Section 1: 10-Q (10-Q)

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 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 30, 2019

OR

☐ **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 001-32597

CF INDUSTRIES HOLDINGS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**20-2697511**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
4 Parkway North, Suite 400 **Deerfield, Illinois**	**60015**
(Address of principal executive offices)	(Zip Code)

(847) 405-2400
(Registrant's telephone number, including area code)

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

Title of each class	Trading symbol(s)	Name of each exchange on which registered
common stock, par value $0.01 per share	CF	New York Stock Exchange

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	☒	Accelerated filer	☐	Non-accelerated filer	☐	Smaller reporting company	☐	Emerging growth company	☐

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

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

217,431,811 shares of the registrant’s common stock, par value $0.01 per share, were outstanding at October 28, 2019.

CF INDUSTRIES HOLDINGS, INC.

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CF INDUSTRIES HOLDINGS, INC.

PART I—FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS.

CONSOLIDATED STATEMENTS OF OPERATIONS

(Unaudited)

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
	(in millions, except per share amounts)			
Net sales	$ 1,038	$ 1,040	$ 3,541	$ 3,297
Cost of sales	810	867	2,594	2,622
Gross margin	228	173	947	675
Selling, general and administrative expenses	56	53	176	163
Other operating—net	(30)	(11)	(63)	(29)
Total other operating costs and expenses	26	42	113	134
Equity in (losses) earnings of operating affiliate	(14)	5	(6)	30
Operating earnings	188	136	828	571
Interest expense	63	59	182	180
Interest income	(4)	(4)	(12)	(9)
Other non-operating—net	(4)	(2)	(7)	(6)
Earnings before income taxes	133	83	665	406
Income tax provision	19	12	113	73
Net earnings	114	71	552	333
Less: Net earnings attributable to noncontrolling interests	49	41	114	92
Net earnings attributable to common stockholders	$ 65	$ 30	$ 438	$ 241
Net earnings per share attributable to common stockholders:				
Basic	$ 0.29	$ 0.13	$ 1.98	$ 1.03
Diluted	$ 0.29	$ 0.13	$ 1.97	$ 1.03
Weighted-average common shares outstanding:				
Basic	219.0	233.5	221.2	233.8
Diluted	220.7	235.2	222.5	234.9
Dividends declared per common share	$ 0.30	$ 0.30	$ 0.90	$ 0.90

See accompanying Notes to Unaudited Consolidated Financial Statements.

CF INDUSTRIES HOLDINGS, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(Unaudited)

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
	(in millions)			
Net earnings	$ 114	$ 71	$ 552	$ 333
Other comprehensive (loss) income:				
Foreign currency translation adjustment—net of taxes	(32)	—	(8)	(50)
Unrealized loss on securities—net of taxes	—	—	—	(1)
Defined benefit plans—net of taxes	2	1	5	7
	(30)	1	(3)	(44)
Comprehensive income	84	72	549	289
Less: Comprehensive income attributable to noncontrolling interests	49	41	114	92
Comprehensive income attributable to common stockholders	$ 35	$ 31	$ 435	$ 197

See accompanying Notes to Unaudited Consolidated Financial Statements.

CF INDUSTRIES HOLDINGS, INC.

CONSOLIDATED BALANCE SHEETS

	(Unaudited) September 30, 2019	December 31, 2018
	(in millions, except share and per share amounts)	
Assets		
Current assets:		
Cash and cash equivalents	$ 1,019	$ 682
Accounts receivable—net	311	235
Inventories	296	309
Prepaid income taxes	17	28
Other current assets	26	20
Total current assets	1,669	1,274
Property, plant and equipment—net	8,247	8,623
Investment in affiliate	87	93
Goodwill	2,344	2,353
Operating lease right-of-use assets	264	—
Other assets	291	318
Total assets	$ 12,902	$ 12,661
Liabilities and Equity		
Current liabilities:		
Accounts payable and accrued expenses	$ 459	$ 545
Income taxes payable	7	5
Customer advances	184	149
Current operating lease liabilities	87	—
Current maturities of long-term debt	499	—
Other current liabilities	9	6
Total current liabilities	1,245	705
Long-term debt, net of current maturities	4,204	4,698
Deferred income taxes	1,235	1,117
Operating lease liabilities	181	—
Other liabilities	356	410
Equity:		
Stockholders’ equity:		
Preferred stock—$0.01 par value, 50,000,000 shares authorized	—	—
Common stock—$0.01 par value, 500,000,000 shares authorized, 2019—219,375,306 shares issued and 2018—233,800,903 shares issued	2	2
Paid-in capital	1,317	1,368
Retained earnings	2,109	2,463
Treasury stock—at cost, 2019—1,534,045 shares and 2018—10,982,408 shares	(74)	(504)
Accumulated other comprehensive loss	(374)	(371)
Total stockholders’ equity	2,980	2,958
Noncontrolling interest	2,701	2,773
Total equity	5,681	5,731
Total liabilities and equity	$ 12,902	$ 12,661

See accompanying Notes to Unaudited Consolidated Financial Statements.

CF INDUSTRIES HOLDINGS, INC.

CONSOLIDATED STATEMENTS OF EQUITY

(Unaudited)

	Common Stockholders							
	$0.01 Par Value Common Stock	Treasury Stock	Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Total Stockholders' Equity	Noncontrolling Interest	Total Equity
	(in millions, except per share amounts)							
Balance as of June 30, 2019	$ 2	$ (2)	$ 1,299	$ 2,111	$ (344)	$ 3,066	$ 2,752	$ 5,818
Net earnings	—	—	—	65	—	65	49	114
Other comprehensive loss	—	—	—	—	(30)	(30)	—	(30)
Purchases of treasury stock	—	(72)	—	—	—	(72)	—	(72)
Issuance of $0.01 par value common stock under employee stock plans	—	—	11	—	—	11	—	11
Stock-based compensation expense	—	—	7	—	—	7	—	7
Cash dividends ($0.30 per share)	—	—	—	(67)	—	(67)	—	(67)
Distribution declared to noncontrolling interest	—	—	—	—	—	—	(100)	(100)
Balance as of September 30, 2019	$ 2	$ (74)	$ 1,317	$ 2,109	$ (374)	$ 2,980	$ 2,701	$ 5,681
Balance as of December 31, 2018	$ 2	$ (504)	$ 1,368	$ 2,463	$ (371)	$ 2,958	$ 2,773	$ 5,731
Net earnings	—	—	—	438	—	438	114	552
Other comprehensive loss	—	—	—	—	(3)	(3)	—	(3)
Purchases of treasury stock	—	(250)	—	—	—	(250)	—	(250)
Retirement of treasury stock	—	682	(90)	(592)	—	—	—	—
Acquisition of treasury stock under employee stock plans	—	(4)	—	—	—	(4)	—	(4)
Issuance of $0.01 par value common stock under employee stock plans	—	2	15	—	—	17	—	17
Stock-based compensation expense	—	—	24	—	—	24	—	24
Cash dividends ($0.90 per share)	—	—	—	(200)	—	(200)	—	(200)
Distribution declared to noncontrolling interest	—	—	—	—	—	—	(186)	(186)
Balance as of September 30, 2019	$ 2	$ (74)	$ 1,317	$ 2,109	$ (374)	$ 2,980	$ 2,701	$ 5,681

(Continued)

CONSOLIDATED STATEMENTS OF EQUITY

(Continued) (Unaudited)

	Common Stockholders							
	$0.01 Par Value Common Stock	Treasury Stock	Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Total Stockholders' Equity	Noncontrolling Interests	Total Equity
	(in millions, except per share amounts)							
Balance as of June 30, 2018	$ 2	$ —	$ 1,349	$ 2,514	$ (309)	$ 3,556	$ 2,766	$ 6,322

Net earnings	—	—	—	30	—	30	41	71
Other comprehensive income	—	—	—	—	1	1	—	1
Purchases of treasury stock	—	(91)	—	—	—	(91)	—	(91)
Acquisition of treasury stock under employee stock plans	—	(1)	—	—	—	(1)	—	(1)
Issuance of $0.01 par value common stock under employee stock plans	—	—	6	—	—	6	—	6
Stock-based compensation expense	—	—	5	—	—	5	—	5
Cash dividends ($0.30 per share)	—	—	—	(70)	—	(70)	—	(70)
Distribution declared to noncontrolling interest	—	—	—	—	—	—	(80)	(80)
Balance as of September 30, 2018	$ 2	$ (92)	$ 1,360	$ 2,474	$ (308)	$ 3,436	$ 2,727	$ 6,163
Balance as of December 31, 2017	$ 2	$ —	$ 1,397	$ 2,443	$ (263)	$ 3,579	$ 3,105	$ 6,684
Adoption of ASU No. 2014-09	—	—	—	(1)	—	(1)	—	(1)
Adoption of ASU No. 2016-01	—	—	—	1	(1)	—	—	—
Net earnings	—	—	—	241	—	241	92	333
Other comprehensive loss	—	—	—	—	(44)	(44)	—	(44)
Purchases of treasury stock	—	(91)	—	—	—	(91)	—	(91)
Acquisition of treasury stock under employee stock plans	—	(1)	(1)	—	—	(2)	—	(2)
Issuance of $0.01 par value common stock under employee stock plans	—	—	10	—	—	10	—	10
Stock-based compensation expense	—	—	16	—	—	16	—	16
Cash dividends ($0.90 per share)	—	—	—	(210)	—	(210)	—	(210)
Acquisition of noncontrolling interests in TNCLP	—	—	(62)	—	—	(62)	(331)	(393)
Distribution declared to noncontrolling interests	—	—	—	—	—	—	(139)	(139)
Balance as of September 30, 2018	$ 2	$ (92)	$ 1,360	$ 2,474	$ (308)	$ 3,436	$ 2,727	$ 6,163

See accompanying Notes to Unaudited Consolidated Financial Statements.

CF INDUSTRIES HOLDINGS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	Nine months ended September 30,	
	2019	2018
	(in millions)	
Operating Activities:		
Net earnings	$ 552	$ 333
Adjustments to reconcile net earnings to net cash provided by operating activities:		
Depreciation and amortization	663	667
Deferred income taxes	116	37
Stock-based compensation expense	24	17
Unrealized net loss (gain) on natural gas derivatives	3	(11)
Unrealized loss on embedded derivative	3	2
Gain on disposal of property, plant and equipment	(43)	(1)
Undistributed losses (earnings) of affiliate—net of taxes	3	(5)
Changes in:		
Accounts receivable—net	(79)	31
Inventories	17	(3)
Accrued and prepaid income taxes	12	13
Accounts payable and accrued expenses	(67)	(26)
Customer advances	35	224
Other—net	(36)	(35)
Net cash provided by operating activities	1,203	1,243
Investing Activities:		
Additions to property, plant and equipment	(297)	(278)
Proceeds from sale of property, plant and equipment	71	19
Distributions received from unconsolidated affiliate	—	10
Insurance proceeds for property, plant and equipment	15	10
Other—net	—	1
Net cash used in investing activities	(211)	(238)
Financing Activities:		
Financing fees	—	1
Dividends paid on common stock	(200)	(210)
Acquisition of noncontrolling interests in TNCLP	—	(388)
Distributions to noncontrolling interests	(186)	(139)
Purchases of treasury stock	(280)	(87)
Issuances of common stock under employee stock plans	17	10
Shares withheld for taxes	(4)	(1)
Net cash used in financing activities	(653)	(814)
Effect of exchange rate changes on cash and cash equivalents	(2)	(4)
Increase in cash and cash equivalents	337	187
Cash and cash equivalents at beginning of period	682	835
Cash and cash equivalents at end of period	$ 1,019	$ 1,022

See accompanying Notes to Unaudited Consolidated Financial Statements.

NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS

1. Background and Basis of Presentation

We are a leading global fertilizer and chemical company. Our 3,000 employees operate world-class manufacturing complexes in Canada, the United Kingdom and the United States. Our principal customers are cooperatives, independent fertilizer distributors, traders, wholesalers, farmers and industrial users. Our principal nitrogen fertilizer products are ammonia, granular urea, urea ammonium nitrate solution (UAN) and ammonium nitrate (AN). Our other nitrogen products include diesel exhaust fluid (DEF), urea liquor, nitric acid and aqua ammonia, which are sold primarily to our industrial customers, and compound fertilizer products (NPKs), which are solid granular fertilizer products for which the nutrient content is a combination of nitrogen, phosphorus, and potassium. We serve our customers in North America through our production, storage, transportation and distribution network. We also reach a global customer base with exports from our Donaldsonville, Louisiana, plant, the world's largest and most flexible nitrogen complex. Additionally, we move product to international destinations from our Verdigris, Oklahoma, facility, our Yazoo City, Mississippi, facility, our Billingham and Ince facilities in the United Kingdom, and from a joint venture ammonia facility in the Republic of Trinidad and Tobago in which we own a 50 percent interest.

All references to "CF Holdings," "the Company," "we," "us" and "our" refer to CF Industries Holdings, Inc. and its subsidiaries, except where the context makes clear that the reference is only to CF Industries Holdings, Inc. itself and not its subsidiaries. All references to "CF Industries" refer to CF Industries, Inc., a 100% owned subsidiary of CF Industries Holdings, Inc.

The accompanying unaudited interim consolidated financial statements have been prepared on the same basis as our audited consolidated financial statements for the year ended December 31, 2018, in accordance with U.S. generally accepted accounting principles (GAAP) for interim financial reporting. In the opinion of management, these statements reflect all adjustments, consisting only of normal and recurring adjustments, that are necessary for the fair representation of the information for the periods presented. The accompanying unaudited interim consolidated financial statements have been prepared pursuant to the rules and regulations of the Securities and Exchange Commission (SEC). Certain information and disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted pursuant to such rules and regulations. Operating results for any period presented apply to that period only and are not necessarily indicative of results for any future period.

The accompanying unaudited interim consolidated financial statements should be read in conjunction with our audited consolidated financial statements and related disclosures included in our 2018 Annual Report on Form 10-K filed with the SEC on February 22, 2019. The preparation of the unaudited interim consolidated financial statements requires us to make use of estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent liabilities at the date of the unaudited consolidated financial statements and the reported revenues and expenses for the periods presented. Significant estimates and assumptions are used for, but are not limited to, net realizable value of inventories, environmental remediation liabilities, environmental and litigation contingencies, the cost of customer incentives, useful lives of property and identifiable intangible assets, the assumptions used in the evaluation of potential impairments of property, investments, identifiable intangible assets and goodwill, income tax and valuation reserves, allowances for doubtful accounts receivable, the measurement of the fair values of investments for which markets are not active, assumptions used in the determination of the funded status and annual expense of defined benefit pension and other postretirement benefit plans and the assumptions used in the valuation of stock-based compensation awards granted to employees.

2. New Accounting Standards

Recently Adopted Pronouncements

On January 1, 2019, we adopted Accounting Standards Update (ASU) No. 2016-02, Leases (Topic 842), which supersedes the lease accounting requirements in ASC Topic 840, Leases. This ASU requires lessees to recognize the rights and obligations resulting from virtually all leases (other than leases that meet the definition of a short-term lease) on their balance sheets as right-of-use assets with corresponding lease liabilities. Extensive quantitative and qualitative disclosures, including significant judgments made by management, are required to provide greater insight into the extent of income and expense recognized and expected to be recognized from existing contracts. We elected the optional transition method provided under ASU No. 2018-11, Leases (Topic 842): Targeted Improvements, which provides the option to adopt ASU No. 2016-02 as of the adoption date with a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. The cumulative effect adjustment we recognized in the opening balance of retained earnings as of January 1, 2019 was not material. In addition, we elected the package of practical expedients permitted under the transition guidance within ASU No. 2016-02, which allows us to carry forward the historical lease determination, lease classification, and assessment of initial direct costs. See Note 13—Leases for additional information.

On January 1, 2019, we adopted ASU No. 2017-12, Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities, which improves the financial reporting of hedging relationships in order to better portray the economic results of an entity's risk management activities in its financial statements. The adoption of this ASU had no effect on our consolidated financial statements.

Recently Issued Pronouncements

In August 2018, the Financial Accounting Standards Board issued ASU No. 2018-15, Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract. This ASU aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. This ASU does not affect the accounting for the service element of a hosting arrangement that is a service contract. The amendments in this ASU are effective for annual and interim periods beginning after December 15, 2019 and can be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. Early adoption is permitted. We plan to adopt this ASU prospectively. We do not expect that our adoption of this ASU on January 1, 2020 will have a material impact on our consolidated financial statements. However, this guidance could have an effect on future financial results if significant new software involving a cloud computing agreement is implemented. In this case, a certain portion of the implementation costs could be deferred and expensed over the term of the cloud computing arrangement.

3. Revenue Recognition

We track our revenue by product and by geography. See Note 17—Segment Disclosures for our revenue by reportable segment, which are ammonia, granular urea, UAN, AN and Other. The following table summarizes our revenue by product and by geography (based on destination of our shipment) for the three and nine months ended September 30, 2019 and 2018:

	Ammonia	Granular Urea	UAN	AN	Other	Total
	(in millions)					
Three months ended September 30, 2019						
North America	$ 152	$ 289	$ 278	$ 41	$ 63	$ 823
Europe and other	35	38	31	95	16	215
Total revenue	$ 187	$ 327	$ 309	$ 136	$ 79	$ 1,038
Three months ended September 30, 2018						
North America	$ 148	$ 292	$ 214	$ 45	$ 61	$ 760
Europe and other	44	61	56	94	25	280
Total revenue	$ 192	$ 353	$ 270	$ 139	$ 86	$ 1,040

	Ammonia	Granular Urea	UAN	AN	Other	Total
	(in millions)					
Nine months ended September 30, 2019						
North America	$ 755	$ 1,037	$ 866	$ 141	$ 190	$ 2,989
Europe and other	92	66	68	248	78	552
Total revenue	$ 847	$ 1,103	$ 934	$ 389	$ 268	$ 3,541
Nine months ended September 30, 2018						
North America	$ 665	$ 901	$ 750	$ 139	$ 184	$ 2,639
Europe and other	113	76	142	224	103	658
Total revenue	$ 778	$ 977	$ 892	$ 363	$ 287	$ 3,297

As of September 30, 2019 and December 31, 2018, we had $184 million and $149 million, respectively, in customer advances on our consolidated balance sheets. The increase in the balance of customer advances was due primarily to customer forward purchases in the third quarter of 2019. During the nine months ended September 30, 2019 and 2018, substantially all of our customer advances that were recorded at the beginning of each respective period were recognized as revenue.

We offer cash incentives to certain customers based on the volume of their purchases over a certain period. These incentives do not provide an option to the customer for additional product. The balances of customer incentives accrued at September 30, 2019 and December 31, 2018 were not material.

We have certain customer contracts with performance obligations where if the customer does not take the required amount of product specified in the contract, then the customer is required to make a payment to us, which may vary based upon the terms and conditions of the applicable contract. As of September 30, 2019, excluding contracts with original durations of less than one year, and based on the minimum product tonnage to be sold and current market price estimates, our remaining performance obligations under these contracts are approximately $1.2 billion. We expect to recognize approximately 7% of these performance obligations as revenue in the remainder of 2019, approximately 51% as revenue during 2020 and 2021, approximately 28% as revenue during 2022 and 2023, and the remainder thereafter. If these customers do not fulfill their contractual obligations under such contracts, the legally enforceable minimum amount that they would pay to us under these contracts, in the aggregate, is approximately $300 million as of September 30, 2019. Other than the performance obligations described above, any performance obligations with our customers that were unfulfilled or partially filled at December 31, 2018 will be satisfied in 2019.

4. Net Earnings Per Share

Net earnings per share were computed as follows:

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
	(in millions, except per share amounts)			
Net earnings attributable to common stockholders	$ 65	$ 30	$ 438	$ 241
Basic earnings per common share:				
Weighted-average common shares outstanding	219.0	233.5	221.2	233.8
Net earnings attributable to common stockholders	$ 0.29	$ 0.13	$ 1.98	$ 1.03
Diluted earnings per common share:				
Weighted-average common shares outstanding	219.0	233.5	221.2	233.8
Dilutive common shares—stock options	1.7	1.7	1.3	1.1
Diluted weighted-average shares outstanding	220.7	235.2	222.5	234.9
Net earnings attributable to common stockholders	$ 0.29	$ 0.13	$ 1.97	$ 1.03

In the computation of diluted earnings per common share, potentially dilutive stock options are excluded if the effect of their inclusion is anti-dilutive. Shares for anti-dilutive stock options not included in the computation of diluted earnings per common share were 1.4 million and 1.5 million for the three and nine months ended September 30, 2019, respectively, and 1.5 million and 1.8 million for the three and nine months ended September 30, 2018, respectively.

5. Inventories

Inventories consist of the following:

	September 30, 2019	December 31, 2018
	(in millions)	
Finished goods	$ 253	$ 272
Raw materials, spare parts and supplies	43	37
Total inventories	$ 296	$ 309

6. Property, Plant and Equipment—Net

Property, plant and equipment—net consists of the following:

	September 30, 2019	December 31, 2018
	(in millions)	
Land	$ 69	$ 69
Machinery and equipment	12,176	12,127
Buildings and improvements	887	886
Construction in progress	249	225
Property, plant and equipment[1]	13,381	13,307
Less: Accumulated depreciation and amortization	5,134	4,684
Property, plant and equipment—net	$ 8,247	$ 8,623

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(1) As of September 30, 2019 and December 31, 2018, we had property, plant and equipment that was accrued but unpaid of approximately $61 million and $48 million, respectively. As of September 30, 2018 and December 31, 2017, we had property, plant and equipment that was accrued but unpaid of $66 million and $46 million, respectively.

During the first quarter of 2019, we entered into an agreement to sell our Pine Bend dry bulk storage and logistics facility in Minnesota. In April 2019, we completed the sale, received proceeds of $55 million and recognized a pre-tax gain of $45 million. The gain is reflected in other operating—net in our consolidated statement of operations for the nine months ended September 30, 2019.

Depreciation and amortization related to property, plant and equipment was $218 million and $648 million for the three and nine months ended September 30, 2019, respectively, and $227 million and $648 million for the three and nine months ended September 30, 2018, respectively.

Plant turnarounds—Scheduled inspections, replacements and overhauls of plant machinery and equipment at our continuous process manufacturing facilities during a full plant shutdown are referred to as plant turnarounds. The expenditures related to turnarounds are capitalized in property, plant and equipment when incurred. The following is a summary of capitalized plant turnaround costs:

	Nine months ended September 30,	
	2019	2018
	(in millions)	
Net capitalized turnaround costs:		
Beginning balance	$ 252	$ 208
Additions	94	95
Depreciation	(85)	(83)
Effect of exchange rate changes	—	1
Ending balance	$ 261	$ 221

Scheduled replacements and overhauls of plant machinery and equipment include the dismantling, repair or replacement and installation of various components including piping, valves, motors, turbines, pumps, compressors, heat exchangers and the replacement of catalysts when a full plant shutdown occurs. Scheduled inspections are also conducted during full plant shutdowns, including required safety inspections which entail the disassembly of various components such as steam boilers, pressure vessels and other equipment requiring safety certifications. Internal employee costs and overhead amounts are not considered turnaround costs and are not capitalized.

7. Goodwill and Other Intangible Assets

The following table shows the carrying amount of goodwill by reportable segment as of September 30, 2019 and December 31, 2018:

	Ammonia	Granular Urea	UAN	AN	Other	Total
			(in millions)			
Balance as of December 31, 2018	$ 586	$ 828	$ 576	$ 292	$ 71	$ 2,353
Effect of exchange rate changes	(1)	—	—	(7)	(1)	(9)
Balance as of September 30, 2019	$ 585	$ 828	$ 576	$ 285	$ 70	$ 2,344

All of our identifiable intangible assets have definite lives and are presented in other assets on our consolidated balance sheets at gross carrying amount, net of accumulated amortization, as follows:

	September 30, 2019			December 31, 2018		
	Gross Carrying Amount	Accumulated Amortization	Net	Gross Carrying Amount	Accumulated Amortization	Net
			(in millions)			
Customer relationships	$ 125	$ (42)	$ 83	$ 127	$ (37)	$ 90
TerraCair brand	—	—	—	10	(10)	—
Trade names	29	(6)	23	30	(5)	25
Total intangible assets	$ 154	$ (48)	$ 106	$ 167	$ (52)	$ 115

Our intangible assets are being amortized over a weighted-average life of approximately 20 years. Amortization expense of our identifiable intangible assets was $2 million and $6 million for the three and nine months ended September 30, 2019, respectively, and $1 million and $6 million for the three and nine months ended September 30, 2018, respectively. The gross carrying amount and accumulated amortization of our intangible assets are also impacted by the effect of exchange rate changes. Total estimated amortization expense for the remainder of 2019 and each of the five succeeding fiscal years is as follows:

	Estimated Amortization Expense
	(in millions)
Remainder of 2019	$ 2
2020	8
2021	8
2022	8
2023	8
2024	8

8. Equity Method Investment

We have a 50% ownership interest in Point Lisas Nitrogen Limited (PLNL), which operates an ammonia production facility in the Republic of Trinidad and Tobago. We include our share of the net earnings from this equity method investment as an element of earnings from operations because PLNL provides additional production to our operations and is integrated with our other supply chain and sales activities in the ammonia segment.

As of September 30, 2019, the total carrying value of our equity method investment in PLNL was $87 million, $46 million more than our share of PLNL's book value. The excess is attributable to the purchase accounting impact of our acquisition of the investment in PLNL and reflects the revaluation of property, plant and equipment. The increased basis for property, plant and equipment is being amortized over a remaining period of approximately 14 years. Our equity in earnings of PLNL is different from our ownership interest in income reported by PLNL due to amortization of this basis difference.

We have transactions in the normal course of business with PLNL reflecting our obligation to purchase 50% of the ammonia produced by PLNL at current market prices. Our ammonia purchases from PLNL totaled $12 million and $46 million

for the three and nine months ended September 30, 2019, respectively, and $21 million and $59 million for the three and nine months ended September 30, 2018, respectively.

The Trinidadian tax authority (the Board of Inland Revenue) issued a proposed tax assessment against PLNL with respect to tax years 2011 and 2012 in the amount of approximately $12 million. The proposed assessment asserts that PLNL should have withheld tax on dividends paid to its Trinidadian owners. Statutory interest and penalties related to the proposed assessment with respect to tax years 2011 and 2012, bring the proposed assessment to an aggregate amount of approximately $22 million. As we own a 50% interest in PLNL, our effective share of any assessment that is determined to be a liability of PLNL would be 50%, which would be reflected as a reduction in our equity in earnings of PLNL. During the third quarter of 2019, the Trinidadian government offered a tax amnesty period, which provided taxpayers the opportunity to pay any prior year tax obligations and avoid accumulated interest or penalties. During the tax amnesty period, PLNL evaluated the proposed assessment, including considering the outcome of certain recent legal cases involving other taxpayers. As a result of this evaluation, PLNL paid withholding tax to the Board of Inland Revenue under the amnesty program for tax years 2011 to the current period, and recognized a charge for $32 million. Our 50% share of PLNL's tax charge is $16 million, which reduced our equity in earnings of operating affiliate for the three and nine months ended September 30, 2019.

PLNL operates an ammonia plant that relies on natural gas supplied, under a Gas Sales Contract (the NGC Contract), by The National Gas Company of Trinidad and Tobago Limited (NGC). PLNL experienced past curtailments in the supply of natural gas from NGC, which reduced historical ammonia production at PLNL. The NGC Contract had an initial expiration date of September 2018 and was extended on the same terms until September 2023. Any NGC commitment to supply gas beyond 2023 will be based on new agreements. In May 2018, the NGC and PLNL reached a settlement of an arbitration proceeding regarding PLNL's claims for damages due to the natural gas supply curtailments. The net after-tax impact of the settlement reached between NGC and PLNL that is recognized in our consolidated statement of operations for the nine months ended September 30, 2018 was an increase in our equity in earnings of operating affiliate of approximately $19 million.

9. Fair Value Measurements

Our cash and cash equivalents and other investments consist of the following:

	September 30, 2019			
	Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
	(in millions)			
Cash	$ 99	$ —	$ —	$ 99
Cash equivalents:				
U.S. and Canadian government obligations	899	—	—	899
Other debt securities	21	—	—	21
Total cash and cash equivalents	$ 1,019	$ —	$ —	$ 1,019
Nonqualified employee benefit trusts	17	2	—	19

	December 31, 2018			
	Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
	(in millions)			
Cash	$ 34	$ —	$ —	$ 34
Cash equivalents:				
U.S. and Canadian government obligations	623	—	—	623
Other debt securities	25	—	—	25
Total cash and cash equivalents	$ 682	$ —	$ —	$ 682
Nonqualified employee benefit trusts	17	2	—	19

Under our short-term investment policy, we may invest our cash balances, either directly or through mutual funds, in several types of investment-grade securities, including notes and bonds issued by governmental entities or corporations. Securities issued by governmental entities include those issued directly by the U.S. and Canadian federal governments; those issued by state, local or other governmental entities; and those guaranteed by entities affiliated with governmental entities.

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The following tables present assets and liabilities included in our consolidated balance sheets as of September 30, 2019 and December 31, 2018 that are recognized at fair value on a recurring basis, and indicate the fair value hierarchy utilized to determine such fair value:

	September 30, 2019			
	Total Fair Value	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in millions)			
Cash equivalents	$ 920	$ 920	$ —	$ —
Nonqualified employee benefit trusts	19	19	—	—
Embedded derivative liability	(24)	—	(24)	—

	December 31, 2018			
	Total Fair Value	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in millions)			
Cash equivalents	$ 648	$ 648	$ —	$ —
Nonqualified employee benefit trusts	19	19	—	—
Embedded derivative liability	(21)	—	(21)	—

Cash Equivalents

As of September 30, 2019 and December 31, 2018, our cash equivalents consisted primarily of U.S. and Canadian government obligations and money market mutual funds that invest in U.S. government obligations and other investment-grade securities.

Nonqualified Employee Benefit Trusts

We maintain trusts associated with certain nonqualified supplemental pension plans. The fair values of the trust assets are based on daily quoted prices in an active market, which represents the net asset values of the shares held in the trusts, and are included on our consolidated balance sheets in other assets. Debt securities are accounted for as available-for-sale securities. Changes in the fair value of equity securities in the trust assets are recognized through earnings.

Embedded Derivative Liability

Under the terms of our strategic venture with CHS Inc. (CHS), if our credit rating as determined by two of three specified credit rating agencies is below certain levels, we are required to make a non-refundable yearly payment of $5 million to CHS. Since our credit ratings were below certain levels in 2016, 2017 and 2018, we made a payment of $5 million to CHS in the fourth quarter of each year. These payments will continue on a yearly basis until the earlier of the date that our credit rating is upgraded to or above certain levels by two of the three specified credit rating agencies or February 1, 2026. This obligation is recognized on our consolidated balance sheets as an embedded derivative. As of September 30, 2019 and December 31, 2018, the embedded derivative liability of $24 million and $21 million, respectively, is included in other current liabilities and other liabilities on our consolidated balance sheets. Included in other operating—net in our consolidated statement of operations for the nine months ended September 30, 2019 and 2018 is a net loss of $3 million and $2 million, respectively.

The inputs into the fair value measurement include the probability of future upgrades and downgrades of our credit rating based on historical credit rating movements of other public companies and the discount rates to be applied to potential annual payments based on applicable credit spreads of other public companies at different credit rating levels. Based on these inputs, our fair value measurement is classified as Level 2.

See Note 14—Noncontrolling Interests for additional information regarding our strategic venture with CHS.

Financial Instruments

The carrying amount and estimated fair value of our financial instruments are as follows:

	September 30, 2019		December 31, 2018	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
	(in millions)			
Long-term debt	$ 4,703	$ 4,893	$ 4,698	$ 4,265

The fair value of our long-term debt was based on quoted prices for identical or similar liabilities in markets that are not active or valuation models in which all significant inputs and value drivers are observable and, as a result, they are classified as Level 2 inputs.

The carrying amounts of cash and cash equivalents, as well as instruments included in other current assets and other current liabilities that meet the definition of financial instruments, approximate fair values because of their short-term maturities.

Assets and Liabilities Measured at Fair Value on a Nonrecurring Basis

We also have assets and liabilities that may be measured at fair value on a nonrecurring basis; that is, the assets and liabilities are not measured at fair value on an ongoing basis, but are subject to fair value adjustments in certain circumstances, such as when there is evidence of impairment, when there is allocation of purchase price in an acquisition or when a new liability is being established that requires fair value measurement. These include long-lived assets, goodwill and other intangible assets and investments in unconsolidated subsidiaries, such as equity method investments, which may be written down to fair value as a result of impairment. The fair value measurements related to each of these rely primarily on Company-specific inputs and the Company’s assumptions about the use of the assets. Since certain of the Company’s assumptions would involve inputs that are not observable, these fair values would reside within Level 3 of the fair value hierarchy.

10. Income Taxes

For the three months ended September 30, 2019, we recorded an income tax provision of $19 million on pre-tax income of $133 million, or an effective tax rate of 14.6%, compared to an income tax provision of $12 million on pre-tax income of $83 million, or an effective tax rate of 15.3%, for the three months ended September 30, 2018.

For the nine months ended September 30, 2019, our income tax provision includes an incentive tax credit from the State of Louisiana of $30 million, net of federal income tax, related to certain capital projects at our Donaldsonville, Louisiana complex.

Our effective tax rate is also impacted by earnings attributable to the noncontrolling interest in CF Industries Nitrogen, LLC (CFN), as our consolidated income tax provision does not include a tax provision on the earnings attributable to the noncontrolling interest. Our effective tax rate for the three months ended September 30, 2019 of 14.6%, which is based on pre-tax income of $133 million, would be 23.1% exclusive of the earnings attributable to the noncontrolling interest of $49 million. Our effective tax rate for the three months ended September 30, 2018 of 15.3%, which is based on pre-tax income of $83 million, would be 29.4% exclusive of the earnings attributable to the noncontrolling interest of $41 million. See Note 14—Noncontrolling Interests for additional information.

11. Interest Expense

Details of interest expense are as follows:

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
	(in millions)			
Interest on borrowings[1]	$ 57	$ 57	$ 171	$ 171
Fees on financing agreements[1]	4	3	10	10
Interest on tax liabilities	3	(1)	3	—
Interest capitalized	(1)	—	(2)	(1)
Total interest expense	$ 63	$ 59	$ 182	$ 180

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(1) See Note 12—Financing Agreements for additional information.

12. Financing Agreements

Revolving Credit Agreement

We have a senior secured revolving credit agreement (the Revolving Credit Agreement) providing for a revolving credit facility of up to $750 million with a maturity of September 18, 2020. The Revolving Credit Agreement includes a letter of credit sub-limit of $125 million. Borrowings under the Revolving Credit Agreement may be used for working capital and general corporate purposes. CF Industries, the borrower under the Revolving Credit Agreement, may also designate as borrowers one or more wholly owned subsidiaries that are organized in the United States or any state thereof or the District of Columbia.

Borrowings under the Revolving Credit Agreement may be denominated in U.S. dollars, Canadian dollars, euros and British pounds, and bear interest at a per annum rate equal to an applicable eurocurrency rate or base rate plus, in either case, a specified margin, and the borrowers are required to pay an undrawn commitment fee on the undrawn portion of the commitments under the Revolving Credit Agreement and customary letter of credit fees. The specified margin and the amount of the commitment fee depend on CF Holdings' credit rating at the time.

The guarantors under the Revolving Credit Agreement are currently comprised of CF Holdings and CF Holdings' wholly owned subsidiaries CF Industries Enterprises, LLC (CFE), CF Industries Sales, LLC (CFS), CF USA Holdings, LLC (CF USA) and CF Industries Distribution Facilities, LLC (CFIDF).

As of September 30, 2019, we had excess borrowing capacity under the Revolving Credit Agreement of $750 million and no outstanding letters of credit. There were no borrowings outstanding under the Revolving Credit Agreement as of September 30, 2019 or December 31, 2018, or during the nine months ended September 30, 2019.

The Revolving Credit Agreement contains representations and warranties and affirmative and negative covenants, including financial covenants. As of September 30, 2019, we were in compliance with all covenants under the Revolving Credit Agreement.

Letters of Credit

In addition to the letter of credit capacity under the Revolving Credit Agreement, as described above, we have also entered into a bilateral agreement with capacity to issue letters of credit up to $145 million (reflecting an increase of $20 million in January 2019). As of September 30, 2019, approximately $128 million of letters of credit were outstanding under this agreement.

Senior Notes

Long-term debt, including current maturities of long-term debt, presented on our consolidated balance sheets as of September 30, 2019 and December 31, 2018 consisted of the following Public Senior Notes (unsecured) and Senior Secured Notes issued by CF Industries:

	Effective Interest Rate	September 30, 2019		December 31, 2018	
		Principal	Carrying Amount [1]	Principal	Carrying Amount [1]
		(in millions)			
Public Senior Notes:					
7.125% due May 2020	7.529%	$ 500	$ 499	$ 500	$ 497
3.450% due June 2023	3.562%	750	747	750	747
5.150% due March 2034	5.279%	750	740	750	740
4.950% due June 2043	5.031%	750	742	750	741
5.375% due March 2044	5.465%	750	741	750	741
Senior Secured Notes:					
3.400% due December 2021	3.782%	500	496	500	495
4.500% due December 2026	4.759%	750	738	750	737
Total long-term debt		$ 4,750	$ 4,703	$ 4,750	$ 4,698
Less: Current maturities of long-term debt		500	499	—	—
Long-term debt, net of current maturities		$ 4,250	$ 4,204	$ 4,750	$ 4,698

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[1] Carrying amount is net of unamortized debt discount and deferred debt issuance costs. Total unamortized debt discount was $10 million and $11 million as of September 30, 2019 and December 31, 2018, respectively, and total deferred debt issuance costs were $37 million and $41 million as of September 30, 2019 and December 31, 2018, respectively.

Under the indentures (including the applicable supplemental indentures) governing the senior notes due 2020, 2023, 2034, 2043 and 2044 identified in the table above (the Public Senior Notes), each series of Public Senior Notes is guaranteed by CF Holdings and CF Holdings' wholly owned subsidiaries CFE, CFS, CF USA and CFIDF. CFE, CFS, CF USA and CFIDF became subsidiary guarantors of the Public Senior Notes as a result of their becoming guarantors under the Revolving Credit Agreement. Interest on the Public Senior Notes is payable semiannually, and the Public Senior Notes are redeemable at our option, in whole at any time or in part from time to time, at specified make-whole redemption prices.

See Note 19—Subsequent Events for additional information regarding the 7.125% senior notes due May 2020.

On November 21, 2016, CF Industries issued $500 million aggregate principal amount of 3.400% senior secured notes due 2021 (the 2021 Notes) and $750 million aggregate principal amount of 4.500% senior secured notes due 2026 (the 2026 Notes, and together with the 2021 Notes, the Senior Secured Notes). CF Holdings and the subsidiary guarantors of the Public Senior Notes are also guarantors of the Senior Secured Notes. Interest on the Senior Secured Notes is payable semiannually on December 1 and June 1, and the Senior Secured Notes are redeemable at our option, in whole at any time or in part from time to time, at specified make-whole redemption prices.

13. Leases

Right-of-use (ROU) assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. ROU assets and lease liabilities are recognized at the lease commencement date based on the present value of lease payments over the lease term. The discount rate used to calculate the present value represents our secured incremental borrowing rate and is calculated based on the treasury yield curve commensurate with the term of each lease, and a spread representative of our secured borrowing costs. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option.

For operating leases, rental payments, including rent holidays, leasehold incentives, and scheduled rent increases are expensed on a straight-line basis. For finance leases, if any, ROU assets are amortized over the lease term on a straight-line basis and interest expense is recognized using the effective interest method and based on the lease liability at period end. Leasehold improvements are amortized over the shorter of the depreciable lives of the corresponding fixed assets or the lease term including any applicable renewals. We have made an accounting policy election to not include leases with an initial term of 12 months or less on the balance sheet.

We have operating leases for certain property and equipment under various noncancelable agreements, the most significant of which are rail car leases and barge tow charters for the distribution of our products. The rail car leases currently have minimum terms ranging from one to eleven years and the barge tow charter commitments range from one to seven years. Our rail car leases and barge tow charters commonly contain provisions for automatic annual renewal that can extend the lease term unless canceled by either party. We also have operating leases for terminal and warehouse storage for our distribution system, some of which contain minimum throughput requirements. The storage agreements contain minimum terms generally ranging from one to five years and commonly contain provisions for automatic annual renewal thereafter unless canceled by either party. The renewal provisions for our rail car leases, barge tow charters and terminal and warehouse storage agreements are not reasonably certain to be exercised. For all rail car leases, barge tow charters, and terminal and warehouse storage agreements, we have made an accounting policy election to not separate lease and non-lease components, such as operating costs and maintenance, due to sufficient data not being available. As a result, the non-lease components are included in the ROU assets and lease liabilities on our balance sheet.

The components of lease costs were as follows:

	Three months ended September 30, 2019	Nine months ended September 30, 2019
	(in millions)	
Operating lease cost	$ 24	$ 71
Short-term lease cost	6	20
Variable lease cost	1	1
Total lease cost	$ 31	$ 92

Supplemental cash flow information related to leases was as follows:

	Nine months ended September 30, 2019
	(in millions)
Operating cash flows - cash paid for amounts included in the measurement of operating lease liabilities	$ 66
ROU assets obtained in exchange for operating lease obligations	36

Supplemental balance sheet information related to leases was as follows:

	September 30, 2019
	(in millions)
Operating lease ROU assets	$ 264
Current operating lease liabilities	$ 87
Operating lease liabilities	181
Total operating lease liabilities	$ 268

	September 30, 2019
Operating leases	
Weighted average remaining lease term	5 years
Weighted average discount rate[1]	4.9%

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[1] Upon adoption of the new lease accounting standard, discount rates used for existing leases were established at January 1, 2019. See Note 2—New Accounting Standards.

The following table reconciles the undiscounted cash flows for our operating leases to the operating lease liabilities recorded on our consolidated balance sheet as of September 30, 2019.

	Operating lease payments
	(in millions)
Remainder of 2019	$ 22
2020	86
2021	65
2022	42
2023	29
Thereafter	57
Total lease payments	301
Less: imputed interest	(33)
Total operating lease liabilities	268
Less: Current operating lease liabilities	(87)
Long-term operating lease liabilities	$ 181

As of September 30, 2019, we have entered into additional leases that had not yet commenced and therefore have been excluded from total operating lease liabilities as of that date. These leases will commence in the fourth quarter of 2019 or fiscal year 2020 with future minimum payments of $34 million and lease terms ranging from three to ten years.

As previously disclosed in our 2018 Annual Report on Form 10-K and under the previous lease accounting standard, the future minimum lease payments for operating leases having initial or remaining noncancelable lease terms in excess of one year as of December 31, 2018 were as follows:

	Operating lease payments
	(in millions)
2019	$ 93
2020	80
2021	59
2022	41
2023	28
Thereafter	62
Total lease payments	$ 363

14. Noncontrolling Interests

A reconciliation of the beginning and ending balances of noncontrolling interests and distributions payable to noncontrolling interests in our consolidated balance sheets is provided below.

	2019	2018		
	CFN	CFN	TNCLP	Total
	(in millions)			
Noncontrolling interests:				
Balance as of January 1	$ 2,773	$ 2,772	$ 333	$ 3,105
Earnings attributable to noncontrolling interests	114	84	8	92
Declaration of distributions payable	(186)	(129)	(10)	(139)
Purchase of the TNCLP Public Units	—	—	(331)	(331)
Balance as of September 30	$ 2,701	$ 2,727	$ —	$ 2,727
Distributions payable to noncontrolling interests:				
Balance as of January 1	$ —	$ —	$ —	$ —
Declaration of distributions payable	186	129	10	139
Distributions to noncontrolling interests	(186)	(129)	(10)	(139)
Balance as of September 30	$ —	$ —	$ —	$ —

CF Industries Nitrogen, LLC (CFN)

We have a strategic venture with CHS under which they own an equity interest in CFN, a subsidiary of CF Holdings, which represents approximately 11% of the membership interests of CFN. We own the remaining membership interests. Under the terms of CFN's limited liability company agreement, each member's interest will reflect, over time, the impact of the profitability of CFN, any member contributions made to CFN and withdrawals and distributions received from CFN. For financial reporting purposes, the assets, liabilities and earnings of the strategic venture are consolidated into our financial statements. CHS' interest in the strategic venture is recorded in noncontrolling interests in our consolidated financial statements. CHS also receives deliveries pursuant to a supply agreement under which CHS has the right to purchase annually from CFN up to approximately 1.1 million tons of granular urea and 580,000 tons of UAN at market prices. As a result of its equity interest in CFN, CHS is entitled to semi-annual cash distributions from CFN. We are also entitled to semi-annual cash distributions from CFN. The amounts of distributions from CFN to us and CHS are based generally on the profitability of CFN and determined based on the volume of granular urea and UAN sold by CFN to us and CHS pursuant to supply agreements, less a formula driven amount based primarily on the cost of natural gas used to produce the granular urea and UAN, and adjusted for the allocation of items such as operational efficiencies and overhead amounts. Additionally, under the terms of the strategic venture, we recognized an embedded derivative related to our credit rating. See Note 9—Fair Value Measurements for additional information.

Terra Nitrogen Company, L.P. (TNCLP)

On February 7, 2018, we announced that, in accordance with the terms of TNCLP's First Amended and Restated Agreement of Limited Partnership (as amended by Amendment No. 1 to the First Amended and Restated Agreement of Limited Partnership, the TNCLP Agreement of Limited Partnership), Terra Nitrogen GP Inc. (TNGP), the sole general partner of TNCLP and an indirect wholly owned subsidiary of CF Holdings, elected to exercise its right to purchase all of the 4,612,562 publicly traded common units of TNCLP (the TNCLP Public Units). On April 2, 2018, TNGP completed its purchase of the TNCLP Public Units (the Purchase) for an aggregate cash purchase price of $388 million, at which time we recognized a reduction in paid-in capital of $62 million; a deferred tax liability of $5 million; and the removal of the TNCLP noncontrolling interests, as shown in the table above. Upon completion of the Purchase, CF Holdings owned, through its subsidiaries, 100 percent of the general and limited partnership interests of TNCLP.

Prior to April 2, 2018, TNCLP was a master limited partnership that owned a nitrogen fertilizer manufacturing facility in Verdigris, Oklahoma. We owned approximately 75.3% of TNCLP through general and limited partnership interests and outside investors owned the remaining approximately 24.7% of the limited partnership interests. For financial reporting purposes, the assets, liabilities and earnings of the partnership were consolidated into our financial statements. The outside investors' limited partnership interests in TNCLP were recorded in noncontrolling interests in our consolidated financial statements. The noncontrolling interest represented the noncontrolling unitholders' interest (prior to the Purchase) in the earnings and equity of TNCLP. Affiliates of CF Industries were required to purchase all of TNCLP's fertilizer products at market prices as defined in the Amendment to the General and Administrative Services and Product Offtake Agreement, dated September 28, 2010.

Prior to April 2, 2018, TNCLP made cash distributions to the general and limited partners based on formulas defined within the TNCLP Agreement of Limited Partnership. Cash available for distribution (Available Cash) was defined in the TNCLP Agreement of Limited Partnership generally as all cash receipts less all cash disbursements, less certain reserves (including reserves for future operating and capital needs) established as the general partner determined in its reasonable discretion to be necessary or appropriate. Changes in working capital affected Available Cash, as increases in the amount of cash invested in working capital items (such as increases in receivables or inventory and decreases in accounts payable) reduced Available Cash, while declines in the amount of cash invested in working capital items increased Available Cash. Cash distributions to the limited partners and general partner varied depending on the extent to which the cumulative distributions exceeded certain target threshold levels set forth in the TNCLP Agreement of Limited Partnership.

15. Stockholders' Equity

Treasury Stock

On August 1, 2018, our Board of Directors (the Board) authorized the repurchase of up to $500 million of CF Holdings common stock through June 30, 2020 (the 2018 Share Repurchase Program). In 2018, we completed the 2018 Share Repurchase Program with the repurchase of 10.9 million shares for $500 million, of which $33 million was accrued and unpaid at December 31, 2018. In February 2019, we retired all 10.9 million shares that were repurchased under the 2018 Share Repurchase Program.

On February 13, 2019, the Board authorized the repurchase of up to $1 billion of CF Holdings common stock through December 31, 2021 (the 2019 Share Repurchase Program). Repurchases under the 2019 Share Repurchase Program may be made from time to time in the open market, through privately negotiated transactions, block transactions or otherwise. The manner, timing and amount of repurchases will be determined by our management based on the evaluation of market conditions, stock price, and other factors. In the nine months ended September 30, 2019, we repurchased approximately 5.7 million shares for $250 million, of which $2 million was accrued and unpaid at September 30, 2019. In June 2019, we retired approximately 4.2 million shares that were repurchased under the 2019 Share Repurchase Program. At September 30, 2019, we held 1,534,045 shares of treasury stock.

Accumulated Other Comprehensive Income (Loss)

Changes to accumulated other comprehensive income (loss) are as follows:

	Foreign Currency Translation Adjustment	Unrealized Gain (Loss) on Securities	Unrealized Gain on Derivatives	Defined Benefit Plans	Accumulated Other Comprehensive Income (Loss)
			(in millions)		
Balance as of December 31, 2017	$ (145)	$ 1	$ 4	$ (123)	$ (263)
Adoption of ASU 2016-01	—	(1)	—	—	(1)
Unrealized loss	—	(1)	—	—	(1)
Gain arising during the period	—	—	—	5	5
Reclassification to earnings[1]	—	—	—	1	1
Effect of exchange rate changes and deferred taxes	(50)	—	—	1	(49)
Balance as of September 30, 2018	$ (195)	$ (1)	$ 4	$ (116)	$ (308)
Balance as of December 31, 2018	$ (250)	$ —	$ 5	$ (126)	$ (371)
Gain arising during the period	—	—	—	5	5
Reclassification to earnings[1]	—	—	—	(1)	(1)
Effect of exchange rate changes and deferred taxes	(8)	—	—	1	(7)
Balance as of September 30, 2019	$ (258)	$ —	$ 5	$ (121)	$ (374)

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(1) Reclassifications out of accumulated other comprehensive income (loss) to earnings during the three and nine months ended September 30, 2019 and 2018 were not material.

16. Contingencies

Litigation

West Fertilizer Co.

On April 17, 2013, there was a fire and explosion at the West Fertilizer Co. fertilizer storage and distribution facility in West, Texas. According to published reports, 15 people were killed and approximately 200 people were injured in the incident, and the fire and explosion damaged or destroyed a number of homes and buildings around the facility. Various subsidiaries of CF Industries Holdings, Inc. (the CF Entities) were named as defendants along with other companies in lawsuits filed in 2013, 2014 and 2015 in the District Court of McLennan County, Texas by the City of West, individual residents of the County and other parties seeking recovery for damages allegedly sustained as a result of the explosion. The cases were consolidated for discovery and pretrial proceedings in the District Court of McLennan County under the caption “In re: West Explosion Cases.” The two-year statute of limitations expired on April 17, 2015. As of that date, over 400 plaintiffs had filed claims, including at least 9 entities, 325 individuals, and 80 insurance companies. Plaintiffs allege various theories of negligence, strict liability, and breach of warranty under Texas law. Although we do not own or operate the facility or directly sell our products to West Fertilizer Co., products that the CF Entities manufactured and sold to others were delivered to the facility and may have been stored at the West facility at the time of the incident.

The Court granted in part and denied in part the CF Entities’ Motions for Summary Judgment in August 2015. Over two hundred cases have been resolved pursuant to confidential settlements that have been or we expect will be fully funded by insurance. The remaining cases are in various stages of discovery and pre-trial proceedings. The next group of cases was reset for trial beginning on January 21, 2020. We believe we have strong legal and factual defenses and intend to continue defending the CF Entities vigorously in the pending lawsuits. The Company cannot provide a range of reasonably possible loss due to the lack of damages discovery for many of the remaining claims and the uncertain nature of this litigation, including uncertainties around the potential allocation of responsibility by a jury to other defendants or responsible third parties. The recognition of a potential loss in the future in the West Fertilizer Co. litigation could negatively affect our results in the period of recognition. However, based upon currently available information, including available insurance coverage, we do not believe that this litigation will have a material adverse effect on our consolidated financial position, results of operations or cash flows.

Other Litigation

From time to time, we are subject to ordinary, routine legal proceedings related to the usual conduct of our business, including proceedings regarding public utility and transportation rates, environmental matters, taxes and permits relating to the operations of our various plants and facilities. Based on the information available as of the date of this filing, we believe that the ultimate outcome of these routine matters will not have a material adverse effect on our consolidated financial position, results of operations or cash flows.

Environmental

From time to time, we receive notices from governmental agencies or third parties alleging that we are a potentially responsible party at certain cleanup sites under CERCLA or other environmental cleanup laws. In 2011, we received a notice from the Idaho Department of Environmental Quality (IDEQ) that alleged that we were a potentially responsible party for the cleanup of a former phosphate mine site we owned in the late 1950s and early 1960s located in Georgetown Canyon, Idaho. The current property owner and a former mining contractor received similar notices for the site. In 2014, we and the current property owner entered into a Consent Order with IDEQ and the U.S. Forest Service to conduct a remedial investigation and feasibility study of the site. In 2015, we and several other parties received a notice that the U.S. Department of the Interior and other trustees intend to undertake a natural resource damage assessment for 17 former phosphate mines in southeast Idaho, one of which is the former Georgetown Canyon mine. We are not able to estimate at this time our potential liability, if any, with respect to the cleanup of the site or a possible claim for natural resource damages. However, based on currently available information, we do not expect the remedial or financial obligations to which we may be subject involving this or other cleanup sites will have a material adverse effect on our consolidated financial position, results of operations or cash flows.

17. Segment Disclosures

Our reportable segments consist of ammonia, granular urea, UAN, AN and Other. These segments are differentiated by products. Our management uses gross margin to evaluate segment performance and allocate resources. Total other operating costs and expenses (consisting of selling, general and administrative expenses and other operating—net) and non-operating expenses (interest and income taxes) are centrally managed and are not included in the measurement of segment profitability reviewed by management.

Our assets, with the exception of goodwill, are not monitored by or reported to our chief operating decision maker by segment; therefore, we do not present total assets by segment. Goodwill by segment is presented in Note 7—Goodwill and Other Intangible Assets.

Segment data for sales, cost of sales and gross margin for the three and nine months ended September 30, 2019 and 2018 are presented in the tables below.

	Ammonia	Granular Urea[1]	UAN[1]	AN[1]	Other[1]	Consolidated
			(in millions)			
Three months ended September 30, 2019						
Net sales	$ 187	$ 327	$ 309	$ 136	$ 79	$ 1,038
Cost of sales	188	207	250	100	65	810
Gross margin	$ (1)	$ 120	$ 59	$ 36	$ 14	228
Total other operating costs and expenses						26
Equity in losses of operating affiliate						(14)
Operating earnings						$ 188
Three months ended September 30, 2018						
Net sales	$ 192	$ 353	$ 270	$ 139	$ 86	$ 1,040
Cost of sales	181	238	243	129	76	867
Gross margin	$ 11	$ 115	$ 27	$ 10	$ 10	173
Total other operating costs and expenses						42
Equity in earnings of operating affiliate						5
Operating earnings						$ 136

	Ammonia	Granular Urea[1]	UAN[1]	AN[1]	Other[1]	Consolidated
			(in millions)			
Nine months ended September 30, 2019						
Net sales	$ 847	$ 1,103	$ 934	$ 389	$ 268	$ 3,541
Cost of sales	654	686	722	308	224	2,594
Gross margin	$ 193	$ 417	$ 212	$ 81	$ 44	947
Total other operating costs and expenses						113
Equity in losses of operating affiliate						(6)
Operating earnings						$ 828
Nine months ended September 30, 2018						
Net sales	$ 778	$ 977	$ 892	$ 363	$ 287	$ 3,297
Cost of sales	641	682	731	320	248	2,622
Gross margin	$ 137	$ 295	$ 161	$ 43	$ 39	675
Total other operating costs and expenses						134
Equity in earnings of operating affiliate						30
Operating earnings						$ 571

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(1) The cost of the products that are upgraded into other products is transferred at cost into the upgraded product results.

18. Condensed Consolidating Financial Statements

The following condensed consolidating financial information is presented in accordance with SEC Regulation S-X Rule 3-10, *Financial statements of guarantors and issuers of guaranteed securities registered or being registered*, and relates to (i) the senior notes due 2020, 2023, 2034, 2043 and 2044 (described in Note 12—Financing Agreements and referred to in this report as the Public Senior Notes) issued by CF Industries, Inc. (CF Industries), a 100% owned subsidiary of CF Industries Holdings, Inc. (Parent), and guarantees of the Public Senior Notes by Parent and by CFE, CFS, CF USA and CFIDF (the Subsidiary Guarantors), which are 100% owned subsidiaries of Parent, and (ii) debt securities of CF Industries (Other Debt Securities), and guarantees thereof by Parent and the Subsidiary Guarantors, that may be offered and sold from time to time under registration statements that may be filed by Parent, CF Industries and the Subsidiary Guarantors with the SEC.

In the event that a subsidiary of Parent, other than CF Industries, becomes a borrower or a guarantor under the Revolving Credit Agreement (or any renewal, replacement or refinancing thereof), such subsidiary would be required to become a guarantor of the Public Senior Notes, provided that such requirement will no longer apply with respect to the Public Senior Notes due 2023, 2034, 2043 and 2044 following the repayment of the Public Senior Notes due 2020 or the subsidiaries of Parent, other than CF Industries, otherwise becoming no longer subject to such a requirement to guarantee the Public Senior Notes due 2020. The Subsidiary Guarantors became guarantors of the Public Senior Notes as a result of this requirement.

All of the guarantees of the Public Senior Notes are, and we have assumed for purposes of this presentation of condensed consolidating financial information that the guarantees of any Other Debt Securities would be, full and unconditional (as such term is defined in SEC Regulation S-X Rule 3-10(h)) and joint and several. The guarantee of a Subsidiary Guarantor will be automatically released with respect to a series of the Public Senior Notes (1) upon the release, discharge or termination of such Subsidiary Guarantor's guarantee of the Revolving Credit Agreement (or any renewal, replacement or refinancing thereof), (2) upon legal defeasance with respect to the Public Senior Notes of such series or satisfaction and discharge of the indenture with respect to such series of Public Senior Notes or (3) in the case of the Public Senior Notes due 2023, 2034, 2043 and 2044, upon the discharge, termination or release of, or the release of such Subsidiary Guarantor from its obligations under, such Subsidiary Guarantor's guarantee of the Public Senior Notes due 2020, including, without limitation, any such discharge, termination or release as a result of retirement, discharge or legal or covenant defeasance of, or satisfaction and discharge of the supplemental indenture governing, the Public Senior Notes due 2020.

For purposes of the presentation of condensed consolidating financial information, the subsidiaries of Parent other than CF Industries and the Subsidiary Guarantors are referred to as the Non-Guarantors.

Presented below are condensed consolidating statements of operations and statements of comprehensive income for Parent, CF Industries, the Subsidiary Guarantors and the Non-Guarantors for the three and nine months ended September 30, 2019 and 2018, condensed consolidating statements of cash flows for Parent, CF Industries, the Subsidiary Guarantors and the Non-Guarantors for the nine months ended September 30, 2019 and 2018, and condensed consolidating balance sheets for Parent, CF Industries, the Subsidiary Guarantors and the Non-Guarantors as of September 30, 2019 and December 31, 2018. The condensed consolidating financial information presented below is not necessarily indicative of the financial position, results of operations, comprehensive income or cash flows of Parent, CF Industries, the Subsidiary Guarantors or the Non-Guarantors on a stand-alone basis.

In these condensed consolidating financial statements, investments in subsidiaries are presented under the equity method, in which our investments are recorded at cost and adjusted for our ownership share of a subsidiary's cumulative results of operations, distributions and other equity changes, and the eliminating entries reflect primarily intercompany transactions such as sales, accounts receivable and accounts payable and the elimination of equity investments and earnings of subsidiaries. As of September 30, 2019, two of our consolidated entities have made elections to be taxed as partnerships for U.S. federal income tax purposes and are included in the Non-Guarantors column. Due to the partnership tax treatment, these subsidiaries do not record taxes on their financial statements. The tax provision pertaining to the income of these partnerships, plus applicable deferred tax balances are reflected on the financial statements of the parent company owner that is included in the Subsidiary Guarantors column in the following financial information. Liabilities related to benefit plan obligations are reflected on the legal entity that funds the obligation, while the benefit plan expense is included on the legal entity to which the employee provides services.

Condensed Consolidating Statement of Operations

	Three months ended September 30, 2019					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net sales	$ —	$ 68	$ 807	$ 886	$ (723)	$ 1,038
Cost of sales	—	53	781	689	(713)	810
Gross margin	—	15	26	197	(10)	228
Selling, general and administrative expenses	1	—	45	20	(10)	56
Other operating—net	—	1	(29)	(2)	—	(30)
Total other operating costs and expenses	1	1	16	18	(10)	26
Equity in losses of operating affiliates	—	(1)	—	(13)	—	(14)
Operating (loss) earnings	(1)	13	10	166	—	188
Interest expense	2	63	1	1	(4)	63
Interest expense—mandatorily redeemable preferred shares	—	—	—	1	(1)	—
Interest income	—	(1)	(5)	(3)	5	(4)
Net earnings of wholly owned subsidiaries	(67)	(106)	(109)	—	282	—
Other non-operating—net	—	—	—	(4)	—	(4)
Earnings before income taxes	64	57	123	171	(282)	133
Income tax (benefit) provision	—	(10)	25	4	—	19
Net earnings	64	67	98	167	(282)	114
Less: Net earnings attributable to noncontrolling interests	—	—	—	49	—	49
Net earnings attributable to common stockholders	$ 64	$ 67	$ 98	$ 118	$ (282)	$ 65

Condensed Consolidating Statement of Comprehensive Income

	Three months ended September 30, 2019					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net earnings	$ 64	$ 67	$ 98	$ 167	$ (282)	$ 114
Other comprehensive loss	(30)	(30)	(82)	(29)	141	(30)
Comprehensive income	34	37	16	138	(141)	84
Less: Comprehensive income attributable to noncontrolling interests	—	—	—	49	—	49
Comprehensive income attributable to common stockholders	$ 34	$ 37	$ 16	$ 89	$ (141)	$ 35

CF INDUSTRIES HOLDINGS, INC.

Condensed Consolidating Statement of Operations

	Nine months ended September 30, 2019					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net sales	$ —	$ 254	$ 2,808	$ 2,825	$ (2,346)	$ 3,541
Cost of sales	—	210	2,549	2,167	(2,332)	2,594
Gross margin	—	44	259	658	(14)	947
Selling, general and administrative expenses	3	(1)	130	58	(14)	176
Other operating—net	—	5	(68)	—	—	(63)
Total other operating costs and expenses	3	4	62	58	(14)	113
Equity in losses of operating affiliates	—	—	—	(6)	—	(6)
Operating (loss) earnings	(3)	40	197	594	—	828
Interest expense	3	186	2	2	(11)	182
Interest expense—mandatorily redeemable preferred shares	—	—	—	3	(3)	—
Interest income	(1)	(1)	(13)	(11)	14	(12)
Net earnings of wholly owned subsidiaries	(442)	(557)	(485)	—	1,484	—
Other non-operating—net	—	—	(1)	(6)	—	(7)
Earnings before income taxes	437	412	694	606	(1,484)	665
Income tax (benefit) provision	(1)	(30)	159	(15)	—	113
Net earnings	438	442	535	621	(1,484)	552
Less: Net earnings attributable to noncontrolling interests	—	—	—	114	—	114
Net earnings attributable to common stockholders	$ 438	$ 442	$ 535	$ 507	$ (1,484)	$ 438

Condensed Consolidating Statement of Comprehensive Income

	Nine months ended September 30, 2019					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net earnings	$ 438	$ 442	$ 535	$ 621	$ (1,484)	$ 552
Other comprehensive loss	(2)	(2)	(60)	(5)	66	(3)
Comprehensive income	436	440	475	616	(1,418)	549
Less: Comprehensive income attributable to noncontrolling interests	—	—	—	114	—	114
Comprehensive income attributable to common stockholders	$ 436	$ 440	$ 475	$ 502	$ (1,418)	$ 435

CF INDUSTRIES HOLDINGS, INC.

Condensed Consolidating Statement of Operations

	Three months ended September 30, 2018					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net sales	$ —	$ 69	$ 788	$ 885	$ (702)	$ 1,040
Cost of sales	—	56	763	750	(702)	867
Gross margin	—	13	25	135	—	173
Selling, general and administrative expenses	2	(2)	37	16	—	53
Other operating—net	—	(4)	2	(9)	—	(11)
Total other operating costs and expenses	2	(6)	39	7	—	42
Equity in earnings of operating affiliate	—	—	—	5	—	5
Operating (loss) earnings	(2)	19	(14)	133	—	136
Interest expense	—	60	3	1	(5)	59
Interest income	(1)	(1)	(2)	(5)	5	(4)
Net earnings of wholly owned subsidiaries	(31)	(63)	(99)	—	193	—
Other non-operating—net	—	—	(1)	(1)	—	(2)
Earnings before income taxes	30	23	85	138	(193)	83
Income tax (benefit) provision	—	(8)	20	—	—	12
Net earnings	30	31	65	138	(193)	71
Less: Net earnings attributable to noncontrolling interests	—	—	—	41	—	41
Net earnings attributable to common stockholders	$ 30	$ 31	$ 65	$ 97	$ (193)	$ 30

Condensed Consolidating Statement of Comprehensive Income

	Three months ended September 30, 2018					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net earnings	$ 30	$ 31	$ 65	$ 138	$ (193)	$ 71
Other comprehensive income (loss)	1	1	4	(1)	(4)	1
Comprehensive income	31	32	69	137	(197)	72
Less: Comprehensive income attributable to noncontrolling interests	—	—	—	41	—	41
Comprehensive income attributable to common stockholders	$ 31	$ 32	$ 69	$ 96	$ (197)	$ 31

Condensed Consolidating Statement of Operations

	Nine months ended September 30, 2018					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net sales	$ —	$ 259	$ 2,563	$ 2,688	$ (2,213)	$ 3,297
Cost of sales	—	215	2,401	2,211	(2,205)	2,622
Gross margin	—	44	162	477	(8)	675
Selling, general and administrative expenses	3	1	109	58	(8)	163
Other operating—net	—	(12)	—	(17)	—	(29)
Total other operating costs and expenses	3	(11)	109	41	(8)	134
Equity in earnings of operating affiliate	—	2	—	28	—	30
Operating (loss) earnings	(3)	57	53	464	—	571
Interest expense	—	183	13	4	(20)	180
Interest income	(2)	(4)	(7)	(16)	20	(9)
Net earnings of wholly owned subsidiaries	(242)	(338)	(373)	—	953	—
Other non-operating—net	—	—	(1)	(5)	—	(6)
Earnings before income taxes	241	216	421	481	(953)	406
Income tax (benefit) provision	—	(26)	93	6	—	73
Net earnings	241	242	328	475	(953)	333
Less: Net earnings attributable to noncontrolling interests	—	—	—	92	—	92
Net earnings attributable to common stockholders	$ 241	$ 242	$ 328	$ 383	$ (953)	$ 241

Condensed Consolidating Statement of Comprehensive Income

	Nine months ended September 30, 2018					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net earnings	$ 241	$ 242	$ 328	$ 475	$ (953)	$ 333
Other comprehensive loss	(45)	(45)	(30)	(48)	124	(44)
Comprehensive income	196	197	298	427	(829)	289
Less: Comprehensive income attributable to noncontrolling interests	—	—	—	92	—	92
Comprehensive income attributable to common stockholders	$ 196	$ 197	$ 298	$ 335	$ (829)	$ 197

CF INDUSTRIES HOLDINGS, INC.

Condensed Consolidating Balance Sheet

	September 30, 2019					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations and Reclassifications	Consolidated
	(in millions)					
Assets						
Current assets:						
Cash and cash equivalents	$ 39	$ 263	$ 194	$ 523	$ —	$ 1,019
Accounts and notes receivable—net	139	481	1,446	680	(2,435)	311
Inventories	—	—	154	142	—	296
Prepaid income taxes	—	—	17	—	—	17
Other current assets	—	—	19	7	—	26
Total current assets	178	744	1,830	1,352	(2,435)	1,669
Property, plant and equipment—net	—	—	109	8,138	—	8,247
Investments in affiliates	3,844	6,008	6,285	87	(16,137)	87
Goodwill	—	2,063	—	281	—	2,344
Operating lease right-of-use assets	—	—	259	5	—	264
Other assets	—	3	137	321	(170)	291
Total assets	$ 4,022	$ 8,818	$ 8,620	$ 10,184	$ (18,742)	$ 12,902
Liabilities and Equity						
Current liabilities:						
Accounts and notes payable and accrued expenses	$ 1,042	$ 256	$ 1,259	$ 337	$ (2,435)	$ 459
Income taxes payable	—	—	—	7	—	7
Customer advances	—	—	184	—	—	184
Current operating lease liabilities	—	—	85	2	—	87
Current maturities of long-term debt	—	499	—	—	—	499
Other current liabilities	—	—	9	—	—	9
Total current liabilities	1,042	755	1,537	346	(2,435)	1,245
Long-term debt, net of current maturities	—	4,204	44	123	(167)	4,204
Dividends payable—mandatorily redeemable preferred shares	—	—	—	3	(3)	—
Deferred income taxes	—	—	1,085	150	—	1,235
Operating lease liabilities	—	—	178	3	—	181
Other liabilities	—	15	203	138	—	356
Equity:						
Stockholders' equity:						
Preferred stock	—	—	—	—	—	—
Common stock	2	—	—	4,839	(4,839)	2
Paid-in capital	1,317	1,799	5,244	1,091	(8,134)	1,317
Retained earnings	2,109	2,419	674	1,111	(4,204)	2,109
Treasury stock	(74)	—	—	—	—	(74)
Accumulated other comprehensive loss	(374)	(374)	(337)	(329)	1,040	(374)
Total stockholders' equity	2,980	3,844	5,581	6,712	(16,137)	2,980
Noncontrolling interests	—	—	(8)	2,709	—	2,701
Total equity	2,980	3,844	5,573	9,421	(16,137)	5,681
Total liabilities and equity	$ 4,022	$ 8,818	$ 8,620	$ 10,184	$ (18,742)	$ 12,902

CF INDUSTRIES HOLDINGS, INC.

Condensed Consolidating Balance Sheet

	December 31, 2018					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations and Reclassifications	Consolidated
	(in millions)					
Assets						
Current assets:						
Cash and cash equivalents	$ 36	$ 27	$ 65	$ 554	$ —	$ 682
Accounts and notes receivable—net	135	500	1,203	911	(2,514)	235
Inventories	—	4	142	163	—	309
Prepaid income taxes	—	—	24	4	—	28
Other current assets	—	—	15	5	—	20
Total current assets	171	531	1,449	1,637	(2,514)	1,274
Property, plant and equipment—net	—	—	118	8,505	—	8,623
Investments in affiliates	3,656	8,208	6,857	94	(18,722)	93
Goodwill	—	—	2,064	289	—	2,353
Other assets	—	4	126	320	(132)	318
Total assets	$ 3,827	$ 8,743	$ 10,614	$ 10,845	$ (21,368)	$ 12,661
Liabilities and Equity						
Current liabilities:						
Accounts and notes payable and accrued expenses	$ 870	$ 374	$ 1,429	$ 386	$ (2,514)	$ 545
Income taxes payable	—	—	5	—	—	5
Customer advances	—	—	149	—	—	149
Other current liabilities	—	—	6	—	—	6
Total current liabilities	870	374	1,589	386	(2,514)	705
Long-term debt	—	4,698	43	89	(132)	4,698
Deferred income taxes	—	—	960	157	—	1,117
Other liabilities	—	15	232	163	—	410
Equity:						
Stockholders’ equity:						
Preferred stock	—	—	—	—	—	—
Common stock	2	—	—	5,363	(5,363)	2
Paid-in capital	1,368	1,799	9,070	1,265	(12,134)	1,368
Retained earnings	2,463	2,229	(995)	965	(2,199)	2,463
Treasury stock	(504)	—	—	—	—	(504)
Accumulated other comprehensive loss	(372)	(372)	(277)	(324)	974	(371)
Total stockholders’ equity	2,957	3,656	7,798	7,269	(18,722)	2,958
Noncontrolling interests	—	—	(8)	2,781	—	2,773
Total equity	2,957	3,656	7,790	10,050	(18,722)	5,731
Total liabilities and equity	$ 3,827	$ 8,743	$ 10,614	$ 10,845	$ (21,368)	$ 12,661

Condensed Consolidating Statement of Cash Flows

	Nine months ended September 30, 2019					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Operating Activities:						
Net earnings	$ 438	$ 442	$ 535	$ 621	$ (1,484)	$ 552
Adjustments to reconcile net earnings to net cash provided by (used in) operating activities:						
Depreciation and amortization	—	7	18	638	—	663
Deferred income taxes	—	—	124	(8)	—	116
Stock-based compensation expense	24	—	—	—	—	24
Unrealized net loss on natural gas derivatives	—	—	3	—	—	3
Unrealized loss on embedded derivative	—	—	3	—	—	3
Gain on disposal of property, plant and equipment	—	—	(45)	2	—	(43)
Undistributed earnings of affiliates—net	(442)	(557)	(485)	3	1,484	3
Changes in:						
Intercompany accounts receivable/accounts payable—net	—	34	(81)	47	—	—
Accounts receivable—net	—	8	(84)	(3)	—	(79)
Inventories	—	4	(12)	25	—	17
Accrued and prepaid income taxes	(1)	(30)	15	28	—	12
Accounts and notes payable and accrued expenses	—	8	(33)	(42)	—	(67)
Customer advances	—	—	35	—	—	35
Other—net	—	—	(1)	(35)	—	(36)
Net cash provided by (used in) operating activities	19	(84)	(8)	1,276	—	1,203
Investing Activities:						
Additions to property, plant and equipment	—	—	(11)	(286)	—	(297)
Proceeds from sale of property, plant and equipment	—	—	56	15	—	71
Distributions received from unconsolidated affiliates	—	543	414	(957)	—	—
Insurance proceeds for property, plant and equipment	—	—	—	15	—	15
Net cash provided by (used in) investing activities	—	543	459	(1,213)	—	(211)
Financing Activities:						
Long-term debt—net	—	—	(39)	39	—	—
Short-term debt—net	199	29	(283)	55	—	—
Dividends paid on common stock	(200)	(252)	—	—	252	(200)
Dividends to/from affiliates	252	—	—	—	(252)	—
Distribution to noncontrolling interest	—	—	—	(186)	—	(186)
Purchases of treasury stock	(280)	—	—	—	—	(280)
Issuances of common stock under employee stock plans	17	—	—	—	—	17
Shares withheld for taxes	(4)	—	—	—	—	(4)
Net cash provided by (used in) financing activities	(16)	(223)	(322)	(92)	—	(653)
Effect of exchange rate changes on cash and cash equivalents	—	—	—	(2)	—	(2)
Increase (decrease) in cash and cash equivalents	3	236	129	(31)	—	337
Cash and cash equivalents at beginning of period	36	27	65	554	—	682
Cash and cash equivalents at end of period	$ 39	$ 263	$ 194	$ 523	$ —	$ 1,019

CF INDUSTRIES HOLDINGS, INC.

Condensed Consolidating Statement of Cash Flows

	Nine months ended September 30, 2018					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Operating Activities:						
Net earnings	$ 241	$ 242	$ 328	$ 475	$ (953)	$ 333
Adjustments to reconcile net earnings to net cash (used in) provided by operating activities:						
Depreciation and amortization	—	6	17	644	—	667
Deferred income taxes	—	—	41	(4)	—	37
Stock-based compensation expense	16	—	—	1	—	17
Unrealized net gain on natural gas derivatives	—	—	(7)	(4)	—	(11)
Unrealized loss on embedded derivative	—	—	2	—	—	2
Gain on disposal of property, plant and equipment	—	—	—	(1)	—	(1)
Undistributed earnings of affiliates—net	(242)	(338)	(373)	(5)	953	(5)
Changes in:						
Intercompany accounts receivable/accounts payable—net	(17)	(89)	97	9	—	—
Accounts receivable—net	—	(6)	48	(11)	—	31
Inventories	—	4	(14)	7	—	(3)
Accrued and prepaid income taxes	—	(26)	47	(8)	—	13
Accounts and notes payable and accrued expenses	—	(1)	(7)	(18)	—	(26)
Customer advances	—	—	224	—	—	224
Other—net	—	—	(1)	(34)	—	(35)
Net cash (used in) provided by operating activities	(2)	(208)	402	1,051	—	1,243
Investing Activities:						
Additions to property, plant and equipment	—	—	(11)	(267)	—	(278)
Proceeds from sale of property, plant and equipment	—	—	—	19	—	19
Distributions received from unconsolidated affiliates	—	200	306	(496)	—	10
Insurance proceeds for property, plant and equipment	—	—	—	10	—	10
Investments in consolidated subs - capital contributions	—	(31)	(415)	446	—	—
Other—net	—	—	—	1	—	1
Net cash provided by (used in) investing activities	—	169	(120)	(287)	—	(238)
Financing Activities:						
Long-term debt—net	—	—	178	(178)	—	—
Short-term debt—net	233	175	(438)	30	—	—
Financing fees	—	1	—	—	—	1
Dividends paid on common stock	(210)	(110)	—	(49)	159	(210)
Dividends to/from affiliates	110	—	49	—	(159)	—
Acquisition of noncontrolling interest in TNCLP	—	—	—	(388)	—	(388)
Distributions to noncontrolling interests	—	—	—	(139)	—	(139)
Purchases of treasury stock	(87)	—	—	—	—	(87)
Issuances of common stock under employee stock plans	10	—	—	—	—	10
Shares withheld for taxes	(1)	—	—	—	—	(1)
Net cash provided by (used in) financing activities	55	66	(211)	(724)	—	(814)
Effect of exchange rate changes on cash and cash equivalents	—	—	—	(4)	—	(4)
Increase in cash and cash equivalents	53	27	71	36	—	187
Cash and cash equivalents at beginning of period	—	15	388	432	—	835

Cash and cash equivalents at end of period	$ 53	$ 42	$ 459	$ 468	$ —	$ 1,022

19. Subsequent Events

On October 9, 2019, we announced that our wholly owned subsidiary CF Industries has elected to redeem in full all of the $500 million outstanding principal amount of the 7.125% senior notes due May 2020 (the 2020 Notes), in accordance with the optional redemption provisions provided in the indenture governing the 2020 Notes. We estimate, based on market interest rates on October 28, 2019, the total amount for the redemption of the 2020 Notes will be approximately $513 million, including accrued interest. The 2020 Notes will be redeemed on November 13, 2019 and will be funded with cash on hand.

On October 30, 2019, we announced that CF Industries has elected to redeem on December 13, 2019, $250 million principal amount, representing 50% of the currently outstanding $500 million principal amount, of the 2021 Notes, in accordance with the optional redemption provisions provided in the indenture governing the 2021 Notes. We estimate, based on market interest rates on October 28, 2019, the total amount for the partial redemption of the 2021 Notes will be approximately $257 million, including accrued interest. The partial redemption of the 2021 Notes will be funded with cash on hand.

See Note 12—Financing Agreements for additional information.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

You should read the following discussion and analysis in conjunction with our annual consolidated financial statements and related notes, which were included in our 2018 Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 22, 2019, as well as Item 1. Financial Statements, in this Form 10-Q. All references to "CF Holdings," "we," "us," "our" and "the Company" refer to CF Industries Holdings, Inc. and its subsidiaries, except where the context makes clear that the reference is only to CF Industries Holdings, Inc. itself and not its subsidiaries. All references to "CF Industries" refer to CF Industries, Inc., a 100% owned subsidiary of CF Industries Holdings, Inc. References to tons refer to short-tons. Notes referenced in this discussion and analysis refer to the notes to our unaudited interim consolidated financial statements that are found in the preceding section: Item 1. Financial Statements. The following is an outline of the discussion and analysis included herein:

Overview of CF Holdings

Our Company

We are a leading global fertilizer and chemical company. Our 3,000 employees operate world-class manufacturing complexes in Canada, the United Kingdom and the United States. Our principal customers are cooperatives, independent fertilizer distributors, traders, wholesalers, farmers and industrial users. Our principal nitrogen fertilizer products are ammonia, granular urea, urea ammonium nitrate solution (UAN) and ammonium nitrate (AN). Our other nitrogen products include diesel exhaust fluid (DEF), urea liquor, nitric acid and aqua ammonia, which are sold primarily to our industrial customers, and compound fertilizer products (NPKs), which are solid granular fertilizer products for which the nutrient content is a combination of nitrogen, phosphorus, and potassium. We serve our customers in North America through our production, storage, transportation and distribution network. We also reach a global customer base with exports from our Donaldsonville, Louisiana, plant, the world's largest and most flexible nitrogen complex. Additionally, we move product to international destinations from our Verdigris, Oklahoma, facility, our Yazoo City, Mississippi, facility, our Billingham and Ince facilities in the United Kingdom, and from a joint venture ammonia facility in the Republic of Trinidad and Tobago in which we own a 50 percent interest.

Our principal assets as of September 30, 2019 include:

- five U.S. nitrogen fertilizer manufacturing facilities located in Donaldsonville, Louisiana (the largest nitrogen fertilizer complex in the world); Port Neal, Iowa; Yazoo City, Mississippi; Verdigris, Oklahoma; and Woodward, Oklahoma. These facilities are owned by CF Industries Nitrogen, LLC (CFN), of which we own approximately 89% and CHS Inc. (CHS) owns the remainder. See Note 14—Noncontrolling Interests for additional information on our strategic venture with CHS;
- two Canadian nitrogen fertilizer manufacturing facilities located in Medicine Hat, Alberta (the largest nitrogen fertilizer complex in Canada) and Courtright, Ontario;
- two United Kingdom nitrogen manufacturing facilities located in Billingham and Ince;

- an extensive system of terminals and associated transportation equipment located primarily in the Midwestern United States; and
- a 50% interest in Point Lisas Nitrogen Limited (PLNL), an ammonia production joint venture located in the Republic of Trinidad and Tobago that we account for under the equity method.

Market Conditions

Sales Volume

Sales volume for our products in both the first nine months of 2019 and 2018 was 14.6 million product tons. Persistent cold and wet weather across most of North America early in 2019 delayed spring planting activity and fertilizer applications. In addition, high water levels impacted shipping and logistics on inland rivers and delayed certain barge shipments, which caused delays in certain customers taking delivery of fertilizer and other customers delaying purchases. As a result, the spring application season extended into the third quarter of 2019 with some shipments that would typically occur in the second quarter being delayed into the third quarter. Additionally, planned maintenance activity at our plants reduced production levels in the third quarter of 2019, reducing inventory availability.

Sales volume for both the three months ended September 30, 2019 and September 30, 2018 was 4.8 million product tons. Sales volumes of UAN and ammonia increased as a result of the extended application season. Partially offsetting these increases was a decline in sales volumes of granular urea, due primarily to lower supply availability as a result of planned maintenance activity, and AN, as a result of a delayed harvest in the United Kingdom in the third quarter of 2019, which affected the timing of fertilizer purchases.

Selling Prices

The U.S. Gulf is a major global fertilizer pricing point due to the volume of nitrogen fertilizer that trades there. In 2018, higher energy costs in Asia and Europe, along with continued enforcement of environmental regulations in China, resulted in lower nitrogen production in these regions. In addition, plant outages impacted the nitrogen supply and demand balance. These factors collectively drove global nitrogen prices higher in the latter half of 2018.

Upon entering the first quarter of 2019, our average selling prices were higher than the first quarter of 2018, driven by the impact of a tighter global nitrogen supply and demand balance experienced throughout late 2018. During the first half of 2019, our average selling prices for all fertilizer products remained strong due to the limited supply of fertilizer as high water levels and flooding impacted shipping and logistics on inland rivers and limited access for imports. As we entered the third quarter of 2019, the fertilizer application season extended due to the late planting, resulting in continued in-season prompt sales being made, which favorably impacted our third quarter selling prices. However, as the third quarter continued, lower global energy prices resulted in higher nitrogen industry operating rates, which increased fertilizer supply. This factor, in conjunction with the seasonally slow third quarter period, led to weakness in selling prices as the third quarter ended.

The average selling price for our products for the third quarter of 2019 was $218 per ton compared to $263 per ton in the second quarter of 2019. The decline from the second quarter reflected weakness in pricing due to the seasonally slow third quarter selling period and higher global nitrogen supply availability.

The average selling price for our products for both third quarters of 2019 and 2018 was $218 per ton reflecting the net impact of higher average selling prices for our granular urea, AN and UAN segments as a result of the extended application season, and lower average selling prices for our ammonia and Other segments.

The average selling price for our products for the nine months ended September 30, 2019 was $243 per ton compared to $226 per ton for the nine months ended September 30, 2018, an increase of 8%, which resulted in an increase in net sales of approximately $215 million.

Natural Gas Prices

Natural gas is the principal raw material used to produce nitrogen fertilizers. We use natural gas both as a chemical feedstock and as a fuel to produce nitrogen products. Natural gas is a significant cost component of manufactured nitrogen products, representing approximately 40% of our production costs.

Because most of our nitrogen fertilizer manufacturing facilities are located in the United States and Canada, the price of natural gas in North America directly impacts a substantial portion of our operating expenses. Due to increases in natural gas production resulting from the rise in production from shale gas formations, natural gas prices in North America have declined over the last decade, but are subject to volatility. The average daily market price at the Henry Hub, the most heavily-traded natural gas pricing point in North America, for the three months ended September 30, 2019 was $2.33 per MMBtu compared to $2.90 per MMBtu for the three months ended September 30, 2018, a decrease of 20%. The average daily market price at the Henry Hub for the nine months ended September 30, 2019 was $2.57 per MMBtu compared to $2.91 per MMBtu for the nine months ended September 30, 2018, a decrease of 12%.

We also have manufacturing facilities located in the United Kingdom. These facilities are subject to fluctuations associated with the price of natural gas in Europe. The major natural gas trading point for the United Kingdom is the National Balancing Point (NBP). The average daily market price at NBP for the three months ended September 30, 2019 was $3.42 per MMBtu compared to $8.40 per MMBtu for the three months ended September 30, 2018, a decrease of 59%. The average daily market price at NBP for the nine months ended September 30, 2019 was $4.56 per MMBtu compared to $7.98 per MMBtu for the nine months ended September 30, 2018, a decrease of 43%. The price of natural gas in the United Kingdom has declined as a result of increased production and availability of liquefied natural gas in the global market due to higher gas exports from exporting nations, including the United States.

Natural gas costs in cost of sales, including the impact of realized natural gas derivatives, decreased 30% from $3.19 per MMBtu in the three months ended September 30, 2018, to $2.24 per MMBtu in the three months ended September 30, 2019, which resulted in an increase in gross margin of approximately $77 million. Natural gas costs in cost of sales, including the impact of realized natural gas derivatives, decreased 9% from $3.14 per MMBtu in the nine months ended September 30, 2018, to $2.86 per MMBtu in the nine months ended September 30, 2019, which resulted in an increase in gross margin of approximately $69 million.

Items Affecting Comparability of Results

In addition to the impact of market conditions discussed above, certain items impacted the comparability of our financial results during the three and nine months ended September 30, 2019 and 2018. The following table and related discussion outline these items and how they impacted the comparability of our financial results during these periods. During the three months ended September 30, 2019 and 2018, we reported net earnings attributable to common stockholders of $65 million and $30 million, respectively. During the nine months ended September 30, 2019 and 2018, we reported net earnings attributable to common stockholders of $438 million and $241 million, respectively.

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2019		2018		2019		2018	
	Pre-Tax	After-Tax	Pre-Tax	After-Tax	Pre-Tax	After-Tax	Pre-Tax	After-Tax
	(in millions)							
Unrealized net mark-to-market loss (gain) on natural gas derivatives[1]	$ 2	$ 2	$ (3)	$ (2)	$ 3	$ 3	$ (11)	$ (8)
Losses on foreign currency transactions, including intercompany loans[2]	5	4	4	3	12	9	1	1
Gain on sale of Pine Bend facility[2]	—	—	—	—	(45)	(35)	—	—
Insurance proceeds[2]	(37)	(29)	(10)	(8)	(37)	(29)	(10)	(8)
Louisiana incentive tax credit[3]	—	—	—	—	—	(30)	—	—
Costs related to the acquisition of TNCLP Public Units[4]	—	—	—	—	—	—	2	1
Earnings attributable to noncontrolling interests - TNCLP[5]	—	—	—	—	—	—	8	8
PLNL withholding tax charge[6]	16	16	—	—	16	16	—	—
PLNL settlement income[6]	—	—	—	—	—	—	(19)	(19)

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(1) Included in cost of sales in our consolidated statements of operations.

(2) Included in other operating—net in our consolidated statements of operations.

(3) Included in income tax provision in our consolidated statement of operations.

(4) Included in selling, general and administrative expenses in our consolidated statement of operations.

(5) Included in net earnings attributable to noncontrolling interests in our consolidated statements of operations.

(6) Included in equity in (losses) earnings of operating affiliate in our consolidated statements of operations.

The following describes these items, identified in the table above, that impacted the comparability of our financial results for the three and nine months ended September 30, 2019 and 2018. Descriptions of items below that refer to amounts in the table above refer to the pre-tax amounts.

Unrealized net mark-to-market loss (gain) on natural gas derivatives

Natural gas is the largest and most volatile single component of the manufacturing cost for nitrogen-based products. At certain times, we have managed the risk of changes in natural gas prices through the use of derivative financial instruments. The derivatives that we may use for this purpose are primarily natural gas fixed price swaps, natural gas basis swaps and natural gas options. We use natural gas derivatives as an economic hedge of natural gas price risk, but without the application of hedge accounting. This can result in volatility in reported earnings due to the unrealized mark-to-market adjustments that occur from changes in the value of the derivatives, which is reflected in cost of sales in our consolidated statements of operations. In the three months ended September 30, 2019 and 2018, we recognized an unrealized net mark-to-market loss (gain) of $2 million and $(3) million, respectively. In the nine months ended September 30, 2019 and 2018, we recognized an unrealized net mark-to-market loss (gain) of $3 million and $(11) million, respectively.

Losses on foreign currency transactions, including intercompany loans

In the three and nine months ended September 30, 2019, we recognized losses of $5 million and $12 million, respectively, from the impact of changes in foreign currency exchange rates on primarily British pound and Canadian dollar denominated intercompany loans that were not permanently invested.

Gain on sale of Pine Bend facility

During the first quarter of 2019, we entered into an agreement to sell our Pine Bend dry bulk storage and logistics facility in Minnesota. In April of 2019, we completed the sale, received proceeds of $55 million and recognized a pre-tax gain of $45 million. The gain is reflected in other operating—net in our consolidated statement of operations for the nine months ended September 30, 2019.

Insurance proceeds

In the three months ended September 30, 2019 and 2018, we recognized income of $37 million and $10 million, respectively, related to insurance claims at one of our nitrogen complexes. The $37 million of income in 2019 consisted of $22 million related to business interruption insurance proceeds and $15 million related to property insurance proceeds. The $10 million of income in 2018 is related to property insurance proceeds. These proceeds are reflected in other operating—net in our consolidated statements of operations.

Louisiana incentive tax credit

For the nine months ended September 30, 2019, our income tax provision includes an incentive tax credit from the State of Louisiana of $30 million, net of federal income tax, related to certain capital projects at our Donaldsonville, Louisiana complex.

Acquisition of the Terra Nitrogen Company, L.P. (TNCLP) Public Units

In the first quarter of 2018, we announced that, in accordance with the terms of TNCLP's First Amended and Restated Agreement of Limited Partnership (as amended by Amendment No. 1 to the First Amended and Restated Agreement of Limited Partnership, the TNCLP Agreement of Limited Partnership), Terra Nitrogen GP Inc. (TNGP), the sole general partner of TNCLP and an indirect wholly owned subsidiary of CF Holdings, elected to exercise its right to purchase all of the 4,612,562 publicly traded common units of TNCLP (the TNCLP Public Units). TNGP completed its purchase of the TNCLP Public Units on April 2, 2018 (the Purchase) for an aggregate cash purchase price of $388 million. We funded the Purchase with cash on hand. Upon completion of the Purchase, CF Holdings owned, through its subsidiaries, 100 percent of the general and limited partnership interests of TNCLP.

In the nine months ended September 30, 2018, we incurred $2 million of costs for various legal services associated with the acquisition of the TNCLP Public Units. These costs are reflected in selling, general and administrative expenses in our consolidated statement of operations.

Beginning in the second quarter of 2018, as a result of the April 2, 2018 acquisition of the TNCLP Public Units, there are no longer earnings attributable to noncontrolling interests in TNCLP. In the nine months ended September 30, 2018, earnings attributable to noncontrolling interests in TNCLP was $8 million.

PLNL withholding tax charge

The Trinidadian tax authority (the Board of Inland Revenue) issued a proposed tax assessment against PLNL, our joint venture in the Republic of Trinidad and Tobago, with respect to tax years 2011 and 2012 in the amount of approximately $12 million. The proposed assessment asserts that PLNL should have withheld tax on dividends paid to its Trinidadian owners. Statutory interest and penalties related to the proposed assessment with respect to tax years 2011 and 2012, bring the proposed assessment to an aggregate amount of approximately $22 million. As we own a 50% interest in PLNL, our effective share of any assessment that is determined to be a liability of PLNL would be 50%, which would be reflected as a reduction in our equity in earnings of PLNL. During the third quarter of 2019, the Trinidadian government offered a tax amnesty period that provided taxpayers the opportunity to pay any prior year tax obligations and avoid accumulated interest or penalties. During the tax amnesty period, PLNL evaluated the proposed assessment, including considering the outcome of certain recent legal cases involving other taxpayers. As a result of this evaluation, PLNL paid withholding tax to the Board of Inland Revenue under the amnesty program for tax years 2011 to the current period, and recognized a charge for $32 million. Our 50% share of PLNL's tax charge is $16 million, which reduced our equity in earnings of operating affiliate for the three and nine months ended September 30, 2019.

PLNL settlement income

PLNL operates an ammonia plant that relies on natural gas supplied, under a Gas Sales Contract (the NGC Contract), by The National Gas Company of Trinidad and Tobago Limited (NGC). PLNL experienced past curtailments in the supply of natural gas, which reduced historical ammonia production at PLNL. The NGC Contract had an initial expiration date of September 2018 and was extended on the same terms until September 2023. Any NGC commitment to supply gas beyond 2023 will be based on new agreements. In May 2018, the NGC and PLNL reached a settlement of an arbitration proceeding regarding PLNL's claims for damages due to natural gas supply curtailments. The net after-tax impact of the settlement reached between NGC and PLNL that is recognized in our consolidated statement of operations for the nine months ended September 30, 2018 was an increase in our equity in earnings of operating affiliate of approximately $19 million.

Financial Executive Summary

We reported net earnings attributable to common stockholders of $65 million for the three months ended September 30, 2019 compared to $30 million for the three months ended September 30, 2018, or an increase in net earnings of 117%, or $35 million. Diluted net earnings per share attributable to common stockholders increased 123%, or $0.16 per share to $0.29 in the third quarter of 2019 compared to $0.13 in the third quarter of 2018. The increase in net earnings of $35 million was due primarily to the following:

- Gross margin increased by $55 million in the third quarter of 2019 to $228 million as compared to $173 million in the third quarter of 2018. The increase in gross margin was primarily driven by a decrease in natural gas costs, partially offset by higher shipping and distribution costs and higher costs related to plant turnaround and maintenance activity.

- In the third quarter of 2019, we recognized $27 million of additional income from insurance proceeds as compared to the third quarter of 2018. This is more fully described in the section above titled "Items Affecting Comparability of Results."

- In the three months ended September 30, 2019, we recognized a decrease of $16 million in our equity in earnings of operating affiliate, representing our 50% share of PLNL's charge related to a tax withholding matter for tax years 2011 to the current period. This is more fully described in the section above titled "Items Affecting Comparability of Results."

- Our income tax provision increased by $7 million in the third quarter of 2019 to $19 million as compared to $12 million in the third quarter of 2018 due to higher earnings before income taxes.

On February 13, 2019, our Board of Directors (the Board) authorized the repurchase of up to $1 billion of CF Holdings common stock through December 31, 2021 (the 2019 Share Repurchase Program). Under the 2019 Share Repurchase Program, in the third quarter of 2019, we repurchased approximately 1.5 million shares for $72 million and in the nine months ended September 30, 2019, we repurchased a total of 5.7 million shares for $250 million. In the second half of 2018, we repurchased 10.9 million shares for $500 million under the 2018 Share Repurchase Program. See discussion under "Liquidity and Capital Resources—Share Repurchase Programs," below, for further information.

Results of Consolidated Operations

The following table presents our consolidated results of operations and supplemental data:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2019	2018	2019 v. 2018		2019	2018	2019 v. 2018	
	(in millions, except as noted)							
Net sales	$ 1,038	$ 1,040	$ (2)	— %	$ 3,541	$ 3,297	$ 244	7 %
Cost of sales	810	867	(57)	(7)%	2,594	2,622	(28)	(1)%
Gross margin	228	173	55	32 %	947	675	272	40 %
Gross margin percentage	22.0%	16.6%	5.4%		26.7%	20.5%	6.2%	
Selling, general and administrative expenses	56	53	3	6 %	176	163	13	8 %
Other operating—net	(30)	(11)	(19)	(173)%	(63)	(29)	(34)	(117)%
Total other operating costs and expenses	26	42	(16)	(38)%	113	134	(21)	(16)%
Equity in (losses) earnings of operating affiliate	(14)	5	(19)	N/M	(6)	30	(36)	N/M
Operating earnings	188	136	52	38 %	828	571	257	45 %
Interest expense—net	59	55	4	7 %	170	171	(1)	(1)%
Other non-operating—net	(4)	(2)	(2)	(100)%	(7)	(6)	(1)	(17)%
Earnings before income taxes	133	83	50	60 %	665	406	259	64 %
Income tax provision	19	12	7	58 %	113	73	40	55 %
Net earnings	114	71	43	61 %	552	333	219	66 %
Less: Net earnings attributable to noncontrolling interests	49	41	8	20 %	114	92	22	24 %
Net earnings attributable to common stockholders	$ 65	$ 30	$ 35	117 %	$ 438	$ 241	$ 197	82 %
Diluted net earnings per share attributable to common stockholders	$ 0.29	$ 0.13	$ 0.16	123 %	$ 1.97	$ 1.03	$ 0.94	91 %
Diluted weighted-average common shares outstanding	220.7	235.2	(14.5)	(6)%	222.5	234.9	(12.4)	(5)%
Dividends declared per common share	$ 0.30	$ 0.30	$ —	— %	$ 0.90	$ 0.90	$ —	— %
Natural gas supplemental data (per MMBtu)								
Natural gas costs in cost of sales(1)	$ 2.24	$ 3.16	$ (0.92)	(29)%	$ 2.87	$ 3.11	$ (0.24)	(8)%
Realized derivatives loss (gain) in cost of sales(2)	—	0.03	(0.03)	(100)%	(0.01)	0.03	(0.04)	N/M
Cost of natural gas in cost of sales	$ 2.24	$ 3.19	$ (0.95)	(30)%	$ 2.86	$ 3.14	$ (0.28)	(9)%
Average daily market price of natural gas Henry Hub (Louisiana)	$ 2.33	$ 2.90	$ (0.57)	(20)%	$ 2.57	$ 2.91	$ (0.34)	(12)%
Average daily market price of natural gas National Balancing Point (UK)	$ 3.42	$ 8.40	$ (4.98)	(59)%	$ 4.56	$ 7.98	$ (3.42)	(43)%
Unrealized net mark-to-market loss (gain) on natural gas derivatives	$ 2	$ (3)	$ 5	N/M	$ 3	$ (11)	$ 14	N/M
Depreciation and amortization	$ 223	$ 233	$ (10)	(4)%	$ 663	$ 667	$ (4)	(1)%
Capital expenditures	$ 143	$ 133	$ 10	8 %	$ 297	$ 278	$ 19	7 %
Sales volume by product tons (000s)	4,752	4,765	(13)	— %	14,555	14,606	(51)	— %
Production volume by product tons (000s):								
Ammonia(3)	2,336	2,456	(120)	(5)%	7,564	7,424	140	2 %
Granular urea	1,206	1,296	(90)	(7)%	3,836	3,675	161	4 %
UAN (32%)	1,584	1,595	(11)	(1)%	4,810	4,957	(147)	(3)%
AN	552	474	78	16 %	1,585	1,355	230	17 %

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N/M—Not Meaningful

(1) Includes the cost of natural gas and related transportation that is included in cost of sales during the period under the first-in, first-out inventory cost method.

(2) Includes realized gains and losses on natural gas derivatives settled during the period. Excludes unrealized mark-to-market gains and losses on natural gas derivatives.

(3) Gross ammonia production, including amounts subsequently upgraded on-site into granular urea, UAN, or AN.

Third Quarter of 2019 Compared to Third Quarter of 2018

Net Sales

Our total net sales were essentially unchanged at $1.04 billion in the third quarter of 2019 compared to the third quarter of 2018. Average selling prices were also $218 per ton in both quarters. Our total sales volume of 4.8 million product tons in the third quarter of 2019 was essentially unchanged compared to the third quarter of 2018, as higher sales volumes in our UAN and ammonia segments were partially offset by lower sales volumes in our granular urea and AN segments.

Cost of Sales

Our total cost of sales decreased $57 million, or 7%, from the third quarter of 2018 to the third quarter of 2019. The decrease in our cost of sales was due primarily to lower realized natural gas costs, including the impact of realized derivatives, partially offset by the impact of higher shipping and distribution costs and higher costs related to plant turnaround and maintenance activity. Cost of sales averaged $170 per ton in the third quarter of 2019, a 7% decrease from $182 per ton in the same quarter of 2018. Natural gas costs, including the impact of realized derivatives, decreased 30% from $3.19 per MMBtu in the third quarter of 2018 to $2.24 per MMBtu in the third quarter of 2019.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased $3 million to $56 million in the third quarter of 2019 as compared to $53 million in the comparable period of 2018. The increase was due primarily to the costs for certain corporate office initiatives.

Other Operating—Net

Other operating—net was $30 million of income in the third quarter of 2019 compared to $11 million of income in the comparable period of 2018. The $30 million of income in the third quarter of 2019 was due primarily to the recognition of insurance proceeds of $37 million related to an insurance claim at one of our nitrogen complexes, of which $22 million related to business interruption insurance proceeds and $15 million related to property insurance proceeds. The $11 million of income in the third quarter of 2018 primarily includes insurance proceeds of $10 million related to a property insurance claim at one of our nitrogen complexes.

Equity in (Losses) Earnings of Operating Affiliate

Equity in losses of operating affiliate was $14 million in the third quarter of 2019 compared to earnings of $5 million in the third quarter of 2018. The loss in the third quarter of 2019 includes approximately $16 million related to a withholding tax charge recognized by PLNL regarding a multi-year tax dispute. See "Items Affecting Comparability of Results—PLNL withholding tax charge," above, for additional information.

Interest Expense—Net

Net interest expense was $59 million in the third quarter of 2019 compared to $55 million in the third quarter of 2018, reflecting higher interest on tax liabilities.

Income Taxes

For the three months ended September 30, 2019, we recorded an income tax provision of $19 million on pre-tax income of $133 million, or an effective tax rate of 14.6%, compared to an income tax provision of $12 million on pre-tax income of $83 million, or an effective tax rate of 15.3%, for the three months ended September 30, 2018.

Our effective tax rate is impacted by earnings attributable to the noncontrolling interest in CFN, as our consolidated income tax provision does not include a tax provision on the earnings attributable to the noncontrolling interest. Our effective tax rate for the three months ended September 30, 2019 of 14.6%, which is based on pre-tax income of $133 million, would be 23.1% exclusive of the earnings attributable to the noncontrolling interest of $49 million. Our effective tax rate for the three months ended September 30, 2018 of 15.3%, which is based on pre-tax income of $83 million, would be 29.4% exclusive of the earnings attributable to the noncontrolling interest of $41 million. See Note 10—Income Taxes and Note 14—Noncontrolling Interests for additional information.

Net Earnings Attributable to Noncontrolling Interests

Net earnings attributable to noncontrolling interests increased $8 million in the third quarter of 2019 compared to the third quarter of 2018 due to higher earnings from CFN primarily driven by higher average selling prices due to the impact of a tighter global nitrogen supply and demand balance and lower realized natural gas costs.

Diluted Net Earnings Per Share Attributable to Common Stockholders

Net earnings per share attributable to common stockholders increased $0.16 to $0.29 per diluted share in the third quarter of 2019 from $0.13 per diluted share in the third quarter of 2018. This increase reflects higher gross margin due primarily to lower realized natural gas costs and a 6% reduction in diluted weighted-average common shares outstanding due to repurchases made under our share repurchase programs.

Nine Months Ended September 30, 2019 Compared to Nine Months Ended September 30, 2018

Net Sales

Our total net sales increased $244 million, or 7%, to $3.54 billion in the first nine months of 2019 as compared to $3.30 billion in the first nine months of 2018 due primarily to an 8% increase in average selling prices, which increased net sales by $215 million.

Average selling prices were $243 per ton in the first nine months of 2019, or 8% higher, as compared to $226 per ton in the first nine months of 2018 due to higher average selling prices across all major products, driven by the impact of a tighter global nitrogen supply and demand balance.

Our total sales volume of 14.6 million product tons in the first nine months of 2019 was essentially unchanged compared to the first nine months of 2018, as higher sales volume in our ammonia and granular urea segments were partially offset by lower sales volumes in our UAN and Other segments.

Cost of Sales

Our total cost of sales decreased $28 million, or 1%, from the first nine months of 2018 to the first nine months of 2019. The decline in our cost of sales was due primarily to lower realized natural gas costs, including the impact of realized derivatives, partially offset by the impact of higher shipping costs and higher costs related to plant turnaround and maintenance activity. Cost of sales per ton averaged $178 per ton in the first nine months of 2019, a 1% decrease from $180 per ton in the same period of 2018. Natural gas costs, including the impact of realized derivatives, decreased 9% from $3.14 per MMBtu in the first nine months of 2018 to $2.86 in the first nine months of 2019.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased $13 million to $176 million in the first nine months of 2019 as compared to $163 million in the comparable period of 2018. The increase was due primarily to certain equity award modifications and costs related to certain corporate office initiatives.

Other Operating—Net

Other operating—net was $63 million of income in the first nine months of 2019 compared to $29 million of income in the comparable period of 2018. The income in the first nine months of 2019 was due primarily to the $45 million pre-tax gain recognized on the sale of the Pine Bend facility and insurance proceeds of $37 million, partially offset by foreign currency transaction losses. The income in the first nine months of 2018 was due to a combination of changes in legal reserves, insurance proceeds of $10 million and a gain of $5 million due to the recovery of certain precious metals used in the manufacturing process.

Equity in (Losses) Earnings of Operating Affiliates

Equity in losses of operating affiliates was $6 million in the first nine months of 2019 compared to $30 million of earnings in the first nine months of 2018. The loss in the first nine months of 2019 includes approximately $16 million related to a withholding tax charge recognized by PLNL regarding a multi-year tax dispute. See "Items Affecting Comparability of Results—PLNL withholding tax charge," above, for additional information.

Earnings in the first nine months of 2018 includes approximately $19 million related to the net after-tax impact of a settlement reached between NGC and PLNL of an arbitration proceeding regarding PLNL's claims for damages due to historical natural gas supply curtailments. See "Items Affecting Comparability of Results—PLNL settlement income," above, for additional information.

Interest Expense—Net

Net interest expense was $170 million in the first nine months of 2019 compared to $171 million in the first nine months of 2018.

Income Taxes

For the nine months ended September 30, 2019, we recorded an income tax provision of $113 million on pre-tax income of $665 million, or an effective tax rate of 17.1%, compared to an income tax provision of $73 million on pre-tax income of $406 million, or an effective tax rate of 18.1%, for the nine months ended September 30, 2018.

For the nine months ended September 30, 2019, our income tax provision includes an incentive tax credit from the State of Louisiana of $30 million, net of federal income tax, related to certain capital projects at our Donaldsonville, Louisiana complex.

Our effective tax rate is impacted by earnings attributable to the noncontrolling interest in CFN, and in the first quarter of 2018 by earnings attributable to the noncontrolling interests in TNCLP, as our consolidated income tax provision does not include a tax provision on the earnings attributable to the noncontrolling interests. Our effective tax rate for the nine months ended September 30, 2019 of 17.1%, which is based on pre-tax income of $665 million, would be 20.6% exclusive of the earnings attributable to the noncontrolling interest of $114 million. Our effective tax rate for the nine months ended September 30, 2018 of 18.1%, which is based on pre-tax income of $406 million, would be 23.3% exclusive of the earnings attributable to the noncontrolling interests of $92 million.

On April 2, 2018, we acquired the TNCLP Public Units. Our effective tax rate in the first nine months of 2018 was impacted by a $20 million reduction to our deferred tax liability as a result of the change in our effective state income tax rate as a result of the implementation of legal entity structure changes related to the acquisition.

See Note 10—Income Taxes and Note 14—Noncontrolling Interests for additional information.

Net Earnings Attributable to Noncontrolling Interests

Net earnings attributable to noncontrolling interests increased $22 million in the first nine months of 2019 compared to the first nine months of 2018 due to higher earnings from CFN driven by higher average selling prices due to the impact of a tighter global nitrogen supply and demand balance and lower realized natural gas costs, partially offset by the reduction in noncontrolling interests due to the April 2, 2018 purchase of the noncontrolling interests in TNCLP. In the nine months ended September 30, 2018, earnings attributable to noncontrolling interests in TNCLP was $8 million.

Diluted Net Earnings Per Share Attributable to Common Stockholders

Net earnings per share attributable to common stockholders increased $0.94 to $1.97 per diluted share in the first nine months of 2019 from $1.03 per diluted share in the first nine months of 2018. This increase is due primarily to higher gross margin driven by higher selling prices due to the impact of a tighter global nitrogen supply and demand balance and lower realized natural gas costs, and a 5% reduction in diluted weighted-average common shares outstanding due to repurchases made under our share repurchase programs.

Operating Results by Business Segment

Our reportable segments consist of ammonia, granular urea, UAN, AN and Other. These segments are differentiated by products. Our management uses gross margin to evaluate segment performance and allocate resources. Total other operating costs and expenses (consisting of selling, general and administrative expenses and other operating—net) and non-operating expenses (interest and income taxes), are centrally managed and are not included in the measurement of segment profitability reviewed by management. The following table presents summary operating results by business segment:

	Ammonia	Granular Urea(1)	UAN(1)	AN(1)	Other(1)	Consolidated
			(in millions, except percentages)			
Three months ended September 30, 2019						
Net sales	$ 187	$ 327	$ 309	$ 136	$ 79	$ 1,038
Cost of sales	188	207	250	100	65	810
Gross margin	$ (1)	$ 120	$ 59	$ 36	$ 14	$ 228
Gross margin percentage	(0.5)%	36.7%	19.1%	26.5%	17.7%	22.0%
Three months ended September 30, 2018						
Net sales	$ 192	$ 353	$ 270	$ 139	$ 86	$ 1,040
Cost of sales	181	238	243	129	76	867
Gross margin	$ 11	$ 115	$ 27	$ 10	$ 10	$ 173
Gross margin percentage	5.7 %	32.6%	10.0%	7.2%	11.6%	16.6%
Nine months ended September 30, 2019						
Net sales	$ 847	$ 1,103	$ 934	$ 389	$ 268	$ 3,541
Cost of sales	654	686	722	308	224	2,594
Gross margin	$ 193	$ 417	$ 212	$ 81	$ 44	$ 947
Gross margin percentage	22.8 %	37.8%	22.7%	20.8%	16.4%	26.7%
Nine months ended September 30, 2018						
Net sales	$ 778	$ 977	$ 892	$ 363	$ 287	$ 3,297
Cost of sales	641	682	731	320	248	2,622
Gross margin	$ 137	$ 295	$ 161	$ 43	$ 39	$ 675
Gross margin percentage	17.6 %	30.2%	18.0%	11.8%	13.6%	20.5%

(1) The cost of products that are upgraded into other products is transferred at cost into the upgraded product results.

Ammonia Segment

Our ammonia segment produces anhydrous ammonia (ammonia), which is our most concentrated nitrogen fertilizer as it contains 82% nitrogen. The results of our ammonia segment consist of sales of ammonia to external customers. In addition, ammonia is the “basic” nitrogen product that we upgrade into other nitrogen products such as granular urea, UAN and AN. We produce ammonia at all of our nitrogen manufacturing complexes.

The following table presents summary operating data for our ammonia segment:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2019	2018	2019 v. 2018		2019	2018	2019 v. 2018	
	(dollars in millions, except per ton amounts)							
Net sales	$ 187	$ 192	$ (5)	(3)%	$ 847	$ 778	$ 69	9%
Cost of sales	188	181	7	4 %	654	641	13	2%
Gross margin	$ (1)	$ 11	$ (12)	N/M	$ 193	$ 137	$ 56	41%
Gross margin percentage	(0.5)%	5.7%	(6.2)%		22.8%	17.6%	5.2%	
Sales volume by product tons (000s)	720	657	63	10 %	2,548	2,415	133	6%
Sales volume by nutrient tons (000s)(1)	590	539	51	9 %	2,089	1,981	108	5%
Average selling price per product ton	$ 260	$ 292	$ (32)	(11)%	$ 332	$ 322	$ 10	3%
Average selling price per nutrient ton(1)	$ 317	$ 356	$ (39)	(11)%	$ 405	$ 393	$ 12	3%
Gross margin per product ton	$ (1)	$ 17	$ (18)	N/M	$ 76	$ 57	$ 19	33%
Gross margin per nutrient ton(1)	$ (2)	$ 20	$ (22)	N/M	$ 92	$ 69	$ 23	33%
Depreciation and amortization	$ 41	$ 33	$ 8	24 %	$ 123	$ 110	$ 13	12%
Unrealized net mark-to-market loss (gain) on natural gas derivatives	$ 1	$ (1)	$ 2	N/M	$ 1	$ (3)	$ 4	N/M

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N/M—Not Meaningful

(1) Ammonia represents 82% nitrogen content. Nutrient tons represent the equivalent tons of nitrogen within the product tons.

Third Quarter of 2019 Compared to Third Quarter of 2018

Net Sales. Net sales in our ammonia segment decreased by $5 million, or 3%, in the third quarter of 2019 from the third quarter of 2018 due primarily to a 11% decrease in average selling prices, partially offset by a 10% increase in sales volume. Average selling prices decreased to $260 per ton in the third quarter of 2019 compared to $292 in the comparable period of 2018 due primarily to increased supply as a result of lower global energy prices and higher global operating rates, which has increased the global supply of ammonia. Sales volume was higher due to higher inventory levels entering the quarter.

Cost of Sales. Cost of sales in our ammonia segment averaged $261 per ton in the third quarter of 2019, a 5% decrease from $275 per ton in the comparable period of 2018. The decrease is due primarily to lower realized natural gas costs, partially offset by the impact of higher shipping and distribution costs.

Nine Months Ended September 30, 2019 Compared to Nine Months Ended September 30, 2018

Net Sales. Net sales in our ammonia segment increased by $69 million, or 9%, in the nine months ended September 30, 2019 from the nine months ended September 30, 2018 due primarily to a 6% increase in sales volume and a 3% increase in average selling prices. Sales volume was higher due to greater supply availability due to increased production. The increase in average selling prices was due to the impact of a tighter nitrogen supply and demand balance earlier in the year.

Cost of Sales. Cost of sales in our ammonia segment averaged $256 per ton in the nine months ended September 30, 2019, a 3% decrease from $265 per ton in the comparable period of 2018 due primarily to the impact of lower realized natural gas costs.

Granular Urea Segment

Our granular urea segment produces granular urea, which contains 46% nitrogen. Produced from ammonia and carbon dioxide, it has the highest nitrogen content of any of our solid nitrogen fertilizers. Granular urea is produced at our Donaldsonville, Louisiana; Medicine Hat, Alberta; and Port Neal, Iowa, nitrogen complexes.

The following table presents summary operating data for our granular urea segment:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2019	2018	2019 v. 2018		2019	2018	2019 v. 2018	
	(dollars in millions, except per ton amounts)							
Net sales	$ 327	$ 353	$ (26)	(7)%	$ 1,103	$ 977	$ 126	13 %
Cost of sales	207	238	(31)	(13)%	686	682	4	1 %
Gross margin	$ 120	$ 115	$ 5	4 %	$ 417	$ 295	$ 122	41 %
Gross margin percentage	36.7%	32.6%	4.1%		37.8%	30.2%	7.6%	
Sales volume by product tons (000s)	1,200	1,363	(163)	(12)%	3,880	3,779	101	3 %
Sales volume by nutrient tons (000s)[1]	552	627	(75)	(12)%	1,785	1,738	47	3 %
Average selling price per product ton	$ 273	$ 259	$ 14	5 %	$ 284	$ 259	$ 25	10 %
Average selling price per nutrient ton[1]	$ 592	$ 563	$ 29	5 %	$ 618	$ 562	$ 56	10 %
Gross margin per product ton	$ 100	$ 84	$ 16	19 %	$ 107	$ 78	$ 29	37 %
Gross margin per nutrient ton[1]	$ 217	$ 183	$ 34	19 %	$ 234	$ 170	$ 64	38 %
Depreciation and amortization	$ 66	$ 74	$ (8)	(11)%	$ 211	$ 214	$ (3)	(1)%
Unrealized net mark-to-market (gain) loss on natural gas derivatives	$ —	$ (1)	$ 1	100 %	$ 1	$ (3)	$ 4	N/M

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N/M—Not Meaningful

(1) Granular urea represents 46% nitrogen content. Nutrient tons represent the tons of nitrogen within the product tons.

Third Quarter of 2019 Compared to Third Quarter of 2018

Net Sales. Net sales in our granular urea segment decreased $26 million, or 7%, in the third quarter of 2019 from the third quarter of 2018 due primarily to a 12% decrease in sales volume, partially offset by a 5% increase in average selling prices. Sales volume was lower due to lower supply availability as a result of both lower beginning inventory and lower production due to planned maintenance activity. Average selling prices increased to $273 per ton in the third quarter of 2019 compared to $259 per ton in the comparable period of 2018. The increase was due primarily to the impact of a tighter global nitrogen supply and demand balance and the extended application season.

Cost of Sales. Cost of sales in our granular urea segment averaged $173 per ton in the third quarter of 2019, a 1% decrease from $175 per ton in the comparable period of 2018, driven by lower realized natural gas costs, partially offset by higher costs related to planned maintenance activity.

Nine Months Ended September 30, 2019 Compared to Nine Months Ended September 30, 2018

Net Sales. Net sales in our granular urea segment increased $126 million, or 13%, in the nine months ended September 30, 2019 from the nine months ended September 30, 2018 due primarily to a 10% increase in average selling prices and a 3% increase in sales volume. Average selling prices increased to $284 per ton in the nine months ended September 30, 2019 compared to $259 per ton in the comparable period of 2018. The increase was due primarily to the impact of a tighter global nitrogen supply and demand balance and the impact high water levels and flooding had on the shipping and logistics on inland rivers, including limiting access to the U.S. Gulf for imports, during the spring application season. Sales volume was higher due to greater supply availability as a result of our decision to increase granular urea production in the nine months ended September 30, 2019.

Cost of Sales. Cost of sales in our granular urea segment averaged $177 per ton in the nine months ended September 30, 2019, a 2% decrease from $181 per ton in the comparable period of 2018. The decrease was due primarily to lower realized natural gas costs and higher plant efficiencies.

UAN Segment

Our UAN segment produces urea ammonium nitrate solution (UAN). UAN, a liquid fertilizer product with a nitrogen content that typically ranges from 28% to 32%, is produced by combining urea and ammonium nitrate. UAN is produced at our nitrogen complexes in Courtright, Ontario; Donaldsonville, Louisiana; Port Neal, Iowa; Verdigris, Oklahoma; Woodward, Oklahoma; and Yazoo City, Mississippi.

The following table presents summary operating data for our UAN segment:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2019	2018	2019 v. 2018		2019	2018	2019 v. 2018	
	(dollars in millions, except per ton amounts)							
Net sales	$ 309	$ 270	$ 39	14%	$ 934	$ 892	$ 42	5 %
Cost of sales	250	243	7	3%	722	731	(9)	(1)%
Gross margin	$ 59	$ 27	$ 32	119%	$ 212	$ 161	$ 51	32 %
Gross margin percentage	19.1%	10.0%	9.1%		22.7%	18.0%	4.7%	
Sales volume by product tons (000s)	1,741	1,620	121	7%	4,880	5,109	(229)	(4)%
Sales volume by nutrient tons (000s)[1]	550	513	37	7%	1,537	1,615	(78)	(5)%
Average selling price per product ton	$ 177	$ 167	$ 10	6%	$ 191	$ 175	$ 16	9 %
Average selling price per nutrient ton[1]	$ 562	$ 526	$ 36	7%	$ 608	$ 552	$ 56	10 %
Gross margin per product ton	$ 34	$ 17	$ 17	100%	$ 43	$ 32	$ 11	34 %
Gross margin per nutrient ton[1]	$ 107	$ 53	$ 54	102%	$ 138	$ 100	$ 38	38 %
Depreciation and amortization	$ 66	$ 65	$ 1	2%	$ 183	$ 200	$ (17)	(9)%
Unrealized net mark-to-market loss (gain) on natural gas derivatives	$ 1	$ (1)	$ 2	N/M	$ 1	$ (4)	$ 5	N/M

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N/M—Not Meaningful

(1) UAN represents between 28% and 32% of nitrogen content, depending on the concentration specified by the customer. Nutrient tons represent the tons of nitrogen within the product tons.

Third Quarter of 2019 Compared to Third Quarter of 2018

Net Sales. Net sales in our UAN segment increased $39 million, or 14%, in the third quarter of 2019 from the third quarter of 2018 due primarily to a 6% increase in average selling prices and a 7% increase in sales volume. Average selling prices were $177 per ton in the third quarter of 2019 compared to $167 per ton in the comparable period of 2018 due primarily to the impact of a tighter global nitrogen supply and demand balance and the extended application season resulting from the late planting in spring 2019. The increase in sales volume was due primarily to the extended application season.

Cost of Sales. Cost of sales in our UAN segment averaged $143 per ton in the third quarter of 2019, a 5% decrease from $150 per ton in the third quarter of 2018, primarily driven by lower realized natural gas costs, partially offset by higher costs related to maintenance activity.

Nine Months Ended September 30, 2019 Compared to Nine Months Ended September 30, 2018

Net Sales. Net sales in our UAN segment increased $42 million, or 5%, in the nine months ended September 30, 2019 from the nine months ended September 30, 2018 due to a 9% increase in average selling prices, partially offset by a 4% decline in sales volume. Average selling prices increased to $191 per ton in the nine months ended September 30, 2019 compared to $175 per ton in the comparable period of 2018, due primarily to the impact of a tighter global nitrogen supply and demand balance, the impact high water levels and flooding had on the shipping and logistics on inland rivers and an extended application season. The decrease in sales volume was due primarily to lower production due to the focus on granular urea production in 2019 and the impact of lower exports to Europe.

In April 2019, the European Commission (the Commission) published a regulation imposing provisional anti-dumping duties on imports to the European Union of UAN manufactured in Russia, Trinidad and Tobago and the United States. The regulation included a rate of 22.6% for the provisional anti-dumping duty applicable to imports of UAN manufactured in the United States. In July 2019, the Commission announced its intention to impose definitive anti-dumping measures in the form of fixed duty rates. For imports of UAN manufactured in the United States, the fixed duty rate is €29.48 per metric ton. On October 8, 2019, the Commission confirmed this duty in a regulation imposing definitive measures, which became effective beginning October 9, 2019 for an initial five-year period, after which the measures may be renewed by the Commission.

Cost of Sales. Cost of sales in our UAN segment averaged $148 per ton in the nine months ended September 30, 2019, a 3% increase from $143 per ton in the comparable period of 2018. The increase was due primarily to higher costs related to maintenance activity and higher freight costs due to the mix of transportation modes.

AN Segment

Our AN segment produces ammonium nitrate (AN). AN is a nitrogen-based product with a nitrogen content between 29% and 35%. AN is used as nitrogen fertilizer and is also used by industrial customers for commercial explosives and blasting systems. AN is produced at our nitrogen complexes in Yazoo City, Mississippi and Ince and Billingham, United Kingdom.

The following table presents summary operating data for our AN segment:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2019	2018	2019 v. 2018		2019	2018	2019 v. 2018	
	(dollars in millions, except per ton amounts)							
Net sales	$ 136	$ 139	$ (3)	(2)%	$ 389	$ 363	$ 26	7 %
Cost of sales	100	129	(29)	(22)%	308	320	(12)	(4)%
Gross margin	$ 36	$ 10	$ 26	N/M	$ 81	$ 43	$ 38	88 %
Gross margin percentage	26.5%	7.2%	19.3%		20.8%	11.8%	9.0%	
Sales volume by product tons (000s)	561	601	(40)	(7)%	1,590	1,586	4	— %
Sales volume by nutrient tons (000s)[1]	188	202	(14)	(7)%	533	535	(2)	— %
Average selling price per product ton	$ 242	$ 231	$ 11	5 %	$ 245	$ 229	$ 16	7 %
Average selling price per nutrient ton[1]	$ 723	$ 688	$ 35	5 %	$ 730	$ 679	$ 51	8 %
Gross margin per product ton	$ 64	$ 17	$ 47	N/M	$ 51	$ 27	$ 24	89 %
Gross margin per nutrient ton[1]	$ 191	$ 50	$ 141	N/M	$ 152	$ 80	$ 72	90 %
Depreciation and amortization	$ 24	$ 35	$ (11)	(31)%	$ 67	$ 67	$ —	— %
Unrealized net mark-to-market (gain) loss on natural gas derivatives	$ —	$ —	$ —	— %	$ —	$ —	$ —	— %

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N/M—Not Meaningful
[1] Nutrient tons represent the tons of nitrogen within the product tons.

Third Quarter of 2019 Compared to Third Quarter of 2018

Net Sales. Net sales in our AN segment decreased $3 million, or 2%, in the third quarter of 2019 from the third quarter of 2018 due to a 7% decrease in sales volume, partially offset by a 5% increase in average selling prices. Sales volume declined due primarily to lower sales volumes in the United Kingdom as a result of a delayed harvest in the third quarter of 2019, which affected the timing of fertilizer purchases. Average selling prices increased to $242 per ton in the third quarter of 2019 compared to $231 per ton in the third quarter of 2018 due primarily to the impact of a tighter global nitrogen supply and demand balance.

Cost of Sales. Cost of sales in our AN segment averaged $178 per ton in the third quarter of 2019, a 17% decrease from $214 per ton in the comparable period of 2018. The decrease was due primarily to lower realized natural gas costs.

Nine Months Ended September 30, 2019 Compared to Nine Months Ended September 30, 2018

Net Sales. Net sales in our AN segment increased $26 million, or 7%, in the nine months ended September 30, 2019 from the nine months ended September 30, 2018 due primarily to a 7% increase in average selling prices. Average selling prices increased to $245 per ton in the nine months ended September 30, 2019 compared to $229 per ton in the comparable period of 2018 due primarily to the impact of a tighter global nitrogen supply and demand balance.

Cost of Sales. Cost of sales in our AN segment averaged $194 per ton in the nine months ended September 30, 2019, a 4% decrease from $202 per ton in the comparable period of 2018. The decrease was due primarily to lower realized natural gas costs.

Other Segment

Our Other segment primarily includes the following products:

- Diesel exhaust fluid (DEF) is an aqueous urea solution typically made with 32.5% high-purity urea and 67.5% deionized water.
- Urea liquor is a liquid product that we sell in concentrations of 40%, 50% and 70% urea as a chemical intermediate.
- Nitric acid is a nitrogen-based product with a nitrogen content of 22.2%.
- Compound fertilizer products (NPKs) are solid granular fertilizer products for which the nutrient content is a combination of nitrogen, phosphorus, and potassium.

The following table presents summary operating data for our Other segment:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2019	2018	2019 v. 2018		2019	2018	2019 v. 2018	
	(dollars in millions, except per ton amounts)							
Net sales	$ 79	$ 86	$ (7)	(8)%	$ 268	$ 287	$ (19)	(7)%
Cost of sales	65	76	(11)	(14)%	224	248	(24)	(10)%
Gross margin	$ 14	$ 10	$ 4	40 %	$ 44	$ 39	$ 5	13 %
Gross margin percentage	17.7%	11.6%	6.1%		16.4%	13.6%	2.8%	
Sales volume by product tons (000s)	530	524	6	1 %	1,657	1,717	(60)	(3)%
Sales volume by nutrient tons (000s)[1]	103	102	1	1 %	327	335	(8)	(2)%
Average selling price per product ton	$ 149	$ 164	$ (15)	(9)%	$ 162	$ 167	$ (5)	(3)%
Average selling price per nutrient ton[1]	$ 767	$ 843	$ (76)	(9)%	$ 820	$ 857	$ (37)	(4)%
Gross margin per product ton	$ 26	$ 19	$ 7	37 %	$ 27	$ 23	$ 4	17 %
Gross margin per nutrient ton[1]	$ 136	$ 98	$ 38	39 %	$ 135	$ 116	$ 19	16 %
Depreciation and amortization	$ 18	$ 18	$ —	— %	$ 54	$ 49	$ 5	10 %
Unrealized net mark-to-market gain on natural gas derivatives	$ —	$ —	$ —	— %	$ —	$ (1)	$ 1	100 %

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(1) Nutrient tons represent the tons of nitrogen within the product tons.

Third Quarter of 2019 Compared to Third Quarter of 2018

Net Sales. Net sales in our Other segment decreased by $7 million, or 8%, in the third quarter of 2019 from the third quarter of 2018 due to a 9% decrease in average selling prices, partially offset by a 1% increase in sales volume. The decrease in average selling prices is due primarily to the mix of products sold.

Cost of Sales. Cost of sales in our Other segment averaged $123 per ton in the third quarter of 2019, a 15% decrease from $145 per ton in the comparable period of 2018 due primarily to lower realized natural gas costs.

Nine Months Ended September 30, 2019 Compared to Nine Months Ended September 30, 2018

Net Sales. Net sales in our Other segment decreased by $19 million, or 7%, in the nine months ended September 30, 2019 from the nine months ended September 30, 2018 due to a 3% decrease in average selling prices and a 3% decrease in sales volume. The decrease in average selling prices is due primarily to the mix of products sold. The decrease in sales volume was due primarily to lower NPK and nitric acid sales volume, partially offset by higher DEF sales volume.

Cost of Sales. Cost of sales in our Other segment averaged $135 per ton in the nine months ended September 30, 2019, a 6% decrease from $144 per ton in the comparable period of 2018 due primarily to lower realized natural gas costs, partially offset by higher freight costs.

Liquidity and Capital Resources

Our primary uses of cash are generally for operating costs, working capital, capital expenditures, debt service, investments, taxes, share repurchases and dividends. Our working capital requirements are affected by several factors, including demand for our products, selling prices, raw material costs, freight costs and seasonal factors inherent in the business. Generally, our primary source of cash is cash from operations, which includes cash generated by customer advances. We may also from time to time access the capital markets or engage in borrowings under our credit agreement.

During the nine months ended September 30, 2019, we repurchased approximately 5.7 million shares of CF Holdings common stock for $250 million. See discussion under “Share Repurchase Programs,” below, for further information.

On October 9, 2019, we announced that our wholly owned subsidiary CF Industries has elected to redeem in full, on November 13, 2019, all of the $500 million outstanding principal amount of the 7.125% senior notes due May 2020 (the 2020 Notes), in accordance with the optional redemption provisions provided in the indenture governing the 2020 Notes. On October 30, 2019, we announced that CF Industries has elected to redeem on December 13, 2019, $250 million principal amount, representing 50% of the currently outstanding $500 million principal amount, of the 3.400% senior secured notes due December 2021 (the 2021 Notes), in accordance with the optional redemption provisions provided in the indenture governing the 2021 Notes. See discussion under “Debt,” below, for further information.

At September 30, 2019, we were in compliance with all applicable covenant requirements under our Revolving Credit Agreement, Public Senior Notes and Senior Secured Notes. There were no borrowings outstanding under the Revolving Credit Agreement as of September 30, 2019 or December 31, 2018, or during the nine months ended September 30, 2019. See discussion under “Debt,” below, for further information.

Our cash and cash equivalents balance was $1.02 billion and $682 million as of September 30, 2019 and December 31, 2018, respectively.

Cash Equivalents

Cash equivalents include highly liquid investments that are readily convertible to known amounts of cash with original maturities of three months or less. Under our short-term investment policy, we may invest our cash balances, either directly or through mutual funds, in several types of investment-grade securities, including notes and bonds issued by governmental entities or corporations. Securities issued by governmental entities include those issued directly by the U.S. and Canadian federal governments; those issued by state, local or other governmental entities; and those guaranteed by entities affiliated with governmental entities.

Share Repurchase Programs

On August 1, 2018, the Board authorized the repurchase of up to $500 million of CF Holdings common stock through June 30, 2020 (the 2018 Share Repurchase Program). In 2018, we completed the 2018 Share Repurchase Program with the repurchase of 10.9 million shares for $500 million, of which $33 million was accrued and unpaid at December 31, 2018. In February 2019, we retired all 10.9 million shares that were repurchased under the 2018 Share Repurchase Program.

On February 13, 2019, the Board authorized the repurchase of up to $1 billion of CF Holdings common stock through December 31, 2021 (the 2019 Share Repurchase Program). Repurchases under the 2019 Share Repurchase Program may be made from time to time in the open market, through privately negotiated transactions, block transactions or otherwise. The manner, timing and amount of repurchases will be determined by our management based on the evaluation of market conditions, stock price, and other factors. During the nine months ended September 30, 2019, we repurchased approximately 5.7 million shares for $250 million, of which $2 million was accrued and unpaid at September 30, 2019. In June 2019, we retired approximately 4.2 million shares that were repurchased under the 2019 Share Repurchase Program. At September 30, 2019, we held 1,534,045 shares of treasury stock.

Capital Spending

We make capital expenditures to sustain our asset base, increase our capacity, improve plant efficiency and comply with various environmental, health and safety requirements. Capital expenditures totaled $297 million in the first nine months of 2019 compared to $278 million in the first nine months of 2018.

Capital expenditures in 2019 are estimated to be approximately $425 million. Planned capital expenditures are subject to change due to delays in regulatory approvals or permitting, unanticipated increases in cost, changes in scope and completion time, performance of third parties, delays in the receipt of equipment, adverse weather, defects in materials and workmanship, labor or material shortages, transportation constraints, acceleration or delays in the timing of the work and other unforeseen difficulties.

Debt

Revolving Credit Agreement

We have a senior secured revolving credit agreement (the Revolving Credit Agreement) providing for a revolving credit facility of up to $750 million with a maturity of September 18, 2020. The Revolving Credit Agreement includes a letter of credit sub-limit of $125 million. Borrowings under the Revolving Credit Agreement may be used for working capital and general corporate purposes. CF Industries is the borrower under the Revolving Credit Agreement and may also designate as borrowers one or more wholly owned subsidiaries that are organized in the United States or any state thereof, or the District of Columbia.

Borrowings under the Revolving Credit Agreement may be denominated in U.S. dollars, Canadian dollars, euro and British pounds, and bear interest at a per annum rate equal to an applicable eurocurrency rate or base rate plus, in either case, a specified margin, and the borrowers are required to pay an undrawn commitment fee on the undrawn portion of the commitments under the Revolving Credit Agreement and customary letter of credit fees. The specified margin and the amount of the commitment fee depend on CF Holdings' credit rating at the time.

The guarantors under the Revolving Credit Agreement are currently comprised of CF Holdings and CF Holdings' wholly owned subsidiaries CF Industries Enterprises, LLC (CFE), CF Industries Sales, LLC (CFS), CF USA Holdings, LLC (CF USA) and CF Industries Distribution Facilities, LLC (CFIDF).

As of September 30, 2019, we had excess borrowing capacity under the Revolving Credit Agreement of $750 million and no outstanding letters of credit. In addition, there were no borrowings outstanding under the Revolving Credit Agreement as of September 30, 2019 or December 31, 2018, or during the nine months ended September 30, 2019.

The Revolving Credit Agreement contains representations and warranties and affirmative and negative covenants, including financial covenants. As of September 30, 2019, we were in compliance with all covenants under the Revolving Credit Agreement.

Letters of Credit

In addition to the letter of credit capacity under the Revolving Credit Agreement, as described above, we have also entered into a bilateral agreement with capacity to issue letters of credit up to $145 million (reflecting an increase of $20 million in January 2019). As of September 30, 2019, approximately $128 million of letters of credit were outstanding under this agreement.

Senior Notes

Long-term debt, including current maturities of long-term debt, presented on our consolidated balance sheets as of September 30, 2019 and December 31, 2018 consisted of the following Public Senior Notes (unsecured) and Senior Secured Notes issued by CF Industries:

	Effective Interest Rate	September 30, 2019 Principal	September 30, 2019 Carrying Amount (1)	December 31, 2018 Principal	December 31, 2018 Carrying Amount (1)
		(in millions)			
Public Senior Notes:					
7.125% due May 2020	7.529%	$ 500	$ 499	$ 500	$ 497
3.450% due June 2023	3.562%	750	747	750	747
5.150% due March 2034	5.279%	750	740	750	740
4.950% due June 2043	5.031%	750	742	750	741
5.375% due March 2044	5.465%	750	741	750	741
Senior Secured Notes:					
3.400% due December 2021	3.782%	500	496	500	495
4.500% due December 2026	4.759%	750	738	750	737
Total long-term debt		$ 4,750	$ 4,703	$ 4,750	$ 4,698
Less: Current maturities of long-term debt		500	499	—	—
Long-term debt, net of current maturities		$ 4,250	$ 4,204	$ 4,750	$ 4,698

(1) Carrying amount is net of unamortized debt discount and deferred debt issuance costs. Total unamortized debt discount was $10 million and $11 million as of September 30, 2019 and December 31, 2018, respectively, and total deferred debt issuance costs were $37 million and $41 million as of September 30, 2019 and December 31, 2018, respectively.

Under the indentures (including the applicable supplemental indentures) governing our senior notes due 2020, 2023, 2034, 2043 and 2044 identified in the table above (the Public Senior Notes), each series of Public Senior Notes is guaranteed by CF Holdings and CF Holdings' wholly owned subsidiaries CFE, CFS, CF USA and CFIDF. CFE, CFS, CF USA and CFIDF became subsidiary guarantors of the Public Senior Notes as a result of their becoming guarantors under the Revolving Credit Agreement. Interest on the Public Senior Notes is payable semiannually, and the Public Senior Notes are redeemable at our option, in whole at any time or in part from time to time, at specified make-whole redemption prices.

On October 9, 2019, we announced that CF Industries has elected to redeem in full all of the $500 million outstanding principal amount of the 2020 Notes in accordance with the optional redemption provisions provided in the indenture governing the 2020 Notes. We estimate, based on market interest rates on October 28, 2019, the total amount for the redemption of the 2020 Notes will be approximately $513 million, including accrued interest. The 2020 Notes will be redeemed on November 13, 2019 and will be funded with cash on hand. See Note 12—Financing Agreements for additional information.

On November 21, 2016, CF Industries issued $500 million aggregate principal amount of 3.400% senior secured notes due 2021 (the 2021 Notes) and $750 million aggregate principal amount of 4.500% senior secured notes due 2026 (the 2026 Notes, and together with the 2021 Notes, the Senior Secured Notes). CF Holdings and the subsidiary guarantors of the Public Senior Notes are also guarantors of the Senior Secured Notes. Interest on the Senior Secured Notes is payable semiannually on December 1 and June 1, and the Senior Secured Notes are redeemable at our option, in whole at any time or in part from time to time, at specified make-whole redemption prices.

On October 30, 2019, we announced that CF Industries has elected to redeem on December 13, 2019, $250 million principal amount, representing 50% of the currently outstanding $500 million principal amount, of the 2021 Notes, in accordance with the optional redemption provisions provided in the indenture governing the 2021 Notes. We estimate, based on market interest rates on October 28, 2019, the total amount for the partial redemption of the 2021 Notes will be approximately $257 million, including accrued interest. The partial redemption of the 2021 Notes will be funded with cash on hand. See Note 12—Financing Agreements for additional information.

Forward Sales and Customer Advances

We offer our customers the opportunity to purchase products from us on a forward basis at prices and on delivery dates we propose. Therefore, our reported fertilizer selling prices and margins may differ from market spot prices and margins available at the time of shipment.

Customer advances, which typically represent a portion of the contract's value, are received shortly after the contract is executed, with any remaining unpaid amount generally being collected by the time control transfers to the customer, thereby reducing or eliminating the accounts receivable related to such sales. Any cash payments received in advance from customers in connection with forward sales contracts are reflected on our consolidated balance sheets as a current liability until control transfers and revenue is recognized. As of September 30, 2019 and December 31, 2018, we had $184 million and $149 million, respectively, in customer advances on our consolidated balance sheets.

While customer advances are generally a significant source of liquidity, the level of forward sales contracts is affected by many factors including current market conditions and our customers' outlook of future market fundamentals. During periods of declining prices, customers tend to delay purchasing fertilizer in anticipation that prices in the future will be lower than the current prices. If the level of sales under our forward sales programs were to decrease in the future, our cash received from customer advances would likely decrease and our accounts receivable balances would likely increase. Additionally, borrowing under the Revolving Credit Agreement could become necessary. Due to the volatility inherent in our business and changing customer expectations, we cannot estimate the amount of future forward sales activity.

Under our forward sales programs, a customer may delay delivery of an order due to weather conditions or other factors. These delays generally subject the customer to potential charges for storage or may be grounds for termination of the contract by us. Such a delay in scheduled shipment or termination of a forward sales contract due to a customer's inability or unwillingness to perform may negatively impact our reported sales.

Derivative Financial Instruments

We may use derivative financial instruments to reduce our exposure to changes in prices for natural gas that will be purchased in the future. Natural gas is the largest and most volatile component of our manufacturing cost for nitrogen-based fertilizers. From time to time, we also use derivative financial instruments to reduce our exposure to changes in foreign currency exchange rates. Volatility in reported quarterly earnings can result from the unrealized mark-to-market adjustments in the value of the derivatives. As of September 30, 2019, our open derivative contracts consisted of natural gas fixed price swaps, basis swaps and options for 38.7 million MMBtus. As of December 31, 2018, we had open derivative contracts for 6.6 million MMBtus of natural gas basis swaps.

Defined Benefit Pension Plans

We contributed $55 million to our pension plans during the nine months ended September 30, 2019. Over the remainder of 2019, we expect to contribute an additional $6 million to our pension plans, or a total of approximately $61 million for the full year 2019.

Distribution to Noncontrolling Interest in CFN

On July 31, 2019, the CFN Board of Managers approved semi-annual distribution payments for the distribution period ended June 30, 2019 in accordance with CFN's limited liability company agreement. On July 31, 2019, CFN distributed $100 million to CHS for the distribution period ended June 30, 2019. The estimate of the partnership distribution earned by CHS, but not yet declared, for the third quarter of 2019 is approximately $49 million.

Cash Flows

Operating Activities

Net cash provided by operating activities during the first nine months of 2019 was $1.20 billion, a decrease of $40 million as compared to $1.24 billion in the first nine months of 2018. This decrease was due primarily to changes in working capital, partially offset by an increase in cash earnings generated by the business. The changes in working capital primarily include customer advances, as fewer customers prepaid their purchases in the third quarter of 2019. In addition, accounts receivable collections were lower in 2019. Cash earnings from the business increased as net earnings in the first nine months of 2019 increased by $219 million as compared to the first nine months of 2018.

Investing Activities

Net cash used in investing activities was $211 million in the first nine months of 2019 as compared to $238 million in the first nine months of 2018. During the first nine months of 2019, capital expenditures totaled $297 million compared to $278 million in the first nine months of 2018. Net cash used in investing activities in the first nine months of 2019 included proceeds of $55 million related to the sale of our Pine Bend facility and $15 million related to property insurance proceeds received. Net cash used in investing activities in the first nine months of 2018 included $10 million related to property insurance proceeds received.

Financing Activities

Net cash used in financing activities was $653 million in the first nine months of 2019 compared to $814 million in the same period of 2018. Dividends paid on common stock during the nine months ended September 30, 2019 and 2018 were $200 million and $210 million, respectively. The decrease in dividends was due to lower shares outstanding as a result of shares repurchased under our share repurchase programs in 2018 and 2019. In the first nine months of 2019, we spent $280 million to repurchase shares of common stock, which included approximately $33 million related to shares repurchased in late 2018 that were paid for in 2019. In the first nine months of 2019, we repurchased approximately 5.7 million shares for approximately $250 million, of which $2 million was accrued and not yet settled at September 30, 2019. Distributions to noncontrolling interests totaled $186 million in the first nine months of 2019 as compared to $139 million in the first nine months of 2018. Net cash used in financing activities in the first nine months of 2018 included $388 million related to our acquisition of all of the outstanding publicly traded common units of TNCLP.

Sale of Pine Bend Facility

In March of 2019, we entered into an agreement to sell our Pine Bend dry bulk storage and logistics facility located in Minnesota. In April of 2019, we completed the sale, received proceeds of $55 million and recognized a pre-tax gain of $45 million. The gain is reflected in other operating—net in our consolidated statement of operations for the nine months ended September 30, 2019.

Contractual Obligations

As of September 30, 2019, there have been no material changes outside the ordinary course of business to our contractual obligations as described in our 2018 Annual Report on Form 10-K filed with the SEC on February 22, 2019.

On October 9, 2019, we announced that CF Industries has elected to redeem in full all of the $500 million outstanding principal amount of the 2020 Notes in accordance with the optional redemption provisions provided in the indenture governing the 2020 Notes. On October 30, 2019, we announced that CF Industries has elected to redeem $250 million principal amount, representing 50% of the currently outstanding $500 million principal amount, of the 2021 Notes, in accordance with the optional redemption provisions provided in the indenture governing the 2021 Notes. See discussion under "Debt," above, for further information.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements that have or are reasonably likely to have a material current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources. See "Recent Accounting Pronouncements," below, for a discussion of our January 1, 2019 adoption of Accounting Standards Update (ASU) No. 2016-02, Leases (Topic 842).

Critical Accounting Policies and Estimates

There were no changes to our significant accounting policies or estimates during the first nine months of 2019.

Recent Accounting Pronouncements

See Note 2—New Accounting Standards for a discussion of recent accounting pronouncements, including our January 1, 2019 adoption of ASU No. 2016-02, Leases (Topic 842), which requires lessees to recognize the rights and obligations resulting from virtually all leases (other than leases that meet the definition of a short-term lease) on their balance sheets as right-of-use assets with corresponding lease liabilities.

FORWARD-LOOKING STATEMENTS

From time to time, in this Quarterly Report on Form 10-Q as well as in other written reports and oral statements, we make forward-looking statements that are not statements of historical fact and may involve a number of risks and uncertainties. These statements relate to analyses and other information that are based on forecasts of future results and estimates of amounts not yet determinable. These statements may also relate to our prospects, future developments and business strategies. We have used the words “anticipate,” “believe,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “predict,” “project,” “will,” or “would” and similar terms and phrases, including references to assumptions, to identify forward-looking statements in this document. These forward-looking statements are made based on currently available competitive, financial and economic data, our current expectations, estimates, forecasts and projections about the industries and markets in which we operate and management’s beliefs and assumptions concerning future events affecting us. These statements are not guarantees of future performance and are subject to risks, uncertainties and factors relating to our operations and business environment, all of which are difficult to predict and many of which are beyond our control. Therefore, our actual results may differ materially from what is expressed in or implied by any forward-looking statements. We want to caution you not to place undue reliance on any forward-looking statements. We do not undertake any responsibility to release publicly any revisions to these forward-looking statements to take into account events or circumstances that occur after the date of this document. Additionally, we do not undertake any responsibility to provide updates regarding the occurrence of any unanticipated events which may cause actual results to differ from those expressed or implied by the forward-looking statements contained in this document.

Important factors that could cause actual results to differ materially from our expectations are disclosed under “Risk Factors” in Item 1A in our 2018 Annual Report on Form 10-K filed with the SEC on February 22, 2019. Such factors include, among others:

- the cyclical nature of our business and the impact of global supply and demand on our selling prices;
- the global commodity nature of our fertilizer products, the conditions in the international market for nitrogen products, and the intense global competition from other fertilizer producers;
- conditions in the U.S. and European agricultural industry;
- the volatility of natural gas prices in North America and Europe;
- difficulties in securing the supply and delivery of raw materials, increases in their costs or delays or interruptions in their delivery;
- reliance on third party providers of transportation services and equipment;
- the significant risks and hazards involved in producing and handling our products against which we may not be fully insured;
- our ability to manage our indebtedness;
- operating and financial restrictions imposed on us by the agreements governing our senior secured indebtedness;
- risks associated with our incurrence of additional indebtedness;
- our ability to maintain compliance with covenants under the agreements governing our indebtedness;
- downgrades of our credit ratings;
- risks associated with cyber security;
- weather conditions;
- risks associated with changes in tax laws and disagreements with taxing authorities;
- our reliance on a limited number of key facilities;
- potential liabilities and expenditures related to environmental, health and safety laws and regulations and permitting requirements;
- future regulatory restrictions and requirements related to greenhouse gas emissions;
- risks associated with expansions of our business, including unanticipated adverse consequences and the significant resources that could be required;
- the seasonality of the fertilizer business;
- the impact of changing market conditions on our forward sales programs;
- risks involving derivatives and the effectiveness of our risk measurement and hedging activities;
- risks associated with the operation or management of the CHS strategic venture, risks and uncertainties relating to the market prices of the fertilizer products that are the subject of our supply agreement with CHS over the life of the supply agreement, and the risk that any challenges related to the CHS strategic venture will harm our other business relationships;
- risks associated with our PLNL joint venture;
- acts of terrorism and regulations to combat terrorism;
- risks associated with international operations; and
- deterioration of global market and economic conditions.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

We are exposed to the impact of changes in commodity prices, interest rates and foreign currency exchange rates.

Commodity Prices

Our net sales, cash flows and estimates of future cash flows related to nitrogen-based fertilizers are sensitive to changes in fertilizer prices as well as changes in the prices of natural gas and other raw materials unless these costs have been fixed or hedged. A $1.00 per MMBtu change in the price of natural gas would change the cost to produce a ton of ammonia, granular urea, UAN (32%), and AN by approximately $33, $22, $16 and $16, respectively.

Natural gas is the largest and most volatile component of the manufacturing cost for nitrogen-based fertilizers. We manage the risk of changes in natural gas prices primarily with the use of derivative financial instruments. The derivative instruments that we use are primarily natural gas fixed price swaps, natural gas basis swaps and natural gas options. These derivatives settle using primarily NYMEX futures price indexes, which represent the basis for fair value at any given time. The contracts represent anticipated natural gas needs for future periods and settlements are scheduled to coincide with anticipated natural gas purchases during those future periods. As of September 30, 2019, we had natural gas fixed price swaps, basis swaps and options covering certain periods through March 2020.

As of September 30, 2019 and December 31, 2018, we had open derivative contracts for 38.7 MMBtus and 6.6 MMBtus, respectively. A $1.00 per MMBtu increase in the forward curve prices of natural gas at September 30, 2019 would result in a favorable change in the fair value of these derivative positions of $33 million, and a $1.00 per MMBtu decrease in the forward curve prices of natural gas would change their fair value unfavorably by $35 million.

From time to time we may purchase nitrogen products on the open market to augment or replace production at our facilities.

Interest Rates

As of September 30, 2019, we had seven series of senior notes totaling $4.75 billion of principal outstanding with maturity dates of May 1, 2020, December 1, 2021, June 1, 2023, December 1, 2026, March 15, 2034, June 1, 2043 and March 15, 2044. The senior notes have fixed interest rates. As of September 30, 2019, the carrying value and fair value of our senior notes was approximately $4.70 billion and $4.89 billion, respectively.

Borrowings under the Revolving Credit Agreement bear current market rates of interest and we are subject to interest rate risk on such borrowings. There were no borrowings outstanding under the Revolving Credit Agreement as of September 30, 2019 or December 31, 2018, or during the nine months ended September 30, 2019.

Foreign Currency Exchange Rates

We are directly exposed to changes in the value of the Canadian dollar, the British pound and the euro. We generally do not maintain any exchange rate derivatives or hedges related to these currencies.

ITEM 4. CONTROLS AND PROCEDURES.

(a) Disclosure Controls and Procedures. The Company’s management, with the participation of the Company’s principal executive officer and principal financial officer, has evaluated the effectiveness of the Company’s disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act)) as of the end of the period covered by this report. Based on such evaluation, the Company’s principal executive officer and principal financial officer have concluded that, as of the end of such period, the Company’s disclosure controls and procedures are effective in (i) ensuring that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms and (ii) ensuring that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company’s management, including the Company’s principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

(b) Changes in Internal Control Over Financial Reporting. There have not been any changes in the Company’s internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the quarter ended September 30, 2019 that have materially affected, or are reasonably likely to materially affect, the Company’s internal control over financial reporting.

PART II—OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS.

West Fertilizer Co.

On April 17, 2013, there was a fire and explosion at the West Fertilizer Co. fertilizer storage and distribution facility in West, Texas. According to published reports, 15 people were killed and approximately 200 people were injured in the incident, and the fire and explosion damaged or destroyed a number of homes and buildings around the facility. Various subsidiaries of CF Industries Holdings, Inc. (the CF Entities) were named as defendants along with other companies in lawsuits filed in 2013, 2014 and 2015 in the District Court of McLennan County, Texas by the City of West, individual residents of the County and other parties seeking recovery for damages allegedly sustained as a result of the explosion. The cases were consolidated for discovery and pretrial proceedings in the District Court of McLennan County under the caption “In re: West Explosion Cases.” The two-year statute of limitations expired on April 17, 2015. As of that date, over 400 plaintiffs had filed claims, including at least 9 entities, 325 individuals, and 80 insurance companies. Plaintiffs allege various theories of negligence, strict liability, and breach of warranty under Texas law. Although we do not own or operate the facility or directly sell our products to West Fertilizer Co., products that the CF Entities manufactured and sold to others were delivered to the facility and may have been stored at the West facility at the time of the incident.

The Court granted in part and denied in part the CF Entities’ Motions for Summary Judgment in August 2015. Over two hundred cases have been resolved pursuant to confidential settlements that have been or we expect will be fully funded by insurance. The remaining cases are in various stages of discovery and pre-trial proceedings. The next group of cases was reset for trial beginning on January 21, 2020. We believe we have strong legal and factual defenses and intend to continue defending the CF Entities vigorously in the pending lawsuits. The Company cannot provide a range of reasonably possible loss due to the lack of damages discovery for many of the remaining claims and the uncertain nature of this litigation, including uncertainties around the potential allocation of responsibility by a jury to other defendants or responsible third parties. The recognition of a potential loss in the future in the West Fertilizer Co. litigation could negatively affect our results in the period of recognition. However, based upon currently available information, including available insurance coverage, we do not believe that this litigation will have a material adverse effect on our consolidated financial position, results of operations or cash flows.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS.

The following table sets forth stock repurchases, on a trade date basis, for each of the three months of the quarter ended September 30, 2019.

	Issuer Purchases of Equity Securities			
Period	**Total number of shares (or units) purchased**	**Average price paid per share (or unit)[1]**	**Total number of shares (or units) purchased as part of publicly announced plans or programs[2]**	**Maximum number (or approximate dollar value) of shares (or units) that may yet be purchased under the plans or programs (in thousands)[2]**
July 1, 2019 - July 31, 2019	638,411 [3]	$ 46.34	638,131	$ 792,390
August 1, 2019 - August 31, 2019	448,342	49.07	448,342	770,391
September 1, 2019 - September 30, 2019	404,684	49.38	404,684	750,406
Total	1,491,437	$ 47.99	1,491,157	

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(1) Average price paid per share of CF Industries Holdings, Inc. (CF Holdings) common stock repurchased under the 2019 Stock Repurchase Program, as defined below, is the execution price, excluding commissions paid to brokers.

(2) On February 13, 2019, our Board of Directors authorized management to repurchase CF Holdings common stock for a total expenditure of up to $1 billion through December 31, 2021 (the 2019 Stock Repurchase Program). This program is discussed in Note 15—Stockholders’ Equity, in the notes to the unaudited consolidated financial statements included in Part I.

(3) Includes 280 shares withheld to pay employee tax obligations upon the lapse of restrictions on restricted stock units.

ITEM 6. EXHIBITS.

A list of exhibits filed with this Report on Form 10-Q (or incorporated by reference to exhibits previously filed or furnished) is provided in the Exhibit Index on page 57 of this report.

CF INDUSTRIES HOLDINGS, INC.

EXHIBIT INDEX

Exhibit No.	Description
10.1	Change in Control Severance Agreement, effective as of February 2, 2012, and amended and restated as of September 1, 2019, by and between CF Industries Holdings, Inc. and Ashraf K. Malik
31.1	Certification of Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2	Certification of Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101	The following financial information from CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, formatted in Inline XBRL (eXtensible Business Reporting Language): (1) Consolidated Statements of Operations, (2) Consolidated Statements of Comprehensive Income, (3) Consolidated Balance Sheets, (4) Consolidated Statements of Equity, (5) Consolidated Statements of Cash Flows, and (6) the Notes to Unaudited Consolidated Financial Statements
104	Cover Page Interactive Data File (included in Exhibit 101)

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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.

	CF INDUSTRIES HOLDINGS, INC.
Date: October 31, 2019	By: /s/ W. ANTHONY WILL
	W. Anthony Will *President and Chief Executive Officer* *(Principal Executive Officer)*
Date: October 31, 2019	By: /s/ CHRISTOPHER D. BOHN
	Christopher D. Bohn *Senior Vice President and Chief Financial Officer* *(Principal Financial Officer)*

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Section 2: EX-10.1 (EXHIBIT 10.1)

Exhibit 10.1

CHANGE IN CONTROL SEVERANCE AGREEMENT

THIS AGREEMENT, effective as of February 2, 2012 and amended and restated effective as of September 1, 2019, is made by and between CF Industries Holdings, Inc., a Delaware corporation (the “Company”), and Ashraf K. Malik (the “Executive”).

WHEREAS, the Company considers it essential to the best interests of its stockholders to foster the continued employment of key management personnel; and

WHEREAS, the Board recognizes that the possibility of a Change in Control exists and that such possibility, and the uncertainty and questions which it may raise among management, may result in the departure or distraction of management personnel to the detriment of the Company and its stockholders; and

WHEREAS, the Board has determined that appropriate steps should be taken to reinforce and encourage the continued attention and dedication of members of the Company’s management, including the Executive, to their assigned duties without distraction in the face of potentially disturbing circumstances arising from the possibility of a Change in Control;

NOW, THEREFORE, in consideration of the premises and the mutual covenants herein contained, the Company and the Executive hereby agree as follows:

1. Defined Terms. The definitions of capitalized terms used in this Agreement are provided in the last Section hereof.

2. Term of Agreement. This Agreement shall become effective upon execution, and the Term shall continue in effect through December 31, 2020; provided, however, that commencing on January 1, 2020 and each January 1

thereafter, the Term shall automatically be extended for one additional year unless, not later than September 30 of the preceding year, the Company or the Executive shall have given notice not to extend the Term; and further provided, however, that if a Change in Control shall have occurred during the Term, the Term shall expire no earlier than twenty-four (24) months beyond the month in which such Change in Control occurred.

3. Company's Covenants Summarized. In order to induce the Executive to remain in the employ of the Company and in consideration of the Executive's covenants set forth in Section 4 hereof, the Company agrees, under the conditions described herein, to pay the Executive the Severance Payments and the other payments and benefits described herein. No Severance Payments shall be payable under this Agreement unless there shall have been (or, under the terms of the second sentence of Section 6.1 hereof, there shall be deemed to have been) a termination of the Executive's employment with the Company following a Change in Control and during the Term. This Agreement shall not be construed as creating an express or implied contract of employment and, except as otherwise agreed in writing between the Executive and the Company, the Executive shall not have any right to be retained in the employ of the Company.

4. The Executive's Covenants. The Executive agrees that, subject to the terms and conditions of this Agreement, in the event of a Potential Change in Control during the Term, the Executive will remain in the employ of the Company until the earliest of (i) a date which is six (6) months from the date of such Potential Change in Control, (ii) the date of a Change in Control, (iii) the date of termination by the Executive of the Executive's employment for Good Reason or by reason of death, Disability or Retirement, or (iv) the termination by the Company of the Executive's employment for any reason.

5. Compensation Other Than Severance Payments.

5.1 Following a Change in Control and during the Term, during any period that the Executive fails to perform the Executive's full-time duties with the Company as a result of incapacity due to physical or mental illness, the Company shall pay the Executive's full salary to the Executive at the rate in effect at the commencement of any such period, together with all compensation and benefits payable to the Executive under the terms of any compensation or benefit plan, program or arrangement maintained by the Company during such period (other than any disability plan), until the Executive's employment is terminated by the Company for Disability.

5.2 If the Executive's employment shall be terminated for any reason following a Change in Control and during the Term, the Company shall pay the Executive's full salary to the Executive through the Date of Termination at the rate in effect immediately prior to the Date of Termination or, if higher, the rate in effect immediately prior to the first occurrence of an event or circumstance constituting Good Reason, together with all compensation and benefits payable to the Executive through the Date of Termination under the terms of the Company's compensation and benefit plans, programs or arrangements as in effect immediately prior to the Date of Termination or, if more favorable to the Executive, as in effect immediately prior to the first occurrence of an event or circumstance constituting Good Reason.

5.3 If the Executive's employment shall be terminated for any reason following a Change in Control and during the Term, the Company shall pay to the Executive the Executive's normal post-termination compensation and benefits as such payments become due. Such post-termination compensation and benefits shall be determined under, and paid in accordance with, the Company's retirement, insurance and other compensation or benefit plans, programs and arrangements as in effect immediately prior to the Date of Termination or, if more favorable to the Executive, as in effect immediately prior to the occurrence of the first event or circumstance constituting Good Reason.

6. Severance Payments.

6.1 If the Executive's employment is terminated following a Change in Control and during the Term, other than (A) by the Company for Cause, (B) by reason of death or Disability, or (C) by the Executive without Good Reason, then the Company shall, subject to Section 6.2, pay the Executive the amounts, and provide the Executive the benefits, described in this Section 6.1 ("Severance Payments"), in addition to any payments and benefits to which the Executive is entitled under Section 5 hereof. For purposes of this Agreement, the Executive's employment shall be deemed to have been terminated following a Change in Control by the Company without Cause or by the Executive with Good Reason, if (i) the Executive's employment is terminated by the Company without Cause prior to a Change in Control (whether or not a Change in Control ever occurs) and such termination was at the request or direction of a Person who has entered into an agreement with the Company the consummation of which would constitute a Change in Control, (ii) the Executive terminates his employment for Good Reason prior to a Change in Control (whether or not a Change in Control ever occurs) and the circumstance or event which constitutes Good Reason occurs at the request or direction of such Person, or (iii) the Executive's employment is terminated by the Company without Cause or by the Executive for Good Reason and such termination or the circumstance or event which constitutes Good Reason is otherwise in connection with or in anticipation of a Change in Control (whether or not a Change in Control ever occurs).

(A) In lieu of any further salary payments to the Executive for periods subsequent to the Date of Termination and in lieu of any severance benefit otherwise payable to the Executive, the Company shall pay to the Executive a lump sum severance payment, in cash, equal to two times the sum of (i) the Executive's base salary as in effect immediately prior to the Date of Termination or, if higher, in effect immediately prior to the first occurrence of an event or circumstance constituting Good Reason, and (ii) the Executive's target annual bonus pursuant to any annual bonus or incentive plan maintained by the Company in respect of the fiscal year in which the Date of Termination occurs or, if higher, the fiscal year in which the first event or circumstance constituting Good Reason occurs.

(B) For the twenty-four (24) month period immediately following the Date of Termination, the Company shall arrange to provide the Executive and his dependents life, disability, accident and health insurance benefits substantially similar to those provided to the Executive and his dependents immediately prior to the Date of Termination or, if more favorable to the Executive, those provided to the Executive and his dependents immediately prior to the first occurrence of an event or circumstance constituting Good Reason; provided, however, that, unless the Executive consents to a different method, such health insurance benefits shall be provided through a third-party insurer. The value of such benefits shall be taxable to the Executive to the extent necessary to avoid the imposition of excise taxes or other penalties on the Company pursuant to the operation of Section 10101(d) of The Patient Protection and Affordable Care Act of 2010 (amending Section 2716 of the Public Health Service Act) or a successor or similar law.

(C) In addition to the benefits to which the Executive is entitled under each Pension Plan, the Company shall pay the Executive a lump sum amount, in cash, equal to the sum of (1) the amount that would have been contributed or allocated to each Pension Plan by the Company on the Executive's behalf (without regard to whether such amount would be vested) during the two years immediately following the Date of Termination, determined (x) as if the Executive made the maximum permissible contributions thereto (if contributions are permitted under such Pension Plan) during such period, (y) as if the Executive earned compensation during such period at a rate equal to the Executive's compensation (as defined in the applicable Pension Plan) during the twelve (12) months immediately preceding the Date of Termination or, if higher, during the twelve months immediately prior to the first occurrence of an event or circumstance constituting Good Reason, and (z) without regard to any amendment to the applicable Pension Plan made subsequent to a Change in Control and on or prior to the Date of Termination, which amendment adversely affects in any manner the computation of benefits thereunder and (2) all other amounts credited to the Executive's account under each Pension Plan to the extent such amounts were unvested on the Date of Termination.

(D) The Company shall provide the Executive with outplacement services suitable to the Executive's position for a period of two years or, if earlier, until the first acceptance by the Executive of an offer of employment.

(E) Notwithstanding any provision of any annual or long-term incentive plan to the contrary, the Company shall pay to the Executive a lump sum amount, in cash, equal to the sum of (i) any unpaid incentive compensation which has been allocated or awarded to the Executive for a completed fiscal year or other measuring period preceding the Date of Termination under any such plan and which, as of the Date of Termination, is contingent only upon the continued employment of the Executive to a subsequent date, and (ii) a pro rata portion to the Date of Termination of the aggregate value of all contingent incentive compensation awards to the Executive for all then uncompleted periods under any such plan, calculated as to each such award by multiplying the award that the Executive would have earned on the last day of the performance award period, assuming the achievement, at the target level (or, if greater, based on actual results to Date of Termination), of the individual and corporate performance goals established with respect to such award, by the fraction obtained by dividing the number of full months and any fractional portion of a month during such performance award period through the Date of Termination by the total number of months contained in such performance award period.

6.2 As described more fully on Exhibit B hereto (which Exhibit shall govern the implementation of this Section 6.2), in the event that the payments and benefits to be received by the Executive in connection with a Change in Control or a termination of the Executive's employment would be subject to the Excise Tax, such payments and benefits shall be reduced to the greatest amount that the Executive may receive without becoming subject to the Excise Tax, unless the Executive would be better off on an after-tax basis (including following application of the Excise Tax) receiving the full amount of such payments and benefits, in which case no such reduction shall be applied.

6.3 The payments provided in subsections (A), (C) and (E) of Section 6.1 hereof shall be made not later than the fifth day following the date upon which the revocation period for the release described in Section 6.6 expires; provided, however, that if the amounts of such payments cannot be finally determined on or before such day, the Company shall pay to the Executive on such day an estimate, as determined in good faith by the Executive or, in the case of payments under Section 6.2 hereof, in accordance with Section 6.2 hereof, of the minimum amount of such payments to which the Executive is clearly entitled and shall pay the remainder of such payments (together with interest on the unpaid remainder (or on all such payments to the extent the Company fails to make such payments when due) at 120% of the rate provided in section 1274(b)(2)(B) of the Code) as soon as the amount thereof can be determined but in no event later than the thirtieth (30th) day after the Date of Termination. In the event that the amount of the estimated payments exceeds the amount subsequently determined to have been due, such excess shall constitute a loan by the

Company to the Executive, payable on the fifth (5th) business day after demand by the Company (together with interest at 120% of the rate provided in section 1274(b)(2)(B) of the Code). Notwithstanding the foregoing, the payments and benefits described in this Agreement shall be subject to the provisions of Section 14.3.

6.4 The Company also shall pay to the Executive all legal fees and expenses incurred by the Executive in disputing in good faith any issue hereunder relating to the termination of the Executive's employment, in seeking in good faith to obtain or enforce any benefit or right provided by this Agreement or in connection with any tax audit or proceeding to the extent attributable to the application of section 4999 of the Code to any payment or benefit provided hereunder. Such payments shall be made within five (5) business days after delivery of the Executive's written requests for payment accompanied with such evidence of fees and expenses incurred as the Company reasonably may require. The Executive's reimbursement rights described in this Section 6.4 shall remain in effect for the Executive's lifetime, provided, that, in order for the Executive to be entitled to reimbursement hereunder, the Executive must submit the written reimbursement request described above within 180 days following the date upon which the applicable expense is incurred.

6.5 The Executive agrees that prior to and following the Date of Termination, he shall retain in confidence any confidential information known to him concerning the Company and its Affiliates and their respective businesses for as long as such information is not publicly disclosed.

6.6 Notwithstanding anything to the contrary, all compensation and benefits payable to Executive pursuant to this Section 6 (other than as described in Section 6.4) are conditioned on receipt by the Company of an executed release of claims by Executive in the form attached hereto as Exhibit A and the expiration of any revocation period in such release. In order to be entitled to such compensation and benefits, the Executive must execute such release of claims within the consideration period described in paragraph (d) in the form of release attached hereto as Exhibit A and must not revoke such release.

7. Termination Procedures and Compensation During Dispute.

7.1 Notice of Termination. After a Change in Control and during the Term, any purported termination of the Executive's employment (other than by reason of death) shall be communicated by written Notice of Termination from one party hereto to the other party hereto in accordance with Section 10 hereof. For purposes of this Agreement, a "Notice of Termination" shall mean a notice which shall indicate the specific termination provision in this Agreement relied upon and shall set forth in reasonable detail the facts and circumstances claimed to provide a basis for termination of the Executive's employment under the provision so indicated. Further, a Notice of Termination for Cause is required to include a copy of a resolution duly adopted by the affirmative vote of not less than three-quarters (3/4) of the entire membership of the Board at a meeting of the Board which was called and held for the purpose of considering such termination (after reasonable notice to the Executive and an opportunity for the Executive, together with the Executive's counsel, to be heard before the Board) finding that, in the good faith opinion of the Board, the Executive was guilty of conduct set forth in clause (i) or (ii) of the definition of Cause herein, and specifying the particulars thereof in detail.

7.2 Date of Termination. "Date of Termination," with respect to any purported termination of the Executive's employment after a Change in Control and during the Term, shall mean (i) if the Executive's employment is terminated for Disability, thirty (30) days after Notice of Termination is given (provided that the Executive shall not have returned to the full-time performance of the Executive's duties during such thirty (30) day period), and (ii) if the Executive's employment is terminated for any other reason, the date specified in the Notice of Termination (which, in the case of a termination by the Company, shall not be less than thirty (30) days (except in the case of a termination for Cause) and, in the case of a termination by the Executive, shall not be less than fifteen (15) days nor more than sixty (60) days, respectively, from the date such Notice of Termination is given).

7.3 Dispute Concerning Termination. If within fifteen (15) days after any Notice of Termination is given, or, if later, prior to the Date of Termination (as determined without regard to this Section 7.3), the party receiving such Notice of Termination notifies the other party that a dispute exists concerning the termination, the Date of Termination shall be extended until the earlier of (i) the date on which the Term ends or (ii) the date on which the dispute is finally resolved, either by mutual written agreement of the parties or by a final judgment, order or decree of an arbitrator or a court of competent jurisdiction (which is not appealable or with respect to which the time for appeal therefrom has expired and no appeal has been perfected); provided, however, that the Date of Termination shall be extended by a notice of dispute given by the Executive only if such notice is given in good faith and the Executive pursues the resolution of such dispute with reasonable diligence.

7.4 Compensation During Dispute. If a purported termination occurs following a Change in Control and during the Term and the Date of Termination is extended in accordance with Section 7.3 hereof, the Company shall continue to pay the Executive the full compensation in effect when the notice giving rise to the dispute was given (including, but not limited to, salary) and continue the Executive as a participant in all compensation, benefit and insurance plans in which the Executive was participating when the notice giving rise to the dispute was given, until the Date of Termination, as determined in accordance with Section 7.3 hereof. Amounts paid under this Section 7.4 are in addition to all other amounts due under this Agreement (other than those due under Section 5.2 hereof) and shall not be offset against or reduce any other amounts due under this Agreement.

8. No Mitigation. The Company agrees that, if the Executive's employment with the Company terminates during the Term, the Executive is not required to seek other employment or to attempt in any way to reduce any amounts payable to the Executive by the Company pursuant to Section 6 hereof or Section 7.4 hereof. Further, no payment or benefit provided for in this Agreement shall be reduced by any compensation earned by the Executive as the result of employment by another employer, by retirement benefits, by offset against any amount claimed to be owed by the Executive to the Company, or otherwise.

9. Successors; Binding Agreement.

9.1 In addition to any obligations imposed by law upon any successor to the Company, the Company will require any successor (whether direct or indirect, by purchase, merger, consolidation or otherwise) to all or substantially all of the business and/or assets of the Company to expressly assume and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform it if no such succession had taken place.

9.2 This Agreement shall inure to the benefit of and be enforceable by the Executive's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees. If the Executive shall die while any amount would still be payable to the Executive hereunder (other than amounts which, by their terms, terminate upon the death of the Executive) if the Executive had continued to live, all such amounts, unless otherwise provided herein, shall be paid in accordance with the terms of this Agreement to the executors, personal representatives or administrators of the Executive's estate.

10. Notices. For the purpose of this Agreement, notices and all other communications provided for in the Agreement shall be in writing and shall be deemed to have been duly given when delivered or mailed by United States registered mail, return receipt requested, postage prepaid, addressed, if to the Executive, to the address inserted below the Executive's signature on the final page hereof and, if to the Company, to the address set forth below, or to such other address as either party may have furnished to the other in writing in accordance herewith, except that notice of change of address shall be effective only upon actual receipt:

To the Company:

CF Industries Holdings, Inc.
4 Parkway North, Suite 400
Deerfield, Illinois 60015-2590

Attention: General Counsel

11. Miscellaneous. No provision of this Agreement may be modified, waived or discharged unless such waiver, modification or discharge is agreed to in writing and signed by the Executive and such officer as may be specifically designated by the Board. No waiver by either party hereto at any time of any breach by the other party hereto of, or of any lack of compliance with, any condition or provision of this Agreement to be performed by such other party shall be deemed a waiver of similar or dissimilar provisions or conditions at the same or at any prior or subsequent time. This Agreement supersedes any other agreements or representations, oral or otherwise, express or implied, with respect to the subject matter hereof which have been made by either party; provided, however, that this Agreement shall supersede any agreement setting forth the terms and conditions of the Executive's employment with the Company only in the event that the Executive's employment with the Company is terminated on or following a Change in Control, by the Company other than for Cause or by the Executive for Good Reason. The validity, interpretation, construction and performance of this Agreement shall be governed by the laws of the State of Illinois. All references to sections of the Exchange Act or the Code shall be deemed also to refer to any successor provisions to such sections. Any payments provided for hereunder shall be paid net of any applicable withholding required under federal, state or local law and any additional withholding to which the Executive has agreed. The obligations of the Company and the Executive under this Agreement which by their nature may require either partial or total

performance after the expiration of the Term (including, without limitation, those under Sections 6 and 7 hereof) shall survive such expiration.

12. Validity. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement, which shall remain in full force and effect.

13. Counterparts. This Agreement may be executed in several counterparts, each of which shall be deemed to be an original but all of which together will constitute one and the same instrument.

14. Settlement of Disputes; Arbitration. 14.1 All claims by the Executive for benefits under this Agreement shall be directed to and determined by the Board and shall be in writing. Any denial by the Board of a claim for benefits under this Agreement shall be delivered to the Executive in writing and shall set forth the specific reasons for the denial and the specific provisions of this Agreement relied upon. The Board shall afford a reasonable opportunity to the Executive for a review of the decision denying a claim and shall further allow the Executive to appeal to the Board a decision of the Board within sixty (60) days after notification by the Board that the Executive’s claim has been denied. Notwithstanding the above, in the event of any dispute, any decision by the Board hereunder shall be subject to a de novo review by the arbitrator.

14.2 Any further dispute or controversy arising under or in connection with this Agreement shall be settled exclusively by arbitration in Chicago, Illinois in accordance with the rules of the American Arbitration Association then in effect; provided, however, that the evidentiary standards set forth in this Agreement shall apply. Judgment may be entered on the arbitrator’s award in any court having jurisdiction. Notwithstanding any provision of this Agreement to the contrary, the Executive shall be entitled to seek specific performance of the Executive’s right to be paid until the Date of Termination during the pendency of any dispute or controversy arising under or in connection with this Agreement.

14.3 It is the intention of the Company and the Executive that this Agreement not result in taxation of the Executive under Section 409A of the Code and the regulations and guidance promulgated thereunder and that the Agreement shall be construed in accordance with such intention. Without limiting the generality of the foregoing, the Company and the Executive agree as follows:

(A) Notwithstanding anything to the contrary herein, if the Executive is a “specified employee” (within the meaning of Section 409A(a)(2)(B)(i) of the Code) with respect to the Company, any amounts (or benefits) otherwise payable to or in respect of him under this Agreement pursuant to the Executive's termination of employment with the Company shall be delayed, to the extent required so that taxes are not imposed on the Executive pursuant to Section 409A of the Code, and shall be paid upon the earliest date permitted by Section 409A(a)(2) of the Code;

(B) Each amount to be paid or benefit to be provided under this Agreement shall be construed as a separately identified payment for purposes of Section 409A of the Code, and any payments that are due within the “short term deferral period” as defined in

Section 409A of the Code shall not be treated as deferred compensation unless applicable law requires otherwise.

(C) For purposes of this Agreement, the Executive's employment with the Company will not be treated as terminated unless and until such termination of employment constitutes a “separation from service” for purposes of Section 409A of the Code;

(D) To the extent necessary to comply with the provisions of Section 409A of the Code and the guidance issued thereunder (1) reimbursements to the Executive as a result of the operation of Section 6.1(B), or Section 6.4 hereof shall be made not later than the end of the calendar year following the year in which the reimbursable expense is incurred and shall otherwise be made in a manner that complies with the requirements of Treasury Regulation Section 1.409A-3(i)(l)(iv), (2) if Executive is a “specified employee” (within the meaning of Section 409A(a)(2)(B)(i) of the Code), any reimbursements to the Executive as a result of the operation of such sections with respect to a reimbursable event within the first six months following the Date of Termination which are required to be delayed pursuant to Section 14.3(A) shall be made as soon as practicable following the date which is six months and one day following the Date of Termination (subject to clause (1) of this sentence); and

(E) If required in order to comply with the requirements of Section 409A of the Code, the payment required under clause (2) of Section 6.1(C) shall, notwithstanding the other timing provisions set forth herein, be paid to the Executive on the dates upon which the forfeited Pension Plan amounts to which such payments relate would have been paid, had such amounts been vested upon the Date of Termination.

(F) To the extent the date upon which the Executive executes the release described in Section 6.6 could, based upon when the Executive executes such release, result in the payment of an amount hereunder (or the commencement of payments hereunder) either in the year in which the Date of Termination occurs or in the subsequent calendar year, any such amount shall be paid (or commence to be paid) in the subsequent calendar year.

15. Definitions. For purposes of this Agreement, the following terms shall have the meanings indicated below:

(A) “Affiliate” shall have the meaning set forth in Rule 12b-2 promulgated under Section 12 of the Exchange Act.

(B) “Base Amount” shall have the meaning set forth in section 280G(b)(3) of the Code.

(C) “Beneficial Owner” shall have the meaning set forth in Rule 13d-3 under the Exchange Act.

(D) “Board” shall mean the Board of Directors of the Company.

(E) "Cause" for termination by the Company of the Executive's employment shall mean (i) the willful and continued failure by the Executive to substantially perform the Executive's duties with the Company (other than any such failure resulting from the Executive's incapacity due to physical or mental illness or any such actual or anticipated failure after the issuance of a Notice of Termination for Good Reason by the Executive pursuant to Section 7.1 hereof) that has not been cured within 30 days after a written demand for substantial performance is delivered to the Executive by the Board, which demand specifically identifies the manner in which the Board believes that the Executive has not substantially performed the Executive's duties, or (ii) the willful engaging by the Executive in conduct which is demonstrably and materially injurious to the Company or its subsidiaries, monetarily or otherwise. For purposes of clauses (i) and (ii) of this definition, (x) no act, or failure to act, on the Executive's part shall be deemed "willful" unless done, or omitted to be done, by the Executive not in good faith and without reasonable belief that the Executive's act, or failure to act, was in or not opposed to the best interest of the Company and (y) in the event of a dispute concerning the application of this provision, no claim by the Company that Cause exists shall be given effect unless the Company establishes to the Board by clear and convincing evidence that Cause exists.

(F) "Change in Control" shall mean the first to occur of:

(I) any Person is or becomes the Beneficial Owner, directly or indirectly, of securities of CF Industries Holdings, Inc. (not including in the securities beneficially owned by such Person any securities acquired directly from CF Industries Holdings, Inc. or any of its subsidiaries) representing 25% or more of the combined voting power of CF Industries Holdings, Inc.'s then outstanding securities; or

(II) the following individuals cease for any reason to constitute a majority of the number of directors then serving on the Board: individuals who, as of the date hereof, constitute the Board and any new director (other than a director whose initial assumption of office is in connection with an actual or threatened election contest, including but not limited to a consent solicitation, relating to the election of directors of CF Industries Holdings, Inc.) whose appointment or election by the Board or nomination for election by CF Industries Holdings, Inc.'s stockholders was approved or recommended by a vote of at least two-thirds (2/3) of the directors then still in office who either were directors on the date hereof or whose appointment, election or nomination for election was previously so approved or recommended; or

(III) there is consummated a merger or consolidation of CF Industries Holdings, Inc. or any direct or indirect subsidiary of CF Industries Holdings, Inc. with any other corporation, other than a merger or consolidation immediately following which the individuals who comprise the Board immediately prior thereto constitute at least a majority of the Board of the entity surviving such merger or consolidation or, if CF Industries Holdings, Inc. or the entity surviving such merger is then a subsidiary, the ultimate parent thereof; or

(IV) the stockholders of CF Industries Holdings, Inc. approve a plan of complete liquidation or dissolution of CF Industries Holdings, Inc. or there is consummated an agreement for the sale or disposition by CF Industries Holdings, Inc. of all or substantially all of CF Industries Holdings, Inc.'s assets, other than (a) a sale or disposition by CF Industries Holdings, Inc. of all or substantially all of CF Industries Holdings, Inc.'s assets to an entity, at least 60% of the combined voting power of the voting securities of which are owned by stockholders of CF Industries Holdings, Inc. following the completion of such transaction in substantially the same proportions as their ownership of CF Industries Holdings, Inc. immediately prior to such sale or (b) other than a sale or disposition by CF Industries Holdings, Inc. of all or substantially all of CF Industries Holdings, Inc.'s assets immediately following which the individuals who comprise the Board immediately prior thereto constitute at least a majority of the board of directors of the entity to which such assets are sold or disposed or, if such entity is a subsidiary, the ultimate parent thereof.

Notwithstanding the foregoing, a "Change in Control" shall not be deemed to have occurred by virtue of the consummation of any transaction or series of integrated transactions immediately following which the record holders of the common stock of CF Industries Holdings, Inc. immediately prior to such transaction or series of transactions continue to have substantially the same proportionate ownership in an entity which owns all or substantially all of the assets of CF Industries Holdings, Inc. immediately following such transaction or series of transactions.

(G) "Code" shall mean the Internal Revenue Code of 1986, as amended from time to time.

(H) "Company" shall mean CF Industries Holdings, Inc., and any subsidiary thereof as the context requires, including CF Industries Employee Services, LLC to the extent such entity is the employing entity of the Executive, and except in determining under Section 15(F) hereof whether or not any Change in Control of the Company has occurred, shall include any successor to its business and/or assets which assumes and agrees to perform this Agreement by operation of law, or otherwise.

(I) "Date of Termination" shall have the meaning set forth in Section 7.2 hereof.

(J) "Disability" shall be deemed the reason for the termination by the Company of the Executive's employment, if, as a result of the Executive's incapacity due to physical or mental illness, the Executive shall have been absent from the full-time performance of the Executive's duties with the Company for a period of six (6) consecutive months, the Company shall have given the Executive a Notice of Termination for Disability, and, within thirty (30) days after such Notice of Termination is given, the Executive shall not have returned to the full-time performance of the Executive's duties.

(K) "Exchange Act" shall mean the Securities Exchange Act of 1934, as amended from time to time.

(L) "Excise Tax" shall mean any excise tax imposed under section 4999 of the Code.

(M) "Executive" shall mean the individual named in the first paragraph of this Agreement.

(N) "Good Reason" for termination by the Executive of the Executive's employment shall mean the occurrence (without the Executive's express written consent which specifically references this Agreement) after any Change in Control, or prior to a Change in Control under the circumstances described in clauses (ii) and (iii) of the second sentence of Section 6.1 hereof (treating all references in paragraphs (I) through (VII) below to a "Change in Control" as references to a "Potential Change in Control"), of any one of the following acts by the Company, or failures by the Company to act, unless, in the case of any act or failure to act described in paragraph (I), (V), (VI), (VII) or (VIII) below such act or failure to act is corrected prior to the Date of Termination specified in the Notice of Termination given in respect thereof:

(I) the assignment to the Executive of any duties inconsistent with the Executive's status as an executive officer of the Company or a substantial adverse alteration in the nature or status of the Executive's responsibilities from those in effect immediately prior to the Change in Control including, without limitation, if the Executive was, immediately prior to the Change in Control, an executive officer of a public company, the Executive ceasing to be an executive officer of a public company;

(II) a reduction by the Company in the Executive's annual base salary as in effect on the date hereof or as the same may be increased from time to time except for across-the-board salary reductions similarly affecting all executives of the Company and all executives of any Person in control of the Company;

(III) the relocation of the Executive's principal place of employment to a location more than 35 miles from the Executive's principal place of employment immediately prior to the Change in Control or the Company's requiring the Executive to be based anywhere other than such principal place of employment (or permitted relocation thereof) except for required travel on the Company's business to an extent substantially consistent with the Executive's present business travel obligations;

(IV) the failure by the Company to pay to the Executive any portion of the Executive's current compensation or to pay to the Executive any portion of an installment of deferred compensation under any deferred compensation program of the Company, within seven (7) days after the date demand for payment is made provided such compensation is due;

(V) the failure by the Company to continue in effect any compensation plan in which the Executive participates immediately prior to the Change in Control which is material to the Executive's total compensation unless an equitable arrangement (embodied in an ongoing substitute or alternative plan) has been made with respect to such plan, or the failure by the Company to continue the Executive's participation therein (or in such substitute or alternative plan) on a basis not materially less favorable, both in terms of the amount or timing of payment of benefits provided and the level of the Executive's participation relative to other participants, as existed immediately prior to the Change in Control;

(VI) the failure by the Company to continue to provide the Executive with benefits substantially similar to those enjoyed by the Executive under any of the Company's pension, savings, life insurance, medical, health and accident, or disability plans in which the Executive was participating immediately prior to the Change in Control (except for across the board changes similarly affecting all executives of the Company and all executives of any Person in control of the Company), the taking of any other action by the Company which would directly or indirectly materially reduce any of such benefits or deprive the Executive of any material fringe benefit enjoyed by the Executive at the time of the Change in Control, or the failure by the Company to provide the Executive with the number of paid vacation days to which the Executive is entitled with the Company in accordance with the vacation policy applicable to the Executive in effect at the time of the Change in Control;

(VII) the failure of the Company to obtain the assumption and agreement of a successor required under Section 9.1 hereof; or

(VIII) any purported termination of the Executive's employment which is not effected pursuant to a Notice of Termination satisfying the requirements of Section 7.1 hereof; for purposes of this Agreement, no such purported termination shall be effective. The Executive's right to terminate the Executive's employment for Good Reason shall not be affected by the Executive's incapacity due to physical or mental illness.

The Executive's continued employment shall not constitute consent to, or a waiver of rights with respect to, any act or failure to act constituting Good Reason hereunder. In order for Good Reason to exist hereunder, the Executive must provide notice to the Company of the existence of the condition described in clauses (I) through (VIII) above within 90 days of the initial existence of the condition (or, if later, within 90 days of the Executive's becoming aware of such condition), and the Company must have failed to cure such condition within 30 days of the receipt of such notice.

(O) "Notice of Termination" shall have the meaning set forth in Section 7.1 hereof.

(P) "Pension Plan" shall mean any tax-qualified, supplemental or excess retirement plan (including defined benefit and defined contribution retirement plans) maintained by the Company (including, without limitation, the CF Industries Holdings, Inc. Pension Plan) and any other plan or agreement entered into between the Executive and the Company which is designed to provide the Executive with supplemental retirement benefits and any successor to any such plan.

(Q) "Person" shall have the meaning given in Section 3(a)(9) of the Exchange Act, as modified and used in Sections 13(d) and 14(d) thereof, except that such term shall not include (i) CF Industries Holdings, Inc. or any of its subsidiaries, (ii) a trustee or other fiduciary holding securities under an employee benefit plan of CF Industries, Inc. or any of its Affiliates, (iii) an underwriter temporarily holding securities pursuant to an offering of such securities, or (iv) a corporation owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their ownership of stock of the Company.

(R) "Potential Change in Control" shall be deemed to have occurred if the event set forth in any one of the following paragraphs shall have occurred:

(I) the Company enters into an agreement, the consummation of which would result in the occurrence of a Change in Control;

(II) the Company or any Person publicly announces an intention to take or to consider taking actions which, if consummated, would constitute a Change in Control;

(III) any Person becomes the Beneficial Owner, directly or indirectly, of securities of the Company representing 15% or more of either the then outstanding shares of common stock of the Company or the combined voting power of the Company's then outstanding securities (not including in the securities beneficially owned by such Person any securities acquired directly from the Company or its affiliates); or

(IV) the Board adopts a resolution to the effect that, for purposes of this Agreement, a Potential Change in Control has occurred.

(S) "Retirement" shall be deemed the reason for the termination by the Executive of the Executive's employment if such employment is terminated in accordance with the Company's retirement policy, including early retirement, generally applicable to its salaried employees.

(T) "Severance Payments" shall have the meaning set forth in Section 6.1 hereof.

(U) "Term" shall mean the period of time described in Section 2 hereof (including any extension, continuation or termination described therein).

# # #

IN WITNESS WHEREOF, the parties have executed this Agreement effective as of the date first above written.

CF INDUSTRIES HOLDINGS, INC.

By: /s/ Douglas C. Barnard

Name: Douglas C. Barnard

Title: Senior Vice President, General Counsel, and Secretary

/s/ Ashraf K. Malik

Ashraf K. Malik

EXHIBIT A

RELEASE

(a) Ashraf K. Malik ("Executive"), for and in consideration of benefits provided pursuant to the Change in Control Severance Agreement with CF Industries Holdings, Inc. (collectively, referred to herein as the "Company") entered into effective as of February 2, 2012 and as amended thereafter (the "Severance Agreement"), on behalf of Executive and Executive's heirs, executors, administrators, successors and assigns, voluntarily, knowingly and willingly releases and discharges the Company and its parents, subsidiaries and affiliates (collectively, the "Company Group"), together with their respective present and former partners, officers, directors, employees and agents, and each of their predecessors, heirs, executors, administrators, successors and assigns, and any and all employee pension or welfare benefit plans of the Company, including current and former trustees and administrators of these plans (collectively, the "Company Releasees") from any and all charges, complaints, claims, promises, agreements, controversies, causes of action, demands, damages and liabilities ("Claims") of any nature whatsoever, known or unknown, suspected or unsuspected, which against the Company Releasees, jointly or severally, Executive or Executive's heirs, executors, administrators, successors or assigns ever had or now have by reason of any matter, cause or thing whatsoever arising from the beginning of time to the time Executive executes this release (the "Release"). This Release includes, without limitation, any Claims arising out of or relating in any way to Executive's employment or director relationship with the Company, or the termination thereof, any Claims arising under any statute or regulation, including but not limited to the Age Discrimination in Employment Act of 1967, Title VII of the Civil Rights Act of 1964, the Civil Rights Act of 1991, the Americans with Disabilities Act of 1990, the Family and Medical Leave Act of 1993, or the Employee Retirement Income Security Act of 1974, each as amended, or any other federal, state or local law, regulation, ordinance or common law, or under any policy, agreement, understanding or promise, written or oral, formal or informal, between any Company Releasee and Executive. Executive shall not be entitled to any recovery, in any action or proceeding that may be commenced on Executive's behalf in any way arising out of or relating to the matters released under this Release. Notwithstanding the foregoing, nothing herein shall release any Company Releasee from any Claim based on (i) Executive's rights under the Severance Agreement or any other agreement with the Company (including, but not limited to, any stock option agreements), (ii) any right or claim that arises after the date Executive executes this Release, (iii) Executive's eligibility for indemnification in accordance with applicable laws or the certificate of incorporation or by-laws of the Company (or any affiliate or subsidiary) or any applicable insurance policy, with respect to any liability Executive incurs or incurred as a director, officer or employee of the Company or any affiliate or subsidiary (including as a trustee, director or officer of any employee benefit plan) or (iv) any rights Executive may have to vested benefits under any employee benefit plan or program.

(b) Executive has been advised to consult with an attorney of Executive's choice prior to signing this Release, has done so and enters into this Release freely and voluntarily.

[(c) Executive acknowledges that the Company has enclosed with this Release information concerning (i) the ages and job titles of all employees who are eligible to receive severance pay and (ii) the ages of all employees in the same job classification or organizational unit who are not eligible to receive severance pay.][1]

(d) Executive has had at least [twenty-one (21)] [forty-five (45)][2] calendar days to consider the terms of this Release. Once Executive has signed this Release, Executive has seven (7) additional days to revoke Executive's consent and may do so by writing to the Company as provided in Section 10 of the Severance Agreement. Executive's Release shall not be effective, and no payments or benefits shall be due under Section 6 of the Severance Agreement, until the eighth day after Executive has executed this Release and returned it to the Company, assuming that Executive has not revoked Executive's consent to this Release during such time (the "Revocation Date").

(e) In the event that any one or more of the provisions of this Release shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remainder thereof shall not in any way be affected or impaired thereby.

(f) This Release shall be governed by the law of the State of Illinois without reference to its choice of law rules.

This is a form of legal release to be completed, signed, and dated later under the circumstances described in Section 6.6.

CF INDUSTRIES HOLDINGS, INC.

By: ______________________________
Name:
Title:

Signed as of this day of .

____
Ashraf K. Malik

Signed as of this day of .

(1) Note: this paragraph is to be included only for applicable group terminations or exit incentive programs.

(2) Note: use longer period for applicable group terminations or exit incentive programs.

<u>EXHIBIT B</u>

The provisions of Section 6.2 shall be effected as set forth in this Exhibit B.

(A) Notwithstanding any other provisions of the Agreement, in the event that any payment or benefit received or to be received by the Executive (including any payment or benefit received in connection with a Change in Control or the termination of the Executive's employment, whether pursuant to the terms of this Agreement or any other plan, arrangement or agreement) (all such payments and benefits, including the Severance Payments, being hereinafter referred to as the “Total Payments”) would be subject (in whole or part), to the Excise Tax, then the Total Payments shall be reduced, to the extent necessary so that no portion of the Total Payments is subject to the Excise Tax but only if (A) the net amount of such Total Payments, as so reduced (and after subtracting the net amount of federal, state and local income taxes on such reduced Total Payments and after taking into account the phase out of itemized deductions and personal exemptions attributable to such reduced Total Payments) is greater than or equal to (B) the net amount of such Total Payments without such reduction (but after subtracting the net amount of federal, state and local income taxes on such Total Payments and the amount of Excise Tax to which the Executive would be subject in respect of such unreduced Total Payments and after taking into account the phase out of itemized deductions and personal exemptions attributable to such unreduced Total Payments). If a reduction in the Total Payments is required under this paragraph (A) of Exhibit B, the Total Payments shall be reduced by the Company in its reasonable discretion in the following order: (A) reduction of any cash payment (excluding any cash payment with respect to the acceleration of equity awards), that is otherwise payable to the Executive that is exempt from Section 409A of the Code; (B) reduction of any other payments or benefits otherwise payable to the Executive (other than those described in clause (C) below) on a pro-rata basis or such other manner that complies with Section 409A of the Code; and (C) reduction of any payment or benefit with respect to the acceleration of equity awards that is otherwise payable to the Executive (on a pro-rata basis as between equity awards that are covered by Section 409A of the Code and those that are not (or such other manner that complies with Section 409A of the Code)).

(B) For purposes of determining whether and the extent to which the Total Payments will be subject to the Excise Tax, (i) no portion of the Total Payments the receipt or enjoyment of which the Executive shall have waived at such time and in such manner as not to constitute a “payment” within the meaning of Section 280G(b) of the Code shall be taken into account, (ii) no portion of the Total Payments shall be taken into account which, in the opinion of tax counsel (“Tax Counsel”) reasonably acceptable to the Executive and selected by the accounting firm (the “Auditor”) which was, immediately prior to the Change in Control, the Company's independent auditor, does not constitute a “parachute payment” within the meaning of Section 280G(b)(2) of the Code (including by reason of Section 280G(b)(4)(A) of the Code) and, in calculating the Excise Tax, no portion of such Total Payments shall be taken into account which, in the opinion of Tax Counsel, constitutes reasonable compensation for services actually rendered, within the meaning of Section 280G(b)(4)(B) of the Code, in excess of the Base Amount allocable to such reasonable compensation, and (iii) the value of any non-cash benefit or any deferred payment or benefit included in the Total Payments shall be determined by the Auditor in accordance with the principles of Sections 280G(d)(3) and (4) of the Code.

(C) At the time that payments are made under this Agreement, the Company shall provide the Executive with a written statement setting forth the manner in which such payments were calculated and the basis for such calculations including, without limitation, any opinions or other advice the Company has received from Tax Counsel, the Auditor or other advisors or consultants (and any such opinions or advice which are in writing shall be attached to the statement). If the Executive objects to the Company's calculations, the Company shall pay to the Executive such portion of the Severance Payments (up to 100% thereof) as the Executive determines is necessary to result in the proper application of paragraph (A) of this Exhibit B.

Example

The following is an example of the application of the provisions of Section 6.2 and Exhibit B hereof:

Explanation of Tax Provisions. Section 4999 of the Internal Revenue Code imposes an excise tax on the recipient of any "excess parachute payment" equal to 20% of such amount. A "parachute payment" is any payment that is contingent on a change in control of a corporation and includes, for example, severance benefits, additional retirement benefits and non-cash compensation such as the continuation of health insurance and the accelerated vesting of stock option and other equity-based awards. "Excess parachute payments" consist of the excess of parachute payments over an executive's "base amount," i.e., the average taxable compensation received by him or her from the company during the five taxable years (or his or her entire period of employment, if employed by the company for less than five years) preceding the year in which the change in control occurs.

The Safe Harbor. The Code provides a "safe harbor" of 300% of the executive's base amount (i.e., the excess parachute payment rules do not apply if the aggregate amount of parachute payments is less than three times the executive's base amount). If, however, the parachute payments equal or exceed the safe harbor amount, the entire excess over the base amount will be subject to the excise tax and disallowance of deduction. For example, if an executive has a base amount of $100,000, parachute payments of up to $299,999 will not be subject to the excise tax or the disallowance of deduction, but a parachute payment of $300,000 (only $1 more) will be subject to those rules to the extent of $200,000 (the excess of the parachute payments over the executive's safe harbor). Note that because of this treatment, an individual entitled to parachute payments only slightly in excess of his or her safe harbor amount may be in a better after-tax position if his or her payments are automatically reduced (or "capped") to the safe harbor amount. Such an individual is said to be in the "valley." In the above example, the individual avoids an excise tax of $40,000 (20% of the $200,000 excess parachute payment) merely by having his or her payments reduced by $1.

Application of Section 6.2. In light of the fact that the receipt of certain amounts of parachute payments could put the recipient in a worse after-tax economic position, Section 6.2 provides that the amount of parachute payments an executive will receive will be "capped" or limited to the amount of the executive's safe harbor. In the example above, Section 6.2 would provide that the executive is not entitled to the additional payment of $1, which payment would otherwise result in an additional $40,000 in excise taxes.

This "cap" will not apply, however, if the executive is better off on an after-tax economic basis receiving the full amount of parachute payments otherwise provided for in the Agreement and taking into account the imposition of the excise tax. Using the example above, if the executive with the $299,999 safe harbor was otherwise entitled under the Agreement to parachute payments of $400,000 (rather than $300,000 as in the prior example), under the Agreement the payments would not be capped.

In such a circumstance, the payments would exceed the executive's base amount by $300,000, resulting in an excise tax of $60,000 and aggregate income tax of $140,000 (assuming a 35% federal income tax rate and disregarding state taxes). In such a case, the executive's after tax benefit of $200,000 would exceed the after-tax benefit he would have received if his payment were reduced to the safe harbor amount ($299,999 x 65% = $195,000), meaning that he would be better off on an after tax basis receiving all of his parachute payments, even after the imposition of the excise tax.

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Section 3: EX-31.1 (EXHIBIT 31.1)

CF INDUSTRIES HOLDINGS, INC.

Exhibit 31.1

CERTIFICATION PURSUANT TO SECTION 302
OF THE SARBANES-OXLEY ACT OF 2002

I, W. Anthony Will, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of CF Industries Holdings, Inc.;

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(s) 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(s) 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.

Date:	October 31, 2019	/s/ W. ANTHONY WILL
		W. Anthony Will *President and Chief Executive Officer* *(Principal Executive Officer)*

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Section 4: EX-31.2 (EXHIBIT 31.2)

CF INDUSTRIES HOLDINGS, INC.

Exhibit 31.2

**CERTIFICATION PURSUANT TO SECTION 302
OF THE SARBANES-OXLEY ACT OF 2002**

I, Christopher D. Bohn, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of CF Industries Holdings, Inc.;

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(s) 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(s) 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.

Date: October 31, 2019 /s/ Christopher D. Bohn

Christopher D. Bohn
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

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Section 5: EX-32.1 (EXHIBIT 32.1)

CF INDUSTRIES HOLDINGS, INC.

Exhibit 32.1

CERTIFICATION 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 Quarterly Report on Form 10-Q of CF Industries Holdings, Inc. (the Company) for the period ended September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the Report), I, W. Anthony Will, as President and Chief Executive Officer of the Company, hereby certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ W. ANTHONY WILL

W. Anthony Will
President and Chief Executive Officer
(Principal Executive Officer)
Date: October 31, 2019

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Section 6: EX-32.2 (EXHIBIT 32.2)

CF INDUSTRIES HOLDINGS, INC.

Exhibit 32.2

**CERTIFICATION 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 Quarterly Report on Form 10-Q of CF Industries Holdings, Inc. (the Company) for the period ended September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the Report), I, Christopher D. Bohn, as Senior Vice President and Chief Financial Officer of the Company, hereby certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Christopher D. Bohn

Christopher D. Bohn
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

Date: October 31, 2019

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