

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 28, 2018

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

For the transition period from to

Commission file number 001-15885

MATERION CORPORATION

(Exact name of Registrant as specified in charter)

Ohio

(State or other jurisdiction of incorporation or organization)

34-1919973

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

6070 Parkland Blvd., Mayfield Heights, Ohio

(Address of principal executive offices)

44124

(Zip Code)

Registrant's telephone number, including area code:

216-486-4200

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

Large accelerated filer ☒

Non-accelerated filer ☐

Accelerated filer ☐

Smaller reporting company ☐

Emerging growth company ☐

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

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

Number of Shares of Common Stock, without par value, outstanding at September 28, 2018: 20,244,285 .

PART 1 - FINANCIAL INFORMATION

Item 1. Financial Statements

**Materion Corporation and Subsidiaries
Consolidated Statements of Income
(Unaudited)**

	Third Quarter Ended		Nine Months Ended	
	Sept. 28, 2018	Sept. 29, 2017	Sept. 28, 2018	Sept. 29, 2017
(Thousands, except per share amounts)				
Net sales	\$ 297,193	\$ 294,268	\$ 909,745	\$ 830,779
Cost of sales	232,258	238,821	724,692	677,398
Gross margin	64,935	55,447	185,053	153,381
Selling, general, and administrative expense	38,872	36,253	115,807	107,702
Research and development expense	4,250	3,429	11,753	10,103
Other—net	3,147	3,801	10,384	9,823
Operating profit	18,666	11,964	47,109	25,753
Interest expense—net	613	533	2,010	1,721
Other non-operating expense—net	800	406	1,679	1,041
Income before income taxes	17,253	11,025	43,420	22,991
Income tax (benefit) expense	(2,713)	1,705	1,746	3,308
Net income	\$ 19,966	\$ 9,320	\$ 41,674	\$ 19,683
Basic earnings per share:				
Net income per share of common stock	\$ 0.99	\$ 0.47	\$ 2.06	\$ 0.98
Diluted earnings per share:				
Net income per share of common stock	\$ 0.97	\$ 0.46	\$ 2.02	\$ 0.97
Cash dividends per share	\$ 0.105	\$ 0.100	\$ 0.310	\$ 0.295
Weighted-average number of shares of common stock outstanding:				
Basic	20,241	20,040	20,199	20,007
Diluted	20,648	20,411	20,607	20,361

The accompanying notes are an integral part of the consolidated financial statements.

Materion Corporation and Subsidiaries
Consolidated Statements of Comprehensive Income
(Unaudited)

	Third Quarter Ended		Nine Months Ended	
	Sept. 28, 2018	Sept. 29, 2017	Sept. 28, 2018	Sept. 29, 2017
(Thousands)				
Net income	\$ 19,966	\$ 9,320	\$ 41,674	\$ 19,683
Other comprehensive income (loss):				
Foreign currency translation adjustment	116	271	285	1,649
Derivative and hedging activity, net of tax	125	(120)	1,213	(755)
Pension and post-employment benefit adjustment, net of tax	1,507	881	4,081	2,397
Other comprehensive income	1,748	1,032	5,579	3,291
Comprehensive income	\$ 21,714	\$ 10,352	\$ 47,253	\$ 22,974

The accompanying notes are an integral part of the consolidated financial statements.

Materion Corporation and Subsidiaries
Consolidated Balance Sheets

(Thousands)	(Unaudited) Sept. 28, 2018	Dec. 31, 2017
Assets		
Current assets		
Cash and cash equivalents	\$ 53,612	\$ 41,844
Accounts receivable	133,894	124,014
Inventories	199,913	220,352
Prepaid and other current assets	19,894	24,733
Total current assets	407,313	410,943
Deferred income taxes	22,311	17,047
Property, plant, and equipment	896,626	891,789
Less allowances for depreciation, depletion, and amortization	(642,931)	(636,211)
Property, plant, and equipment—net	253,695	255,578
Intangible assets—net	7,156	9,847
Other assets	7,114	6,992
Goodwill	90,762	90,677
Total Assets	\$ 788,351	\$ 791,084
Liabilities and Shareholders' Equity		
Current liabilities		
Short-term debt	\$ 807	\$ 777
Accounts payable	42,712	49,059
Salaries and wages	38,160	42,694
Other liabilities and accrued items	28,934	28,044
Income taxes	8,176	1,084
Unearned revenue	7,805	5,451
Total current liabilities	126,594	127,109
Other long-term liabilities	13,828	14,895
Capital lease obligations	15,864	16,072
Retirement and post-employment benefits	56,068	93,225
Unearned income	33,649	36,905
Long-term income taxes	3,064	4,857
Deferred income taxes	210	213
Long-term debt	2,331	2,827
Shareholders' equity		
Serial preferred stock (no par value; 5,000 authorized shares, none issued)	—	—
Common stock (no par value; 60,000 authorized shares, issued shares of 27,148 at September 28 and December 31)	232,846	223,484
Retained earnings	571,350	536,116
Common stock in treasury (6,904 shares at September 28 and 7,042 shares at December 31)	(174,532)	(166,128)
Accumulated other comprehensive loss	(97,358)	(102,937)
Other equity transactions	4,437	4,446
Total shareholders' equity	536,743	494,981
Total Liabilities and Shareholders' Equity	\$ 788,351	\$ 791,084

The accompanying notes are an integral part of the consolidated financial statements.

Materion Corporation and Subsidiaries
Consolidated Statements of Cash Flows (Unaudited)

(Thousands)	Nine Months Ended	
	Sept. 28, 2018	Sept. 29, 2017
Cash flows from operating activities:		
Net income	\$ 41,674	\$ 19,683
Adjustments to reconcile net income to net cash provided by (used in) operating activities:		
Depreciation, depletion, and amortization	26,506	33,444
Amortization of deferred financing costs in interest expense	720	670
Non-cash compensation expense	8,965	7,958
Deferred income tax (benefit) expense	(5,341)	1,073
Changes in assets and liabilities net of acquired assets and liabilities:		
Decrease (increase) in accounts receivable	(10,274)	(21,572)
Decrease (increase) in inventories	19,754	(9,953)
Decrease (increase) in prepaid and other current assets	4,648	(6,077)
Increase (decrease) in accounts payable and accrued expenses	(10,290)	17,991
Increase (decrease) in unearned revenue	2,365	4,746
Increase (decrease) in interest and taxes payable	5,557	(2,083)
Domestic pension plan contributions	(38,000)	(8,000)
Other-net	2,959	(2,383)
Net cash provided by operating activities	49,243	35,497
Cash flows from investing activities:		
Payments for purchase of property, plant, and equipment	(21,809)	(17,759)
Payments for mine development	(5,192)	(620)
Payments for acquisition	—	(16,504)
Proceeds from sale of property, plant, and equipment	26	53
Net cash (used in) investing activities	(26,975)	(34,830)
Cash flows from financing activities:		
Proceeds from issuance of long-term debt	—	55,000
Repayment of long-term debt	(513)	(55,608)
Principal payments under capital lease obligations	(573)	(644)
Cash dividends paid	(6,262)	(5,903)
Deferred financing costs	—	(300)
Repurchase of common stock	—	(1,086)
Payments of withholding taxes for stock-based compensation awards	(3,006)	(2,397)
Net cash (used in) financing activities	(10,354)	(10,938)
Effects of exchange rate changes	(146)	1,293
Net change in cash and cash equivalents	11,768	(8,978)
Cash and cash equivalents at beginning of period	41,844	31,464
Cash and cash equivalents at end of period	\$ 53,612	\$ 22,486

The accompanying notes are an integral part of the consolidated financial statements.

Materion Corporation and Subsidiaries
Notes to Consolidated Financial Statements
(Unaudited)

Note A — Accounting Policies

Basis of Presentation: In management's opinion, the accompanying consolidated financial statements of Materion Corporation and its subsidiaries (referred to herein as the Company, our, we, or us) contain all of the adjustments necessary to present fairly the financial position, results of operations, and cash flows for the interim periods reported. All adjustments were of a normal and recurring nature. Certain amounts in prior periods have been reclassified to conform to the 2018 consolidated financial statement presentation.

These financial statements should be read in conjunction with the consolidated financial statements and related notes included in the Company's 2017 Annual Report on Form 10-K. The interim period results are not necessarily indicative of the results to be expected for the full year.

New Pronouncements Adopted: In March 2017, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*, which requires an employer to report the service cost component of net benefit cost in the same line item as other compensation costs arising from services rendered by pertinent employees during the period. This ASU requires non-service cost components of net benefit cost to be presented in a caption below the Company's Operating profit and allows only the service cost component to be eligible for capitalization. This ASU is effective for fiscal years beginning after December 15, 2017, including interim periods within those periods, with early adoption permitted. The Company adopted the new standard as of January 1, 2018 and applied its amendments retrospectively for the presentation of service cost and other components of net benefit cost on the income statement and prospectively for the capitalization of service cost and net periodic postretirement benefits in assets. The application of ASU 2017-07 resulted in an increase to Operating profit of \$0.4 million and \$1.0 million for the third quarter and first nine months of 2017, respectively, which was offset by a corresponding increase in Other non-operating expense, net. The adoption of this ASU did not have a material effect on the Company's financial condition or liquidity. The Company utilized this ASU's practical expedient, which permits the Company to use the amounts disclosed in its Pensions and Other Post-employment Benefits note for the prior comparative periods as the estimation basis for applying the retrospective presentation requirements.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers* (ASC 606), which supersedes previous revenue recognition guidance. The Company adopted the new standard using the modified retrospective method as of January 1, 2018. Prior periods were not retrospectively adjusted. This approach was applied to all contracts not completed as of January 1, 2018. The new standard primarily impacted the Company's timing of revenue recognition for certain contracts and subcontracts with the United States (U.S.) government that contain termination for convenience clauses, and due to the cumulative impact of adopting ASC 606, the Company recorded a reduction to beginning retained earnings of \$0.4 million, net of tax as summarized below:

(Thousands)	December 31, 2017	Adjustments due to ASC 606	January 1, 2018
Assets			
Unbilled receivables	\$ —	\$ 2,658	\$ 2,658
Inventories	220,352	(2,059)	218,293
Liabilities and Shareholders' Equity			
Other liabilities and accrued items	\$ 28,044	61	28,105
Deferred income taxes	213	113	326
Retained earnings	536,116	425	536,541

The adoption of the standard did not have a material impact to the Company's consolidated financial statements. Refer to Note B for additional disclosures relating to ASC 606.

Materion Corporation and Subsidiaries
Notes to Consolidated Financial Statements
(Unaudited)

New Pronouncements Issued: In August 2017, the FASB issued ASU 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*, which amends and simplifies existing guidance to allow companies to more accurately present the economic effects of risk management activities in the financial statements. This ASU is effective for fiscal years beginning after December 15, 2018, including interim periods within those periods, with early adoption permitted. The Company is currently evaluating the impact of adopting this new guidance on its consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases*, which eliminates the off-balance-sheet accounting for leases. The new guidance will require lessees to report their operating leases as both an asset and liability on the balance sheet and disclose key information about leasing arrangements. This ASU is required to be applied using a modified retrospective adoption method with the option of applying the guidance either retrospectively to each prior comparative reporting period presented or retrospectively at the beginning of the period of adoption. Early adoption is permitted. The Company will adopt this ASU on January 1, 2019 and will apply it retrospectively at the beginning of the period of adoption through a cumulative-effect adjustment to retained earnings. The Company will elect to apply the practical expedients that do not require reassessment of existing contracts for embedded leases or to reassess lease classification or initial direct costs. In preparation for the adoption, the Company, along with an outside consultant, has executed on its project plan to identify a complete lease population, analyze lease agreements, and evaluate technology solutions. The Company selected and began implementing a new lease management system during the third quarter of 2018. Once the transition to the new system is completed, this software will enable us to quantify the full impact this ASU will have on our consolidated financial statements.

No other recently issued or effective ASUs had, or are expected to have, a material effect on the Company's results of operations, financial condition, or liquidity.

Note B — Revenue Recognition

Net sales consist primarily of revenue from the sale of precious and non-precious specialty metals, beryllium and copper-based alloys, beryllium composites, and other products into numerous end markets. The Company requires an agreement with a customer that creates enforceable rights and performance obligations. The Company generally recognizes revenue, in an amount that reflects the consideration to which it expects to be entitled, upon satisfaction of a performance obligation by transferring control over a product to the customer. Control over the product is generally transferred to the customer when the Company has a present right to payment, the customer has legal title, the customer has physical possession, the customer has the significant risks and rewards of ownership, and/or the customer has accepted the product.

Shipping and Handling Costs : The Company accounts for shipping and handling activities related to contracts with customers as costs to fulfill our promise to transfer the associated products. Accordingly, customer payments of shipping and handling costs are recorded as a component of net sales, and related costs are recorded as a component of cost of sales.

Taxes Collected from Customers and Remitted to Governmental Authorities : Revenue is recorded net of taxes collected from customers that are remitted to governmental authorities, with the collected taxes recorded as current liabilities until remitted to the relevant government authority.

Product Warranty : Substantially all of the Company's customer contracts contain a warranty that provides assurance that the purchased product will function as expected and in accordance with certain specifications. The warranty is intended to safeguard the customer against existing defects and does not provide any incremental service to the customer.

Transaction Price Allocated to Future Performance Obligations: ASC 606 requires that the Company disclose the aggregate amount of transaction price that is allocated to performance obligations that have not yet been satisfied at September 28, 2018. Remaining performance obligations include noncancelable purchase orders and customer contracts. The guidance provides certain practical expedients that limit this requirement. As such, the Company does not disclose the value of unsatisfied performance obligations for contracts with an original expected length of one year or less. After considering the practical expedient, at September 28, 2018, the aggregate amount of the transaction price allocated to remaining performance obligations was approximately \$33.0 million, of which \$4.0 million will be recognized in 2018.

Materion Corporation and Subsidiaries
Notes to Consolidated Financial Statements
(Unaudited)

Contract Costs : The Company recognizes the incremental costs of obtaining contracts as an expense when incurred if the amortization period of the assets that the Company otherwise would have recognized is one year or less. These costs primarily relate to sales commissions, which are included in selling, general, and administrative expenses.

Contract Balances : The timing of revenue recognition, billings and cash collections resulted in the following contract assets and contract liabilities:

(Thousands)	September 28, 2018	January 1, 2018	\$ change	% change
Accounts receivable, trade	\$ 126,537	\$ 122,393	\$ 4,144	3%
Unbilled receivables	6,383	2,658	3,725	140%
Unearned revenue	7,805	5,451	2,354	43%

Accounts receivable, trade represents payments due from customers relating to the transfer of the Company's products and services. The Company believes that its receivables are collectible and appropriate allowances for doubtful accounts have been recorded. Impairment losses (bad debt) incurred relating to our receivables were immaterial during the third quarter and first nine months of 2018.

Unbilled receivables represent expenditures on contracts, plus applicable profit margin, not yet billed. Unbilled receivables are normally billed and collected within one year. Billings made on contracts are recorded as a reduction of unbilled receivables.

Unearned revenue is recorded for consideration received from customers in advance of satisfaction of the related performance obligations.

As a practical expedient, the Company does not adjust the promised amount of consideration for the effects of a significant financing component because the period between the transfer of a product or service to a customer and when the customer pays for that product or service will be one year or less. The Company does not include extended payment terms in its contracts with customers.

Note C — Acquisitions

On February 28, 2017, the Company acquired the target materials business of the Heraeus Group (HTB), of Hanau, Germany, for \$16.5 million . This business manufactures precious and non-precious metal target materials for the architectural and automotive glass, electronic display, photovoltaic, and semiconductor markets at facilities in Germany, Taiwan, and the United States. This business operates within the Advanced Materials segment, and the results of operations are included as of the date of acquisition.

Materion Corporation and Subsidiaries
Notes to Consolidated Financial Statements
(Unaudited)

The final purchase price allocation for the acquisition is as follows:

(Thousands)	Amount
Assets:	
Inventories	\$ 7,221
Prepaid and other current assets	2,270
Long-term deferred income taxes	14
Property, plant, and equipment	6,501
Intangible assets	3,649
Goodwill	3,574
Total assets acquired	\$ 23,229
Liabilities:	
Other liabilities and accrued items	\$ 984
Other long-term liabilities	449
Retirement and post-employment benefits	5,292
Total liabilities assumed	\$ 6,725
Total purchase price	<u>\$ 16,504</u>

No material measurement period adjustments were recorded upon finalizing the purchase price allocation in the first quarter of 2018.

Note D — Segment Reporting

The Company has the following reportable segments: Performance Alloys and Composites, Advanced Materials, Precision Coatings, and Other. The Company's reportable segments represent components of the Company for which separate financial information is available that is utilized on a regular basis by the Chief Executive Officer, the Company's Chief Operating Decision Maker, in determining how to allocate the Company's resources and evaluate performance.

Performance Alloys and Composites produces strip and bulk form alloy products, strip metal products with clad inlay and overlay metals, beryllium-based metals, beryllium, and aluminum metal matrix composites, in rod, sheet, foil, and a variety of customized forms, beryllia ceramics, and bulk metallic glass materials.

Advanced Materials produces advanced chemicals, microelectric packaging, precious metal, non-precious metal, and specialty metal products, including vapor deposition targets, frame lid assemblies, clad and precious metal preforms, high temperature braze materials, and ultra-fine wire.

Precision Coatings produces thin film coatings, optical filter materials, sputter-coated, and precision-converted thin film materials.

The Other reportable segment includes unallocated corporate costs and assets.

(Thousands)	Performance Alloys and Composites	Advanced Materials	Precision Coatings	Other	Total
Third Quarter 2018					
Net sales	\$ 124,103	\$ 144,072	\$ 29,018	\$ —	\$ 297,193
Intersegment sales	2	13,265	—	—	13,267
Operating profit (loss)	16,728	6,882	3,499	(8,443)	18,666
Third Quarter 2017					
Net sales	\$ 109,393	\$ 157,770	\$ 27,105	\$ —	\$ 294,268
Intersegment sales	54	12,814	—	—	12,868
Operating profit (loss)	6,786	9,756	1,613	(6,191)	11,964
First Nine Months 2018					
Net sales	\$ 372,104	\$ 447,941	\$ 89,700	\$ —	\$ 909,745
Intersegment sales	33	36,317	—	—	36,350
Operating profit (loss)	38,898	18,352	9,107	(19,248)	47,109
First Nine Months 2017					
Net sales	\$ 310,487	\$ 429,550	\$ 90,742	\$ —	\$ 830,779
Intersegment sales	113	42,508	—	—	42,621
Operating profit (loss)	12,523	24,873	6,145	(17,788)	25,753

The following table disaggregates revenue for each segment by end market for the third quarter and first nine months of 2018:

(Thousands)	Performance Alloys and Composites	Advanced Materials	Precision Coatings	Other	Total
Third Quarter 2018					
End Market					
Consumer Electronics	\$ 24,966	\$ 78,859	\$ 4,733	\$ —	\$ 108,558
Industrial Components	24,745	11,406	2,855	—	39,006
Energy	11,146	20,301	4	—	31,451
Automotive Electronics	21,681	—	530	—	22,211
Defense	11,430	3,761	5,503	—	20,694
Medical	1,862	4,448	15,261	—	21,571
Telecom Infrastructure	9,845	6,664	—	—	16,509
Other	18,428	18,633	132	—	37,193
Total	\$ 124,103	\$ 144,072	\$ 29,018	\$ —	\$ 297,193
First Nine Months 2018					
End Market					
Consumer Electronics	\$ 76,793	\$ 249,139	\$ 14,047	\$ —	\$ 339,979
Industrial Components	78,291	36,206	8,247	—	122,744
Energy	29,152	60,048	12	—	89,212
Automotive Electronics	60,530	—	1,221	—	61,751
Defense	32,984	11,599	14,705	—	59,288
Medical	5,421	13,569	48,786	—	67,776
Telecom Infrastructure	28,829	21,989	59	—	50,877
Other	60,104	55,391	2,623	—	118,118
Total	\$ 372,104	\$ 447,941	\$ 89,700	\$ —	\$ 909,745

Intersegment sales are eliminated in consolidation.

Note E — Other-net

Other-net expense for the third quarter and first nine months of 2018 and 2017 is summarized as follows:

(Thousands)	Third Quarter Ended		Nine Months Ended	
	Sept. 28, 2018	Sept. 29, 2017	Sept. 28, 2018	Sept. 29, 2017
Metal consignment fees	\$ 2,503	\$ 2,436	\$ 7,520	\$ 6,183
Amortization of intangible assets	524	1,179	1,858	3,456
Foreign currency loss (gain)	140	(201)	1,359	(794)
Fixed asset impairment	—	114	—	314
Cost reduction initiatives	—	189	—	189
Net loss on disposal of fixed assets	14	60	37	207
Sublease income	(119)	(28)	(378)	(83)
Other items	85	52	(12)	351
Total	\$ 3,147	\$ 3,801	\$ 10,384	\$ 9,823

Materion Corporation and Subsidiaries
Notes to Consolidated Financial Statements
(Unaudited)

Note F — Income Taxes

On December 22, 2017, the Tax Cuts and Jobs Act (TCJA) was signed into law. The TCJA includes a number of provisions, including: (1) the lowering of the U.S. corporate tax rate from 35% to 21% ; (2) elimination of the corporate alternative minimum tax (AMT); (3) the creation of the base erosion anti-abuse tax (BEAT, a new minimum tax); (4) a general elimination of the U.S. federal income taxes on dividends from foreign subsidiaries; (5) a new provision designed to tax global intangible low-taxed income (GILTI), which allows for the possibility of using foreign tax credits (FTCs) and a deduction of up to 50% to offset the income tax liability (subject to some limitations); (6) a new limitation on deductible interest expense; (7) the repeal of the domestic production activity deduction; and (8) limitations on the deductibility of certain executive compensation.

The Company recorded an income tax benefit of \$2.7 million in the third quarter of 2018, resulting in an effective tax rate of (15.7)% against income before income taxes, and income tax expense of \$1.7 million in the third quarter of 2017, resulting in an effective tax rate of 15.5% against income before income taxes.

In the first nine months of 2018, income tax expense of \$1.7 million was calculated using an effective tax rate of 4.0% , while income tax expense of \$3.3 million in the first nine months of 2017 was calculated using an effective tax rate of 14.4% .

In the third quarter and first nine months of 2018, income tax expense differed from the U.S. Federal statutory income tax rate of 21% primarily due to the impact of foreign losses in jurisdictions that will not result in tax benefits, percentage depletion, the U.S. research and development credit, the new GILTI income inclusion, the new executive compensation limitations, and discrete income tax benefits of \$6.1 million and \$7.1 million recorded in the third quarter and first nine months of 2018, respectively. The \$6.1 million of discrete income tax benefits recorded in the third quarter of 2018 were comprised of a \$7.4 million benefit for the partial reversal of a \$9.5 million valuation allowance related to foreign tax credits that were deemed unrealizable as of December 31, 2017, and a \$2.4 million benefit for the re-measurement of certain deferred tax assets and liabilities. These benefits were offset by \$2.2 million of expense for a valuation allowance related to deferred tax assets that are not likely to be realized for one of the Company's controlled foreign corporations, and a \$1.5 million 2017 U.S. Federal income tax return to provision expense adjustment. The \$1.0 million discrete income tax benefit recorded in the first six months of 2018 consisted of \$0.4 million of excess tax benefits related to share based payment transactions and a \$0.6 million benefit attributable to the re-measurement of certain deferred tax assets and liabilities. The Company does not expect to incur a new BEAT minimum tax or an interest expense limitation.

In the third quarter and first nine months of 2017, income tax expense differed from the U.S. Federal statutory income tax rate of 35% primarily due to the impact of percentage depletion, foreign rate differential, the U.S. research and development credit, and discrete income tax benefits of \$0.5 million and \$1.3 million , respectively, related to the reversal of uncertain tax positions due to a lapse in the statute of limitations and the adoption of ASU 2016-09, *Improvements to Employee Share-based Payment Accounting*.

As disclosed in *Note G - Income Taxes* in the Company's 2017 Annual Report on Form 10-K, the Company was able to reasonably estimate certain TCJA effects and, therefore, recorded provisional adjustments associated with the deemed repatriation transition tax and remeasurement of certain deferred tax asset and liabilities. As of the third quarter of 2018, the Company recorded a measurement period tax expense adjustment of \$1.2 million related to the transition tax and a \$2.4 million tax benefit related to the re-measurement of certain deferred tax assets and liabilities. The Company's accounting for the income tax effects of the TCJA continue to be provisional and the company expects to record the final measurement period adjustment in the fourth quarter of 2018.

The Company continues to refine the additional measurement-period adjustments related to the transition tax post September 30, 2018 because the total post 1986 earnings and profits (E&P) for its foreign subsidiaries has not yet been completed. The Company is continuing to gather additional information and will complete its accounting for these items in the fourth quarter of 2018. No additional income taxes have been provided for any remaining undistributed foreign earnings not subject to the transition tax, or any additional outside basis difference inherent in these entities, as these amounts continue to be indefinitely reinvested in foreign operations.

Materion Corporation and Subsidiaries
Notes to Consolidated Financial Statements
(Unaudited)

The Company was able to reasonably estimate the remeasurement of certain deferred tax asset and liabilities at an initial provisional amount of \$5.0 million of additional income tax expense for the year ended December 31, 2017. The Company made refinements to the calculation during 2018, primarily as a result of information gathered during the preparation of the 2017 U.S. Federal income tax return, leaving a remaining provisional amount of \$2.0 million at the end of the third quarter of 2018. The Company is continuing to gather additional information and expects to complete its accounting for these items in the fourth quarter of 2018.

Due to the complexity of the new GILTI tax rules, the Company is continuing to evaluate this provision of the TCJA and the application of the Accounting Standards Codification 740, *Income Taxes*. Under U.S. GAAP, the Company is allowed to make an accounting policy choice of either (1) treating taxes due on future U.S. inclusions in taxable income related to GILTI as a current-period expense when incurred (the period cost method) or (2) factoring such amounts into the Company's measurement of its deferred taxes (the deferred method). The Company's selection of an accounting policy related to the new GILTI tax rules will depend on a number of different aspects of the estimated long-term effects of this provision under the TCJA. Therefore, the Company has not recorded any potential deferred tax effects related to the GILTI in the financial statements and has not made a policy decision regarding whether to record deferred taxes on GILTI or use the period cost method. However, the Company has included an estimate of the 2018 current GILTI impact in the annual effective tax rate for 2018.

Note G — Earnings Per Share (EPS)

The following table sets forth the computation of basic and diluted EPS:

	Third Quarter Ended		Nine Months Ended	
	Sept. 28, 2018	Sept. 29, 2017	Sept. 28, 2018	Sept. 29, 2017
(Thousands, except per share amounts)				
Numerator for basic and diluted EPS:				
Net income	\$ 19,966	\$ 9,320	\$ 41,674	\$ 19,683
Denominator:				
Denominator for basic EPS:				
Weighted-average shares outstanding	20,241	20,040	20,199	20,007
Effect of dilutive securities:				
Stock appreciation rights	168	149	183	148
Restricted stock units	86	94	84	95
Performance-based restricted stock units	153	128	141	111
Diluted potential common shares	407	371	408	354
Denominator for diluted EPS:				
Adjusted weighted-average shares outstanding	20,648	20,411	20,607	20,361
Basic EPS	\$ 0.99	\$ 0.47	\$ 2.06	\$ 0.98
Diluted EPS	\$ 0.97	\$ 0.46	\$ 2.02	\$ 0.97

Securities totaling 65,112 and 219,292 for the quarters ended September 28, 2018 and September 29, 2017, respectively, and 65,112 and 370,917 for the nine months ended September 28, 2018 and September 29, 2017, respectively, were excluded from the dilution calculation as their effect would have been anti-dilutive.

Materion Corporation and Subsidiaries
Notes to Consolidated Financial Statements
(Unaudited)

Note H — Inventories

Inventories on the Consolidated Balance Sheets are summarized as follows:

(Thousands)	Sept. 28, 2018	December 31, 2017
Raw materials and supplies	\$ 37,438	\$ 42,958
Work in process	176,792	187,719
Finished goods	35,660	34,418
Subtotal	\$ 249,890	\$ 265,095
Less: LIFO reserve balance	49,977	44,743
Inventories	<u>\$ 199,913</u>	<u>\$ 220,352</u>

The liquidation of last in, first out (LIFO) inventory layers increased cost of sales by \$0.2 million in the third quarter and \$0.3 million in the first nine months of 2018. LIFO liquidation had no impact to cost of sales in the third quarter of 2017 and caused a \$0.2 million increase to cost of sales in the first nine months of 2017.

Note I — Pensions and Other Post-employment Benefits

The following is a summary of the net periodic benefit cost for the third quarter and first nine months of 2018 and 2017 for the domestic pension plans (which include the defined benefit pension plan and the supplemental retirement plans) and the domestic retiree medical plan.

(Thousands)	Pension Benefits		Other Benefits	
	Third Quarter Ended		Third Quarter Ended	
	Sept. 28, 2018	Sept. 29, 2017	Sept. 28, 2018	Sept. 29, 2017
Components of net periodic benefit cost (benefit)				
Service cost	\$ 1,674	\$ 1,813	\$ 27	\$ 23
Interest cost	2,397	2,372	99	99
Expected return on plan assets	(3,697)	(3,385)	—	—
Amortization of prior service benefit	(31)	(42)	(374)	(374)
Amortization of net loss	1,959	1,623	—	—
Net periodic benefit cost (benefit)	<u>\$ 2,302</u>	<u>\$ 2,381</u>	<u>\$ (248)</u>	<u>\$ (252)</u>
Settlements	359	—	—	—
Total net benefit cost	<u>\$ 2,661</u>	<u>\$ 2,381</u>	<u>\$ (248)</u>	<u>\$ (252)</u>

Materion Corporation and Subsidiaries
Notes to Consolidated Financial Statements
(Unaudited)

(Thousands)	Pension Benefits		Other Benefits	
	Nine Months Ended		Nine Months Ended	
	Sept. 28, 2018	Sept. 29, 2017	Sept. 28, 2018	Sept. 29, 2017
Components of net periodic benefit cost (benefit)				
Service cost	\$ 5,022	\$ 5,309	\$ 83	\$ 69
Interest cost	7,191	7,098	297	297
Expected return on plan assets	(11,091)	(10,128)	—	—
Amortization of prior service benefit	(92)	(236)	(1,123)	(1,122)
Amortization of net loss	5,878	4,821	—	—
Net periodic benefit cost (benefit)	\$ 6,908	\$ 6,864	\$ (743)	\$ (756)
Settlements	359	—	—	—
Total net benefit cost	\$ 7,267	\$ 6,864	\$ (743)	\$ (756)

The Company made contributions to the domestic defined benefit pension plan of \$38.0 million and \$8.0 million in the first nine months of 2018 and 2017 , respectively. The Company currently anticipates 2018 contributions of approximately \$42.0 million in the aggregate.

Beginning in 2018, the Company reports the service cost component of net periodic benefit cost in the same line item as other compensation costs in operating expenses and the non-service cost components of net periodic benefit cost in Other non-operating expenses. Additionally, Pension Benefit Guaranty Corporation premiums are reported within expected return on plan assets.

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(Unaudited)

Note J — Accumulated Other Comprehensive Income (Loss)

Changes in the components of accumulated other comprehensive income, including the amounts reclassified, for the third quarter and first nine months of 2018 and 2017 are as follows:

(Thousands)	Gains and Losses on Cash Flow Hedges			Pension and Post-Employment Benefits	Foreign Currency Translation	Total
	Foreign Currency	Precious Metals	Total			
Balance at June 29, 2018	\$ 1,582	\$ 269	\$ 1,851	\$ (97,018)	\$ (3,939)	\$ (99,106)
Other comprehensive income before reclassifications	121	330	451	—	116	567
Amounts reclassified from accumulated other comprehensive income	(169)	(119)	(288)	1,935	—	1,647
Net current period other comprehensive income (loss) before tax	(48)	211	163	1,935	116	2,214
Deferred taxes	(11)	49	38	428	—	466
Net current period other comprehensive income (loss) after tax	(37)	162	125	1,507	116	1,748
Balance at September 28, 2018	<u>\$ 1,545</u>	<u>\$ 431</u>	<u>\$ 1,976</u>	<u>\$ (95,511)</u>	<u>\$ (3,823)</u>	<u>\$ (97,358)</u>
Balance at June 30, 2017	\$ 1,109	\$ 93	\$ 1,202	\$ (80,842)	\$ (4,282)	\$ (83,922)
Other comprehensive income (loss) before reclassifications	(324)	(205)	(529)	—	271	(258)
Amounts reclassified from accumulated other comprehensive income	433	(94)	339	1,345	—	1,684
Net current period other comprehensive income (loss) before tax	109	(299)	(190)	1,345	271	1,426
Deferred taxes	41	(111)	(70)	464	—	394
Net current period other comprehensive income (loss) after tax	68	(188)	(120)	881	271	1,032
Balance at September 29, 2017	<u>\$ 1,177</u>	<u>\$ (95)</u>	<u>\$ 1,082</u>	<u>\$ (79,961)</u>	<u>\$ (4,011)</u>	<u>\$ (82,890)</u>

Materion Corporation and Subsidiaries
Notes to Consolidated Financial Statements
(Unaudited)

(Thousands)	Gains and Losses on Cash Flow Hedges			Pension and Post-Employment Benefits	Foreign Currency Translation	Total
	Foreign Currency	Precious Metals	Total			
Balance at December 31, 2017	\$ 959	\$ (196)	\$ 763	\$ (99,592)	\$ (4,108)	\$ (102,937)
Other comprehensive income (loss) before reclassifications	(206)	774	568	—	285	853
Amounts reclassified from accumulated other comprehensive income	250	40	290	5,183	—	5,473
Net current period other comprehensive income before tax	44	814	858	5,183	285	6,326
Deferred taxes	(542)	187	(355)	1,102	—	747
Net current period other comprehensive income after tax	586	627	1,213	4,081	285	5,579
Balance at September 28, 2018	\$ 1,545	\$ 431	\$ 1,976	\$ (95,511)	\$ (3,823)	\$ (97,358)
Balance at December 31, 2016	\$ 1,837	\$ —	\$ 1,837	\$ (82,358)	\$ (5,660)	\$ (86,181)
Other comprehensive income (loss) before reclassifications	(1,205)	30	(1,175)	—	1,649	474
Amounts reclassified from accumulated other comprehensive income	219	(182)	37	3,655	—	3,692
Net current period other comprehensive income (loss) before tax	(986)	(152)	(1,138)	3,655	1,649	4,166
Deferred taxes	(326)	(57)	(383)	1,258	—	875
Net current period other comprehensive income (loss) after tax	(660)	(95)	(755)	2,397	1,649	3,291
Balance at September 29, 2017	\$ 1,177	\$ (95)	\$ 1,082	\$ (79,961)	\$ (4,011)	\$ (82,890)

Reclassifications from accumulated other comprehensive income of gains and losses on foreign currency cash flow hedges are recorded in Other-net in the Consolidated Statements of Income. Reclassifications from accumulated other comprehensive income of gains and losses on precious metal cash flow hedges are recorded in Cost of sales in the Consolidated Statements of Income. Refer to Note M for additional details on cash flow hedges.

Reclassifications from accumulated other comprehensive income for pension and post-employment benefits are included in the computation of the net periodic pension and post-employment benefit expense. Refer to Note I for additional details on pension and post-employment expenses.

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Notes to Consolidated Financial Statements
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Note K — Stock-based Compensation Expense

Stock-based compensation expense, which includes awards settled in shares and in cash, was \$4.2 million and \$9.4 million in the third quarter and first nine months of 2018 , respectively, compared to \$1.5 million and \$6.2 million in the same periods of 2017.

The Company granted 65,112 stock appreciation rights (SARs) to certain employees during the first nine months of 2018 . The weighted-average exercise price per share and weighted-average fair value per share of the SARs granted during the nine months ended September 28, 2018 were \$50.35 and \$15.73 , respectively. The Company estimated the fair value of the SARs using the following weighted-average assumptions in the Black-Scholes model:

Risk-free interest rate	2.58%
Dividend yield	0.8%
Volatility	31.9%
Expected term (in years)	5.5

The Company granted 59,222 stock-settled restricted stock units (RSUs) to certain employees and 14,728 stock-settled RSUs to non-employee directors during the first nine months of 2018 . The Company measures the fair value of stock-settled RSUs based on the closing market price of a share of Materion common stock on the date of the grant. The weighted-average fair value per share was \$50.35 and \$51.60 for stock-settled RSUs granted to employees and non-employee directors, respectively, during the nine months ended September 28, 2018 . RSUs are expensed over the vesting period of three years for employees and one year for non-employee directors.

The Company granted stock-settled performance-based restricted stock units (PRSUs) to certain employees in the first nine months of 2018 . The weighted-average fair value of the stock-settled PRSUs was \$50.35 per share and will be expensed over the vesting period of three years . The final payout to the employees for all PRSUs will be based upon the Company's return on invested capital and the total return to shareholders over the vesting period relative to a peer group's performance over the same period.

At September 28, 2018 , unearned compensation cost related to the unvested portion of all stock-based awards was approximately \$9.2 million , and is expected to be recognized over the remaining vesting period of the respective grants.

Note L — Fair Value of Financial Instruments

The Company measures and records financial instruments at fair value. A fair value hierarchy is used for those instruments measured at fair value that distinguishes between assumptions based on market data (observable inputs) and the Company's assumptions (unobservable inputs). The hierarchy consists of three levels:

Level 1 — Quoted market prices in active markets for identical assets and liabilities;

Level 2 — Inputs other than Level 1 inputs that are either directly or indirectly observable; and

Level 3 — Unobservable inputs developed using estimates and assumptions developed by the Company, which reflect those that a market participant would use.

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The following table summarizes the financial instruments measured at fair value in the Consolidated Balance Sheets as of September 28, 2018 and December 31, 2017 :

(Thousands)	Total Carrying Value in the Consolidated Balance Sheets		Quoted Prices in Active Markets for Identical Assets (Level 1)		Significant Other Observable Inputs (Level 2)		Significant Unobservable Inputs (Level 3)	
	2018	2017	2018	2017	2018	2017	2018	2017
Financial Assets								
Deferred compensation investments	\$ 2,400	\$ 2,310	\$ 2,400	\$ 2,310	\$ —	\$ —	\$ —	\$ —
Foreign currency forward contracts	226	254	—	—	226	254	—	—
Precious metal swaps	655	14	—	—	655	14	—	—
Total	\$ 3,281	\$ 2,578	\$ 2,400	\$ 2,310	\$ 881	\$ 268	\$ —	\$ —
Financial Liabilities								
Deferred compensation liability	\$ 2,400	\$ 2,310	\$ 2,400	\$ 2,310	\$ —	\$ —	\$ —	\$ —
Foreign currency forward contracts	170	201	—	—	170	201	—	—
Precious metal swaps	97	269	—	—	97	269	—	—
Total	\$ 2,667	\$ 2,780	\$ 2,400	\$ 2,310	\$ 267	\$ 470	\$ —	\$ —

The Company uses a market approach to value the assets and liabilities for financial instruments in the table above. Outstanding contracts are valued through models that utilize market observable inputs, including both spot and forward prices, for the same underlying currencies and metals. The carrying values of the other working capital items and debt in the Consolidated Balance Sheets approximate fair values as of September 28, 2018 and December 31, 2017.

Note M — Derivative Instruments and Hedging Activity

The Company uses derivative contracts to hedge portions of its foreign currency exposures and uses derivatives to hedge a portion of its precious metal exposures. The objectives and strategies for using derivatives in these areas are as follows:

Foreign Currency. The Company sells a portion of its products to overseas customers in their local currencies, primarily the euro and yen. The Company secures foreign currency derivatives, mainly forward contracts and options, to hedge these anticipated sales transactions. The purpose of the hedge program is to protect against the reduction in the dollar value of foreign currency sales from adverse exchange rate movements. Should the dollar strengthen significantly, the decrease in the translated value of the foreign currency sales should be partially offset by gains on the hedge contracts. Depending upon the methods used, hedge contracts may limit the benefits from a weakening U.S. dollar.

The use of forward contracts locks in a firm rate and eliminates any downside risk from an adverse rate movement as well as any benefit from a favorable rate movement. The Company may from time to time choose to hedge with options or a tandem of options, known as a collar. These hedging techniques can limit or eliminate the downside risk but can allow for some or all of the benefit from a favorable rate movement to be realized. Unlike a forward contract, a premium is paid for an option; collars, which are a combination of a put and call option, may have a net premium but can be structured to be cash neutral. The Company will primarily hedge with forward contracts due to the relationship between the cash outlay and the level of risk.

The use of foreign currency derivative contracts is governed by policies approved by the Audit Committee of the Board of Directors. A team consisting of senior financial managers reviews the estimated exposure levels, as defined by budgets, forecasts, and other internal data, and determines the timing, amounts, and instruments to use to hedge that exposure within the confines of the policy. Management analyzes the effective hedged rates and the actual and projected gains and losses on the hedging transactions against the program objectives, targeted rates, and levels of risk assumed. Hedge

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contracts are typically layered in at different times for a specified exposure period in order to minimize the impact of rate movements.

Precious Metals. The Company maintains the majority of its precious metal production requirements on consignment in order to reduce its working capital investment and the exposure to metal price movements. When a precious metal product is fabricated and ready for shipment to the customer, the metal is purchased out of consignment at the current market price. The price paid by the Company forms the basis for the price charged to the customer. This methodology allows for changes in either direction in the market prices of the precious metals used by the Company to be passed through to the customer, and reduces the impact changes in prices could have on the Company's margins and operating profit. The consigned metal is owned by financial institutions that charge the Company a financing fee based upon the current value of the metal on hand.

In certain instances, a customer may want to establish the price for the precious metal at the time the sales order is placed rather than at the time of shipment. Setting the sales price at a different date than when the material would be purchased potentially creates an exposure to movements in the market price of the metal. Therefore, in these limited situations, the Company may elect to enter into a forward contract to purchase precious metal. The forward contract allows the Company to purchase metal at a fixed price on a specific future date. The price in the forward contract serves as the basis for the price to be charged to the customer. By doing so, the selling price and purchase price are matched, and the Company's price exposure is reduced.

The Company refines precious metal-containing materials for its customers and typically will purchase the refined metal from the customer at current market prices. In limited circumstances, the customer may want to fix the price to be paid at the time of the order as opposed to when the material is refined. The customer may also want to fix the price for a set period of time. The Company may then elect to enter into a hedge contract, either a forward contract or a swap, to fix the price for the estimated quantity of metal to be purchased, thereby reducing the exposure to adverse movements in the price of the metal.

In certain circumstances, the Company also refines metal from the customer and may retain a portion of the refined metal as payment. The Company may elect to enter into a forward contract to sell precious metal to reduce the Company's price exposure.

The Company may from time to time elect to purchase precious metal and hold in inventory rather than on consignment due to potential credit line limitations or other factors. These purchases are typically held for a short duration. A forward contract will be secured at the time of the purchase to fix the price to be used when the metal is transferred back to the consignment line, thereby limiting any price exposure during the time when the metal was owned.

The Company will only enter into a derivative contract if there is an underlying identified exposure. Contracts are typically held until maturity. The Company does not engage in derivative trading activities and does not use derivatives for speculative purposes. The Company only uses currency hedge contracts that are denominated in the same currency as the underlying exposure and precious metal hedge contracts denominated in the same metal as the underlying exposure.

All derivatives are recorded on the balance sheet at fair value. If the derivative is designated and effective as a cash flow hedge, changes in the fair value of the derivative are recognized in other comprehensive income (OCI) until the hedged item is recognized in earnings. The ineffective portion of a derivative's fair value, if any, is recognized in earnings immediately. If a derivative is not a hedge, changes in the fair value are adjusted through income. The fair values of the outstanding derivatives are recorded on the balance sheet as assets (if the derivatives are in a gain position) or liabilities (if the derivatives are in a loss position). The fair values will also be classified as short-term or long-term depending upon their maturity dates.

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(Unaudited)

The following table summarizes the notional amount and the fair value of the Company's outstanding derivatives not designated as hedging instruments and balance sheet classification as of September 28, 2018 and December 31, 2017 :

(Thousands)	September 28, 2018		December 31, 2017	
	Notional Amount	Fair Value	Notional Amount	Fair Value
Foreign currency forward contracts - euro				
Prepaid expenses	\$ 11,622	\$ 40	\$ 13,981	\$ 127
Other liabilities and accrued items	37,027	170	—	—
Total	<u>\$ 48,649</u>	<u>\$ 130</u>	<u>\$ 13,981</u>	<u>\$ 127</u>

These outstanding foreign currency derivatives were related to intercompany loans. Other-net included foreign currency gains relating to these derivatives of \$0.4 million and \$1.6 million during the third quarter and first nine months of 2018, respectively, compared to foreign currency losses of \$0.5 million and \$1.1 million during the same periods in 2017, respectively.

The following table summarizes the notional amount and the fair value of the Company's outstanding derivatives designated as cash flow hedges and balance sheet classification as of September 28, 2018 and December 31, 2017 :

(Thousands)	September 28, 2018		December 31, 2017	
	Notional Amount	Fair Value	Notional Amount	Fair Value
Prepaid expenses				
Foreign currency forward contracts - yen	\$ 1,413	\$ 44	\$ 5,673	\$ 91
Foreign currency forward contracts - euro	3,811	142	5,026	36
Precious metal swaps	7,198	654	—	—
Total	<u>12,422</u>	<u>840</u>	<u>10,699</u>	<u>127</u>
Other assets				
Precious metal swaps	246	1	880	14
Total	<u>246</u>	<u>1</u>	<u>880</u>	<u>14</u>
Other liabilities and accrued items				
Foreign currency forward contracts - yen	—	—	—	—
Foreign currency forward contracts - euro	—	—	13,583	201
Precious metal swaps	845	94	10,067	255
Total	<u>845</u>	<u>94</u>	<u>23,650</u>	<u>456</u>
Other long-term liabilities				
Precious metal swaps	121	3	789	14
Total	<u>\$ 13,634</u>	<u>\$ 744</u>	<u>\$ 36,018</u>	<u>\$ 329</u>

All of these contracts were designated and effective as cash flow hedges. No ineffectiveness expense was recorded in the third quarter and first nine months of 2018 or 2017.

Changes in the fair value of outstanding cash flow hedges recorded in OCI for the first nine months of 2018 and 2017 totaled an increase of \$0.6 million and a decrease of \$1.2 million , respectively. The Company expects to relieve substantially the entire balance in OCI as of September 28, 2018 to the Consolidated Statements of Income within the next 18-month period. Refer to Note J for additional OCI details.

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Note N — Contingencies

Legal Proceedings . For information regarding legal proceedings relating to *Chronic Beryllium Disease Claims* , refer to Note R ("Contingencies and Commitments") in the Company's 2017 Annual Report on Form 10-K.

Other Litigation. The Company is party to several pending legal proceedings and claims arising in the normal course of business. The Company records a liability when it is both probable that a liability has been incurred and the amount of the loss can be reasonably estimated. In the event the Company determines that a loss is not probable, but is reasonably possible, and it becomes possible to develop what the Company believes to be a reasonable range of possible loss, then the Company will include disclosure related to such matters. To the extent there is a reasonable possibility that the losses could exceed any amounts accrued, the Company will adjust the accrual in the period the determination is made, disclose an estimate of the additional loss or range of loss, indicate that the estimate is immaterial with respect to its financial statements as a whole or, if the amount of such adjustment cannot be reasonably estimated, disclose that an estimate cannot be made.

Environmental Proceedings. The Company has an active environmental compliance program and records reserves for the probable cost of identified environmental remediation projects. The reserves are established based upon analyses conducted by the Company's engineers and outside consultants and are adjusted from time to time based upon ongoing studies, the difference between actual and estimated costs, and other factors. The reserves may also be affected by rulings and negotiations with regulatory agencies. The undiscounted reserve balance was \$6.5 million at both September 28, 2018 and December 31, 2017 . Environmental projects tend to be long-term, and the final actual remediation costs may differ from the amounts currently recorded.

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

OVERVIEW

We are an integrated producer of high-performance advanced engineered materials used in a variety of electrical, electronic, thermal, and structural applications. Our products are sold into numerous end markets, including consumer electronics, industrial components, defense, medical, automotive electronics, telecommunications infrastructure, energy, commercial aerospace, science, services, and appliance.

RESULTS OF OPERATIONS

Third Quarter

(Thousands, except per share data)	Third Quarter Ended			
	Sept. 28, 2018	Sept. 29, 2017	\$ Change	% Change
Net sales	\$ 297,193	\$ 294,268	\$ 2,925	1 %
Value-added sales	181,943	171,382	10,561	6 %
Gross margin	64,935	55,447	9,488	17 %
Gross margin as a % of value-added sales	36%	32%	N/A	N/A
Selling, general, and administrative (SG&A) expense	38,872	36,253	2,619	7 %
SG&A expense as a % of value-added sales	21%	21%	N/A	N/A
Research and development (R&D) expense	4,250	3,429	821	24 %
R&D expense as a % of value-added sales	2%	2%	N/A	N/A
Other—net	3,147	3,801	(654)	(17)%
Operating profit	18,666	11,964	6,702	56 %
Interest expense—net	613	533	80	15 %
Other non-operating expense—net	800	406	394	97 %
Income before income taxes	17,253	11,025	6,228	56 %
Income tax (benefit) expense	(2,713)	1,705	(4,418)	(259)%
Net income	\$ 19,966	\$ 9,320	\$ 10,646	114 %
Diluted earnings per share	\$ 0.97	\$ 0.46	\$ 0.51	111 %

N/A = Not Applicable

Net sales of \$297.2 million in the third quarter of 2018 were \$2.9 million higher than the \$294.3 million recorded in the third quarter of 2017 . The increase in net sales was primarily due to improved product mix and end-market demand within our Performance Alloys and Composites segment. The change in precious metal and copper prices unfavorably impacted net sales during the third quarter of 2018 by \$5.9 million.

Value-added sales is a non-GAAP financial measure that removes the impact of pass-through metal costs and allows for analysis without the distortion of the movement or volatility in metal prices. Internally, we manage our business on this basis, and a reconciliation of net sales, the most directly comparable GAAP financial measure, to value-added sales is included herein. Value-added sales of \$181.9 million in the third quarter of 2018 increased \$10.6 million, or 6% compared to the third quarter of 2017 . The increase in value-added sales was primarily driven by strengthening commercial execution and improved end-market demand, particularly in the energy and defense end markets.

Gross margin in the third quarter of 2018 was \$64.9 million, or \$9.4 million higher than the \$55.5 million gross margin recorded during the third quarter of 2017 . Gross margin expressed as a percentage of value-added sales increased to 36% in the third quarter of 2018 from 32% in the third quarter of 2017 primarily due to increased profitability from sales volume growth and improved product mix.

SG&A expense was \$38.9 million in the third quarter of 2018 , compared to \$36.3 million recorded in the third quarter of 2017 . The increase in SG&A expense for the third quarter of 2018 was primarily driven by an increase in variable costs associated with long-term performance-based incentive plans.

R&D expense consists primarily of direct personnel costs for pre-production evaluation and testing of new products, prototypes, and applications. R&D expense was flat as a percentage of value-added sales at approximately 2% in the third quarter of both 2018 and 2017 .

Other-net was \$3.1 million of expense in the third quarter of 2018 , or a \$0.7 million decrease from the third quarter of 2017 . Amortization expense decreased \$0.7 million primarily due to the impact of fully amortized intangible assets, and cost reduction initiatives of \$0.3 million were recorded in the third quarter of 2017, that were not reported in the third quarter of 2018. These decreases were partially offset by a \$0.3 million increase due to foreign exchange movements. Refer to Note E to the Consolidated Financial Statements for details of the major components within Other-net.

Interest expense-net was \$0.6 million and \$0.5 million in the third quarter of 2018 and 2017 , respectively.

Other non-operating expense-net includes components of pension and post-retirement expense other than service costs. Refer to Note I to the Consolidated Financial Statements for details of the components of net periodic benefit costs.

Income tax expense for the third quarter of 2018 was a benefit of \$2.7 million, compared to \$1.7 million of expense in the third quarter of 2017 . The effective tax rate for the third quarter of 2018 was (15.7%) compared to an effective tax rate of 15.5% in the prior-year period. The effects of losses in foreign jurisdictions, percentage depletion, the foreign rate differential, the U.S. research and development credit, discrete benefits of \$6.1 million, and other items were the primary factors for the difference between the effective and statutory rates in the third quarter of 2018 and 2017 . Refer to Note F to the Consolidated Financial Statements for further details on income taxes.

Nine Months

(Thousands, except per share data)	Nine Months Ended			
	Sept. 28, 2018	Sept. 29, 2017	\$ Change	% Change
Net sales	\$ 909,745	\$ 830,779	\$ 78,966	10 %
Value-added sales	553,158	496,462	56,696	11 %
Gross margin	185,053	153,381	31,672	21 %
Gross margin as a % of value-added sales	33%	31%	N/A	N/A
SG&A expense	115,807	107,702	8,105	8 %
SG&A expense as a % of value-added sales	21%	22%	N/A	N/A
R&D expense	11,753	10,103	1,650	16 %
R&D expense as a % of value-added sales	2%	2%	N/A	N/A
Other—net	10,384	9,823	561	6 %
Operating profit	47,109	25,753	21,356	83 %
Interest expense—net	2,010	1,721	289	17 %
Other non-operating expense—net	1,679	1,041	638	61 %
Income before income taxes	43,420	22,991	20,429	89 %
Income tax expense	1,746	3,308	(1,562)	(47)%
Net income	\$ 41,674	\$ 19,683	\$ 21,991	112 %
Diluted earnings per share	\$ 2.02	\$ 0.97	\$ 1.05	108 %

N/A = Not Applicable

Net sales of \$909.8 million in the first nine months of 2018 were \$79.0 million higher than the \$830.8 million recorded in the first nine months of 2017. The increase in net sales was primarily due to incremental net sales of \$16.7 million from the high-performance target materials business of the Heraeus Group (HTB), the favorable impact of the change in precious metal and copper prices of \$9.9 million, growth from commercial execution, and improved end-market demand.

Value-added sales of \$553.2 million in the first nine months of 2018 increased \$56.7 million, or 11% compared to the first nine months of 2017. The increase was primarily driven by new product sales, commercial execution, and improved demand, particularly in the energy, defense, and industrial components end markets. In addition, during the first nine months of 2018, the HTB acquisition contributed incremental value-added sales of \$12.5 million.

Gross margin of \$185.1 million in the first nine months of 2018 was \$31.7 million higher than the \$153.4 million gross margin recorded during the first nine months of 2017. Gross margin expressed as a percentage of value-added sales increased to 33% in the first nine months of 2018 from 31% in the first nine months of 2017 primarily due to increased profitability from sales growth and improved product mix.

SG&A expense was \$115.8 million in the first nine months of 2018, or \$8.1 million higher than the \$107.7 million recorded in the first nine months of 2017. The increase in SG&A expense was driven by investments to execute our strategic initiatives and variable costs associated with driving top-line and profit growth. SG&A expense as a percentage of value-added sales decreased to 21% compared to 22% for the first nine months of 2017 due to the growth in net sales.

R&D expense was flat as a percentage of value-added sales at approximately 2% in the first nine months of both 2018 and 2017 .

Other-net was \$10.4 million of expense in the first nine months of 2018, or a \$0.6 million increase from the first nine months of 2017. The increase is primarily due to foreign exchange losses recognized in the first nine months of 2018, compared to foreign exchange gains recognized in the first nine months of 2017. Refer to Note E to the Consolidated Financial Statements for details of the major components within Other-net.

Interest expense-net was \$2.0 million and \$1.7 million in the first nine months of 2018 and 2017 , respectively. The increase was primarily due to a capital lease entered into in 2017 in connection with the HTB acquisition.

Other non-operating expense-net. Refer to Note I to the Consolidated Financial Statements for details of the components of net periodic benefit costs.

Income tax expense for the first nine months of 2018 was \$1.7 million, compared to \$3.3 million in the first nine months of 2017. The effective tax rate for the first nine months of 2018 was 4.0% compared to an effective tax rate of 14.4% in the prior-year period. The effects of losses in foreign jurisdictions, percentage depletion, the foreign rate differential, the U.S. research and development credit, discrete benefits of \$7.1 million, and other items were the primary factors for the difference between the effective and statutory rates in the first nine months of 2018 and 2017. Refer to Note F to the Consolidated Financial Statements for further details on income taxes.

Value-Added Sales - Reconciliation of Non-GAAP Financial Measure

A reconciliation of net sales to value-added sales, a non-GAAP financial measure, for each reportable segment and for the total Company for the third quarter and first nine months of 2018 and 2017 is as follows:

(Thousands)	Third Quarter Ended		Nine Months Ended	
	Sept. 28, 2018	Sept. 29, 2017	Sept. 28, 2018	Sept. 29, 2017
Net sales				
Performance Alloys and Composites	\$ 124,103	\$ 109,393	\$ 372,104	\$ 310,487
Advanced Materials	144,072	157,770	447,941	429,550
Precision Coatings	29,018	27,105	89,700	90,742
Other	—	—	—	—
Total	\$ 297,193	\$ 294,268	\$ 909,745	\$ 830,779
Less: pass-through metal costs				
Performance Alloys and Composites	\$ 19,210	\$ 18,756	\$ 56,762	47,953
Advanced Materials	88,727	97,379	277,046	259,830
Precision Coatings	6,013	5,209	19,661	22,932
Other	1,300	1,542	3,118	3,602
Total	\$ 115,250	\$ 122,886	\$ 356,587	\$ 334,317
Value-added sales				
Performance Alloys and Composites	\$ 104,893	\$ 90,637	\$ 315,342	\$ 262,534
Advanced Materials	55,345	60,391	170,895	169,720
Precision Coatings	23,005	21,896	70,039	67,810
Other	(1,300)	(1,542)	(3,118)	(3,602)
Total	\$ 181,943	\$ 171,382	\$ 553,158	\$ 496,462

The cost of gold, silver, platinum, palladium, and copper can be quite volatile. Our pricing policy is to directly pass the cost of these metals on to the customer in order to mitigate the impact of metal price volatility on our results from operations. Trends and comparisons of net sales are affected by movements in the market prices of these metals, but changes in net sales due to metal price movements may not have a proportionate impact on our profitability.

Internally, management reviews net sales on a value-added basis. Value-added sales is a non-GAAP financial measure that deducts the value of the pass-through metal costs from net sales. Value-added sales allow management to assess the impact of differences in net sales between periods, segments, or markets, and analyze the resulting margins and profitability without the distortion of movements in pass-through metal costs. The dollar amount of gross margin and operating profit is not affected by the value-added sales calculation. We sell other metals and materials that are not considered direct pass-throughs, and these costs are not deducted from net sales when calculating value-added sales. Non-GAAP financial measures, such as value-added sales, have inherent limitations and should not be considered in isolation, or as a substitute for analyses of results as reported under GAAP.

Our net sales are also affected by changes in the use of customer-supplied metal. When we manufacture a precious metal product, the customer may purchase metal from us or may elect to provide its own metal, in which case we process the metal on a toll basis and the metal value does not flow through net sales or cost of sales. In either case, we generally earn our margin based upon our fabrication efforts. The relationship of this margin to net sales can change depending upon whether or not the product was made from our metal or the customer's metal. The use of value-added sales removes the potential distortion in the comparison of net sales caused by changes in the level of customer-supplied metal.

By presenting information on net sales and value-added sales, it is our intention to allow users of our financial statements to review our net sales with and without the impact of the pass-through metals.

Segment Results

The Company consists of four reportable segments: Performance Alloys and Composites, Advanced Materials, Precision Coatings, and Other. The Other reportable segment includes unallocated corporate costs.

Performance Alloys and Composites

Third Quarter

(Thousands)	Third Quarter Ended			
	Sept. 28, 2018	Sept. 29, 2017	\$ Change	% Change
Net sales	\$ 124,103	\$ 109,393	\$ 14,710	13%
Value-added sales	104,893	90,637	14,256	16%
Operating profit	16,728	6,786	9,942	147%

Net sales from the Performance Alloys and Composites segment of \$124.1 million in the third quarter of 2018 were 13% higher than net sales of \$109.4 million in the third quarter of 2017. The impact of higher pass-through metal prices favorably impacted net sales by approximately \$1.2 million.

Value-added sales of \$104.9 million in the third quarter of 2018 were 16% higher than value-added sales of \$90.6 million in the third quarter of 2017. The increase in value-added sales was driven by performance improvements in commercial execution and stronger demand in the end markets of defense, energy, telecom infrastructure, automotive electronics, and industrial components.

Performance Alloys and Composites generated operating profit of \$16.7 million in the third quarter of 2018 compared to \$6.8 million in the third quarter of 2017. The increase in operating profit was primarily due to higher sales volume, favorable product mix, and improved manufacturing performance.

Nine Months

(Thousands)	Nine Months Ended			
	Sept. 28, 2018	Sept. 29, 2017	\$ Change	% Change
Net sales	\$ 372,104	\$ 310,487	\$ 61,617	20%
Value-added sales	315,342	262,534	52,808	20%
Operating profit	38,898	12,523	26,375	211%

Net sales from the Performance Alloys and Composites segment of \$372.1 million in the first nine months of 2018 were 20% higher than net sales of \$310.5 million in the first nine months of 2017 primarily due to higher sales volume. In addition, the impact of higher pass-through metal prices favorably impacted net sales by approximately \$5.2 million.

Value-added sales of \$315.3 million in the first nine months of 2018 were 20% higher than value-added sales of \$262.5 million in the first nine months of 2017. The increase in value-added sales was driven by performance improvements in commercial execution and stronger demand throughout our end markets.

Performance Alloys and Composites generated operating profit of \$38.9 million in the first nine months of 2018 compared to \$12.5 million in the first nine months of 2017. The increase in operating profit was primarily due to higher sales volume, favorable product mix, and improved manufacturing performance.

Advanced Materials***Third Quarter***

(Thousands)	Third Quarter Ended			
	Sept. 28, 2018	Sept. 29, 2017	\$ Change	% Change
Net sales	\$ 144,072	\$ 157,770	(13,698)	(9)%
Value-added sales	55,345	60,391	(5,046)	(8)%
Operating profit	6,882	9,756	(2,874)	(29)%

Net sales from the Advanced Materials segment of \$144.1 million in the third quarter of 2018 were 9% lower than net sales of \$157.8 million in the third quarter of 2017. The decline in net sales was due to the impact of unfavorable pass-through metal prices of \$7.1 million, as well as lower sales volume.

Value-added sales of \$55.3 million in the third quarter of 2018 were 8% lower than value-added sales of \$60.4 million in the third quarter of 2017, driven by softer demand in certain subsegments of the consumer electronics end market.

The Advanced Materials segment generated operating profit of \$6.9 million in the third quarter of 2018 compared to \$9.8 million in the third quarter of 2017. Operating profit in the third quarter of 2018 was negatively impacted by lower sales volume and unfavorable product mix and ramp-up costs associated with our new Germany facility.

Nine Months

(Thousands)	Nine Months Ended			
	Sept. 28, 2018	Sept. 29, 2017	\$ Change	% Change
Net sales	\$ 447,941	\$ 429,550	18,391	4 %
Value-added sales	170,895	169,720	1,175	1 %
Operating profit	18,352	24,873	(6,521)	(26)%

Net sales from the Advanced Materials segment of \$447.9 million in the first nine months of 2018 were 4% higher than net sales of \$429.6 million in the first nine months of 2017 due to incremental net sales from the HTB acquisition of \$16.7 million, as well as the favorable impact of pass-through metal prices of \$2.9 million.

Value-added sales of \$170.9 million in the first nine months of 2018 were 1% higher than value-added sales of \$169.7 million in the first nine months of 2017. During the first nine months of 2018, the HTB acquisition contributed incremental value-added sales of \$12.5 million. Excluding the HTB acquisition, value-added sales decreased \$11.3 million, driven by softer demand in the consumer electronics end market.

The Advanced Materials segment generated operating profit of \$18.4 million in the first nine months of 2018 compared to \$24.9 million in the first nine months of 2017. Operating profit in the first nine months of 2018 was impacted by unfavorable product mix, particularly within the consumer electronics end market, as well as integration expenses related to the move of the HTB business in Germany to a new state-of-the-art facility.

Precision Coatings

Third Quarter

(Thousands)	Third Quarter Ended			
	Sept. 28,	Sept. 29,	\$	%
	2018	2017	Change	Change
Net sales	\$ 29,018	\$ 27,105	1,913	7%
Value-added sales	23,005	21,896	1,109	5%
Operating profit	3,499	1,613	1,886	117%

Net sales from the Precision Coatings segment of \$29.0 million in the third quarter of 2018 were 7% higher than net sales of \$27.1 million in the third quarter of 2017 primarily due to increased sales volume in the defense and medical end markets.

Value-added sales of \$23.0 million in the third quarter of 2018 were 5% higher than value-added sales of \$21.9 million in the third quarter of 2017. The medical and defense end markets increased \$2.3 million. The medical end market increase relates to higher volume in the blood glucose test strip segment of the end market, while the defense end market sales were higher due to optical filters and other products utilized in defense missile applications.

The Precision Coatings segment generated operating profit of \$3.5 million in the third quarter of 2018, compared to an operating profit of \$1.6 million in the third quarter of 2017. The increase in operating profit was driven by a combination of sales growth, cost reduction actions, and improved product mix.

Nine Months

(Thousands)	Nine Months Ended			
	Sept. 28,	Sept. 29,	\$	%
	2018	2017	Change	Change
Net sales	\$ 89,700	\$ 90,742	(1,042)	(1)%
Value-added sales	70,039	67,810	2,229	3 %
Operating profit	9,107	6,145	2,962	48 %

Net sales from the Precision Coatings segment of \$89.7 million in the first nine months of 2018 were 1% lower than net sales of \$90.7 million in the first nine months of 2017 primarily due to lower sales volume involving precious metals.

Value-added sales of \$70.0 million in the first nine months of 2018 were 3% higher than value-added sales of \$67.8 million in the first nine months of 2017. The increase was primarily due to success in new product sales and improved end-market demand, principally in the defense end market.

The Precision Coatings segment generated operating profit of \$9.1 million in the first nine months of 2018, compared to an operating profit of \$6.1 million in the first nine months of 2017. The increase in operating profit was driven by a combination of sales growth, cost reduction actions, and improved manufacturing performance.

Other

Third Quarter

(Thousands)	Third Quarter Ended			
	Sept. 28,	Sept. 29,	\$	%
	2018	2017	Change	Change
Net sales	\$ —	\$ —	—	— %
Value-added sales	(1,300)	(1,542)	242	(16)%
Operating loss	(8,443)	(6,191)	(2,252)	36 %

The Other reportable segment in total includes unallocated corporate costs.

Corporate costs of \$8.4 million in the third quarter of 2018 increased \$2.2 million as compared to \$6.2 million in the third quarter of 2017. As a percent of total Company value-added sales, corporate costs increased to 5% in the third quarter of 2018 from 4% in the prior-year period. The increase primarily relates to investments to execute our strategic initiatives and variable costs associated with improved financial performance.

Nine Months

(Thousands)	Nine Months Ended			
	Sept. 28,	Sept. 29,	\$	%
	2018	2017	Change	Change
Net sales	\$ —	\$ —	—	— %
Value-added sales	(3,118)	(3,602)	484	(13)%
Operating loss	(19,248)	(17,788)	(1,460)	8 %

Corporate costs of \$19.2 million in the first nine months of 2018 increased \$1.4 million as compared to \$17.8 million in the first nine months of 2017. Corporate costs were approximately 3% of total Company value-added sales in the first nine months of 2018 compared to 4% in the prior-year period. The absence of CEO transition costs incurred in the prior-year period were more than offset by additional costs to execute our strategic initiatives and variable costs associated with improved financial performance.

FINANCIAL POSITION

Cash Flow

A summary of cash flows provided by (used in) operating, investing, and financing activities is as follows:

(Thousands)	Nine Months Ended		
	Sept. 28,	Sept. 29,	\$
	2018	2017	Change
Net cash provided by operating activities	\$ 49,243	\$ 35,497	\$ 13,746
Net cash (used in) investing activities	(26,975)	(34,830)	7,855
Net cash (used in) financing activities	(10,354)	(10,938)	584
Effects of exchange rate changes	(146)	1,293	(1,439)
Net change in cash and cash equivalents	\$ 11,768	\$ (8,978)	\$ 20,746

Net cash provided by operating activities totaled \$49.2 million in the first nine months of 2018 versus \$35.5 million in the comparable prior-year period. Higher net income of \$22.0 million and working capital efficiencies resulted in the increase in cash provided by operating activities. Also, during the first nine months of 2018, we contributed \$38.0 million to our domestic pension plan, compared to a contribution of \$8.0 million in the first nine months of 2017.

Working capital requirements used cash of \$0.8 million during the first nine months of 2018 compared to a use of \$13.5 million in the first nine months of 2017. Cash flows used for accounts receivable were \$11.3 million less than the prior-year period, as the prior-year period included increases associated with the HTB acquisition. Our three-month trailing days sales outstanding was approximately 40 days at September 28, 2018 versus 37 days at December 31, 2017. Inventory levels decreased, primarily in our Performance Alloys and Composites segment, due to working capital initiatives resulting in cash provided of \$19.8 million at September 28, 2018 versus cash used of \$10.0 million in the prior year-period. Cash flows from accounts payable and accrued expenses used cash of \$10.3 million compared providing cash of \$18.0 million in the prior-year period primarily due to higher incentive compensation payments.

Net cash used in investing activities was \$27.0 million in the first nine months of 2018 compared to \$34.8 million in the prior-year period. The decrease is primarily due to the payment for the HTB acquisition in the prior-year period, partially offset by higher payments for property, plant, and equipment primarily relating to the our new, state-of-the-art target manufacturing facility in Alzenau, Germany.

Capital expenditures are made primarily for new product development, replacing and upgrading equipment, infrastructure investments, and implementing information technology initiatives. For the full year 2018, the Company expects payments for property, plant, and equipment to be approximately \$30.0 million and mine development expenditures to be approximately \$6.0 million.

Net cash used in financing activities totaled \$10.4 million in the first nine months of 2018 versus \$10.9 million used in financing activities in the comparable prior-year period. The absence of share repurchases in the first nine months of 2018 was partially offset by increased payments of withholding taxes on share-based compensation awards in the first nine months of 2018 versus the same period in 2017.

Liquidity

We believe cash flow from operations plus the available borrowing capacity and our current cash balance are adequate to support operating requirements, capital expenditures, projected pension plan contributions, the current dividend and share repurchase programs, environmental remediation projects, and strategic acquisitions. At September 28, 2018, cash and cash equivalents held by our foreign operations totaled \$12.4 million. We do not expect restrictions on repatriation of cash held outside of the United States to have a material effect on our overall liquidity, financial condition, or results of operations for the foreseeable future.

A summary of key data relative to our liquidity, including outstanding debt, cash, and available borrowing capacity, as of September 28, 2018 and December 31, 2017 is as follows:

(Thousands)	September 28, 2018	December 31, 2017
Cash	\$ 53,612	\$ 41,844
Total outstanding debt	3,306	3,818
Net cash (debt)	\$ 50,306	\$ 38,026
Available borrowing capacity	\$ 282,525	\$ 254,777

Net cash (debt) is a non-GAAP financial measure reflecting the Company's current liquidity position. It is also a measure our management uses to assess financing and other decisions. Non-GAAP financial measures, such as net cash (debt), have inherent limitations and should not be considered in isolation, or as a substitute for GAAP financial measures.

The available borrowing capacity in the table above represents the additional amounts that could be borrowed under our revolving credit facility and other secured lines existing as of the end of each period depicted. The applicable debt covenants have been taken into account when determining the available borrowing capacity, including the covenant that restricts the borrowing capacity to a multiple of the twelve-month trailing earnings before interest, income taxes, depreciation and amortization, and other adjustments. The main cause for the increase in the available borrowing capacity at September 28, 2018 as compared to December 31, 2017 was due to increased earnings before interest, income taxes, depreciation and amortization on a trailing 12-month basis.

In 2015, we entered into an amendment to our \$375.0 million revolving credit agreement (Credit Agreement). The amendment extends the maturity date of the Credit Agreement from 2018 to 2020 and provides more favorable pricing under certain circumstances. In addition, the amendment provides the Company and its subsidiaries with additional capacity to enter into facilities for the consignment, borrowing, or leasing of precious metals and copper, and provides enhanced flexibility to finance acquisitions and other strategic initiatives. The Credit Agreement is secured by substantially all of the assets of the Company and its direct subsidiaries, with the exception of non-mining real property and certain other assets. The Credit Agreement allows us to borrow money at a premium over LIBOR or the prime rate and at varying maturities. The premium resets quarterly according to the terms and conditions available under the Credit Agreement.

The Credit Agreement includes restrictive covenants including incurring restrictions on additional indebtedness, acquisitions, dividends, and stock repurchases. In addition, the Credit Agreement includes covenants subject to a maximum leverage ratio and a minimum fixed charge coverage ratio. We were in compliance with all of our debt covenants as of September 28, 2018 and December 31, 2017. Cash on hand does not affect the covenants or the borrowing capacity under our debt agreements.

Portions of our business utilize off-balance sheet consignment arrangements to finance metal requirements. Expansion of business volumes and/or higher metal prices can put pressure on the consignment line limitations from time to time. As a result, we have negotiated increases in the available capacity under existing lines, added additional lines, and extended the maturity dates of existing lines in recent years. The available and unused capacity under the metal financing lines totaled approximately \$132.0 million as of September 28, 2018. The availability is determined by Board approved levels and actual line capacity.

In January 2014, our Board of Directors approved a plan to repurchase up to \$50.0 million of our common stock. The timing of the share repurchases will depend on several factors, including market and business conditions, our cash flow, debt levels, and other investment opportunities. There is no minimum quantity requirement to repurchase our common stock for a given year, and the repurchases may be discontinued at any time. In the third quarter and first nine months of 2018, we did not

repurchase any of our common shares. Since the approval of the repurchase plan, we have purchased 1,082,264 shares at a total cost of \$34.3 million.

In the third quarter and first nine months of 2018, we paid cash dividends of \$2.1 million and \$6.3 million, respectively, on our common stock. We intend to pay a quarterly dividend on an ongoing basis, subject to a determination that the dividend remains in the best interest of our shareholders.

OFF-BALANCE SHEET ARRANGEMENTS AND CONTRACTUAL OBLIGATIONS

We maintain the majority of the precious metals and copper we use in production on a consignment basis in order to reduce our exposure to metal price movements and to reduce our working capital investment. The notional value of off-balance sheet precious metals and copper was \$318.0 million as of September 28, 2018, versus \$320.0 million as of December 31, 2017. We were in compliance with all of the covenants contained in the consignment agreements as of September 28, 2018 and December 31, 2017. For additional information on our contractual obligations, refer to our Form 10-K for the year ended December 31, 2017.

CRITICAL ACCOUNTING POLICIES

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires the inherent use of estimates and management's judgment in establishing those estimates. For additional information regarding critical accounting policies, please refer to our 2017 Annual Report on Form 10-K. Significant changes to our critical accounting estimates as a result of adopting Accounting Standards Update 2014-09, *Revenue from Contracts with Customers* (ASC 606), are discussed below.

Revenue Recognition

Net sales consist primarily of revenue from the sale of precious and non-precious specialty metals, beryllium and copper-based alloys, beryllium composites, and other products into numerous end markets. The Company requires an agreement with a customer that creates enforceable rights and performance obligations. We recognize revenue, in an amount that reflects the consideration to which the Company expects to be entitled, when we satisfy a performance obligation by transferring control of a product to the customer. The core principle of ASC 606 is supported by five steps which are outlined below with management's judgment in applying each.

1) Identify the contract with a customer

A contract with a customer exists when the Company enters into an enforceable contract with a customer that identifies each party's rights regarding the products to be transferred and the related payment terms related to these services, the contract has commercial substance, and the Company determines that collection of substantially all consideration for products that are transferred is probable based on the customer's intent and ability to pay.

Management exercises judgment in its assessment that it is probable that the Company will collect substantially all of the payment attributed to products or services that will be transferred to our customers. We regularly review the creditworthiness of our customers considering such factors as historical collection experience, a customer's current credit standing, the age of accounts receivable balances, and general economic conditions that may affect a customer's ability to pay. If after we have recognized revenue, collectability of an account receivable becomes doubtful, we establish appropriate allowances and reserves against accounts receivable with respect to the previously recognized revenue that remains uncollected. Allowances and reserves against accounts receivable are maintained for estimated probable losses and are sufficient enough to ensure that accounts receivable are stated at amounts that are considered collectible.

If management forms a judgment that a particular customer's financial condition has deteriorated but decides to deliver products or services to the customer, we will defer recognizing revenue relating to products sold to that customer until collectability is reasonably assured, which typically coincides with the collection of cash.

The Company recognizes revenue net of reserves for price adjustments, returns, and prompt payment discounts. Management generally estimates this amount using the expected value method. The Company has sufficient experience with our customers that provide predictive value that the reserves recorded are appropriate.

2) Identify the performance obligations in the contract

Performance obligations promised in a contract are identified based on the products that will be transferred to the customer that are both capable of being distinct, whereby the customer can benefit from the product either on its own or together with other resources that are readily available from third parties or from the Company, and are distinct in the context of the contract, whereby the transfer of the product is separately identifiable from other promises in the contract.

Certain of the Company's contracts with customers contain multiple performance obligations. As a result, management utilizes judgment to determine the appropriate accounting, including whether multiple promised products or services in a contract should be accounted for separately or as a group, how the consideration should be allocated among the performance obligations, and when to recognize revenue upon satisfaction of the performance obligations.

3) Determine the transaction price

The transaction price is determined based on the consideration to which the Company will be entitled in exchange for transferring services to the customer. The vast majority of our contracts contain fixed consideration terms. However, the Company also has contracts with customers that include variable consideration. Volume discounts and rebates are offered as an incentive to encourage additional purchases and customer loyalty. Volume discounts and rebates typically require a customer to purchase a specified quantity of products, after which the price of additional products decreases. These contracts include variable consideration because the total amount to be paid by the customer is not known at contract inception and is affected by the quantity of products ultimately purchased. As a result, management applies judgment to estimate the volume discounts based on experience with similar contracts, customers, and current sales forecasts. Also, the Company has contracts, primarily relating to its precious metal products, where the transaction price includes variable consideration at contract inception because it is calculated based on a commodity index at a specified date. Management exercises judgment to determine the minimum amount to be included in the transaction price. Variable consideration is included in the transaction price if, in the Company's judgment, it is probable that a significant future reversal of cumulative revenue under the contract will not occur.

4) Allocate the transaction price to performance obligations in the contract

If the contract contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. Contracts that contain multiple performance obligations require an allocation of the transaction price to each performance obligation based on the relative standalone selling price. The Company typically determines standalone selling price based on the price at which the performance obligation is sold separately. If the standalone selling price is not observable through past transactions, management uses judgment to estimate the standalone selling price taking into account available information such as market conditions and internally approved pricing guidelines related to the performance obligations.

5) Recognize revenue when or as the Company satisfies a performance obligation

Management applies the principle of control to determine whether the customer obtains control of a product as it is created and if revenue should be recognized over time. The vast majority of the Company's performance obligations are satisfied at a point in time when control of the product transfers to the customer. Control of the product is generally transferred to the customer when the Company has a present right to payment, the customer has legal title, the customer has physical possession, the customer has the significant risks and rewards of ownership, and the customer has accepted the product.

However, for certain contracts, particularly relating to the U.S. government and relating to specialized products with no alternative use, we generally recognize revenue over time as we procure the product because of continuous transfer of control to the customer. This continuous transfer of control to the customer is supported by a termination for convenience clause in the contract that allows the customer to unilaterally terminate the contract, pay the Company for costs incurred plus a reasonable profit, and take control of any work in process. We generally use the cost-to-cost measure of progress for these contracts because it best depicts the transfer of control to the customer which occurs as we incur costs on the related contracts. Under the cost-to-cost measure of progress, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligation. Therefore, revenue is recognized proportionally as costs are incurred for these contracts.

Other considerations

We receive payment from customers equal to the invoice price for most of our sales transactions.

Returned products are generally not accepted unless the customer notifies the Company in writing, and we authorize the product return by the customer.

Unearned revenue is recorded cash consideration from customers in advance of the shipment of the goods, which is a liability on our Consolidated Balance Sheets. This contract liability is subsequently reversed and the revenue, cost of sales, and gross margin are recorded when the Company has transferred control of the product to the customer. The related inventory also remains on our balance sheet until these revenue recognition criteria are met. Advanced billings are typically made in association with products with long manufacturing times and/or products paid relating to contracts with the government. Billings in advance of the shipments allow us to collect cash earlier than billing at the time of the shipment and, therefore, the collected cash can be used to reduce our investment in working capital. Refer to Note B of the Consolidated Financial Statement for additional details on our contract balances.

Forward-looking Statements

Portions of the narrative set forth in this document that are not statements of historical or current facts are forward-looking statements. Our actual future performance may materially differ from that contemplated by the forward-looking statements as a result of a variety of factors. These factors include, in addition to those mentioned elsewhere herein:

- Actual net sales, operating rates, and margins for 2018;
- The global economy, including the impact of tariffs, as well as other government actions;
- The impact of any U.S. Federal Government shutdowns and sequestrations;
- The condition of the markets which we serve, whether defined geographically or by segment, with the major market segments being: consumer electronics, industrial components, medical, automotive electronics, defense, telecommunications infrastructure, energy, commercial aerospace, and science;
- Changes in product mix and the financial condition of customers;
- Our success in developing and introducing new products and new product ramp-up rates;
- Our success in passing through the costs of raw materials to customers or otherwise mitigating fluctuating prices for those materials, including the impact of fluctuating prices on inventory values;
- Our success in identifying acquisition candidates and in acquiring and integrating such businesses, including our ability to effectively integrate the acquisition of the high-performance target materials business of the Heraeus Group;
- The impact of the results of acquisitions on our ability to fully achieve the strategic and financial objectives related to these acquisitions;
- Our success in implementing our strategic plans and the timely and successful completion and start-up of any capital projects;
- Other financial and economic factors, including the cost and availability of raw materials (both base and precious metals), physical inventory valuations, metal financing fees, tax rates, exchange rates, pension costs and required cash contributions and other employee benefit costs, energy costs, regulatory compliance costs, the cost and availability of insurance, credit availability, and the impact of the Company's stock price on the cost of incentive compensation plans;
- The uncertainties related to the impact of war, terrorist activities, and acts of God;

- Changes in government regulatory requirements and the enactment of new legislation that impacts our obligations and operations;
- The conclusion of pending litigation matters in accordance with our expectation that there will be no material adverse effects; and
- The risk factors set forth in Part 1, Item 1A of our 2017 Annual Report on Form 10-K.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

For information regarding market risks, refer to Item 7A. Quantitative and Qualitative Disclosures About Market Risk in our Annual Report on Form 10-K for the year ended December 31, 2017 . There have been no material changes in our market risks since the inclusion of this discussion in our Annual Report on Form 10-K.

Item 4. Controls and Procedures

a) Evaluation of Disclosure Controls and Procedures

The Company carried out an evaluation under the supervision and with participation of the Company's management, including the chief executive officer and chief financial officer, of the effectiveness of the design and operation of disclosure controls and procedures as of September 28, 2018 pursuant to Rule 13a-15(b) and 15d-15(b) under the Securities Exchange Act of 1934, as amended (Exchange Act). Based on that evaluation, management, including the chief executive officer and chief financial officer, concluded that disclosure controls and procedures are effective as of September 28, 2018 .

b) Changes in Internal Control over Financial Reporting

There have been no changes in the Company's internal control over financial reporting that occurred during the quarter ended September 28, 2018 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

The Company adopted the new revenue recognition guidance under ASC 606 on January 1, 2018. Although the adoption of ASC 606 did not have a material impact on the Company's financial results, changes to the Company's processes and controls related to revenue recognition were implemented. These changes included creating new accounting policies based on the five-step model of ASC 606, implementing ongoing contract review requirements, and gathering information necessary for disclosures.

PART II OTHER INFORMATION

Item 1. Legal Proceedings

Our subsidiaries and our holding company are subject, from time to time, to a variety of civil and administrative proceedings arising out of our normal operations, including, without limitation, product liability claims, health, safety, and environmental claims, and employment-related actions. Among such proceedings are cases alleging that plaintiffs have contracted, or have been placed at risk of contracting, beryllium sensitization or chronic beryllium disease or other lung conditions as a result of exposure to beryllium (beryllium cases). The plaintiffs in beryllium cases seek recovery under negligence and various other legal theories and demand compensatory and often punitive damages, in many cases of an unspecified sum. Spouses of some plaintiffs claim loss of consortium.

The information presented in the Legal Proceedings section of Note N ("Contingencies") of the Notes to Consolidated Financial Statements (Unaudited) is incorporated herein by reference.

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

The following table presents information with respect to repurchases of common stock made by us during the three months ended September 28, 2018 .

Period	Total Number of Shares Purchased (1)	Average Price Paid per Share (1)	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs (2)	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs (2)
June 30 through August 3, 2018	3,179	\$ 62.26	—	\$ 15,703,744
August 4 through August 31, 2018	679	62.66	—	15,703,744
September 1 through September 28, 2018	—	—	—	15,703,744
Total	3,858	\$ 62.33	—	\$ 15,703,744

- (1) Includes 3,179 and 679 shares surrendered to the Company in July and August, respectively, by employees to satisfy tax withholding obligations on equity awards issued under the Company's stock incentive plan.
- (2) On January 14, 2014, we announced that our Board of Directors had authorized the repurchase of up to \$50.0 million of our common stock. We did not repurchase any shares under this program during the third quarter of 2018. As of September 28, 2018, \$15.7 million may still be purchased under the program.

Item 4. Mine Safety Disclosures

Information concerning mine safety violations or other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 104 of Regulation S-K (17 CFR 229.104) is included in Exhibit 95 to this quarterly report on Form 10-Q.

Item 6. Exhibits

31.1	<u>Certification of Chief Executive Officer required by Rule 13a-14(a) or 15d-14(a)</u> *
31.2	<u>Certification of Chief Financial Officer required by Rule 13a-14(a) or 15d-14(a)</u> *
32	<u>Certifications of Chief Executive Officer and Chief Financial Officer required by 18 U.S.C. Section 1350</u> *
95	<u>Mine Safety Disclosure Pursuant to Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act for the period ended September 28, 2018</u> *
101.INS	XBRL Instance Document*
101.SCH	XBRL Taxonomy Extension Schema Document*
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document*
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document*
101.LAB	XBRL Taxonomy Extension Label Linkbase Document*
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document*

*Submitted electronically herewith.

SIGNATURES

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

MATERION CORPORATION

Dated: October 25, 2018

/s/ Joseph P. Kelley

Joseph P. Kelley

Vice President, Finance and Chief Financial Officer
(Principal Financial and Accounting Officer)

CERTIFICATIONS

I, Jugal K. Vijayvargiya, certify that:

- 1) I have reviewed this quarterly report on Form 10-Q of Materion Corporation (the “registrant”);
- 2) Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
- 3) Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
- 4) The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and
- 5) The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):
 - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and
 - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Dated: October 25, 2018

/s/ Jugal K. Vijayvargiya

Jugal K. Vijayvargiya

President and Chief Executive Officer

CERTIFICATIONS

I, Joseph P. Kelley, certify that:

- 1) I have reviewed this quarterly report on Form 10-Q of Materion Corporation (the “registrant”);
- 2) Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
- 3) Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
- 4) The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and
- 5) The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):
 - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and
 - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Dated: October 25, 2018

/s/ Joseph P. Kelley

Joseph P. Kelley

Vice President, Finance and Chief Financial Officer

**Certification Pursuant to
18 U.S.C. Section 1350,
As Adopted Pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002**

Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, in connection with the filing of the Quarterly Report on Form 10-Q of Materion Corporation (the “Company”) for the quarter ended September 28, 2018 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), each of the undersigned officers of the Company certifies that, to such officer’s knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)), and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of the dates and for the periods expressed in the Report.

Dated: October 25, 2018

/s/ Jugal K. Vijayvargiya

Jugal K. Vijayvargiya

President and Chief Executive Officer

/s/ Joseph P. Kelley

Joseph P. Kelley

Vice President, Finance and Chief Financial Officer

Materion Corporation

**Mine Safety Disclosure Pursuant to Section 1503(a) of the Dodd-Frank Wall Street Reform and
Consumer Protection Act for the Fiscal Quarter Ended September 28, 2018**

Materion Natural Resources Inc., a wholly owned subsidiary, operates a beryllium mining complex in the State of Utah which is regulated by both the U.S. Mine Safety and Health Administration (“MSHA”) and state regulatory agencies. We endeavor to conduct our mining and other operations in compliance with all applicable federal, state and local laws and regulations. We present information below regarding certain mining safety and health citations which MSHA has levied with respect to our mining operations.

Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act (“Section 1503(a)”) requires the Company to present certain information regarding mining safety in its periodic reports filed with the Securities and Exchange Commission.

The following table reflects citations, orders and notices issued to Materion Natural Resources Inc. by MSHA during the fiscal quarter ended September 28, 2018 (the “Reporting Period”) and contains certain additional information as required by Section 1503(a) and Item 104 of Regulation S-K, including information regarding mining-related fatalities, proposed assessments from MSHA and legal actions (“Legal Actions”) before the Federal Mine Safety and Health Review Commission, an independent adjudicative agency that provides administrative trial and appellate review of legal disputes arising under the Mine Act.

Included below is the information required by Section 1503(a) with respect to the beryllium mining complex (MSHA Identification Number 4200706) for the Reporting Period:

(A)	Total number of alleged violations of mandatory health or safety standards that could significantly and substantially contribute to the cause and effect of a mine safety or health hazard under Section 104 of the Mine Act for which Materion Natural Resources Inc. received a citation from MSHA	0
(B)	Total number of orders issued under Section 104(b) of the Mine Act	0
(C)	Total number of citations and orders for alleged unwarrantable failure by Materion Natural Resources Inc. to comply with mandatory health or safety standards under Section 104(d) of the Mine Act	0
(D)	Total number of alleged flagrant violations under Section 110(b)(2) of the Mine Act	0
(E)	Total number of imminent danger orders issued under Section 107(a) of the Mine Act	0
(F)	Total dollar value of proposed assessments from MSHA under the Mine Act	\$0
(G)	Total number of mining-related fatalities	0
(H)	Received notice from MSHA of a pattern of violations under Section 104(e) of the Mine Act	No
(I)	Received notice from MSHA of the potential to have a pattern of violations under Section 104(e) of the Mine Act	No
(J)	Total number of Legal Actions pending as of the last day of the Reporting Period	0
(K)	Total number of Legal Actions instituted during the Reporting Period	0
(L)	Total number of Legal Actions resolved during the Reporting Period	0