsewhere are based on currently available information and involve elements of judgment and significant uncertainties.

Other Litigation

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. The Company currently believes that the ultimate resolution of these matters will not have a material adverse effect on its financial condition or results of operations.

(9) Details of Selected Balance Sheet Accounts

Inventories

A summary of inventories follows (in thousands):	March 31, 2019	December 31, 2018
Raw materials and subassemblies	\$20,242	\$ 20,011
Work-in-process	895	1,032
Finished goods	7,095	8,111
Reserve for excess and obsolete inventories	(14,138)	(15,024)
Inventories, net	\$ 14,094	\$ 14,130

Property, Plant and Equipment

A summary of property, plant and equipment follows (in thousands):	March 31, 2019	December 31, 2018
Buildings	\$ 15,734	\$ 15,707
Machinery and equipment	132,699	132,135
Seismic rental equipment	1,484	1,423
Furniture and fixtures	3,870	3,859
Other	30,525	30,104
Total	184,312	183,228
Less accumulated depreciation	(134,502)	(133,634)
Less impairment of long-lived assets	(36,553)	(36,553)
Property, plant and equipment, net	\$ 13,257	\$ 13,041

Total depreciation expense, including amortization of assets recorded under equipment finance leases, for the three months ended March 31, 2019 and 2018 was \$0.8 million and \$2.2 million, respectively.

Multi-Client Data Library

The change in multi-client data library are as follows (in thousands):	March 31, 2019	December 31, 2018
Gross costs of multi-client data creation	\$976,797	\$ 972,309
Less accumulated amortization	(787,960)	(776,860)
Less impairments to multi-client data library	(121,905)	(121,905)
Multi-client data library, net	\$66,932	\$ 73,544

(10) Stockholder's Equity and Stock-Based Compensation Expense

Public Equity Offering

On February 21, 2018, the Company completed a public equity offering (“Offering”) of its 1,820,000 shares of common stock at a public offering price of \$27.50 per share, and warrants to purchase an additional 1,820,000 shares of the Company’s common stock pursuant to the Registration Statement on Form S-3 (No. 33-213769) filed with the Securities and Exchange Commission under the Securities Act of 1933 and declared effective on December 2, 2016. The net proceeds from this offering were \$47.0 million, including transaction expenses. A portion of the net proceeds were used to retire the Company’s \$28.5 million Third Lien Notes in March 2018. The warrants have an exercise price of \$33.60 per share, are immediately exercisable and were to expire on March 21, 2019. On February 4, 2019, the Company extended expiration of the warrants to March 21, 2020.

Stock-Based Compensation

The total number of shares issued or reserved for future issuance under outstanding stock options at March 31, 2019 and 2018 was 778,875 and 871,757, respectively, and the total number of shares of restricted stock and shares reserved for restricted stock units outstanding at March 31, 2019 and 2018 was 988,426 and 182,053, respectively. The total number of stock appreciation rights awards outstanding at March 31, 2019 and 2018 was 1,305,013 and 530,865, respectively. The following table presents a summary of the activity related to stock options, restricted stock, restricted stock unit awards and stock appreciation rights awards for the three months ended March 31, 2019:

	Stock Options	Restricted Stock and Unit Awards	Stock Appreciation Rights
Outstanding at December 31, 2018	785,890	1,044,125	1,481,541
Granted	—	15,000	—
Stock options and stock appreciation rights exercised/restricted stock and unit awards vested	(5,750)	(68,199)	—
Cancelled/forfeited	(1,265)	(2,500)	(176,528)
Outstanding at March 31, 2019	778,875	988,426	1,305,013

Stock-based compensation expense recognized for the three months ended March 31, 2019 and 2018, totaled \$1.3 million and \$0.8 million, respectively. Stock appreciation rights expense recognized for the three months ended March 31, 2019 and 2018, totaled \$4.5 million and \$0.8 million, respectively.

(11) Lease Obligations

The Company determines if an arrangement is a lease at inception by considering whether (1) explicitly or implicitly identified assets have been deployed in the agreement and (2) the Company obtains substantially all of the economic benefits from the use of that underlying asset and directs how and for what purpose the asset is used during the term of the agreement. Operating leases are included in “ROU assets”, “Current maturities of operating lease liabilities” and “Operating lease liabilities, net of current maturities” in the condensed consolidated balance sheets. Finance leases are included in “Property, plant and equipment”, “Current maturities of long-term debt”, and “Long-term debt, net of current maturities” in the condensed consolidated balance sheets.

ROU assets represent the Company’s right to use an underlying asset for the lease term and operating lease liabilities represent the Company’s obligation to make lease payments arising from the lease. ROU assets are recognized at the commencement date and consist of the present value of remaining lease payments over the lease term, initial direct costs, prepaid lease payments less any lease incentives. Operating lease liabilities are recognized at commencement date based on the present value of remaining lease payments over the lease term. The Company used the implicit rate, when readily determinable or the incremental borrowing rate based on the information available at commencement date to determine the present value of lease payments. The lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for lease payments is recognized on a straight-line basis over the lease term. Lease agreements with lease and non-lease components are accounted for separately. The Company will not recognize leases with terms of less than twelve months in the condensed consolidated balance sheets and will recognize those lease payments in the condensed consolidated statements of operations on a straight-line basis over the lease term.

The Company leases offices, processing centers, warehouse spaces and, to a lesser extent, certain equipment. These leases have remaining terms of 1 year to 12 years, some of which have options to extend for up to 10 years and/or options to terminate within 1 year. The options to renew are not recognized as part of the Company’s ROU assets and operating lease liabilities as the Company is not reasonably certain that it will exercise these options.

Total operating lease expense, including short-term lease expense was \$3.1 million and \$3.0 million for the three months ended March 31, 2019 and 2018, respectively.

Future maturities of lease obligations follows (in thousands):

For the year ending March 31,	Operating Leases	Finance Leases	Total
2020	\$ 13,169	\$ 1,254	\$ 14,423
2021	12,775	1,254	14,029
2022	11,281	443	11,724
2023	11,286	—	11,286
2024	8,323	—	8,323
Thereafter	11,684	—	11,684

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Total lease payments	68,518	2,951	71,469
Less imputed interest	(13,833)	(293)	(14,126)
Total	\$54,685	\$2,658	\$57,343

18

The weighted average remaining lease term as of March 31, 2019 and December 31, 2018 was 5.19 years and 5.26 years, respectively. The weighted average discount rate used to determine the operating lease liability as of March 31, 2019 and December 31, 2018 was 6.47% and 6.25%, respectively.

Equipment Finance Leases

The Company has entered into equipment finance leases that are due in installments for the purpose of financing the purchase of computer equipment through August 2021. Interest accrues under these leases at rates from 4.3% to 8.7% 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 useful lives and such charges are reflected within depreciation expense.

(12) Supplemental Cash Flow Information and Non-cash Activity

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

	Three Months Ended March 31, 2019 2018	
Cash paid during the period for:		
Interest	\$ 198	\$ 1,039
Income taxes	3,176	546
Non-cash items from investing and financing activities:		
Purchase of property, plant and equipment financed through accounts payable and accrued expenses	185	—

(13) Fair Value of Financial Instruments

Authoritative guidance on fair value measurements defines fair value, establishes a framework for measuring fair value and stipulates the related disclosure requirements. The Company follows a three-level hierarchy, under which the fair value hierarchy prioritizes the inputs used to measure fair value into three broad levels, moving from quoted prices in active markets in (Level 1) to unobservable inputs in (Level 3).

Due to their highly liquid nature, the amount of the Company's other financial instruments, including cash and cash equivalents, restricted cash, accounts and unbilled receivables, short term investments, accounts payable and accrued multi-client data library royalties, represent their approximate fair value.

The carrying amounts of the Company's long-term debt as of March 31, 2019 and December 31, 2018 were \$124.0 million and \$124.7 million, respectively, compared to its fair values of \$116.7 million and \$120.7 million as of March 31, 2019 and December 31, 2018, respectively. The fair value of the long-term debt was calculated using Level 1 inputs, including an active market price.

Fair value measurements are applied with respect to non-financial assets and liabilities on a non-recurring basis, which would consist measurement primarily of goodwill, multi-client data library and property, plant and equipment.

(14) Condensed Consolidating Financial Information

The Second Lien Notes were issued by ION Geophysical Corporation and are guaranteed by Guarantors, all of which are wholly-owned subsidiaries. The Guarantors have fully and unconditionally guaranteed the payment obligations of ION Geophysical Corporation with respect to the Second Lien Notes. The following condensed consolidating financial information presents the results of operations, financial position and cash flows for:

• ION Geophysical Corporation and the Guarantors (in each case, reflecting investments in subsidiaries utilizing the equity method of accounting).

• All other subsidiaries of ION Geophysical Corporation that are not Guarantors.

¶ The consolidating adjustments necessary to present ION Geophysical Corporation's results on a consolidated basis. This condensed consolidating financial information should be read in conjunction with the accompanying condensed consolidated financial statements and footnotes. For additional information pertaining to the Second Lien Notes, See Item 2. "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II of this Form 10-Q.

Balance Sheet	March 31, 2019				
	ION Geophysical Corporation (In thousands)	The Guarantors	All Other Subsidiaries	Consolidating Adjustments	Total Consolidated
ASSETS					
Current assets:					
Cash and cash equivalents	\$4,695	\$ 25	\$ 33,687	\$—	\$ 38,407
Accounts receivable, net	8	16,295	12,801	—	29,104
Unbilled receivables	—	7,610	6,832	—	14,442
Inventories	—	8,461	5,633	—	14,094
Prepaid expenses and other current assets	3,914	1,120	2,452	—	7,486
Total current assets	8,617	33,511	61,405	—	103,533
Deferred income tax asset	805	7,660	129	—	8,594
Property, plant and equipment, net	504	8,351	4,402	—	13,257
Multi-client data library, net	—	63,522	3,410	—	66,932
Investment in subsidiaries	834,683	246,331	—	(1,081,014)	—
Goodwill	—	—	23,592	—	23,592
Intercompany receivables	—	95,861	62,922	(158,783)	—
Right-of-use assets	17,394	20,005	7,580	—	44,979
Other assets	1,354	395	70	—	1,819
Total assets	\$863,357	\$ 475,636	\$ 163,510	\$(1,239,797)	\$ 262,706
LIABILITIES AND (DEFICIT) EQUITY					
Current liabilities:					
Current maturities of long-term debt	\$724	\$ 1,063	\$—	\$—	\$ 1,787
Accounts payable	2,689	24,610	3,085	—	30,384
Accrued expenses	13,958	7,457	10,862	—	32,277
Accrued multi-client data library royalties	—	26,095	215	—	26,310
Deferred revenue	—	6,232	1,178	—	7,410
Current maturities of operating lease liabilities	5,112	5,540	1,312	—	11,964
Total current liabilities	22,483	70,997	16,652	—	110,132
Long-term debt, net of current maturities	117,887	1,595	—	—	119,482
Operating lease liabilities, net of current maturities	16,577	19,876	6,268	—	42,721
Intercompany payables	717,875	—	—	(717,875)	—
Other long-term liabilities	1,639	171	—	—	1,810
Total liabilities	876,461	92,639	22,920	(717,875)	274,145
(Deficit) Equity:					
Common stock	141	290,460	47,776	(338,236)	141
Additional paid-in capital	953,679	180,700	203,909	(384,609)	953,679
Accumulated earnings (deficit)	(947,452)	386,799	(11,751)	(375,048)	(947,452)
Accumulated other comprehensive income (loss)	(19,472)	4,281	(21,160)	16,879	(19,472)
Due from ION Geophysical Corporation	—	(479,243)	(79,849)	559,092	—
Total stockholders' (deficit) equity	(13,104)	382,997	138,925	(521,922)	(13,104)
Noncontrolling interest	—	—	1,665	—	1,665
Total (deficit) equity	(13,104)	382,997	140,590	(521,922)	(11,439)
Total liabilities and (deficit) equity	\$863,357	\$ 475,636	\$ 163,510	\$(1,239,797)	\$ 262,706

Balance Sheet	December 31, 2018				
	ION Geophysical Corporation (In thousands)	The Guarantors	All Other Subsidiaries	Consolidating Adjustments	Total Consolidated
ASSETS					
Current assets:					
Cash and cash equivalents	\$ 13,782	\$ 47	\$ 19,722	\$ —	\$ 33,551
Accounts receivable, net	8	17,349	8,771	—	26,128
Unbilled receivables	—	12,697	31,335	—	44,032
Inventories	—	8,721	5,409	—	14,130
Prepaid expenses and other current assets	3,891	1,325	2,566	—	7,782
Total current assets	17,681	40,139	67,803	—	125,623
Deferred income tax asset	805	6,261	125	—	7,191
Property, plant and equipment, net	489	8,922	3,630	—	13,041
Multi-client data library, net	—	70,380	3,164	—	73,544
Investment in subsidiaries	836,002	247,359	—	(1,083,361)	—
Goodwill	—	—	22,915	—	22,915
Intercompany receivables	—	305,623	60,255	(365,878)	—
Right-of-use assets	18,513	21,350	7,940	—	47,803
Other assets	1,723	643	69	—	2,435
Total assets	\$ 875,213	\$ 700,677	\$ 165,901	\$ (1,449,239)	\$ 292,552
LIABILITIES AND (DEFICIT) EQUITY					
Current liabilities:					
Current maturities of long-term debt	\$ 1,159	\$ 1,069	\$ —	\$ —	\$ 2,228
Accounts payable	2,407	29,602	2,904	—	34,913
Accrued expenses	7,011	10,036	14,364	—	31,411
Accrued multi-client data library royalties	—	29,040	216	—	29,256
Deferred revenue	—	6,515	1,195	—	7,710
Current maturities of operating lease liabilities	5,155	5,633	1,426	—	12,214
Total current liabilities	15,732	81,895	20,105	—	117,732
Long-term debt, net of current maturities	117,644	1,869	—	—	119,513
Operating lease liabilities, net of current maturities	17,841	21,237	6,514	—	45,592
Intercompany payables	716,051	—	—	(716,051)	—
Other long-term liabilities	1,713	178	—	—	1,891
Total liabilities	868,981	105,179	26,619	(716,051)	284,728
Equity:					
Common stock	140	290,460	47,776	(338,236)	140
Additional paid-in capital	952,626	180,700	203,908	(384,608)	952,626
Accumulated earnings (deficit)	(926,092)	390,691	(12,475)	(378,216)	(926,092)
Accumulated other comprehensive income (loss)	(20,442)	4,324	(22,023)	17,699	(20,442)
Due from ION Geophysical Corporation	—	(270,677)	(79,496)	350,173	—
Total stockholders' (deficit) equity	6,232	595,498	137,690	(733,188)	6,232
Noncontrolling interest	—	—	1,592	—	1,592
Total equity	6,232	595,498	139,282	(733,188)	7,824
Total liabilities and equity	\$ 875,213	\$ 700,677	\$ 165,901	\$ (1,449,239)	\$ 292,552

Income Statement	Three Months Ended March 31, 2019				
	ION Geophysical Corporation	The Guarantors	All Other Subsidiaries	Consolidating Adjustments	Total Consolidated
	(In thousands)				
Net revenues	\$—	\$ 17,613	\$ 19,343	\$ —	\$ 36,956
Cost of sales	—	20,200	6,844	—	27,044
Gross profit (loss)	—	(2,587)	12,499	—	9,912
Total operating expenses	12,839	9,075	3,935	—	25,849
Income (loss) from operations	(12,839)	(11,662)	8,564	—	(15,937)
Interest expense, net	(3,166)	(49)	103	—	(3,112)
Intercompany interest, net	300	4,649	(4,949)	—	—
Equity in earnings (losses) of investments	(5,169)	2,001	—	3,168	—
Other income (expense)	7	(122)	(677)	—	(792)
Net income (loss) before income taxes	(20,867)	(5,183)	3,041	3,168	(19,841)
Income tax expense (benefit)	493	(1,291)	2,205	—	1,407
Net income (loss)	(21,360)	(3,892)	836	3,168	(21,248)
Net income attributable to noncontrolling interest	—	—	(112)	—	(112)
Net income (loss) attributable to ION	\$(21,360)	\$(3,892)	\$ 724	3,168	\$(21,360)
Comprehensive net income	\$(20,390)	\$(3,935)	\$ 1,699	\$ 2,348	\$(20,278)
Comprehensive income attributable to noncontrolling interest	—	—	(112)	—	(112)
Comprehensive net income (loss) attributable to ION	\$(20,390)	\$(3,935)	\$ 1,587	\$ 2,348	\$(20,390)

Income Statement	Three Months Ended March 31, 2018				
	ION Geophysical Corporation	The Guarantors	All Other Subsidiaries	Consolidating Adjustments	Total Consolidated
	(In thousands)				
Net revenues	\$—	\$ 11,788	\$ 21,720	\$ —	\$ 33,508
Cost of sales	—	16,795	9,860	—	26,655
Gross profit (loss)	—	(5,007)	11,860	—	6,853
Total operating expenses	8,909	6,994	3,590	—	19,493
Income (loss) from operations	(8,909)	(12,001)	8,270	—	(12,640)
Interest expense, net	(3,883)	(6)	53	—	(3,836)
Intercompany interest, net	273	(2,319)	2,046	—	—
Equity in earnings (losses) of investments	(4,915)	10,220	—	(5,305)	—
Other income (expense)	(188)	65	(668)	—	(791)
Net income (loss) before income taxes	(17,622)	(4,041)	9,701	(5,305)	(17,267)
Income tax expense (benefit)	804	(365)	633	—	1,072
Net income (loss)	(18,426)	(3,676)	9,068	(5,305)	(18,339)
Net income attributable to noncontrolling interest	—	—	(87)	—	(87)
Net income (loss) attributable to ION	\$(18,426)	\$(3,676)	\$ 8,981	(5,305)	\$(18,426)
Comprehensive net income (loss)	\$(16,601)	\$(3,724)	\$ 10,802	\$ (6,991)	\$(16,514)
Comprehensive income attributable to noncontrolling interest	—	—	(87)	—	(87)
Comprehensive net income (loss) attributable to ION	\$(16,601)	\$(3,724)	\$ 10,715	\$ (6,991)	\$(16,601)

Statement of Cash Flows	Three Months Ended March 31, 2019			
	ION Geophysical Corporation	The Guarantors	All Other Subsidiaries	Total Consolidated
	(In thousands)			
Cash flows from operating activities:				
Net cash provided by (used in) operating activities	\$5,216	\$ (825)	\$ 11,007	\$ 15,398
Cash flows from investing activities:				
Cash invested in multi-client data library	—	(5,363)	(3,404)	(8,767)
Purchase of property, plant and equipment	(24)	(48)	(735)	(807)
Net cash used in investing activities	(24)	(5,411)	(4,139)	(9,574)
Cash flows from financing activities:				
Payments on notes payable and long-term debt	(434)	(281)	—	(715)
Intercompany lending	(13,511)	6,495	7,016	—
Other financing activities	(239)	—	—	(239)
Net cash provided by (used in) financing activities	(14,184)	6,214	7,016	(954)
Effect of change in foreign currency exchange rates on cash, cash equivalents and restricted cash	—	—	81	81
Net increase (decrease) in cash, cash equivalents and restricted cash	(8,992)	(22)	13,965	4,951
Cash, cash equivalents and restricted cash at beginning of period	14,085	47	19,722	33,854
Cash, cash equivalents and restricted cash at end of period	\$5,093	\$ 25	\$ 33,687	\$ 38,805
The following table is a reconciliation of cash and cash equivalents to total cash, cash equivalents, and restricted cash:				
	March 31, 2019			
	ION Geophysical Corporation	The Guarantors	All Other Subsidiaries	Total Consolidated
	(In thousands)			
Cash and cash equivalents	\$4,695	\$ 25	\$ 33,687	\$ 38,407
Restricted cash included in prepaid expenses and other current assets	398	—	—	398
Total cash, cash equivalents, and restricted cash shown in statements of cash flows	\$5,093	\$ 25	\$ 33,687	\$ 38,805

Statement of Cash Flows	Three Months Ended March 31, 2018			
	ION Geophysical Corporation	The Guarantors	All Other Subsidiaries	Total Consolidated
	(In thousands)			
Cash flows from operating activities:				
Net cash provided by (used in) operating activities	\$(13,119)	\$ 16,961	\$ (3,234)	) \$ 608
Cash flows from investing activities:				
Investment in multi-client data library	—	(7,642)	(1,598)	) (9,240)
Purchase of property, plant and equipment	—	—	(61)	) (61)
Net cash used in investing activities	—	(7,642)	(1,659)	) (9,301)
Cash flows from financing activities:				
Payments under revolving line of credit	(10,000)	—	—	) (10,000)
Payments on notes payable and long-term debt	(29,054)	(90)	—	) (29,144)
Intercompany lending	7,565	(9,229)	1,664	—
Net proceeds from issuance of stock	47,219	—	—	47,219
Other financing activities	(575)	—	—	) (575)
Net cash provided by (used in) financing activities	15,155	(9,319)	1,664	7,500
Effect of change in foreign currency exchange rates on cash, cash equivalents and restricted cash	—	—	(113)	) (113)
Net increase (decrease) in cash, cash equivalents and restricted cash	2,036	—	(3,342)	) (1,306)
Cash, cash equivalents and restricted cash at beginning of period	39,707	—	12,712	52,419
Cash, cash equivalents and restricted cash at end of period	\$41,743	\$—	\$ 9,370	\$ 51,113
The following table is a reconciliation of cash and cash equivalents to total cash, cash equivalents, and restricted cash:				
	March 31, 2018			
	ION Geophysical Corporation	The Guarantors	All Other Subsidiaries	Total Consolidated
	(In thousands)			
Cash and cash equivalents	\$41,380	\$	—\$ 9,370	\$ 50,750
Restricted cash included in prepaid expenses and other current assets	60	—	—	60
Restricted cash included in other long-term assets	303	—	—	303
Total cash, cash equivalents, and restricted cash shown in statement of cash flows	\$41,743	\$	—\$ 9,370	\$ 51,113

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

Executive Summary

Our Business

In this Form 10-Q, "ION Geophysical," "ION," "the company" (or, "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.

The information contained in this Quarterly Report on Form 10-Q 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," "DigiFIN," "Orca," and "WiBand," refer to VECTORSEIS®, ORCA®, and WiBand® registered marks owned by ION, and the terms "Marlin," "Gator," "SailWing," and "4Sea" refers to the Marlin™, GATOR™, SailWing™ and 4Sea™ trademarks and service marks owned by ION.

We have been a technology leader for over 50 years with a strong history of innovation. While the traditional focus of our cutting-edge technology has been on the exploration and production ("E&P") industry, we are now broadening and diversifying our business into relevant adjacent markets such as offshore logistics, port management, harbor security, military and marine robotics.

Leveraging innovative technologies, we create value through data capture, analysis and optimization to enhance companies' critical decision-making abilities and returns. Our offerings are focused on improving decision-making, enhancing reservoir management and optimizing offshore operations. Our E&P offerings are designed to enable oil and gas companies to obtain higher resolution images of the Earth's subsurface to reduce their risk in hydrocarbon exploration and development. We acquire, process and interpret seismic data from seismic surveys on a multi-client or proprietary basis. Seismic surveys for our multi-client 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 seismic data, all of which is intended to minimize our risk exposure. We serve customers in most major energy producing regions of the world from strategically located offices in 21 cities on six continents.

Seismic imaging plays a fundamental role in hydrocarbon exploration and reservoir development by delineating structures, rock types and fluid locations in the subsurface. Our technologies and services are used by E&P companies to generate high-resolution images of the Earth's subsurface to identify hydrocarbons and pinpoint drilling locations for wells and to monitor production from existing wells.

During the current quarter, we consolidated our operating segments from three into two. This consolidation aligns with our asset light business model and evolved our strategy to commercialize components of the Company's next generation ocean bottom nodal system, 4Sea, instead of operating a crew with vessel and equipment assets. We are offering 4Sea components more broadly to the growing number of OBS service providers under recurring revenue commercial strategies that will enable us to share in the value our technology delivers. We may also license the right to manufacture and use the fully integrated system to a service provider on a value-based pricing model, such as a royalty stream. Such licensing would be recognized through the relevant segment, either E&P Technology & Services or Operations Optimization.

We provide our services and products through two business segments: E&P Technology & Services and Operations Optimization. In addition, we have a 49% ownership interest in our INOVA Geophysical Equipment Limited joint venture ("INOVA Geophysical" or "INOVA").

The advanced technologies we currently offer include our Orca and Gator command and control software systems, Full Waveform Inversion ("FWI") data processing technology, Marlin operations optimization software, and other technologies, each of which is designed to deliver improvements in image quality, safety and/or productivity. In 2017, we introduced our fully integrated ocean bottom nodal system, 4Sea, which is designed to deliver a step change in economics, QHSE performance and final image delivery time, creating more value for clients by providing data in time for critical reservoir decisions, such as determining drilling locations and informing enhanced recovery techniques.

We have approximately 500 patents and pending patent applications in various countries around the world.

Approximately 41% of our employees are in technical roles and over 20% of our employees have advanced degrees.

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E&P Technology & Services. Our E&P Technology & Services segment provides three distinct activities that often work together.

Our E&P Technology & Services segment creates digital data assets and delivers services to help E&P companies improve decision-making, reduce risk and maximize value. For example, E&P Technology & Services provides information to better understand new frontiers or complex subsurface geologies, how to maximize portfolio value, or how to optimize license round success and acreage values.

25

Our Ventures group leverages the world-class geoscience skills of both the Imaging Services and E&P Advisors groups to create global digital data assets that are licensed to multiple E&P companies to optimize their investment decisions. The global data library consists of over 620,000 km of 2-D and 236,000 sq. km of 3-D multi-client seismic data in virtually all major offshore petroleum provinces. Ventures provides services to manage multi-client or proprietary surveys, from survey planning and design to data acquisition and management, to final subsurface imaging and reservoir characterization. We focus on the technologically intensive components of the image development process, such as survey planning and design, and data processing and interpretation, while outsourcing asset-intensive components (such as field acquisition) to experienced contractors.

Our Imaging Services group offers data processing and imaging services designed to maximize image quality, helping E&P companies reduce exploration and production risk, evaluate and develop reservoirs, and increase production. Imaging Services develops subsurface images by applying its processing technology to data owned or licensed by its customers. We maintain approximately 19 petabytes of digital seismic data storage in four global data centers, including two core data centers located in Houston and in the U.K.

Our E&P Advisors provide technical, commercial and strategic advice to host governments, E&P companies and private equity firms to evaluate and market oil and gas opportunities and/or assets worldwide, sharing in the value we create.

Operations Optimization. Our Operations Optimization segment develops mission-critical subscription offerings and provides engineering services that enable operational control and optimization offshore. This segment is comprised of our Optimization Software & Services and Devices offerings.

Our Optimization Software & Services group provides command and control software systems for marine towed streamer and ocean bottom seismic operations as well as survey design software and related services. Our Orca software is installed on towed streamer marine vessels worldwide, and our Gator software is used by ocean bottom survey crews. Our latest offering, Marlin is used to optimize offshore operations.

Our Devices group is engaged in the manufacture and repair of marine towed streamer positioning and control systems, analog geophone sensors and compasses which have been deployed in marine robotics, scientific, E&P and other commercial applications.

Our team develops re-deployable OBS acquisition technology. We introduced our new fully integrated ocean bottom nodal system, 4Sea, in 2017. 4Sea is differentiated in its ability to deliver a step change in economics, QHSE performance and final image delivery time, creating more value for the client by providing information in time for critical decisions, such as determining drilling locations, fluid injections, and the like.

We are pursuing two asset light business models for commercializing our 4Sea technology that we believe will deliver a higher, more sustainable return over the long-term for our shareholders. The first is making the individual components of 4Sea available more broadly to all OBS service providers on a value-based pricing model, allowing us to participate in the success we enable. The second approach is to license the right to manufacture and use the 4Sea nodal technology to a service provider on a value-based pricing model, such as a royalty stream.

INOVA Geophysical. Historically, we conducted our land seismic equipment business through INOVA Geophysical, which is a joint venture with BGP Inc. (“BGP”). BGP is a subsidiary of China National Petroleum Corporation, and is generally regarded as the world’s largest land geophysical service contractor. BGP owns a 51% equity interest in INOVA Geophysical, and we own the remaining 49% interest. INOVA manufactures cable-based and cableless data acquisition systems, digital sensors, vibroseis vehicles (i.e., vibrator trucks) and source controllers for land seismic surveys. We wrote our investment in INOVA down to zero as of December 31, 2014.

Macroeconomic Conditions

Demand for our services and products is cyclical and dependent upon activity levels in the oil and gas industry, particularly our customers’ willingness to invest capital in the exploration for oil and natural gas. Our customers’ capital spending programs are generally based on their outlook for near-term and long-term economic growth, resource supply and demand, and commodity prices. Shale production dominated activity during the downturn due to its competitive break-even prices and short payback period compared to conventional exploration. Oil and gas projections suggest continued demand growth may create a supply gap in the middle of the next decade that shale may be unable to meet, necessitating offshore deepwater exploration and development. In existing oil fields, production is

declining and this decline rate is accelerating by about 4% per year. Due to the time it takes to develop and start producing oil and gas from new discoveries offshore, there's an increasing need to reinvest in conventional resources offshore to meet demand in the middle of the next decade. We're starting to see increasing pressure for a resumption in offshore investment and exploration activity to replace reserves and keep existing production flat. Third-party reports indicate that most of the growth in offshore production is likely to take place after 2022.

Third-party reports indicate that global exploration and production spending is expected to increase by 8% in 2019, consistent with 8% in 2018 and up from 4% growth in 2017. In addition, this is the second consecutive year that international spending is expected to increase, where our offerings are more relevant.

The following is a summary of recent oil and gas pricing trends:

Quarter Ended	Average Price ^(a)		
	Brent Crude (per bbl)	WTI Crude (per bbl)	Henry Hub Natural Gas (per mcf)
3/31/2019	63.10	54.82	2.92
12/31/2018	67.99	59.50	3.77
9/30/2018	75.07	69.69	2.93
6/30/2018	74.44	67.60	2.84
3/31/2018	66.95	62.96	3.08

^(a) Source: U.S. Energy Information Administration (“EIA”).

Oil prices rose pretty steadily in the first half of 2018 due to moderate global demand growth and continued OPEC production cut compliance, the combination of which resulted in relative market equilibrium. In late June 2018, OPEC voted to boost production to offset potential losses due to sanctions in Venezuela and Iran as well as underproduction by some OPEC countries. However, those shortage concerns quickly dissipated as supply started outpacing demand due to Iran sanction waivers and higher than expected United States production. Crude prices dropped to nearly \$50 per barrel before the end of 2018, reflecting global oil inventory builds and at or near record levels of production from the world’s three largest producers - the United States, Saudi Arabia and Russia. The EIA forecasts the Brent crude oil spot price will average \$65 per barrel in 2019 and \$62 per barrel in 2020, compared with an average of \$71 per barrel in 2018 due to concerns of oversupply. In December 2018, OPEC and other non-OPEC participants, such as Russia, reached an agreement to cut their oil production beginning January 2019. This production cut has helped to keep global crude oil supply and demand in closer balance during the first quarter of 2019, which resulted in Brent crude oil spot prices rebounding from the \$50 per barrel at December 31, 2018 to \$69 per barrel at March 31, 2019.

Given the historical volatility of crude prices, there is a continued risk that if prices do not continue to improve, or if they start to decline again due to high levels of crude oil production, there is a potential for slowing growth rates in various global regions and/or for ongoing supply/demand imbalances. If commodity prices do not continue to improve, or if they start to deteriorate again, demand for our services and products could decline.

Impact to Our Business

We are seeing signs of increasing activity in our business, primarily due to the strategic shift we made to move our offerings closer to the reservoir and the associated continued success of our 3-D multi-client reimaging programs as well as clients starting to renew interest in conventional offshore exploration and reserve replacement. Generally, our revenue and EBITDA generation starts off slowly as customers set budgets in the first quarter, then picks up as they firm up plans throughout the year, and typically ends strong partially due to excess budget spending in the fourth quarter. Investments in our multi-client data library are dependent upon the timing of our new venture projects and the availability of underwriting by our customers. We continue to maintain high standards for underwriting new projects. Our asset light strategy enables us to scale our business to market conditions avoiding significant fixed costs and maintaining flexibility to manage the timing and amount of our capital expenditures.

In our E&P Technology & Services segment, new venture revenues were flat compared to the first quarter 2018, while data library revenues increased. In the current disciplined spending environment, many clients wait to purchase data associated with a license round until a formal public announcement has been made by the government. Delays in license round announcements can materially impact the timing of sales in areas where our new venture programs are underway. We invested \$8.8 million in our multi-client data library during the first quarter of 2019 and we expect investments in our multi-client data library to be in a range of \$40.0 million to \$60.0 million for 2019, compared to

the \$28.3 million invested in 2018.

As of March 31, 2019, our E&P Technology & Services segment backlog, which consists of commitments for (i) Imaging Services work, (ii) new venture projects (both multi-client and proprietary) by our Ventures group underwritten by our customers and (iii) E&P Advisor projects, was \$29.3 million compared to \$21.9 million at December 31, 2018 and \$35.4 million at March 31, 2018. The majority of our backlog relates to our 3-D multi-client reimaging programs and our proprietary Imaging Services work. We anticipate that the majority of our backlog will be recognized as revenue over the remainder of 2019.

Within the Operations Optimization segment, both our Optimization Software & Services revenues and Devices revenues increased compared to the first quarter 2018.

It is our view that technologies that provide a competitive advantage through improved imaging, lower costs, higher productivity, or enhanced safety will continue to be valued in our marketplace. We believe that our newest technologies, such as Marlin and 4Sea, will continue to attract customer interest because these technologies are designed to deliver those desirable attributes.

Key Financial Metrics

The table below provides an overview of key financial metrics for our company as a whole and our two business segments for the three months ended March 31, 2019, compared to the same period of 2018.

	Three Months Ended			
	March 31,			
	2019	2018		
	(in thousands, except share data)			
Net revenues:				
E&P Technology & Services:				
New Venture	\$13,471	\$13,726		
Data Library	9,948	5,948		
Total multi-client revenues	23,419	19,674		
Imaging Services	3,684	4,894		
Total	27,103	24,568		
Operations Optimization:				
Devices	4,820	4,158		
Optimization Software & Services	5,033	4,782		
Total	9,853	8,940		
Total	\$36,956	\$33,508		
Gross profit (loss):				
E&P Technology & Services	\$5,440	\$4,343		
Operations Optimization	4,516	4,311		
Segment gross profit	9,956	8,654		
Other	(44)	(a)(1,801)	(a)	
Total	\$9,912	\$6,853		
Gross margin:				
E&P Technology & Services	20	%	18	%
Operations Optimization	46	%	48	%
Segment gross margin	27	%	26	%
Other	—	%	—	%
Total	27	%	20	%
Income (loss) from operations:				
E&P Technology & Services	\$(1,615)	\$(794)		
Operations Optimization	170	786		
Support and other	(14,492)	(b)(12,632)	(b)	
Loss from operations	\$(15,937)	\$(12,640)		
Operating margin:				
E&P Technology & Services	(6)%	(3)%		
Operations Optimization	2	%	9	%
Support and other	(39)%	(38)%		
Total	(43)%	(38)%		
Net loss attributable to ION	\$(21,360)	\$(18,426)		

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Net loss per share:

Basic	\$ (1.52)	\$ (1.44)
Diluted	\$ (1.52)	\$ (1.44)

(a) Relates to the previously reported Ocean Bottom Integrated Technologies segment.

(b) Includes loss from operations of previously reported Ocean Bottom Integrated Technologies segment of \$0.8 million and \$2.8 million for the three months ended March 31, 2019 and 2018, respectively, which includes item (a) above and research and development expense of \$0.8 million and \$1.0 million for the three months ended March 31, 2019 and 2018, respectively.

28

For a discussion of factors that could impact our future operating results and financial condition, see (i) Item 1A. “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2018, and (ii) Item 1A. “Risk Factors” in Part II of this Form 10-Q.

Results of Operations

Three Months Ended March 31, 2019 Compared to Three Months Ended March 31, 2018

Our consolidated net revenues of \$37.0 million for the three months ended March 31, 2019 (the “Current Quarter”) increased by \$3.5 million, or 10%, compared to total net revenues of \$33.5 million for the three months ended March 31, 2018 (the “Comparable Quarter”). Our overall gross margin was 27% in the Current Quarter, as compared to 20% in the Comparable Quarter. Our segment gross margin was 27% in the Current Quarter as compared to 26% in the Comparable Quarter. For the Current Quarter, our loss from operations was \$15.9 million, compared to a loss of \$12.6 million for the Comparable Quarter.

Net loss for the Current Quarter was \$21.4 million, or \$(1.52) per share, compared to \$18.4 million, or \$(1.44) per share, for the Comparable Quarter.

Net Revenues, Gross Profits and Gross Margins

E&P Technology & Services — Net revenues for the Current Quarter increased by \$2.5 million, or 10%, to \$27.1 million, compared to \$24.6 million for the Comparable Quarter. Within the E&P Technology & Services segment, total multi-client revenues were \$23.4 million, an increase of 19%. Our Current Quarter New Venture revenues were flat compared to the Comparable Quarter. Our Data Library revenues increased primarily due to sales of our recently completed Brazil 3-D reimaging programs and from existing Brazil 2-D data libraries. Imaging Services revenues were \$3.7 million, a 25% decrease, primarily due to translation of lower imaging backlog at end of 2018. Despite the decline in revenues, Imaging Services Current Quarter backlog is the highest it has been in three and a half years. The Current Quarter reflects a Gross profit of \$5.4 million, representing a 20% gross margin, compared to a Gross profit of \$4.3 million, which represented an 18% gross margin in the Comparable Quarter. These increase in gross profit and margin were due to the increase and mix of data library revenues.

Operations Optimization — Total net revenues for the Current Quarter increased by \$1.0 million, or 10% to \$9.9 million, compared to \$8.9 million for the Comparable Quarter. Optimization Software & Services net revenues for the Current Quarter increased by \$0.2 million, or 5% to \$5.0 million, compared to \$4.8 million for the Comparable Quarter due to higher engineering service revenues primarily driven by increasing deployments of our Marlin offshore operations optimization software. Devices net revenues for the Current Quarter increased by \$0.6 million, or 16%, to \$4.8 million, compared to \$4.2 million for the Comparable Quarter primarily due to increase in repair revenues. The Current Quarter reflects a Gross profit of \$4.5 million, representing a 46% gross margin which is fairly consistent compared to a Gross profit of \$4.3 million, representing a 48% gross margin for the Comparable Quarter.

Other — Gross loss of \$1.8 million during the Comparable Quarter relates to depreciation expense. These assets were fully impaired as of December 31, 2018. Therefore, no depreciation expense related to these assets was recognized during the Current Quarter.

Operating Expenses

Research, Development and Engineering — Research, development and engineering expense increased \$1.1 million, or 26%, to \$5.4 million, for the Current Quarter, compared to \$4.3 million for the Comparable Quarter due to higher spend in imaging algorithms and infrastructure, devices and software. We see significant long-term potential to invest in offerings that are designed to improve image quality, safety and productivity.

Marketing and Sales — Marketing and sales expense increased \$0.7 million, or 14%, to \$5.8 million, for the Current Quarter, compared to \$5.1 million for the Comparable Quarter, primarily due to increased commission expenses driven by increased sales in the E&P Technology and Services segment.

General, Administrative and Other Operating Expenses — General, administrative and other operating expenses increased \$4.6 million, or 45%, to \$14.7 million, for the Current Quarter, compared to \$10.1 million for the Comparable Quarter primarily due to the increase in compensation expense related to the fair value adjustment of our stock appreciation rights awards driven by higher quarter end stock price.

Other Items

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Interest Expense, Net — Interest expense, net, was \$3.1 million for the Current Quarter compared to \$3.8 million for the Comparable Quarter. The decrease in interest expense was a result of lower outstanding debt during the Current Quarter. For additional information, please refer to “Liquidity and Capital Resources — Sources of Capital” below.

29

Income Tax Expense — Income tax expense for the Current Quarter was \$1.4 million compared to \$1.1 million for the Comparable Quarter. Our effective tax rates for the Current Quarter and Comparable Quarter were (7.1)% and (6.2)%, respectively. The income tax expense for the Current Quarter and Comparable Quarter primarily relates to results generated by our non-U.S. businesses. Our effective tax rates for the Current Quarter and Comparable Quarter were negatively impacted by the change in valuation allowance related to U.S. operating losses for which we cannot currently recognize a tax benefit. See further discussion of establishment of the deferred tax valuation allowance at Footnote 7 “Income Taxes” of Footnotes to Condensed Consolidated Financial Statements.

Liquidity and Capital Resources

Sources of Capital

As of March 31, 2019, we had total liquidity of \$78.1 million, consisting of \$38.4 million of cash on hand and \$39.7 million of available borrowing capacity under our Credit Facility. Our cash requirements include working capital requirements and cash required for our debt service payments, multi-client seismic data acquisition activities and capital expenditures. As of March 31, 2019, we had working capital of \$(6.6) million. Excluding current maturities of operating lease liabilities, our working capital would have been \$5.4 million. Working capital requirements are primarily driven by our investment in our multi-client data library (\$8.8 million in the Current Quarter) and royalty payments for multi-client sales. Also, our headcount has traditionally been a significant driver of our working capital needs. As 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 requires cash expenditures for their salaries, bonuses, payroll taxes and related compensation expenses, including stock appreciation awards, typically in advance of related revenue billings and collections.

Our working capital requirements may change from time to time depending upon many factors, including our operating results and adjustments in our operating plan in response to industry conditions, competition and unexpected events. In recent years, our primary sources of funds have been cash flows generated from operations, existing cash balances, debt and equity issuances and borrowings under our Credit Facility.

Public Equity Offering and Retirement of Debt

On February 21, 2018, we completed a public equity offering to further delever our balance sheet. We issued and sold 1,820,000 shares of common stock at a public offering price of \$27.50 per share, and warrants to purchase an additional 1,820,000 shares of our common stock. The net proceeds from this offering were \$47.0 million, including transaction expenses. A portion of the net proceeds were used to retire our \$28.5 million Third Lien Notes in March 2018. The warrants have an exercise price of \$33.60 per share, are immediately exercisable and were to expire on March 21, 2019. On February 4, 2019, the Company extended expiration of the warrants to March 21, 2020.

Revolving Credit Facility

On August 16, 2018, we and our material U.S. subsidiaries; GX Technology Corporation, ION Exploration Products (U.S.A) and I/O Marine Systems, Inc. (the “Material U.S. Subsidiaries”), along with GX Geoscience Corporation, S. de R.L. de C.V., a limited liability company (Sociedad de Responsabilidad Limitada de Capital Variable) organized under the laws of Mexico, and a subsidiary of the Company (the “Mexican Subsidiary”), (the Material U.S. Subsidiaries and the Mexican Subsidiary are collectively, the “Subsidiary Borrowers”, together with ION Geophysical Corporation are the “Borrowers”), the financial institutions party thereto, as lenders, and PNC Bank, National Association (“PNC”), as agent for the lenders, entered into that certain Third Amendment and Joinder to Revolving Credit and Security Agreement (the “Third Amendment”), amending the Revolving Credit and Security Agreement, dated as of August 22, 2014 (as previously amended by the First Amendment to Revolving Credit and Security Agreement, dated as of August 4, 2015 and the Second Amendment to Revolving Credit and Security Agreement, dated as of April 28, 2016, the “Credit Agreement”). The Credit Agreement, as amended by the First Amendment, the Second Amendment and the Third Amendment is herein called the “Credit Facility”). The Third Amendment amended the Credit Agreement to, among other things:

extend the maturity date of the Credit Facility by approximately four years (from August 22, 2019 to August 16, 2023), subject to our retirement or extension of the maturity date of its Second Lien Notes, as defined below, which matures on December 15, 2021;

increase the maximum revolver amount by \$10.0 million (from \$40.0 million to \$50.0 million);

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increase the borrowing base percentage of the net orderly liquidation value as it relates to the multi-client data library (not to exceed \$28.5 million, up from the previous maximum of \$15.0 million for the multi-client data library component);

include the eligible billed receivables of the Mexican Subsidiary up to a maximum of \$5.0 million in the borrowing base calculation and joins the Mexican Subsidiary as a borrower thereunder (with a maximum exposure of \$5.0 million) and require the equity and assets of the Mexican Subsidiary to be pledged to secure obligations under the facility;

30

modify the interest rate such that the maximum interest rate remains consistent with the fixed interest rate prior to the Third Amendment (that is, 3.00% per annum for domestic rate loans and 4.00% per annum for LIBOR rate loans), but now lowers the range down to a minimum interest rate of 2.00% for domestic rate loans and 3.00% for LIBOR rate loans based on a leverage ratio for the preceding four-quarter period;
 decrease the minimum excess borrowing availability threshold which (if the Borrowers have minimum excess borrowing availability below any such threshold) triggers the agent’s right to exercise dominion over cash and deposit accounts; and
 modify the trigger required to test for compliance with the fixed charges coverage ratio.

The borrowing base under the Credit Facility will increase or decrease monthly using a formula based on certain eligible receivables, eligible inventory and other amounts, including a percentage of the net orderly liquidation value the Borrowers’ multi-client data library. As of March 31, 2019, the borrowing base under the Credit Facility was \$39.7 million, and there was zero outstanding indebtedness under the Credit Facility. The maturity of the Credit Facility will accelerate to October 31, 2021 if we are unable to repay or extend the maturity of the Second Lien Notes.

The Credit Facility requires us to maintain compliance with various covenants. At March 31, 2019, we were in compliance with all of the covenants under the Credit Facility. For further information regarding our Credit Facility, see above Footnote 5 “Long-term Debt” of Footnotes to Condensed Consolidated Financial Statements.

Senior Secured Notes

As of March 31, 2019, ION Geophysical Corporation’s 9.125% Senior Secured Second Priority Notes due December 2021 (the “Second Lien Notes”) had an outstanding aggregate principal amount of \$120.6 million and are senior secured second-priority obligations guaranteed by the Material U.S. Subsidiaries and the Mexican Subsidiary. Interest on the Second Lien Notes is payable semiannually in arrears on June 15 and December 15 of each year during their term, except that the interest payment otherwise payable on June 15, 2021 will be payable on December 15, 2021.

The April 2016 indenture governing the Second Lien Notes contains certain covenants that, among other things, limits or prohibits our ability and the ability of our restricted subsidiaries to take certain actions or permit certain conditions to exist during the term of the Second Lien Notes, including among other things, incurring additional indebtedness in excess of permitted indebtedness, creating liens, paying dividends and making other distributions in respect of our capital stock, redeeming our capital stock, making investments or certain other restricted payments, selling certain kinds of assets, entering into transactions with affiliates, and effecting mergers or consolidations. These and other restrictive covenants contained in the Second Lien Notes Indenture are subject to certain exceptions and qualifications. All of our subsidiaries are currently restricted subsidiaries.

As of March 31, 2019, we were in compliance with all of the covenants under the Second Lien Notes Indenture.

On or after December 15, 2019, we may, on one or more occasions, redeem all or a part of the Second Lien Notes at the redemption prices set forth below, plus accrued and unpaid interest and special interest, if any, on the Second Lien Notes redeemed during the twelve-month period beginning on December 15th of the years indicated below:

Date	Percentage
2019	105.500%
2020	103.500%
2021 and thereafter	100.000%

Meeting our Liquidity Requirements

As of March 31, 2019, our total outstanding indebtedness (including finance lease obligations) was approximately \$121.3 million, consisting primarily of approximately \$120.6 million outstanding Second Lien Notes maturing in December 2021, \$2.7 million of equipment finance leases and other short-term debt, partially offset by \$2.7 million of debt issuance costs. As of March 31, 2019, there was no outstanding indebtedness under our Credit Facility.

For the Current Quarter, total capital expenditures, including the investments in our multi-client data library, were \$9.6 million. We expect that our capital expenditures related to investments in our multi-client data library this year to be in the range of \$40.0 million to \$60.0 million. We expect capital expenditures related to property, plant and equipment to be in the range of \$5.0 million to \$10.0 million in 2019.

We believe that our existing cash balance, cash from operations and undrawn availability under our Credit Facility will be sufficient to meet our anticipated cash needs for at least the next twelve months. However, as described at Part II, Item 1. “Legal Proceedings,” there are possible scenarios involving an outcome in the WesternGeco lawsuit that could materially and adversely affect our liquidity, financial condition and results of operations.

Cash Flow from Operations

In the Current Period, we generated \$15.4 million of cash from operating activities compared to \$0.6 million for the Comparable Period. The increase was driven primarily by collections of our combined accounts and unbilled receivable balance.

Cash Flow from Investing Activities

Cash used in investing activities was \$9.6 million in the Current Period compared to \$9.3 million for the Comparable Period. The principal uses of cash in our investing activities during the Current Quarter were \$8.8 million invested in our multi-client data library and \$0.8 million for capital expenditures related to property, plant and equipment.

The principal use of cash in our investing activities during the Comparable Quarter were \$9.2 million invested in our multi-client data library.

Cash Flow from Financing Activities

Net cash used in financing activities was \$1.0 million in the Current Period, compared to \$7.5 million of cash provided by financing activities in the Comparable Quarter. Cash used in financing activities was related to \$0.7 million of payments of long-term debt, including equipment finance leases in the Current Quarter.

The net cash provided by financing activities during the Comparable Quarter was related to \$47.2 million of net cash received from our equity offering, \$29.1 million of payments of long-term debt, including equipment finance leases, and a \$10.0 million repayment of our Credit Facility in the Comparable Quarter.

Inflation and Seasonality

Inflation in recent years has not had a material effect on our cost of goods or labor, or the prices for our products or services. Traditionally, our business has been seasonal, with strongest demand often occurring in the second half of our fiscal year.

Critical Accounting Policies and Estimates

Refer to our Annual Report on Form 10-K for the year ended December 31, 2018, for a complete discussion of our significant accounting policies and estimates.

Leases

On January 1, 2019, we adopted ASU 2016-2, “Leases (Topic 842)” using the modified retrospective method. This ASU requires the recognition of lease assets and lease liabilities by lessees for those leases classified as operating leases under the previous guidance. We used January 1, 2018, the beginning of the earliest comparative period presented in our condensed consolidated financial statements as our date of initial application. We elected the practical expedients upon transition which will retain the lease classification for leases and any unamortized initial direct costs that exist prior to the adoption of the standard.

The adoption of the standard resulted in \$59.5 million and \$70.6 million of ROU assets and operating lease liabilities, respectively, on our condensed consolidated balance sheets as of January 1, 2018 and no impact on our condensed consolidated statements of operations and cash flows. The difference between the ROU assets and operating lease liabilities is due to the derecognition of \$11.1 million in deferred rent recorded within other long-term liabilities. The standard had no impact on our debt covenant compliance under existing agreements.

We determine if an arrangement is a lease at inception by considering whether (1) explicitly or implicitly identified assets have been deployed in the agreement and (2) we obtain substantially all of the economic benefits from the use of that underlying asset and directs how and for what purpose the asset is used during the term of the agreement. Operating leases are included in “ROU assets”, “Current maturities of operating lease liabilities” and “Operating lease liabilities, net of current maturities” in the condensed consolidated balance sheets. Finance leases are included in “Property, plant and equipment”, “Current maturities of long-term debt”, and “Long-term debt, net of current maturities” in the condensed consolidated balance sheets.

ROU assets represent our right to use an underlying asset for the lease term and operating lease liabilities represent our obligation to make lease payments arising from the lease. ROU assets are recognized at commencement date and

consist of the present value of remaining lease payments over the lease term, initial direct costs, prepaid lease payments less any lease incentives.

Operating lease liabilities are recognized at commencement date based on the present value of remaining lease payments over the lease term. We use the implicit rate, when readily determinable or the incremental borrowing rate based on the information available at commencement date to determine the present value of lease payments. The lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Lease expense for lease payments is recognized on a straight-line basis over the lease term. Lease agreements with lease and non-lease components are accounted for separately. We will not recognize leases with terms of less than twelve months on the condensed consolidated balance sheets and recognize those lease payments in the condensed consolidated statements of operations on a straight-line basis over the lease term. In the event that our assumptions and expectations change, we may have to revise our ROU assets and operating lease liabilities.

Foreign Sales Risks

The majority of our foreign sales are denominated in U.S. dollars. Product revenues are allocated to geographical locations on the basis of the ultimate destination of the equipment, if known. If the ultimate destination of such equipment is not known, product revenues are allocated to the geographical location of initial shipment. Service revenues, which primarily relate to our E&P Technology & Services segment, are allocated based upon the billing location of the customer. For the Current and Comparable Periods, international sales comprised 81% and 76%, respectively, of total net revenues.

	Three Months Ended March 31,	
	2019	2018
Net revenues by geographic area:	(In thousands)	
Latin America	\$13,531	\$9,852
Europe	10,392 ^(a)	5,549
North America	7,157	8,048
Africa	2,389	5,019
Asia Pacific	1,867	3,934
Middle East	1,359	749
Commonwealth of Independent States	261	357
Total	\$36,956	\$33,508

^(a) Increase is primarily attributable to data library sales to European customers.

Credit Risks

At March 31, 2019, we had two multinational oil customers with a balance of over 10% of our total combined accounts receivable and unbilled receivable balances. We had one multinational oil customer with a balance of over 10% of our total net revenues for the three months ended March 31, 2019.

The loss of these customers or deterioration in our relationship with these customers could have a material adverse effect on our results of operations and financial condition.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Refer to Item 7A of our Annual Report on Form 10-K for the year ended December 31, 2018 for a discussion regarding our quantitative and qualitative disclosures about market risk. There have been no material changes to those disclosures during the Current Quarter.

Item 4. Controls and Procedures

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 Securities and Exchange Commission (the "SEC") under the Securities Exchange Act of 1934, as amended (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 are defined in Rule 13a-15(e) under the Exchange Act, and they 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.

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Our management carried out an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as of March 31, 2019. Based upon that evaluation, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures were effective as of March 31, 2019.

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 March 31, 2019, which has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

33

PART II — OTHER INFORMATION

Item 1. Legal Proceedings

WesternGeco

A more in depth treatment of the WesternGeco litigation and related proceedings is set forth above in Footnote 8 “Litigation” of Footnotes to Unaudited Condensed Consolidated Financial Statements. As noted in such Footnote, in 2014, because a jury found that we infringed four WesternGeco patents, the United States District Court for the Southern District of Texas (the “District Court”) entered a Final Judgment against us in the amount of \$123.8 million (\$12.5 million in reasonable royalties, \$93.4 million in lost profits, \$10.9 million in pre-judgment interest on lost profits, and \$9.4 million in supplemental damages).

On July 2, 2015, the United States Court of Appeals for the Federal Circuit in Washington, D.C. (the “Court of Appeals”) reversed, in part, the District Court, holding that the lost profits, which were attributable to foreign seismic surveys, were not available to WesternGeco under the Patent Act. We had recorded a loss contingency accrual of \$123.8 million because of the District Court’s ruling. As a result of the reversal by the Court of Appeals, we reduced the loss contingency accrual to \$22.0 million.

On November 14, 2016, the District Court ordered our sureties to pay principal and interest on the royalty damages previously awarded. On November 25, 2016, we paid WesternGeco the \$20.8 million due pursuant to the order, and it reduced its loss contingency accrual to zero.

On March 14, 2017, the District Court held a hearing on whether impose additional damages for willfulness. The Judge found that the our infringement was willful, and awarded enhanced damages of \$5.0 million to WesternGeco (WesternGeco had sought \$43.6 million in such damages.) The District Court also ordered the appeal bond to be released and discharged. On June 30, 2017, We and WesternGeco agreed that neither would appeal the District Court’s award of \$5.0 million in enhanced damages. Upon assessment of the enhanced damages, we accrued \$5.0 million in the first quarter of 2017 which was paid in full in 2018.

WesternGeco filed a petition in the Supreme Court on February 17, 2017, appealing the Court of Appeal’s decision that had eliminated lost profits. On January 12, 2018, the Supreme Court agreed to hear the appeal. The specific issue before the Supreme Court was whether lost profits arising from use of prohibited combinations occurring outside of the United States are categorically unavailable in cases where patent infringement is proven under 35 U.S.C. § 271(f)(2) (the statute under which were held to have infringed WesternGeco’s patents, and upon which the District Court and Court of Appeals relied in entering their rulings).

The Supreme Court heard oral arguments on April 16, 2018. We argued that the Court of Appeals’ decision that eliminated lost profits ought to be affirmed. WesternGeco and the U.S. Solicitor General argued that the Court of Appeals’ decision that eliminated lost profits ought to be reversed.

On June 22, 2018, the Supreme Court reversed the judgment of the Court of Appeals, held that the award of lost profits to WesternGeco by the District Court was a permissible application of Section 284 of the Patent Act, and remanded the case back to the Court of Appeals for further proceedings consistent with its (the Supreme Court’s) opinion.

On July 27, 2018, the Court of Appeals vacated its earlier decision with respect to lost profits damages, and ordered WesternGeco and us to submit supplemental briefing on what relief would be appropriate in light of the Supreme Court’s decision.

We argued to the Court of Appeals that lost profits were not available to WesternGeco because the jury instructions required the jury to find that we had been WesternGeco’s direct competitor in the survey markets where WesternGeco had lost profits, and that the jury could not have found so. Additionally, we argued that the award of lost profits and reasonable royalties ought to be vacated and retried on separate grounds due to the outcome of an Inter Partes Review (“IPR”) filed with the Patent Trial and Appeal Board (“PTAB”) of the Patent and Trademark Office, in which the PTAB invalidated four of the six patent claims that formed the basis for the lawsuit judgment against the Company. (The Court of Appeals affirmed the PTAB’s findings, and on February 19, 2019, the Supreme Court declined to hear WesternGeco’s appeal on that issue.)

On January 11, 2019, the Court of Appeals issued its ruling. In its ruling, the Court of Appeals refused to disturb the award of reasonable royalties to WesternGeco (which the Company paid in 2016), and rejected our “direct competitor”

argument, but vacated the District Court's award of lost profits damages and remanded the case back to the District Court to determine whether to hold a new trial as to lost profits. The Court of Appeals also ruled that its affirmance of the PTAB's decision eliminated four of the five patent claims that could have supported the award of lost profits, leaving only one remaining patent claim that could support an award of lost profits.

The Court of Appeals further held that the lost profits award can be reinstated by the District Court if the existing trial record establishes that the jury must have found that the technology covered by the one remaining patent claim was essential for performing the surveys upon which lost profits were based. To make such a finding, the District Court must conclude that the present trial record establishes that there was no dispute that the technology covered by the one remaining patent claim, independent of the technology of the now-invalid claims, was required to perform the surveys. The Court of Appeals ruling further provides that if, but only if, the District Court concludes that WesternGeco established at trial, with undisputed evidence, that the remaining claim covers technology that was necessary to perform the surveys, then the District Court may deny a new trial and reinstate lost profits.

On February 19, 2019, we filed a motion for a new trial as to lost profits in the District Court. In the motion, we argued that a new trial on lost profits is necessary, since WesternGeco cannot demonstrate that it established, at trial, with undisputed evidence, that the one remaining patent claim covers technology that was necessary to perform the surveys upon which the lost profits award was based. On March 20, 2019, WesternGeco filed an opposition to our motion for a new trial, arguing that undisputed evidence established that the one remaining patent claim was necessary to perform the ten lost profits surveys. On that same date, WesternGeco filed a cross motion for entry of a judgment of \$105.4 million in lost profits and pre- and post-judgment interest. We filed a reply to WesternGeco's opposition motion on April 9, 2019 and an opposition to WesternGeco's cross motion on April 18, 2019.

We may not ultimately prevail in the litigation and we could be required to pay some or all of the lost profits that were awarded by the District Court, plus interest, if the District Court denies a new trial on lost profits, or if a new trial is granted and a new judgment issues. Our assessment that we do not have a loss contingency may change in the future due to developments at the Supreme Court, Court of Appeals, or District Court, and other events, such as changes in applicable law, and such reassessment could lead to the determination that a significant loss contingency is probable, which could have a material effect on the Company's business, financial condition and results of operations. The Company's assessments disclosed in this Quarterly Report on Form 10-Q or elsewhere are based on currently available information and involve elements of judgment and significant uncertainties. See above, Footnote 8 "Litigation" of Footnotes to Unaudited Condensed Financial Statements".

Other Litigation

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

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," "estimate," "predict," "potential," or "continue" or the negative of such terms or other comparative terminology. Examples of other forward-looking statements contained or incorporated by reference in this report include statements regarding:

- any additional damages or adverse rulings in the WesternGeco litigation and future potential adverse effects on our financial results and liquidity;
- future levels of our capital expenditures and of our customers for seismic activities;
- future oil and gas commodity prices;
- the effects of current and future worldwide economic conditions (particularly in developing countries) and demand for oil and natural gas and seismic equipment and services;

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future cash needs and availability of cash to fund our operations and pay our obligations;
the effects of current and future unrest in the Middle East, Africa, South America, and other regions;
the timing of anticipated revenues and the recognition of those revenues for financial accounting purposes;

35

the effects of ongoing and future industry consolidation, including, in particular, the effects of consolidation and vertical integration in the towed marine seismic streamers market;

the timing of future revenue realization of anticipated orders for multi-client survey projects and data processing work in our E&P Technology & Services segment;

future government laws or regulations pertaining to the oil and gas industry, including trade restrictions, embargoes and sanctions imposed by the U.S government;

future government actions that may result in the deprivation of our contractual rights, including the potential for adverse decisions by judicial or administrative bodies in foreign countries with unpredictable or corrupt judicial systems;

expected net revenues, gross margins, income from operations and net income for our services and products;

future seismic industry fundamentals, including future demand for seismic services and equipment;

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

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

future growth rates for our services and products;

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

expectations regarding E&P companies and seismic contractor end-users purchasing our more technologically-advanced services and products;

anticipated timing and success of commercialization and capabilities of services and products under development and start-up costs associated with their development, including 4Sea;

future opportunities for new products and projected research and development expenses;

expected continued compliance with our debt financial covenants;

expectations regarding realization of deferred tax assets;

expectations regarding the impact of the U.S. Tax Cuts and Jobs Act;

anticipated results with respect to certain estimates we make for financial accounting purposes;

future success dependent on our continuing ability to identify, hire, develop, motivate and retain skilled personnel for all areas of our organization;

breaches to our systems could lead to loss of intellectual property, dissemination of highly confidential information, increased costs and impairment of our ability to conduct our operations; and

compliance with the U.S. Foreign Corrupt Practices Act and other applicable U.S. and foreign laws prohibiting corrupt payments to government officials and other third parties.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

(c) During the three months ended March 31, 2019, in connection with the vesting of (or lapse of restrictions on) shares of our restricted stock held by certain employees, we acquired shares of our common stock in satisfaction of tax withholding obligations that were incurred on the vesting date. The date of acquisition, 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
January 1, 2019 to January 31, 2019	—	—	Not applicable	Not applicable
February 1, 2019 to February 28, 2019	—	\$ —	Not applicable	Not applicable
	20,044	\$ 13.16	Not applicable	Not applicable

March 1, 2019
to March 31,
2019

Total	20,044	\$ 13.16
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36

Item 5. Other Information

None.

37

Item 6. Exhibits

31.1 Certification of Chief Executive Officer

31.2 Certification of Chief Financial Officer

32.1 Certification of Chief Executive Officer

32.2 Certification of Chief Financial Officer

10.21 Form of First Amendment to Warrant to Purchase Common Stock dated as of February 4, 2019, filed on February 8, 2019 as Exhibit 10.1 to the Company's Current Report on Form 8-K, and incorporated herein by reference.

The following materials are formatted in Extensible Business Reporting Language (XBRL): (i) Condensed Consolidated Balance Sheets as of March 31, 2019 and December 31, 2018, (ii) Condensed Consolidated Statements of Operations for the three months ended March 31, 2019 and 2018, (iii) Condensed Consolidated Statements of Comprehensive Loss for the three months ended March 31, 2019 and 2018, (iv) Condensed Consolidated Statements of Cash Flows for the three months ended March 31, 2019 and 2018, (v) Condensed Consolidated Statements of Stockholders' (Deficit) Equity for the three months ended March 31, 2019 and 2018 and (vi) Footnotes to Condensed Consolidated Financial Statements.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

ION GEOPHYSICAL CORPORATION

By /s/ Steven A. Bate
Steven A. Bate
Executive Vice President and Chief Financial Officer

Date: May 2, 2019