

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

FORM 10-K

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

For the fiscal year ended **December 31, 2018**

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: **1-1463**

UNION CARBIDE CORPORATION

(Exact name of registrant as specified in its charter)

New York

State or other jurisdiction of incorporation or organization

13-1421730

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

7501 State Highway 185 North, Seadrift, Texas 77983

(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: 361-553-2997

Securities registered pursuant to Section 12(b) of the Act: None

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Yes No

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 and post such files).

Yes No

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

Large accelerated filer

Non-accelerated filer

Accelerated filer

Smaller reporting company

Emerging growth company

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes No

At February 11, 2019, 935.51 shares of common stock were outstanding, all of which were held by the registrant's parent, The Dow Chemical Company.

The registrant meets the conditions set forth in General Instruction I(1)(a) and (b) of Form 10-K and is therefore filing this Form with the reduced disclosure format.

DOCUMENTS INCORPORATED BY REFERENCE

None

Union Carbide Corporation

ANNUAL REPORT ON FORM 10-K
For the Fiscal Year Ended December 31, 2018

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Union Carbide Corporation and Subsidiaries

Throughout this Annual Report on Form 10-K, except as otherwise indicated by the context, the terms "Corporation" or "UCC" as used herein mean Union Carbide Corporation and its subsidiaries.

FORWARD-LOOKING STATEMENTS

Certain statements in this report, other than purely historical information, including estimates, projections, statements relating to business plans, objectives, and expected operating results, and the assumptions upon which those statements are based, are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended and Section 21E of the Securities Exchange Act of 1934, as amended. Forward-looking statements may appear throughout this report, including without limitation, the following sections: "Item 1. Business," "Management's Discussion and Analysis," and "Risk Factors." These forward-looking statements often address expected future business and financial performance and financial condition, and often contain words or phrases such as "anticipate," "believe," "estimate," "expect," "future," "intend," "may," "opportunity," "outlook," "plan," "project," "see," "seek," "should," "strategy," "target," "will," "would," "will be," "will continue," "will likely result," and similar expressions and variations or negatives of these words. Forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties which may cause actual results to differ materially from the forward-looking statements. A detailed discussion of principal risks and uncertainties which may cause actual results and events to differ materially from such forward-looking statements is included in the section titled "Risk Factors" (Part I, Item 1A of this Form 10-K). Union Carbide Corporation undertakes no obligation to update or revise publicly any forward-looking statements whether because of new information, future events, or otherwise, except as required by securities and other applicable laws.

Union Carbide Corporation and Subsidiaries
PART I

ITEM 1. BUSINESS

THE CORPORATION

Union Carbide Corporation is a chemicals and polymers company that has been a wholly owned subsidiary of The Dow Chemical Company ("Dow") since 2001. Except as otherwise indicated by the context, the terms "Corporation" or "UCC" as used herein mean Union Carbide Corporation and its consolidated subsidiaries.

Effective August 31, 2017, pursuant to the merger of equals transaction contemplated by the Agreement and Plan of Merger, dated as of December 11, 2015, as amended on March 31, 2017, Dow and E. I. du Pont de Nemours and Company ("DuPont") each merged with subsidiaries of DowDuPont Inc. ("DowDuPont") and, as a result, Dow and DuPont became subsidiaries of DowDuPont (the "Merger"). Following the Merger, Dow and DuPont intend to pursue, subject to certain customary conditions, including, among others, the effectiveness of the registration statements filed with the U.S. Securities and Exchange Commission ("SEC") and approval by the board of directors of DowDuPont, the separation of the combined company's agriculture, materials science and specialty products businesses through one or more tax-efficient transactions. See Note 3 to the Consolidated Financial Statements for additional information.

Dow conducts its worldwide operations through principal product groups, and the Corporation's business activities comprise components of Dow's principal product groups rather than stand-alone operations. Because there are no separable reportable business segments for UCC and no detailed business information is provided to a chief operating decision maker regarding the Corporation's stand-alone operations, the Corporation's results are reported as a single operating segment. In addition, in order to simplify the customer interface process, the Corporation sells substantially all its products to Dow. Products are sold to Dow at market-based prices, in accordance with the terms of Dow's intercompany pricing policies.

Available Information

The Corporation's annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, are available free of charge through the Financial Reports-SEC Filings section of the Corporation's website (www.unioncarbide.com), as soon as reasonably practicable after the reports are electronically filed or furnished with the SEC. The SEC maintains a website that contains these reports as well as proxy statements and other information regarding issuers that file electronically. The SEC's website is at www.sec.gov. The Corporation's website and its content are not deemed incorporated by reference into this report.

PRODUCTS

The following is a description of the Corporation's principal products:

Electrical and Telecommunications - polyolefin-based compounds for high-performance insulation, semiconductives and jacketing systems for power distribution, telecommunications, and flame-retardant wire and cable insulation. Key product lines include: REDI-LINK™ Polyethylene-Based Wire and Cable Compounds, SI-LINK™ Polyethylene-Based Low Voltage Insulation Compounds, UNIGARD™ HP High-Performance Flame-Retardant Compounds, UNIGARD™ RE Reduced Emissions Flame-Retardant Compounds, and UNIPURGE™ Purging Compounds.

Ethylene Oxide/Ethylene Glycol ("EO/EG") - ethylene oxide, a chemical intermediate primarily used in the manufacture of monoethylene glycol ("MEG"), polyethylene glycol, glycol ethers, ethanolamines, surfactants and other performance chemicals and polymers; di- and triethylene glycol, used in a variety of applications, including boat construction, shoe manufacturing, natural gas-drying and other moisture-removing applications, and plasticizers for safety glasses; and tetraethylene glycol, used predominantly in the production of plasticizers for automotive windows. MEG is used extensively in the production of polyester fiber, resin and film, automotive antifreeze and engine coolants, and aircraft anti-icing and deicing fluids.

Hydrocarbons - ethylene and propylene; internal feedstocks that are primarily consumed by downstream businesses to optimize integration benefits and drive low costs.

Industrial Chemicals and Polymers - broad range of products for specialty applications, including animal food supplements, personal care, industrial and household cleaning, coatings for beverage and food cans, industrial coatings and many other industrial uses. Product lines include acrolein and derivatives, glutaraldehydes, ethyleneamines, CARBOWAX™ and CARBOWAX™

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SENTRY™ Polyethylene Glycols and Methoxypolyethylene Glycols, TERGITOL™ and TRITON™ Surfactants, UCAR™ Deicing Fluids, UCARTHERRM™ Heat Transfer Fluids and UCON™ Fluids.

Polyethylene - includes FLEXOMER™ Polyethylene, very low-density polyethylene resins used as impact modifiers in other polymers and to produce flexible hose and tubing, frozen-food bags and stretch wrap; TUFLIN™ Linear Low Density and UNIVAL™ High Density Polyethylene resins used in high-volume applications such as housewares; milk, water, bleach and detergent bottles; grocery sacks; trash bags; packaging; and water and gas pipe.

Solvents and Intermediates - includes oxo aldehydes, acids and alcohols used as chemical intermediates and industrial solvents and in herbicides, plasticizers, paint dryers, jet-turbine lubricants, lube oil additives, and food and feed preservatives; and esters, which serve as solvents in industrial coatings and printing inks and in the manufacturing processes for pharmaceuticals and polymers.

Technology Licensing and Catalysts - includes catalysts for supply and licensing of the METEOR™ Process for EO/EG and the LP OXO process for oxo alcohols; and licensing of the METEOR™ Process for EO/EG and the LP OXO process for oxo alcohols through Dow Technology Investments LLC, a 50:50 joint venture with Dow Global Technologies LLC, a Dow subsidiary.

Vinyl Acetate Monomer - a building block for the manufacture of a variety of polymers used in water-based emulsion paints, adhesives, paper coatings, textiles, safety glass and acrylic fibers.

Water Soluble Polymers - polymers used to enhance the physical and sensory properties of end-use products in a wide range of applications including food, paints and coatings, oil and gas, home and personal care, building and construction, and other specialty applications. Key product lines include POLYOX™ Water-Soluble Resins, and products for hair and skin manufactured by Amerchol Corporation, a wholly owned subsidiary.

COMPETITION

The chemical industry has been historically competitive and this competitive environment is expected to continue. Large, multinational chemical firms, as well as the chemical divisions of the major national and international oil companies, provide substantial competition both in the United States and abroad.

PATENTS, LICENSES AND TRADEMARKS

The Corporation continually applies for and obtains U.S. and foreign patents that relate to a wide variety of products and processes, has a substantial number of pending patent applications throughout the world, and is licensed under a number of patents. At December 31, 2018, the Corporation owned 111 active U.S. patents and 604 active foreign patents related to a wide variety of products and processes. These patents expire as follows:

Remaining Life of Patents Owned at Dec 31, 2018	United States	Foreign
Within 5 years	45	216
6 to 10 years	21	192
11 to 15 years	44	189
16 to 20 years	1	7
Total	111	604

The Corporation also has a large number of trademarks. Although the Corporation considers that its patents, licenses and trademarks in the aggregate constitute a valuable asset, it does not regard its business as being materially dependent on any single or group of related patents, licenses or trademarks.

PROTECTION OF THE ENVIRONMENT

Matters pertaining to the environment are discussed in Management's Discussion and Analysis of Financial Condition and Results of Operations, and Notes 1 and 13 to the Consolidated Financial Statements.

OTHER ACTIVITIES

Dividends

On a quarterly basis, the Corporation's Board of Directors reviews and determines if there will be a dividend distribution to its parent company and sole shareholder, Dow. The Board takes into consideration the level of earnings and cash flows, among other factors, in determining the amount of the dividend distribution. The Corporation declared and paid cash dividends of \$553 million to Dow in 2018; dividends paid to Dow were \$603 million in 2017.

ITEM 1A. RISK FACTORS

The factors described below represent the Corporation's principal risks.

Global Economic Considerations: The Corporation operates in a global, competitive environment, which gives rise to operating and market risk exposure.

The Corporation sells substantially all of its products to Dow, which operates in a competitive, global environment, and competes worldwide for sales. Increased levels of competition could result in lower prices or lower sales volume, which could have a negative impact on the Corporation's results of operations. Sales of Dow's products are also subject to extensive federal, state, local and foreign laws and regulations, trade agreements, import and export controls, and duties and tariffs. The imposition of additional regulations, controls and duties and tariffs or changes to bilateral and regional trade agreements could result in lower sales volume, which could negatively impact the Corporation's results of operations.

Economic conditions around the world, and in certain industries in which the Corporation does business, also impact sales price and volume. As a result, market uncertainty or an economic downturn in the geographic regions or industries in which UCC sells its products could reduce demand for these products and result in decreased sales volume, which could have a negative impact on UCC's results of operations.

Raw Materials: Availability of purchased feedstocks and energy, and the volatility of these costs, impact the Corporation's operating costs and add variability to earnings.

Purchased feedstock and energy costs account for a substantial portion of the Corporation's total production costs and operating expenses. The Corporation purchases hydrocarbon raw materials including ethane, propane, butane and naphtha as feedstocks. The Corporation also purchases certain monomers, primarily ethylene and propylene, to supplement internal production, as well as other raw materials. The Corporation purchases natural gas, primarily to generate electricity, and purchases electric power.

Feedstock and energy costs generally follow price trends in crude oil and natural gas, which are sometimes volatile. Ultimately, the ability to pass on underlying cost increases is dependent on market conditions. Conversely, when feedstock and energy costs decline, selling prices generally decline as well. As a result, volatility in these costs could impact the Corporation's results of operations.

While the Corporation expects abundant and cost-advantaged supplies of natural gas liquids ("NGLs") in the United States to persist for the foreseeable future, if NGLs become significantly less advantaged than crude oil-based feedstocks, it could have a negative impact on the Corporation's results of operations and future investments. Also, if the Corporation's key suppliers of feedstocks and energy are unable to provide the raw materials required for production, it could have a negative impact on the Corporation's results of operations.

Supply/Demand Balance: Earnings generated by the Corporation vary based in part on the balance of supply relative to demand within the industry.

The balance of supply relative to demand within the industry may be significantly impacted by the addition of new capacity, especially for basic commodities where capacity is generally added in large increments as world-scale facilities are built. This may disrupt industry balances and result in downward pressure on prices due to the increase in supply, which could negatively impact the Corporation's results of operations.

Financial Flexibility: Market conditions could reduce Dow's financial flexibility, which could impact the financial flexibility of the Corporation.

Adverse economic conditions could reduce Dow's flexibility to respond to changing business and economic conditions or to fund capital expenditures or working capital needs. The economic environment could result in a contraction in the availability of credit in the marketplace and reduce sources of liquidity for Dow and could result in higher borrowing costs. Since Dow is a service provider, material debtor, and the major customer of the Corporation, reduced financial flexibility for Dow could potentially impact the financial flexibility of the Corporation.

Environmental Compliance: The costs of complying with evolving regulatory requirements could negatively impact the Corporation's financial results. Actual or alleged violations of environmental laws or permit requirements could result in restrictions or prohibitions on plant operations, substantial civil or criminal sanctions, as well as the assessment of strict liability and/or joint and several liability.

The Corporation is subject to extensive federal, state, local and foreign laws, regulations, rules and ordinances relating to pollution, protection of the environment, greenhouse gas emissions and the generation, storage, handling, transportation, treatment, disposal and remediation of hazardous substances and waste materials. At December 31, 2018, the Corporation had accrued obligations of \$94 million (\$114 million at December 31, 2017) for probable environmental remediation and restoration costs, including \$16 million (\$19 million at December 31, 2017) for the remediation of Superfund sites. This is management's best estimate of the costs for remediation and restoration with respect to environmental matters for which the Corporation has accrued liabilities, although it is reasonably possible that the ultimate cost with respect to these particular matters could range up to approximately three and a half times that amount. Costs and capital expenditures relating to environmental, health or safety matters are subject to evolving regulatory requirements and depend on the timing of the promulgation and enforcement of specific standards which impose the requirements. Moreover, changes in environmental regulations could inhibit or interrupt the Corporation's operations, or require modifications to its facilities. Accordingly, environmental, health or safety regulatory matters could result in significant unanticipated costs or liabilities.

Litigation: The Corporation is party to a number of claims and lawsuits arising out of the normal course of business with respect to commercial matters, including product liability, governmental regulation and other actions.

The Corporation is involved in a number of legal proceedings and claims with both private and governmental parties. These cover a wide range of matters, including, but not limited to: product liability; trade regulation; governmental regulatory proceedings; health, safety and environmental matters; employment; patents; contracts; taxes; and commercial disputes. With the exception of the possible effect of the asbestos-related liability described below, it is the opinion of the Corporation's management that the possibility is remote that the aggregate of all such claims and lawsuits will have a material adverse impact on the Corporation's consolidated financial statements.

The Corporation is and has been involved in a large number of asbestos-related suits filed primarily in state courts during the past four decades. At December 31, 2018, the Corporation's total asbestos-related liability for pending and future claims, including future defense and processing costs, was \$1,260 million (\$1,369 million at December 31, 2017). See Notes 1 and 13 to the Consolidated Financial Statements for more information on asbestos-related matters.

Health and Safety: Increased concerns regarding the safe use of chemicals in commerce and their potential impact on the environment have resulted in more restrictive regulations and could lead to new regulations.

Concerns regarding the safe use of chemicals and plastics in commerce and their potential impact on health and the environment reflect a growing trend in societal demands for increasing levels of product safety and environmental protection. These concerns could manifest themselves in stockholder proposals, preferred purchasing and continued pressure for more stringent regulatory intervention. These concerns could also influence public perceptions, the viability of the Corporation's products, the Corporation's reputation and the cost to comply with regulations. In addition, terrorist attacks and natural disasters have increased concerns about the security and safety of chemical production and distribution. These concerns could have a negative impact on the Corporation's results of operations.

Local, state, federal and foreign governments continue to propose new regulations related to the security of chemical plant locations and the transportation of hazardous chemicals, which could result in higher operating costs.

Operational Event: A significant operational event could negatively impact the Corporation's results of operations.

As a diversified chemical manufacturing company, the Corporation's operations, the transportation of products, cyber-attacks, or severe weather conditions and other natural phenomena (such as freezing, drought, hurricanes, earthquakes, tsunamis, floods, etc.) could result in an unplanned event that could be significant in scale and could negatively impact operations, neighbors or the public at large, which could have a negative impact on the Corporation's results of operations.

Major hurricanes have caused significant disruption in UCC's operations on the U.S. Gulf Coast, logistics across the region, and the supply of certain raw materials, which had an adverse impact on volume and cost for some of UCC's products. Due to the Corporation's substantial presence on the U.S. Gulf Coast, similar severe weather conditions or other natural phenomena in the future could negatively impact UCC's results of operations.

Pension and Other Postretirement Benefits: Increased obligations and expenses related to the Corporation's defined benefit pension plans and other postretirement benefit plan could negatively affect UCC's financial condition and results of operations.

The Corporation has defined benefit pension plans and an other postretirement benefit plan (the "plans") in the United States. The assets of the Corporation's funded plans are primarily invested in fixed income securities, equity securities and alternative investments in real estate and private equity of U.S. and foreign issuers. Changes in the market value of plan assets, investment returns, discount rates, mortality rates, the rate of increase in compensation levels, regulations and health care cost trends may affect the funded status of the Corporation's plans and could cause volatility in the net periodic benefit cost, future funding requirements of the plans and the funded status of the plans. A significant increase in the Corporation's obligations or future funding requirements could have a negative impact on the Corporation's results of operations and cash flows for a particular period and on the consolidated financial position of the Corporation.

Cyber Threat: The risk of loss of the Corporation's intellectual property, trade secrets or other sensitive business information or disruption of operations could negatively impact the Corporation's financial results.

Cyber-attacks or security breaches could compromise confidential, business critical information, cause a disruption in the Corporation's operations or harm the Corporation's reputation. The Corporation has attractive information assets, including intellectual property, trade secrets and other sensitive, business critical information. While the Corporation has a comprehensive cyber-security program that is continuously reviewed, maintained and upgraded, a significant cyber-attack could result in the loss of critical business information and/or could negatively impact operations, which could have a negative impact on the Corporation's financial results.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

The Corporation operates eight manufacturing sites in three countries. The Corporation considers its properties to be in good operating condition and that its machinery and equipment have been well maintained. The following are the major production sites:

United States: Hahnville (St. Charles), Louisiana; Seadrift and Texas City, Texas.

All of UCC's plants are owned or leased, subject to certain easements of other persons that, in the opinion of management, do not substantially interfere with the continued use of such properties or materially affect their value.

A summary of property, classified by type, is contained in Note 9 to the Consolidated Financial Statements.

ITEM 3. LEGAL PROCEEDINGS

Asbestos-Related Matters

The Corporation is and has been involved in a large number of asbestos-related suits filed primarily in state courts during the past four decades. These suits principally allege personal injury resulting from exposure to asbestos-containing products and frequently seek both actual and punitive damages. The alleged claims primarily relate to products that UCC sold in the past, alleged exposure to asbestos-containing products located on UCC's premises, and UCC's responsibility for asbestos suits filed against a former subsidiary, Amchem Products, Inc.

For additional information, see Asbestos-Related Matters in Management's Discussion and Analysis of Financial Condition and Results of Operations, and Notes 1 and 13 to the Consolidated Financial Statements.

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Environmental Proceedings

On July 5, 2018, the Corporation received a draft consent decree from the U.S. Environmental Protection Agency ("EPA"), the Department of Justice ("DOJ") and Louisiana Department of Environmental Quality ("DEQ") relating to the operation of steam-assisted flares at UCC's olefins manufacturing facility in Hahnville (St. Charles), Louisiana. Discussions between the EPA, the DOJ and the DEQ are ongoing.

Port Refinery Matter

On November 27, 2018, the Corporation signed a consent decree with the DOJ on behalf of the EPA, Region 2 related to the alleged disposal of mercury by a third party with which UCC contracted at the Port Refinery site in Rye Brook, New York. The consent decree contains a payment of \$120,198 and certain additional requirements. The final consent decree is subject to a public comment period.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

Union Carbide Corporation and Subsidiaries
PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

The Corporation is a wholly owned subsidiary of Dow; therefore, there is no public trading market for the Corporation's common stock.

ITEM 6. SELECTED FINANCIAL DATA

Omitted pursuant to General Instruction I of Form 10-K.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Pursuant to General Instruction I of Form 10-K "Omission of Information by Certain Wholly-Owned Subsidiaries," this section includes only management's narrative analysis of the results of operations for the year ended December 31, 2018, the most recent fiscal year, compared with the year ended December 31, 2017, the fiscal year immediately preceding it.

Union Carbide Corporation (the "Corporation" or "UCC") is a chemicals and polymers company that has been a wholly owned subsidiary of The Dow Chemical Company ("Dow") since 2001. Effective August 31, 2017, pursuant to the merger of equals transaction contemplated by the Agreement and Plan of Merger, dated as of December 11, 2015, as amended on March 31, 2017, Dow and E. I. du Pont de Nemours and Company ("DuPont") each merged with subsidiaries of DowDuPont Inc. ("DowDuPont") and, as a result, Dow and DuPont became subsidiaries of DowDuPont (the "Merger"). See Note 3 to the Consolidated Financial Statements for additional information.

References below to "Dow" refer to The Dow Chemical Company and its consolidated subsidiaries, except as otherwise indicated by the context. References to "DowDuPont" refer to DowDuPont Inc. and its consolidated subsidiaries, except as otherwise indicated by the context.

Dow conducts its worldwide operations through principal product groups, and the Corporation's business activities comprise components of Dow's global operations rather than stand-alone operations. Because there are no separable reportable business segments for UCC and no detailed business information is provided to a chief operating decision maker regarding the Corporation's stand-alone operations, the Corporation's results are reported as a single operating segment.

RESULTS OF OPERATIONS

Net Sales

Total net sales for 2018 were \$5,446 million, compared with net sales of \$5,165 million in 2017, an increase of 5 percent. Net sales to related companies, principally to Dow, were \$5,310 million for 2018, compared with \$5,022 million for 2017, an increase of 6 percent. Selling prices to Dow are based on market prices for the related products, in accordance with the terms of Dow's intercompany pricing policies.

Total net sales were up from the previous year driven by an increase in price. Average selling prices increased 5 percent in 2018 compared with 2017. Prices were up across most products, primarily driven by higher feedstock and other raw material costs, with the largest increases in oxo alcohols, polyethylene, glycol ethers, ethylene oxide/ethylene glycol, acrylic monomers and electrical and telecommunications. Volume was relatively flat in 2018 compared with 2017 as volume increases in oxo alcohols, ethylene, acrylic monomers and glutaraldehydes, were offset by volume declines in vinyl acetate monomers, ethyleneamines and polyglycols and surfactants.

Certain countries where the Corporation's products are distributed or sold, principally through sales to Dow, have recently enacted tariffs on certain products, including those manufactured at UCC production facilities. Currently enacted tariffs are not expected to have a significant impact on the Corporation's results of operations in 2019, and the Corporation continues to monitor ongoing tariff actions that have been announced but not implemented.

Cost of Sales

Cost of sales was \$4,047 million, down 3 percent from \$4,184 million in 2017. In 2018, cost of sales was favorably impacted by lower planned maintenance turnaround spending and insurance recoveries related to Hurricane Harvey, which more than offset higher feedstock and other raw material costs. In 2017, cost of sales was unfavorably impacted by hurricane-related production and supply disruptions and repair costs in the last half of the year as well as higher planned maintenance turnaround spending.

Research and Development, Selling, General and Administrative Expenses

Research and development expenses were \$21 million in 2018, compared with \$19 million in 2017. Selling, general and administrative expenses were \$6 million in 2018 and 2017.

Restructuring and Asset Related Charges - Net

In September 2017, the Corporation approved restructuring actions that are aligned with DowDuPont's synergy plans. As a result of these actions, the Corporation recorded a pretax restructuring charge for severance and related benefit costs of \$8 million in the third quarter of 2017. In November 2017, the Corporation approved additional restructuring actions in connection with the restructuring program. A pretax restructuring charge for severance and related benefit costs of \$2 million was recorded in the fourth quarter of 2017, as well as charges of \$62 million for the write-off and write-down of manufacturing and facility assets at multiple UCC sites. The impact of these charges is shown as "Restructuring and asset related charges - net" in the consolidated statements of income. In addition to actions taken in 2017, the Corporation recorded pretax charges of \$3 million in 2018 for additional restructuring charges for severance and related benefit costs. At December 31, 2018, severance of \$9 million had been paid, leaving a liability of \$4 million. These actions are expected to be substantially completed by the end of 2019.

In the second quarter of 2016, the Corporation approved actions to further improve cost effectiveness with additional workforce reductions. As a result of these actions, the Corporation recorded a pretax restructuring charge for severance and related benefit costs of \$1 million, with an additional charge of \$2 million for severance and related benefit costs in the fourth quarter of 2016. In the second quarter of 2017, an additional charge of \$2 million was recorded to adjust the charge for severance and related benefit costs. At December 31, 2017, the liability for severance and related benefit costs associated with the 2016 restructuring was zero, substantially completing the program.

Equity in Earnings of a Nonconsolidated Affiliate

In the second quarter of 2017, UCC completed the sale of its ownership interest in Asian Acetyls Co., Ltd. ("ASACCO"), UCC's only nonconsolidated affiliate, which was accounted for under the equity method of accounting. ASACCO agreed to purchase all the shares of registered common stock owned by UCC resulting in a pretax gain of \$4 million on the sale, included in "Sundry income (expense) - net" in the consolidated statements of income.

Sundry Income (Expense) - Net

Sundry income (expense) - net includes a variety of income and expense items such as the gain or loss on foreign currency exchange, commissions, charges for management services provided by Dow, interest income, non-operating pension and other postretirement benefit plan credits or costs, and gains and losses on sales of investments and assets. Sundry income (expense) - net for 2018 was expense of \$34 million compared with expense of \$3 million in 2017. In 2017, sundry income (expense) - net included a pretax gain of \$23 million on the sales of terminal assets and ancillary agreements for the supply of energy and site and terminal services at the Corporation's Texas City, Texas site, and a \$4 million pretax gain on the sale of UCC's ownership interest in ASACCO. In 2018, interest income was higher compared with the previous year due to rising interest rates, but was offset by higher non-operating pension and other postretirement benefit plan costs. See Note 6 to the Consolidated Financial Statements for additional information.

Interest Expense and Amortization of Debt Discount

Net interest expense (interest expense less capitalized interest) and amortization of debt discount for 2018 was \$30 million, compared with \$28 million in 2017. See Notes 9 and 12 to the Consolidated Financial Statements for additional information.

Provision (Credit) for Income Taxes

On December 22, 2017, the Tax Cuts and Jobs Act ("The Act") was enacted. The Act reduces the U.S. federal corporate income tax rate from 35 percent to 21 percent, requires companies to pay a one-time transition tax on earnings of foreign subsidiaries that were previously deferred, creates new provisions related to foreign sourced earnings, eliminates the domestic manufacturing deduction and moves to a hybrid territorial system. At December 31, 2017, the Corporation had not completed its accounting for the tax effects of The Act; however, the Corporation made a reasonable estimate of the effects on its existing deferred tax balances and the one-time transition tax. The cumulative provisional amount recorded related to the remeasurement of the Corporation's deferred tax balance since the enactment of The Act resulted in a cumulative charge of \$248 million (a benefit of \$2 million in 2018).

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and a charge of \$250 million in 2017), included in "Provision (Credit) for income taxes." At December 31, 2018, the Corporation had completed its accounting for the tax effects of The Act.

The Corporation reported a tax provision of \$247 million in 2018, which resulted in an overall effective tax rate of 19.0 percent. The tax rate for 2018 was favorably impacted by the change in the U.S. federal corporate income tax rate as a result of The Act, as well as deductions on foreign derived intangible income. This compares with a tax provision of \$645 million in 2017, which resulted in an overall effective tax rate of 75.9 percent. In 2017, the tax rate was unfavorably impacted by the enactment of The Act and the recognition of a deferred tax gain related to the sale of stock between Dow and UCC in 2014. The gain on the transaction was deferred for tax purposes, but with the restructuring activities that occurred in anticipation of the intended separation of Dow and DuPont into three publicly traded companies, the gain became taxable, resulting in a charge to the provision of \$97 million. The underlying factors affecting UCC's overall effective tax rates are summarized in Note 7 to the Consolidated Financial Statements.

Net Income Attributable to UCC

The Corporation reported net income of \$1,055 million in 2018, compared with net income of \$205 million for 2017.

Capital Expenditures

Capital spending in 2018 was \$250 million compared with \$223 million in 2017, reflecting spending on U.S. Gulf Coast projects and site infrastructure projects in both years.

OTHER MATTERS

Recent Accounting Guidance

See Note 2 to the Consolidated Financial Statements for a summary of recent accounting guidance.

Critical Accounting Estimates

The preparation of financial statements and related disclosures in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") requires management to make judgments, assumptions and estimates that affect the amounts reported in the consolidated financial statements and accompanying notes. Note 1 to the Consolidated Financial Statements describes the significant accounting policies and methods used in preparation of the consolidated financial statements. Following are the Corporation's accounting policies impacted by judgments, assumptions and estimates:

Litigation

The Corporation is subject to legal proceedings and claims arising out of the normal course of business. The Corporation routinely assesses the likelihood of any adverse judgments or outcomes to these matters, as well as ranges of probable losses. A determination of the amount of the reserves required, if any, for these contingencies is made after thoughtful analysis of each known claim. The Corporation has an active risk management program consisting of numerous insurance policies secured from many carriers. These policies provide coverage that is utilized to minimize the financial impact, if any, of the legal proceedings. The required reserves may change in the future due to new developments in each matter. For further discussion, see Note 13 to the Consolidated Financial Statements.

Asbestos-Related Matters

The Corporation is and has been involved in a large number of asbestos-related suits filed primarily in state courts during the past four decades. These suits principally allege personal injury resulting from exposure to asbestos-containing products and frequently seek both actual and punitive damages. The alleged claims primarily relate to products that UCC sold in the past, alleged exposure to asbestos-containing products located on UCC's premises, and UCC's responsibility for asbestos suits filed against a former UCC subsidiary, Amchem Products, Inc. ("Amchem"). Each year, Ankura Consulting Group, LLC ("Ankura") performs a review for UCC based upon historical asbestos claims and resolution activity and historical defense spending. UCC compares current asbestos claim, resolution and defense spending activity to the results of the most recent Ankura study at each balance sheet date to determine whether the asbestos-related liability continues to be appropriate.

In 2016, UCC elected to change its method of accounting for asbestos-related defense and processing costs from expensing as incurred to estimating and accruing a liability. In addition to performing their annual review of pending and future asbestos claim resolution activity, Ankura also performed a review for UCC of asbestos-related defense and processing costs to determine a reasonable estimate of future defense and processing costs to be included in the asbestos-related liability, through the terminal year of 2049.

For additional information, see Part I, Item 3. Legal Proceedings; Asbestos-Related Matters in Management's Discussion and Analysis of Financial Condition and Results of Operations; and Notes 1 and 13 to the Consolidated Financial Statements.

Environmental Matters

The Corporation determines the costs of environmental remediation of its facilities and formerly owned facilities based on evaluations of current law and existing technologies. Inherent uncertainties exist in such evaluations primarily due to unknown environmental conditions, changing governmental regulations and legal standards regarding liability, and emerging remediation technologies. The recorded liabilities are adjusted periodically as remediation efforts progress or as additional technical or legal information becomes available. At December 31, 2018, the Corporation had accrued obligations of \$94 million for probable environmental remediation and restoration costs, including \$16 million for the remediation of Superfund sites. This is management's best estimate of the costs for remediation and restoration with respect to environmental matters for which the Corporation has accrued liabilities, although it is reasonably possible that the ultimate cost with respect to these particular matters could range up to approximately three and a half times that amount. For further discussion, see Environmental Matters in Notes 1 and 13 to the Consolidated Financial Statements.

Pension Plans and Other Postretirement Benefits

The amounts recognized in the consolidated financial statements related to pension and other postretirement benefits are determined from actuarial valuations. Inherent in these valuations are assumptions including expected return on plan assets, discount rates at which the liabilities could have been settled at December 31, 2018, rate of increase in future compensation levels, mortality rates and health care cost trend rates. These assumptions are updated annually and are disclosed in Note 15 to the Consolidated Financial Statements. In accordance with U.S. GAAP, actual results that differ from the assumptions are accumulated and amortized over future periods and, therefore, affect expense recognized and obligations recorded in future periods.

The Corporation uses the spot rate approach to determine the discount rate utilized to measure the service cost and interest cost components of net periodic pension and other postretirement benefit costs. Under the spot rate approach, the Corporation calculates service costs and interest costs by applying individual spot rates from the Willis Towers Watson U.S. RATE:Link 60-90 corporate yield curve (based on 60th to 90th percentile high-quality corporate bond yields) to the separate expected cash flow components of service cost and interest cost.

The Corporation determines the expected long-term rate of return on plan assets by performing a detailed analysis of key economic and market factors driving historical returns for each asset class and formulating a projected return based on factors in the current environment. Factors considered include, but are not limited to, inflation, real economic growth, interest rate yield, interest rate spreads, and other valuation measures and market metrics. The expected long-term rate of return for each asset class is then weighted based on the strategic asset allocation approved by the governing body for each plan. The Corporation's historical experience with the pension fund asset performance is also considered. The expected long-term rate of return is an assumption and not what is expected to be earned in any one particular year. The weighted-average long-term rate of return assumption used for determining net periodic pension expense for 2018 and 2017 was 6.80 percent. This assumption will also be used for determining 2019 net periodic pension expense. Future actual pension expense will depend on future investment performance, changes in future discount rates and various other factors related to the population of participants in the Corporation's pension plans.

The discount rates utilized to measure the pension and other postretirement benefit obligations are based on the yield on high-quality corporate fixed income investments at the measurement date. Future expected actuarially determined cash flows for the plans are individually discounted at the spot rates under the Willis Towers Watson U.S. RATE:Link 60-90 corporate yield curve (based on 60th to 90th percentile high-quality corporate bond yields) to arrive at the plan's obligations as of the measurement date. The weighted-average discount rate utilized to measure pension obligations was 4.32 percent at December 31, 2018 and 3.59 percent at December 31, 2017.

The value of the qualified plan assets totaled \$3.0 billion at December 31, 2018, a decrease from \$3.3 billion at December 31, 2017. The underfunded status of the qualified plan decreased by \$61 million at December 31, 2018, compared with December 31, 2017. The Corporation contributed \$40 million to the qualified plan in 2018.

The assumption for the long-term rate of increase in compensation levels was 4.25 percent at December 31, 2018 and 2017. Since 2002, the Corporation has used a generational mortality table to determine the duration of its pension and other postretirement obligations.

The Corporation bases the determination of pension expense on a market-related valuation of plan assets that reduces year-to-year volatility. This market-related valuation recognizes investment gains or losses over a five-year period from the year in which they occur. Investment gains or losses for this purpose represent the difference between the expected return calculated using the market-related value of plan assets and the actual return based on the market value of plan assets. Since the market-related value of plan assets recognizes gains or losses over a five-year period, the future value of plan assets will be impacted when previously deferred gains or losses are recorded. Over the life of the plan, both gains and losses have been recognized and amortized.

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At December 31, 2018, \$221 million of net losses remain to be recognized in the calculation of the market-related value of plan assets. These net losses will result in increases in future pension expense as they are recognized in the market-related value of assets.

The net decrease in the market-related value of assets due to the recognition of prior losses is presented in the following table:

Net Decrease in Market-Related Asset Value due to Recognition of Prior Losses	
In millions	
2019	\$ 87
2020	44
2021	34
2022	56
Total	\$ 221

Based on the 2019 pension assumptions and changes in the market-related value of assets, the Corporation expects net periodic benefit cost to increase approximately \$9 million for pension and other postretirement benefits in 2019 compared with 2018. The increase in net periodic benefit cost is primarily due to the impact of higher interest cost and lower asset values, partially offset by the impact from a higher discount rate.

A 25 basis point adjustment in the long-term return on assets assumption would change total pension expense for 2019 by \$8 million. A 25 basis point adjustment in the discount rate assumption would have an immaterial impact on the total pension expense for 2019.

Income Taxes

Deferred tax assets and liabilities are determined based on temporary differences between the financial reporting and tax bases of assets and liabilities, applying enacted tax rates expected to be in effect for the year in which the differences are expected to reverse. Based on the evaluation of available evidence, both positive and negative, the Corporation recognizes future tax benefits, such as net operating loss carryforwards and tax credit carryforwards, to the extent that realizing these benefits is considered more likely than not.

At December 31, 2018, the Corporation had a net deferred tax asset balance of \$463 million, after valuation allowances of \$19 million. In evaluating the ability to realize the deferred tax assets, the Corporation relies on, in order of increasing subjectivity, taxable income in prior carryback years, the future reversals of existing taxable temporary differences, tax planning strategies and forecasted taxable income using historical and projected future operating results.

At December 31, 2018, the Corporation had deferred tax assets for tax loss and tax credit carryforwards of \$42 million of which \$31 million is subject to expiration in the years 2019 through 2023. In order to realize these deferred tax assets for tax loss and tax credit carryforwards, the Corporation needs taxable income of approximately \$1,428 million across multiple jurisdictions. The taxable income needed to realize the deferred tax assets for tax loss and tax credit carryforwards that are subject to expiration between 2019 through 2023 is \$570 million.

The Corporation recognizes the financial statement effects of an uncertain tax position when it is more likely than not, based on technical merits, that the position will be sustained upon examination. At December 31, 2018, the Corporation had a liability for uncertain tax positions of \$1 million.

The Corporation accrues for non-income tax contingencies when it is probable that a liability to a taxing authority has been incurred and the amount of the contingency can be reasonably estimated. At December 31, 2018, the Corporation had an immaterial tax contingency reserve. For additional information, see Note 7 to the Consolidated Financial Statements.

Environmental Matters

Environmental Policies

The Corporation is committed to world-class environmental, health and safety ("EH&S") performance, as demonstrated by a long-standing commitment to RESPONSIBLE CARE®, as well as a strong commitment to achieve the Corporation's 2025 Sustainability Goals - goals that set the standard for sustainability in the chemical industry by focusing on improvements in UCC's local corporate citizenship and product stewardship, and by actively pursuing methods to reduce the Corporation's environmental impact.

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The EH&S management system ("EMS") defines the "who, what, when and how" needed for the businesses to achieve the policies, requirements, performance objectives, leadership expectations and public commitments. EMS is also designed to minimize the long-term cost of environmental protection and to comply with applicable laws and regulations. To ensure effective utilization, EMS is integrated into a company-wide management system for EH&S, Operations, Quality and Human Resources, including implementation of the global EH&S Work Process to improve EH&S performance and to ensure ongoing compliance worldwide.

UCC first works to eliminate or minimize the generation of waste and emissions at the source through research, process design, plant operations and maintenance. Next, UCC finds ways to reuse and recycle materials. Finally, unusable or non-recyclable hazardous waste is treated before disposal to eliminate or reduce the hazardous nature and volume of the waste. Treatment may include destruction by chemical, physical, biological or thermal means. Disposal of waste materials in landfills is considered only after all other options have been thoroughly evaluated. UCC has specific requirements for waste that is transferred to non-UCC facilities, including the periodic auditing of these facilities.

Chemical Security

Public and political attention continues to be placed on the protection of U.S. critical infrastructure, including the chemical industry, from security threats. Terrorist attacks and natural disasters have increased concern about the security and safety of chemical production and distribution. The focus on security is not new to UCC. UCC continues to improve its security plans, placing emphasis on the safety of UCC communities and people by being prepared to meet risks at any level and to address both internal and external identifiable risks. UCC's security plans are also developed to avert interruptions of normal business operations, which could have a material impact on the Corporation's results of operations, liquidity and financial condition.

UCC is a RESPONSIBLE CARE® company and adheres to the RESPONSIBLE CARE® Security Code, which requires that all aspects of security - including facility, transportation and cyberspace - be assessed and gaps addressed. Through global implementation of the Security Code, including voluntary security enhancements and upgrades made since 2002, UCC has permanently heightened the level of security - not just in the United States, but worldwide. In addition, UCC uses a risk-based approach employing the U.S. Government's Sandia National Labs methodology to repeatedly assess the risks to sites, systems and processes. UCC has expanded its comprehensive Distribution Risk Review process that had been in place for decades to address potential threats in all modes of transportation across its supply chain. To reduce vulnerabilities, UCC maintains security measures that meet or exceed regulatory and industry security standards in all areas in which UCC operates. Assessment and improvement costs are not considered material to the Corporation's consolidated financial statements.

Climate Change

Climate change matters for UCC are driven by changes in regulatory matters and physical climate parameters.

Regulatory Matters

Regulatory matters include cap and trade schemes, increased greenhouse gas ("GHG") limits, and taxes on GHG emissions, fuel and energy. The potential implications of each of these matters are all very similar, including increased cost of purchased energy, additional capital costs for installation or modification of GHG emitting equipment, and additional costs associated directly with GHG emissions (such as cap and trade systems or carbon taxes), which are primarily related to energy use. It is difficult to estimate the potential impact of these regulatory matters on energy prices.

Reducing UCC's overall energy usage and GHG emissions through new and unfolding projects will decrease the potential impact of these regulatory matters. The Corporation has not experienced any material impact related to regulated GHG emissions.

Physical Climate Parameters

Many scientific academies throughout the world have concluded that it is very likely that human activities are contributing to global warming. At this point, it is difficult to predict and assess the probability and opportunity of a global warming trend on UCC specifically. Preparedness plans are developed that detail actions needed in the event of severe weather. These measures have historically been in place and these activities and associated costs are driven by normal operational preparedness. UCC continues to study the long-term implications of changing climate parameters or water availability, plant siting issues, and impacts and opportunities for products.

The Corporation continues to elevate its internal focus and external positions to focus on the root cause of GHG emissions, including the sustainable use of energy. Through corporate energy efficiency programs and focused GHG management efforts, the Corporation has and is continuing to reduce its GHG emissions footprint.

Environmental Remediation

UCC accrues the costs of remediation of its facilities and formerly owned facilities based on current law and existing technologies. The nature of such remediation includes, for example, the management of soil and groundwater contamination. The policies adopted to properly reflect the monetary impacts of environmental matters are discussed in Note 1 to the Consolidated Financial Statements. To assess the impact on the consolidated financial statements, environmental experts review currently available facts to evaluate the probability and scope of potential liabilities. Inherent uncertainties exist in such evaluations primarily due to unknown environmental conditions, changing governmental regulations and legal standards regarding liability, and emerging remediation technologies. These liabilities are adjusted periodically as remediation efforts progress or as additional technical or legal information becomes available. The Corporation had an accrued liability of \$78 million at December 31, 2018 and \$95 million at December 31, 2017, related to the remediation of current or former UCC-owned sites.

In addition to current and former UCC-owned sites, under the Federal Comprehensive Environmental Response, Compensation and Liability Act and equivalent state laws (hereafter referred to collectively as "Superfund Law"), UCC is liable for remediation of other hazardous waste sites where UCC allegedly disposed of, or arranged for the treatment or disposal of, hazardous substances. Because Superfund Law imposes joint and several liability upon each party at a site, UCC has evaluated its potential liability in light of the number of other companies that also have been named potentially responsible parties ("PRPs") at each site, the estimated apportionment of costs among all PRPs, and the financial ability and commitment of each to pay its expected share. Management's estimate of the Corporation's remaining liability for the remediation of Superfund sites was \$16 million at December 31, 2018 and \$19 million at December 31, 2017, which has been accrued, although the ultimate cost with respect to these sites could exceed that amount. The Corporation has not recorded any third-party recovery related to these sites as a receivable.

Information regarding environmental sites is provided below:

Environmental Sites	UCC-owned Sites ¹		Superfund Sites ²	
	2018	2017	2018	2017
Number of sites at Jan 1	25	26	69	70
Sites added during year	—	—	—	1
Sites closed during year	—	(1)	(1)	(2)
Number of sites at Dec 31	25	25	68	69

1. UCC-owned sites are sites currently or formerly owned by UCC. In the United States, remediation obligations are imposed by the Resource Conservation and Recovery Act or analogous state law.

2. Superfund sites are sites, including sites not owned by UCC, where remediation obligations are imposed by Superfund Law.

In total, the Corporation's accrued liability for probable environmental remediation and restoration costs was \$94 million at December 31, 2018, compared with \$114 million at December 31, 2017. This is management's best estimate of the costs for remediation and restoration with respect to environmental matters for which the Corporation has accrued liabilities, although it is reasonably possible that the ultimate cost with respect to these particular matters could range up to approximately three and a half times that amount. Consequently, it is reasonably possible that environmental remediation and restoration costs in excess of amounts accrued could have a material impact on the Corporation's results of operations, financial condition and cash flows. It is the opinion of the Corporation's management, however, that the possibility is remote that costs in excess of the range disclosed will have a material impact on the Corporation's results of operations, financial condition and cash flows.

The amounts charged to income on a pretax basis related to environmental remediation totaled \$38 million in 2018, \$36 million in 2017 and \$122 million in 2016. The amounts charged to income on a pretax basis related to operating the Corporation's pollution abatement facilities, excluding internal recharges, totaled \$113 million in 2018, \$113 million in 2017 and \$103 million in 2016. Capital expenditures for environmental protection were \$9 million in 2018, \$9 million in 2017 and \$10 million in 2016.

Asbestos-Related Matters

The Corporation is and has been involved in a large number of asbestos-related suits filed primarily in state courts during the past four decades. These suits principally allege personal injury resulting from exposure to asbestos-containing products and frequently seek both actual and punitive damages. The alleged claims primarily relate to products that UCC sold in the past, alleged exposure to asbestos-containing products located on UCC's premises, and UCC's responsibility for asbestos suits filed against a former subsidiary, Amchem. In many cases, plaintiffs are unable to demonstrate that they have suffered any compensable loss as a result of such exposure, or that injuries incurred in fact resulted from exposure to UCC's products.

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The table below provides information regarding asbestos-related claims pending against the Corporation and Amchem based on criteria developed by UCC and its external consultants.

Asbestos-Related Claim Activity	<i>2018</i>	<i>2017</i>	<i>2016</i>
Claims unresolved at Jan 1	15,427	16,141	18,778
Claims filed	6,599	7,010	7,813
Claims settled, dismissed or otherwise resolved	(9,246)	(7,724)	(10,450)
Claims unresolved at Dec 31	12,780	15,427	16,141
Claimants with claims against both UCC and Amchem	(4,675)	(5,530)	(5,741)
Individual claimants at Dec 31	8,105	9,897	10,400

Plaintiffs' lawyers often sue numerous defendants in individual lawsuits or on behalf of numerous claimants. As a result, the damages alleged are not expressly identified as to UCC, Amchem or any other particular defendant, even when specific damages are alleged with respect to a specific disease or injury. In fact, there are no personal injury cases in which only the Corporation and/or Amchem are the sole named defendants. For these reasons and based upon the Corporation's litigation and settlement experience, the Corporation does not consider the damages alleged against it and Amchem to be a meaningful factor in its determination of any potential asbestos-related liability.

For additional information, see Part I, Item 3. Legal Proceedings and Asbestos-Related Matters in Notes 1 and 13 to the Consolidated Financial Statements.

Debt Covenants and Default Provisions

The Corporation's outstanding public debt has been issued under indentures which contain, among other provisions, covenants that the Corporation must comply with while the underlying notes are outstanding. Such covenants are typically based on the Corporation's size and financial position and include, subject to the exceptions and qualifications contained in the indentures, obligations not to (i) allow liens on principal U.S. manufacturing facilities, (ii) enter into sale and lease-back transactions with respect to principal U.S. manufacturing facilities, or (iii) merge into or consolidate with any other entity or sell or convey all or substantially all of its assets. Failure of the Corporation to comply with any of these covenants could, after the passage of any applicable grace period, result in a default under the applicable indenture which would allow the note holders to accelerate the due date of the outstanding principal and accrued interest on the subject notes. Management believes the Corporation was in compliance with the covenants referred to above at December 31, 2018.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

UCC's business operations give rise to market risk exposure due to changes in foreign exchange rates, interest rates, commodity prices and other market factors such as equity prices. To manage such risks effectively, the Corporation enters into hedging transactions, pursuant to established guidelines and policies that enable it to mitigate the adverse effects of financial market risk. Derivatives used for this purpose are designated as hedges per the accounting guidance related to derivatives and hedging activities, where appropriate.

The global nature of UCC's business requires active participation in the foreign exchange markets. As a result of investments, production facilities and other operations on a global basis, the Corporation has assets, liabilities and cash flows in currencies other than the U.S. dollar. The primary objective of the Corporation's foreign exchange risk management is to optimize the U.S. dollar value of net assets and cash flows. To achieve this objective, the Corporation hedges on a net exposure basis using foreign currency forward contracts, over-the-counter option contracts, cross-currency swaps and nonderivative instruments in foreign currencies. Exposures primarily relate to assets, liabilities and cash flows denominated in foreign currencies. The largest exposures are denominated in the currencies of Europe, Asia Pacific and Canada.

The main objective of interest rate risk management is to reduce the total funding cost to the Corporation and to alter the interest rate exposure to the desired risk profile. To achieve this objective, the Corporation hedges using interest rate swaps, "swaptions," and exchange-traded instruments. The Corporation's primary exposure is to the U.S. dollar yield curve.

UCC uses value-at-risk ("VAR"), stress testing and scenario analysis for risk measurement and control purposes. VAR estimates the maximum potential loss in fair market values given a certain move in prices over a certain period of time, using specified confidence levels. The VAR methodology used by the Corporation is a variance/covariance model. This model uses a 97.5 percent confidence level and includes at least one year of historical data. The 2018 and 2017 year-end and average daily VAR for the aggregate of all positions are shown below:

Total Daily VAR at Dec 31	<i>2018</i>		<i>2017</i>	
	<i>Year-end</i>	<i>Average</i>	<i>Year-end</i>	<i>Average</i>
In millions				
Interest rate	\$ 2	\$ 2	\$ 3	\$ 3

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholder of Union Carbide Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Union Carbide Corporation and subsidiaries (the "Corporation") as of December 31, 2018 and 2017, the related consolidated statements of income, equity, and cash flows, for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Corporation as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Changes in Accounting Principles

As discussed in Note 13 to the financial statements, in the fourth quarter of 2016, the Corporation has changed its accounting policy from expensing asbestos-related defense and processing costs as incurred to the accrual of asbestos-related defense and processing costs when probable of occurring and estimable. As discussed in Note 4 to the financial statements, in the first quarter of 2018, the Corporation changed its method of accounting for revenue due to the adoption of Accounting Standards Codification Topic 606, *Revenue From Contracts with Customers*.

Basis for Opinion

These financial statements are the responsibility of the Corporation's management. Our responsibility is to express an opinion on the Corporation's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Corporation in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Corporation is not required, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ DELOITTE & TOUCHE LLP

Deloitte & Touche LLP
Midland, Michigan
February 11, 2019

We have served as the Corporation's auditor since 2001.

Union Carbide Corporation and Subsidiaries
Consolidated Statements of Income

(In millions) For the years ended Dec 31,	2018	2017	2016
Net trade sales	\$ 136	\$ 143	\$ 108
Net sales to related companies	5,310	5,022	4,811
Total Net Sales	5,446	5,165	4,919
Cost of sales	4,047	4,184	3,724
Research and development expenses	21	19	18
Selling, general and administrative expenses	6	6	7
Asbestos-related charge	—	—	1,113
Restructuring and asset related charges - net	3	74	4
Integration and separation costs	3	1	—
Equity in earnings of a nonconsolidated affiliate	—	—	2
Sundry income (expense) - net	(34)	(3)	27
Interest expense and amortization of debt discount	30	28	25
Income Before Income Taxes	1,302	850	57
Provision (Credit) for income taxes	247	645	(32)
Net Income Attributable to Union Carbide Corporation	\$ 1,055	\$ 205	\$ 89

See Notes to the Consolidated Financial Statements.

Union Carbide Corporation and Subsidiaries
Consolidated Statements of Comprehensive Income

(In millions) For years ended Dec 31,	2018	2017	2016
Net Income Attributable to Union Carbide Corporation	\$ 1,055	\$ 205	\$ 89
Other Comprehensive Income (Loss), Net of Tax			
Cumulative translation adjustments	2	3	(1)
Pension and other postretirement benefit plans	43	(35)	(91)
Total other comprehensive income (loss)	45	(32)	(92)
Comprehensive Income (Loss) Attributable to Union Carbide Corporation	\$ 1,100	\$ 173	\$ (3)

See Notes to the Consolidated Financial Statements.

Union Carbide Corporation and Subsidiaries
Consolidated Balance Sheets

(In millions, except share amounts) At Dec 31,	2018	2017
Assets		
Current Assets		
Cash and cash equivalents	\$ 13	\$ 13
Accounts receivable:		
Trade (net of allowance for doubtful receivables 2018: \$-; 2017: \$-)	21	21
Related companies	1,029	972
Other	31	50
Income taxes receivable	330	281
Notes receivable from related companies	1,281	1,238
Inventories	304	278
Other current assets	15	35
Total current assets	3,024	2,888
Investments		
Investments in related companies	639	639
Other investments	23	25
Noncurrent receivables	67	62
Noncurrent receivables from related companies	54	54
Total investments	783	780
Property		
Property	7,430	7,309
Less accumulated depreciation	5,982	5,930
Net property	1,448	1,379
Other Assets		
Intangible assets (net of accumulated amortization 2018: \$87; 2017: \$82)	25	25
Deferred income tax assets	463	511
Deferred charges and other assets	34	36
Total other assets	522	572
Total Assets	\$ 5,777	\$ 5,619
Liabilities and Equity		
Current Liabilities		
Notes payable to related companies	\$ 28	\$ 28
Notes payable - other	1	—
Long-term debt due within one year	1	1
Accounts payable:		
Trade	247	270
Related companies	515	684
Other	39	22
Income taxes payable	24	24
Asbestos-related liabilities - current	118	132
Accrued and other current liabilities	163	174
Total current liabilities	1,136	1,335
Long-Term Debt	473	474
Other Noncurrent Liabilities		
Pension and other postretirement benefits - noncurrent	979	1,054
Asbestos-related liabilities - noncurrent	1,142	1,237
Other noncurrent obligations	132	151
Total other noncurrent liabilities	2,253	2,442
Stockholders' Equity		
Common stock (authorized: 1,000 shares of \$0.01 par value each; issued: 935.51 shares)	—	—
Additional paid-in capital	138	138
Retained earnings	3,338	2,582
Accumulated other comprehensive loss	(1,561)	(1,352)

Union Carbide Corporation's stockholders' equity	1,915	1,368
Total Liabilities and Equity	\$ 5,777	\$ 5,619

See Notes to the Consolidated Financial Statements.

Union Carbide Corporation and Subsidiaries
Consolidated Statements of Cash Flows

(In millions) For the years ended Dec 31,	2018	2017	2016
Operating Activities			
Net income attributable to Union Carbide Corporation	\$ 1,055	\$ 205	\$ 89
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	207	200	190
Provision (Credit) for deferred income tax	35	414	(297)
Earnings of nonconsolidated affiliate in excess of dividends received	—	—	(1)
Net gain on sales of property and investments	—	(26)	(51)
Net gain on sale of ownership interest in nonconsolidated affiliate	—	(4)	—
Asbestos-related charge	—	—	1,113
Restructuring and asset related charges - net	3	74	4
Net periodic pension benefit cost	43	28	27
Pension contributions	(42)	(162)	(52)
Other, net	—	—	(1)
Changes in assets and liabilities:			
Accounts and notes receivable	23	7	(7)
Related company receivables	(100)	44	132
Inventories	(26)	29	(4)
Accounts payable	(6)	36	18
Related company payables	(169)	166	45
Asbestos-related payments	(109)	(121)	(61)
Other assets and liabilities	(113)	(112)	(457)
Cash provided by operating activities	801	778	687
Investing Activities			
Capital expenditures	(250)	(223)	(267)
Proceeds from sale of ownership interest in nonconsolidated affiliate	—	22	—
Changes in noncurrent receivable from related company	—	3	5
Proceeds from sales of property	—	18	60
Purchases of investments	(1)	(1)	(1)
Proceeds from sales of investments	3	9	5
Cash used for investing activities	(248)	(172)	(198)
Financing Activities			
Dividends paid to parent	(553)	(603)	(500)
Changes in short-term notes payable	1	—	—
Payments on long-term debt	(1)	(1)	(1)
Cash used for financing activities	(553)	(604)	(501)
Summary			
Increase (Decrease) in cash and cash equivalents	—	2	(12)
Cash and cash equivalents at beginning of year	13	11	23
Cash and cash equivalents at end of year	\$ 13	\$ 13	\$ 11
Supplemental Cash Flow Information			
Cash paid during year for:			
Interest, net of amounts capitalized	\$ 37	\$ 37	\$ 38
Income taxes	\$ 269	\$ 254	\$ 697

See Notes to the Consolidated Financial Statements.

Union Carbide Corporation and Subsidiaries
Consolidated Statements of Equity

(In millions)	<i>Common Stock</i>	<i>Additional Paid-in Capital</i>	<i>Retained Earnings</i>	<i>Accum. Other Comp Loss</i>	<i>Total Equity</i>
2016					
Balance at Jan 1, 2016	\$ —	\$ 138	\$ 3,391	\$ (1,228)	\$ 2,301
Net income attributable to Union Carbide Corporation	—	—	89	—	89
Other comprehensive loss	—	—	—	(92)	(92)
Dividends declared	—	—	(500)	—	(500)
Balance at Dec 31, 2016	\$ —	\$ 138	\$ 2,980	\$ (1,320)	\$ 1,798
2017					
Net income attributable to Union Carbide Corporation	—	—	205	—	205
Other comprehensive loss	—	—	—	(32)	(32)
Dividends declared	—	—	(603)	—	(603)
Balance at Dec 31, 2017	\$ —	\$ 138	\$ 2,582	\$ (1,352)	\$ 1,368
2018					
Adoption of accounting standard (Note 1)	—	—	254	(254)	—
Net income attributable to Union Carbide Corporation	—	—	1,055	—	1,055
Other comprehensive income	—	—	—	45	45
Dividends declared	—	—	(553)	—	(553)
Balance at Dec 31, 2018	\$ —	\$ 138	\$ 3,338	\$ (1,561)	\$ 1,915

See Notes to the Consolidated Financial Statements.

Union Carbide Corporation and Subsidiaries
Notes to the Consolidated Financial Statements

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NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation and Basis of Presentation

Except as otherwise indicated by the context, the terms "Corporation" and "UCC" as used herein mean Union Carbide Corporation and its consolidated subsidiaries. The accompanying consolidated financial statements of the Corporation were prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") and include the assets, liabilities, revenues and expenses of all majority-owned subsidiaries over which the Corporation exercises control and, when applicable, entities for which the Corporation has a controlling financial interest. Investments in nonconsolidated affiliates (20-50 percent owned companies, joint ventures and partnerships) are accounted for using the equity method.

The Corporation is a wholly owned subsidiary of The Dow Chemical Company ("Dow"). In accordance with the accounting guidance for earnings per share, the presentation of earnings per share is not required in financial statements of wholly owned subsidiaries.

The Corporation's business activities comprise components of Dow's global operations rather than stand-alone operations. Dow conducts its worldwide operations through principal product groups. Because there are no separable reportable business segments for UCC under the accounting guidance related to segment reporting and no detailed business information is provided to a chief operating decision maker regarding the Corporation's stand-alone operations, the Corporation's results are reported as a single operating segment.

Effective August 31, 2017, pursuant to the merger of equals transaction contemplated by the Agreement and Plan of Merger, dated as of December 11, 2015, as amended on March 31, 2017, Dow and E. I. du Pont de Nemours and Company ("DuPont") each merged with subsidiaries of DowDuPont Inc. ("DowDuPont") and, as a result, Dow and DuPont became subsidiaries of DowDuPont (the "Merger"). See Note 3 for additional information.

Intercompany transactions and balances are eliminated in consolidation. Transactions with the Corporation's parent company, Dow, and other subsidiaries of Dow and DowDuPont, have been reflected as related company transactions in the consolidated financial statements. See Note 17 for additional information.

Use of Estimates in Financial Statement Preparation

The preparation of financial statements in accordance with U.S. GAAP requires the use of estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. The Corporation's consolidated financial statements include amounts that are based on management's best estimates and judgments. Actual results could differ from those estimates.

Significant Accounting Policies

Asbestos-Related Matters

Accruals for asbestos-related matters, including defense and processing costs, are recorded based on an analysis of claim and resolution activity, defense spending and pending and future claims. These accruals are assessed at each balance sheet date to determine if the asbestos-related liability remains appropriate. Accruals for asbestos-related matters are included in the consolidated balance sheets in "Asbestos-related liabilities - current" and "Asbestos-related liabilities - noncurrent." See Note 13 for additional information.

Legal Costs

The Corporation expenses legal costs as incurred, with the exception of defense and processing costs associated with asbestos-related matters.

Foreign Currency Translation

While the Corporation's consolidated subsidiaries are primarily based in the United States, the Corporation has small subsidiaries in Asia Pacific and the rest of the world. For those subsidiaries, the local currency has been primarily used as the functional currency. Translation gains and losses of those operations that use local currency as the functional currency are included in the consolidated balance sheets in "Accumulated other comprehensive loss" ("AOCL"). Where the U.S. dollar is used as the functional currency, foreign currency gains and losses are reflected in income.

Environmental Matters

Accruals for environmental matters are recorded when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated based on current law and existing technologies. These accruals are adjusted periodically as assessment and remediation efforts progress or as additional technical or legal information becomes available. Accruals for environmental liabilities are included in the consolidated balance sheets in "Accrued and other current liabilities" and "Other noncurrent obligations" at undiscounted amounts. Accruals for related insurance or other third-party recoveries for environmental liabilities are recorded when it is probable that a recovery will be realized and are included in the consolidated balance sheets in "Accounts receivable - Other."

Environmental costs are capitalized if the costs extend the life of the property, increase its capacity, and/or mitigate or prevent contamination from future operations. Environmental costs are also capitalized in recognition of legal asset retirement obligations resulting from the acquisition, construction and/or normal operation of a long-lived asset. Costs related to environmental contamination treatment and cleanup are charged to expense. Estimated future incremental operations, maintenance and management costs directly related to remediation are accrued when such costs are probable and reasonably estimable.

Cash and Cash Equivalents

Cash and cash equivalents include time deposits and investments with maturities of three months or less at the time of purchase.

Financial Instruments

The Corporation calculates the fair value of financial instruments using quoted market prices when available. When quoted market prices are not available for financial instruments, the Corporation uses standard pricing models with market-based inputs that take into account the present value of estimated future cash flows.

Inventories

Inventories are stated at the lower of cost or net realizable value. The method of determining cost for each subsidiary varies among last-in, first-out ("LIFO"); first-in, first-out ("FIFO"); and average cost, and is used consistently from year to year.

The Corporation routinely exchanges and swaps raw materials and finished goods with other companies to reduce delivery time, freight and other transportation costs. These transactions are treated as non-monetary exchanges and are valued at cost.

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Property

Land, buildings and equipment, including property under capital lease agreements, are carried at cost less accumulated depreciation. Depreciation is based on the estimated service lives of depreciable assets and is calculated using the straight-line method. Fully depreciated assets are retained in property and accumulated depreciation accounts until they are removed from service. In the case of disposals, assets and related accumulated depreciation are removed from the accounts, and the net amounts, less proceeds from disposal, are included in income.

Impairment and Disposal of Long-Lived Assets

The Corporation evaluates long-lived assets and certain identifiable intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. When undiscounted future cash flows are not expected to be sufficient to recover an asset's carrying amount, the asset is written down to its fair value based on bids received from third parties or a discounted cash flow analysis based on market participant assumptions.

Long-lived assets to be disposed of by sale, if material, are classified as held for sale and reported at the lower of carrying amount or fair value less cost to sell, and depreciation is ceased. Long-lived assets to be disposed of other than by sale are classified as held and used until they are disposed of and reported at the lower of carrying amount or fair value, and depreciation is recognized over the remaining useful life of the assets.

Other Intangible Assets

Finite-lived intangible assets such as purchased customer lists, developed technology, patents, trademarks and software, are amortized over their estimated useful lives, generally on a straight-line basis for periods ranging primarily from three to twenty years.

Investments in Related Companies

Investments in related companies consist of the Corporation's ownership interests in Dow subsidiaries located in North America and Latin America. The Corporation accounts for these investments using the cost method as it does not have significant influence over the operating and financial policies of these related companies.

Revenue

Effective January 1, 2018, the Corporation recognizes revenue in accordance with Accounting Standards Update ("ASU") 2014-09, "Revenue from Contracts with Customers (Topic 606)," and the associated ASUs (collectively, "Topic 606"). Substantially all of the Corporation's revenues are generated by sales to Dow. Revenue for product sales to related companies is recognized when the related company obtains control of the product, which occurs either at the time that production is complete or shipped free on board ("FOB") from UCC's manufacturing facility, in accordance with the sales agreement between the Corporation and Dow. The Corporation recognizes revenue for product sales to trade customers when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the Corporation expects to receive in exchange for those goods or services. To determine revenue recognition for the arrangements that the Corporation determines are within the scope of Topic 606, the Corporation performs the following five steps: (1) identify the contract(s) with a customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations in the contract, and (5) recognize revenue when (or as) the entity satisfies a performance obligation. See Note 4 for additional information.

In periods prior to the adoption of Topic 606, the Corporation's accounting policy for product sales was to recognize revenue as risk and title to the product transferred to the related company or customer. Revenue related to the initial licensing of patents and technology was recognized when earned; revenue related to running royalties was recognized according to licensee production levels.

Severance Costs

Management routinely reviews its operations around the world in an effort to ensure competitiveness across its operations and geographic regions. When the reviews result in a workforce reduction related to the shutdown of facilities or other optimization activities, severance benefits are provided to employees primarily under ongoing benefit arrangements. These severance costs are accrued once management commits to a plan of termination and it becomes probable that employees will be entitled to benefits at amounts that can be reasonably estimated.

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Integration and Separation Costs

The Corporation classifies expenses related to the Merger as integration and separation costs. Merger-related costs include: costs incurred to prepare for and close the Merger, post-Merger integration expenses and costs incurred to prepare for the separation of Dow's agriculture business, materials science business and specialty products business.

Income Taxes

The Corporation accounts for income taxes using the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences of temporary differences between the carrying amounts and tax bases of assets and liabilities using enacted tax rates. The effect of a change in tax rates on deferred tax assets or liabilities is recognized in income in the period that includes the enactment date. The Corporation uses the portfolio approach for releasing income tax effects from AOCL. The Corporation is included in the same consolidated federal income tax group and consolidated income tax return as Dow. The Corporation accounts for its income taxes following the formula in the Dow-UCC Tax Sharing Agreement used to compute the amount due to Dow or UCC for UCC's share of taxable income and tax attributes on the consolidated income tax return. This method generally follows the separate return method. The amounts reported as income taxes payable or receivable represent the Corporation's payment obligation (or refundable amount) to Dow based on a theoretical tax liability calculated on a separate return method.

The Corporation recognizes the financial statement effects of an uncertain income tax position when it is more likely than not, based on the technical merits, that the position will be sustained upon examination. The Corporation accrues for non-income tax contingencies when it is probable that a liability to a taxing authority has been incurred and the amount of the contingency can be reasonably estimated.

Provision is made for taxes on undistributed earnings of foreign subsidiaries and related companies to the extent that such earnings are not deemed to be permanently invested.

Changes in Financial Statement Presentation

Consolidated Statements of Income

In the first quarter of 2018, the Corporation adopted ASU 2017-07, "Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost," which required retrospective application for the reclassification of net periodic benefit costs, other than the service cost component, from "Cost of sales" to "Sundry income (expense) - net." See Note 2 for additional information.

The following table summarizes the changes made to the consolidated statement of income for the years ended December 31, 2017 and 2016:

Summary of Changes to the Consolidated Statements of Income	2017		2016	
	As Filed	Updated	As Filed	Updated
In millions				
Cost of sales	\$ 4,176	\$ 4,184	\$ 3,713	\$ 3,724
Sundry income (expense) - net	\$ (11)	\$ (3)	\$ 16	\$ 27

Consolidated Statements of Equity

The adoption of ASU 2018-02 in the second quarter of 2018 resulted in a \$254 million increase to retained earnings due to the reclassification from accumulated other comprehensive loss for the effect of the federal corporate income tax rate change as a result of the Tax Cuts and Jobs Act of 2017 ("The Act") on the Corporation's pension plans. This adoption is reflected in the "Adoption of accounting standard" line in the consolidated statements of equity.

NOTE 2 - RECENT ACCOUNTING GUIDANCE

In the fourth quarter of 2018, the Corporation early adopted ASU 2018-14, "Compensation - Retirement Benefits - Defined Benefit Plans - General (Subtopic 715-20): Disclosure Framework - Changes to the Disclosure Requirements for Defined Benefit Plans," which, as part of the Financial Accounting Standards Board ("FASB") disclosure framework project, removes disclosures that are no longer considered cost beneficial, clarifies the specific requirements of certain disclosures and adds new disclosure requirements that are considered relevant for employers that sponsor defined benefit pension and/or other postretirement benefit plans. The new standard is effective for fiscal years ending after December 15, 2020, and early adoption is permitted. The new guidance should be applied on a retrospective basis for all periods presented. See Note 15 for updated disclosures for defined benefit pension and other postretirement benefit plans.

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In the second quarter of 2018, the Corporation early adopted ASU 2018-02, "Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income," which allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from The Act, which was enacted on December 22, 2017, and requires certain disclosures about stranded tax effects. An entity has the option of applying the new guidance at the beginning of the period of adoption or retrospectively to each period (or periods) in which the tax effects related to items remaining in accumulated other comprehensive income are recognized. The new standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, and early adoption is permitted, including adoption in an interim period for reporting periods in which the financial statements have not yet been issued. The Corporation's adoption of the new standard was applied prospectively at the beginning of the second quarter of 2018, with a reclassification of the stranded tax effects as a result of The Act from accumulated other comprehensive loss to retained earnings. See Note 1 for additional information.

In the first quarter of 2018, the Corporation adopted ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)," which is the new comprehensive revenue recognition standard that supersedes the revenue recognition requirements in Topic 605, "Revenue Recognition," and most industry specific guidance. The standard's core principle is that a company will recognize revenue when it transfers promised goods or services to a customer in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. In 2015 and 2016, the FASB issued additional ASUs related to Topic 606 that delayed the effective date of the guidance and clarified various aspects of the new revenue guidance, including principal versus agent considerations, identification of performance obligations, and accounting for licenses, and included other improvements and practical expedients. The new guidance was effective for annual and interim periods beginning after December 15, 2017. The Corporation elected to adopt the new guidance using the modified retrospective transition method for all contracts not completed as of the date of adoption, which requires the cumulative effect of applying the new revenue standard as an adjustment to the opening balance of retained earnings in the first period of adoption. As a result of adopting the new guidance, there were no adjustments required to retained earnings at the beginning of the first quarter of 2018 and there was no impact on the consolidated financial statements. The comparative periods have not been restated and continue to be accounted for under Topic 605. See Notes 1 and 4 for additional disclosures regarding the Corporation's contracts with customers as well as the impact of adopting Topic 606.

In the first quarter of 2018, the Corporation adopted ASU 2016-16, "Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory," which requires an entity to recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs. The amendments were effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2017, and applied on a modified retrospective basis through a cumulative-effect adjustment directly to retained earnings at the beginning of the period of adoption. The adoption of this guidance did not have an impact on the consolidated financial statements.

In the first quarter of 2018, the Corporation adopted ASU 2017-07, "Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost," which amends the requirements related to the income statement presentation of the components of net periodic benefit cost for employer sponsored defined benefit pension and other postretirement benefit plans. Under the new guidance, an entity must disaggregate and present the service cost component of net periodic benefit cost in the same income statement line item(s) as other employee compensation costs arising from services rendered during the period, and only the service cost component will be eligible for capitalization. Other components of net periodic benefit cost must be presented separately from the line item(s) that includes the service cost. The new standard was effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2017. Entities were required to use a retrospective transition method to adopt the requirement for separate income statement presentation of the service cost and other components, and a prospective transition method to adopt the requirement to limit the capitalization of benefit cost to the service component. In the first quarter of 2018, the Corporation used a retrospective transition method to reclassify net periodic benefit cost, other than the service component, from "Cost of sales" to "Sundry income (expense) - net" in the consolidated statements of income. See Note 1 for additional information.

Accounting Guidance Issued But Not Adopted at December 31, 2018

In February 2016, the FASB issued ASU 2016-02, "Leases (Topic 842)," and associated ASUs related to Topic 842, which requires organizations that lease assets to recognize on the balance sheet the assets and liabilities for the rights and obligations created by those leases. The new guidance requires that a lessee recognize assets and liabilities for leases, and recognition, presentation and measurement in the financial statements will depend on its classification as a finance or operating lease. In addition, the new guidance will require disclosures to help investors and other financial statement users better understand the amount, timing and uncertainty of cash flows arising from leases. Lessor accounting remains largely unchanged from current U.S. GAAP but does contain some targeted improvements to align with the new revenue recognition guidance issued in 2014 (Topic 606). The new standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, and early

adoption is permitted. The Corporation has a cross-functional team in place to evaluate and implement the new guidance and the Corporation has substantially completed the implementation of a third-party software solution to facilitate compliance with accounting and reporting requirements. The team continues to review existing lease arrangements and has loaded a significant portion of the lease portfolio into the software. The Corporation continues to enhance accounting systems and update business processes and controls related to the new guidance for leases. Collectively, these activities are expected to facilitate the Corporation's ability to meet the new accounting and disclosure requirements upon adoption in the first quarter of 2019.

The ASU allows for multiple methods of adoption. The Corporation will apply the transition requirements at the January 1, 2019, effective date rather than at the beginning of the earliest comparative period presented. This approach allows for a cumulative effect adjustment in the period of adoption, and prior periods will not be restated. The package of practical expedients permitted under the transition guidance will be adopted, which does not require reassessment of whether existing contracts contain a lease or whether classification or unamortized initial lease costs would be different under the new guidance. As an accounting policy election, the Corporation will exclude short-term leases (term of 12 months or less) from the balance sheet presentation and elect to account for non-lease components in a contract as part of the single lease component of all asset classes. The Corporation is finalizing the evaluation of the January 1, 2019, impact and estimates an increase for lease-related assets and liabilities, ranging from \$100 million to \$140 million in the consolidated balance sheets. The impact to the Corporation's consolidated statements of income and consolidated statements of cash flows is not expected to be material.

NOTE 3 - MERGER WITH DUPONT

Effective August 31, 2017, Dow and DuPont completed the merger of equals transaction contemplated by the Agreement and Plan of Merger, dated as of December 11, 2015, as amended on March 31, 2017 (the "Merger Agreement"), by and among Dow, DuPont, DowDuPont, Diamond Merger Sub, Inc. and Orion Merger Sub, Inc. Pursuant to the Merger Agreement, (i) Diamond Merger Sub, Inc. was merged with and into Dow, with Dow surviving the merger as a subsidiary of DowDuPont (the "Diamond Merger") and (ii) Orion Merger Sub, Inc. was merged with and into DuPont, with DuPont surviving the merger as a subsidiary of DowDuPont (the "Orion Merger" and, together with the Diamond Merger, the "Mergers"). Following the consummation of the Mergers, each of Dow and DuPont became subsidiaries of DowDuPont (collectively, the "Merger"). Following the Merger, Dow and DuPont intend to pursue, subject to certain customary conditions, including, among others, the effectiveness of registration statements filed with the U.S. Securities and Exchange Commission ("SEC") and approval by the board of directors of DowDuPont ("DowDuPont Board"), the separation of the combined company's agriculture, materials science and specialty products businesses through one or more tax-efficient transactions ("Intended Business Separations").

On August 31, 2017, following the Diamond Merger, Dow requested that the New York Stock Exchange ("NYSE") withdraw the shares of Dow Common Stock from listing on the NYSE and file a Form 25 with the SEC to report that the shares of Dow Common Stock are no longer listed on the NYSE. The shares of Dow Common Stock were suspended from trading on the NYSE prior to the open of trading on September 1, 2017.

In furtherance of the Intended Business Separations, Dow and DuPont are engaged in a series of internal reorganization and realignment steps (the "Internal Reorganization") to realign their businesses into three subgroups: agriculture, materials science and specialty products. DowDuPont has also formed two wholly owned subsidiaries: Dow Holdings Inc. ("DHI"), to serve as a holding company for its materials science business, and Corteva, Inc. ("Corteva"), to serve as a holding company for its agriculture business. Following the separation and distribution of DHI, which is targeted to occur by April 1, 2019, DowDuPont, as the remaining company, which is referred to herein as "New DuPont," will continue to hold the agriculture and specialty products businesses. New DuPont is then targeted to complete the separation and distribution of Corteva on June 1, 2019, resulting in New DuPont holding the specialty products businesses of DowDuPont. Following the distributions, DowDuPont will be known as DuPont.

As part of the Internal Reorganization, 1) the assets and liabilities of the materials science business will be transferred or conveyed to legal entities that then will be aligned under DHI, 2) the assets and liabilities of the agriculture business will be transferred or conveyed to legal entities that then will be aligned under Corteva, and 3) the assets and liabilities of the specialty products business will be transferred or conveyed to legal entities that then will be aligned with New DuPont. Following the Internal Reorganization, DowDuPont expects to separately distribute DHI and Corteva through separate, pro rata U.S. federal tax-free spin-offs in which DowDuPont stockholders, at such time, would receive shares of common stock of DHI and of Corteva.

It is expected that a portion of UCC's assets and liabilities aligned with the specialty products business will be transferred to and aligned with New DuPont as part of the Internal Reorganization. The Corporation does not expect the Internal Reorganization to have a material impact on the consolidated financial statements.

NOTE 4 - REVENUE

Substantially all of the Corporation's revenues are generated by intercompany sales to Dow. Products are sold to and purchased from Dow at market-based prices in accordance with the terms of Dow's intercompany pricing policies. Approximately 99 percent of the Corporation's sales in 2018, 2017 and 2016 related to sales of product; the remaining sales related to the licensing of patents and technology. The Corporation sells its products to Dow to simplify the customer interface process.

Substantially all product sale contracts are short-term in nature and have original expected durations of one year or less. Revenue from product sales is recognized when Dow or the customer obtains control of the Corporation's product, which occurs at a point in time, typically at the time production is complete or product is shipped FOB from UCC's manufacturing facility for sales to Dow, or upon shipment for sales to trade customers. The Corporation's payment terms are on average 40 to 60 days after invoicing. All shipping and handling activities that occur after control transfers to the customer are considered fulfillment activities. Certain long-term contracts include a series of distinct goods that are delivered continuously to the customer through a pipeline. For these types of product sales, the Corporation invoices the customer in an amount that directly corresponds with the value to the customer of the Corporation's performance to date. As a result, revenue is recognized based on the amount billable to the customer in accordance with the right to invoice practical expedient.

The transaction price for product sales includes estimates for the most likely amount of consideration to which the Corporation will be entitled based on historical award experience and the Corporation's best judgment at the time. Taxes collected and remitted to governmental authorities are excluded from the transaction price. For contracts with multiple performance obligations, the Corporation allocates the transaction price to each performance obligation on the basis of relative standalone selling price, which is based on the price charged to customers or estimated using the expected cost plus margin method.

Revenue related to the initial licensing of patents and technology is recognized when the performance obligation is satisfied. Revenue related to sales-based royalties to which the Corporation expects to be entitled is estimated based on historical sales.

The Corporation's contract liabilities include payments received in advance of performance under long-term contracts for product sales and royalties, and are realized when the associated revenue is recognized under the contract with remaining contract terms that range up to 22 years. The Corporation will have rights to future consideration for revenue recognized when product is delivered to the customer. The balance of contract liabilities at December 31, 2018 was \$41 million (\$43 million at December 31, 2017) and was included in "Accrued and other current liabilities" and "Other noncurrent obligations" in the consolidated balance sheets.

The Corporation disaggregates its revenue from contracts with customers by type of customer (sales to related parties and sales to trade customers) as presented on the consolidated statements of income and believes this disaggregation best depicts the nature, amount, timing and uncertainty of its revenue and cash flows. Substantially all of the product sales are made to the parent entity, Dow, and there are no unique economic factors that affect revenue recognition and cash flows associated with these product sales.

NOTE 5 - RESTRUCTURING AND ASSET RELATED CHARGES - NET

2017 Restructuring and Asset Related Charges

In September 2017, the Corporation approved restructuring actions that are aligned with DowDuPont's synergy plans. As a result of these actions, the Corporation recorded a pretax restructuring charge for severance and related benefit costs of \$8 million in the third quarter of 2017. In November 2017, the Corporation approved additional restructuring actions in connection with the restructuring program. A pretax restructuring charge for severance and related benefit costs of \$2 million was recorded in the fourth quarter of 2017, as well as charges of \$62 million for the write-off and write-down of manufacturing and facility assets at multiple UCC sites, including a steam unit in Institute, West Virginia. The impact of these charges was shown as "Restructuring and asset related charges - net" in the consolidated statements of income. At December 31, 2017, severance of \$2 million had been paid, leaving a liability of \$8 million.

In addition to actions taken in 2017, the Corporation recorded pretax charges of \$3 million in 2018 for additional restructuring charges for severance and related benefit costs. At December 31, 2018, severance of \$9 million had been paid, leaving a liability of \$4 million. The impact of this charge was shown as "Restructuring and asset related charges - net" in the consolidated statements of income. These actions are expected to be substantially completed by the end of 2019.

2016 Restructuring

On June 27, 2016, the Corporation approved actions to further improve cost effectiveness with additional workforce reductions. As a result of these actions, the Corporation recorded a pretax restructuring charge in the second quarter of 2016 consisting of severance and related benefit costs of \$1 million for the separation of approximately 5 positions. In the fourth quarter of 2016, the Corporation recorded an additional charge of \$2 million related to the separation of an additional 16 positions, and in the second quarter of 2017, an additional charge of \$2 million was recorded to adjust the charge for severance and related benefit costs. The

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impact of these charges was shown as "Restructuring and asset related charges - net" in the consolidated statements of income. At December 31, 2017, the liability for severance and related benefit costs was zero, substantially completing the 2016 restructuring program.

The Corporation expects to incur additional costs in the future related to restructuring activities, as UCC continually looks for ways to enhance the efficiency and cost effectiveness of its operations. Future costs are expected to include demolition costs related to the closed facilities; these will be recognized as incurred. The Corporation also expects to incur additional employee-related costs, including involuntary termination benefits, related to its other optimization activities. These costs cannot be reasonably estimated at this time.

NOTE 6 - SUPPLEMENTARY INFORMATION

Sundry Income (Expense) - Net			
In millions	2018	2017	2016
Dow administrative and overhead fees ¹	\$ (30)	\$ (33)	\$ (27)
Net commission expense - related company ¹	(22)	(22)	(22)
Net gain on sales of property	—	23	50
Interest income	28	20	14
Non-operating pension and other postretirement benefit plan net credits (costs) ²	(1)	8	11
Net gain on sale of a nonconsolidated affiliate	—	4	—
Foreign exchange gain	—	—	1
Other - net	(9)	(3)	—
Total sundry income (expense) - net	\$ (34)	\$ (3)	\$ 27

1. See Note 17 for additional information.

2. Presented in accordance with ASU 2017-07. See Notes 1, 2 and 15 for additional information.

Accrued and Other Current Liabilities

"Accrued and other current liabilities" in the consolidated balance sheets were \$163 million at December 31, 2018, and \$174 million at December 31, 2017. The current portion of the Corporation's accrued obligations for environmental matters, which is a component of "Accrued and other current liabilities," was \$58 million at December 31, 2018, and \$67 million at December 31, 2017 (see Note 13 for additional information). No other component of "Accrued and other current liabilities" was more than 5 percent of total current liabilities.

NOTE 7 - INCOME TAXES

On December 22, 2017, The Act was enacted. The Act reduces the U.S. federal corporate income tax rate from 35 percent to 21 percent, requires companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously deferred, creates new provisions related to foreign sourced earnings, eliminates the domestic manufacturing deduction and moves to a hybrid territorial system. At December 31, 2017, the Corporation had not completed its accounting for the tax effects of The Act; however, the Corporation made a reasonable estimate of the effects on its existing deferred tax balances and the one-time transition tax. In accordance with Staff Accounting Bulletin 118 ("SAB 118"), income tax effects of The Act were refined upon obtaining, preparing and analyzing additional information during the measurement period. At December 31, 2018, the Corporation had completed its accounting for the tax effects of The Act.

- As a result of The Act, the Corporation remeasured its U.S. federal deferred tax assets and liabilities based on the income tax rates at which they are expected to reverse in the future, which is generally 21 percent. The Corporation recorded a cumulative charge of \$248 million (\$2 million benefit in 2018 and \$250 million charge in 2017) to "Provision (Credit) for income taxes" in the consolidated statements of income with respect to the remeasurement of the Corporation's deferred tax balances.
- The Act requires a mandatory deemed repatriation of post-1986 undistributed foreign earnings and profits ("E&P"), which results in a one-time transition tax. As a result, the cumulative provisional amount recorded for the transition tax liability for the Corporation's foreign subsidiaries was insignificant at December 31, 2018.
- The Corporation recorded an indirect impact of The Act related to prepaid tax on intercompany sales of inventory. The amount related to the inventory was \$2 million, recorded as a charge to "Provision (Credit) for income taxes" for the period ended December 31, 2018.

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- For tax years beginning after December 31, 2017, The Act introduced new provisions for U.S. taxation of certain global intangible low-taxed income ("GILTI"). The Corporation has made the policy election to record any liability associated with GILTI in the period in which it is incurred.

Geographic Allocation of Income and Provision (Credit) for Income Taxes			
In millions		2018	2017
Income (Loss) before income taxes			
Domestic	\$	1,305	\$ 856
Foreign		(3)	(6)
Income before income taxes	\$	1,302	\$ 850
Current tax expense (benefit)			
Federal	\$	166	\$ 226
State and local		6	2
Foreign		40	3
Total current tax expense	\$	212	\$ 231
Deferred tax expense (benefit)			
Federal ¹	\$	27	\$ 392
State and local		8	22
Total deferred tax expense (benefit)	\$	35	\$ 414
Provision (Credit) for income taxes	\$	247	\$ 645
Net income	\$	1,055	\$ 205

1. 2018 and 2017 includes the impact of The Act; 2016 includes the impact of the asbestos-related charge.

Reconciliation to U.S. Statutory Rate		2018	2017	2016
Statutory U.S. federal income tax rate		21.0 %	35.0 %	35.0 %
U.S. manufacturing deductions		—	—	(14.0)
Unrecognized tax benefits		(0.3)	(0.4)	(45.6)
Foreign Derived Intangible Income ("FDII") deduction		(2.2)	—	—
Federal tax accrual adjustments		(0.3)	(1.1)	(12.3)
Impact of U.S. tax reform		(0.2)	29.4	—
Deferred intercompany gain		—	11.4	—
State and local tax impact		1.0	2.2	(24.6)
Other - net		—	(0.6)	5.4
Effective Tax Rate ¹		19.0 %	75.9 %	(56.1)%

1. The tax rate for 2018 was favorably impacted by The Act and the FDII deduction. The tax rate for 2017 was unfavorably impacted by The Act and the recognition of a deferred gain. The tax rate for 2016 was favorably impacted by the release of a reserve in excess of the settlement of an uncertain tax position and from the asbestos-related charge.

A transaction for the sale of stock between the Corporation and Dow in 2014 created a gain that was initially deferred for tax purposes. This deferred gain became taxable as a result of activities executed in anticipation of the intended separation of DowDuPont into three publicly traded companies. As a result, in the third quarter of 2017, the Corporation increased "Income taxes payable" in the consolidated balance sheets and recorded a charge to "Provision (Credit) for income taxes" in the consolidated statements of income of \$97 million.

Deferred Tax Balances at Dec 31 In millions	2018		2017	
	Assets	Liabilities	Assets	Liabilities
Property	\$ —	\$ 129	\$ —	\$ 132
Tax loss and credit carryforwards	42	—	47	—
Postretirement benefit obligations	234	—	251	—
Other accruals and reserves	326	8	349	1
Inventory	8	—	8	—
Other - net	11	2	9	1
Subtotal	\$ 621	\$ 139	\$ 664	\$ 134
Valuation allowances ¹	(19)	—	(19)	—
Total	\$ 602	\$ 139	\$ 645	\$ 134

1. Primarily related to the realization of recorded tax benefits on state tax loss carryforwards from operations in the United States.

Operating Loss and Tax Credit Carryforwards In millions	2018 Asset	2017 Asset
Operating loss carryforwards		
Expire within 5 years	\$ 31	\$ 29
Expire after 5 years or indefinite expiration	5	12
Total operating loss carryforwards	\$ 36	\$ 41
Tax credit carryforwards		
Expire within 5 years	\$ —	\$ 1
Expire after 5 years or indefinite expiration	6	5
Total tax credit carryforwards	\$ 6	\$ 6

Undistributed earnings of foreign subsidiaries and related companies that are deemed to be permanently invested amounted to \$35 million at December 31, 2018 and \$9 million at December 31, 2017. The unrecognized deferred tax liability on those earnings is not material.

The following table provides a reconciliation of the Corporation's unrecognized tax benefits:

Total Gross Unrecognized Tax Benefits In millions	2018	2017	2016
Total unrecognized tax benefits at Jan 1	\$ 1	\$ 1	\$ 68
Increases related to positions taken on items from prior years	—	—	139
Settlement of uncertain tax positions with tax authorities	—	—	(206)
Total unrecognized tax benefits at Dec 31	\$ 1	\$ 1	\$ 1
Total unrecognized tax benefits that, if recognized, would impact the effective tax rate	\$ 1	\$ 1	\$ 1
Total amount of interest and penalties (benefit) recognized in "Provision (Credit) for income taxes"	\$ (5)	\$ (6)	\$ (36)

In the fourth quarter of 2016, a settlement in the amount of \$206 million was reached for a tax matter regarding a historical change in the legal ownership structure of a nonconsolidated affiliate. As a result of the settlement, the Corporation recorded a net decrease to uncertain tax positions of \$67 million in "Other noncurrent obligations" in the consolidated balance sheets.

In the first quarter of 2018, a settlement was reached for a tax matter regarding fees paid to the Corporation by a foreign nonconsolidated affiliate. As a result, the Corporation recorded an increase of \$40 million to "Income taxes receivable" and "Income taxes payable" in the consolidated balance sheets. There was no impact to the consolidated statements of income. In the second quarter of 2018, a payment of \$40 million was made for the settlement of the tax matter.

The Corporation is included in Dow's consolidated federal income tax group and DowDuPont's consolidated tax return. Current and deferred tax expenses are calculated for the Corporation as a stand-alone group and are allocated to the group from the consolidated totals, consistent with the Dow-UCC Tax Sharing Agreement. The Corporation is currently under examination in a number of tax jurisdictions, including the U.S. federal and various state jurisdictions. It is reasonably possible that these examinations may be resolved in the next twelve months. The impact on the Corporation's results of operations is not expected to be material.

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Tax years that remain subject to examination for the Corporation's major tax jurisdictions are shown below:

Tax Years Subject to Examination by Major Tax Jurisdiction at Dec 31, 2018	<i>Earliest Open Year</i>
<i>Jurisdiction</i>	
United States:	
Federal income tax	2004
State and local income tax	2004

Inherent uncertainties exist in estimates of tax contingencies due to changes in tax law, both legislated and concluded through the various jurisdictions' tax court systems. It is the opinion of the Corporation's management that the possibility is remote that costs in excess of those accrued will have a material impact on the Corporation's consolidated financial statements.

NOTE 8 - INVENTORIES

The following table provides a breakdown of inventories:

Inventories at Dec 31		
In millions	<i>2018</i>	<i>2017</i>
Finished goods	\$ 264	\$ 222
Work in process	45	47
Raw materials	45	48
Supplies	85	73
Total	\$ 439	\$ 390
Adjustment of inventories to a LIFO basis	(135)	(112)
Total inventories	\$ 304	\$ 278

Inventories valued on a LIFO basis, principally U.S. chemicals and plastics product inventories, represented 60 percent of the total inventories at December 31, 2018, and 70 percent of the total inventories at December 31, 2017.

NOTE 9 - PROPERTY

The following table provides a breakdown of property:

Property at Dec 31	<i>Estimated Useful Lives (Years)</i>		
In millions		<i>2018</i>	<i>2017</i>
Land and land improvements	0-25	\$ 285	\$ 283
Buildings	5-50	412	402
Machinery and equipment	3-20	6,205	6,049
Other property	3-30	338	325
Construction in progress	—	190	250
Total property		\$ 7,430	\$ 7,309

The following table provides information regarding depreciation expense and capitalized interest:

	<i>2018</i>	<i>2017</i>	<i>2016</i>
In millions			
Depreciation expense	\$ 179	\$ 176	\$ 166
Capitalized interest	\$ 7	\$ 10	\$ 13

NOTE 10 - INVESTMENTS IN RELATED COMPANIES

The Corporation's ownership interests in related companies at December 31, 2018 and 2017 were as follows:

Investments in Related Companies at Dec 31 In millions	Ownership Interest		Investment Balance	
	2018	2017	2018	2017
Dow International Holdings Company	12%	12%	\$ 633	\$ 633
Dow Quimica Mexicana S.A. de C.V.	15%	15%	5	5
Other	—%	—%	1	1
Total Investments in Related Companies			\$ 639	\$ 639

NOTE 11 - INTANGIBLE ASSETS

The following table provides information regarding the Corporation's intangible assets:

Intangible Assets at Dec 31 In millions	2018			2017		
	Gross Carrying Amount	Accum Amort	Net	Gross Carrying Amount	Accum Amort	Net
Intangible assets with finite lives:						
Licenses and developed technology	\$ 33	\$ (33)	\$ —	\$ 33	\$ (33)	\$ —
Software	79	(54)	25	74	(49)	25
Total intangible assets	\$ 112	\$ (87)	\$ 25	\$ 107	\$ (82)	\$ 25

The following table provides information regarding amortization expense:

Amortization Expense In millions	2018	2017	2016
Software ¹	\$ 6	\$ 5	\$ 4

1. Included in "Cost of sales" in the consolidated statements of income.

Total estimated amortization expense for the next five fiscal years is as follows:

Estimated Amortization Expense for Next Five Years In millions	
2019	\$ 7
2020	\$ 7
2021	\$ 5
2022	\$ 4
2023	\$ 2

NOTE 12 - NOTES PAYABLE AND LONG-TERM DEBT

Notes Payable at Dec 31 In millions	2018	2017
Notes payable to banks and other lenders	\$ 1	\$ —
Notes payable to related companies	28	28
Total notes payable	\$ 29	\$ 28
Year-end average interest rates	3.27%	2.56%

Long-Term Debt at Dec 31	<i>2018 Average Rate</i>		<i>2017 Average Rate</i>	
In millions		<i>2018</i>		<i>2017</i>
Promissory notes and debentures:				
Debt due 2023	7.875%	\$ 175	7.875%	\$ 175
Debt due 2025	6.79%	12	6.79%	12
Debt due 2025	7.50%	150	7.50%	150
Debt due 2096	7.75%	135	7.75%	135
Capital lease obligations		7		8
Unamortized debt discount and issuance costs		(5)		(5)
Long-term debt due within one year		(1)		(1)
Total long-term debt		\$ 473		\$ 474

Maturities of Long-Term Debt for Next Five Years at Dec 31, 2018	
In millions	
2019	\$ 1
2020	\$ 1
2021	\$ 1
2022	\$ 1
2023	\$ 176

Debt Covenants and Default Provisions

The Corporation's outstanding public debt has been issued under indentures which contain, among other provisions, covenants that the Corporation must comply with while the underlying notes are outstanding. Such covenants are typically based on the Corporation's size and financial position and include, subject to the exceptions and qualifications contained in the indentures, obligations not to (i) allow liens on principal U.S. manufacturing facilities, (ii) enter into sale and lease-back transactions with respect to principal U.S. manufacturing facilities, or (iii) merge into or consolidate with any other entity or sell or convey all or substantially all of its assets. Failure of the Corporation to comply with any of these covenants could, after the passage of any applicable grace period, result in a default under the applicable indenture which would allow the note holders to accelerate the due date of the outstanding principal and accrued interest on the subject notes.

NOTE 13 - COMMITMENTS AND CONTINGENT LIABILITIES

Environmental Matters

Accruals for environmental matters are recorded when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated, based on current law and existing technologies.

At December 31, 2018, the Corporation had accrued obligations of \$94 million for probable environmental remediation and restoration costs, including \$16 million for the remediation of Superfund sites. These obligations were included in "Accrued and other current liabilities" and "Other noncurrent obligations" in the consolidated balance sheets. This is management's best estimate of the costs for remediation and restoration with respect to environmental matters for which the Corporation has accrued liabilities, although it is reasonably possible that the ultimate cost with respect to these particular matters could range up to approximately three and a half times that amount. Consequently, it is reasonably possible that environmental remediation and restoration costs in excess of amounts accrued could have a material impact on the Corporation's results of operations, financial condition and cash flows. It is the opinion of the Corporation's management that the possibility is remote that costs in excess of the range disclosed will have a material impact on the Corporation's results of operations, financial condition and cash flows. Inherent uncertainties exist in these estimates primarily due to unknown environmental conditions, changing governmental regulations and legal standards regarding liability, and emerging remediation technologies for handling site remediation and restoration. At December 31, 2017, the Corporation had accrued obligations of \$114 million for probable environmental remediation and restoration costs, including \$19 million for the remediation of Superfund sites. In the fourth quarter of 2016, the Corporation recorded an adjustment to the environmental accrual, primarily resulting from the culmination of negotiations with regulators and/or final stages of certain remediation projects. These charges were included in "Cost of sales" in the consolidated statements of income.

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The following table summarizes the activity in the Corporation's accrued obligations for environmental matters for the years ended December 31, 2018 and 2017:

Accrued Liability for Environmental Matters		
In millions	2018	2017
Balance at Jan 1	\$ 114	\$ 145
Accrual adjustment	38	36
Payments against reserve	(57)	(68)
Foreign currency impact	(1)	1
Balance at Dec 31	\$ 94	\$ 114

The amounts charged to income on a pretax basis related to environmental remediation totaled \$38 million in 2018, \$36 million in 2017 and \$122 million in 2016. Capital expenditures for environmental protection were \$9 million in 2018, \$9 million in 2017 and \$10 million in 2016.

Litigation

The Corporation is involved in a number of legal proceedings and claims with both private and governmental parties. These cover a wide range of matters, including, but not limited to: product liability; trade regulation; governmental regulatory proceedings; health, safety and environmental matters; employment; patents; contracts; taxes; and commercial disputes.

Asbestos-Related Matters

Introduction

The Corporation is and has been involved in a large number of asbestos-related suits filed primarily in state courts during the past four decades. These suits principally allege personal injury resulting from exposure to asbestos-containing products and frequently seek both actual and punitive damages. The alleged claims primarily relate to products that UCC sold in the past, alleged exposure to asbestos-containing products located on UCC's premises and UCC's responsibility for asbestos suits filed against a former UCC subsidiary, Amchem Products, Inc. ("Amchem"). In many cases, plaintiffs are unable to demonstrate that they have suffered any compensable loss as a result of such exposure, or that injuries incurred in fact resulted from exposure to the Corporation's products.

The Corporation expects more asbestos-related suits to be filed against UCC and Amchem in the future, and will aggressively defend or reasonably resolve, as appropriate, both pending and future claims.

Estimating the Asbestos-Related Liability

Based on a study completed by Ankura Consulting Group, LLC ("Ankura") in January 2003, the Corporation increased its December 31, 2002, asbestos-related liability for pending and future claims for a 15-year period ending in 2017 to \$2.2 billion, excluding future defense and processing costs. Since then, the Corporation has compared current asbestos claim and resolution activity to the results of the most recent Ankura study at each balance sheet date to determine whether the accrual continues to be appropriate. In addition, the Corporation has requested Ankura to review the Corporation's historical asbestos claim and resolution activity each year since 2004 to determine the appropriateness of updating the most recent Ankura study.

In October 2016, the Corporation requested Ankura to review its historical asbestos claim and resolution activity and determine the appropriateness of updating its December 2014 study. In response to the request, Ankura reviewed and analyzed asbestos-related claim and resolution data through September 30, 2016. The resulting study, completed by Ankura in December 2016, provided estimates for the undiscounted cost of disposing of pending and future claims against UCC and Amchem, excluding future defense and processing costs, for both a 15-year period and through the terminal year of 2049.

Based on the study completed in December 2016 by Ankura, and the Corporation's own review of the asbestos claim and resolution activity, it was determined that an adjustment to the accrual was necessary. The Corporation determined that using the estimate through the terminal year of 2049 was more appropriate due to increasing knowledge and data about the costs to resolve claims and diminished volatility in filing rates. Using the range in the Ankura December 2016 study, which was estimated to be between \$502 million and \$565 million for the undiscounted cost of disposing of pending and future claims, the Corporation increased its asbestos-related liability for pending and future claims through the terminal year of 2049 by \$104 million, included in "Asbestos-related charge" in the consolidated statements of income.

In September 2014, the Corporation began to implement a strategy designed to reduce and to ultimately stabilize and forecast defense costs associated with asbestos-related matters. The strategy included a number of important changes including: invoicing protocols including capturing costs by plaintiff; review of existing counsel roles, work processes and workflow; and utilization of

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enterprise legal management software, which enabled claim-specific tracking of asbestos-related defense and processing costs. The Corporation reviewed the information generated from this new strategy and determined that it now had the ability to reasonably estimate asbestos-related defense and processing costs for the same periods that it estimates its asbestos-related liability for pending and future claims. The Corporation believes that including estimates of the liability for asbestos-related defense and processing costs provides a more complete assessment and measure of the liability associated with resolving asbestos-related matters, which the Corporation believes is preferable in these circumstances.

In October 2016, in addition to the study for asbestos claim and resolution activity, the Corporation requested Ankura to review asbestos-related defense and processing costs and provide an estimate of a reasonable forecast of defense and processing costs associated with resolving pending and future asbestos-related claims facing UCC and Amchem for the same periods of time that the Corporation uses for estimating resolution costs. In December 2016, Ankura conducted the study and provided the Corporation with an estimate of future defense and processing costs for both a 15-year period and through the terminal year of 2049. The resulting study estimated asbestos-related defense and processing costs for pending and future asbestos claims to be between \$1,009 million and \$1,081 million through the terminal year of 2049.

In the fourth quarter of 2016, the Corporation elected to change its method of accounting for asbestos-related defense and processing costs from expensing as incurred to estimating and accruing a liability. This change is believed to be preferable as asbestos-related defense and processing costs represent expenditures related to legacy activities that do not contribute to current or future revenue generating activities of the Corporation. The change is also reflective of the manner in which the Corporation manages its asbestos-related exposure, including careful monitoring of the correlation between defense spending and resolution costs. Together, these two sources of cost more accurately represent the "total cost" of resolving asbestos-related claims now and in the future.

This accounting policy change was reflected as a change in accounting estimate effected by a change in accounting principle. As a result of this accounting policy change and based on the December 2016 Ankura study of asbestos-related defense and processing costs and the Corporation's own review of the data, a pretax charge for asbestos-related defense and processing costs of \$1,009 million was recorded in the fourth quarter of 2016, included in "Asbestos-related charge" in the consolidated statements of income.

In October 2017, the Corporation requested Ankura to review its historical asbestos claim and resolution activity (including asbestos-related defense and processing costs) and determine the appropriateness of updating its December 2016 study. In response to that request, Ankura reviewed and analyzed data through September 30, 2017. In December 2017, Ankura stated that an update of its December 2016 study would not provide a more likely estimate of future events than the estimate reflected in the study and, therefore, the estimate in that study remained applicable. Based on the Corporation's own review of the asbestos claim and resolution activity (including asbestos-related defense and processing costs) and Ankura's response, the Corporation determined that no change to the accrual was required. At December 31, 2017, the asbestos-related liability for pending and future claims against UCC and Amchem, including future asbestos-related defense and processing costs, was \$1,369 million, and approximately 16 percent of the recorded liability related to pending claims and approximately 84 percent related to future claims.

In October 2018, the Corporation requested Ankura to review its historical asbestos claim and resolution activity (including asbestos-related defense and processing costs) and determine the appropriateness of updating its December 2016 study. In response to that request, Ankura reviewed and analyzed data through September 30, 2018. The resulting study, completed by Ankura in December 2018, provided estimates for the undiscounted cost of disposing of pending and future claims against UCC and Amchem, including future defense and processing costs, through the terminal year of 2049. Based on the study completed in December 2018 by Ankura, and the Corporation's own review, it was determined that no adjustment to the accrual was required. At December 31, 2018, the asbestos-related liability for pending and future claims against UCC and Amchem, including future asbestos-related defense and processing costs, was \$1,260 million, and approximately 16 percent of the recorded liability related to pending claims and approximately 84 percent related to future claims.

Insurance Receivables

The Corporation has receivables for insurance recoveries related to its asbestos liability as well as receivables for defense and resolution costs submitted to insurance carriers that have a settlement agreement in place regarding their asbestos-related insurance coverage. The Corporation continues to believe that its recorded receivable for insurance recoveries from all insurance carriers is probable of collection. At December 31, 2018, the Corporation's receivable for insurance recoveries related to its asbestos liability was \$10 million (\$37 million at December 31, 2017).

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Summary

The Corporation's management believes the amounts recorded for the asbestos-related liability (including defense and processing costs) reflect reasonable and probable estimates of the liability based on current, known facts. However, future events, such as the number of new claims to be filed and/or received each year and the average cost of defending and disposing of each such claim, as well as the numerous uncertainties surrounding asbestos litigation in the United States, could cause the actual costs for the Corporation to be higher or lower than those projected or those recorded. Any such event could result in an increase or decrease in the recorded liability.

Because of the uncertainties described above, the Corporation cannot estimate the full range of the cost of resolving pending and future asbestos-related claims facing UCC and Amchem. As a result, it is reasonably possible that an additional cost of disposing of asbestos-related claims, including future defense and processing costs, could have a material impact on the Corporation's results of operations and cash flows for a particular period and on the consolidated financial position.

Other Litigation

While it is not possible at this time to determine with certainty the ultimate outcome of any of the legal proceedings and claims referred to in this filing, management believes that the possibility is remote that the aggregate of all such other claims and lawsuits will have a material adverse impact on the results of operations, cash flows and financial position of the Corporation.

Purchase Commitments

The Corporation has outstanding purchase commitments and various commitments for take-or-pay or throughput agreements. The Corporation was not aware of any purchase commitments that were negotiated as part of a financing arrangement for the facilities that will provide the contracted goods or services or for the costs related to those goods or services at December 31, 2018 and 2017.

Operating Leases

The Corporation has leases primarily for facilities and distribution equipment. The future minimum rental payments under leases with remaining noncancelable terms in excess of one year are as follows:

Minimum Lease Commitments at Dec 31, 2018	
In millions	
2019	\$ 18
2020	16
2021	14
2022	13
2023	13
2024 and thereafter	37
Total	\$ 111

Rental expenses under leases were \$31 million in 2018, \$32 million in 2017 and \$28 million in 2016.

NOTE 14 - ACCUMULATED OTHER COMPREHENSIVE LOSS

The following table summarizes the changes and after-tax balances of each component of accumulated other comprehensive loss ("AOCL") for the years ended December 31, 2018, 2017 and 2016:

Accumulated Other Comprehensive Loss	<i>Cumulative Translation Adj</i>	<i>Pension and Other Postretire Benefits</i>	<i>Total Accum Other Comp Loss</i>
In millions			
2016			
Balance at Jan 1, 2016	\$ (61)	\$ (1,167)	\$ (1,228)
Other comprehensive loss before reclassifications	(1)	(133)	(134)
Amounts reclassified from AOCL	—	42	42
Net other comprehensive loss	(1)	(91)	(92)
Balance at Dec 31, 2016	\$ (62)	\$ (1,258)	\$ (1,320)
2017			
Other comprehensive loss before reclassifications	—	(83)	(83)
Amounts reclassified from AOCL	3	48	51
Net other comprehensive income (loss)	3	(35)	(32)
Balance at Dec 31, 2017	\$ (59)	\$ (1,293)	\$ (1,352)
2018			
Other comprehensive income (loss) before reclassifications	2	(22)	(20)
Amounts reclassified from AOCL	—	65	65
Net other comprehensive income	2	43	45
Reclassification of stranded tax effects ¹	—	(254)	(254)
Balance at Dec 31, 2018	\$ (57)	\$ (1,504)	\$ (1,561)

1. Amounts reclassified to retained earnings as a result of the adoption of ASU 2018-02. See Notes 1 and 2 for additional information.

The tax effects on the net activity related to each component of other comprehensive income (loss) for the years ended December 31, 2018, 2017 and 2016 were as follows:

Tax Benefit (Expense) ¹	<i>2018</i>	<i>2017</i>	<i>2016</i>
In millions			
Pension and other postretirement benefit plans	\$ (13)	\$ (3)	\$ 54

1. Prior period amounts were updated to conform with the current year presentation.

A summary of the reclassifications out of AOCL for the years ended December 31, 2018, 2017 and 2016 is provided as follows:

Reclassifications Out of AOCL	<i>2018</i>	<i>2017</i>	<i>2016</i>	<i>Consolidated Statements of Income Classification</i>
In millions				
Cumulative translation adjustments	\$ —	\$ 3	\$ —	See (1) below
Pension and other postretirement benefit plans	85	76	67	See (2) below
Tax benefit	(20)	(28)	(25)	See (3) below
After tax	65	48	42	
Total reclassifications for the period, after-tax	\$ 65	\$ 51	\$ 42	

1. "Sundry income (expense) - net."

2. Included in the computation of net periodic benefit cost of the Corporation's defined benefit pension and other postretirement benefit plans. See Note 15 for additional information.

3. "Provision (Credit) for income taxes."

NOTE 15 - PENSION PLANS AND OTHER POSTRETIREMENT BENEFITS

Pension Plans

The Corporation has a defined benefit pension plan that covers substantially all employees in the United States. Benefits are based on length of service and the employee's three highest consecutive years of compensation. Employees hired on or after January 1, 2008, earn benefits that are based on a set percentage of annual pay, plus interest. The Corporation also has a non-qualified supplemental pension plan.

The Corporation's funding policy is to contribute to the plan when pension laws or economics either require or encourage funding. In 2018, UCC contributed \$42 million to its pension plans including contributions to fund benefit payments for its non-qualified supplemental plan. UCC expects to contribute approximately \$2 million to its pension plans in 2019.

The weighted-average assumptions used to determine pension plan obligations and net periodic benefit costs are provided below:

Pension Plan Assumptions	Benefit Obligations at Dec 31		Net Periodic Costs for the Year Ended		
	2018	2017	2018	2017	2016
Discount rate	4.32%	3.59%	3.59%	4.00%	4.26%
Interest crediting rate for applicable benefits	4.50%	4.50%	4.50%	4.50%	4.50%
Rate of compensation increase	4.25%	4.25%	4.25%	4.25%	4.50%
Expected return on plan assets	—	—	6.80%	6.80%	6.80%

Other Postretirement Benefits

The Corporation provides certain health care and life insurance benefits to retired U.S. employees and survivors. The plan provides health care benefits, including hospital, physicians' services, drug and major medical expense coverage and life insurance benefits. The Corporation and the retiree share the cost of these benefits, with the Corporation portion increasing as the retiree has increased years of credited service, although there is a cap on the Corporation portion. The Corporation has the ability to change these benefits at any time. Employees hired after January 1, 2008, are not covered under this plan.

The Corporation funds most of the cost of these health care and life insurance benefits as incurred. In 2018, UCC did not make any contributions to its other postretirement benefit plan trust. Likewise, UCC does not expect to contribute assets to its other postretirement benefit plan trust in 2019.

The weighted-average assumptions used to determine other postretirement benefit obligations and net periodic benefit costs for the plan are provided in the following table:

Plan Assumptions for Other Postretirement Benefits	Benefit Obligations at Dec 31		Net Periodic Costs for the Year Ended		
	2018	2017	2018	2017	2016
Discount rate	4.23%	3.51%	3.51%	3.88%	4.08%
Health care cost trend rate assumed for next year	6.50%	6.75%	6.75%	7.00%	7.25%
Rate to which the cost trend rate is assumed to decline (the ultimate health care cost trend rate)	5.00%	5.00%	5.00%	5.00%	5.00%
Year that the rate reaches the ultimate health care cost trend rate	2025	2025	2025	2025	2025

Assumptions

The Corporation determines the expected long-term rate of return on plan assets by performing a detailed analysis of key economic and market factors driving historical returns for each asset class and formulating a projected return based on factors in the current environment. Factors considered include, but are not limited to, inflation, real economic growth, interest rate yield, interest rate spreads, and other valuation measures and market metrics. The expected long-term rate of return for each asset class is then weighted based on the strategic asset allocation approved by the governing body for each plan. The Corporation's historical experience with the pension fund asset performance is also considered.

The Corporation uses the spot rate approach to determine the discount rate utilized to measure the service cost and interest cost components of net periodic pension and other postretirement benefit costs. Under the spot rate approach, the Corporation calculates service cost and interest cost by applying individual spot rates from the Willis Towers Watson U.S. RATE:Link 60-90 corporate

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yield curve (based on 60th to 90th percentile high-quality corporate bond yields) to the separate expected cash flow components of service cost and interest cost.

The discount rates utilized to measure the pension and other postretirement obligations of the U.S. qualified plans were based on the yield on high-quality corporate fixed income investments at the measurement date. Future expected actuarially determined cash flows for the plans are individually discounted at the spot rates under the Willis Towers Watson U.S. RATE:Link 60-90 corporate yield curve (based on 60th to 90th percentile high-quality corporate bond yields) to arrive at the plan's obligations as of the measurement date.

The Corporation utilizes a modified version of the Society of Actuaries' mortality tables released in 2014 and a modified version of the generational mortality improvement scale released in 2018 for purposes of measuring the U.S. pension and other postretirement obligations, based on an evaluation of the mortality experience of its pension plans.

Summarized information on the Corporation's pension and other postretirement benefit plans is as follows:

Change in Projected Benefit Obligations, Plan Assets and Funded Status for all Plans	Defined Benefit Pension Plans		Other Postretirement Benefits	
	2018	2017	2018	2017
In millions				
<i>Change in projected benefit obligations:</i>				
Benefit obligation at beginning of year	\$ 4,150	\$ 4,025	\$ 224	\$ 264
Service cost	39	38	1	1
Interest cost	128	129	6	8
Actuarial changes in assumptions and experience	(249)	241	(2)	(23)
Benefits paid	(278)	(281)	(14)	(26)
Other	(4)	(2)	—	—
Benefit obligation at end of year	\$ 3,786	\$ 4,150	\$ 215	\$ 224
<i>Change in plan assets:</i>				
Fair value of plan assets at beginning of year	\$ 3,307	\$ 3,097	\$ —	\$ —
Actual return on plan assets	(62)	331	—	—
Employer contributions	42	162	—	—
Asset transfers	(4)	(2)	—	—
Benefits paid	(278)	(281)	—	—
Fair value of plan assets at end of year	\$ 3,005	\$ 3,307	\$ —	\$ —
Funded status at end of year	\$ (781)	\$ (843)	\$ (215)	\$ (224)
<i>Net amounts recognized in the consolidated balance sheets at Dec 31:</i>				
Accrued and other current liabilities	\$ (2)	\$ (2)	\$ (19)	\$ (15)
Pension and other postretirement benefits - noncurrent	(779)	(841)	(196)	(209)
Net amount recognized	\$ (781)	\$ (843)	\$ (215)	\$ (224)
<i>Pretax amounts recognized in accumulated other comprehensive loss at Dec 31:</i>				
Net loss (gain)	\$ 2,019	\$ 2,083	\$ (79)	\$ (86)
Prior service credit	(11)	(12)	—	—
Pretax balance in accumulated other comprehensive loss at end of year	\$ 2,008	\$ 2,071	\$ (79)	\$ (86)

A significant component of the overall decrease in the Corporation's benefit obligation for the year ended December 31, 2018 was due to the weighted-average change in discount rates, which increased from 3.59 percent at December 31, 2017 to 4.32 percent at December 31, 2018. A significant component of the overall increase in the Corporation's benefit obligation for the year ended December 31, 2017 was also due to the weighted-average change in discount rates, which decreased from 4.00 percent at December 31, 2016 to 3.59 percent at December 31, 2017.

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The accumulated benefit obligation for all defined benefit pension plans was \$3.8 billion at December 31, 2018 and \$4.1 billion at December 31, 2017.

Pension Plans with Accumulated Benefit Obligations in Excess of Plan Assets at Dec 31		
In millions	2018	2017
Accumulated benefit obligations	\$ 3,762	\$ 4,120
Fair value of plan assets	\$ 3,005	\$ 3,307

Pension Plans with Projected Benefit Obligations in Excess of Plan Assets at Dec 31		
In millions	2018	2017
Projected benefit obligations	\$ 3,786	\$ 4,150
Fair value of plan assets	\$ 3,005	\$ 3,307

Net Periodic Benefit Cost for All Plans for the Year Ended Dec 31	<i>Defined Benefit Pension Plans</i>			<i>Other Postretirement Benefits</i>		
	2018	2017	2016	2018	2017	2016
In millions						
<i>Net Periodic Benefit Cost:</i>						
Service cost	\$ 39	\$ 38	\$ 39	\$ 1	\$ 1	\$ 1
Interest cost	128	129	131	6	8	8
Expected return on plan assets	(218)	(221)	(217)	—	—	—
Amortization of prior service credit	(1)	(1)	(1)	—	—	—
Amortization of net (gain) loss	95	83	75	(9)	(6)	(7)
Net periodic benefit cost	\$ 43	\$ 28	\$ 27	\$ (2)	\$ 3	\$ 2
<i>Changes in plan assets and benefit obligations recognized in other comprehensive (income) loss:</i>						
Net (gain) loss	\$ 31	\$ 131	\$ 208	\$ (2)	\$ (23)	\$ 4
Amortization of prior service credit	1	1	1	—	—	—
Amortization of net gain (loss)	(95)	(83)	(75)	9	6	7
Total recognized in other comprehensive (income) loss	\$ (63)	\$ 49	\$ 134	\$ 7	\$ (17)	\$ 11
Total recognized in net periodic benefit cost and other comprehensive (income) loss	\$ (20)	\$ 77	\$ 161	\$ 5	\$ (14)	\$ 13

On January 1, 2018, the Corporation adopted ASU 2017-07, which impacted the presentation of the components of net periodic benefit cost in the consolidated statements of income. Net periodic benefit cost, other than the service cost component, is now included in "Sundry income (expense) - net" in the consolidated statements of income. See Notes 1, 2 and 6 for additional information.

Estimated Future Benefit Payments

The estimated future benefit payments, reflecting expected future service, as appropriate, are presented in the following table:

Estimated Future Benefit Payments at Dec 31, 2018		<i>Defined Benefit Pension Plans</i>	<i>Other Postretirement Benefits</i>
In millions			
2019		\$ 277	\$ 19
2020		276	19
2021		275	20
2022		274	20
2023		271	19
2024 through 2028		1,293	76
Total		\$ 2,666	\$ 173

Plan Assets

Plan assets consist primarily of equity and fixed income securities of U.S. and foreign issuers, and include alternative investments such as real estate, private equity and other absolute return strategies. Plan assets totaled \$3.0 billion at December 31, 2018 and \$3.3 billion at December 31, 2017, and included no directly held common stock of DowDuPont.

The Corporation's investment strategy for the plan assets is to manage the assets in relation to the liability in order to pay retirement benefits to plan participants over the life of the plans. This is accomplished by identifying and managing the exposure to various market risks, diversifying investments across various asset classes and earning an acceptable long-term rate of return consistent with an acceptable amount of risk, while considering the liquidity needs of the plan.

The plan is permitted to use derivative instruments for investment purposes, as well as for hedging the underlying asset and liability exposures and rebalancing the asset allocation. The plan uses value-at-risk, stress testing, scenario analysis and Monte Carlo simulation to monitor and manage both the risk within the portfolios and the surplus risk of the plan.

Equity securities primarily include investments in large- and small-cap companies located in both developed and emerging markets around the world. Fixed income securities are primarily U.S. dollar based and include U.S. treasuries and investment grade corporate bonds of companies diversified across industries. Alternative investments primarily include investments in real estate, private equity limited partnerships and absolute return strategies. Other significant investment types include various insurance contracts, and interest rate, equity and foreign exchange derivative investments and hedges.

The Corporation mitigates the credit risk of investments by establishing guidelines with the investment managers that limit investment in any single issue or issuer to an amount that is not material to the portfolio being managed. These guidelines are monitored for compliance both by the Corporation and the external managers. Credit risk for hedging activity is mitigated by utilizing multiple counterparties, collateral support agreements, and centralized clearing where appropriate.

The Northern Trust Collective Government Short Term Investment money market fund is utilized as the sweep vehicle for the pension plan, which from time to time can represent a significant investment. Approximately 35 percent of the liability of the pension plan is covered by a participating group annuity issued by Prudential Insurance Company.

The weighted-average target allocation for plan assets of the Corporation's pension plans is summarized as follows:

Target Allocation for Plan Assets at Dec 31, 2018	<i>Target Allocation</i>
<i>Asset Category</i>	
Equity securities	23%
Fixed income securities	45
Alternative investments	27
Other	5
Total	100%

Fair value calculations may not be indicative of net realizable value or reflective of future fair values. Furthermore, although the Corporation believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

For assets classified as Level 1 measurements (measured using quoted prices in active markets), the total fair value is either the price of the most recent trade at the time of the market close or the official close price, as defined by the exchange on which the asset is most actively traded on the last trading day of the period, multiplied by the number of units held without consideration of transaction costs.

For assets classified as Level 2 measurements, where the security is frequently traded in less active markets, fair value is based on the closing price at the end of the period; where the security is less frequently traded, fair value is based on the price a dealer would pay for the security or similar securities, adjusted for any terms specific to that asset or liability. Market inputs are obtained from well-established and recognized vendors of market data and subjected to tolerance and quality checks. For derivative assets and liabilities, standard industry models are used to calculate the fair value of the various financial instruments based on significant observable market inputs such as foreign exchange rates, commodity prices, swap rates, interest rates, and implied volatilities obtained from various market sources. For other assets for which observable inputs are used, fair value is derived through the use of fair value models, such as a discounted cash flow model or other standard pricing models.

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For pension plan assets classified as Level 3 measurements, total fair value is based on significant unobservable inputs including assumptions where there is little, if any, market activity for the investment.

Certain pension plan assets are held in funds where fair value is based on an estimated net asset value per share (or its equivalent) as of the most recently available fund financial statements which are received on a monthly or quarterly basis. These valuations are reviewed for reasonableness based on applicable sector, benchmark and company performance. Adjustments to valuations are made where appropriate to arrive at an estimated net asset value per share at the measurement date. These funds are not classified within the fair value hierarchy.

The following table summarizes the bases used to measure the Corporation's pension plan assets at fair value for the years ended December 31, 2018 and 2017:

Basis of Fair Value Measurements	Dec 31, 2018				Dec 31, 2017			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
In millions								
Cash and cash equivalents	\$ 189	\$ 189	\$ —	\$ —	\$ 193	\$ 153	\$ 40	\$ —
Equity securities:								
U.S. equity securities	\$ 277	\$ 275	\$ 2	\$ —	\$ 374	\$ 357	\$ 17	\$ —
Non - U.S. equity securities	321	269	46	6	472	404	61	7
Total equity securities	\$ 598	\$ 544	\$ 48	\$ 6	\$ 846	\$ 761	\$ 78	\$ 7
Fixed income securities:								
Debt - government-issued	\$ 812	\$ 8	\$ 804	\$ —	\$ 873	\$ —	\$ 873	\$ —
Debt - corporate-issued	413	11	402	—	515	—	515	—
Debt - asset-backed	30	—	30	—	24	—	24	—
Total fixed income securities	\$ 1,255	\$ 19	\$ 1,236	\$ —	\$ 1,412	\$ —	\$ 1,412	\$ —
Alternative investments: ¹								
Derivatives - asset position	\$ 12	\$ —	\$ 12	\$ —	\$ 6	\$ —	\$ 6	\$ —
Derivatives - liability position	—	—	—	—	(32)	—	(32)	—
Total alternative investments	\$ 12	\$ —	\$ 12	\$ —	\$ (26)	\$ —	\$ (26)	\$ —
Other investments	\$ —	\$ —	\$ —	\$ —	\$ (6)	\$ —	\$ (6)	\$ —
Subtotal	\$ 2,054	\$ 752	\$ 1,296	\$ 6	\$ 2,419	\$ 914	\$ 1,498	\$ 7
Investments measured at net asset value: ¹								
Hedge funds	\$ 287				\$ 292			
Private market securities	335				237			
Real estate	327				360			
Total investments measured at net asset value	\$ 949				\$ 889			
Items to reconcile to fair value of plan assets:								
Pension trust receivables ²	\$ 2				\$ 2			
Pension trust payables ³	—				(3)			
Total	\$ 3,005				\$ 3,307			

1. The Corporation reviewed its fair value techniques and elected to present assets valued at net asset value per share as a practical expedient outside of the fair value hierarchy. The assets are presented as "Investments measured at net asset value." Prior period amounts were updated to conform with the current year presentation.

2. Primarily receivables for investment securities sold.

3. Primarily payables for investment securities purchased.

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The following table summarizes the changes in fair value of Level 3 pension plan assets for the years ended December 31, 2018 and 2017:

Fair Value Measurement of Level 3 Pension Plan Assets				
In millions	<i>Equity Securities</i>	<i>Alternative Investments</i>	<i>Other Investments</i>	<i>Total</i>
Balance at Jan 1, 2017, as previously reported	\$ 6	\$ 724	\$ 19	\$ 749
Reclassification of investments measured at net asset value ¹	—	(713)	(19)	(732)
Balance at Jan 1, 2017, as restated	\$ 6	\$ 11	\$ —	\$ 17
Actual return on plan assets:				
Relating to assets held at Dec 31, 2017	—	(2)	—	(2)
Purchases, sales and settlements	1	(9)	—	(8)
Balance at Dec 31, 2017	\$ 7	\$ —	\$ —	\$ 7
Actual return on plan assets:				
Relating to assets held at Dec 31, 2018	(1)	—	—	(1)
Balance at Dec 31, 2018	\$ 6	\$ —	\$ —	\$ 6

1. The Corporation reviewed its fair value technique and elected to present assets valued at net asset value per share as a practical expedient outside of the fair value hierarchy, including those classified as Level 3 pension plan assets. The assets are presented as "Investments measured at net asset value."

Defined Contribution Plans

In addition to the qualified defined benefit pension plan, U.S. employees may participate in defined contribution plans (Employee Savings Plans or 401(k) plans) by contributing a portion of their compensation, which is partially matched by the Corporation. Expense recognized for all defined contribution plans was \$15 million in 2018, \$21 million in 2017 and \$17 million in 2016.

NOTE 16 - FAIR VALUE MEASUREMENTS

The Corporation's investments in marketable securities are classified as available-for-sale. Proceeds from sales of available-for-sale securities were zero in 2018 (\$2 million in 2017 and 2016).

Portfolio managers regularly review all of the Corporation's holdings to determine if any investments are other-than-temporarily impaired. The analysis includes reviewing the amount of the impairment, as well as the length of time it has been impaired. In addition, specific guidelines for each instrument type are followed to determine if an other-than-temporary impairment has occurred. At December 31, 2018 and 2017, there were no impairment indicators or circumstances that would result in a material adjustment of these investments.

The Corporation's financial instruments are classified as Level 2 measurements. For assets and liabilities classified as Level 2 measurements, where the security is frequently traded in less active markets, fair value is based on the closing price at the end of the period; where the security is less frequently traded, fair value is based on the price a dealer would pay for the security or similar securities, adjusted for any terms specific to that asset or liability, or by using observable market data points of similar, more liquid securities to imply the price. Market inputs are obtained from well-established and recognized vendors of market data and subjected to tolerance/quality checks.

Assets that are measured using significant other observable inputs are primarily valued by reference to quoted prices of similar assets in active markets, adjusted for any terms specific to that asset. For all other assets for which observable inputs are used, fair value is derived through the use of fair value models, such as a discounted cash flow model or other standard pricing models. There were no transfers between Levels 1 and 2 in the years ended December 31, 2018 and 2017.

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The following table summarizes the fair value of the Corporation's financial instruments at December 31, 2018 and 2017:

Fair Value of Financial Instruments In millions	2018				2017			
	Cost	Gain	Loss	Fair Value	Cost	Gain	Loss	Fair Value
Cash equivalents ¹	\$ 10	\$ —	\$ —	\$ 10	\$ 9	\$ —	\$ —	\$ 9
Long-term debt including debt due within one year	\$ (474)	\$ —	\$ (67)	\$ (541)	\$ (475)	\$ —	\$ (129)	\$ (604)

1. Money market fund is included in "Cash and cash equivalents" in the consolidated balance sheets and held at amortized cost, which approximates fair value.

Cost approximates fair value for all other financial instruments.

NOTE 17 - RELATED PARTY TRANSACTIONS

The Corporation sells its products to Dow to simplify the customer interface process. Products are sold to and purchased from Dow at market-based prices in accordance with the terms of Dow's intercompany pricing policies. After each quarter, the Corporation and Dow analyze the pricing used for the sales in that quarter and reach agreement on any necessary adjustments, at which point the prices are final. The Corporation also procures certain commodities and raw materials through a Dow subsidiary and pays a commission to that Dow subsidiary based on the volume and type of commodities and raw materials purchased. The commission expense was included in "Sundry income (expense) - net" in the consolidated statements of income. Purchases from that Dow subsidiary were approximately \$1.6 billion in 2018, \$1.7 billion in 2017 and \$1.4 billion in 2016.

The Corporation has a master services agreement with Dow whereby Dow provides services including, but not limited to, accounting, legal, treasury (investments, cash management, risk management, insurance), procurement, human resources, environmental, health and safety, and business management for UCC. Under the master services agreement with Dow, general administrative and overhead type services that Dow routinely allocates to various businesses are charged to UCC. The master services agreement cost allocation basis is headcount and includes a 10 percent service fee. This agreement resulted in expense of \$30 million in 2018, \$33 million in 2017 and \$27 million in 2016 for general administrative and overhead type services and the 10 percent service fee, and was included in "Sundry income (expense) - net" in the consolidated statements of income. The remaining activity-based costs were approximately \$85 million in 2018, \$78 million in 2017 and \$58 million in 2016 and were included in "Cost of sales" in the consolidated statements of income.

Management believes the method used for determining expenses charged by Dow is reasonable. Dow provides these services by leveraging its centralized functional service centers to provide services at a cost that management believes provides an advantage to the Corporation.

The monitoring and execution of risk management policies related to interest rate and foreign currency risks, which are based on Dow's risk management philosophy, are provided as a service to UCC.

As part of Dow's cash management process, UCC is a party to revolving loans with Dow that have interest rates based on LIBOR (London Interbank Offered Rate) with varying maturities. At December 31, 2018, the Corporation had a note receivable of \$1.3 billion (\$1.2 billion at December 31, 2017) from Dow under a revolving loan agreement. The Corporation may draw from this note receivable in support of its daily working capital requirements and, as such, the net effect of cash inflows and outflows under this revolving loan agreement is presented in the consolidated statements of cash flows as an operating activity.

The Corporation also has a separate revolving credit agreement with Dow that allows the Corporation to borrow or obtain credit enhancements up to an aggregate of \$1 billion that matures on December 30, 2019. Dow may demand repayment with a 30-day written notice to the Corporation, subject to certain restrictions. A related collateral agreement provides for the replacement of certain existing pledged assets, primarily equity interests in various subsidiaries and joint ventures, with cash collateral. At December 31, 2018, \$949 million (\$949 million at December 31, 2017) was available under the revolving credit agreement. The cash collateral was reported as "Noncurrent receivables from related companies" in the consolidated balance sheets.

On a quarterly basis, the Corporation's Board of Directors reviews and determines if there will be a dividend distribution to its parent company and sole shareholder, Dow. The Board takes into consideration the level of earnings and cash flows, among other factors, in determining the amount of the dividend distribution. In 2018, the Corporation declared and paid dividends totaling \$553 million to Dow. In 2017, the Corporation declared and paid dividends totaling \$603 million to Dow.

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In accordance with the Tax Sharing Agreement between the Corporation and Dow, the Corporation makes payments to Dow to cover the Corporation's estimated federal tax liability; payments were \$220 million in 2018, \$294 million in 2017 and \$415 million in 2016.

NOTE 18 - BUSINESS AND GEOGRAPHIC REGIONS

Dow conducts its worldwide operations through principal product groups, and the Corporation's business activities comprise components of Dow's principal product groups rather than stand-alone operations. The Corporation sells substantially all of its products to Dow in order to simplify the customer interface process at market-based prices in accordance with Dow's intercompany pricing policy. Because there are no separable reportable business segments for the Corporation and no detailed business information is provided to a chief operating decision maker regarding the Corporation's stand-alone operations, the Corporation's results are reported as a single operating segment.

Sales are attributed to geographic regions based on customer location; long-lived assets are attributed to geographic regions based on asset location. Sales to external customers and long-lived assets by geographic region were as follows:

Geographic Region Information				
In millions	<i>United States</i>	<i>Asia Pacific</i>	<i>Rest of World</i>	<i>Total</i>
2018				
Sales to external customers ¹	\$ 124	\$ 2	\$ 10	\$ 136
Long-lived assets	\$ 1,413	\$ 10	\$ 25	\$ 1,448
2017				
Sales to external customers ¹	\$ 110	\$ 21	\$ 12	\$ 143
Long-lived assets	\$ 1,341	\$ 9	\$ 29	\$ 1,379
2016				
Sales to external customers ¹	\$ 95	\$ 3	\$ 10	\$ 108
Long-lived assets	\$ 1,353	\$ 10	\$ 31	\$ 1,394

1. Of total sales to external customers, sales in Malaysia were approximately 1 percent in 2018, 15 percent in 2017 and 3 percent in 2016, and are included in Asia Pacific.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

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ITEM 9B. OTHER INFORMATION

None.

Union Carbide Corporation and Subsidiaries

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Omitted pursuant to General Instruction I of Form 10-K.

ITEM 11. EXECUTIVE COMPENSATION

Omitted pursuant to General Instruction I of Form 10-K.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Omitted pursuant to General Instruction I of Form 10-K.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Omitted pursuant to General Instruction I of Form 10-K.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The Dow Audit Subcommittee of the DowDuPont Audit Committee pre-approved all auditing services and permitted non-audit services for 2018 (including the fees and terms thereof) to be performed for Dow and its subsidiaries (including the Corporation) by its independent auditor, subject to the *de minimus* exception for non-audit services described in Section 10A(i)(1)(B) of the Securities Exchange Act, any such exceptions are approved by the Dow Audit Subcommittee of the DowDuPont Audit Committee prior to the completion of the audit. The Corporation's management and its Board of Directors subscribe to these policies and procedures. For the years ended December 31, 2018 and 2017, professional services were performed for the Corporation by Deloitte & Touche LLP, the member firms of Deloitte Touche Tohmatsu Limited, and their respective affiliates (collectively, the "Deloitte Entities").

Total fees paid to the Deloitte Entities were \$1.5 million in 2018 and 2017. These are the aggregate of fees billed for the audit of the Corporation's annual financial statements, the reviews of the financial statements in the Quarterly Reports on Form 10-Q, statutory audits and other regulatory filings.

Union Carbide Corporation and Subsidiaries
PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this report:

1. The Corporation's 2018 Consolidated Financial Statements and the Report of Independent Registered Public Accounting Firm are included in Item 8 of this Annual Report on Form 10-K.
2. Financial Statement Schedules are omitted because of the absence of the conditions under which they are required or because the information called for is included in the Consolidated Financial Statements or Notes thereto.

The following exhibits are filed with or incorporated by reference into this Annual Report on Form 10-K:

<i>Exhibit No.</i>	<i>Description of Exhibit</i>
2.1	Agreement and Plan of Merger dated as of August 3, 1999 among Union Carbide Corporation, The Dow Chemical Company and Transition Sub Inc., incorporated by reference to Exhibit 2 of the Corporation's Current Report on Form 8-K dated August 3, 1999.
2.2	Agreement for the Sale & Purchase of Shares, dated as of August 17, 2009, among Union Carbide Corporation, UCMG L.L.C. and Petroliam Nasional Berhad, incorporated by reference to Exhibit 2.1 of the Corporation's Current Report on Form 8-K dated September 30, 2009.
3.1	Restated Certificate of Incorporation of Union Carbide Corporation under Section 807 of the Business Corporation Law, as filed on May 13, 2008, incorporated by reference to Exhibit 3.1.4 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2008.
3.2	Amended and Restated Bylaws of Union Carbide Corporation, amended as of April 22, 2004, incorporated by reference to Exhibit 3.2 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2004.
4.1	Indenture dated as of June 1, 1995, between the Corporation and the Chase Manhattan Bank (formerly Chemical Bank), Trustee, incorporated by reference to Exhibit 4.1.2 to the Corporation's Form S-3 effective October 13, 1995, Reg. No. 33-60705.
4.2	The Corporation will furnish to the Commission upon request any other debt instrument referred to in Item 601(b)(4)(iii) (A) of Regulation S-K.
10.1	Amended and Restated Service Agreement, effective as of July 1, 2002, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.23 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2002.
10.1.1	Service Addendum No. 2 to the Service Agreement, effective as of August 1, 2001, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.23.2 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2002.
10.1.2	Restated Service Addendum No. 1 to the Service Agreement, effective as of February 6, 2001, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.23.3 of the Corporation's 2002 Form 10-K.
10.1.3	Service Addendum No. 3 to the Amended and Restated Service Agreement, effective as of January 1, 2005, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.1.3 of the Corporation's 2004 Form 10-K.
10.1.4	First Amendment to Amended and Restated Service Agreement, effective as of January 1, 2011, between the Corporation and The Dow Chemical Company incorporated by reference to Exhibit 10.1.4 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2011.
10.2	Second Amended and Restated Sales Promotion Agreement, effective January 1, 2004, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.24 of the Corporation's 2003 Form 10-K.
10.2.1	First Amendment to Second Amended and Restated Sales Promotion Agreement, effective as of March 22, 2013, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.2.1 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013.
10.2.2	Second Amendment to Second Amended and Restated Sales Promotion Agreement, effective as of July 1, 2014, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.2.2 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2014.
10.3	Third Amended and Restated Agreement (to Provide Materials and Services), dated as of March 1, 2008, between the Corporation and Dow Hydrocarbons and Resources LLC, incorporated by reference to Exhibit 10.3 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2008.

<i>Exhibit No.</i>	<i>Description of Exhibit</i>
10.4	<u>Amended and Restated Tax Sharing Agreement, effective as of February 7, 2001, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.27 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2003.</u>
10.5	<u>Amended and Restated Revolving Credit Agreement dated as of May 28, 2004, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.28 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2004.</u>
10.5.1	<u>First Amendment dated October 29, 2004 to the Amended and Restated Revolving Credit Agreement, dated as of May 28, 2004, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.1 of the Corporation's 2004 Form 10-K.</u>
10.5.2	<u>Second Amendment to the Amended and Restated Revolving Credit Agreement, effective as of December 30, 2004, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.2 of the Corporation's 2004 Form 10-K.</u>
10.5.3	<u>Third Amendment to the Amended and Restated Revolving Credit Agreement, dated as of September 30, 2005, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.3 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2005.</u>
10.5.4	<u>Fourth Amendment to the Amended and Restated Revolving Credit Agreement, dated as of September 30, 2006, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.4 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2006.</u>
10.5.5	<u>Fifth Amendment to the Amended and Restated Revolving Credit Agreement, dated as of September 30, 2007, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors incorporated by reference to Exhibit 10.5.5 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2007.</u>
10.5.6	<u>Sixth Amendment to the Amended and Restated Revolving Credit Agreement, effective as of September 30, 2008, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.6 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2008.</u>
10.5.7	<u>Seventh Amendment to the Amended and Restated Revolving Credit Agreement, effective as of September 30, 2009, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.7 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2009.</u>
10.5.8	<u>Eighth Amendment to the Amended and Restated Revolving Credit Agreement, effective as of September 30, 2010, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.8 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2010.</u>
10.5.9	<u>Ninth Amendment to the Amended and Restated Revolving Credit Agreement, effective as of September 30, 2011, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.9 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011.</u>
10.5.10	<u>Tenth Amendment to the Amended and Restated Revolving Credit Agreement, effective as of December 6, 2012, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.10 of the Corporation's 2012 10-K.</u>
10.5.11	<u>Eleventh Amendment to the Amended and Restated Revolving Credit Agreement, effective as of December 16, 2013, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.11 of the Corporation's 2013 10-K.</u>
10.5.12	<u>Twelfth Amendment to the Amended and Restated Revolving Credit Agreement, effective as of December 17, 2014, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.12 of the Corporation's 2014 10-K.</u>
10.5.13	<u>Thirteenth Amendment to the Amended and Restated Revolving Credit Agreement, effective as of December 16, 2015, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.13 of the Corporation's 2015 10-K.</u>
10.5.14	<u>Fourteenth Amendment to the Amended and Restated Revolving Credit Agreement, effective as of December 12, 2016, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.14 of the Corporation's 2016 10-K.</u>
10.5.15	<u>Fifteenth Amendment to the Amended and Restated Revolving Credit Agreement, effective as of December 30, 2017, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors, incorporated by reference to Exhibit 10.5.15 of the Corporation's 2017 10-K.</u>

<i>Exhibit No.</i>	<i>Description of Exhibit</i>
10.5.16*	Sixteenth Amendment to the Amended and Restated Revolving Credit Agreement effective as of December 30, 2018, among the Corporation, The Dow Chemical Company and certain Subsidiary Guarantors.
10.6	Amended and Restated Pledge and Security Agreement dated as of May 28, 2004, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.29 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2004.
10.7	Second Amended and Restated Revolving Loan Agreement, effective as of November 1, 2005, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.7 of the Corporation's 2005 Annual Report on Form 10-K.
10.7.1	First Amendment to Second Amended and Restated Revolving Loan Agreement, effective as of December 31, 2007, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.7.1 of the Corporation's 2007 Annual Report on Form 10-K.
10.7.2	Second Amendment to Second Amended and Restated Revolving Loan Agreement, effective as of August 1, 2009, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.7.2 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2009.
10.7.3	Third Amendment to Second Amended and Restated Revolving Loan Agreement, effective as of February 1, 2010, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.7.3 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2010.
10.7.4	Fourth Amendment to Second Amended and Restated Revolving Loan Agreement, effective as of August 1, 2010, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.7.4 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2010.
10.7.5	Fifth Amendment to Second Amended and Restated Revolving Loan Agreement, effective as of August 1, 2011, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.7.5 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011.
10.7.6	Sixth Amendment to Second Amended and Restated Revolving Loan Agreement, effective as of April 1, 2012, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.7.6 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012.
10.7.7	Seventh Amendment to Second Amended and Restated Revolving Loan Agreement, effective as of August 1, 2013, between the Corporation and The Dow Chemical Company, incorporated by reference to Exhibit 10.7.7 of the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2013.
10.7.8*	Eighth Amendment to Second Amended and Restated Revolving Loan Agreement, effective as of April 26, 2017, between the Corporation and The Dow Chemical Company.
10.9	Contribution Agreement dated as of December 21, 2007, among the Corporation, Dow International Holdings Company and The Dow Chemical Company, incorporated by reference to Exhibit 10.9 of the Corporation's 2007 Annual Report on Form 10-K.
21	Omitted pursuant to General Instruction I of Form 10-K.
23*	Ankura Consulting Group, LLC's Consent.
31.1*	Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.

* Filed herewith

The Corporation will provide a copy of any exhibit upon receipt of a written request for the particular exhibit or exhibits desired. All requests should be addressed to the Corporation's principal executive offices.

ITEM 16. FORM 10-K SUMMARY

Not applicable.

Union Carbide Corporation and Subsidiaries
Trademark Listing

The following trademarks of Union Carbide Corporation or its subsidiaries appear in this report:

CARBOWAX, FLEXOMER, POLYOX, REDI-LINK, SENTRY, SI-LINK, TERGITOL, TRITON, TUFLIN, UCAR, UCARTHERM, UCON, UNIGARD, UNIPURGE, UNIVAL

The following trademark of The Dow Chemical Company appears in this report: METEOR

The following registered service mark of American Chemistry Council appears in this report: RESPONSIBLE CARE

Union Carbide Corporation and Subsidiaries
Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized, on the 11th day of February 2019.

UNION CARBIDE CORPORATION

/s/ RONALD C. EDMONDS

Ronald C. Edmonds
Controller and Vice President of Controllers and Tax
The Dow Chemical Company
Authorized Representative of Union Carbide Corporation

Pursuant to the requirements of the Securities Exchange Act of 1934, this Annual Report on Form 10-K has been signed below on the 11th day of February 2019 by the following persons on behalf of the Registrant and in the capacities indicated:

/s/ RICHARD A. WELLS

Richard A. Wells, Director, President and Chief Executive Officer

/s/ GLENN J. MORAN

Glenn J. Moran, Director

/s/ IGNACIO MOLINA

Ignacio Molina, Director, Vice President, Treasurer and
Chief Financial Officer

/s/ RONALD C. EDMONDS

Ronald C. Edmonds
Controller and Vice President of Controllers and Tax
The Dow Chemical Company
Authorized Representative of Union Carbide Corporation

Union Carbide Corporation and Subsidiaries

Supplemental Information to be Furnished With Reports Filed Pursuant to Section 15(d) of the Act by Registrants Which Have Not Registered Securities Pursuant to Section 12 of the Act

The Corporation is a wholly owned subsidiary of The Dow Chemical Company ("Dow"). Dow and E. I. du Pont de Nemours and Company ("DuPont") each merged with subsidiaries of DowDuPont, Inc. ("DowDuPont") on August 31, 2017, and, as a result, Dow and DuPont became subsidiaries of DowDuPont. The Corporation is a wholly owned subsidiary of Dow and, as such, does not send an annual report or proxy material with respect to any annual or other meeting of security holders to Dow, DowDuPont or any other security holders.

**SIXTEENTH AMENDMENT TO THE
AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT**

This Sixteenth Amendment to the Amended and Restated Revolving Credit Agreement (this “Amendment”) is made effective as of December 30, 2018, and is entered into among Union Carbide Corporation, as Borrower (“Borrower”), The Dow Chemical Company, as Lender (“Lender”) and Union Carbide Chemicals & Plastics Technology LLC as the Subsidiary Guarantor (the “Subsidiary Guarantor”) (together, the “Parties”).

BACKGROUND

The Parties have entered into the Amended and Restated Revolving Credit Agreement dated as of May 28, 2004, as amended by the First Amendment to the Amended and Restated Revolving Credit Agreement dated October 29, 2004, the Second Amendment to the Amended and Restated Revolving Credit Agreement dated December 30, 2004, the Third Amendment to the Amended and Restated Revolving Credit Agreement dated September 30, 2005, the Fourth Amendment to the Amended and Restated Revolving Credit Agreement dated September 30, 2006, the Fifth Amendment to the Amended and Restated Revolving Credit Agreement dated September 30, 2007, the Sixth Amendment to the Amended and Restated Revolving Credit Agreement dated September 30, 2008, the Seventh Amendment to the Amended and Restated Revolving Credit Agreement dated September 30, 2009, and the Eighth Amendment to the Amended and Restated Revolving Credit Agreement dated September 30, 2010, the Ninth Amendment to the Amended and Restated Revolving Credit Agreement dated September 30, 2011, the Tenth Amendment to the Amended and Restated Revolving Credit Agreement dated December 6, 2012, the Eleventh Amendment to the Amended and Restated Revolving Credit Agreement dated December 16, 2013, the Twelfth Amendment to the Amended and Restated Revolving Credit Agreement dated December 17, 2014, the Thirteenth Amendment to the Amended and Restated Revolving Credit Agreement dated December 18, 2015, the Fourteenth Amendment to the Amended and Restated Revolving Credit Agreement dated December 12, 2016, and the Fifteenth Amendment to the Amended and Restated Revolving Credit Agreement dated December 30, 2017 (the “Credit Agreement”). Union Carbide Subsidiary C is no longer a Subsidiary Guarantor under this Credit Agreement as it is no longer a wholly owned subsidiary of Borrower.

The Parties desire to amend the Credit Agreement according to the terms in this Amendment. Any capitalized terms used in this Amendment, but not otherwise defined in this Amendment, are as defined in the Credit Agreement.

THE AGREEMENT

1. Amendment to Section 1.1. The Parties agree to amend Section 1.1 of the Credit Agreement by replacing the definition of “Scheduled Termination Date” with the following definition:

“Scheduled Termination Date” means December 30, 2019.

2. No Other Amendment or Waiver. Except as expressly amended by this Amendment, the Credit Agreement and all other Loan Documents remain in full force and effect in accordance with their terms, and the Parties ratify and confirm the Credit Agreement and all other Loan Documents in all respects.

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3. Execution in Counterparts. This amendment may be executed in any number of counterparts and and by different parties in separate counterparts, each of which when so executed will be deemed to be an original and all of which taken together will constitute one and the same agreement. Signature pages may be detached from multiple separate counterparts and attached to a single counterpart so that all signature pages are attached to the same document.
 4. Governing Law. This Amendment and the rights and obligation of the Parties to this Amendment will be governed by, and construed and interpreted in accordance with, the law of the State of New York.
 5. Subsidiary Guarantor. The Guarantor to this Agreement will only be bound by its guarantee if it remains a wholly owned subsidiary of the Borrower.

The Parties agree that this Amendment is effective as of December 30, 2018, and they have caused their authorized representatives to execute this Amendment below.

LENDER:**THE DOW CHEMICAL COMPANY**

By: /s/ GARY MCGUIRE

Name: Gary McGuire

Title: Vice President and Treasurer

SUBSIDIARY GUARANTOR:**UNION CARBIDE CHEMICALS &
PLASTICS TECHNOLOGY LLC**

By: /s/ MARK A WHITEMAN

Name: Mark A. Whiteman

Title: President

BORROWER:**UNION CARBIDE CORPORATION**

By: /s/ IGNACIO MOLINA

Name: Ignacio Molina

Title: Chief Financial Officer, Vice President, and
Treasurer

Eighth Amendment to Second Amended and Restated Revolving Loan Agreement

This Eighth Amendment to the Second Amended and Restated Revolving Loan Agreement (the "Amendment"), effective as of April 26, 2017, is entered into by and between Union Carbide Corporation, a New York corporation (the "Lender") and The Dow Chemical Company, a Delaware corporation (the "Borrower").

WHEREAS, the Lender and the Borrower are parties to the Second Amended and Restated Revolving Loan Agreement dated as of November 1, 2005, amended by the First Amendment effective December 31, 2007, amended by the Second Amendment effective August 1, 2009, amended by the Third Amendment effective February 1, 2010, amended by the Fourth Amendment effective August 1, 2010, amended by the Fifth Amendment effective August 1, 2011, amended by the Sixth Amendment effective April 1, 2012, and amended by the Seventh Amendment effective August 1, 2013 (the "Loan Agreement");

WHEREAS, the Lender and the Borrower wish to extend the Maturity Date, as defined in the Loan Agreement and as contemplated herein:

NOW, THEREFORE, in view of the following terms and conditions and for other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Section 1.12 definition of "Maturity Date" in the Loan Agreement is deleted in its entirety and replaced with the following Section 1.12 definition of "Maturity Date":

"Maturity Date" means April 30, 2022.

2. No Other Amendment or Waiver. Except as expressly amended by this Amendment, the Loan Agreement remains in full force and effect in accordance with its terms.

3. Execution in Counterparts. This Amendment may be executed in any number of counterparts, each of which when so executed will be deemed to be an original and all of which taken together will constitute one and the same agreement. Signature pages may be detached from multiple separate counterparts and attached to a single counterpart so that all signature pages are attached to the same document.

4. Governing Law. This Amendment and the rights and obligations of the parties to this Amendment will be governed by and construed and interpreted in accordance with the laws of the State of New York.

5. Ratification. Lender and Borrower agree that this Amendment is effective as of April 26, 2017, and each party ratifies all action taken up to and in accordance with this Amendment.

IN WITNESS WHEREOF, the parties have caused this Amendment to be duly executed by their authorized representatives.

THE DOW CHEMICAL COMPANY

By: /s/ ANDREAS UNTERSTE

Name: Andreas Unterste

Title: Director of Financial Operations And Planning

UNION CARBIDE CORPORATION

By: /s/ IGNACIO MOLINA

Name: Ignacio Molina

Title: Chief Financial Officer, Vice President, and
Treasurer

Signature Page

Eighth Amendment to the Second Amended and Restated Revolving Loan Agreement

Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Richard A. Wells, certify that:

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

Date: February 11, 2019

/s/ RICHARD A. WELLS

Richard A. Wells
President and Chief Executive Officer

Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Ignacio Molina, certify that:

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

Date: February 11, 2019

/s/ IGNACIO MOLINA

Ignacio Molina
Vice President, Treasurer and Chief Financial Officer

