

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington D.C. 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: **September 30, 2017**

or

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

For the transition period from _____ to _____.

XG SCIENCES, INC.

(Exact name of registrant as
specified in its
charter)

Michigan

(State or other jurisdiction of
incorporation or organization)

333-209131

(Commission File No.)

20-4998896

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

**3101 Grand Oak Drive
Lansing, MI 48911**

(Address of principal executive offices) (zip code)

(517) 703-1110

(Issuer Telephone number)

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

(Note: Registrant is a voluntary filer of reports required to be filed by certain companies under Sections 13 and 15(d) of the Securities Exchange Act of 1934 and has filed all reports that would have been required during the preceding 12 months, had it been subject to such filing requirements.)

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company filer. See definition of "accelerated filer" and "large accelerated filer" in Rule 12b-2 of the Exchange Act (Check one):

Large accelerated filer

Non-accelerated filer

(Do not check if a smaller
reporting company)

Accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by checkmark if the registrant has not elected to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

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

As of November 13, 2017, there were 2,213,350 shares outstanding of the registrant's common stock.

XG SCIENCES, INC.
FORM 10-Q
September 30, 2017
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FORWARD-LOOKING STATEMENTS

The information in this Quarterly Report on Form 10-Q contains “forward-looking statements” and information within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”), and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”) relating to XG Sciences, Inc., a Michigan corporation and its subsidiary, XG Sciences IP, LLC, a Michigan limited liability company (collectively referred to as “we”, “us”, “our”, “XG Sciences”, “XGS”, or the “Company”), which are subject to the “safe harbor” created by those sections. These forward-looking statements include, but are not limited to, statements concerning our strategy, future operations, future financial position, future revenue, projected costs, prospects and plans and objectives of management. The words “anticipates,” “believes,” “estimates,” “expects,” “intends,” “may,” “plans,” “projects,” “will,” “would” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. These forward-looking statements involve known and unknown risks and uncertainties that could cause our actual results, performance or achievements to differ materially from those expressed or implied by the forward-looking statements, including, without limitation, the risks set forth on beginning on page 14 under the section entitled “Risk Factors” in Post-Effective Amendment No. 5 (declared effective April 14, 2017) to our registration statement on Form S-1 (File No. 333-209131) as filed with the Securities and Exchange Commission (the “SEC”) on April 12, 2016, and originally declared effective on April 13, 2016 (the “Existing Registration Statement”).

XG SCIENCES, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(unaudited)

	<u>September 30, 2017</u>	<u>December 31, 2016</u> (Restated)
ASSETS		
CURRENT ASSETS		
Cash	\$ 1,317,761	\$ 1,785,343
Accounts receivable, less allowance for doubtful accounts of \$10,000 at September 30, 2017 and December 31, 2016	378,686	99,078
Inventory	193,223	205,973
Incentive refunds receivable	—	165,635
Other current assets	194,864	174,495
Total current assets	<u>2,084,534</u>	<u>2,430,524</u>
PROPERTY, PLANT AND EQUIPMENT, NET	2,648,624	2,886,421
RESTRICTED CASH FOR LETTER OF CREDIT	195,718	195,499
INTANGIBLE ASSETS, NET	<u>561,719</u>	<u>478,019</u>
TOTAL ASSETS	<u>\$ 5,490,595</u>	<u>\$ 5,990,463</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable and other liabilities	\$ 667,605	\$ 964,757
Deferred revenue	—	6,428
Current portion of capital lease obligations	159,628	268,667
Total current liabilities	<u>827,233</u>	<u>1,239,852</u>
LONG TERM LIABILITIES		
Long term portion of capital lease obligations	31,311	115,106
Long term debt	3,814,703	1,862,120
Derivative liability – warrants	—	249,807
Total long term liabilities	<u>3,846,014</u>	<u>2,227,033</u>
TOTAL LIABILITIES	<u>4,673,247</u>	<u>3,466,885</u>
STOCKHOLDERS' EQUITY		
Series A convertible preferred stock, 3,000,000 shares authorized, 1,850,676 and 1,829,256 shares issued and outstanding, liquidation value of \$22,208,112 and \$21,951,072 at September 30, 2017 and December 31, 2016, respectively	21,831,374	21,574,360
Series B Preferred Stock, 1,500,000 shares authorized, 0 shares issued and outstanding, liquidation value of \$0 at September 30, 2017 and December 31, 2016	—	—
Common stock, no par value, 25,000,000 shares authorized, 2,162,725 and 1,885,175 shares issued and outstanding at September 30, 2017 and December 31, 2016, respectively	17,562,267	15,647,839
Additional paid in capital	7,677,319	6,490,230
Accumulated (deficit)	(46,253,612)	(41,188,851)
Total stockholders' equity	<u>817,348</u>	<u>2,523,578</u>
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	<u>\$ 5,490,595</u>	<u>\$ 5,990,463</u>

See notes to unaudited condensed consolidated financial statements

XG SCIENCES, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(unaudited)

	Three Months Ended September 30,		Nine Months ended September 30,	
	2017	2016 (Restated)	2017	2016 (Restated)
REVENUE				
Product sales	\$ 446,795	\$ 88,856	\$ 863,574	\$ 230,635
Grants	25,466	50,111	124,955	208,475
Licensing revenue	—	25,000	50,000	75,000
Total revenue	<u>472,261</u>	<u>163,967</u>	<u>1,038,529</u>	<u>514,110</u>
COST OF GOODS SOLD				
Direct costs	266,462	44,344	476,774	101,397
Unallocated manufacturing expenses	449,799	323,051	1,236,101	1,071,000
Total cost of goods sold	<u>716,261</u>	<u>367,395</u>	<u>1,712,875</u>	<u>1,172,397</u>
GROSS LOSS	<u>(244,000)</u>	<u>(203,428)</u>	<u>(674,346)</u>	<u>(658,287)</u>
OPERATING EXPENSES				
Research and development	215,949	231,312	706,575	866,668
Sales, general and administrative	1,466,505	896,650	3,386,857	2,618,252
Total operating expenses	<u>1,682,454</u>	<u>1,127,962</u>	<u>4,093,432</u>	<u>3,484,920</u>
OPERATING LOSS	<u>(1,926,454)</u>	<u>(1,331,390)</u>	<u>(4,767,778)</u>	<u>(4,143,207)</u>
OTHER INCOME (EXPENSE)				
Interest expense, net	(62,814)	(55,816)	(176,347)	(240,588)
Gain (Loss) from change in fair value of derivative liability – warrants	(43,154)	26,738	(46,612)	50,799
Government incentives	—	24,000	(74,024)	72,000
Loss on disposal of intangible assets	—	(18,609)	—	(18,609)
Total other income (expense)	<u>(105,968)</u>	<u>(23,687)</u>	<u>(296,983)</u>	<u>(136,398)</u>
NET LOSS	<u>\$ (2,032,422)</u>	<u>\$ (1,355,077)</u>	<u>\$ (5,064,761)</u>	<u>\$ (4,279,605)</u>
WEIGHTED AVERAGE NUMBER OF SHARES OUTSTANDING – Basic and diluted				
	<u>\$ 2,110,546</u>	<u>\$ 914,648</u>	<u>\$ 2,028,373</u>	<u>\$ 959,904</u>
NET LOSS PER SHARE – Basic and diluted	<u>\$ (.96)</u>	<u>\$ (1.48)</u>	<u>\$ (2.50)</u>	<u>\$ (4.46)</u>

See notes to unaudited condensed consolidated financial statements

XG SCIENCES, INC.
CONDENSED CONSOLIDATED STATEMENT OF CHANGES IN STOCKHOLDERS' EQUITY (DEFICIT)
(unaudited)

	Preferred stock (A)		Common stock		Additional paid-in capital	Accumulated deficit	Total
	Shares	Amount	Shares	Amount			
Balances, December 31, 2016 (Restated) – see note 2	1,829,256	\$ 21,574,360	1,885,175	\$ 15,647,839	\$ 6,490,230	\$ (41,188,851)	\$ 2,523,578
Reclassification of warrant liabilities to equity	—	—	—	—	296,419	—	296,419
Stock issued for cash	—	—	267,550	2,140,400	—	—	2,140,400
Stock issuance fees and expenses	—	—	—	(245,972)	—	—	(245,972)
Warrants issued with Dow Financings	—	—	—	—	145,800	—	145,800
Preferred stock issued to pay capital lease obligations	21,420	257,014	—	—	—	—	257,014
Stock-based compensation	—	—	10,000	20,000	744,870	—	764,870
Net loss	—	—	—	—	—	(5,064,761)	(5,064,761)
Balances, September 30, 2017	<u>1,850,676</u>	<u>\$ 21,831,374</u>	<u>2,162,725</u>	<u>\$ 17,562,267</u>	<u>\$ 7,677,319</u>	<u>\$ (46,253,612)</u>	<u>\$ 817,348</u>

See notes to unaudited condensed consolidated financial statements

XG SCIENCES, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE NINE MONTHS ENDED SEPTEMBER 30, 2017 AND 2016 (unaudited)

	2017	2016
		(Restated)
CASH FLOWS FROM OPERATING ACTIVITIES		
Net loss	\$ (5,064,761)	\$ (4,279,605)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	665,813	684,199
Amortization of intangible assets	31,770	26,856
Loss on disposal of intangible assets	—	18,609
Stock-based compensation expense	764,870	342,189
Non-cash interest expense	177,188	213,906
Gain from change in fair value of derivative liability - warrants	46,612	(50,799)
Changes in current assets and liabilities:		
Accounts receivable	(279,608)	(4,044)
Inventory	12,750	2,434
Other current and non-current assets	145,047	(101,216)
Accounts payable and other liabilities	(303,580)	480,164
NET CASH USED IN OPERATING ACTIVITIES	(3,803,899)	(2,667,307)
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchases of property and equipment	(428,016)	(84,187)
Purchases of intangible assets	(115,470)	(89,264)
NET CASH USED IN INVESTING ACTIVITIES	(543,486)	(173,451)
CASH FLOWS FROM FINANCING ACTIVITIES		
Advances (repayments) of capital lease obligations, net	(14,625)	29,896
Repayments of short-term notes, net	—	(175,250)
Proceeds from long-term loan	2,000,000	—
Proceeds from issuance of common stock	2,140,400	3,102,032
Common stock issuance fees and expenses	(245,972)	(538,640)
NET CASH PROVIDED BY FINANCING ACTIVITIES	3,879,803	2,418,038
NET DECREASE IN CASH	(467,582)	(422,720)
CASH AT BEGINNING OF PERIOD	1,785,343	1,060,224
CASH AT END OF PERIOD	\$ 1,317,761	\$ 637,504
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:		
Cash paid for interest	\$ —	\$ 27,107
SUPPLEMENTAL DISCLOSURE OF NON-CASH INVESTING AND FINANCING:		
Value of preferred stock issued for AAOF capital lease obligations	\$ 257,014	\$ 257,014
Property and equipment under capital leases	\$ —	\$ 38,998
Reclassification of derivative liability warrants to equity - ASU 2017-11 (see note 2)	\$ 7,650,442	\$ —
Reclassification of derivative liability warrants to equity - Series B Amendment	\$ 296,419	\$ 51,418
Warrants issued with long and short-term financings	\$ 145,800	\$ 24,060

See notes to unaudited condensed consolidated financial statements

XG SCIENCES, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
SEPTEMBER 30, 2017

NOTE 1 - NATURE OF BUSINESS AND BASIS OF PRESENTATION

XG Sciences, Inc., a Michigan company located in Lansing, Michigan and its subsidiary, XG Sciences IP, LLC (collectively referred to as “we”, “us”, “our”, or the “Company”) manufactures graphene nanoplatelets made from graphite, using two proprietary manufacturing processes to split natural flakes of crystalline graphite into very small and thin particles, which we sell as xGnP® graphene nanoplatelets. We sell our nanoparticles in the form of bulk powders or dispersions to other companies for use as additives to make composite and other materials with specially engineered characteristics. We also manufacture and sell integrated, value-added products containing these graphene nanoplatelets such as greases, composites, thin sheets, inks and coating formulations that we sell to other companies. Additionally, we license our technology to other companies in exchange for royalties and other fees.

Basis of Presentation

The accompanying interim condensed consolidated financial statements are unaudited and have been prepared in accordance with accounting principles generally accepted in the United States of America (“GAAP”) for interim financial information and the instructions to Form 10-Q and do not include all of the information and footnotes required by GAAP for complete financial statements. All intercompany transactions have been eliminated in consolidation.

Certain information and footnote disclosures normally included in our annual audited consolidated financial statements and accompanying notes have been condensed or omitted in these interim condensed consolidated financial statements. Accordingly, the unaudited condensed consolidated financial statements included herein should be read in conjunction with the audited consolidated financial statements for the year ended December 31, 2016, as filed with the Securities and Exchange Commission (“SEC”) on Form 10-K on March 31, 2017.

The results of operations presented in this quarterly report are not necessarily indicative of the results of operations that may be expected for any future periods. In the opinion of management, these unaudited condensed consolidated financial statements include all adjustments and accruals, consisting only of normal recurring adjustments that are necessary for a fair statement of the results of all interim periods reported herein.

NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Liquidity

We have historically incurred losses from operations and we may continue to generate negative cash flows as we implement our business plan. Our condensed consolidated financial statements are prepared using US GAAP as applicable to a going concern, which contemplates the realization of assets and liquidation of liabilities in the normal course of business.

In December 2016, we entered into a draw loan note and agreement (the “Dow Facility”) with The Dow Chemical Company (“Dow”) to provide up to \$10 million of secured debt financing at an interest rate of 5% per year, drawable at our request under certain conditions. We received \$2 million at closing, \$1 million on July 18, 2017, and \$1 million on September 22, 2017. We currently have \$1 million of additional funding available on or before December 1, 2017 under the Dow Facility. After December 1, 2017, an additional \$5 million becomes available under the Dow Facility if we have raised \$10 million of equity capital after October 31, 2016.

As of November 10, 2017, we had cash on hand of \$1,226,776 and currently available funds of \$1 million under the Dow Facility. Our financial projections show that we may need to raise an additional \$6-8 million before we are capable of achieving sustainable free cash flow after capital expenditures. We intend that the primary means for raising such funds will be through our IPO, the additional \$1 million of currently available funds under the Dow Facility, and up to an additional \$5 million of proceeds from the Dow Facility in the event that we raise \$10 million of additional equity capital after October 31, 2016. Thus far, we have raised approximately \$3 million through the sale of 376,078 shares of common stock between November 1, 2016 and September 30, 2017 towards the requirement to raise \$10 million of additional equity capital in order to open up the remaining \$5 million of availability on the Dow Facility. There can be no assurance that we will be able to raise additional equity capital in the IPO or in subsequent equity offerings or that the terms and conditions of any future financings will be workable or acceptable to us and our stockholders.

In the event we are unable to fund our operations from existing cash on hand, operating cash flows, additional borrowings or raising equity capital, we may be forced to reduce our expenses, slow down our growth rate, or discontinue operations. Our condensed consolidated financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might be necessary should we be unable to continue as a going concern.

XG SCIENCES, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
SEPTEMBER 30, 2017

Use of Estimates

The preparation of our condensed consolidated financial statements in conformity with GAAP requires us to make estimates, judgments and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses, together with amounts disclosed in the related notes to the financial statements. Actual results and outcomes may differ from our estimates, judgments and assumptions. Significant estimates, judgments and assumptions used in these condensed consolidated financial statements include, but are not limited to, those related to revenue, accounts receivable and related allowances, contingencies, useful lives and recovery of long-term assets, including intangible assets, income taxes, the fair value of stock-based compensation. These estimates, judgments, and assumptions are reviewed periodically and the effects of material revisions in estimates are reflected in the financial statements prospectively from the date of the change in estimate.

Inventory

Inventory consists of raw materials and finished goods, all of which are valued at standard cost, which approximates average cost.

The following amounts were included in inventory at the end of the period:

	September 30, 2017	December 31, 2016
Raw materials	\$ 48,450	\$ 45,964
Finished goods	144,773	160,009
Total	<u>\$ 193,223</u>	<u>\$ 205,973</u>

Derivative Financial Instruments

We do not use derivative instruments to hedge exposures to cash flow, market or foreign currency risk. The terms of convertible preferred stock and convertible notes that we issue are reviewed to determine whether or not they contain embedded derivative instruments that are required by ASC 815: "Derivatives and Hedging" to be accounted for separately from the host contract, and recorded at fair value. In addition, freestanding warrants are also reviewed to determine if they achieve equity classification. Certain stock warrants that we have issued did not meet the conditions for equity classification and were classified as derivative instrument liabilities measured at fair value. The fair values of these derivative liabilities were revalued at each reporting date, with the change in fair value recognized in earnings. See Note 5 for additional information.

In July 2017, the FASB issued Accounting Standards Update No. 2017-11, *Earnings Per Share (Topic 260), Distinguishing Liabilities From Equity (Topic 480), Derivatives and Hedging (Topic 815)* ("ASU 2017-11"). This update changes the classification analysis of certain equity-linked financial instruments with down-round features. When determining whether certain financial instruments should be classified as liabilities or equity instrument, securities with anti-dilution features no longer preclude equity classification when assessing whether the instrument is indexed to an entity's own stock. As a result, freestanding equity-linked financial instruments (or embedded conversion features) would no longer be accounted for as derivative liabilities at fair value as a result of the existence of an anti-dilution feature. For freestanding equity classified financial instruments, ASU 2017-11 requires entities that present earnings per share in accordance with ASC Topic 260 to recognize the effect of the anti-dilution feature when it is triggered. That effect is treated as a dividend and as a reduction of income available to common shareholders in basic EPS. The guidance in this Update is effective for fiscal years, and interim period within those fiscal years, beginning after December 15, 2018, with earlier adoption permitted. When adopted in an interim period, any adjustments are reflected as of the beginning of the fiscal year that includes that interim period. We elected to early adopt ASU 2017-11 during the three months ended September 30, 2017 by applying the standard retrospectively to outstanding financial instruments with a down round feature by means of a cumulative-effect adjustment to the Company's beginning accumulated deficit as of January 1, 2016 (see note 2). There were 972,720, warrants indexed to Series A Preferred Stock which were originally recorded as derivative liabilities as a result of their anti-dilution features. We chose to early adopt ASU 2017-11 because it permitted these warrants to be recorded as equity rather than derivative liabilities. If ASU 2017-11 had been effective in 2016, it would have resulted in a decrease in the derivative liability and a corresponding decrease in the accumulated deficit of \$7,582,158 as of September 30, 2016. The impact to the financial statements as of the three and nine-months ended September 30, 2016 is as follows:

XG SCIENCES, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
SEPTEMBER 30, 2017

	Three months ended September 30, 2016	
	As previously reported	As Adjusted
Operating loss	\$ (1,331,390)	\$ (1,331,390)
Other income (expense):		
Interest expense, net	(56,013)	(55,816)
Gain from change in fair value of derivative warrants	108,056	26,738
Government incentives	24,197	24,000
Loss on disposal of intangible assets	(18,609)	(18,609)
Total other income (expense)	<u>57,631</u>	<u>(23,687)</u>
Net loss	<u>\$ (1,273,759)</u>	<u>\$ (1,355,077)</u>

	Nine months ended September 30, 2016	
	As previously reported	As Adjusted
Operating loss	\$ (4,143,207)	\$ (4,143,207)
Other income (expense):		
Interest expense, net	(241,011)	(240,588)
Gain from change in fair value of derivative warrants	340,669	50,799
Government incentives	72,423	72,000
Loss on disposal of intangible assets	(18,609)	(18,609)
Total other income (expense)	<u>153,472</u>	<u>(136,398)</u>
Net loss	<u>\$ (3,989,735)</u>	<u>\$ (4,279,605)</u>

The impact to the balance sheet as of December 31, 2016 is as follows:

	As previously reported	As Adjusted
Derivative liability-warrants	<u>\$ 7,900,249</u>	<u>\$ 249,807</u>
Total long-term liabilities	<u>\$ 9,877,475</u>	<u>\$ 2,227,033</u>
Total liabilities	<u>\$ 11,117,327</u>	<u>\$ 3,466,885</u>
Series A convertible preferred stock	<u>\$ 21,634,597</u>	<u>\$ 21,574,360</u>
Accumulated deficit	<u>\$ (48,899,530)</u>	<u>\$ (41,188,851)</u>
Total stockholders' (deficit) equity	<u>\$ (5,126,864)</u>	<u>\$ 2,523,578</u>
Total liabilities and stockholder's deficit	<u>\$ 5,990,463</u>	<u>\$ 5,990,463</u>

XG SCIENCES, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
SEPTEMBER 30, 2017

NOTE 3 — WARRANTS AND FINANCING AGREEMENTS

Dow Loan

In December 2016, we entered into the Dow Facility which provides us with up to \$10 million of secured debt financing at an interest rate of 5% per year, drawable at our request under certain conditions. We received \$2 million at closing and an additional \$1 million on July 18, 2017 and September 22, 2017, respectively. We currently have \$1 million of additional funding available on or before December 1, 2017 under the Dow Facility. After December 1, 2017, an additional \$5 million becomes available if we have raised \$10 million of equity capital after October 31, 2016.

The Dow Facility is senior to most of our other debt, and is secured by all of our assets (Dow is subordinate only to the capital leases with AAOF, see Note 9). The loan does not mature until December 1, 2021 (subject to certain mandatory prepayments based on our equity financing activities). Interest is payable beginning January 1, 2017 although we may elect to capitalize interest through January 1, 2019. Dow received warrant coverage of one share of common stock for each \$40 in loans received by us, equating to 20% warrant coverage, with an exercise price of \$8.00 per share for the warrants issued at closing of the initial \$2 million draw. After the initial closing, the strike price of future warrants issued are subject to adjustment if we sell shares of common stock at a lower price. As of September 30, 2017, we had issued 100,000 warrants to Dow, which are exercisable on or before the expiration date of December 1, 2023.

The warrants meet the criteria for classification within stockholders' equity. Proceeds were allocated between the debt and the warrants at their relative fair value. During the nine months ended September 30, 2017, amortization expense of \$98,384 was recognized resulting in a carrying value of \$3,814,703 for the Dow Loan as of September 30, 2017.

The Dow Facility entitles Dow to appoint an observer to our board of directors (the "Board"). Dow will maintain their observation right until the later of December 1, 2019 or when the amount of principal and interest outstanding under the Dow Facility is less than \$5 million.

NOTE 4 — PRIVATE PLACEMENT AND PREEMPTIVE RIGHTS

Private Placement

In April 2015, we commenced a private placement offering of Series B Units consisting of shares of Series B Preferred Stock and warrants to purchase common stock at an offering price of \$16.00 per Series B Unit. During the period April 2015 through December 2016, we sold 266,887 shares of Series B Convertible Preferred Stock and Warrants to purchase 222,262 shares of common stock, for aggregate gross proceeds of \$4,270,192.

The private Series B Unit offering was terminated on February 25, 2016. As a result of our IPO and pursuant to certain exchange rights granted to participants in the Series B Unit offering, holders of Series B Preferred Stock received the right to exchange each share of Series B Preferred Stock they owned into two shares of common stock. As of December 31, 2016, all holders of Series B Preferred Stock had exercised their Series B exchange rights, and as a result we issued 539,974 shares of restricted common stock in exchange for the 269,987 shares of Series B Preferred Stock that had been previously outstanding. All of the previously issued Series B Preferred Stock was cancelled. Although the stock was cancelled all of the 224,897 warrants issued in connection with the Series B Units remain outstanding at September 30, 2017. Such warrants have an exercise price of \$16.00 per share and expire between April 21 and June 30, 2022. These warrants were classified as derivative liabilities until September 30, 2017; at which time they were reclassified to equity (additional paid in capital). The reclassification was made on September 30, 2017 after determining that the exchange rights as defined in the Michigan "Certificate of Amendment – Corporation", filed on August 19, 2016 no longer required liability classification (see Note 2).

XG SCIENCES, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
SEPTEMBER 30, 2017

NOTE 5 – DERIVATIVE LIABILITY WARRANTS

At inception, the Series A Convertible Preferred Stock warrants issued in conjunction with convertible notes issued in 2013 (subsequently converted into Series A Preferred Stock), equipment financing leases procured in 2013 and 2014, and certain other pre-emptive rights and the common stock warrants issued in connection with the 2015 Series B Unit offering were derivative liabilities which require re-measurement at fair value each reporting period.

As mentioned in Note 2, during the three months ended September 30, 2017, we chose to adopt ASU 2017-11 which changed the classification analysis of certain warrants with anti-dilution features. Since we chose to early adopt ASU 2017-11 in an interim period, the adjustments were reflected as of the beginning of the fiscal year as a cumulative-effect adjustment to the Company's beginning accumulated deficit as of January 1, 2016. As a result of adopting ASU 2017-11, the Company no longer recognizes a liability related to 972,720 warrants, which were only classified as liabilities a result of having anti-dilution features.

As mentioned in Note 4, 224,897 warrants related to the Series B offering were reclassified from derivative liabilities on the balance sheet to equity at September 30, 2017 because the requirement to classify them as liabilities was removed when we amended the Series B Certificate of Designation in August of 2016.

The initial value of the stock warrants issued as consideration for the equipment financing leases in 2013 and 2014 was recorded as a reduction of the capital lease obligation and is being amortized as part of the effective interest cost on the capital lease obligation (see Note 8).

In 2014 when we entered into financing agreements with Samsung, AAOF and XGS II, we provided our shareholders with preemptive rights to purchase shares of Series A Convertible Preferred Stock for every two shares of Series A Convertible Preferred Stock or Common Stock owned by the shareholder. In addition, for every two shares of Series A Convertible Preferred Stock purchased by a shareholder, we issued such shareholder a warrant to purchase one additional share of Series A Convertible Preferred Stock with the same terms as the warrants issued to AAOF and XGS II.

Also, as part of our private placement of Series B Units in April 2015, shareholders and holders of our convertible notes were provided the right to purchase their pro rata share of any class of stock that the Company sells or issues. The sale of Series B Preferred Stock in the April 2015 offering triggered the preemptive rights resulting in the issuance of shares of Series B Preferred Stock and warrants. As of September 30, 2017, the total number of Stock Warrants issued due to the preemptive rights offerings was 58,689.

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The following table summarizes the fair value of the derivative liabilities as of September 30, 2017 and December 31, 2016:

	September 30, 2017	December 31, 2016
Warrants issued with Secured Convertible Notes	\$ —	\$ 6,554,160
Warrants issued with equipment financing leases	—	655,418
Warrants issued with preemptive rights	—	443,790
Warrants issued with April 2015 private placement of Series B Units	—	246,881
Adoption of accounting standard ASU 2017-11	—	(7,650,442)
Total derivative liabilities	\$ —	\$ 249,807

The Company estimated the fair value of their warrant derivative liabilities as of September 30, 2017 and December 31, 2016, using a lattice model and the following assumptions:

	December 31, 2016
Fair value of underlying stock	\$7.63 - \$12.64
Equivalent risk free interest rate	1.27% - 1.46%
Expected term (in years)	5.33 - 7.04
Equivalent stock price volatility	37.44% - 37.92%
Expected dividend yield	—

The value of the warrants is estimated using a binomial lattice model. Equivalent amounts reflect the net results of multiple modeling simulations that the lattice model applies to underlying assumptions. Because the Company is not publicly traded on a national exchange or to our knowledge, an over-the-counter market, the expected volatility of the Company's stock was developed using historical volatility for a peer group for a period equal to the expected term of the warrants. The fair value of the warrants will be significantly influenced by the fair value of our common stock, stock price volatility, and the risk-free interest components of the lattice technique.

Changes in the fair value of Derivative Liabilities, carried at fair value, are reported as "Change in fair value of derivative liability — warrants" in the Statement of Operations. Comparative prior periods were prepared using the newly adopted ASU 2017-11 as follows:

	Three months ended September 30,	
	2017	2016
Warrants issued with preemptive rights	\$ (506)	\$ 26,423
Warrants issued with April 2015 private placement of Series B Units	(42,648)	315
Total Derivative Gain (Loss)	\$ (43,154)	\$ 26,738
	Nine months ended September 30,	
	2017	2016
Warrants issued with preemptive rights	\$ (545)	\$ 48,964
Warrants issued with April 2015 private placement of Series B Units	(46,067)	577
Warrants issued with Bridge Financing	—	1,258
Total Derivative Gain (Loss)	\$ (46,612)	\$ 50,799

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Subsequent to the Company's early adoption of ASU 2017-11, which effected 972,720 warrants related to Series A Preferred stock, and the Company's reclassification of 224,897 warrants related to Series B Preferred stock on September 30, 2017 (from derivative liabilities to equity) we are no longer required to record the change in fair values for these instruments.

NOTE 6 – STOCK WARRANTS ACCOUNTED FOR AS EQUITY INSTRUMENTS

The following table summarizes the common stock warrants (including the warrants previously accounted for as derivatives) outstanding at September 30, 2017, which are accounted for as equity instruments, all of which are exercisable:

Date Issued	Expiration Date	Exercise Price	Number of Warrants
07/01/2009	07/01/2019	\$ 8.00	6,000
10/08/2012	10/08/2027	\$ 12.00	5,000
01/15/2014 - 12/31/2014	01/15/2024	\$ 6.40	972,720
04/30/2015- 05/26/2015	04/30/2022	\$ 16.00	218,334
06/30/2015	06/30/2022	\$ 16.00	6,563
12/14/2016	12/01/2023	\$ 8.00	50,000
07/18/2017	12/01/2023	\$ 8.00	25,000
09/22/2017	12/01/2023	\$ 8.00	25,000
			1,308,617

NOTE 7 – EQUITY INCENTIVE PLAN

We previously established the 2007 Stock Option Plan (the "2007 Plan"), which was scheduled to expire on October 30, 2017 and under which we granted key employees and directors options to purchase shares of our common stock at not less than fair market value as of the grant date. On May 4, 2017, the Board approved the 2017 Equity Incentive Plan (the "2017 Plan") to replace the 2007 Stock Option Plan, which became effective upon the approval of the stockholders holding a majority of the voting power in the Company on July 18, 2017. The 2017 Plan replaces the 2007 Plan and authorizes us to issue awards (stock options and restricted stock) with respect of a maximum of 1,200,000 shares of our common stock, which equals the number of shares authorized under the 2007 Plan, as amended.

On July 24, 2017, certain stock options from the prior incentive stock option plan were cancelled and replacement stock options were awarded. The replacement stock option awards have an exercise price of \$8.00 per share, a seven-year term, are vested 50% on date of grant with the remaining vesting over a 4 year period from the date issued, and are subject to certain other terms. Each option holder received options equal to 150% of the number of cancelled stock options. The cancellation and reissuance of the stock options were treated as a modification under ASC 718, *Compensation-Stock Compensation*. Incremental compensation cost of approximately \$1,015,758 was measured as the excess of the fair value of the modified award over the fair value of the original award immediately before the terms were modified. Compensation cost of approximately \$501,071 was recorded on the date of cancellation for awards that were vested on the date of the modification. For unvested awards, compensation cost of approximately \$514,687 will be recorded over the remaining requisite service period. The fair values of the replacement options granted were estimated on the dates of grant using the Black Scholes option-pricing model using the following assumptions: Stock price: \$8.00, Exercise Price: \$8.00, Expected Term: 3.51-4.78, Volatility: 34.78% - 36.87%, Risk free rate: 1.53% - 1.83%.

On August 10, 2017, the Company granted stock options and restricted stock to each of its board members as part of their compensation package. Each of the 4 board members received 2,500 stock options and 2,500 shares of restricted stock for their board services. The options were granted at a price of \$8.00 per share and had an aggregate grant date fair value of \$26,120. The options vest ratably over a four-year period beginning on the one-year anniversary. The restricted stock issued to the board members have an aggregate fair value of \$80,000 and vest ratably in arrears on the last day of each fiscal quarter following the grant date. As of September 30, 2017, 2,500 shares of restricted stock had vested resulting in compensation expense of \$20,000.

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A summary of the stock option activity for the nine months ended September 30, 2017 is as follows:

	Number Of Options	Weighted Average Exercise Price
Options outstanding at beginning of year	369,750	\$ 11.89
Changes during the year:		
Expired	(12,000)	12.00
Cancellation of existing options	(357,750)	12.00
Issuance of replacement options	536,625	8.00
New Options Granted – at market price	108,000	8.00
Exercised	—	—
Options outstanding at end of Period	644,625	8.00
Options exercisable at end of Period	322,158	8.00

The fair values of options granted are estimated on the dates of grant using the Black Scholes option-pricing model. Vesting of the options granted range from immediately to 25% per year, with most of the replacement options vesting 50% on date of grant with the remaining vesting over a 4 year period from the date issued. The options expire in seven years from date of grant.

NOTE 8 – CAPITAL LEASES

As of September 30, 2017 and December 31, 2016, we have capital lease obligations as follows:

	September 30, 2017	December 31, 2016
Capital lease obligations	\$ 214,191	\$ 449,368
Unamortized warrant discount	(23,252)	(65,595)
Net obligations	190,939	383,773
Short-term portion of obligations	(159,628)	(268,667)
Long-term portion of obligations	<u>\$ 31,311</u>	<u>\$ 115,106</u>

Our AAOF capital lease obligations are four-year leases starting on January 1, 2014 and January 1, 2015. Our other capital leases expire at various dates in 2018, have average effective interest rates of 0% and contain bargain purchase options that allow us to purchase the leased property for a minimal amount upon the expiration of the lease term.

NOTE 9 — CUSTOMER, SUPPLIER, COUNTRY, AND PRODUCT CONCENTRATIONS

Grants and Licensing Revenue Concentration

For the three months ended September 30, 2017, one grantor accounted for 100% of the total grant revenue. During the nine months ended September 30, 2017, two grantors accounted for 25% and 75% of total grant revenue. During the three months ended September 30, 2016, two grantors accounted for 50% each of the total grant revenue, and for the nine months ended September 30, 2016, two grantors accounted for 12% and 88% of the total grant revenue in each period. There was no licensing revenue for the three months ended September 30, 2017. Licensing revenue for the nine months ended September 30, 2017, and for the three and nine months ended 2016, came from one licensor.

Product Concentration

Concentrations of product sales greater than 10% of total product sales are shown in the table below. We attempt to minimize the risk associated with product concentrations by continuing to develop new products to add to our portfolio of products offered.

	For the Three Months Ended September 30,		For the Nine Months Ended September 30,	
	2017	2016	2017	2016
Grade C-300 HP	*	*	14%	*
Grade C-500	66%	*	41%	*
Grade R-10	*	16%	*	12%
Grade M-15	*	16%	*	14%

* Denotes less than 10% of product sales.

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Customer Concentration

During the three months ended September 30, 2017 we had two customers whose purchases accounted for 19% and 65% of product sales. During the three months ended September 30, 2016 we had three customers who accounted for 10%, 12% and 21% of product sales.

For the nine months ended September 30, 2017 we had two customers whose purchases accounted for 17%, and 36% of product sales. During the nine months ended September 30, 2016 we had two customers whose purchases accounted for 11% each of product sales.

At September 30, 2017, there were two customers who had an accounts receivable balance greater than 10% of our total outstanding receivable balance. At September 30, 2016, there were two customers who had an accounts receivable balance greater than 10% of our total outstanding receivable balance.

Country Concentration

We sell our products on a worldwide basis. All of these sales are denominated in U.S. dollars.

International sales for the three months ended September 30, 2017 were 33% of product sales as compared with 54% for the three months ended September 30, 2016. One country, China, accounted for 19% of product sales for the three months ended September 30, 2017 and three countries, China, the United Kingdom and South Korea, accounted for 10%, 14%, and 20%, respectively, of product sales for the three months ended September 30, 2016.

International sales for the nine months ended September 30, 2017 were 34% of product sales as compared with 66% for the nine months ended September 30, 2016. One country, China, accounted for approximately 17% of product sales for the nine months ended September 30, 2017 and two countries, the United Kingdom and South Korea, accounted for 10% and 30%, respectively, of product sales for the nine months ended September 30, 2016.

Suppliers

We buy raw materials used in manufacturing from several sources. These materials are available from a large number of sources. Thus, we believe a change in suppliers would have no material effect on our operations. We did not have any purchases from one supplier that were more than 10% of total purchases for the three months and nine months ended September 30, 2017 and 2016.

NOTE 10 - RELATED PARTY TRANSACTIONS

We have a licensing agreement for exclusive use of patents and pending patents with Michigan State University ("MSU"), a shareholder of the Company via the MSU Foundation. During the three months ended September 30, 2017 and 2016 we recorded licensing expense of \$12,500 per quarter. During the nine months ended September 30, 2017 and 2016 we recorded licensing expense of \$37,500 in each period.

We have also entered into product licensing agreements with, POSCO, a shareholder. See below for POSCO. Other than MSU and POSCO, there were no other royalty expenses or revenue recognized during the three or nine months ended September 30, 2017 and 2016.

The Company and POSCO, a shareholder of the Company, entered into a license agreement dated June 8, 2011, pursuant to which POSCO agreed to pay a minimum annual royalty of \$100,000 per year if certain circumstances existed, among other things. The Company believed that this minimum annual royalty became due annually beginning on February 28, 2015, and up until June 30, 2017, recorded this royalty revenue at a rate of \$25,000 per quarter. POSCO disputed its obligation to pay this minimum annual royalty, and did not pay the royalty in any prior year. We filed a demand for arbitration in the International Court of Arbitration on March 9, 2016, in an effort to resolve the dispute. Pursuant to a confidential settlement, on November 3, 2017, the Company and POSCO agreed to settle the dispute and to dismiss the arbitration. Based on terms of the settlement, no allowance is considered necessary. At September 30, 2017 we have a balance of \$175,000 reflected in other current assets on the condensed consolidated balance sheet. This represents an accrual of licensing revenue of \$100,000 for three and a half years less 50% to reflect an estimate of the portion of 2017, 2016, 2015, and 2014 licensing fees we believed to be not collectible. At December 31, 2016 the accrued licensing fees and allowance netted together was \$150,000.

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On March 18, 2013, we entered into a series of agreements with two private investment funds: Aspen Advanced Opportunity Fund, LP (“AAOF”) and XGS II, LLC (“XGS II”), and pursuant to a Shareholders’ Agreement dated March 18, 2013 (as amended on February 26, 2016), a principal of each private fund serves as a member of our Board of Directors. These financing agreements were amended and restated on July 12, 2013 to provide for expanded financing commitments from AAOF and XGS II. Pursuant to these agreements, AAOF and XGS II agreed to provide \$10 million of financing to the Company in the form of Secured Convertible Notes and AAOF agreed to provide an additional \$1.0 million of lease financing arrangements. All of the principal and accrued interest on the Secured Convertible Notes issued to AAOF and XGS II were converted into Series A Preferred Stock in December 2016.

During the three months ended September 30, 2017 and 2016 we issued 7,140 shares per period of Series A Preferred Stock to AAOF as payment for lease financing obligations under the terms of the Master Lease Agreement, dated March 18, 2013. For the nine months ended September 30, 2017 and 2016 we issued a total of 21,420 shares per period as payment for lease obligations.

On August 10, 2017 restricted common stock in the amount of 2,500 shares, vesting at 25% or 625 shares on September 30, 2017, December 31, 2017, March 31, 2017, and June 30, 2017 was granted to each of four Board members: Steven C. Jones, Arnold Allemang, Dave Pendell, and Peifeng (Molly) Zhang. These awards were pursuant to the 2017 Equity Incentive Plan. In addition to the restricted stock, these Board members also received 2,500 stock options granted on August 10, 2017. These options vest equally over four years starting on the 1st anniversary of the date of grant. Both the restricted stock and the stock options have an exercise price of \$8.00 per share. The options expire on the seventh anniversary of the date of grant.

NOTE 11 – OTHER SUBSEQUENT EVENTS

During the period from October 1 through November 13, 2017, we received common stock proceeds of \$405,000 for the sale of 50,625 shares.

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

Forward-Looking Statements

In this Quarterly Report on Form 10-Q, unless otherwise indicated, the words “we”, “us”, “our”, “XG”, “XGS”, “XG Sciences” or the “Company” refer to XG Sciences, Inc. and its wholly owned subsidiary, XG Sciences IP, LLC, a Michigan limited liability company.

Introduction

The following discussion and analysis should be read in conjunction with the unaudited condensed consolidated financial statements, and the notes thereto included herein. The information contained below includes statements of the Company’s or management’s beliefs, expectations, hopes, goals and plans that, if not historical, are forward-looking statements subject to certain risks and uncertainties that could cause actual results to differ materially from those anticipated in the forward-looking statements. For a discussion on forward-looking statements, see the information set forth in the introductory note to this quarterly report on Form 10-Q under the caption “Forward-Looking Statements”, which information is incorporated herein by reference.

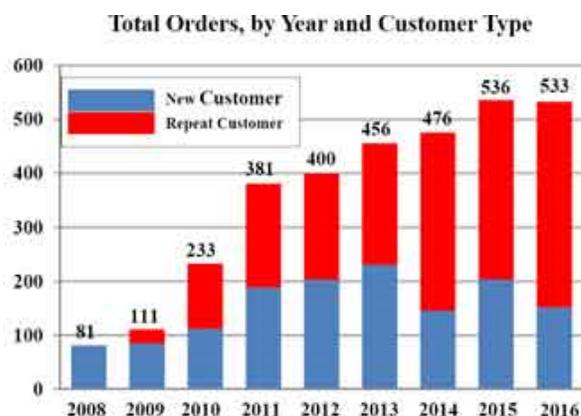
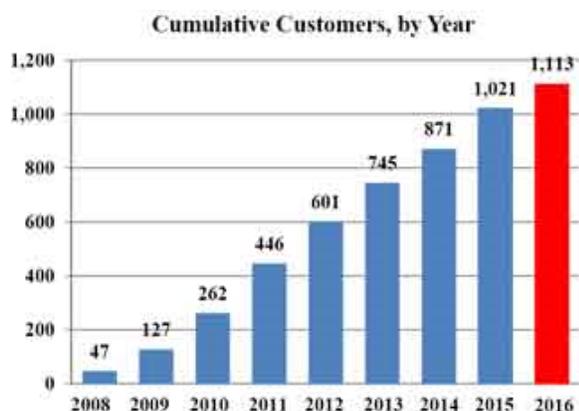
Overview of our Business

XG Sciences was formed in May 2006 for the purpose of commercializing certain technology to produce graphene nanoplatelets. First isolated and characterized in 2004, graphene is a single layer of carbon atoms configured in an atomic-scale honeycomb lattice. Among many noted properties, monolayer graphene is harder than diamonds, lighter than steel but significantly stronger, and conducts electricity better than copper. Graphene nanoplatelets are particles consisting of multiple layers of graphene. Graphene nanoplatelets have unique capabilities for energy storage, thermal conductivity, electrical conductivity, barrier properties, lubricity and the ability to impart physical property improvements when incorporated into plastics or other matrices.

We believe the unique properties of graphene and graphene nanoplatelets will enable numerous new product applications and the market for such products will quickly grow to be a significant market opportunity. Our business model is to design, manufacture and sell advanced materials we call xGnP[®] graphene nanoplatelets and value-added products incorporating xGnP[®] nanoplatelets. We currently have hundreds of customers trialing our products for numerous applications, including, but not limited to lithium ion batteries, lead acid batteries, thermally conductive adhesives, composites, thermal transfer fluids, thermal management and heat transfer, inks and coatings, printed electronics, construction materials, cement, and military uses. We believe our proprietary processes have enabled us to be a low-cost producer of high quality, graphene nanoplatelets and value-added integrated products containing graphene nanoplatelets and that we are well positioned to address a wide range of end-use applications.

Our Customers

We sell products to customers around the world and have sold materials to over 1,000 customers in 47 countries since 2008. Some of these customers are research organizations and some are commercial organizations. Our customers have included well-known automotive and OEM suppliers around the world (Ford, Johnson Controls, Magna, Honda Engineering) world-scale lithium ion battery manufacturers in the US, South Korea and China (Samsung SDI, LG Chemical, Lishen, A123) and diverse specialty material companies (3M, BASF, Henkel, Dow Chemical, DuPont) as well as leading research centers such as Lawrence Livermore National Laboratory and Oakridge National Laboratory. We have also licensed some of our base manufacturing technology to other companies and we consider technology licensing a component of our business model. Our licensees include POSCO, the fourth largest steel manufacturer in the world by volume of output, and Cabot Corporation (“Cabot”), a leading global specialty chemicals and performance materials company. These licensees further extend our technology through their customer networks. Ultimately, we believe we will benefit in terms of royalties on sales of xGnP[®] nanoplatelets produced and sold by our licensees. The below bar charts show the number of customers and total orders fulfilled by year based on actual purchases of our materials and orders for free samples or materials used in joint development programs.



Our Products

Bulk Materials. We target our xGnP[®] nanoplatelets for use in a wide range of large and growing end-use markets. Our proprietary manufacturing processes allow us to produce nanoplatelets with varying performance characteristics that can be tuned to specific end-use applications based on customer requirements. We currently offer four commercial “grades” of bulk graphene nanoplatelet materials, each of which is available in various particle sizes, which allows for surface areas ranging from 50 to 800 square meters per gram of material depending on the product. Other grades may be made available, depending on the needs for specific applications. In addition, we sell our xGnP[®] graphene nanoplatelets in the form of pre-dispersed mixtures with water, alcohol, or other organic solvents and resins. In addition to selling bulk nanoplatelets, we also offer the following integrated, value-added products that contain our graphene nanoplatelets in various forms.

Energy Storage Materials. These consist of specialty advanced materials that have been formulated for specific applications in the energy storage segment. Chief among these is our proprietary, specially formulated silicon-graphene composite material (also referred to as “SiG” or “XG SiG[®]”) for use in lithium-ion battery anodes. XG SiG[®] targets the never-ending need for higher battery capacity and longer life. In several customer trials, our SiG material has demonstrated the potential to increase battery energy storage capacity by 3-5x what is currently available with conventional lithium ion batteries today. Additionally, we offer various bulk materials for use as conductive additives for cathodes and anodes in lithium-ion batteries, as an additive to anode slurries for lead-carbon batteries, as a component in coatings for current collectors in lithium-ion batteries and we are investigating the use of our materials as part of other battery components.

Composites. These consist of an aqueous-based composition of specially designed xGnP[®] graphene nanoplatelets formulated to be easily dispersed in concrete and targeted specifically for consumer and industrial applications. Use of our GNP[®] Concrete Additive in cement mixtures results in improved barrier resistance, durability, toughness and corrosion protection. The graphene nanoplatelets promote the formation of more uniform and smaller grain structure in the cement. This fine-grain and uniform structure gives concrete improvements in flexural and compressive strength. In addition, the embedded graphene nanoplatelets will stop cracks from forming and retard crack propagation, should any cracks form – the combination of which will improve lifetime and durability. We intend to further extend our integrated composites portfolio to include pre-compounded resins derived from a range of thermoplastics as well as mother batches of resins and xGnP[®] nanoplatelets and their combination with resins and fibers for use various end-use applications. In addition, we offer various bulk materials with demonstrated efficacy in plastic composites to impart improved physical performance to such matrices, which may be supplied as dry powders or as aqueous or solvent-based dispersions or cakes.

Thermal Management Materials. These consist mainly of two types of products, our XG Leaf[®] sheet products and various thermal interface materials (“TIM”) in the form of custom greases or pastes. XG Leaf[®] is a family of sheet products ideally suited for use in thermal management in portable electronics, which may include cell phones, tablets and notebook PC’s. As these devices continue to adopt faster electronics, higher data management capabilities, brighter displays with ever increasing definition, they generate more and more heat. Managing that heat is a key requirement for the portable electronics market and our XG Leaf[®] product line is well suited to address the need. These sheets are made using special formulations of xGnP[®] graphene nanoplatelets as precursors, along with other materials for specific applications. There are several different types of XG Leaf[®] available in various thicknesses, depending on the end-use requirements for thermal conductivity, electrical conductivity, or resistive heating. Our custom XG TIM[™] greases and pastes are also designed to be used in various high temperature environments. Additionally, we offer various bulk materials for use as active components in liquids, coatings and plastic composites to impart improved thermal management performance to such matrices.

Inks and Coatings. These consist of specially-formulated dispersions of xGnP® together with solvents, binders, and other additives to make electrically or thermally conductive products designed for printing or coating and which are showing promise in diverse customer applications such as advanced packaging, electrostatic dissipation and thermal management. We also offer a set of standardized ink formulations suitable for printing. These inks offer the capability to print electrical circuits or antennas, or might be suitable for other electrical or thermal applications. All of these formulations can be customized for specific customer requirements.

Our Focus Areas

We believe we are a “platform play” in advanced materials, because our proprietary processes allow us to produce varying grades of graphene nanoplatelets that can be mapped to a variety of applications in many market segments. However, we are prioritizing our efforts in specific areas and with specific customers that we believe represent opportunities for either relatively near-term revenue or especially large and attractive markets. At this time, we are focused on three high priority areas: Energy Storage, Thermal Management and Composites. The following table shows examples of the types of applications we are pursuing, the expecting timing of revenue and the addressable market size of selected market opportunities.

XGS Market/Application Focus Areas & 2018 Market Size

Key Markets	Energy Storage			Thermal Management		Composites
Application	<u>Lithium Ion Battery</u> Next-Generation Anode	<u>Lithium Ion Battery</u> Cathode Conductive Additive	<u>Pb-Carbon Battery</u> Anode Slurry Additive	<u>Portable Electronics</u> Heat Management Powders/Film	<u>Semi Packaging</u> Heat Management Paste/Adhesive	<u>Specialty Plastics</u> Multi-Function Performance Additive
Performance Driver	Higher Energy Storage Capacity	Increased Rate Performance	Longer Cycle Life, Faster Charge Acceptance	Lower and More Stable Operating Temperatures	Improved Heat Transfer	Improved Thermal, Electrical and Physical Properties
Business Model	Silicon Graphene Composite ("XG SiG®") Sales	xGnP® Powder Sales	xGnP® Powder Sales	xGnP® Powder & Graphene Paper Sales ("XG Leaf®")	Formulated Products Sales	xGnP® Powder Sales
Timing	Near Term to Medium Term	Near Term	Near Term	Near Term to Medium Term	Near Term to Medium Term	Medium Term to Longer Term
Potential Market Size	\$26.5 Bn (Li-ion Battery Cell - 2020) ¹	\$5.2 Bn (LiB Cathode Active Materials - 2020) ¹	\$9-\$12 Bn (Start-Stop Batteries - 2020) ³	\$2.976 Bn (Consumer Electronics - 2020) ⁵	\$28 Bn (Semiconductor Packaging - 2020) ⁷	\$654 Bn (Worldwide Plastics Market - 2020) ⁹
Anticipated Addressable Market Size	\$1.3 Bn (LiB Anode Materials - 2018) ¹	\$200 Mn (LiB Cathode Additives - 2018) ²	\$140 Mn (Anode Slurry Additives - 2018) ⁴	\$900 Mn (Graphitic Heat Spreaders - 2018) ⁶	\$780 Mn (Polymeric Thermal Interface - 2018) ⁸	\$9.1 Bn (Composite Additives - 2018) ¹⁰

- (1) Avicenne Energy, “The Worldwide Rechargeable Battery Market 2014 – 2025”, 24th Edition — V3, July 2015.
- (2) Avicenne Energy, “The Worldwide Rechargeable Battery Market 2014 – 2025”, 24th Edition — V3, July 2015 & Internal Estimates.
- (3) ArcActive via Nanalyze, April 3, 2015.
- (4) ArcActive via Nanalyze, April 3, 2015 & Internal Estimates.
- (5) Future Markets Insights, “Consumer Electronics Market: Global Industry Analysis and opportunity Assessment 2015 – 2020”, May 8, 2015.
- (6) Prismark, “Market Assessment: Thin Carbon-Based Heat Spreaders”, August 2014.
- (7) Reporterlink.com, “Semiconductor & IC Packaging Materials Market...”, May 2014.
- (8) Prismark, 2015.
- (9) Grand View Research, “Global Plastics Market Analysis...”, August 2014.
- (10) From (9) and internal estimates: 2018 = 305 million tons of plastic, if 10% of the market adopted xGnP to enhance their properties, and at only 1% by weight as an additive, then in 2018 305,000 tons or 305,000,000 kilos of xGnP would be required. At \$30 a Kg - the value is \$9.1 Billion (“Bn”) per year.

Commercialization Process

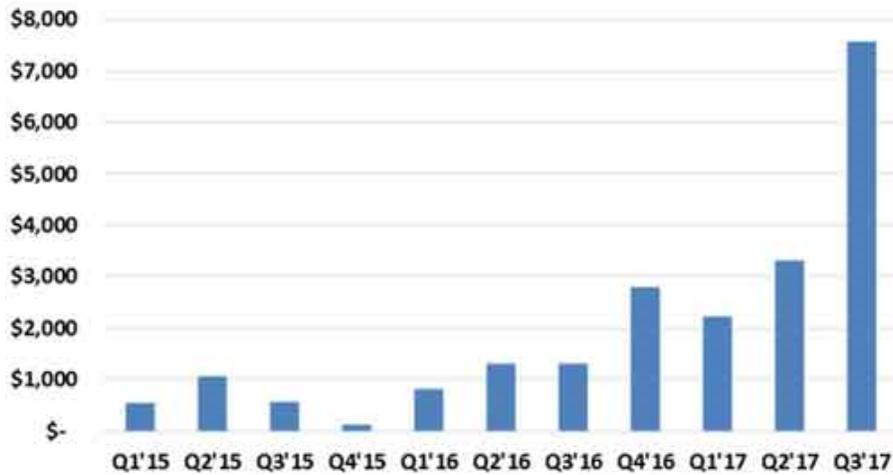
Because graphene is a new material, most of our customers are still developing applications that use our products. Commercialization is a process, the exact timing of which is often difficult to predict. It starts with our own internal R&D to validate performance for an identified market or customer-specific need. Our customers then validate the performance of our materials and determine whether our products can be incorporated into their manufacturing processes. This is initially done at pilot project scale levels. Our customers then have to introduce products that incorporate our materials to their own customers to validate performance. After their customers have validated performance, our customers will then move to commercial scale production. Every customer goes through the same process, but will do so at varying speeds, depending on the customer, the product and the end-use market. Thus, we are not always able to predict when our customers will begin ordering commercial volumes of our materials or predict their expected volumes over time. However, as customers move through the process, we generally receive feedback and gain greater insights regarding their commercialization plans. The following are examples of where our products are providing value to our customers at levels that we believe will warrant their use on a commercial basis (see also Exhibit 99.1 to Post-Effective Amendment No. 5 to the Existing Registration Statement for our Summary Customer Pipeline validating the value of our products in various end-use markets and applications):

- Lead acid battery manufacturer demonstrating approximately 90% improvement in measured cycle life, appreciable improvement in capacity and charge acceptance and without any loss in water retention performance, and
- Light emitting diode module and product company demonstrated approximately 50% improvement in thermal management capability when compared to existing commercial thermal management products, translating into a 15% improvement in thermal management at the device level, and
- Automotive parts supplier demonstrating improvements in thermal stability for polymer composites incorporating our materials, allowing for approximately 20% higher operating temperatures and a 50% improvement in strength at the elevated temperature, and
- Industrial refrigeration equipment supplier demonstrating improved heat transfer efficiency and energy savings when our xGnP® graphene nanoplatelets are incorporated as a component in the thermal-transfer fluids, and
- Construction company demonstrating less than one weight percent of our product in construction material composites improves flexural strength by more than 30%, and
- Plastics composite part manufacturer demonstrating 7-30% improvement in strength and 40% improvement in modulus when used in sheet molding compound, and
- Engineering design firm for automotive manufacturers found approximately 20% reduction in operating temperature and in thermal uniformity when XG Leaf® replaces standard cooling fins in lithium ion battery packs, and
- Plastic composite parts manufacturer demonstrating 25% increase in tensile strength and 15% improvement in flex modulus for a high-density polyethylene composite.

The process of “designing-in” new materials is relatively complex and involves the use of relatively small amounts of the new material in laboratory and engineering development for an extended period of time. Following successful development, customers that incorporate our materials into their products will then order much larger quantities of material to support commercial production. Although our customers are under no obligation to report to us on the usage of our materials, some have indicated that they have introduced or will soon introduce commercial products that use our materials. Thus, while many of our customers are currently purchasing our materials in kilogram (one or two pound) quantities, some are now ordering at multiple ton quantities and we believe many will require tens of tons or even hundreds of tons of material when they commercialize products that incorporate our materials. We also believe that those customers already in production will increase their order volume as demand increases and others will begin to move into commercial volume production as they gain more experience in working with our materials and engage new customers. For example, we shipped a 1 metric ton order in the fourth quarter of 2016 to a customer who is currently moving into larger scale production and had previously used smaller quantities. In the first quarter of 2017 we shipped 1.6 metric tons of dry powder for various end-use customers and another 1.8 metric tons in the second quarter. In the third quarter of 2017 we shipped over 5.7 tons and based on known customer demand we forecast shipping more than 15 metric tons of product in the fourth quarter of 2017. This demand profile is further evidence that we are transitioning into higher-volume production, and we expect further, sizable increases in demand in 2018.

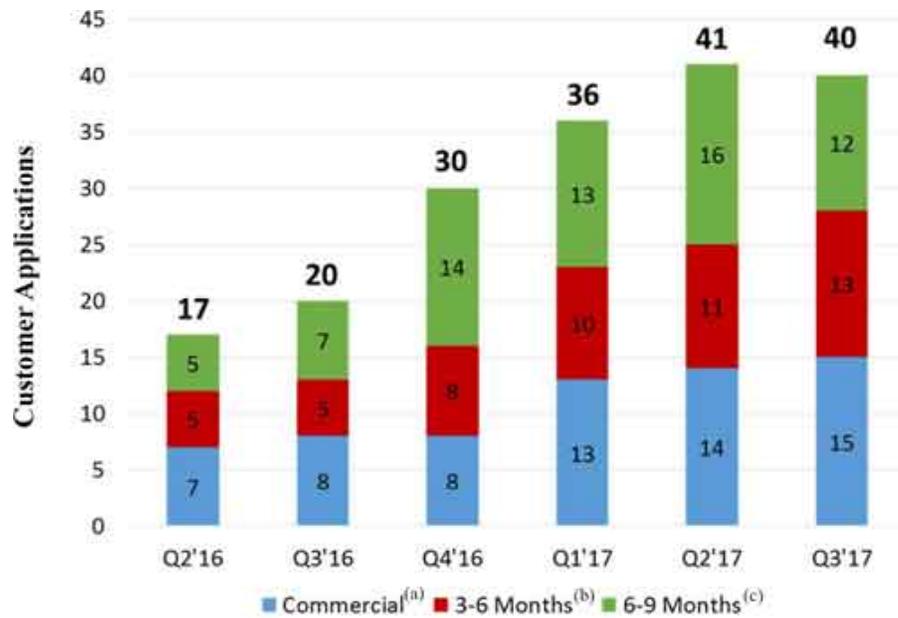
We also believe average order size is an indicator of commercial traction. The majority of our customers are still ordering in smaller quantities consistent with their development and engineering qualification work. The average order sizes, by quarter from the first quarter of 2015 through third quarter of 2017 are given below. These data represent orders shipped in the respective quarter and exclude no charge orders targeted mainly for R&D purposes. The data show that the average order size has increased steadily over the last two years, and we believe that it will continue to increase in the fourth quarter of 2017 and in 2018 as more customers commercialize products using our materials.

Average Order Size of Fulfilled Orders



2017 and 2018 Revenue

We are tracking the commercial and development status of more than 100 different customer applications using our materials with some customers pursuing multiple applications. As of September 30, 2017, we had fifteen specific customer applications where our materials are incorporated into our customers' products and such customers are actively promoting or selling these products to their customers. In addition, we have another thirteen customer applications where our customers have indicated that they expect to begin shipping product incorporating our materials in the next 3 – 6 months, and we have another twelve customer applications where our customers have indicated an intent to commercialize in the next 6 – 9 months. We also have numerous additional customers with whom we are working that have not yet indicated an exact date for commercialization, but we believe have the potential to contribute to revenue in 2018. The following graphic demonstrates the trend over the past 6 quarters as an increasing number of customers indicate their intent to commercialize applications and move into actively selling or promoting products for future sales. We anticipate that the average order size for these customers will increase in the fourth quarter of 2017 and throughout 2018 as their demand grows. As a result, we believe we will begin shipping significantly greater quantities of our products, and thus begin scaling revenue in the last quarter of 2017 and in 2018. Based on the status of current discussions with customers and their feedback on the performance of our materials in their products, we believe we will be able to recognize approximately \$15 – \$30 million of revenue in 2018, although this cannot be assured.



- (a) Customer applications where our materials are used in customer products and they are actively promoting or selling them to their customers.
- (b) Customer applications where our customers are indicating that they expect to begin shipping products incorporating our materials in the next 3-6 months.
- (c) Customer applications where our customers are indicating an intent to commercialize in the next 6-9 months.

Addressable Markets

The markets that we serve are large and rapidly growing. For example, as shown in the figure below, Avicenne Energy (“The Rechargeable Battery Market, 2014 – 2025”, July 2015) estimates that the market for materials used in lithium ion battery anodes is currently approximately \$1 billion, but is expected to approximately double over the next ten years. We believe our ability to address next generation anode materials represents a significant opportunity for us.

According to Prismark Partners, LLC, a leading electronics industry consulting firm specializing in advanced materials, the 2014 market for finished graphitic heat spreaders as sold to the OEM and EMS companies with adhesive, PET, and/or copper backing for selected portable applications was \$600 million, and is expected to reach \$900 million in 2018. The market is currently in a significant expansion period driven by the demand for portable devices. In a press release dated June 30, 2016, Gartner, Inc., a leading research organization, estimated the 2016 global smartphone market at 1.9 billion units and worldwide combined shipments of devices (PC's, tablets, ultraphones and mobile devices were expected to reach 2.4 billion units in 2016). Every cell phone has some form of thermal management system, and we believe many of the new smart phones and other portable devices being developed can benefit from the thermal management properties of our XG Leaf[®] product line. In August 2016, International Data Corporation (IDC) in their Worldwide Quarterly Tablet Tracker, estimated the global shipment of tablets in 2016 at 183.4 million units. Thus, we believe our XG Leaf[®] product line is well positioned to address a very large and rapidly growing market.

Our Intellectual Property

Some of our proprietary manufacturing processes were developed at Michigan State University (MSU) and licensed to us in 2006. We license three U.S. patents and patent applications from MSU. However, over time, our scientists and engineers have made many further discoveries and inventions that are embodied in the form of (as of September 30, 2017): eight additional U.S. patents, 11 foreign patents, 17 additional U.S. patent applications, and numerous trade secrets. For each patent application filed in the U.S., we make a determination on the nature and value of the patent. For many of the applications filed in the U.S., additional filings are made in other countries such as the European Union, Japan, South Korea, China, Taiwan or other applicable countries. As of September 30, 2017, we maintained 36 international patent applications. These filings and analyses are made on a case-by-case basis. Typically, patents that are defensive in nature are not filed abroad, while those that are protective of active XGS products or applications are filed in relevant countries abroad. Our general IP strategy is to keep as trade secrets those manufacturing processes that are difficult to enforce should they be disclosed and to seek patent coverage for other manufacturing processes, materials derived from those processes, unique combinations of materials and end uses of materials containing graphene nanoplatelets. We believe that the combination of our rights under the MSU license, our patents and patent applications, and our trade secrets create a strong intellectual property position.

Operating Segment

We have one reportable operating segment that manufactures xGnP[®] graphene nanoplatelets and value-added products produced therefrom, conducts research on graphene nanoplatelets and related products, and licenses our technology as appropriate. As of September 30, 2017, we shipped products on a worldwide basis, but all of our assets were located within the United States.

Results of Operations for the Three and Nine Months Ended September 30, 2017 Compared with the Three and Nine Months Ended September 30, 2016

Summary Income Statement	For the Three Months Ended September 30,			For the Nine Months Ended September 30,		
	2017	2016	Change	2017	2016	Change
Total Revenue	\$ 472,261	\$ 163,967	\$ 308,294	\$ 1,038,529	\$ 514,110	\$ 524,419
Cost of Goods Sold	716,261	367,395	348,866	1,712,875	1,172,397	540,478
Gross Loss	(244,000)	(203,428)	(40,572)	(674,346)	(658,287)	(16,059)
Research & Development Expense	215,949	231,312	(15,363)	706,575	866,668	(160,093)
Sales, General & Administrative Expense	1,466,505	896,650	569,855	3,386,857	2,618,252	768,605
Total Operating Expense	1,682,454	1,127,962	554,492	4,093,432	3,484,920	608,512
Operating Loss	(1,926,454)	(1,331,390)	(595,064)	(4,767,778)	(4,143,207)	(624,571)
Other Income (Expense)	(105,968)	(23,687)	(82,281)	(296,983)	(136,398)	(160,585)
Net Loss	\$ (2,032,422)	\$ (1,355,077)	\$ (677,345)	\$ (5,064,761)	\$ (4,279,605)	\$ (785,156)

Revenue

Revenue for the three and nine months ended September 30, 2017 and 2016, by category, are shown below.

Summary of Revenue	For the Three Months Ended September 30,			For the Nine Months Ended September 30,		
	2017	2016	Change	2017	2016	Change
Product Sales	\$ 446,795	\$ 88,856	\$ 357,939	\$ 863,574	\$ 230,635	\$ 632,939
Grants	25,466	50,111	(24,645)	124,955	208,475	(83,520)
Licensing	—	25,000	(25,000)	50,000	75,000	(25,000)
Total Revenue	\$ 472,261	\$ 163,967	\$ 308,294	\$ 1,038,529	\$ 514,110	\$ 524,419

Product sales consist of two broad categories: (1) material sold to customers for research or development purposes; and (2) production orders for customers. Typically, the order sizes for the first category are relatively small, however we expect orders in the second category to be much larger in the future. For the three months ended September 30, 2017, product sales increased by \$357,939, or 403% from the comparable period in the prior year. For the nine months ended September 30, 2017, product sales increased by \$632,939, or 274% from the comparable period in the prior year. The main reason for the increase in product sales was customers moving through development programs towards commercialization, requiring larger quantities of our materials for advanced testing, pilot production and commercial-scale production activities. We believe that those customers already in production will increase their order volume as demand increases and other customers will begin to move into commercial volume production as they gain more experience in working with our materials and engage their own customers. As a result of this movement, we shipped 1.6 metric tons of bulk powders in the first quarter of 2017 and 1.8 metric tons of bulk powders in the second quarter of 2017. In the third quarter of 2017 we shipped over 5.7 metric tons and based on known customer demand we forecast shipping more than 15 metric tons of product in the fourth quarter of 2017.

We ship our products from our Lansing, MI manufacturing facilities to customers around the world. During the three months ended September 30, 2017, we shipped materials to customers in 16 countries, as compared to 16 countries during the same three-month period in 2016. For the three months ended, September 30, 2017, shipments to only one country accounted for more than 10% of product sales, China. For the three months ended September 30, 2016, shipments to three countries, South Korea, China and the United Kingdom accounted for more than 10% of product sales.

During the first nine months ended September 30, 2017, we shipped materials to customers in 29 different countries, versus 24 countries the same nine-month period in 2016. For the nine months ended September 30, 2017, shipments to only once country, China, accounted for more than 10% of product sales. For the first nine months ended September 30, 2016, two countries, South Korea and the United Kingdom, accounted for more than 10% of product sales.

Order Summary

The table below shows a comparison of domestic and international orders fulfilled (note that this does not include orders for free samples). The table also includes the average order size for product sales. These numbers indicate that our customer base remains active with research and development projects that use our materials, but that the order size is increasing as more customers approach commercial status with products using our materials. The average order size for the product revenue during the first nine months ended September 30, 2017 increased by 259% as compared to the same period in 2016. Although the average size of these orders is still relatively small, we have begun shipping in metric ton quantities to multiple customers.

	For the Three Months Ended September 30,			For the Nine Months Ended September 30,		
	2017	2016	Change	2017	2016	Change
Number of orders - domestic	22	39	(17)	89	91	(2)
Number of orders - international	37	29	8	125	114	11
Number of orders - total	59	68	(9)	214	205	9
Average order size for product sales recorded in r Statement of Operations	\$ 7,573	\$ 1,307	\$ 6,266	\$ 4,035	\$ 1,125	\$ 2,910
Percentage change			480%			259%

Grant Revenue

Grant revenue for the three and nine months September 30, 2017 and 2016 consisted of proceeds from sources as shown in the table below:

	For the Three Months Ended September 30				For the Nine Months Ended September 30			
	2017	%	2016	%	2017	%	2016	%
Mercedes Benz North America	\$ 25,466	100%	\$ —	—%	\$ 31,208	25%	\$ —	—%
Department of Energy	—	—	25,111	50	93,747	75	183,475	88
Grand Valley State	—	—	25,000	50	—	—	25,000	12
Total	<u>\$ 25,466</u>	<u>100%</u>	<u>\$ 50,111</u>	<u>100%</u>	<u>\$ 124,955</u>	<u>100%</u>	<u>\$ 208,475</u>	<u>100%</u>

Licensing Revenue

The Company and POSCO, a shareholder of the Company, entered into a license agreement dated June 8, 2011, pursuant to which POSCO agreed to pay a minimum annual royalty of \$100,000 per year if certain circumstances existed, among other things. The Company believed that this minimum annual royalty became due annually beginning on February 28, 2015, and up until June 30, 2017, recorded this royalty revenue at a rate of \$25,000 per quarter. POSCO disputed its obligation to pay this minimum annual royalty, and did not pay the royalty in any prior year. We filed a demand for arbitration in the International Court of Arbitration on March 9, 2016, in an effort to resolve the dispute. Pursuant to a confidential settlement, on November 3, 2017, the Company and POSCO agreed to settle the dispute and to dismiss the arbitration. Based on terms of the settlement, no allowance is considered necessary. At September 30, 2017 we have a balance of \$175,000 reflected in other current assets on the condensed consolidated balance sheet. This represents an accrual of licensing revenue of \$100,000 for three and a half years less 50% to reflect an estimate of the portion of 2017, 2016, 2015, and 2014 licensing fees we believed to be not collectible. At December 31, 2016 the accrued licensing fees and allowance netted together was \$150,000.

Cost of Goods Sold

We use a standard cost system to estimate the direct costs of products sold. Direct costs include estimates of raw material costs, packaging, freight charges net of those billed to customers, and an allocation for direct labor and manufacturing overhead. Because of the nature of our production processes, there is a substantial fixed manufacturing expense requirement that represents the ongoing cost of maintaining production facilities that are not directly related to products sold, so we use a "full capacity" allocation of overhead based on an estimate of what product costs would be if the manufacturing facilities were operating on a full-time basis and producing products at the designed capacity. This estimate involves estimating both the level of expenses as well as production amounts as if the manufacturing facility were operating on a continuous 24 hour per day, 5 day per week production schedule.

Gross Profit Summary

The following table shows the relationship of direct costs to product sales for the three and nine months ended September 30, 2017 and 2016:

Gross Profit Summary	For the Three Months Ended September 30,			For the Nine Months Ended September 30,		
	2017	2016	Change	2017	2016	Change
Product Sales	\$ 446,795	\$ 88,856	\$ 357,939	\$ 863,574	\$ 230,635	\$ 632,939
Direct Costs	266,462	44,344	222,118	476,774	101,397	375,377
Direct Cost Margin	<u>\$ 180,333</u>	<u>\$ 44,512</u>	<u>\$ 135,821</u>	<u>\$ 386,800</u>	<u>\$ 129,238</u>	<u>\$ 257,562</u>
% of Sales	40.4%	50.1%		44.8%	56.0%	
Unallocated Manufacturing Expense	449,799	323,051	126,748	1,236,101	1,071,000	165,101
Gross Loss on Product Sales	<u>\$ (269,466)</u>	<u>\$ (278,539)</u>	<u>\$ 9,073</u>	<u>\$ (849,301)</u>	<u>\$ (941,762)</u>	<u>\$ 92,461</u>

We believe that the fluctuations in gross loss on product sales and direct cost from period to period are not indicative of future margins because of the relatively small size of our sales in comparison to our future expectations. Direct costs vary depending on the size of an order, the specific products being ordered, and other factors like shipping destination (which on small orders can represent a significant percentage of the cost).

Costs associated with grant revenue tend to be a mixture of facilities use, management time, labor from scientists, technicians and manufacturing personnel, and some supplies. Because of the difficulty of developing and maintaining an administrative system to gather direct costs for grants, together with the relatively small size of grant revenue, we do not track direct costs for grant revenue as a separate cost category. Therefore, we do not calculate direct cost margins associated with grant revenue but, rather, we view this revenue as being supported by indirect corporate expenses.

Costs associated with licensing revenue tend to be a mixture of IP costs as well as management and administrative expenses that are indirect in nature. As such, we do not assign direct costs to licensing revenue. Where revenue from a license agreement can be assigned to specific product revenue, we classify this revenue as product sales and, using our standard cost system, assign direct costs to those sales.

The remaining “non-direct” costs of operating our manufacturing facilities are recorded as unallocated manufacturing expenses. These expenses include personnel costs, rent, utilities, indirect supplies, depreciation, and related indirect expenses. Unallocated manufacturing expenses are expensed as incurred. We allocate these costs to direct product costs based on the proportion of these expenses that would be representative direct product costs if we were operating our factory at full capacity.

For the three months ended September 30, 2017, unallocated manufacturing expenses increased by 39% to \$449,799 as compared to \$323,051 during the same period in 2016, an increase of \$126,748. Higher levels of manufacturing overhead expense will be incurred as we prepare for anticipated volume increases.

For the nine months ended September 30, 2017, unallocated manufacturing expenses increased by 15% to \$1,236,101 as compared to \$1,071,000 during the same period in 2016, an increase of \$165,103. In the first three quarters of 2017 we have incurred some higher levels of manufacturing overhead expense as we prepare for anticipated volume increases.

Sales, General and Administrative Expenses

During the three months ended September 30, 2017 we incurred selling, general and administrative (“SG&A”) expenses of \$1,466,505. This is an increase of \$569,855 or 64% from the same period in 2016, which was primarily the result of a one-time, non-cash charge of \$501,071 recorded in July 2017 to account for the cancellation and replacement of certain stock options. See note 7 in the financial statements for further discussion of the modifications. As we continue to grow and gain traction in the marketplace our SG&A expenses will fluctuate but should stabilize and become more fixed in nature as we achieve economies of scale.

During the nine months ended September 30, 2017 we incurred SG&A expenses of \$3,386,857. This is an increase of approximately \$768,605 or 29% from the same period in 2016, which was primarily the result of a one-time, non-cash charge of \$501,071 recorded in July 2017 to account for the cancellation and replacement of certain stock options. See note 7 in the financial statements for further discussion of the modifications. In addition, during the nine months ended September 30, 2016, we incurred a \$182,146 reduction in SG&A expenses associated with reclassifying certain expenses related to the DOE Phase I SBIR grant into our research and development expenses. This resulted in a reduction of SG&A expenses in 2016 that did not occur in 2017. As we continue to grow and gain traction in the marketplace our SGA expenses will fluctuate but should stabilize and become more fixed in nature as we achieve economies of scale.

Research and Development Expenses

Research and development expenses for the three months ended September 30, 2017 were \$215,949 as compared to \$231,312 for the same period in 2016. The decrease of \$15,363 or 7% is largely due to higher expenses in 2016 to work on and complete the DOE Phase I SBIR grant (which was completed by June 30, 2016).

Research and development expenses for the nine months ended September 30, 2017 were \$706,575 as compared to \$866,668 for the same period ended September 30, 2016. The decrease of \$160,093 or 18% is largely due to higher expenses in 2016 to work on and complete the DOE Phase I SBIR grant.

Other Income (Expense)

The following table shows a comparison of other income and expense by major component for the three and nine months ended September 30, 2017 and 2016:

Other Income (Expense)	For the Three Months Ended September 30,			For the Nine Months Ended September 30,		
	2017	2016	Change	2017	2016	Change
Interest expense, net	\$ (62,814)	\$ (55,816)	\$ (6,998)	\$ (176,347)	\$ (240,588)	\$ 64,241
Gain (loss) from change in fair value of derivative liability - warrants	(43,154)	26,738	(69,892)	(46,612)	50,799	(97,411)
Government incentives, net	—	24,000	(24,000)	(74,024)	72,000	(146,024)
Loss on disposal of intangible assets	—	(18,609)	18,609	—	(18,609)	18,609
Total	\$ (105,968)	\$ (23,687)	\$ (82,281)	\$ (296,983)	\$ (136,398)	\$ (160,585)

Interest expense, net of interest income in the three months ended September 30, 2017, increased by \$6,998 compared to the same period in 2016. Net interest expense for the nine months ended September 30, 2017 decreased by \$64,241 compared to the same period in 2016. The decreasing balance in our lease financing agreements accounts for declining interest in the current year but this is offset by our draws on the Dow Facility (see Note 2 in the financial statements).

Gain/(loss) from changes in the fair value of derivative liability warrants from the previous valuation period are characterized as other (expense)/other income on our Statement of Operations as a result of the GAAP requirement to use variable accounting for such instruments. These values fluctuate from period to period as a result of updating inputs used in the trinomial lattice model used to value such warrants, including risk free rate, volatility, remaining term of each warrant, and the underlying stock price assumption used in such calculations. On September 30, 2017 we reclassified 224,897 warrants related to Series B Preferred stock from derivative liabilities to equity and we are no longer required to record the change in fair values for these instruments.

Government incentives include accruals for incentive awards from state and local government entities relating to new hires during the period indicated, net of any true up of previous accruals to reflect actual payments. In 2016, we accrued \$74,000 for expected incentive awards from the Michigan Economic Growth Authority (“MEGA”), based on our experience in receiving such incentive awards over the previous four years for our hiring practices. Upon review by MEGA in May 2017, our 2016 incentive was declined, because of our failure to meet a baseline assumed hiring threshold, which we missed by two full-time equivalent employees by December 31, 2016. Since 2016 was the final year for this incentive award program, we wrote off this previously accrued award in the three months ended June 30, 2017, and thus we recorded a loss of \$74,024 in the nine month period ending September 30, 2017.

Cash Flow Summary

The following condensed cash flow statement compares cash flow from operating, investing, and financing activities for the nine months ended September 30, 2017 and 2016.

	For the Nine Months Ended September 30,		Change 2016 – 2017	
	2017	2016	\$	%
Cash, beginning of period	\$ 1,785,343	\$ 1,060,224	\$ 725,119	68%
Net Cash provided by (used in):				
Operating activities	(3,803,899)	(2,667,307)	(1,136,592)	43
Investing Activities	(543,486)	(173,451)	(370,035)	213
Financing Activities	3,879,803	2,418,038	1,461,765	60
Net increase (decrease) in cash	(467,582)	(422,720)	44,862	11
Cash, end of period	<u>\$ 1,317,761</u>	<u>\$ 637,504</u>	<u>\$ 680,257</u>	<u>107%</u>

Net cash used in operating activities for the nine months ended September 30, 2017 and 2016 was \$3,803,900 and \$2,667,307, respectively.

Investing activities for the nine months ended September 30, 2017 included net capital expenditures for the purchase of property and equipment of \$428,015 and \$115,470 for intellectual property as compared with \$84,187 for property and equipment and \$89,264 for intellectual property during the same period in 2016. These levels of capital expenditures are higher as we have begun to update and install equipment necessary to increase production capacity to meet anticipated customer orders for those customers who are moving into commercialization of products containing our materials.

Financing activities provided a net increase in cash of \$3,879,803 and \$2,418,038 for the nine months ended September 30, 2017 and 2016, respectively. For the first nine months ended September 30, 2017 gross proceeds from the issuance of common stock was \$2,140,400 and stock issuance expenses were \$245,972 as compared to proceeds from the issuance of common stock for the nine months ended September 30, 2016 of \$3,102,032 and stock issuance expenses of \$538,640. Financing activities in nine months ending September 30, 2017 also included \$2,000,000 of loan proceeds from the Dow Facility (see Note 3 in the financial statements) versus zero in the nine months ending September 30, 2016.

Liquidity and Capital Expenditures

We have historically incurred losses from operations and we may continue to generate negative cash flows as we implement our business plan. Our condensed consolidated financial statements are prepared using US GAAP as applicable to a going concern, which contemplates the realization of assets and liquidation of liabilities in the normal course of business.

In December 2016, we entered into a draw loan note and agreement (the “Dow Facility”) with The Dow Chemical Company (“Dow”) to provide up to \$10 million of secured debt financing at an interest rate of 5% per year, drawable at our request under certain conditions. We received \$2 million at closing, \$1 million on July 18, 2017, and \$1 million on September 22, 2017. We currently have \$1 million of additional funding available on or before December 1, 2017 under the Dow Facility. After December 1, 2017, an additional \$5 million becomes available under the Dow Facility if we have raised \$10 million of equity capital after October 31, 2016.

As of November 10, 2017, we had cash on hand of \$1,226,776 and currently available funds of \$1 million under the Dow Facility. Our financial projections show that we may need to raise an additional \$6-8 million before we are capable of achieving sustainable free cash flow after capital expenditures. We intend that the primary means for raising such funds will be through our IPO, the additional \$1 million of currently available funds under the Dow Facility, and up to an additional \$5 million of proceeds from the Dow Facility in the event that we raise \$10 million of additional equity capital after October 31, 2016. Thus far, we have raised approximately \$3 million through the sale of 376,078 shares of common stock between November 1, 2016 and September 30, 2017 towards the requirement to raise \$10 million of additional equity capital in order to open up the remaining \$5 million of availability on the Dow Facility. There can be no assurance that we will be able to raise additional equity capital in the IPO or in subsequent equity offerings or that the terms and conditions of any future financings will be workable or acceptable to us and our stockholders.

In the event we are unable to fund our operations from existing cash on hand, operating cash flows, additional borrowings or raising equity capital, we may be forced to reduce our expenses, slow down our growth rate, or discontinue operations. Our condensed consolidated financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might be necessary should we be unable to continue as a going concern.

Critical Accounting Estimates

In preparing the condensed consolidated financial statements in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”), we have adopted various accounting policies. Our most significant accounting policies are disclosed in Note 2 to the consolidated financial statements included in our Form 10-K for the year ended December 31, 2016.

The preparation of the condensed consolidated financial statements in conformity with U.S. GAAP requires us to make estimates and assumptions that affect the amounts reported in the condensed consolidated financial statements and accompanying notes. Our estimates and assumptions, including those related to inventories, intangible assets, property, plant and equipment, legal proceedings, research and development, warranty obligations, product liability, fair valued liabilities, sales returns and discounts, going concern, and income taxes are updated as appropriate, which in most cases is at least quarterly. We base our estimates on historical experience, or various judgements about the reported values of assets, liabilities, revenue and expenses. Actual results may materially differ from these estimates.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Smaller reporting companies are not required to provide this information.

Item 4. Controls and Procedures

(a) *Evaluation of disclosure controls and procedures.* We maintain disclosure controls and procedures designed to ensure that information required to be disclosed in reports filed under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the SEC rules and forms, and that such information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating our disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives.

As required by SEC Rule 15d-15, our management carried out an evaluation, under the supervision and with the participation of our principal executive officer and principal financial officer, of the effectiveness of our disclosure controls and procedures as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on that evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were effective at a reasonable assurance level as of the end of the period covered by this report.

(b) *Changes in internal controls.* There were no changes in our internal control over financial reporting that occurred during the three months ended September 30, 2017 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II - OTHER INFORMATION

Item 1. Legal Proceedings.

The Company and POSCO, a shareholder of the Company, entered into a license agreement dated June 8, 2011, pursuant to which POSCO agreed to pay a minimum annual royalty of \$100,000 per year if certain circumstances existed, among other things. The Company believed that this minimum annual royalty became due annually beginning on February 28, 2015, and up until June 30, 2017, recorded this royalty revenue at a rate of \$25,000 per quarter. POSCO disputed its obligation to pay this minimum annual royalty, and did not pay the royalty in any prior year. We filed a demand for arbitration in the International Court of Arbitration on March 9, 2016, in an effort to resolve the dispute. Pursuant to a confidential settlement, on November 3, 2017, the Company and POSCO agreed to settle the dispute and to dismiss the arbitration. Based on terms of the settlement, no allowance is considered necessary.

Item 1A. Risk Factors.

Smaller reporting companies are not required to provide this information.

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

During the three months ended September 30, 2017 and 2016 we issued 7,140 shares per period of Series A Preferred Stock to Aspen Advanced Opportunity Fund, LP as payment for lease financing obligations under the terms of the Master Lease Agreement, dated March 18, 2013. For the nine months ended September 30, 2017 and 2016 we issued a total of 21,420 shares per period as payment for lease obligations.

On August 10, 2017, we granted 2,500 shares of restricted stock to each of the following independent Board members as Board compensation: Steven C. Jones, Arnold Allemang, Dave Pendell, and Peifeng (Molly) Zhang. These shares vest 25% on the last day of each fiscal quarter on September 30, 2017, December 31, 2017, March 31, 2018, and June 30, 2017. Such shares were issued pursuant to the 2017 Equity Incentive Plan.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

None.

Item 5. Other Information.

None

Item 6. Exhibits.

EXHIBIT NUMBER	DESCRIPTION	LOCATION
<u>10.1</u>	<u>Updated Form of Subscription Agreement for Primary Offering</u>	Incorporated by reference to the Company's Form S-1, as amended, filed with the SEC on April 13, 2017
<u>10.3</u>	<u>2017 Equity Incentive Plan</u>	Incorporated by reference to the Company's current report on Form 8-K filed with the SEC on July 25, 2017
<u>31.1</u>	<u>Certifications of the Chief Executive Officer and Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002</u>	Filed herewith
<u>32.1</u>	<u>Certification Pursuant To 18 U.S.C. Section 1350. As Adopted Pursuant To Section 906 of the Sarbanes-Oxley Act Of 2002*</u>	Filed herewith
101. INS	XBRL Instance Document	Filed herewith
101. CAL	XBRL Taxonomy Extension Calculation Link base Document	Filed herewith
101. DEF	XBRL Taxonomy Extension Definition Link base Document	Filed herewith
101. LAB	XBRL Taxonomy Label Link base Document	Filed herewith
101. PRE	XBRL Extension Presentation Link base Document	Filed herewith
101. SCH	XBRL Taxonomy Extension Scheme Document	Filed herewith

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this Quarterly Report on Form 10-Q to be signed on its behalf by the undersigned, thereunto duly authorized.

XG SCIENCES, INC.

Dated: November 13, 2017

By: /s/ Philip L. Rose
Name: Philip L. Rose
Title: Chief Executive Officer, President,
Treasurer, Principal Executive Officer and
Principal Financial Officer

Dated: November 13, 2017

By: /s/ Corinne Lyon
Name: Corinne Lyon
Title: Controller and Principal Accounting Officer