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 March 31, 2024

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.)
2375 Waterview Drive	**60062**
Northbrook, Illinois	(Zip Code)
(Address of principal executive offices)	

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

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 ☒

182,782,174 shares of the registrant's common stock, par value $0.01 per share, were outstanding at April 29, 2024.

CF INDUSTRIES HOLDINGS, INC.

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PART I—FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS.

CONSOLIDATED STATEMENTS OF OPERATIONS

(Unaudited)

	Three months ended March 31,	
	2024	**2023**
	(in millions, except per share amounts)	
Net sales	$ 1,470	$ 2,012
Cost of sales	1,061	1,149
Gross margin	409	863
Selling, general and administrative expenses	88	74
U.K. operations restructuring	—	2
Acquisition and integration costs	3	13
Other operating—net	17	(35)
Total other operating costs and expenses	108	54
Equity in earnings of operating affiliate	2	17
Operating earnings	303	826
Interest expense	37	40
Interest income	(30)	(30)
Other non-operating—net	(4)	(3)
Earnings before income taxes	300	819
Income tax provision	62	169
Net earnings	238	650
Less: Net earnings attributable to noncontrolling interest	44	90
Net earnings attributable to common stockholders	$ 194	$ 560
Net earnings per share attributable to common stockholders:		
Basic	$ 1.03	$ 2.86
Diluted	$ 1.03	$ 2.85
Weighted-average common shares outstanding:		
Basic	187.6	196.2
Diluted	188.1	196.9
Dividends declared per common share	$ 0.50	$ 0.40

See accompanying Notes to Unaudited Consolidated Financial Statements.

CF INDUSTRIES HOLDINGS, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(Unaudited)

	Three months ended March 31,	
	2024	**2023**
	(in millions)	
Net earnings	$ 238	$ 650
Other comprehensive (loss) income:		
Foreign currency translation adjustment—net of taxes	(16)	7
Defined benefit plans—net of taxes	—	(1)
	(16)	6
Comprehensive income	222	656
Less: Comprehensive income attributable to noncontrolling interest	44	90
Comprehensive income attributable to common stockholders	$ 178	$ 566

See accompanying Notes to Unaudited Consolidated Financial Statements.

CF INDUSTRIES HOLDINGS, INC.

CONSOLIDATED BALANCE SHEETS

	(Unaudited) March 31, 2024	December 31, 2023
	(in millions, except share and per share amounts)	
Assets		
Current assets:		
Cash and cash equivalents	$ 1,773	$ 2,032
Accounts receivable—net	535	505
Inventories	271	299
Prepaid income taxes	102	167
Other current assets	38	47
Total current assets	2,719	3,050
Property, plant and equipment—net	6,982	7,141
Investment in affiliate	29	26
Goodwill	2,495	2,495
Intangible assets—net	532	538
Operating lease right-of-use assets	240	259
Other assets	864	867
Total assets	$ 13,861	$ 14,376
Liabilities and Equity		
Current liabilities:		
Accounts payable and accrued expenses	$ 501	$ 520
Income taxes payable	—	12
Customer advances	104	130
Current operating lease liabilities	77	96
Other current liabilities	8	42
Total current liabilities	690	800
Long-term debt	2,969	2,968
Deferred income taxes	985	999
Operating lease liabilities	171	168
Supply contract liability	747	754
Other liabilities	303	314
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, 2024—188,905,959 shares issued and 2023—188,188,401 shares issued	2	2
Paid-in capital	1,403	1,389
Retained earnings	4,634	4,535
Treasury stock—at cost, 2024—4,561,599 shares and 2023—0 shares	(374)	—
Accumulated other comprehensive loss	(225)	(209)
Total stockholders' equity	5,440	5,717
Noncontrolling interest	2,556	2,656

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 December 31, 2023	$ 2	$ —	$1,389	$ 4,535	$ (209)	$ 5,717	$ 2,656	$8,373
Net earnings	—	—	—	194	—	194	44	238
Other comprehensive loss	—	—	—	—	(16)	(16)	—	(16)
Purchases of treasury stock	—	(351)	—	—	—	(351)	—	(351)
Acquisition of treasury stock under employee stock plans	—	(23)	—	—	—	(23)	—	(23)
Issuance of $0.01 par value common stock under employee stock plans	—	—	1	—	—	1	—	1
Stock-based compensation expense	—	—	13	—	—	13	—	13
Dividends and dividend equivalents ($0.50 per share)	—	—	—	(95)	—	(95)	—	(95)
Distribution declared to noncontrolling interest	—	—	—	—	—	—	(144)	(144)
Balance as of March 31, 2024	$ 2	$ (374)	$1,403	$ 4,634	$ (225)	$ 5,440	$ 2,556	$7,996

Balance as of December 31, 2022	$ 2	$ —	$1,412	$3,867	$ (230)	$ 5,051	$ 2,802	$7,853
Net earnings	—	—	—	560	—	560	90	650
Other comprehensive income	—	—	—	—	6	6	—	6
Purchases of treasury stock	—	(75)	—	—	—	(75)	—	(75)
Acquisition of treasury stock under employee stock plans	—	(22)	—	—	—	(22)	—	(22)
Stock-based compensation expense	—	—	12	—	—	12	—	12
Dividends and dividend equivalents ($0.40 per share)	—	—	—	(79)	—	(79)	—	(79)
Distribution declared to noncontrolling interest	—	—	—	—	—	—	(255)	(255)
Balance as of March 31, 2023	$ 2	$ (97)	$1,424	$4,348	$ (224)	$ 5,453	$ 2,637	$8,090

See accompanying Notes to Unaudited Consolidated Financial Statements.

CF INDUSTRIES HOLDINGS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(Unaudited)

	Three months ended March 31, 2024	Three months ended March 31, 2023
	(in millions)	
Operating Activities:		
Net earnings	$ 238	$ 650
Adjustments to reconcile net earnings to net cash provided by operating activities:		
Depreciation and amortization	253	206
Deferred income taxes	(11)	(26)
Stock-based compensation expense	13	12
Unrealized net gain on natural gas derivatives	(33)	(72)
Gain on sale of emission credits	—	(35)
Loss on disposal of property, plant and equipment	5	—
Undistributed earnings of affiliate—net of taxes	(2)	(7)
Changes in assets and liabilities:		
Accounts receivable—net	(50)	101
Inventories	20	39
Accrued and prepaid income taxes	61	153
Accounts payable and accrued expenses	(23)	(135)
Customer advances	(25)	55
Other—net	(1)	6
Net cash provided by operating activities	445	947
Investing Activities:		
Additions to property, plant and equipment	(98)	(69)
Purchase of emission credits	(2)	—
Proceeds from sale of emission credits	—	35
Net cash used in investing activities	(100)	(34)
Financing Activities:		
Dividends paid on common stock	(97)	(79)
Distributions to noncontrolling interest	(144)	(255)
Purchases of treasury stock	(339)	(54)
Proceeds from issuances of common stock under employee stock plans	1	—
Cash paid for shares withheld for taxes	(23)	(22)
Net cash used in financing activities	(602)	(410)
Effect of exchange rate changes on cash and cash equivalents	(2)	(1)
(Decrease) increase in cash and cash equivalents	(259)	502
Cash and cash equivalents at beginning of period	2,032	2,323
Cash and cash equivalents at end of period	$ 1,773	$ 2,825

See accompanying Notes to Unaudited Consolidated Financial Statements.

CF INDUSTRIES HOLDINGS, INC.

NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS

1. Background and Basis of Presentation

Our mission is to provide clean energy to feed and fuel the world sustainably. With our employees focused on safe and reliable operations, environmental stewardship, and disciplined capital and corporate management, we are on a path to decarbonize our ammonia production network – the world's largest – to enable green and low-carbon hydrogen and nitrogen products for energy, fertilizer, emissions abatement and other industrial activities. Our nitrogen manufacturing complexes in the United States, Canada and the United Kingdom, an extensive storage, transportation and distribution network in North America, and logistics capabilities enabling a global reach underpin our strategy to leverage our unique capabilities to accelerate the world's transition to clean energy. Our principal customers are cooperatives, independent fertilizer distributors, traders, wholesalers and industrial users. Our core product is anhydrous ammonia (ammonia), which contains 82% nitrogen and 18% hydrogen. Our nitrogen products that are upgraded from ammonia are 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.

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 to CF Industries Holdings, Inc. only 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, 2023, 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 Annual Report on Form 10-K for the fiscal year ended December 31, 2023, filed with the SEC on February 22, 2024. The preparation of the unaudited interim consolidated financial statements requires us to make use of estimates and assumptions that may significantly affect the reported amounts of assets and liabilities and disclosure of contingent liabilities at the date of the unaudited interim consolidated financial statements and the reported revenues and expenses for the periods presented. Such estimates and assumptions are used for, but are not limited to, net realizable value of inventories, environmental remediation liabilities, environmental and litigation contingencies, plant closure and asset retirement obligations, the cost of emission credits required to meet environmental regulations, the cost of customer incentives, the fair values utilized in the allocation of purchase price in an acquisition, useful lives of property and identifiable intangible assets, the evaluation of potential impairments of property, investments, identifiable intangible assets and goodwill, income tax reserves and the assessment of the realizability of deferred tax assets, the determination of the funded status and annual expense of defined benefit pension and other postretirement plans and the valuation of stock-based compensation awards granted to employees.

2. New Accounting Standards

In November 2023, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2023-07, Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures. This ASU is intended to improve reportable segment disclosures through enhanced disclosures about significant segment expenses. The guidance in this ASU is effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024, with early adoption permitted. We are currently evaluating the impact that our adoption of this ASU will have on the disclosures in our consolidated financial statements.

In December 2023, the FASB issued ASU No. 2023-09, Income Taxes (Topic 740): Improvements to Income Tax Disclosures. This ASU adds new guidance that further enhances income tax disclosures, primarily through standardization and disaggregation of rate reconciliation categories and income taxes paid by jurisdiction. The amendments are effective for fiscal years beginning after December 15, 2024, with early adoption permitted. We are currently evaluating the impact that our adoption of this ASU will have on the disclosures in our consolidated financial statements.

3. Revenue Recognition

We track our revenue by product and by geography. See Note 16—Segment Disclosures for the revenue of each of our reportable segments, 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 months ended March 31, 2024 and 2023:

	Ammonia	Granular Urea	UAN	AN	Other	Total
	(in millions)					
Three months ended March 31, 2024						
North America	$ 334	$ 403	$ 373	$ 48	$ 102	$ 1,260
Europe and other	68	4	52	66	20	210
Total revenue	$ 402	$ 407	$ 425	$ 114	$ 122	$ 1,470
Three months ended March 31, 2023						
North America	$ 330	$ 575	$ 519	$ 74	$ 126	$ 1,624
Europe and other	94	36	148	85	25	388
Total revenue	$ 424	$ 611	$ 667	$ 159	$ 151	$ 2,012

As of March 31, 2024 and December 31, 2023, we had $104 million and $130 million, respectively, in customer advances on our consolidated balance sheets. The revenue recognized during the three months ended March 31, 2024 and 2023 that was included in our customer advances at the beginning of each respective period amounted to approximately $110 million and $160 million, respectively.

We offer cash incentives to certain customers generally based on the volume of their purchases over the fertilizer year ending June 30. Our cash incentives do not provide an option to the customer for additional product. The balances of customer incentives accrued as of March 31, 2024 and December 31, 2023 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, the amount of which payment may vary based upon the terms and conditions of the applicable contract. As of March 31, 2024, 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 were approximately $2.1 billion. We expect to recognize approximately 23% of these performance obligations as revenue in the remainder of 2024, approximately 19% as revenue during 2025-2027, approximately 16% as revenue during 2028-2030, and the remainder as revenue thereafter. Subject to the terms and conditions of the applicable contracts, if these customers do not satisfy their purchase obligations under such contracts, the minimum amount that they would be required to pay to us under such contracts, in the aggregate, was approximately $1.3 billion as of March 31, 2024. Other than the performance obligations described above, any performance obligations with our customers that were unfulfilled or partially filled at December 31, 2023 will be satisfied in 2024.

4. Net Earnings Per Share

Net earnings per share were computed as follows:

	Three months ended March 31,	
	2024	2023
	(in millions, except per share amounts)	
Net earnings attributable to common stockholders	$ 194	$ 560
Basic earnings per common share:		
Weighted-average common shares outstanding	187.6	196.2
Net earnings attributable to common stockholders	$ 1.03	$ 2.86
Diluted earnings per common share:		
Weighted-average common shares outstanding	187.6	196.2
Dilutive common shares—stock-based awards	0.5	0.7
Diluted weighted-average common shares outstanding	188.1	196.9
Net earnings attributable to common stockholders	$ 1.03	$ 2.85

Diluted earnings per common share is calculated using weighted-average common shares outstanding, including the dilutive effect of stock-based awards as determined under the treasury stock method. In the computation of diluted earnings per common share, potentially dilutive stock-based awards are excluded if the effect of their inclusion is anti-dilutive. Shares for anti-dilutive stock-based awards not included in the computation of diluted earnings per common share were zero in both the three months ended March 31, 2024 and 2023.

5. Acquisition of Waggaman Ammonia Production Facility

On December 1, 2023, we acquired an ammonia production facility located in Waggaman, Louisiana, from Dyno Nobel Louisiana Ammonia, LLC (DNLA), a U.S. subsidiary of Australia-based Incitec Pivot Limited (IPL), pursuant to an asset purchase agreement with DNLA and IPL. The facility has a nameplate production capacity of 880,000 tons of ammonia annually. Our acquisition of the Waggaman facility is intended to expand our ammonia manufacturing and distribution capacity, including our ability to enable low-carbon ammonia production.

In connection with the acquisition, we entered into a long-term ammonia offtake agreement providing for us to supply up to 200,000 tons of ammonia per year to IPL’s Dyno Nobel, Inc. subsidiary (the Supply Contract). Under the terms of the asset purchase agreement, $425 million of the purchase price of $1.675 billion, subject to adjustment, was allocated by the parties to the ammonia offtake agreement. We funded the balance of the purchase price with $1.223 billion of cash on hand.

The consideration transferred reflects an estimated net working capital adjustment and other adjustments to the purchase price, which is subject to further adjustment pursuant to the terms of the asset purchase agreement. We expect any further purchase price adjustments required under the asset purchase agreement will not be material and will be completed in the second quarter of 2024.

In the three months ended March 31, 2024 and 2023, we incurred $3 million of integration costs and $13 million of acquisition-related costs, respectively, related to the Waggaman acquisition, which are included in acquisition and integration costs in our consolidated statements of operations.

6. Inventories

Inventories consist of the following:

	March 31, 2024	December 31, 2023
	(in millions)	
Finished goods	$ 226	$ 256
Raw materials, spare parts and supplies	45	43
Total inventories	$ 271	$ 299

7. Property, Plant and Equipment—Net

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

	March 31, 2024		December 31, 2023	
	(in millions)			
Land	$	114	$	114
Machinery and equipment		13,679		13,716
Buildings and improvements		1,015		1,020
Construction in progress		412		394
Property, plant and equipment[(1)]		15,220		15,244
Less: Accumulated depreciation and amortization		8,238		8,103
Property, plant and equipment—net	$	6,982	$	7,141

(1) As of March 31, 2024 and December 31, 2023, we had property, plant and equipment that was accrued but unpaid of approximately $72 million and $68 million, respectively. As of March 31, 2023 and December 31, 2022, we had property, plant and equipment that was accrued but unpaid of approximately $45 million and $53 million, respectively.

Depreciation and amortization related to property, plant and equipment was $252 million and $204 million for the three months ended March 31, 2024 and 2023, 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.

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

The following is a summary of capitalized plant turnaround costs:

	Three months ended March 31,	
	2024	2023
	(in millions)	
Net capitalized turnaround costs as of January 1	$ 352	$ 312
Additions	24	7
Depreciation	(52)	(31)
Effect of exchange rate changes and other	(1)	—
Net capitalized turnaround costs as of March 31	$ 323	$ 288

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 March 31, 2024, the total carrying value of our equity method investment in PLNL was $29 million.

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 $30 million and $59 million for the three months ended March 31, 2024 and 2023, respectively.

9. Fair Value Measurements

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

	March 31, 2024			
	Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
	(in millions)			
Cash	$ 190	$ —	$ —	$ 190
Cash equivalents:				
U.S. and Canadian government obligations	1,277	—	—	1,277
Other debt securities	306	—	—	306
Total cash and cash equivalents	$ 1,773	$ —	$ —	$ 1,773
Nonqualified employee benefit trusts	16	1	—	17

	December 31, 2023			
	Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
	(in millions)			
Cash	$ 208	$ —	$ —	$ 208
Cash equivalents:				
U.S. and Canadian government obligations	1,488	—	—	1,488
Other debt securities	336	—	—	336
Total cash and cash equivalents	$ 2,032	$ —	$ —	$ 2,032
Nonqualified employee benefit trusts	16	1	—	17

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 and also in bank deposits. 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 March 31, 2024 and December 31, 2023 that are recognized at fair value on a recurring basis, and indicate the fair value hierarchy utilized to determine such fair value:

	March 31, 2024			
	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	$ 1,583	$ 1,583	$ —	$ —
Nonqualified employee benefit trusts	17	17	—	—
Derivative assets	1	—	1	—
Derivative liabilities	(2)	—	(2)	—

	December 31, 2023			
	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	$ 1,824	$ 1,824	$ —	$ —
Nonqualified employee benefit trusts	17	17	—	—
Derivative assets	1	—	1	—
Derivative liabilities	(35)	—	(35)	—

Cash Equivalents

Cash equivalents include highly liquid investments that are readily convertible to known amounts of cash and have original maturities of three months or less. As of March 31, 2024 and December 31, 2023, 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 represent 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, and changes in fair value are reported in other comprehensive income. Changes in the fair value of available-for-sale equity securities in the trust assets are recognized through earnings.

Derivative Instruments

The derivative instruments that we use are primarily natural gas fixed price swaps, basis swaps and options traded in the over-the-counter markets with multi-national commercial banks, other major financial institutions or large energy companies. The natural gas derivative contracts represent anticipated natural gas needs for future periods, and settlements are scheduled to coincide with anticipated natural gas purchases during those future periods. The natural gas derivative contracts settle using primarily a NYMEX futures price index. To determine the fair value of these instruments, we use quoted market prices from NYMEX and standard pricing models with inputs derived from or corroborated by observable market data such as forward curves supplied by an industry-recognized independent third party. See Note 13—Derivative Financial Instruments for additional information.

Financial Instruments

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

	March 31, 2024		December 31, 2023	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
	(in millions)			
Long-term debt	$ 2,969	$ 2,838	$ 2,968	$ 2,894

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 any 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 assets and liabilities measured at fair value on a nonrecurring basis rely primarily on Company-specific inputs. 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 March 31, 2024, we recorded an income tax provision of $62 million on pre-tax income of $300 million, or an effective tax rate of 20.7%, compared to an income tax provision of $169 million on pre-tax income of $819 million, or an effective tax rate of 20.6%, for the three months ended March 31, 2023.

Our effective tax rate for the three months ended March 31, 2024 of 20.7%, which is based on pre-tax income of $300 million, including $44 million of earnings attributable to the noncontrolling interest, would be 3.6 percentage points higher if based on pre-tax income exclusive of the $44 million of earnings attributable to the noncontrolling interest. Our effective tax rate for the three months ended March 31, 2023 of 20.6%, which is based on pre-tax income of $819 million, including $90 million of earnings attributable to the noncontrolling interest, would be 2.6 percentage points higher if based on pre-tax income exclusive of the $90 million of earnings attributable to the noncontrolling interest.

11. Financing Agreements

Revolving Credit Agreement

We have a senior unsecured revolving credit agreement (the Revolving Credit Agreement), which provides for a revolving credit facility of up to $750 million with a maturity of October 26, 2028 and includes a letter of credit sub-limit of $125 million. Borrowings under the Revolving Credit Agreement may be used for working capital, capital expenditures, acquisitions, share repurchases and other general corporate purposes. CF Industries is the lead borrower, and CF Holdings is the sole guarantor, under the Revolving Credit Agreement.

Borrowings under the Revolving Credit Agreement can be denominated in U.S. dollars, Canadian dollars, euros and British pounds. Borrowings in U.S. dollars bear interest at a per annum rate equal to, at our option, an applicable adjusted term Secured Overnight Financing Rate or base rate plus, in either case, a specified margin. We 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 depended on CF Holdings’ credit rating at the time.

As of March 31, 2024, we had unused borrowing capacity under the Revolving Credit Agreement of $750 million and no outstanding letters of credit under the Revolving Credit Agreement. There were no borrowings outstanding under the Revolving Credit Agreement as of March 31, 2024 or December 31, 2023, or during the three months ended March 31, 2024.

The Revolving Credit Agreement contains representations and warranties and affirmative and negative covenants, including a financial covenant. As of March 31, 2024, we were in compliance with all covenants under the Revolving Credit Agreement.

Letters of Credit Under Bilateral Agreement

We are party to a bilateral agreement providing for the issuance of up to $425 million of letters of credit. As of March 31, 2024, approximately $302 million of letters of credit were outstanding under this agreement.

Senior Notes

Long-term debt presented on our consolidated balance sheets as of March 31, 2024 and December 31, 2023 consisted of the following debt securities issued by CF Industries:

	Effective Interest Rate	March 31, 2024 Principal	March 31, 2024 Carrying Amount[1]	December 31, 2023 Principal	December 31, 2023 Carrying Amount[1]
		(in millions)			
Public Senior Notes:					
5.150% due March 2034	5.293%	750	742	750	741
4.950% due June 2043	5.040%	750	742	750	742
5.375% due March 2044	5.478%	750	741	750	741
Senior Secured Notes:					
4.500% due December 2026[2]	4.783%	750	744	750	744
Total long-term debt		$ 3,000	$ 2,969	$ 3,000	$ 2,968

(1) Carrying amount is net of unamortized debt discount and deferred debt issuance costs. Total unamortized debt discount was $6 million and $7 million as of March 31, 2024 and December 31, 2023, respectively, and total deferred debt issuance costs were $25 million as of both March 31, 2024 and December 31, 2023.

(2) Effective August 23, 2021, these notes are no longer secured, in accordance with the terms of the applicable indenture.

Under the indentures (including the applicable supplemental indentures) governing the senior notes due 2034, 2043 and 2044 identified in the table above (the Public Senior Notes), each series of Public Senior Notes is guaranteed by CF Holdings. Under the terms of the indenture governing the 4.500% senior secured notes due December 2026 (the 2026 Notes) identified in the table above, the 2026 Notes are guaranteed by CF Holdings.

Interest on the Public Senior Notes and the 2026 Notes is payable semiannually, and the Public Senior Notes and the 2026 Notes are redeemable at our option, in whole at any time or in part from time to time, at specified make-whole redemption prices.

12. Interest Expense

Details of interest expense are as follows:

	Three months ended March 31,	
	2024	2023
	(in millions)	
Interest on borrowings[1]	$ 37	$ 37
Fees on financing agreements[1]	2	2
Interest on tax liabilities	—	2
Interest capitalized	(2)	(1)
Total interest expense	$ 37	$ 40

[1] See Note 11—Financing Agreements for additional information.

13. Derivative Financial Instruments

We 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 products. From time to time, we may also use derivative financial instruments to reduce our exposure to changes in foreign currency exchange rates. The derivatives that we use to reduce our exposure to changes in prices for natural gas are primarily natural gas fixed price swaps, basis swaps and options traded in the over-the-counter markets. These natural gas derivatives settle using primarily a NYMEX futures price index, which represents the basis for fair value at any given time. We enter into natural gas derivative contracts with respect to natural gas to be consumed by us in the future, and settlements of those derivative contracts are scheduled to coincide with our anticipated purchases of natural gas used to manufacture nitrogen products during those future periods. We use natural gas derivatives as an economic hedge of natural gas price risk, but without the application of hedge accounting. As a result, changes in fair value of these contracts are recognized in earnings. As of March 31, 2024, we had natural gas derivative contracts covering certain periods through March 2025.

As of March 31, 2024, our open natural gas derivative contracts consisted of natural gas fixed price swaps and basis swaps for 8.0 million MMBtus of natural gas. As of December 31, 2023, we had open natural gas derivative contracts consisting of natural gas fixed price swaps, basis swaps and options for 49.0 million MMBtus of natural gas. For the three months ended March 31, 2024, we used derivatives to cover approximately 55% of our natural gas consumption.

The effect of derivatives in our consolidated statements of operations is shown in the table below.

	Gain (loss) recognized in income		
		Three months ended March 31,	
	Location	2024	2023
		(in millions)	
Unrealized net gains on natural gas derivatives	Cost of sales	$ 33	$ 72
Realized net losses on natural gas derivatives	Cost of sales	(37)	(118)
Net derivative losses		$ (4)	$ (46)

The fair values of derivatives on our consolidated balance sheets are shown below. As of March 31, 2024 and December 31, 2023, none of our derivative instruments were designated as hedging instruments. See Note 9—Fair Value Measurements for additional information on derivative fair values.

	Asset Derivatives			Liability Derivatives		
	Balance Sheet Location	March 31, 2024	December 31, 2023	Balance Sheet Location	March 31, 2024	December 31, 2023
		(in millions)			(in millions)	
Natural gas derivatives	Other current assets	$ 1	$ 1	Other current liabilities	$ (2)	$ (35)

Most of our International Swaps and Derivatives Association (ISDA) agreements contain credit-risk-related contingent features such as cross default provisions. In the event of certain defaults or termination events, our counterparties may request early termination and net settlement of certain derivative trades or, under certain ISDA agreements, may require us to collateralize derivatives in a net liability position. As of March 31, 2024 and December 31, 2023, the aggregate fair value of the derivative instruments with credit-risk-related contingent features in net liability positions was $1 million and $34 million, respectively, which also approximates the fair value of the assets that may be needed to settle the obligations if the credit-risk-related contingent features were triggered at the reporting dates. The credit support documents executed in connection with certain of our ISDA agreements generally provide us and our counterparties the right to set off collateral against amounts owing under the ISDA agreements upon the occurrence of a default or a specified termination event. As of March 31, 2024 and December 31, 2023, we had no cash collateral on deposit with counterparties for derivative contracts.

The following table presents amounts relevant to offsetting of our derivative assets and liabilities as of March 31, 2024 and December 31, 2023:

	Amounts presented in consolidated balance sheets[1]	Gross amounts not offset in consolidated balance sheets: Financial instruments	Cash collateral received (pledged)	Net amount
	(in millions)			
March 31, 2024				
Total derivative assets	$ 1	$ —	$ —	$ 1
Total derivative liabilities	(2)	—	—	(2)
Net derivative liabilities	$ (1)	$ —	$ —	$ (1)
December 31, 2023				
Total derivative assets	$ 1	$ —	$ —	$ 1
Total derivative liabilities	(35)	—	—	(35)
Net derivative liabilities	$ (34)	$ —	$ —	$ (34)

(1) We report the fair values of our derivative assets and liabilities on a gross basis on our consolidated balance sheets. As a result, the gross amounts recognized and net amounts presented are the same.

We do not believe the contractually allowed netting, close-out netting or setoff of amounts owed to, or due from, the counterparties to our ISDA agreements would have a material effect on our financial position.

14. Noncontrolling Interest

We have a strategic venture with CHS Inc. (CHS) under which CHS owns 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 interest in our consolidated financial statements.

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

	2024	2023
	(in millions)	
Noncontrolling interest:		
Balance as of January 1	$ 2,656	$ 2,802
Earnings attributable to noncontrolling interest	44	90
Declaration of distributions payable	(144)	(255)
Balance as of March 31	$ 2,556	$ 2,637
Distributions payable to noncontrolling interest:		
Balance as of January 1	$ —	$ —
Declaration of distributions payable	144	255
Distributions to noncontrolling interest	(144)	(255)
Balance as of March 31	$ —	$ —

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.

15. Stockholders’ Equity

Common Stock

On November 3, 2021, our Board of Directors (the Board) authorized the repurchase of up to $1.5 billion of CF Holdings common stock through December 31, 2024 (the 2021 Share Repurchase Program). The 2021 Share Repurchase Program was completed in the second quarter of 2023. On November 2, 2022, the Board authorized the repurchase of up to $3 billion of CF Holdings common stock commencing upon completion of the 2021 Share Repurchase Program and effective through December 31, 2025 (the 2022 Share Repurchase Program). Repurchases under our share repurchase programs may be made from time to time in the open market, through privately negotiated transactions, through block transactions, through accelerated share repurchase programs, 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.

The following table summarizes the share repurchases under the 2022 Share Repurchase Program.

	2022 Share Repurchase Program	
	Shares	**Amounts[1]**
	(in millions)	
Shares repurchased in 2023:		
First quarter	—	$ —
Second quarter	0.8	50
Third quarter	1.9	150
Fourth quarter	2.9	225
Total shares repurchased in 2023	5.6	425
Shares repurchased in 2024:		
First quarter	4.3	347
Total shares repurchased in 2024	4.3	347
Shares repurchased as of March 31, 2024	9.9	$ 772

(1) As defined in the 2022 Share Repurchase Program, amounts reflect the price paid for the shares of common stock repurchased, excluding commissions paid to brokers and excise taxes.

In the three months ended March 31, 2024, we repurchased approximately 4.3 million shares under the 2022 Share Repurchase Program for $347 million, of which $14 million was accrued and unpaid as of March 31, 2024. In the three months ended March 31, 2023, we repurchased approximately 1.1 million shares under the 2021 Share Repurchase Program for $75 million, of which $21 million was accrued and unpaid as of March 31, 2023.

Accumulated Other Comprehensive Loss

Changes to accumulated other comprehensive loss and the impact on other comprehensive income (loss) are as follows:

	Foreign Currency Translation Adjustment	Unrealized Gain on Derivatives	Defined Benefit Plans	Accumulated Other Comprehensive Income (Loss)
		(in millions)		
Balance as of December 31, 2023	$ (146)	$ 3	$ (66)	$ (209)
Effect of exchange rate changes and deferred taxes	(16)	—	—	(16)
Balance as of March 31, 2024	$ (162)	$ 3	$ (66)	$ (225)
Balance as of December 31, 2022	$ (179)	$ 3	$ (54)	$ (230)
Effect of exchange rate changes and deferred taxes	7	—	(1)	6
Balance as of March 31, 2023	$ (172)	$ 3	$ (55)	$ (224)

16. 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 primarily of selling, general and administrative expenses and other operating—net) and non-operating expenses (consisting primarily of interest and income taxes) are centrally managed and are not included in the measurement of segment profitability reviewed by management. Segment data for sales, cost of sales and gross margin for the three months ended March 31, 2024 and 2023 are presented in the table below.

	Ammonia	Granular Urea[(1)]	UAN[(1)]	AN[(1)]	Other[(1)]	Consolidated
	(in millions)					
Three months ended March 31, 2024						
Net sales	$ 402	$ 407	$ 425	$ 114	$ 122	$ 1,470
Cost of sales	337	253	282	105	84	1,061
Gross margin	$ 65	$ 154	$ 143	$ 9	$ 38	409
Total other operating costs and expenses						108
Equity in earnings of operating affiliate						2
Operating earnings						$ 303
Three months ended March 31, 2023						
Net sales	$ 424	$ 611	$ 667	$ 159	$ 151	$ 2,012
Cost of sales	280	327	346	104	92	1,149
Gross margin	$ 144	$ 284	$ 321	$ 55	$ 59	863
Total other operating costs and expenses						54
Equity in earnings of operating affiliate						17
Operating earnings						$ 826

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

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 and our discussion and analysis of financial condition and results of operations that were included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, filed with the Securities and Exchange Commission (SEC) on February 22, 2024, as well as Item 1. Financial Statements in Part I of this Quarterly Report on 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 to CF Industries Holdings, Inc. only 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, and references to tonnes refer to metric tons. Notes referenced in this discussion and analysis refer to the notes to our unaudited interim consolidated financial statements in Item 1. Financial Statements in Part I of this Quarterly Report on Form 10-Q. The following is an outline of the discussion and analysis included herein:

- Overview of CF Holdings
- Market Conditions
- Financial Executive Summary
- Acquisition of Waggaman Ammonia Production Facility
- Items Affecting Comparability of Results
- Consolidated Results of Operations
- Operating Results by Business Segment
- Liquidity and Capital Resources
- Critical Accounting Estimates
- Recent Accounting Pronouncements
- Forward-Looking Statements

Overview of CF Holdings

Our Company

Our mission is to provide clean energy to feed and fuel the world sustainably. With our employees focused on safe and reliable operations, environmental stewardship, and disciplined capital and corporate management, we are on a path to decarbonize our ammonia production network – the world's largest – to enable green and low-carbon hydrogen and nitrogen products for energy, fertilizer, emissions abatement, and other industrial activities. Our nitrogen manufacturing complexes in the United States, Canada and the United Kingdom, an extensive storage, transportation and distribution network in North America, and logistics capabilities enabling a global reach underpin our strategy to leverage our unique capabilities to accelerate the world's transition to clean energy. Our principal customers are cooperatives, independent fertilizer distributors, traders, wholesalers and industrial users. Our core product is anhydrous ammonia (ammonia), which contains 82% nitrogen and 18% hydrogen. Our nitrogen products that are upgraded from ammonia are 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.

Our principal assets as of March 31, 2024 include:

- six U.S. nitrogen manufacturing facilities located in Donaldsonville, Louisiana (the largest nitrogen complex in the world); Sergeant Bluff, Iowa (our Port Neal complex); Yazoo City, Mississippi; Claremore, Oklahoma (our Verdigris complex); Woodward, Oklahoma; and Waggaman, Louisiana. The Waggaman facility is wholly owned by us, and the other five U.S. nitrogen manufacturing facilities are wholly owned directly or indirectly by CF Industries Nitrogen, LLC (CFN), of which we own approximately 89% and CHS Inc. (CHS) owns the remainder (see Note 14—Noncontrolling Interest for additional information on our strategic venture with CHS);
- two Canadian nitrogen manufacturing facilities, located in Medicine Hat, Alberta (the largest nitrogen complex in Canada) and Courtright, Ontario;
- a United Kingdom nitrogen manufacturing facility located in Billingham;

- 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 (Trinidad) that we account for under the equity method.

Our Strategy

Our strategy is to leverage our unique capabilities to accelerate the world's transition to clean energy. We believe this strategy builds upon the Company's leadership in ammonia production to capture emerging opportunities available to ammonia produced with a lower carbon intensity than that of ammonia produced through traditional processes. These opportunities include traditional applications in agriculture to help reduce the carbon footprint of food production and the life cycle carbon intensity of ethanol production, enabling its use for sustainable aviation fuel, among other purposes. They also include new applications, such as power generation and marine shipping, that would use the hydrogen component of the ammonia molecule for clean energy given that ammonia does not contain or emit carbon when combusted.

We execute our strategy across four dimensions: decarbonizing our existing network to accelerate the availability of low-carbon ammonia; evaluating new low-carbon ammonia capacity growth; forging partnerships to accelerate our timeline, reduce risks and bridge gaps in areas where we do not have expertise; and collaborating to build understanding of ammonia's clean energy capability, safety track record and regulatory environment.

Decarbonization projects in our existing network include our green ammonia project at our Donaldsonville, Louisiana complex. Green ammonia refers to ammonia produced with hydrogen sourced through an electrolysis process that produces no carbon emissions. In April 2021, we signed an engineering and procurement contract with thyssenkrupp to supply a 20 MW alkaline water electrolysis plant to produce green hydrogen at our Donaldsonville complex. We will integrate the green hydrogen generated by the electrolysis plant into existing ammonia synthesis loops to enable the production of approximately 20,000 tons per year of green ammonia. The green hydrogen production facility is mechanically complete, and commissioning activities are nearing completion. We believe that the Donaldsonville green ammonia project will be the largest of its kind in North America at the time of its startup.

Decarbonization projects in our existing network also include the production of low-carbon ammonia. Low-carbon ammonia is ammonia produced by conventional processes but with approximately 60-98% of the process and flue gas CO_2 generated by ammonia production removed through carbon capture and sequestration (CCS). We are executing a project at our Donaldsonville complex that will enable us to produce a significant volume of low-carbon ammonia. At an estimated cost of $200 million, we are constructing a CO_2 dehydration and compression facility to enable CCS at the facility. Engineering activities for the construction of the dehydration and compression unit continue to advance: all major equipment for the facility has been procured, fabrication of the CO_2 compressors is proceeding and construction of the cooling tower required for the unit has begun. Once the dehydration and compression unit is in service and sequestration is initiated, we expect that the Donaldsonville complex will have the capacity to dehydrate and compress up to 2 million tons per year of process CO_2, thereby converting a portion of our existing ammonia production to low-carbon ammonia. In October 2022, we announced that we had entered into a definitive CO_2 offtake agreement with ExxonMobil to transport and permanently sequester the CO_2 from Donaldsonville. Start-up for the project is planned for 2025. Under current regulations, the project would be expected to qualify for tax credits under Section 45Q of the Internal Revenue Code, which provides a credit per tonne of CO_2 sequestered.

Alongside these projects, we are also evaluating the construction of greenfield low-carbon ammonia capacity in Louisiana. In the fourth quarter of 2023, we and Mitsui & Co., Ltd. (Mitsui) completed a front-end engineering and design (FEED) study on a potential greenfield steam methane reforming (SMR) ammonia facility with CCS technologies. The FEED study estimates the cost of a project with these attributes to be in the range of $3 billion, with approximately $2.5 billion allocated to the ammonia facility and CCS technologies and approximately $500 million allocated to scalable common infrastructure for the site, such as ammonia storage and vessel loading docks.

We and Mitsui are targeting the second half of 2024 for the final investment decision on the proposed greenfield low-carbon ammonia facility. Should the companies agree to move forward, the ammonia facility would be constructed at our new Blue Point complex. We own the land for the complex, which is located on the west bank of the Mississippi river in Ascension Parish, Louisiana. Construction and commissioning of a new world-scale ammonia plant typically takes approximately four years from the time construction begins.

We and our partners are progressing two additional FEED studies focused on technologies that would further reduce the carbon intensity of the proposed low-carbon ammonia facility, namely a FEED study evaluating autothermal reforming (ATR) ammonia production technology and a FEED study assessing the cost and viability of adding flue gas capture to the greenfield SMR ammonia facility. We expect to obtain results from both FEED studies in the second half of 2024.

In addition to ongoing discussions with existing customers who have interest in forthcoming availability of low-carbon ammonia for traditional applications, we are engaged in advanced discussions regarding the supply of low-carbon ammonia for new applications. In the first quarter of 2023, we signed a memorandum of understanding (MOU) with JERA Co., Inc. (JERA), Japan's largest energy generator. The execution of the MOU was the result of a supplier comparison and evaluation process for the procurement of clean ammonia that JERA initiated in February 2022 for the world's first commercial scale ammonia co-firing operations that JERA is developing. On April 17, 2024, we and JERA announced a joint development agreement (JDA) to jointly assess a greenfield production facility at our Blue Point complex, which includes the supply of low-carbon ammonia to JERA's co-firing project. The JDA will guide JERA and our evaluation of a joint venture agreement to build an approximately 1.4 million tonne capacity low-carbon ammonia plant. The parties are contemplating JERA owning a 48% stake in the project as well as an agreement to procure more than 500,000 tonnes of low-carbon ammonia annually to meet demand for low-carbon fuels in Japan. We and JERA aim to reach a final investment decision on the proposed project within a year for commencing production in 2028.

We are also evaluating and in various stages of developing discussions and agreements with other companies for clean ammonia long-term offtake opportunities related to new applications of ammonia.

Market Conditions

Nitrogen Selling Prices

Our nitrogen products are globally traded commodities with selling prices that fluctuate in response to global market conditions, changes in supply and demand, and other cost factors including domestic and local conditions. Intense global competition—reflected in import volumes and prices—strongly influences delivered prices for nitrogen fertilizers. In general, the prevailing global prices for nitrogen products must be at a level to incent the high-cost marginal producer to produce product at a breakeven or above price, or else they would cease production and leave a portion of global demand unsatisfied.

In the first quarter of 2024, the average selling price for our products was $325 per ton, a decrease of 27% compared to $444 per ton in the first quarter of 2023, reflecting lower average selling prices across all our segments, which resulted in a decrease in net sales of approximately $567 million in the first quarter of 2024 compared to the first quarter of 2023. Average selling prices for all our major products were lower in the first quarter of 2024 than in the first quarter of 2023, as lower global energy costs reduced the global market clearing price required to meet global demand.

Nitrogen Sales Volume

Sales volume in the first quarter of 2024 was 4.52 million tons compared to 4.54 million tons in the first quarter of 2023. Lower sales volume reflects the impact of lower production in the first quarter of 2024 as a result of an increase in maintenance activity due in part to a winter storm early in the quarter, partially offset by an increase in sales volume as a result of the Waggaman acquisition.

In January 2024, a winter storm produced extremely cold temperatures that impacted our operations, including the temporary shut-down of certain of our plants. As a result of the adverse weather, we incurred additional maintenance costs and lost production in the first quarter. Gross ammonia production for the first three months of 2024 was 2.1 million tons, a 9% decrease from the 2.4 million tons in the first three months of 2023, due primarily to maintenance activity resulting from the adverse weather in January as well as an increase in non-weather-related maintenance activity, including turnarounds, compared to the first quarter of 2023.

Due to the impact of plant downtime resulting from the adverse weather and additional plant maintenance activity in the first quarter of 2024 that limited production, we purchased and sold approximately 62,000 tons of ammonia and 48,000 tons of granular urea at near breakeven margins in order to fulfill sales commitments. The plant downtime led to approximately $75 million of additional costs in the first quarter of 2024 for maintenance, repairs and certain unabsorbed fixed costs.

Additionally, the Waggaman acquisition, which we completed on December 1, 2023, increased our ammonia sales volume in the first quarter of 2024 by approximately 122,000 tons.

Natural Gas

Natural gas is the principal raw material used to produce our nitrogen products. Natural gas is both a chemical feedstock and a fuel used to produce nitrogen products. Natural gas is a significant cost component of our manufactured nitrogen products, representing approximately 32% and 40%, respectively, of our production costs in the first three months of 2024 and the year ended December 31, 2023. Most of our nitrogen manufacturing facilities are located in the United States and Canada. As a result, the price of natural gas in North America directly impacts a substantial portion of our operating expenses.

The following table presents the average daily market price of natural gas at the Henry Hub, the most heavily-traded natural gas pricing point in North America:

	Three Months Ended March 31,			
	2024	2023	2024 v. 2023	
Average daily market price of natural gas Henry Hub (Louisiana) (per MMBtu)	$2.43	$2.68	$(0.25)	(9)%

In the first quarter of 2024, our cost of natural gas used for production, which includes the impact of realized natural gas derivatives, decreased 52% to $3.19 per MMBtu from $6.62 per MMBtu in the first quarter of 2023. This decrease in natural gas costs resulted in an increase in gross margin of $269 million compared to the first quarter of 2023.

In the first quarter of 2024, warmer-than-normal average temperatures in North America drove lower heating demand for natural gas, in spite of a short-lived period of extremely cold temperatures in January 2024 that affected most of North America. North American natural gas supply remained strong through the quarter, with a decline in supply occurring near the end of the quarter as producers responded to the weaker price environment. In addition, although the higher cost for natural gas outside of North America incentivized liquefaction facilities in the United States to export domestic natural gas during the first quarter of 2024, an outage at the Freeport liquefied natural gas facility limited total gas exports, supporting domestic supply. As a result, North American gas withdrawals from storage during the first quarter of 2024 were lower than normal, leading to 23% higher storage levels as of March 31, 2024, compared to one year ago and 39% higher than the five-year average.

Financial Executive Summary

We reported net earnings attributable to common stockholders of $194 million for the three months ended March 31, 2024 compared to $560 million for the three months ended March 31, 2023, a decrease in net earnings of $366 million. The decrease in net earnings for the three months ended March 31, 2024 compared to the three months ended March 31, 2023 primarily reflects a decrease in gross margin, partially offset by a lower income tax provision in the first quarter of 2024 as compared to the first quarter of 2023.

Gross margin decreased by $454 million to $409 million for the three months ended March 31, 2024 compared to the three months ended March 31, 2023. The decrease in gross margin was due primarily to a 27% decrease in average selling prices to $325 per ton in the first quarter of 2024 from $444 per ton in the first quarter of 2023, which decreased gross margin by $567 million. The impact of lower selling prices was partially offset by lower natural gas costs, which increased gross margin by $269 million. The lower gross margin was partially offset by a decrease of $107 million in the income tax provision due primarily to lower pre-tax earnings in the first quarter of 2024 compared to the first quarter of 2023 and a decrease of $46 million in net earnings attributable to noncontrolling interest.

Diluted net earnings per share attributable to common stockholders decreased $1.82 per share, to $1.03 per share, in the first quarter of 2024 compared to $2.85 per share in the first quarter of 2023, due primarily to lower net earnings, partially offset by lower weighted-average common shares outstanding as a result of shares repurchased under our share repurchase programs.

Acquisition of Waggaman Ammonia Production Facility

On December 1, 2023, we acquired an ammonia production facility located in Waggaman, Louisiana from Dyno Nobel Louisiana Ammonia, LLC (DNLA), a U.S. subsidiary of Australia-based Incitec Pivot Limited (IPL), pursuant to an asset purchase agreement with DNLA and IPL. The facility has a nameplate production capacity of 880,000 tons of ammonia annually.

In connection with the acquisition, we entered into a long-term ammonia offtake agreement providing for us to supply up to 200,000 tons of ammonia per year to IPL's Dyno Nobel, Inc. subsidiary. Under the terms of the asset purchase agreement, $425 million of the purchase price of $1.675 billion, subject to adjustment, was allocated by the parties to the ammonia offtake agreement. We funded the balance of the purchase price with $1.223 billion of cash on hand.

The consideration transferred reflects an estimated net working capital adjustment and other adjustments to the purchase price, which is subject to further adjustment pursuant to the terms of the asset purchase agreement. We expect any further purchase price adjustments required under the asset purchase agreement will not be material and will be completed in the second quarter of 2024.

In connection with recording the acquisition, we recognized, among other items, goodwill, intangible assets and a supply contract liability.

Items Affecting Comparability of Results

For the three months ended March 31, 2024 and 2023, we reported net earnings attributable to common stockholders of $194 million and $560 million, respectively. In addition to the impact of market conditions and the acquisition of the Waggaman ammonia production facility discussed above, certain items affected the comparability of our financial results for the three months ended March 31, 2024 and 2023. The following table and related discussion outline these items and their impact on the comparability of our financial results for these periods. The descriptions of items below that refer to amounts in the table refer to the pre-tax amounts unless otherwise noted.

	Three Months Ended March 31,			
	2024		2023	
	Pre-Tax	After-Tax	Pre-Tax	After-Tax
	(in millions)			
Unrealized net mark-to-market gain on natural gas derivatives[1]	$ (33)	$ (26)	$ (72)	$ (55)
Loss (gain) on foreign currency transactions, including intercompany loans[2]	1	1	(1)	(1)
U.K. operations restructuring	—	—	2	2
Acquisition and integration costs	3	2	13	10

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

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

Unrealized net mark-to-market gain on natural gas derivatives

Natural gas is the largest and most volatile single component of the manufacturing cost for our 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 use for this purpose are primarily natural gas fixed price swaps, basis swaps and 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 are reflected in cost of sales in our consolidated statements of operations. In the three months ended March 31, 2024 and 2023, we recognized unrealized net mark-to-market gains on natural gas derivatives of $33 million and $72 million, respectively.

Loss (gain) on foreign currency transactions, including intercompany loans

In the three months ended March 31, 2024 and 2023, we recognized a loss (gain) on foreign currency transactions of $1 million and $(1) million, respectively. Loss (gain) on foreign currency transactions consists of foreign currency exchange rate impacts on foreign currency denominated transactions, including the impact of changes in foreign currency exchange rates on intercompany loans that are not permanently invested.

U.K. operations restructuring

In the three months ended March 31, 2023, we incurred restructuring costs of $2 million related to the permanent closure of our Ince facility in the United Kingdom.

Acquisition and integration costs

On December 1, 2023, we acquired an ammonia production facility located in Waggaman, Louisiana, as described above under “Acquisition of Waggaman Ammonia Production Facility.” In the three months ended March 31, 2024 and 2023, we incurred $3 million and $13 million, respectively, of acquisition and integration costs related to the Waggaman acquisition.

Consolidated Results of Operations

The following table presents our consolidated results of operations and supplemental data for the three months ended March 31, 2024 and 2023:

	Three Months Ended March 31,			
	2024	2023	2024 v. 2023	
	(dollars in millions, except per share and per MMBtu amounts)			
Net sales	$1,470	$2,012	$ (542)	(27)%
Cost of sales	1,061	1,149	(88)	(8)%
Gross margin	409	863	(454)	(53)%
Gross margin percentage	27.8 %	42.9 %	(15.1)%	
Selling, general and administrative expenses	88	74	14	19 %
U.K. operations restructuring	—	2	(2)	(100)%
Acquisition and integration costs	3	13	(10)	(77)%
Other operating—net	17	(35)	52	N/M
Total other operating costs and expenses	108	54	54	100 %
Equity in earnings of operating affiliate	2	17	(15)	(88)%
Operating earnings	303	826	(523)	(63)%
Interest expense—net	7	10	(3)	(30)%
Other non-operating—net	(4)	(3)	(1)	(33)%
Earnings before income taxes	300	819	(519)	(63)%
Income tax provision	62	169	(107)	(63)%
Net earnings	238	650	(412)	(63)%
Less: Net earnings attributable to noncontrolling interest	44	90	(46)	(51)%
Net earnings attributable to common stockholders	$ 194	$ 560	$ (366)	(65)%
Diluted net earnings per share attributable to common stockholders	$ 1.03	$ 2.85	$ (1.82)	(64)%
Diluted weighted-average common shares outstanding	188.1	196.9	(8.8)	(4)%
Dividends declared per common share	$ 0.50	$ 0.40	$ 0.10	25 %
Natural gas supplemental data (per MMBtu)				
Natural gas costs in cost of sales[(1)]	$ 2.73	$ 5.14	$ (2.41)	(47)%
Realized derivatives loss in cost of sales[(2)]	0.46	1.48	(1.02)	(69)%
Cost of natural gas used for production in cost of sales	$ 3.19	$ 6.62	$ (3.43)	(52)%
Average daily market price of natural gas Henry Hub (Louisiana)	$ 2.43	$ 2.68	$ (0.25)	(9)%
Unrealized net mark-to-market gain on natural gas derivatives	$ (33)	$ (72)	$ 39	54 %
Depreciation and amortization	$ 253	$ 206	$ 47	23 %
Capital expenditures	$ 98	$ 69	$ 29	42 %
Sales volume by product tons (000s)	4,524	4,535	(11)	— %
Production volume by product tons (000s):				
Ammonia[(3)]	2,148	2,359	(211)	(9)%
Granular urea	959	1,211	(252)	(21)%
UAN (32%)	1,631	1,598	33	2 %
AN	341	388	(47)	(12)%

N/M—Not Meaningful

(1) Includes the cost of natural gas used for production 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.

First Quarter of 2024 Compared to First Quarter of 2023

Net Sales

Our total net sales decreased $542 million, or 27%, to $1.47 billion in the first three months of 2024 compared to $2.01 billion in the first three months of 2023. The decrease in our net sales reflects (i) the impact of the Waggaman acquisition completed on December 1, 2023, which increased our net sales by $55 million, and (ii) a $597 million, or 30%, decline in our net sales excluding the impact of the Waggaman acquisition, due primarily to a decrease in average selling prices of approximately 27%.

Our average selling price was $325 per ton in the first three months of 2024 compared to $444 per ton in the first three months of 2023, due to lower average selling prices across all our segments, as lower global energy costs reduced the global market clearing price required to meet global demand. The impact of lower average selling prices was a decrease in net sales of approximately $567 million for the three months ended March 31, 2024 compared to the three months ended March 31, 2023.

In January 2024, a winter storm produced extremely cold temperatures that impacted our operations, including the temporary shut-down of certain of our plants. As a result of the adverse weather, we incurred additional maintenance costs and lost production. Gross ammonia production for the first three months of 2024 was 2.1 million tons, a 9% decrease from 2.4 million tons of gross ammonia production in the first three months of 2023, due primarily to an increase in maintenance activity, including the unplanned maintenance due to the adverse weather. We expect gross ammonia production for 2024 will be approximately 9.8 million tons.

Cost of Sales

Our total cost of sales decreased $88 million, or 8%, to $1.06 billion in the first three months of 2024 from $1.15 billion in the first three months of 2023. The decrease in our cost of sales primarily reflects lower costs for natural gas including the impact of realized derivatives. The impact of lower natural gas costs decreased cost of sales by $269 million, excluding the impact of the Waggaman acquisition. The impact of lower natural gas costs was partially offset by higher costs for planned and unplanned maintenance activities in the first quarter of 2024, including as a result of the adverse weather, as discussed above. The impact of the Waggaman acquisition increased our cost of sales by $61 million.

Cost of sales also includes the impact of a $33 million unrealized net mark-to-market gain on natural gas derivatives in the first three months of 2024 compared to a $72 million gain in the first three months of 2023.

Cost of sales averaged $235 per ton in the first three months of 2024 compared to $254 per ton in the first three months of 2023. Our cost of natural gas decreased 52% to $3.19 per MMBtu in the first three months of 2024 from $6.62 per MMBtu in the first three months of 2023.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased $14 million to $88 million in the first three months of 2024 compared to $74 million in the first three months of 2023. The increase was due primarily to higher amortization expense related to the customer relationships recorded in conjunction with the Waggaman acquisition and an increase in costs related to other corporate initiatives.

Acquisition and Integration Costs

On December 1, 2023, we acquired an ammonia production facility located in Waggaman, Louisiana, as described above under “Acquisition of Waggaman Ammonia Production Facility.” In the three months ended March 31, 2024 and 2023, we incurred $3 million and $13 million, respectively, of acquisition and integration costs related to the Waggaman acquisition.

Other Operating—Net

Other operating—net was $17 million of expense in the first three months of 2024 compared to $35 million of income in the first three months of 2023. The $17 million of expense in the first three months of 2024 consists primarily of costs related to FEED studies for our clean energy initiatives and losses on the disposal of property, plant and equipment. See “Our Strategy,” above, for additional information related to our clean energy initiatives. The $35 million of income in the first three months of 2023 consists primarily of a gain on sales of emission credits.

Equity in Earnings of Operating Affiliate

Equity in earnings of operating affiliate was $2 million in the first three months of 2024 compared to $17 million in the first three months of 2023. Lower equity in earnings of operating affiliate reflects a decrease in the operating results of PLNL as a result of lower ammonia selling prices and lower operating rates at PLNL due to lower available natural gas.

Interest Expense—Net

Net interest expense was $7 million in the first three months of 2024 compared to $10 million in the first three months of 2023. The decrease of $3 million was due primarily to a decrease in interest on tax liabilities.

Income Tax Provision

For the three months ended March 31, 2024, we recorded an income tax provision of $62 million on pre-tax income of $300 million, or an effective tax rate of 20.7%, compared to an income tax provision of $169 million on pre-tax income of $819 million, or an effective tax rate of 20.6%, for the three months ended March 31, 2023.

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 March 31, 2024 of 20.7%, which is based on pre-tax income of $300 million, including $44 million of earnings attributable to the noncontrolling interest, would be 3.6 percentage points higher, or 24.3%, if based on pre-tax income exclusive of the earnings attributable to the noncontrolling interest of $44 million. Our effective tax rate for the three months ended March 31, 2023 of 20.6%, which is based on pre-tax income of $819 million, including $90 million of earnings attributable to the noncontrolling interest, would be 2.6 percentage points higher, or 23.2%, if based on pre-tax income exclusive of the earnings attributable to the noncontrolling interest of $90 million.

Net Earnings Attributable to Noncontrolling Interest

Net earnings attributable to noncontrolling interest decreased $46 million to $44 million in the first three months of 2024 compared to $90 million in the first three months of 2023 due to lower earnings of CFN driven by lower average selling prices, partially offset by lower natural gas costs.

Diluted Net Earnings Per Share Attributable to Common Stockholders

Diluted net earnings per share attributable to common stockholders decreased $1.82 to $1.03 per share in the first three months of 2024 from $2.85 per share in the first three months of 2023. This decrease was due primarily to a decrease in gross margin, driven by lower average selling prices, partially offset by lower costs for natural gas. Lower gross margin was partially offset by a decrease in the income tax provision resulting from lower profitability and a decrease in net earnings attributable to noncontrolling interest. Additionally, diluted weighted-average common shares outstanding declined 4% from 196.9 million shares for the three months ended March 31, 2023 to 188.1 million shares for the three months ended March 31, 2024, due primarily to repurchases of common shares 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 primarily of selling, general and administrative expenses and other operating—net) and non-operating expenses (consisting primarily of 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
	(dollars in millions)					
Three months ended March 31, 2024						
Net sales	$ 402	$ 407	$ 425	$ 114	$ 122	$ 1,470
Cost of sales	337	253	282	105	84	1,061
Gross margin	$ 65	$ 154	$ 143	$ 9	$ 38	$ 409
Gross margin percentage	16.2 %	37.8 %	33.6 %	7.9 %	31.1 %	27.8 %
Three months ended March 31, 2023						
Net sales	$ 424	$ 611	$ 667	$ 159	$ 151	$ 2,012
Cost of sales	280	327	346	104	92	1,149
Gross margin	$ 144	$ 284	$ 321	$ 55	$ 59	$ 863
Gross margin percentage	34.0 %	46.5 %	48.1 %	34.6 %	39.1 %	42.9 %

(1) The cost of the 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 the base product that we manufacture, containing 82% nitrogen and 18% hydrogen. The results of our Ammonia segment consist of sales of ammonia to external customers for its nitrogen content as a fertilizer, in emissions control and in other industrial applications. In addition, we upgrade ammonia into other nitrogen products such as granular urea, UAN and AN.

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

	Three Months Ended March 31,			
	2024[(1)]	2023	2024 v. 2023	
	(dollars in millions, except per ton amounts)			
Net sales	$ 402	$ 424	$ (22)	(5)%
Cost of sales	337	280	57	20 %
Gross margin	$ 65	$ 144	$ (79)	(55)%
Gross margin percentage	16.2 %	34.0 %	(17.8)%	
Sales volume by product tons (000s)	918	652	266	41 %
Sales volume by nutrient tons (000s)[(2)]	753	535	218	41 %
Average selling price per product ton	$ 438	$ 650	$ (212)	(33)%
Average selling price per nutrient ton[(2)]	$ 534	$ 793	$ (259)	(33)%
Gross margin per product ton	$ 71	$ 221	$ (150)	(68)%
Gross margin per nutrient ton[(2)]	$ 86	$ 269	$ (183)	(68)%
Depreciation and amortization	$ 72	$ 31	$ 41	132 %
Unrealized net mark-to-market gain on natural gas derivatives	$ (12)	$ (21)	$ 9	43 %

(1) Includes the financial results of the Waggaman ammonia production facility, which we acquired on December 1, 2023. See “Acquisition of Waggaman Ammonia Production Facility” for additional information.

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

First Quarter of 2024 Compared to First Quarter of 2023

Net Sales. Net sales in our Ammonia segment decreased by $22 million, or 5%, to $402 million in the three months ended March 31, 2024 from $424 million in the three months ended March 31, 2023. The decrease in our net sales reflects a 33% decrease in average selling prices, partially offset by a 41% increase in sales volume, including the impact of the Waggaman acquisition completed on December 1, 2023. Average selling prices decreased to $438 per ton in the three months ended March 31, 2024 compared to $650 per ton in the three months ended March 31, 2023 as lower global energy costs reduced the global market clearing price required to meet global demand.

In January 2024, a winter storm produced extremely cold temperatures that impacted our operations, including the temporary shut-down of certain of our plants. As a result of the adverse weather, we incurred additional maintenance costs and lost production in the first quarter. Due to the impact of plant downtime resulting from the adverse weather and additional plant maintenance activity in the first quarter of 2024 that limited production, we purchased and sold approximately 62,000 tons of ammonia at near breakeven margins in order to fulfill sales commitments.

Ammonia sales volume in the first quarter of 2024 was 918,000 tons, an increase of 266,000 tons, or 41%, compared to 652,000 tons in the first quarter of 2023. The increase in sales volume reflects the impact of the Waggaman acquisition completed on December 1, 2023, which increased our ammonia sales volume in the first quarter of 2024 by approximately 122,000 tons, approximately 62,000 tons of purchased ammonia described above, and spring ammonia applications in North America being pulled into the first quarter of 2024 due to favorable weather.

Cost of Sales. Cost of sales in our Ammonia segment averaged $367 per ton in the three months ended March 31, 2024, a 14% decrease from $429 per ton in the three months ended March 31, 2023. The decrease was due primarily to lower realized natural gas costs, including the impact of realized derivatives, partially offset by higher costs for maintenance, repairs and certain unabsorbed fixed costs as a result of plant downtime, including the impact of the adverse weather in January 2024 as discussed above. The impact of the Waggaman acquisition on our cost of sales per ton in our Ammonia segment was not material.

Gross Margin. Gross margin in our Ammonia segment decreased by $79 million to $65 million in the three months ended March 31, 2024 from $144 million in the three months ended March 31, 2023, and our gross margin percentage was 16.2% in the three months ended March 31, 2024 compared to 34.0% in the three months ended March 31, 2023. The decrease in gross margin was due primarily to a 33% decrease in average selling prices, which decreased gross margin by $160 million and a net increase in manufacturing, maintenance and other costs, which decreased gross margin by $48 million. These factors that decreased gross margin were partially offset by the impact of a decrease in realized natural gas costs, including the impact of realized derivatives, which increased gross margin by $99 million, and including the impact of the Waggaman acquisition completed on December 1, 2023, a 41% increase in sales volume, which increased gross margin by $39 million. Gross margin also includes the impact of a $12 million unrealized net mark-to-market gain on natural gas derivatives in the three months ended March 31, 2024 compared to a $21 million gain in the three months ended March 31, 2023.

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, Port Neal and Medicine Hat complexes.

The following table presents summary operating data for our Granular Urea segment:

	Three Months Ended March 31,			
	2024	2023	2024 v. 2023	
	(dollars in millions, except per ton amounts)			
Net sales	$ 407	$ 611	$ (204)	(33)%
Cost of sales	253	327	(74)	(23)%
Gross margin	$ 154	$ 284	$ (130)	(46)%
Gross margin percentage	37.8 %	46.5 %	(8.7)%	
Sales volume by product tons (000s)	1,092	1,323	(231)	(17)%
Sales volume by nutrient tons (000s)[1]	502	608	(106)	(17)%
Average selling price per product ton	$ 373	$ 462	$ (89)	(19)%
Average selling price per nutrient ton[1]	$ 811	$1,005	$ (194)	(19)%
Gross margin per product ton	$ 141	$ 215	$ (74)	(34)%
Gross margin per nutrient ton[1]	$ 307	$ 467	$ (160)	(34)%
Depreciation and amortization	$ 69	$ 79	$ (10)	(13)%
Unrealized net mark-to-market gain on natural gas derivatives	$ (9)	$ (20)	$ 11	55 %

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

First Quarter of 2024 Compared to First Quarter of 2023

Net Sales. Net sales in our Granular Urea segment decreased $204 million, or 33%, to $407 million in the three months ended March 31, 2024 from $611 million in the three months ended March 31, 2023 due primarily to a 19% decrease in average selling prices and a 17% decrease in sales volume. Average selling prices decreased to $373 per ton in the three months ended March 31, 2024 compared to $462 per ton in the three months ended March 31, 2023 as lower global energy costs reduced the global market clearing price required to meet global demand. Sales volume includes the impact of approximately 48,000 tons of granular urea purchased and sold in the first quarter of 2024 due to a winter storm that produced extremely cold temperatures that impacted our operations, including the temporary shut-down of certain of our plants. Sales volume for the three months ended March 31, 2024 was 1.1 million tons compared to 1.3 million tons in the three months ended March 31, 2023 due primarily to lower supply availability as a result of lower production due to the adverse weather and other maintenance activities.

Cost of Sales. Cost of sales in our Granular Urea segment averaged $232 per ton in the three months ended March 31, 2024 compared to $247 per ton in the three months ended March 31, 2023. The decrease was due primarily to lower realized natural gas costs, including the impact of realized derivatives, partially offset by higher costs associated with maintenance activity in the first quarter of 2024.

Gross Margin. Gross margin in our Granular Urea segment decreased by $130 million to $154 million in the three months ended March 31, 2024 from $284 million in the three months ended March 31, 2023, and our gross margin percentage was 37.8% in the three months ended March 31, 2024 compared to 46.5% in the three months ended March 31, 2023. The decrease in gross margin was due primarily to a 19% decrease in average selling prices, which decreased gross margin by $94 million, a 17% decrease in sales volume, which decreased gross margin by $58 million, and a net increase in manufacturing, maintenance and other costs, which decreased gross margin by $33 million. These factors that decreased gross margin were partially offset by a decrease in realized natural gas costs, including the impact of realized derivatives, which increased gross margin by $66 million. Gross margin also includes the impact of a $9 million unrealized net mark-to-market gain on natural gas derivatives in the three months ended March 31, 2024 compared to a $20 million gain in the three months ended March 31, 2023.

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 Courtright, Donaldsonville, Port Neal, Verdigris, Woodward, and Yazoo City complexes.

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

	Three Months Ended March 31,			
	2024	2023	2024 v. 2023	
	(dollars in millions, except per ton amounts)			
Net sales	$ 425	$ 667	$ (242)	(36)%
Cost of sales	282	346	(64)	(18)%
Gross margin	$ 143	$ 321	$ (178)	(55)%
Gross margin percentage	33.6 %	48.1 %	(14.5)%	
Sales volume by product tons (000s)	1,611	1,662	(51)	(3)%
Sales volume by nutrient tons (000s)[(1)]	509	524	(15)	(3)%
Average selling price per product ton	$ 264	$ 401	$ (137)	(34)%
Average selling price per nutrient ton[(1)]	$ 835	$1,273	$ (438)	(34)%
Gross margin per product ton	$ 89	$ 193	$ (104)	(54)%
Gross margin per nutrient ton[(1)]	$ 281	$ 613	$ (332)	(54)%
Depreciation and amortization	$ 69	$ 66	$ 3	5 %
Unrealized net mark-to-market gain on natural gas derivatives	$ (10)	$ (21)	$ 11	52 %

(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.

First Quarter of 2024 Compared to First Quarter of 2023

Net Sales. Net sales in our UAN segment decreased $242 million, or 36%, to $425 million in the three months ended March 31, 2024 from $667 million in the three months ended March 31, 2023 due primarily to a 34% decrease in average selling prices and a 3%

decrease in sales volume. Average selling prices decreased to $264 per ton in the three months ended March 31, 2024 compared to $401 per ton in the three months ended March 31, 2023 as lower global energy costs reduced the global market clearing price required to meet global demand.

Cost of Sales. Cost of sales in our UAN segment averaged $175 per ton in the three months ended March 31, 2024, a 16% decrease from $208 per ton in the three months ended March 31, 2023, due primarily to the impact of lower realized natural gas costs, including the impact of realized derivatives.

Gross Margin. Gross margin in our UAN segment decreased by $178 million to $143 million in the three months ended March 31, 2024 from $321 million in the three months ended March 31, 2023, and our gross margin percentage was 33.6% in the three months ended March 31, 2024 compared to 48.1% in the three months ended March 31, 2023. The decrease in gross margin was due primarily to a 34% decrease in average selling prices, which decreased gross margin by $228 million, a net increase in manufacturing, maintenance and other costs, which decreased gross margin by $10 million, and a 3% decrease in sales volume, which decreased gross margin by $6 million. These factors that decreased gross margin were partially offset by a decrease in realized natural gas costs, including the impact of realized derivatives, which increased gross margin by $77 million. Gross margin also includes the impact of a $10 million unrealized net mark-to-market gain on natural gas derivatives in the three months ended March 31, 2024 compared to a $21 million gain in the three months ended March 31, 2023.

AN Segment

Our AN segment produces ammonium nitrate (AN). AN, which has a nitrogen content between 29% and 35%, is produced by combining anhydrous ammonia and nitric acid. AN is used as nitrogen fertilizer and is also used by industrial customers for commercial explosives and blasting systems. AN is produced at our Yazoo City and Billingham complexes.

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

	Three Months Ended March 31,			
	2024	2023	2024 v. 2023	
	(dollars in millions, except per ton amounts)			
Net sales	$ 114	$ 159	$ (45)	(28)%
Cost of sales	105	104	1	1 %
Gross margin	$ 9	$ 55	$ (46)	(84)%
Gross margin percentage	7.9 %	34.6 %	(26.7)%	
Sales volume by product tons (000s)	390	374	16	4 %
Sales volume by nutrient tons (000s)[(1)]	134	128	6	5 %
Average selling price per product ton	$ 292	$ 425	$ (133)	(31)%
Average selling price per nutrient ton[(1)]	$ 851	$1,242	$ (391)	(31)%
Gross margin per product ton	$ 23	$ 147	$ (124)	(84)%
Gross margin per nutrient ton[(1)]	$ 67	$ 430	$ (363)	(84)%
Depreciation and amortization	$ 13	$ 11	$ 2	18 %
Unrealized net mark-to-market gain on natural gas derivatives	$ (1)	$ (3)	$ 2	67 %

(1) AN represents between 29% and 35% of nitrogen content. Nutrient tons represent the tons of nitrogen within the product tons.

First Quarter of 2024 Compared to First Quarter of 2023

Net Sales. Net sales in our AN segment decreased $45 million, or 28%, to $114 million in the three months ended March 31, 2024 from $159 million in the three months ended March 31, 2023 due to a 31% decrease in average selling prices partially offset by a 4% increase in sales volume. Average selling prices decreased to $292 per ton in the three months ended March 31, 2024 compared to $425 per ton in the three months ended March 31, 2023 as lower global energy costs reduced the global market clearing price required to meet global demand.

Cost of Sales. Cost of sales in our AN segment averaged $269 per ton in the three months ended March 31, 2024, a 3% decrease from $278 per ton in the three months ended March 31, 2023. The decrease was due primarily to the impact of lower realized natural gas costs, including the impact of realized derivatives.

Gross Margin. Gross margin in our AN segment decreased $46 million to $9 million in the three months ended March 31, 2024 from $55 million in the three months ended March 31, 2023, and our gross margin percentage was 7.9% in the three months ended March 31, 2024 compared to 34.6% in the three months ended March 31, 2023. The decrease in gross margin was due primarily to a 31% decrease in average selling prices, which decreased gross margin by $60 million. The decrease in average selling prices was partially offset by a decrease in realized natural gas costs, which increased gross margin by $10 million, a 4% increase in sales volume, which increased gross margin by $4 million, and a net decrease in manufacturing, maintenance and other costs, which increased gross margin by $2 million. Gross margin also includes the impact of a $1 million unrealized net mark-to-market gain on natural gas derivatives in the three months ended March 31, 2024 compared to a $3 million gain in the three months ended March 31, 2023.

Other Segment

Our Other segment primarily includes the following products:

- diesel exhaust fluid (DEF), an aqueous urea solution typically made with 32.5% or 50% high-purity urea and the remainder deionized water;
- urea liquor, a liquid product that we sell in concentrations of 40%, 50% and 70% high-purity urea as a chemical intermediate; and
- nitric acid, a nitrogen-based mineral acid that is used in the production of nitrate-based fertilizers, nylon precursors and other specialty chemicals.

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

	Three Months Ended March 31,			
	2024	2023	2024 v. 2023	
	(dollars in millions, except per ton amounts)			
Net sales	$ 122	$ 151	$ (29)	(19)%
Cost of sales	84	92	(8)	(9)%
Gross margin	$ 38	$ 59	$ (21)	(36)%
Gross margin percentage	31.1 %	39.1 %	(8.0)%	
Sales volume by product tons (000s)	513	524	(11)	(2)%
Sales volume by nutrient tons (000s)[1]	99	103	(4)	(4)%
Average selling price per product ton	$ 238	$ 288	$ (50)	(17)%
Average selling price per nutrient ton[1]	$1,232	$1,466	$ (234)	(16)%
Gross margin per product ton	$ 74	$ 113	$ (39)	(35)%
Gross margin per nutrient ton[1]	$ 384	$ 573	$ (189)	(33)%
Depreciation and amortization	$ 20	$ 16	$ 4	25 %
Unrealized net mark-to-market gain on natural gas derivatives	$ (1)	$ (7)	$ 6	86 %

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

First Quarter of 2024 Compared to First Quarter of 2023

Net Sales. Net sales in our Other segment decreased by $29 million, or 19%, to $122 million in the three months ended March 31, 2024 from $151 million in the three months ended March 31, 2023 due to a 17% decrease in average selling prices and a 2% decrease in sales volume. The decrease in average selling prices was due primarily to lower global energy costs reducing the global market clearing price required to meet global demand.

Cost of Sales. Cost of sales in our Other segment averaged $164 per ton in the three months ended March 31, 2024, a 6% decrease from $175 per ton in the three months ended March 31, 2023, due primarily to the impact of lower realized natural gas costs, including the impact of realized derivatives.

Gross Margin. Gross margin in our Other segment decreased by $21 million to $38 million in the three months ended March 31, 2024 from $59 million in the three months ended March 31, 2023, and our gross margin percentage was 31.1% in the three months ended March 31, 2024 compared to 39.1% in the three months ended March 31, 2023. The decrease in gross margin was due primarily to a 17% decrease in average selling prices, which decreased gross margin by $25 million, a 2% decrease in sales volume, which decreased gross margin by $4 million, and a net increase in manufacturing, maintenance and other costs, which decreased gross margin by $3 million. These factors that decreased gross margin were partially offset by a decrease in realized natural gas costs, which increased gross margin by $17 million. Gross margin also includes the impact of a $1 million unrealized net mark-to-market gain on natural gas derivatives in the three months ended March 31, 2024 compared to a $7 million gain in the three months ended March 31, 2023.

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. We may also utilize our cash to fund acquisitions. In addition, we may from time to time seek to retire or purchase our outstanding debt through cash purchases, in open market or privately negotiated transactions or otherwise. Such repurchases, if any, will depend on prevailing market conditions, our liquidity requirements, contractual restrictions and other factors. The amounts involved may be material.

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 revolving credit agreement.

As of March 31, 2024, our cash and cash equivalents balance was $1.77 billion, a decrease of $259 million from $2.03 billion at December 31, 2023. The decrease in cash and cash equivalents reflects favorable cash generated by operations offset by cash used for share repurchases, the semi-annual distribution to the noncontrolling interest and capital expenditures, as described below under “Cash Flows.” At March 31, 2024, we were in compliance with all applicable covenant requirements under our revolving credit agreement and senior notes, and unused borrowing capacity under our revolving credit agreement was $750 million.

On January 31, 2024, our Board of Directors (the Board) declared a quarterly dividend of $0.50 per common share, representing a 25% increase from the quarterly dividend of $0.40 per common share that was declared and paid in the fourth quarter of 2023. The dividend was paid on February 29, 2024 to stockholders of record as of February 15, 2024.

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.

Capital Spending

We make capital expenditures to sustain our asset base, increase our capacity or capabilities, improve plant efficiency, comply with various environmental, health and safety requirements, and invest in our clean energy strategy. Capital expenditures totaled $98 million in the first three months of 2024 compared to $69 million in the first three months of 2023. The increase in capital expenditures was due primarily to higher plant turnaround activity in the first three months of 2024.

We currently anticipate that capital expenditures for the full year 2024 will be approximately $550 million. Planned capital expenditures are generally 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.

Acquisition of Waggaman Ammonia Production Facility

On December 1, 2023, we acquired an ammonia production facility located in Waggaman, Louisiana from Dyno Nobel Louisiana Ammonia, LLC (DNLA), a U.S. subsidiary of Australia-based Incitec Pivot Limited (IPL), pursuant to an asset purchase agreement with DNLA and IPL. The facility has a nameplate production capacity of 880,000 tons of ammonia annually.

In connection with the acquisition, we entered into a long-term ammonia offtake agreement providing for us to supply up to 200,000 tons of ammonia per year to IPL’s Dyno Nobel, Inc. subsidiary. Under the terms of the asset purchase agreement, $425 million of the purchase price of $1.675 billion, subject to adjustment, was allocated by the parties to the ammonia offtake agreement. We funded the balance of the purchase price with $1.223 billion of cash on hand. The consideration transferred reflects an estimated net working capital adjustment and other adjustments to the purchase price, which is subject to further adjustment pursuant to the terms of the asset purchase agreement. We expect any further purchase price adjustments required under the asset purchase agreement will not be material and will be completed in the second quarter of 2024.

The financial results of the Waggaman facility are included in our consolidated statement of operations and in our Ammonia segment from the acquisition date of December 1, 2023. See Note 5—Acquisition of Waggaman Ammonia Production Facility for additional information.

Share Repurchase Programs

On November 3, 2021, the Board authorized the repurchase of up to $1.5 billion of CF Holdings common stock through December 31, 2024 (the 2021 Share Repurchase Program). The 2021 Share Repurchase Program was completed in the second quarter of 2023. On November 2, 2022, the Board authorized the repurchase of up to $3 billion of CF Holdings common stock commencing upon completion of the 2021 Share Repurchase Program and effective through December 31, 2025 (the 2022 Share Repurchase Program). Repurchases under our share repurchase programs may be made from time to time in the open market, through privately negotiated transactions, through block transactions, through accelerated share repurchase programs, 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.

The following table summarizes the share repurchases under the 2022 Share Repurchase Program.

	2022 Share Repurchase Program	
	Shares	Amounts[1]
	(in millions)	
Shares repurchased in 2023:		
First quarter	—	$ —
Second quarter	0.8	50
Third quarter	1.9	150
Fourth quarter	2.9	225
Total shares repurchased in 2023	5.6	425
Shares repurchased in 2024:		
First quarter	4.3	347
Total shares repurchased in 2024	4.3	347
Shares repurchased as of March 31, 2024	9.9	$ 772

(1) As defined in the 2022 Share Repurchase Program, amounts reflect the price paid for the shares of common stock repurchased, excluding commissions paid to brokers and excise taxes.

In the three months ended March 31, 2024, we repurchased approximately 4.3 million shares under the 2022 Share Repurchase Program for $347 million, of which $14 million was accrued and unpaid as of March 31, 2024. In the three months ended March 31, 2023, we repurchased approximately 1.1 million shares under the 2021 Share Repurchase Program for $75 million, of which $21 million was accrued and unpaid as of March 31, 2023.

Debt

Revolving Credit Agreement

We have a senior unsecured revolving credit agreement (the Revolving Credit Agreement), which provides for a revolving credit facility of up to $750 million with a maturity of October 26, 2028 and includes a letter of credit sub-limit of $125 million. Borrowings under the Revolving Credit Agreement may be used for working capital, capital expenditures, acquisitions, share repurchases and other general corporate purposes. CF Industries is the lead borrower, and CF Holdings is the sole guarantor, under the Revolving Credit Agreement.

Borrowings under the Revolving Credit Agreement can be denominated in U.S. dollars, Canadian dollars, euros and British pounds. Borrowings in U.S. dollars bear interest at a per annum rate equal to, at our option, an applicable adjusted term Secured Overnight Financing Rate or base rate plus, in either case, a specified margin. We 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 depended on CF Holdings’ credit rating at the time. The Revolving Credit Agreement contains representations and warranties and affirmative and negative covenants, including a financial covenant.

As of March 31, 2024, we had unused borrowing capacity under the Revolving Credit Agreement of $750 million and no outstanding letters of credit under the Revolving Credit Agreement. There were no borrowings outstanding under the Revolving Credit Agreement as of March 31, 2024 or December 31, 2023, or during the three months ended March 31, 2024.

Letters of Credit Under Bilateral Agreement

We are party to a bilateral agreement providing for the issuance of up to $425 million of letters of credit. As of March 31, 2024, approximately $302 million of letters of credit were outstanding under this agreement.

Senior Notes

Long-term debt presented on our consolidated balance sheets as of March 31, 2024 and December 31, 2023 consisted of the following debt securities issued by CF Industries:

		March 31, 2024		December 31, 2023	
	Effective Interest Rate	Principal	Carrying Amount[1]	Principal	Carrying Amount[1]
		(in millions)			
Public Senior Notes:					
5.150% due March 2034	5.293%	$ 750	$ 742	$ 750	$ 741
4.950% due June 2043	5.040%	750	742	750	742
5.375% due March 2044	5.478%	750	741	750	741
Senior Secured Notes:					
4.500% due December 2026[2]	4.783%	750	744	750	744
Total long-term debt		$ 3,000	$ 2,969	$ 3,000	$ 2,968

(1) Carrying amount is net of unamortized debt discount and deferred debt issuance costs. Total unamortized debt discount was $6 million and $7 million as of March 31, 2024 and December 31, 2023, respectively, and total deferred debt issuance costs were $25 million as of both March 31, 2024 and December 31, 2023.

(2) Effective August 23, 2021, these notes are no longer secured, in accordance with the terms of the applicable indenture.

Under the terms of the indentures (including the applicable supplemental indentures) governing our senior notes due 2034, 2043 and 2044 identified in the table above (the Public Senior Notes), each series of Public Senior Notes is guaranteed by CF Holdings. Under the terms of the indenture governing the 4.500% senior secured notes due 2026 (the 2026 Notes), the 2026 Notes are guaranteed by CF Holdings.

Interest on the Public Senior Notes and the 2026 Notes is payable semiannually, and the Public Senior Notes and the 2026 Notes are redeemable at our option, in whole at any time or in part from time to time, at specified make-whole redemption prices.

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 March 31, 2024 and December 31, 2023, we had $104 million and $130 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, our customers’ outlook of future market fundamentals and seasonality. 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 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 products. From time to time, we may 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 March 31, 2024, our open natural gas derivative contracts consisted of natural gas fixed price swaps and basis swaps for 8.0 million MMBtus of natural gas. As of December 31, 2023, our open natural gas derivative contracts consisted of natural gas fixed price swaps, basis swaps and options for 49.0 million MMBtus of natural gas.

Defined Benefit Pension Plans

We contributed $7 million to our pension plans in the three months ended March 31, 2024. Over the remainder of 2024, we expect to contribute approximately $6 million to our pension plans, which would result in our making total contributions of approximately $13 million to our pension plans for the full year 2024. In addition, in the three-year period from 2025 to 2027, we expect to contribute a total of approximately £32 million (or $41 million) to our U.K. pension plans as currently agreed with the plans' trustees.

Distribution to Noncontrolling Interest in CFN

On January 31, 2024, the CFN Board of Managers approved semi-annual distribution payments for the distribution period ended December 31, 2023 in accordance with CFN's limited liability company agreement, and on January 31, 2024, CFN distributed $144 million to CHS for this distribution period. The estimate of the partnership distribution earned by CHS, but not yet declared, for the first quarter of 2024 is approximately $79 million.

Cash Flows

Net cash provided by operating activities during the first three months of 2024 was $445 million, a decrease of $502 million, compared to $947 million in the first three months of 2023. The decrease in cash flow from operations was due primarily to lower net earnings and changes in net working capital. Net earnings for the first three months of 2024 was $238 million compared to $650 million for the first three months of 2023, a decrease of $412 million. The decrease in net earnings was due primarily to a decrease in gross margin, driven by lower average selling prices, partially offset by lower natural gas costs. During the first three months of 2024, net changes in working capital reduced cash flow from operations by $17 million, while in the first three months of 2023, net changes in working capital increased cash flow from operations by $213 million. The decrease in cash flow from working capital changes was attributable primarily to movements in accounts receivable and customer advances in the first three months of 2024 as compared to the first three months of 2023.

Net cash used in investing activities was $100 million in the first three months of 2024 compared to $34 million in the first three months of 2023. Capital expenditures totaled $98 million during the first three months of 2024 compared to $69 million in the first three months of 2023. Proceeds from the sale of emission credits was $35 million in the first three months of 2023.

Net cash used in financing activities was $602 million in the first three months of 2024 compared to $410 million in the first three months of 2023. The increase was due primarily to an increase in share repurchases, partially offset by a decrease in distributions to noncontrolling interest. In the first three months of 2024, we paid $339 million for share repurchases compared to $54 million paid for share repurchases in the first three months of 2023. In the first three months of 2024, distributions to the noncontrolling interest were $144 million compared to $255 million in the first three months of 2023.

Critical Accounting Estimates

During the first three months of 2024, there were no material changes to our critical accounting estimates as described in Item 7 of our Annual Report on Form 10-K for the fiscal year ended December 31, 2023.

Recent Accounting Pronouncements

See Note 2—New Accounting Standards for a discussion of recent accounting pronouncements.

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 Annual Report on Form 10-K for the fiscal year ended December 31, 2023, filed with the SEC on February 22, 2024. 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 nitrogen products, the conditions in the international market for nitrogen products, and the intense global competition from other producers;
- conditions in the United States, Europe and other agricultural areas, including the influence of governmental policies and technological developments on the demand for our fertilizer products;
- the volatility of natural gas prices in North America and the United Kingdom;
- weather conditions and the impact of adverse weather events;
- the seasonality of the fertilizer business;
- the impact of changing market conditions on our forward sales programs;
- difficulties in securing the supply and delivery of raw materials or utilities, increases in their costs or delays or interruptions in their delivery;
- reliance on third party providers of transportation services and equipment;
- our reliance on a limited number of key facilities;
- risks associated with cybersecurity;
- acts of terrorism and regulations to combat terrorism;
- risks associated with international operations;

- 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 and any additional indebtedness that may be incurred;
- our ability to maintain compliance with covenants under our revolving credit agreement and the agreements governing our indebtedness;
- downgrades of our credit ratings;
- risks associated with changes in tax laws and disagreements with taxing authorities;
- risks involving derivatives and the effectiveness of our risk management and hedging activities;
- potential liabilities and expenditures related to environmental, health and safety laws and regulations and permitting requirements;
- regulatory restrictions and requirements related to greenhouse gas emissions;
- the development and growth of the market for green and low-carbon (blue) ammonia and the risks and uncertainties relating to the development and implementation of our green and low-carbon ammonia projects; and
- risks associated with expansions of our business, including unanticipated adverse consequences and the significant resources that could be required.

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 gross margin, cash flows and estimates of future cash flows related to nitrogen-based products are sensitive not only to selling prices of our products, but also to changes in market prices of natural gas and other raw materials except to the extent the prices we pay for those inputs 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 $32, $22, $14 and $15, respectively.

Natural gas is the largest and most volatile 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 derivative instruments that we may use for this purpose are primarily natural gas fixed price swaps, basis swaps and options. These derivatives settle using primarily a NYMEX futures price index, which represents 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 March 31, 2024, we had natural gas derivative contracts covering certain periods through March 2025.

As of March 31, 2024 and December 31, 2023, we had open derivative contracts for 8.0 million MMBtus and 49.0 million MMBtus, respectively. A $1.00 per MMBtu increase in the forward curve prices of natural gas at March 31, 2024 would result in a favorable change in the fair value of these derivative positions of approximately $8 million, and a $1.00 per MMBtu decrease in the forward curve prices of natural gas would change their fair value unfavorably by approximately $8 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 March 31, 2024, we had four series of senior notes totaling $3.00 billion of principal outstanding with maturity dates of December 1, 2026, March 15, 2034, June 1, 2043, and March 15, 2044. The senior notes have fixed interest rates. As of March 31, 2024, the carrying value and fair value of our senior notes was approximately $2.97 billion and $2.84 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 March 31, 2024, as of December 31, 2023, or during the three months ended March 31, 2024.

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. Other than changes due to the Company's implementation of its new financial reporting and business consolidation system, 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 March 31, 2024 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

PART II—OTHER INFORMATION

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

The following table sets forth share repurchases, on a trade date basis, for each of the three months of the quarter ended March 31, 2024.

	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]**
January 1, 2024 - January 31, 2024	95,399 [3]	$ 81.51	—	$ 2,575,052
February 1, 2024 - February 29, 2024	2,150,340 [4]	79.40	1,958,544	2,419,796
March 1, 2024 - March 31, 2024	2,315,860 [5]	83.03	2,315,675	2,227,533
Total	4,561,599	$ 81.29	4,274,219	

(1) Average price paid per share of CF Industries Holdings, Inc. (CF Holdings) common stock repurchased under the 2022 Share Repurchase Program, as defined below, is the execution price, excluding commissions paid to brokers and excise taxes.

(2) On November 2, 2022, we announced that our Board of Directors authorized the repurchase of up to $3 billion of CF Holdings common stock, which is effective through December 31, 2025 (the 2022 Share Repurchase Program). This share repurchase program is discussed in Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Share Repurchase Programs in Part I of this Quarterly Report on Form 10-Q and in Note 15—Stockholders' Equity, in the notes to unaudited consolidated financial statements included in Item 1. Financial Statements in Part I of this Quarterly Report on Form 10-Q.

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

(4) Includes 191,796 shares withheld to pay employee tax obligations upon the lapse of restrictions on performance restricted stock units.

(5) Includes 185 shares withheld to pay employee tax obligations upon the lapse of restrictions on restricted stock units.

ITEM 5. OTHER INFORMATION.

During the quarter ended March 31, 2024, there were no Rule 10b5-1 trading arrangements (as defined in Item 408(a) of Regulation S-K) or non-Rule 10b5-1 trading arrangements (as defined in Item 408(c) of Regulation S-K) adopted or terminated by any director or officer (as defined in Rule 16a-1(f) under the Exchange Act) of CF Industries Holdings, Inc., except as follows:

On March 13, 2024, Bert A. Frost, Executive Vice President, Sales, Market Development and Supply Chain, adopted a Rule 10b5-1 trading arrangement for the sale of up to 9,000 shares of Common Stock, subject to certain conditions, between June 14, 2024 and March 12, 2025.

On March 15, 2024, Ashraf Malik, Senior Vice President, Manufacturing and Distribution, adopted a Rule 10b5-1 trading arrangement for the sale of up to 16,090 shares of Common Stock, subject to certain conditions, between June 14, 2024 and February 14, 2025.

On March 15, 2024, Susan L. Menzel, Executive Vice President and Chief Administrative Officer, adopted a Rule 10b5-1 trading arrangement for the sale of up to 11,200 shares of Common Stock, subject to certain conditions, between June 14, 2024 and February 28, 2025.

ITEM 6. EXHIBITS.

A list of exhibits filed with this Quarterly Report on Form 10-Q (or incorporated by reference to exhibits previously filed or furnished) is provided in the Exhibit Index on page 40 of this report.

EXHIBIT INDEX

Exhibit No.	Description
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 quarterly period ended March 31, 2024, 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) Notes to Unaudited Consolidated Financial Statements
104	Cover Page Interactive Data File (included in the Exhibit 101 Inline XBRL Document Set)

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: May 2, 2024	By: /s/ W. ANTHONY WILL
	W. Anthony Will President and Chief Executive Officer (Principal Executive Officer)
Date: May 2, 2024	By: /s/ CHRISTOPHER D. BOHN
	Christopher D. Bohn Executive Vice President and Chief Operating Officer (Principal Financial Officer)