

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

Form 10-K

(Mark One)

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

For the fiscal year ended December 31, 2019

OR

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

For the transition period from _____ to _____

Commission file number: 001-33492

CVR Energy, Inc.

(Exact name of registrant as specified in its charter)



Delaware

(State or Other Jurisdiction of
Incorporation or Organization)

61-1512186

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

2277 Plaza Drive, Suite 500, Sugar Land, Texas 77479

(Address of principal executive offices) (Zip Code)

281-207-3200

(Registrant's Telephone Number, including Area Code)

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

<u>Title of Each Class</u>	<u>Ticker Symbol(s)</u>	<u>Name of Each Exchange on Which Registered</u>
Common Stock, \$0.01 par value per share	CVI	The New York Stock Exchange

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 such files). Yes ☒ No ☐

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

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

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

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

At June 28, 2019, the aggregate market value of the voting common stock held by non-affiliates of the registrant was approximately \$1,466 million based upon the closing price of its common stock on the New York Stock Exchange Composite tape. As of February 18, 2020, there were 100,530,599 shares of the registrant's common stock outstanding.

Documents Incorporated By Reference

Portions of the registrant's Proxy Statement to be filed pursuant to Regulation 14A pertaining to the 2020 Annual Meeting of Stockholders are incorporated by reference into Part III hereof. The Company intends to file such Proxy Statement no later than 120 days after the end of the fiscal year covered by this Form 10-K.

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CVR Energy
Annual Report on Form 10-K

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GLOSSARY OF SELECTED TERMS

The following are definitions of certain terms used in this Annual Report on Form 10-K for the year ended December 31, 2019 (this “Report”).

2-1-1 crack spread — The approximate gross margin resulting from processing two barrels of crude oil to produce one barrel of gasoline and one barrel of distillate. The 2-1-1 crack spread is expressed in dollars per barrel and is a proxy for the per barrel margin that a sweet crude oil refinery would earn assuming it produced and sold the benchmark production of gasoline and distillate.

Ammonia — Ammonia is a direct application fertilizer and is primarily used as a building block for other nitrogen products for industrial applications and finished fertilizer products.

Blendstocks — Various compounds that are combined with gasoline or diesel from the crude oil refining process to make finished gasoline and diesel fuel; these may include natural gas liquids, ethanol, or reformat, among others.

Bpd — Abbreviation for barrels per day.

Bulk sales — Volume sales through third-party pipelines, in contrast to tanker truck quantity rack sales.

Capacity — Capacity is defined as the throughput a process unit is capable of sustaining, either on a calendar or stream day basis. The throughput may be expressed in terms of maximum sustainable, nameplate or economic capacity. The maximum sustainable or nameplate capacities may not be the most economical. The economic capacity is the throughput that generally provides the greatest economic benefit based on considerations such as crude oil and other feedstock costs, product values, regulatory compliance costs and downstream unit constraints.

Catalyst — A substance that alters, accelerates, or instigates chemical changes, but is neither produced, consumed nor altered in the process.

Corn belt — The primary corn producing region of the United States, which includes Illinois, Indiana, Iowa, Minnesota, Missouri, Nebraska, Ohio and Wisconsin.

Crack spread — A simplified calculation that measures the difference between the price for light products and crude oil.

Distillates — Primarily diesel fuel, kerosene and jet fuel.

Ethanol — A clear, colorless, flammable oxygenated hydrocarbon. Ethanol is typically produced chemically from ethylene, or biologically from fermentation of various sugars from carbohydrates found in agricultural crops and cellulosic residues from crops or wood. It is used in the United States as a gasoline octane enhancer and oxygenate.

FCCU — Refers to the fluid catalytic cracking unit.

Feedstocks — Petroleum products, such as crude oil or FCCU gasoline, that are processed and blended into refined products, such as gasoline, diesel fuel, and jet fuel during the refining process.

GHG — Greenhouse gas.

Group 3 — A geographic subset of the PADD II region comprising refineries in the midcontinent portion of the United States, specifically Oklahoma, Kansas, Missouri, Nebraska, Iowa, Minnesota, North Dakota, and South Dakota.

Heavy crude oil — A relatively inexpensive crude oil characterized by high relative density and viscosity. Heavy crude oils require greater levels of processing to produce high value products such as gasoline and diesel fuel.

Light crude oil — A relatively expensive crude oil characterized by low relative density and viscosity. Light crude oils require lower levels of processing to produce high value products such as gasoline and diesel fuel.

Liquid volume yield — A calculation of the total liquid volumes produced divided by total throughput.

MMBtu — One million British thermal units, or Btu: a measure of energy. One Btu of heat is required to raise the temperature of one pound of water one degree Fahrenheit.

Natural gas liquids — Natural gas liquids, often referred to as NGLs, are blendstocks used in the manufacture of refined fuels, as well as products of the refining process. Common NGLs used include propane, isobutane, normal butane, and natural gasoline.

Petroleum coke (pet coke) — A coal-like substance that is produced during the refining process.

Product pricing at gate — Product pricing at gate represents net sales less freight revenue divided by product sales volume in tons. Product pricing at gate is also referred to as netback.

Rack sales — Sales which are made at terminals into third-party tanker trucks or railcars.

RBOB — Reformulated blendstocks for oxygenate blending.

Refined products — Petroleum products, such as gasoline, diesel fuel, and jet fuel, that are produced by a refinery.

Sour crude oil — A crude oil that is relatively high in sulfur content, requiring additional processing to remove the sulfur. Sour crude oil is typically less expensive than sweet crude oil.

Spot market — A market in which commodities are bought and sold for cash and delivered immediately.

Sweet crude oil — A crude oil that is relatively low in sulfur content, requiring less processing to remove the sulfur. Sweet crude oil is typically more expensive than sour crude oil.

Throughput — The quantity of crude oil and other feedstocks processed at a refinery measured in barrels per day.

Turnaround — A periodically required standard procedure to inspect, refurbish, repair, and maintain the refinery or nitrogen fertilizer plant assets. This process involves the shutdown and inspection of major processing units and occurs every four to five years for the refineries and every two to three years for the nitrogen fertilizer facilities. A turnaround will typically extend the operating life of a facility and return performance to desired operating levels.

UAN — An aqueous solution of urea and ammonium nitrate used as a fertilizer.

ULSD — Ultra low sulfur diesel.

Utilization — Measurement of the annual production of UAN and Ammonia expressed as a percentage of each facilities nameplate production capacity.

WCS — Western Canadian Select crude oil, a medium to heavy, sour crude oil, characterized by an American Petroleum Institute gravity (“API gravity”) of between 20 and 22 degrees and a sulfur content of approximately 3.3 weight percent.

WTI — West Texas Intermediate crude oil, a light, sweet crude oil, characterized by an API gravity between 39 and 41 degrees and a sulfur content of approximately 0.4 weight percent that is used as a benchmark for other crude oils.

WTS — West Texas Sour crude oil, a relatively light, sour crude oil characterized by an API gravity of between 30 and 32 degrees and a sulfur content of approximately 2.0 weight percent.

Yield — The percentage of refined products that is produced from crude oil and other feedstocks.

Important Information Regarding Forward Looking Statements

This Annual Report on Form 10-K (this “Report”) contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”), and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), including, but not limited to, those under Item 1. Business, Item 1A. Risk Factors, and Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations. These forward looking statements are subject to a number of risks and uncertainties, many of which are beyond our control. All statements other than statements of historical fact, including without limitation, statements regarding future operations, financial position, estimated revenues and losses, growth, capital projects, stock repurchases, impacts of legal proceedings, projected costs, prospects, plans, and objectives of management are forward-looking statements. The words “could,” “believe,” “anticipate,” “intend,” “estimate,” “expect,” “may,” “continue,” “predict,” “potential,” “project,” and similar terms and phrases are intended to identify forward-looking statements.

Although we believe our assumptions concerning future events are reasonable, a number of risks, uncertainties, and other factors could cause actual results and trends to differ materially from those projected or forward looking. Forward looking statements, as well as certain risks, contingencies or uncertainties that may impact our forward looking statements, include but are not limited to the following:

- volatile margins in the refining industry and exposure to the risks associated with volatile crude oil, refined product and feedstock prices;
- the availability of adequate cash and other sources of liquidity for the capital needs of our businesses;
- the ability to forecast our future financial condition, results of operations, revenues and expenses;
- the effects of transactions involving forward and derivative instruments;
- changes in laws, regulations and policies with respect to the export of crude oil, refined products or other hydrocarbons;
- interruption in pipelines supplying feedstocks or distributing the petroleum business’ products;
- competition in the petroleum and nitrogen fertilizer businesses including potential impacts of domestic and global supply and demand;
- capital expenditures;
- changes in our or our segments’ credit profiles;
- the cyclical and seasonal nature of the petroleum and nitrogen fertilizer businesses;
- the supply, availability and price levels of essential raw materials and feedstocks;
- our production levels, including the risk of a material decline in those levels;
- accidents or other unscheduled shutdowns or interruptions affecting our facilities, machinery, or equipment, or those of our suppliers or customers;
- existing and future laws, ruling and regulations, including but not limited to those relating to the environment, climate change and/or the transportation of production of hazardous chemicals like ammonia, including potential liabilities or capital requirements arising from such laws, rulings or regulations;
- potential operating hazards from accidents, fire, severe weather, tornadoes, floods, or other natural disasters;
- the impact of weather on the nitrogen fertilizer business including our ability to produce, market or sell fertilizer products profitability or at all;
- rulings, judgements or settlements in litigation, tax or other legal or regulatory matters;
- the dependence of the nitrogen fertilizer business on customers and distributors including to transport goods and equipment;
- the reliance on, or the ability to procure economically or at all, pet coke our nitrogen fertilizer business purchases from CVR Refining and third-party suppliers or the natural gas, electricity, oxygen, nitrogen, sulfur processing and compressed dry air and other products purchased from third parties by the nitrogen fertilizer and petroleum businesses;
- risks associated with third party operation of or control over important facilities necessary for operation of our refineries and nitrogen fertilizer facilities;
- risks of terrorism, cybersecurity attacks, and the security of chemical manufacturing facilities and other matters beyond our control;
- our lack of diversification of assets or operating and supply areas;
- the petroleum business’ and the nitrogen fertilizer business’ dependence on significant customers and the creditworthiness and performance by counterparties;
- the potential loss of the nitrogen fertilizer business’ transportation cost advantage over its competitors;
- the potential inability to successfully implement our business strategies, including the completion of significant capital programs or projects;

- our ability to continue to license the technology used for our operations;
- our petroleum business' ability to purchase RINs on a timely and cost effective basis;
- our businesses' ability to obtain, retain or renew environmental and other governmental permits, licenses or authorizations necessary for the operation of its business;
- existing and proposed laws, rulings, and regulations, including but not limited to those relating to climate change, alternative energy or fuel sources, and existing and future regulations related to the end-use of our products or the application of fertilizers;
- refinery and nitrogen fertilizer facilities' operating hazards and interruptions, including unscheduled maintenance or downtime and the availability of adequate insurance coverage;
- risks related to services provided by or competition among our subsidiaries, including conflicts of interests and control of CVR Partners' general partner;
- instability and volatility in the capital and credit markets;
- restrictions in our debt agreements;
- the variable nature of CVR Partners' distributions, including the ability of its general partner to modify or revoke its distribution policy, or to cease making cash distributions on its common units;
- changes in CVR Partners' treatment as a partnership for U.S. federal income or state tax purposes; and
- our ability to recover under our insurance policies for damages or losses in full or at all.

All forward looking statements contained in this Report only speak as of the date of this Report. We undertake no obligation to publicly update or revise any forward-looking statements to reflect events or circumstances that occur after the date of this Report, or to reflect the occurrence of unanticipated events, except to the extent required by law.

PART I

Part I should be read in conjunction with Management’s Discussion and Analysis in Item 7 and our consolidated financial statements and related notes thereto in Item 8.

Item 1. Business

Overview

CVR Energy, Inc. is a diversified holding company formed in September 2006 which is primarily engaged in the petroleum refining and nitrogen fertilizer manufacturing industries through its holdings in CVR Refining, LP (the “Petroleum Segment” or “CVR Refining”) and CVR Partners, LP (the “Nitrogen Fertilizer Segment” or “CVR Partners”). CVR Refining is an independent petroleum refiner and marketer of high value transportation fuels. CVR Partners produces and markets nitrogen fertilizers in the form of UAN and ammonia. As used in this Annual Report on Form 10-K, the terms “CVR Energy”, the “Company”, “we”, “us”, or “our” generally include CVR Refining, CVR Partners, the Company’s publicly traded limited partnership, and their respective subsidiaries, as consolidated subsidiaries of the Company with certain exceptions where there are transactions or obligations between and among CVR Refining, CVR Partners, and CVR Energy, including their subsidiaries. Refer to “Petroleum” and “Nitrogen Fertilizer” below for further details on our two business segments.

Our common stock is listed on the New York Stock Exchange (“NYSE”) under the symbol “CVI,” and CVR Partners’ common units are listed on the NYSE under the symbol “UAN.” As of December 31, 2019, Icahn Enterprises L.P. and its affiliates (“IEP”) owned approximately 71% of our outstanding common stock.

As of December 31, 2019, we owned the general partner and approximately 34% of the outstanding common units representing limited partner interests in CVR Partners, with the public owning the remaining outstanding common units of CVR Partners.

On January 17, 2019, the general partner of CVR Refining assigned to the Company its right to purchase all of the issued and outstanding CVR Refining common units not already owned by CVR Refining’s general partner or its affiliates. On January 29, 2019, the Company purchased all remaining CVR Refining common units not already owned by the Company or its affiliates (the “Public Unit Purchase”). In conjunction with the Public Unit Purchase, the Company purchased all CVR Refining common units owned by IEP and its subsidiary, American Entertainment Properties Corporation (“AEP”) (the “Affiliate Unit Purchase,” and together with the Public Unit Purchase, the “CVRR Unit Purchase”). As a result of the CVRR Unit Purchase, CVR Refining’s common units were delisted effective January 29, 2019, and its reporting obligations under Sections 13(a) and 15(d) of the Exchange Act were suspended as of February 8, 2019. Refer to Item 8, Note 1 (“Organization and Nature of Business”) for further discussion of the CVRR Unit Purchase.

Our History

The following graphic depicts the Company’s history and key events that have occurred since the Company’s formation.



Petroleum

Our Petroleum Segment is comprised of the assets and operations of CVR Refining, including two refineries located in Coffeyville, Kansas and Wynnewood, Oklahoma and supporting logistics assets in the region.

Facilities

Coffeyville Refinery - We own a complex full coking medium-sour crude oil refinery in southeast Kansas, approximately 100 miles from Cushing, Oklahoma (“Cushing”) with a name plate crude oil capacity of 132,000 bpd (the “Coffeyville Refinery”). The major operations of the Coffeyville Refinery include fractionation, catalytic cracking, hydrotreating, reforming, coking, isomerization, alkylation, sulfur recovery, and propane and butane recovery operating units. The Coffeyville Refinery benefits from significant refining unit redundancies, which include two crude oil distillation and vacuum towers, three sulfur recovery units, and four hydrotreating units. These redundancies allow the Coffeyville Refinery to continue to receive and process crude oil even if one tower requires maintenance without having to shut down the entire refinery. In addition, the Coffeyville Refinery has a redundant supply of hydrogen pursuant to its feedstock and shared services agreement with a subsidiary of CVR Partners.

Wynnewood Refinery - We own a complex crude oil refinery in Wynnewood, Oklahoma approximately 65 miles south of Oklahoma City, Oklahoma and approximately 130 miles from Cushing with a name plate crude oil capacity of 74,500 bpd capable of processing 20,000 bpd of light sour crude oil (the “Wynnewood Refinery” and together with the Coffeyville Refinery, the “Refineries”). The major operations of the Wynnewood Refinery include fractionation, hydrotreating, hydrocracking, reforming, solvent deasphalting, alkylation, sulfur recovery, and propane and butane recovery operating units. Similar to the Coffeyville Refinery, the Wynnewood Refinery benefits from unit redundancies, including two crude oil distillation and vacuum towers and four hydrotreating units.

Throughput by Refinery

(in bpd)	Year Ended December 31, 2019		
	Coffeyville	Wynnewood	Total
Total crude throughput	129,878	73,180	203,058
All other feedstock and blendstock	9,160	3,753	12,913
Total throughput	139,038	76,933	215,971

(in bpd)	Year Ended December 31, 2018		
	Coffeyville	Wynnewood	Total
Total crude throughput	124,489	74,669	199,158
All other feedstock and blendstock	8,369	5,068	13,437
Total throughput	132,858	79,737	212,595

Production by Refinery

(in bpd)	Year Ended December 31, 2019		
	Coffeyville	Wynnewood	Total
Gasoline	71,817	38,864	110,681
Diesel fuels	57,549	32,380	89,929
Other refined products	10,383	3,253	13,636
Total production	139,749	74,497	214,246

(in bpd)

	Year Ended December 31, 2018		
	Coffeyville	Wynnewood	Total
Gasoline	67,091	40,291	107,382
Diesel fuels	56,307	33,442	89,749
Other refined products	10,927	4,066	14,993
Total production	134,325	77,799	212,124

Supply



The Coffeyville Refinery has the capability to process blends of a variety of crude oil ranging from heavy sour to light sweet crude oil. Currently, the Coffeyville Refinery crude oil slate consists of a blend of mid-continent domestic grades and various Canadian medium and heavy sour and other similarly sourced crudes. Other blendstocks include normal butane, natural gasoline, alkylation feeds, naphtha, gas oil, and vacuum tower bottoms. The Wynnewood Refinery has the capability to process blends of a variety of crude oil ranging from medium sour to light sweet crude oil. Isobutane, gasoline components, and normal butane blendstocks are also typically used.

In addition to the use of third-party pipelines, we have an extensive gathering system consisting of logistics assets that are owned, leased, or part of a joint venture operation. These assets include the following:

Pipeline Segment	As of December 31, 2019	
	Length (miles)	Capacity (bpd)
Joint Ventures:		
Midway Pipeline LLC (“Midway JV”) (1)(4)	100	120,000
Enable South Central Pipeline (“Enable JV”) (1)	26	115,000
Owned Pipelines:		
Valley to Hooser 6” (2)	46	9,600
Valley to Hooser 8”	20	9,600
Hooser to Broome 8”	43	22,800
Broome to East Tank Farm 12” (3)	19	52,000
Broome to East Tank Farm 16” (3)	18	120,000
East Tank Farm to Refinery 16” (3)	2	160,000
Shidler to Hooser 4”	23	6,500
Plainville to Phillipsburg 6”	36	6,000
Plainville to Natoma 6”	10	6,500
Cushing to Payson 10” (Red River)	30	40,000
Payson to Enable tie 8” (Red River)	73	40,000
Leased Pipelines:		
Humboldt to Broome 8”	62	7,000
Kelley to Barnsdall 8”	31	3,600
Barnsdall to Caney 8”	36	3,600

- (1) CVR Refining owns a 50% interest in the Midway JV and a 40% interest in the Enable JV. CVR Refining has the ability to exercise influence through its participation on the board of directors of each of the Midway JV and the Enable JV and does not serve as the day-to-day operator. We have determined that these entities should not be consolidated and apply the equity method of accounting. Refer to Item 8, Note 3 (“Equity Method Investments”) for further discussion of these investments.
- (2) This pipeline is in the process of being taken out of service.
- (3) In support of our Coffeyville Refinery, we own and operate a tank storage facility in close proximity to the Coffeyville Refinery (the “East Tank Farm”).
- (4) The Midway JV pipeline will have an estimated 150,000 bpd capacity resulting from expanded pumping capacity which is planned to be completed during the Coffeyville Refinery turnaround in the spring of 2020.

For the acquisition of crude oil within close proximity of the Refineries, we operate a fleet of approximately 140 trucks and have contracts with third-party trucking fleets to acquire and deliver crude oil to our pipeline system or directly to the Refineries for consumption or resale. For the year ended December 31, 2019, the gathering system, which includes the pipelines outlined above and our trucking operations, supplied approximately 53% and 85% of the Coffeyville and Wynnewood Refineries’ crude oil demand, respectively. Regionally-sourced crude oils delivered to the Refineries usually have a transportation cost advantage compared to other domestic or international crudes given the Refineries’ proximity to the producing areas. However, sometimes slightly heavier and more sour crudes may offer good economics to the Refineries, including the higher cost of transportation. The regionally-sourced crude oils we purchase are light and sweet enough to allow the Refineries to blend higher percentages of lower cost crude oils, such as heavy Canadian sour, to optimize economics within operational constraints.

Crude oils sourced outside of our gathering system are delivered to Cushing by various third-party pipelines, including the Keystone and Spearhead pipelines on which we can be subject to proration, and subsequently to the Broome Station facility via the Midway JV pipeline. Our current contracted capacity includes the Pony Express and White Cliffs pipelines, respectively. From the Broome Station facility, crude oil is delivered to the Coffeyville Refinery via the Petroleum Segment’s 170,000 bpd proprietary pipeline system. Crude oils are delivered to the Wynnewood Refinery through third-party and joint venture

pipelines and received into storage tanks at terminals located on or near the refinery. We also lease tank storage totaling 2.1 million barrels, including 1.9 million barrels at Cushing.

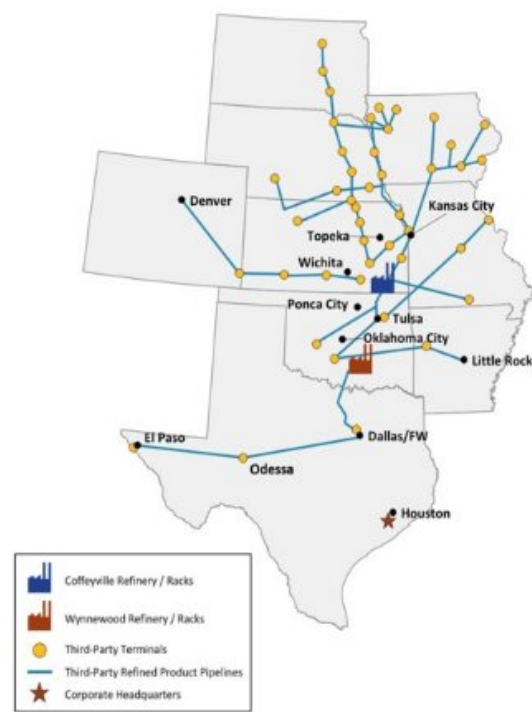
The Coffeyville Refinery is connected to the mid-continent natural gas liquid commercial hub at Conway, Kansas by the inbound Enterprise Pipeline Blue Line. Natural gas liquid blendstocks such as butanes and natural gasoline are sourced and delivered directly into the refinery. In addition, Coffeyville Refinery's proximity to Conway provides access to the natural gas liquid and liquid petroleum gas fractionation and storage capabilities.

Through the crude oil and other feedstock supply operations outlined above, and the associated markets available to it, we are able to source and refine crude oils from different locations and of different compositions when it is economically advantageous to do so. The tables below present the total crude throughput by refinery for the years ended December 31, 2019 and 2018:

(in bpd)	Year Ended December 31, 2019					
	Coffeyville		Wynnewood		Total	
Regional Crude	49,093	38 %	53,848	74 %	102,941	51 %
WTI	67,382	52 %	3	— %	67,385	33 %
WTL	473	— %	668	1 %	1,141	1 %
Midland WTI	3,888	3 %	10,995	15 %	14,883	7 %
Condensate	4,331	3 %	7,666	10 %	11,997	6 %
Heavy Canadian	4,711	4 %	—	— %	4,711	2 %
Total crude throughput	129,878	100 %	73,180	100 %	203,058	100 %

(in bpd)	Year Ended December 31, 2018					
	Coffeyville		Wynnewood		Total	
Regional Crude	31,350	25 %	54,746	73 %	86,096	43 %
WTI	66,952	54 %	2,354	3 %	69,306	35 %
Midland WTI	15,893	13 %	10,332	14 %	26,225	13 %
Condensate	4,992	4 %	7,237	10 %	12,229	6 %
Heavy Canadian	5,302	4 %	—	— %	5,302	3 %
Total crude throughput	124,489	100 %	74,669	100 %	199,158	100 %

Marketing and Distribution



Our Coffeyville product marketing efforts are focused in the central mid-continent area through rack marketing, which is the supply of product through tanker trucks and railcars directly to customers located in close geographic proximity to the refinery and to customers at terminals on third-party refined products distribution systems; and bulk sales into the mid-continent markets and other destinations utilizing third-party product pipeline networks.

The Wynnewood Refinery ships its finished product via pipeline, railcar, and truck, focusing its efforts in Oklahoma and parts of Arkansas, as well as eastern Missouri. The pipeline system is capable of multi-directional flow, providing access to Texas markets as well as adjoining states with pipeline connections. The Wynnewood Refinery also sells jet fuel to the U.S. Department of Defense via its segregated truck rack.

Customers

Customers for the Refineries’ petroleum products primarily include retailers, railroads, and farm cooperatives and other refiners/marketers in Group 3 of the PADD II region because of their relative proximity to the Refineries and pipeline access. We typically sell bulk products to long-standing customers at spot market prices based on a Group 3 basis differential to prices quoted on the New York Mercantile Exchange (“NYMEX”), which are reported by industry market-related indices such as Platts and Oil Price Information Service (“OPIS”).

Rack sales are at posted prices that are influenced by the competitive forces in the Group 3 market. In addition, the Coffeyville Refinery sells hydrogen and by-products of its refining operations, such as pet coke, to an affiliate, CVR Partners, pursuant to multi-year agreements. For the year ended December 31, 2019, the top two customers accounted for 25% of the Petroleum Segment’s net sales.

Competition

Our Petroleum Segment competes primarily on the basis of price, reliability of supply, availability of multiple grades of products, and location. The principal competitive factors affecting its refining operations are cost of crude oil and other

feedstocks, refinery complexity, refinery efficiency, refinery product mix, and product distribution and transportation costs. The location of the Refineries provides us with a reliable supply of crude oil and a transportation cost advantage over our competitors. We primarily compete against five refineries in the mid-continent region. In addition to these refineries, we compete against trading companies, as well as other refineries located outside the region that are linked to the mid-continent market through an extensive product pipeline system. These competitors include refineries located near the Gulf Coast, the Great Lakes, and the Texas panhandle region.

Seasonality

Our Petroleum Segment operations experience seasonal fluctuations as demand for gasoline products is generally higher during the summer months than during the winter months due to seasonal increases in highway traffic and road construction work. Demand for diesel fuel is higher during the planting and harvesting seasons. As a result, its results of operations for the first and fourth calendar quarters are generally lower compared to its results for the second and third calendar quarters. In addition, unseasonably cool weather in the summer months and/or unseasonably warm weather in the winter months in the markets in which we sell petroleum products can impact the demand for gasoline and diesel fuel.

Nitrogen Fertilizer

Our Nitrogen Fertilizer Segment is comprised of the assets and operations of CVR Partners, including two nitrogen fertilizer manufacturing facilities located in Coffeyville, Kansas and East Dubuque, Illinois.

Facilities

Coffeyville Fertilizer Facility - We own and operate a nitrogen fertilizer production facility in Coffeyville, Kansas that includes a gasifier complex having a capacity of 89 million standard cubic feet per day of hydrogen, a 1,300 ton per day capacity ammonia unit, and a 3,000 ton per day capacity UAN unit (the “Coffeyville Fertilizer Facility”). The Coffeyville Fertilizer Facility is the only nitrogen fertilizer plant in North America that utilizes a pet coke gasification process to produce nitrogen fertilizer. The Coffeyville Fertilizer Facility’s largest raw material expense used in the production of ammonia is pet coke, which it purchases from our Coffeyville Refinery and third parties. For the years ended December 31, 2019, 2018, and 2017, the Coffeyville Fertilizer Facility purchased approximately \$20 million, \$13 million, and \$8 million, respectively, of pet coke, which equaled an average cost per ton of \$37.47, \$28.41, and \$16.56, respectively. For the years ended December 31, 2019, 2018, and 2017, we upgraded approximately 90%, 93%, and 88%, respectively, of our ammonia production into UAN, a product that presently generates greater profit than ammonia. We upgrade substantially all of our ammonia production at the Coffeyville Facility into UAN and expect to continue to do so when the economics are favorable.

East Dubuque Fertilizer Facility - We own and operate a nitrogen fertilizer production facility in East Dubuque, Illinois that includes a 1,075 ton per day capacity ammonia unit and a 1,100 ton per day capacity UAN unit (the “East Dubuque Fertilizer Facility”). The East Dubuque Fertilizer Facility has the flexibility to vary its product mix enabling it to upgrade a portion of ammonia production into varying amounts of UAN, nitric acid, and liquid and granulated urea, depending on market demand, pricing, and storage availability. The East Dubuque Fertilizer Facility’s largest raw material expense used in the production of ammonia is natural gas, which it purchases from third parties. For the years ended December 31, 2019, 2018, and 2017, the East Dubuque Facility incurred approximately \$21 million, \$23 million, and \$26 million for feedstock natural gas, respectively, which equaled an average cost of \$3.08, \$3.15, and \$3.26 per MMBtu, respectively.

Commodities

The nitrogen products we produce are globally traded commodities and are subject to price competition. The customers for its products make their purchasing decisions principally on the basis of delivered price and, to a lesser extent, on customer service and product quality. The selling prices of its products fluctuate in response to global market conditions and changes in supply and demand.

Agriculture

The three primary forms of nitrogen fertilizer used in the United States of America are ammonia, urea, and UAN. Unlike ammonia and urea, UAN can be applied throughout the growing season and can be applied in tandem with pesticides and herbicides, providing farmers with flexibility and cost savings. As a result of these factors, UAN typically commands a premium price to urea and ammonia, on a nitrogen equivalent basis.

Nutrients are depleted in soil over time and, therefore, must be replenished through fertilizer use. Nitrogen is the most quickly depleted nutrient and must be replenished every year, whereas phosphate and potassium can be retained in soil for up to three years. Plants require nitrogen in the largest amounts and it accounts for approximately 59% of primary fertilizer consumption on a nutrient ton basis, per the International Fertilizer Industry Association (“IFIA”).

Demand

Global demand for fertilizers is driven primarily by grain demand and prices, which, in turn, are driven by population growth, farmland per capita, dietary changes in the developing world and increased consumption of bio-fuels. According to the IFIA, from 1975 to 2017, global fertilizer demand grew 2% annually. Global fertilizer use, consisting of nitrogen, phosphate and potassium, is projected to increase by 34% between 2010 and 2030 to meet global food demand according to a study funded by the Food and Agricultural Organization of the United Nations. Currently, the developed world uses fertilizer more intensively than the developing world, but sustained economic growth in emerging markets is increasing food demand and fertilizer use. In addition, populations in developing countries are shifting to more protein-rich diets as their incomes increase, with such consumption requiring more grain for animal feed. As an example, China’s wheat and coarse grains production is estimated to have increased 36% between 2009 and 2019, but still failed to keep pace with increases in demand, prompting China to grow its wheat and coarse grain imports by more than 552% over the same period, according to the United States Department of Agriculture (“USDA”).

The United States is the world’s largest exporter of coarse grains, accounting for 25% of world exports and 27% of world production for the fiscal year ended September 30, 2019, according to the USDA. A substantial amount of nitrogen is consumed in production of these crops to increase yield. Based on Fertecon Limited’s (“Fertecon”) 2019 estimates, the United States is the world’s third largest consumer of nitrogen fertilizer and the world’s largest importer of nitrogen fertilizer. Fertecon is a reputable agency which provides market information and analysis on fertilizers and fertilizer raw materials for fertilizer and related industries, and international agencies. Fertecon estimates indicate that the United States represented 11% of total global nitrogen fertilizer consumption for 2019, with China and India as the top consumers representing 23% and 15% of total global nitrogen fertilizer consumption, respectively.

North American nitrogen fertilizer producers predominantly use natural gas as their primary feedstock. Over the last five years, U.S. oil and natural gas reserves have increased significantly due to, among other factors, advances in extracting shale oil and gas, as well as relatively high oil and gas prices. More recently, global demand has slowed with production staying steady even as oil and gas prices have declined substantially over the past two years. This has led to significantly reduced natural gas and oil prices as compared to historical prices. As a result, North America has become a low-cost region for nitrogen fertilizer production.

Raw Material Supply

Coffeyville Fertilizer Facility - During the past five years, just under 61% of the Coffeyville Fertilizer Facility’s pet coke requirements on average were supplied by our adjacent Coffeyville Refinery pursuant to a multi-year agreement. Historically, the Coffeyville Fertilizer Facility has obtained the remainder of its pet coke requirements through third-party contracts typically priced at a discount to the spot market. In 2019, our supply of pet coke from the Coffeyville refinery declined to approximately 40%, generally attributable to increased processing of shale crude oil, which reduced the amount of pet coke produced by the refinery and increased the amount of third-party purchases made at spot prices. Additionally, the Coffeyville Fertilizer Facility relies on a third-party air separation plant at its location that provides contract volumes of oxygen, nitrogen, and compressed dry air to the Coffeyville Fertilizer Facility gasifiers.

East Dubuque Fertilizer Facility - The East Dubuque Fertilizer Facility uses natural gas to produce nitrogen fertilizer. We are generally able to purchase natural gas at competitive prices due to the facilities’ connection to the Northern Natural Gas interstate pipeline system, which is within one mile of the facility, and a third-party owned and operated pipeline. The pipelines

are connected to a third-party distribution system at the Chicago Citygate receipt point and at the Hampshire interconnect from which natural gas is transported to the East Dubuque Fertilizer Facility. As of December 31, 2019, we had commitments to purchase approximately 1 million MMBtus of natural gas supply for planned use in our East Dubuque Fertilizer Facility in both January and February of 2020 at a weighted average rate per MMBtu of approximately \$2.67 and \$2.66, respectively, exclusive of transportation cost.

Marketing and Distribution

Our Nitrogen Fertilizer Segment primarily markets UAN products to agricultural customers and ammonia products to agricultural and industrial customers. UAN and ammonia, including freight, accounted for approximately 70% and 24%, respectively, of our Nitrogen Fertilizer Segment's net sales for the year ended December 31, 2019.

UAN and ammonia are primarily distributed by truck or by railcar. If delivered by truck, products are most commonly sold on a free-on-board ("FOB") shipping point basis, and freight is normally arranged by the customer. We operate a fleet of railcars for use in product delivery. If delivered by railcar, the products are most commonly sold on a FOB destination point basis, and we typically arrange the freight.

The nitrogen fertilizer products leave the Coffeyville Fertilizer Facility either in railcars for destinations located principally on the Union Pacific or Burlington Northern Santa Fe railroads or in trucks for direct shipment to customers. The East Dubuque Fertilizer Facility primarily sells product to customers located within 200 miles of the facility. In most instances, customers take delivery of nitrogen products at the East Dubuque Fertilizer Facility and arrange to transport them to their final destinations by truck. Additionally, the East Dubuque Fertilizer Facility has direct access to a barge dock on the Mississippi River, as well as a nearby rail spur serviced by the Canadian National Railway Company.

Customers

We sell UAN products to retailers and distributors. In addition, we sell ammonia to agricultural and industrial customers. Given the nature of the nitrogen fertilizer business, and consistent with industry practice, most of our contracts with customers are for a term of 12-month or less. Some of our industrial sales include long-term purchase contracts. For the year ended December 31, 2019, the top two customers in the aggregate represented 28% of the Nitrogen Fertilizer Segment's net sales.

Competition

Our Nitrogen Fertilizer Segment has experienced and expects to continue to meet significant levels of competition from current and potential competitors, many of whom have significantly greater financial and other resources. Competition in the nitrogen fertilizer industry is dominated by price considerations. However, during the spring and fall application seasons, farming activities intensify and delivery capacity is a significant competitive factor. We seasonally adjust inventory to enhance manufacturing and distribution operations.

Our major competitors in the nitrogen fertilizer business include CF Industries Holdings, Inc., including its majority owned subsidiary Terra Nitrogen Company, L.P.; LSB Industries, Inc.; Koch Fertilizer Company, LLC; and Nutrien Ltd. (formerly known as Agrium, Inc. and Potash Corporation of Saskatchewan, Inc.). Domestic competition is intense due to customers' sophisticated buying tendencies and competitor strategies that focus on cost and service. We also encounter competition from producers of fertilizer products manufactured in foreign countries, including the threat of increased production capacity. In certain cases, foreign producers of fertilizer who export to the United States may be subsidized by their respective governments.

Seasonality

Because the Nitrogen Fertilizer Segment primarily sells agricultural commodity products, its business is exposed to seasonal fluctuations in demand for nitrogen fertilizer products in the agricultural industry. In addition, the demand for fertilizers is affected by the aggregate crop planting decisions and fertilizer application rate decisions of individual farmers who make planting decisions based largely on the prospective profitability of a harvest. The specific varieties and amounts of fertilizer they apply depend on factors like crop prices, farmers' current liquidity, soil conditions, weather patterns, and the types of crops planted. The Nitrogen Fertilizer Segment typically experiences higher net sales in the first half of the calendar year, which is referred to as the planting season, and its net sales tend to be lower during the second half of each calendar year, which is referred to as the fall season.

Environmental Matters

Our petroleum and nitrogen fertilizer businesses are subject to extensive and frequently changing federal, state, and local, environmental, health and safety laws and regulations governing the emission and release of hazardous substances into the environment, the transportation, storage, and disposal of waste, the treatment and discharge of waste water, the storage, handling, use and transportation of petroleum and nitrogen products, and the characteristics and composition of gasoline, diesel fuels, UAN and ammonia. These laws and regulations and the enforcement thereof impact our segments and their operations by imposing:

- restrictions on operations or the need to install enhanced or additional controls;
- liability for the investigation and remediation of contaminated soil and groundwater at current and former facilities (if any) and for off-site waste disposal locations; and
- specifications for the products marketed by the Petroleum and Nitrogen Fertilizer Segments, primarily gasoline, diesel fuel, UAN, and ammonia.

Our operations require numerous permits, licenses, and authorizations. Failure to comply with these permits or environmental laws and regulations could result in fines, penalties, or other sanctions or a revocation of our permits. In addition, the laws and regulations to which we are subject are often evolving and many of them have or could become more stringent or have or could become subject to more stringent interpretation or enforcement by federal or state agencies. These laws and regulations could result in increased capital, operating, and compliance costs.

The Federal Clean Air Act (“CAA”)

The CAA and its implementing regulations, as well as corresponding state laws and regulations governing air emissions, affect the Petroleum and Nitrogen Fertilizer Segments both directly and indirectly. Direct impacts may occur through the CAA’s permitting requirements and/or emission control requirements relating to specific air pollutants, as well as the requirement to maintain a risk management program to help prevent accidental releases of certain regulated substances. The CAA affects the Petroleum and Nitrogen Fertilizer Segments by extensively regulating the air emissions of sulfur dioxide (“SO₂”), volatile organic compounds, nitrogen oxides, and other substances, including those emitted by mobile sources, which are direct or indirect users of our products. Some or all of the regulations promulgated pursuant to the CAA, or any future promulgations of regulations, may require the installation of controls or changes to the petroleum facilities and/or the nitrogen fertilizer facilities (collectively referred to as the “Facilities”) to maintain compliance. If new controls or changes to operations are needed, the costs could be material.

The regulation of air emissions under the CAA requires that we obtain various construction and operating permits and incur capital expenditures for the installation of certain air pollution control devices at our operations. Various standards and programs specific to our operations have been implemented, such as the National Emission Standard for Hazardous Air Pollutants, the New Source Performance Standards, and the New Source Review.

The Federal Clean Water Act (“CWA”)

The CWA and its implementing regulations, as well as the corresponding state laws and regulations that govern the discharge of pollutants into the water, affect the Petroleum and Nitrogen Fertilizer Segments. The CWA’s permitting requirements establish discharge limitations that may be based on technology standards, water quality standards, and restrictions on the total maximum daily load of pollutants allowed to enter a particular water body based on its use. In addition, water resources are becoming and in the future may become more scarce, and many refiners, including us, are subject to use restrictions in the event of low availability conditions. Our Refineries and the Coffeyville Fertilizer Facility have contracts in place to receive water during certain water shortage conditions, but these conditions could change over time depending on the scarcity of water.

Renewable Fuel Standards

Pursuant to the Energy Policy Act of 2005 and Energy Independence and Security Act of 2007 (“EISA”), the EPA has promulgated the Renewable Fuel Standard (“RFS”). The RFS requires refiners to either blend “renewable fuels,” such as ethanol and biofuels, into their transportation fuels or purchase renewable fuel credits, known as renewable identification numbers (“RINs”), in lieu of blending. Under the RFS, the volume of renewable fuels that refineries like Coffeyville and

Wynnewood are obligated to blend into their finished transportation fuel is adjusted annually by the EPA based on fuel supply and other conditions to meet the statutory mandates that increase annually, but which may be waived by the EPA under certain conditions. The volume of renewable fuels required by EISA increased from 9 billion gallons in 2008 to 22 billion gallons in 2016 and increases to 36 billion gallons in 2022. The EPA has statutory authority to determine RFS volumes after 2022. In addition to the total renewable fuel volume mandate, there are sub-mandates for advanced biofuels, cellulosic biofuel, and biomass-based diesel. Under the cellulosic waiver authority provided to the EPA by the CAA, if the EPA's projected volume of cellulosic biofuel for a calendar year is less than its statutory mandate, the EPA must reduce the required volume of cellulosic biofuel accordingly and provide obligated parties the opportunity to purchase cellulosic waiver credits. The EPA also has the discretion to reduce the total renewable fuel and advanced biofuel requirements by the same amount as it reduced the cellulosic biofuel volume. The Petroleum Segment (like many refiners) is not able to meet its annual renewable volume obligation ("RVO") through blending, so it has had to purchase RINs on the open market as well as obtain cellulosic waiver credits from the EPA, in order to comply with the RFS. The cost of purchasing RINs and cellulosic waiver credits fluctuates and can be significant. The price of RINs has been extremely volatile as the EPA's proposed renewable fuel volume mandates approached and exceeded the "blend wall." The blend wall refers to the point at which the amount of ethanol blended into the transportation fuel supply exceeds the demand for transportation fuel containing such levels of ethanol. The blend wall is generally considered to be reached when more than 10% ethanol by volume ("E10 gasoline") is blended into transportation fuel.

In May 2019, the EPA finalized regulatory changes to allow gasoline blended with up to 15 percent ethanol ("E15") to take advantage of a waiver during the summer months that previously only applied to E10. Because E15 can now be sold year-round rather than just eight months of the year, a higher percentage of transportation fuels can be blended with renewable fuels. The E15 rule, however, is the subject of legal challenges in the District of Columbia Circuit ("D.C. Circuit"), which could lead to the rule being overturned. Also, in December 2019, the EPA published the final renewable fuel volumes for 2020, and the biomass-based diesel volume for 2021 (the "2020 RFS Final Rule"). As in past years, the volumes increased from the previous year, but with the exception of the volume for biomass-based diesel, are lower than the CAA statutory volume targets. The EPA set a lower volume for cellulosic biofuel based on the projected volume available for 2020 and used its cellulosic waiver authority under the CAA to set volumes below the statutory targets for advanced biofuel and total renewable fuel. In the rule, the EPA also finalized changes to the percentage standard calculations to account for volumes of gasoline and diesel that the EPA projects will be exempted from the renewable volume obligations moving forward.

Additional RFS-related rulemakings may occur in 2020. One relates to a lawsuit in the U.S. Court of Appeals for the D.C. Circuit in which several biofuels groups challenged the EPA's final renewable fuels volumes for 2014 through 2016. In July 2017, the D.C. Circuit vacated the EPA's decision to reduce the 2016 volumes under its "inadequate domestic supply" waiver authority and remanded the rule to the EPA for further reconsideration. In its proposed rule for the 2020 renewable fuel volumes, the EPA responded to the remand by proposing that the 2016 volume requirement for total renewable fuel should not be changed. In its final rule, however, the EPA noted that it was still actively considering this issue and did not expect to take final agency action until early 2020. When the EPA re-proposes the 2016 renewable volume obligations, there could be an increase in the volume mandates for 2016 and, as a result, the Coffeyville Refinery and the Wynnewood Refinery could be required to purchase more RINs for 2016 compliance.

Another rulemaking that was previously anticipated but has since been withdrawn involves the CAA "reset" provision. Under the reset provision, if the EPA waives the statutory volumes for any of the four fuel categories by at least 20% for two consecutive years or by at least 50% for a single year, then the EPA must modify the statutory volumes for all subsequent years for that fuel category. The reset has been triggered in previous years for both advanced biofuel and cellulosic biofuel and, most recently, the rules setting the 2019 renewable fuel volume requirements triggered the reset provision for total renewable fuel. In October 2018, the EPA reported that it would begin rulemaking in 2019 to reset the volumes for cellulosic biofuel, advanced biofuel, and total renewable fuel for compliance years 2020-2022. In May 2019, the EPA delivered its proposed "reset" rule to the Office of Management and Budget ("OMB"), which is the final step before the EPA can release a proposed rule for public review. Then, in December 2019, the agency withdrew its draft proposal. The EPA has not indicated how it will address the reset requirement moving forward, but if the EPA does pursue a reset rulemaking, it may modify the volumes, in either case impacting the Coffeyville Refinery's and the Wynnewood Refinery's obligations under the RFS.

Greenhouse Gas Emissions ("GHG")

The EPA regulates GHG emissions under the Clean Air Act. In October 2009, the EPA finalized a rule requiring certain large emitters of GHGs to inventory and report their GHG emissions to the EPA. In accordance with the rule, our Facilities monitor and report our GHG emissions to the EPA. In May 2010, the EPA finalized the "Greenhouse Gas Tailoring Rule," which established GHG emissions thresholds that determine when stationary sources, such as the Refineries and the nitrogen

fertilizer facilities, must obtain permits under Prevention of Significant Deterioration (“PSD”) and Title V programs of the federal Clean Air Act. Under the rule, facilities already subject to the PSD and Title V programs that increase their emissions of GHGs by a significant amount are required to undergo PSD review and to evaluate and implement air pollution control technology, known as “best available control technology,” to reduce GHG emissions.

In December 2010, the EPA reached a settlement agreement with numerous parties under which it agreed to promulgate New Source Performance Standards (“NSPS”) to regulate GHG emissions from petroleum refineries and electric utilities by November 2012. In September 2014, the EPA indicated that the petroleum refining sector risk rule, proposed in June 2014 to address air toxics and volatile organic compounds from refineries, may make it unnecessary for the EPA to regulate GHG emissions from petroleum refineries at this time. The final rule, which was published in the Federal Register on December 1, 2015, addresses air toxics and volatile organic compounds and places additional emission control requirements and work practice standards on FCCUs, storage tanks, flares, coking units, and other equipment at petroleum refineries. Therefore, we do not currently expect the EPA to issue regulations on GHG emissions from petroleum refineries at this time, but that it may do so in the future.

In October 2015, the EPA published the Clean Power Plan, which established NSPS for carbon dioxide emissions from electric utilities. However, since the change in administration in 2017, the EPA has shifted its regulatory approach of GHG emissions. In December 2018, the EPA proposed amendments to the Clean Power Plan that, among other things, would replace the determination of the best system of emission reduction (“BSER”) with a less costly and burdensome BSER determination for new coal-fired units. In June 2019, the EPA issued the final Affordable Clean Energy (“ACE”) Rule to replace the 2015 Clean Power Plan, which represented the Obama administration’s signature policy to regulate GHGs. The ACE rule establishes new emission guidelines for states to address GHGs from existing coal-fired power plants and update the BSER for those facilities. The ACE rule is being challenged in the courts by multiple states and a coalition of environmental organizations.

The EPA’s approach to regulating GHG emissions may change again under future administrations. Therefore, the impact on our Facilities due to future GHG regulation is unknown.

Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”) and the Emergency Planning and Community Right-to-Know Act (“EPCRA”)

The release of hazardous substances or extremely hazardous substances into the environment is subject to release reporting requirements under federal and state environmental laws. Our Facilities also periodically experience releases of hazardous and extremely hazardous substances from their equipment and periodically have excess emission events. From time to time, the EPA has conducted inspections and issued information requests to us with respect to our compliance with reporting requirements under the CERCLA and the EPCRA. If we fail to timely or properly report a release, or if a release violates the law or our permits, we could become the subject of a governmental enforcement action or third-party claims. Government enforcement or third-party claims relating to releases of hazardous or extremely hazardous substances could result in significant expenditures and liability.

Resource Conservation and Recovery Act (“RCRA”)

Our facilities are subject to the RCRA requirements for the generation, transportation, treatment, storage, and disposal of solid and hazardous wastes. When feasible, RCRA-regulated materials are recycled instead of being disposed of on-site or off-site. RCRA establishes standards for the management of solid and hazardous wastes. Besides governing current waste disposal practices, RCRA also addresses the environmental effects of certain past waste disposal practices, the recycling of wastes, and the regulation of underground storage tanks containing regulated substances.

Impacts of Past Manufacturing - In March 2004, two of our subsidiaries entered into a Consent Decree (“2004 Consent Decree”) with the EPA and the Kansas Department of Health and Environment (the “KDHE”) which required us to assume two RCRA corrective action orders issued to Farmland, the prior owner of the Coffeyville Refinery. We are subject to a 1994 EPA administrative order related to investigation of possible past releases of hazardous materials to the environment at the Coffeyville Refinery. In accordance with the order, we have conducted the required investigation and interim remediation projects and documented existing soil and groundwater conditions. In June 2017, the Coffeyville Refinery submitted an amended RCRA post-closure permit application to the KDHE to complete closure of former hazardous waste management units at the Coffeyville Refinery and to perform corrective action at the site. The KDHE approved the permit application report in July 2019, and we anticipate that the RCRA permit will be issued in 2020. The now-closed Phillipsburg terminal is subject to a

1996 EPA administrative order related to investigation of releases of hazardous materials to the environment at the Phillipsburg terminal, which operated as a refinery until 1991. The Phillipsburg terminal investigation is complete and corrective measures are in place implementing the EPA's Statement of Basis and Final Remedy Decision issued in July 2018. The Wynnewood Refinery operates under a RCRA permit. A RCRA facility investigation has been completed in accordance with the terms of the permit. Based on the facility investigation and other available information, Wynnewood Refining Company, LLC ("WRC") entered into a consent order with the Oklahoma Department of Environmental Quality ("ODEQ") requiring further investigations of groundwater conditions and enhancements of existing remediation systems. We have completed the groundwater investigation at the Wynnewood Refinery and the ODEQ has approved our ongoing corrective actions. The consent order was terminated by the ODEQ in July 2019.

Financial Assurance - We are required, under the 2004 Consent Decree, to establish financial assurance to secure the current projected clean-up costs of \$6 million for the Coffeyville Refinery and \$5 million for the now-closed Phillipsburg terminal in the event we fail to fulfill our clean-up obligations. In accordance with the 2004 Consent Decree, as modified by a 2010 agreement between Coffeyville Resources Refining and Marketing, LLC ("CRRM"), Coffeyville Resources Terminal, LLC ("CRT"), the EPA, and the KDHE, this financial assurance is currently provided by a bond in the amount of \$2 million for clean-up obligations at the Phillipsburg terminal and a letter of credit in the amount of \$0.3 million for estimated costs to close regulated hazardous waste management units at the Coffeyville Refinery. Additional self-funded financial assurance of approximately \$6 million and \$3 million is required to meet our RCRA financial assistance obligations for the Coffeyville Refinery and Phillipsburg terminal, respectively. The \$2 million bond amount is reduced each year based on actual expenditures for corrective actions and the letter of credit and the self-funded mechanisms are re-evaluated and adjusted on an annual basis. Current RCRA financial assurance requirements for the Wynnewood Refinery total \$0.2 million for hazardous waste storage tank closure and post-closure monitoring of a closed storm water retention pond.

Waste Management - There are two closed hazardous waste units at the Coffeyville Refinery and fourteen other solid waste management units in the process of being closed pending state agency approval. There is one closed hazardous waste unit and one active hazardous waste storage tank at the Wynnewood Refinery. In addition, one closed, interim status, hazardous waste landfarm located at the now-closed Phillipsburg terminal is under long-term post-closure care.

Environmental Remediation

As is the case with all companies engaged in similar industries, we face potential exposure from future claims and lawsuits involving environmental matters, including soil and water contamination and personal injury or property damage allegedly caused by crude oil or hazardous substances that we manufactured, handled, used, stored, transported, spilled, disposed of, or released. There is no assurance that we will not become involved in future proceedings related to the release of hazardous or extremely hazardous substances or crude oil for which we have potential liability or that, if we were held responsible for damages in any existing or future proceedings, such costs would be covered by insurance or would not be material.

Environmental Insurance

We are covered by a site pollution legal liability insurance policy. The policy includes business interruption coverage. The policy insures any location owned, leased or rented or operated by the Company, including the Refineries and the nitrogen fertilizer facilities. The policy insures certain pollution conditions at or migrating from a covered location, certain waste transportation and disposal activities, and business interruption.

In addition to the site pollution legal liability insurance policy, we maintain umbrella and excess casualty insurance policies which include sudden and accidental pollution coverage. This insurance provides coverage due to named perils for claims involving pollutants where the discharge is sudden and accidental and first commences at a specific day and time during the policy period.

The site pollution legal liability policy and the pollution coverage provided in the casualty insurance policies are subject to retentions and deductibles and contain discovery requirements, reporting requirements, exclusions, definitions, conditions, and limitations that could apply to a particular pollution claim, and there can be no assurance such claim will be adequately insured for all potential damages.

Health, Safety and Security Matters

We are subject to a number of federal and state laws and regulations related to safety, including the Occupational Safety and Health Act (“OSHA”) and comparable state statutes, the purpose of which are to protect the health and safety of workers. We also are subject to Process Safety Management regulations, which are designed to prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals.

We operate a comprehensive safety, health, and security program, with participation by employees, consultants, and advisors at all levels of the organization. We have developed comprehensive safety programs aimed at preventing OSHA recordable incidents. Despite our efforts to achieve excellence in our safety and health performance, there can be no assurances that there will not be accidents resulting in injuries or even fatalities. We routinely audit our programs and seek to continually improve our management systems.

Refer to Part II, Item 8, Note 11 (“Commitments and Contingencies”), “Wynnewood Refinery Incident” of this Report for further discussion of OSHA.

Employees

As of December 31, 2019, the Company had approximately 1,486 employees including those employed by CVR Refining, CVR Partners, and the Company and its other subsidiaries’ corporate support functions. Our Petroleum Segment had approximately 971 employees at December 31, 2019 across both of its refineries and its logistics operations, including approximately 511 employees covered by collective bargaining agreements that expire on various dates ranging from June 2021 to March 2023. Our Nitrogen Fertilizer Segment had approximately 286 employees at December 31, 2019 across both of its facilities and its marketing and logistics operations, including approximately 90 employees covered by collective bargaining agreements that expire in October 2023.

Available Information

Our website address is www.cvrenergy.com. Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports, filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), are available free of charge through our website under “Investor Relations,” as soon as reasonably practicable after the electronic filing or furnishing of these reports is made with the Securities and Exchange Commission (the “SEC”) at www.sec.gov. In addition, our Corporate Governance Guidelines, Codes of Ethics and Business Conduct, and Charters of the Audit Committee, the Nominating and Corporate Governance Committee, and the Compensation Committee of the Board of Directors are available on our website. These guidelines, policies, and charters are also available in print without charge to any stockholder requesting them. We do not intend for information contained in our website to be part of this Report.

Item 1A. Risk Factors

The following risks should be considered together with the other information contained in this Report and all of the information set forth in our filings with the SEC. If any of the following risks or uncertainties develops into actual events, our petroleum and/or nitrogen fertilizer businesses, financial conditions, or results of operations could be materially adversely affected. References to CVR Energy, the Company, “we”, “us”, and “our” may refer to consolidated subsidiaries of CVR Energy, including CVR Refining or CVR Partners, as the context may require.

Risks Related to Our Entire Business

Our petroleum and nitrogen fertilizer businesses are, and commodity prices are, cyclical and highly volatile, which could have a material adverse effect on our results of operations, financial condition and cash flows.

Our Petroleum Segment’s financial results are primarily affected by margin between refined product prices and the prices for crude oil and other feedstocks. Historically, refining margins have been volatile, and we believe they will continue to be volatile in the future. Our cost to acquire feedstocks and the price at which we can ultimately sell refined products depend upon several factors beyond our control, including regional and global supply of and demand for crude oil, gasoline, diesel, and other feedstocks and refined products. These in turn depend on, among other things, the availability and quantity of imports, the production levels of U.S. and international suppliers, levels of refined petroleum product inventories, productivity and growth (or the lack thereof) of U.S. and global economies, U.S. relationships with foreign governments, political affairs, and the extent of governmental regulation.

Some of these factors can vary by region and may change quickly, adding to market volatility, while others may have longer-term effects on refining and marketing margins, which are uncertain. We do not produce crude oil and must purchase all of the crude oil we refine long before we refine it and sell the refined products. Price level changes during the period between purchasing feedstocks and selling the refined petroleum products from these feedstocks could have a significant effect on our financial results. A decline in market prices may negatively impact the carrying value of our inventories.

Our Petroleum Segment profitability is also impacted by the ability to purchase crude oil at a discount to benchmark crude oils, such as WTI. Crude oil differentials can fluctuate significantly based upon overall economic and crude oil market conditions. Adverse changes in crude oil differentials can adversely impact refining margins, earnings and cash flows. In addition, the Petroleum Segment’s purchases of crude oil, although based on WTI prices, have historically been at a discount to WTI because of the proximity of the refineries to the sources, existing logistics infrastructure, and quality differences. Any changes to these factors could result in a reduction of the discount to WTI and may result in a reduction of the Petroleum Segment’s cost advantage.

Our Nitrogen Fertilizer Segment is exposed to fluctuations in nitrogen fertilizer demand in the agricultural industry. These fluctuations historically have had and could in the future have significant effects on prices across all nitrogen fertilizer products and, in turn, our results of operations, financial condition and cash flows.

Nitrogen fertilizer products are commodities, the price of which can be highly volatile. The prices of nitrogen fertilizer products depend on a number of factors, including general economic conditions, cyclical trends in end-user markets, supply and demand imbalances, governmental policies, and weather conditions, which have a greater relevance because of the seasonal nature of fertilizer application. If seasonal demand exceeds the projections on which we base our production levels, customers may acquire nitrogen fertilizer products from competitors, and our profitability may be negatively impacted. If seasonal demand is less than expected, we may be left with excess inventory that will have to be stored or liquidated.

Demand for nitrogen fertilizer products is dependent on demand for crop nutrients by the global agricultural industry. The international market for nitrogen fertilizers is influenced by such factors as the relative value of the U.S. dollar and its impact upon the cost of importing nitrogen fertilizers, foreign agricultural policies, the existence of, or changes in, import or foreign currency exchange barriers in certain foreign markets, changes in the hard currency demands of certain countries, and other regulatory policies of foreign governments, as well as the laws and policies of the United States affecting foreign trade and investment. Nitrogen-based fertilizers remain solidly in demand, driven by a growing world population, changes in dietary habits, and an expanded use of corn for the production of ethanol. Supply is affected by available capacity and operating rates, raw material costs, government policies, and global trade. A decrease in nitrogen fertilizer prices would have a material adverse effect on our nitrogen fertilizer business and cash flow, including CVR Partners’ ability to make distributions.

Additionally, volatile prices for natural gas and electricity affect both segments' manufacturing and operating costs. Natural gas and electricity prices have been, and will continue to be, affected by supply and demand for fuel and utility services in both local and regional markets.

Petroleum and nitrogen fertilizer products are global commodities, and our businesses face intense competition from other refining and marketing companies and nitrogen fertilizer producers, which may have more resources and scale.

The refining industry is highly competitive with respect to both crude oil and other feedstock supply and refined petroleum product markets. We compete with many companies for available supplies of crude oil and other feedstocks and for sites for our refined petroleum products. Our Petroleum Segment may be unable to compete effectively with competitors within and outside of the industry, which could result in reduced profitability. We do not have a retail business and therefore are dependent upon others for outlets for our refined products, and we do not have arrangements exceeding a twelve-month period for much of our petroleum output. Many of our competitors, however, obtain a significant portion of their feedstocks from company-owned production and some have extensive retail sites. Such competitors are at times able to offset losses from refining operations with profits from producing or retailing operations and may be better positioned to withstand periods of depressed refining margins or feedstock shortages. Some of our competitors also have materially greater financial and other resources than we have. Such competitors have a greater ability to bear the economic risks inherent in all phases of our industry.

In addition, our Petroleum Segment competes with other industries that provide alternative means to satisfy the energy and fuel requirements of its industrial, commercial, and individual customers. There are presently significant governmental incentives and consumer pressures to increase the use of alternative fuels in the United States. The more successful these alternatives become as a result of governmental incentives or regulations, technological advances, consumer demand, improved pricing, or otherwise, the greater the negative impact on pricing and demand for our products and profitability.

Our Nitrogen Fertilizer Segment is subject to intense price competition from both U.S. and foreign sources. Fertilizers are global commodities, with little or no product differentiation, and customers make their purchasing decisions principally on the basis of delivered price and availability of the product. Increased global supply or decreases in transportation costs for foreign sources of fertilizer may put downward pressure on fertilizer prices. Furthermore, in recent years, the price of nitrogen fertilizer in the United States has been substantially driven by pricing in the global fertilizer market. We compete with a number of U.S. producers and producers in other countries, including state-owned and government-subsidized entities. Some competitors have greater total resources and are less dependent on earnings from fertilizer sales, which make them less vulnerable to industry downturns and better positioned to pursue new expansion and development opportunities. Additionally, our competitors utilizing different corporate structures may be better able to withstand lower cash flows than our Nitrogen Fertilizer Segment can as a limited partnership. Our competitive position could suffer to the extent we are unable to expand resources either through investments in new or existing operations or through acquisitions, joint ventures, or partnerships. An inability to compete successfully could result in a loss of customers, which could adversely affect our sales, profitability, and cash flows and, therefore, have a material adverse effect on our results of operations, financial condition and cash flows.

Our businesses are geographically concentrated and are, therefore, subject to regional economic downturns and seasonal variations, which may affect our production levels, transportation costs, and inventory and working capital levels.

Our Refineries are both located in the southern portion of Group 3 of the PADD II region, and we primarily market refined products in a relatively limited geographic area. As a result, our Petroleum Segment is more susceptible to regional economic conditions than the operations of more geographically diversified competitors, and any unforeseen events or circumstances that affect its operating area could also materially adversely affect its revenues and cash flows. These factors include, among other things, changes in the economy, weather conditions, demographics and population, increased supply of refined products from competitors, and reductions in the supply of crude oil. In addition, if we deliver refined products to customers outside of the region, we may incur considerably higher transportation costs, resulting in lower refining margins, if any.

Our Nitrogen Fertilizer Segment's sales to agricultural customers are concentrated in the Great Plains and Midwest states, and nitrogen fertilizer demand is seasonal. Our quarterly results may vary significantly from one year to the next due largely to weather-related shifts in planting schedules and purchase patterns. Farmers tend to apply nitrogen fertilizer during two short application periods, one in the spring and the other in the fall. In contrast, we, along with other nitrogen fertilizer producers, generally produce products throughout the year. As a result, we and our customers generally build inventories during the low demand periods of the year to ensure timely product availability during peak sales seasons. Variations in the proportion of product sold through prepaid sales contracts and the terms of such contracts can increase the seasonal volatility of our cash

flows and cause changes in the patterns of seasonal volatility from year-to-year. Additionally, the accumulation of inventory to be available for seasonal sales creates significant seasonal working capital and storage capacity requirements. The degree of seasonality can change significantly from year-to-year due to conditions in the agricultural industry and other factors. As a consequence of this seasonality, distributions by our Nitrogen Fertilizer Segment of available cash, if any, may be volatile and may vary quarterly and annually.

Both the Petroleum and Nitrogen Fertilizer Segments depend on significant customers, and the loss of several significant customers may have a material adverse impact on our results of operations, financial condition and cash flows.

The Petroleum and Nitrogen Fertilizer Segments both have a significant concentration of customers. The two largest customers of our Petroleum Segment represented 25% of its net sales for the year ended December 31, 2019. The two largest customers of the Nitrogen Fertilizer Segment represented approximately 28% of its net sales for the same period. Given the nature of our businesses, and consistent with industry practice, we do not have long-term minimum purchase contracts with our customers. The loss of several of these significant customers, or a significant reduction in purchase volume by several of them, could have a material adverse effect on our results of operations, financial condition and cash flows.

Compliance with and changes in environmental laws and regulations, including those related to climate change, could require us to make substantial capital expenditures and adversely affect our performance.

Our operations are subject to extensive federal, state, and local environmental laws and regulations relating to the protection of the environment, including those governing the emission or discharge of pollutants into the environment, product use and specifications, and the generation, treatment, storage, transportation, disposal, and remediation of solid and hazardous wastes.

Violations of applicable environmental laws and regulations or of the conditions of permits issued thereunder can result in substantial penalties, injunctive orders compelling installation of additional controls or other injunctive relief, civil and criminal sanctions, operating restrictions, permit revocations, and/or facility shutdowns, which may have a material adverse effect on our ability to operate our facilities and accordingly our financial performance. Capital expenditures and operating costs for current and future environmental compliance may be substantial and could have a material adverse effect on our segments' results of operations, financial condition and profitability.

In addition, new environmental laws and regulations, new interpretations of existing laws and regulations, increased governmental enforcement of laws and regulations, or other developments could require us to make additional unforeseen expenditures. These laws and regulations are generally expected to impose increasingly stringent, and costly requirements over time. Various legislative and regulatory measures to address climate change and GHG emissions (including carbon dioxide, methane, and nitrous oxides) are in various phases of discussion or implementation and could affect our operations. They include proposed and enacted federal regulation and state actions to develop statewide, regional, or nationwide programs designed to control and reduce GHG emissions from fixed sources, such as our refineries and fertilizer facilities, and transportation fuels. Many states and regions have implemented, or are in the process of implementing, measures to reduce emissions of GHGs, but other than Kansas, we do not currently operate in states that have their own GHG reduction programs.

Although it is not possible to predict the requirements of any GHG legislation that may be enacted, any laws or regulations that have been or may be adopted to restrict or reduce GHG emissions will likely require us to incur increased operating and capital costs and/or increased taxes on GHG emissions. If we are unable to maintain sales of our products at a price that reflects such increased costs, there could be a material adverse effect on our business, financial condition and results of operations.

In addition, climate change legislation and regulations may result in increased costs not only for us but also users of our fertilizer products, thereby potentially decreasing demand for our products. Further, changes in environmental laws and regulations or their interpretation relating to the end-use and application of fertilizers could cause changes in demand for our products or limit our ability market and sell products to end users. From time to time, various state legislatures have proposed bans or other limitations on fertilizer products. Decreased demand for our products may have a material adverse effect on our results of operations, financial condition and cash flows.

Our facilities face significant risks due to physical damage hazards, environmental liability risk exposure, and unplanned or emergency partial or total plant shutdowns resulting in business interruptions. We could incur potentially significant costs to the extent there are unforeseen events which cause property damage and a material decline in production which are

not fully insured. The commercial insurance industry engaged in underwriting energy industry risk is specialized and there is finite capacity; therefore, the industry may limit or curtail coverage, may modify the coverage provided, or may substantially increase premiums in the future.

If any of our facilities, logistics assets, or key suppliers sustains a catastrophic loss and operations are shutdown or significantly impaired, it would have a material adverse impact on our operations, financial condition and cash flows. In addition, the risk exposures we have at the Coffeyville, Kansas plant complex are greater due to production facilities, as well as distribution and storage, for petroleum and nitrogen fertilizer being in relatively close proximity and potentially exposed to damage from one incident. Operations at either or both of the facilities could be curtailed, limited, or completely shut down for an extended period of time as the result of one or more unforeseen events and circumstances, which may not be within our control, including:

- major unplanned maintenance requirements;
- catastrophic events caused by mechanical breakdown, electrical injury, pressure vessel rupture, explosion, contamination, fire, or natural disasters, including floods, windstorms, and other similar events;
- labor supply shortages or labor difficulties that result in a work stoppage or slowdown;
- cessation or suspension of a plant or specific operations dictated by environmental authorities;
- acts of terrorism or other deliberate malicious acts; and
- an event or incident involving a large clean-up, decontamination, or the imposition of laws and ordinances regulating the cost and schedule of demolition or reconstruction, which can cause significant delays in restoring property to its pre-loss condition.

We have sustained losses over the past ten-year period at our facilities, which are illustrative of the types of risks and hazards that exist. These losses or events resulted in costs assumed by us that were not fully insured due to policy retentions or applicable exclusions. We are insured under casualty, environmental, property, and business interruption insurance policies. The property and business interruption policies insure real and personal property, including property located at our facilities. There is potential for a common occurrence to impact both our Coffeyville Refinery and Coffeyville Fertilizer Facility, in which case the insurance limits and applicable sub-limits would apply to all damages combined. These policies are subject to limits, sub-limits, retention (financial and time-based), and deductibles. The application of these and other policy conditions could materially impact insurance recoveries and potentially cause us to assume losses which could impair earnings.

There is finite capacity in the commercial insurance industry engaged in underwriting energy industry risk, and there are risks associated with the commercial insurance industry reducing capacity, changing the scope of insurance coverage offered, and substantially increasing premiums, deductibles, or retainers, and/or waiting periods, resulting from highly adverse loss experience or other financial circumstances. Factors that impact insurance cost and availability include, but are not limited to: losses in our industries, natural disasters, specific losses incurred by us, and low or inadequate investment returns earned by the insurance industry. If the supply of commercial insurance is curtailed due to highly adverse financial results, we may not be able to continue our present limits of insurance coverage or obtain sufficient insurance capacity to adequately insure our risks for property damage or business interruption.

We could incur significant costs in cleaning up contamination at our refineries, terminals, fertilizer facilities, and off-site locations.

Our businesses handle petroleum and hazardous substances, and as a result, spills, discharges, or other releases of petroleum or hazardous substances into the environment may occur. Past or future spills related to any of our current or former operations, including refineries, pipelines, product terminals, and fertilizer facilities, or transportation of products or hazardous substances from those facilities, may give rise to liability (including strict liability, or liability without fault, and potential cleanup responsibility) to governmental entities or private parties under federal, state, or local environmental laws, as well as under common law. For example, we could be held strictly liable under CERCLA and similar state statutes for past or future spills without regard to fault or whether our actions were in compliance with the law at the time of the spills. Pursuant to CERCLA and similar state statutes, we could be held liable for contamination associated with facilities we currently own or operate (whether such contamination occurred prior to or during our ownership), facilities we formerly owned or operated, and facilities to which we transported or arranged for the transportation of wastes or byproducts containing hazardous substances for treatment, storage, or disposal. If significant unknown contamination is identified at or migrating from any of our facilities,

the associated liability could have a material adverse effect on our results of operations, financial condition and cash flows and may not be covered by insurance.

The potential penalties and cleanup costs for past or future releases or spills, liability to third parties for damage to their property or exposure to hazardous substances, or the need to address newly discovered information or conditions that may require response actions could be significant and could have a material adverse effect on our results of operations, financial condition and cash flows. In addition, we may incur liability for alleged personal injury or property damage due to exposure to chemicals or other hazardous substances located at or released from our facilities. We may also face liability for personal injury, property damage, natural resource damage, or for cleanup costs for the alleged migration of contamination or other hazardous substances from our facilities to adjacent and other nearby properties.

Remedial activities to address known environmental contamination are underway at three of our facilities, including the Coffeyville Refinery, the now-closed Phillipsburg terminal (which operated as a refinery until 1991), and the Wynnewood Refinery. We also have assumed the previous owner's responsibilities under certain administrative orders under RCRA related to contamination at or that originated from the Coffeyville Refinery and the Phillipsburg terminal. We continue to work with the applicable governmental authorities to implement remediation of these three sites on a timely basis. As of December 31, 2019, we have established an accrual of approximately \$6 million for probable and reasonably estimable obligations associated with these sites.

We may incur future liability relating to the off-site disposal of solid and hazardous waste from our facilities. Companies that dispose of, or arrange for the treatment, transportation, or disposal of, hazardous substances at off-site locations may be held jointly and severally liable for the costs of investigation and remediation of contamination at those off-site locations, regardless of fault. We could become involved in litigation or other proceedings involving off-site waste disposal and the damages or costs associated with any such proceedings could be material.

New regulations concerning the transportation, storage, and handling of hazardous chemicals, risks of terrorism, and the security of refineries and chemical manufacturing facilities could result in higher operating costs.

The costs of complying with future regulations relating to the transportation, storage, and handling of hazardous chemicals and security associated with the refining and nitrogen fertilizer facilities may have a material adverse effect on our results of operations, financial condition and cash flows. Targets such as refining and chemical manufacturing facilities may be at greater risk of future terrorist attacks than other targets in the United States. As a result, the petroleum and chemical industries are subject to regulatory initiatives relating to the security of petroleum and chemical industry facilities and the transportation of hazardous chemicals in the United States. Future terrorist attacks could lead to even stronger, more costly initiatives that could result in a material adverse effect on our results of operations, financial condition and cash flows.

We may be unable to obtain or renew permits or approvals necessary for our operations, which could inhibit our ability to do business.

Our businesses hold numerous environmental and other governmental permits and approvals authorizing operations at our facilities. Future expansion of our operations is predicated upon securing the necessary environmental and other permits or approvals. A decision by a government agency to deny or delay issuing a new or renewed material permit or approval, or to revoke or substantially modify an existing permit or approval, could have a material adverse effect on our ability to continue operations and on our financial condition, results of operations and cash flows.

We are subject to strict laws and regulations regarding employee and process safety, and failure to comply with these laws and regulations could have a material adverse effect on our results of operations, financial condition and profitability.

We are subject to the requirements of OSHA and comparable state statutes that regulate the protection of the health and safety of workers, the proper design, operation, and maintenance of our equipment, and require us to provide information about hazardous materials used in our operations. Failure to comply with these requirements may result in significant fines or compliance costs, which could have a material adverse effect on our results of operations, financial condition and cash flows.

A significant portion of our workforce is unionized, and we are subject to the risk of labor disputes and adverse employee relations, which may disrupt our business and increase our costs.

As of December 31, 2019, approximately 53% and 31% of our petroleum and nitrogen fertilizer employees, respectively, were represented by labor unions under collective bargaining agreements. We may not be able to renegotiate our collective bargaining agreements when they expire on satisfactory terms or at all. A failure to do so may increase our costs. In addition, our existing labor agreements may not prevent a strike or work stoppage at any of our facilities in the future, and any work stoppage could negatively affect our results of operations, financial condition and cash flows.

We are subject to cybersecurity risks and other cyber incidents resulting in disruption.

We depend on internal and third-party information technology systems to manage and support our operations. In addition, we collect, process, and retain sensitive and confidential customer information in the normal course of business. Despite the security measures we have in place and any additional measures we may implement in the future, our facilities and these systems could be vulnerable to security breaches, computer viruses, lost or misplaced data, programming errors, human errors, acts of vandalism, or other events. Any disruption of these systems or security breach or event resulting in the misappropriation, loss, or other unauthorized disclosure of confidential information, whether by us directly or our third-party service providers, could damage our reputation, expose us to the risks of litigation and liability, disrupt our business, or otherwise affect our results of operations. In addition, new laws and regulations governing data privacy and the unauthorized disclosure of confidential information pose increasingly complex compliance challenges and potentially elevate our costs. Any failure to comply with these laws and regulations, including as a result of a security or privacy breach, could result in significant penalties and liabilities for us.

The acquisition and expansion strategy of our businesses involves significant risks.

From time to time, we may consider pursuing acquisitions and expansion projects to continue to grow and increase profitability. However, we may not be able to consummate such acquisitions or expansions, due to intense competition for suitable acquisition targets, the potential unavailability of financial resources necessary to consummate acquisitions and expansions, difficulties in identifying suitable acquisition targets and expansion projects or in completing any transactions identified on sufficiently favorable terms, and the failure to obtain requisite regulatory or other governmental approvals. In addition, any future acquisitions and expansions may entail significant transaction costs and risks associated with entry into new markets and lines of business, including but not limited to new regulatory obligations and risks.

Even when acquisitions are completed, integration of acquired entities can involve significant difficulties, such as:

- Unforeseen difficulties in the integration of the acquired operations and disruption of the ongoing operations of our business;
- Failure to achieve cost savings or other financial or operating objectives contributing to the accretive nature of an acquisition;
- Strain on the operational and managerial controls and procedures and the need to modify systems or to add management resources;
- Difficulties in the integration and retention of customers or personnel and the integration and effective deployment of operations or technologies;
- Assumption of unknown material liabilities or regulatory non-compliance issues;
- Amortization of acquired assets, which would reduce future reported earnings;
- Possible adverse short-term effects on our cash flows or operating results; and
- Diversion of management's attention from the ongoing operations of our business.

In addition, in connection with any potential acquisition or expansion project specific to CVR Partners (our Nitrogen Fertilizer Segment), we will need to consider whether a business we intend to acquire or expansion project we intend to pursue could affect CVR Partners' tax treatment as a partnership for federal income tax purposes. If CVR Partners is otherwise unable to conclude that the activities of the business being acquired or the expansion project would not affect its treatment as a partnership for federal income tax purposes, it may elect to seek a ruling from the Internal Revenue Service ("IRS"). Seeking such a ruling could be costly or, in the case of competitive acquisitions, place the business in a competitive disadvantage compared to other potential acquirers who do not seek such a ruling. If CVR Partners is otherwise unable to conclude that an activity would not affect its treatment as a partnership for federal income tax purposes and is unable or unwilling to obtain an IRS ruling, we may choose to acquire such business or develop such expansion project in a corporate subsidiary of CVR Partners, which would subject the income related to such activity to entity-level taxation, which would reduce the amount of

cash available for distribution to CVR Partners' common unitholders and could likely cause a substantial reduction in the value of its common units.

Failure to manage these acquisition and expansion growth risks could have a material adverse effect on our results of operations, financial condition and cash flows. Our joint ventures involve similar risks. There can be no assurance that we will be able to consummate any acquisitions or expansions, successfully integrate acquired entities, or generate positive cash flow at any acquired company or expansion project.

Risks Related to the Petroleum Segment

If our Petroleum Segment is required to obtain its crude oil supply without the benefit of a crude oil supply agreement, its exposure to the risks associated with volatile crude oil prices may increase and its liquidity may be reduced.

Our Petroleum Segment obtains substantially all of its crude oil supply for the Coffeyville Refinery, other than the crude oil it gathers, through the Vitol Agreement. The Vitol Agreement also includes the provision of crude oil intermediation services to the Wynnewood Refinery. The agreement, which currently extends through December 31, 2020, minimizes the amount of in-transit inventory and mitigates crude oil pricing risk by ensuring pricing takes place close to the time the crude oil is refined and the yielded products are sold. If we were required to obtain our crude oil supply without the benefit of a supply intermediation agreement, our Petroleum Segment's exposure to crude oil pricing risk may increase, despite any hedging activity in which it may engage, and its liquidity could be negatively impacted due to increased inventory, potential need to post letters of credit, and negative impacts of market volatility. There is no assurance that we will be able to renew or extend the Vitol Agreement beyond December 31, 2020.

Disruption of the Petroleum Segment's ability to obtain an adequate supply of crude oil could reduce its liquidity and increase its costs.

In addition to the crude oil purchased under the Vitol Agreement, our Petroleum Segment gathered and purchased primarily in Kansas, Oklahoma, and Texas. The Wynnewood Refinery has historically acquired most of its crude oil from our gathering operations in Oklahoma and Texas, with smaller amounts purchased from other regions. In 2019, the Coffeyville Refinery obtained approximately 4% of its non-gathered crude oil from Canada. The actual amount of Canadian crude oil we purchase is dependent on market conditions and will vary from year-to-year. Disruption of production for any reason could have a material impact on the Petroleum Segment. In the event that one or more of its traditional suppliers becomes unavailable, we may be unable to obtain an adequate supply of crude oil, or we may only be able to obtain crude oil at unfavorable prices. As a result, we may experience a reduction in liquidity and our results of operations could be materially adversely affected.

If our access to the pipelines on which the Petroleum Segment relies for the supply of its crude oil and the distribution of its products is interrupted, its inventory and costs may increase and it may be unable to efficiently distribute its products.

If one of the pipelines on which either of the Refineries relies for supply of crude oil becomes inoperative, the Petroleum Segment would be required to obtain crude oil through alternative pipelines or from additional tanker trucks, which could increase its costs and result in lower production levels and profitability. Similarly, if a major refined fuels pipeline becomes inoperative, we would be required to keep refined fuels in inventory or supply refined fuels to its customers through an alternative pipeline or by additional tanker trucks, which could increase the Petroleum Segment's costs and result in a decline in profitability.

Compliance with the U.S. Environmental Protection Agency Renewable Fuel Standard could adversely affect our performance.

The U.S. Environmental Protection Agency ("EPA") has promulgated and implemented a Renewable Fuel Standard ("RFS") pursuant to the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007. Under the RFS program, a Renewable Identification Number ("RIN") is assigned to each gallon of renewable fuel produced in or imported into the U.S. The RFS program sets annual mandates for the volume of renewable fuels (such as ethanol and biodiesel) that must be blended into a refiner's transportation fuels. If a refiner of petroleum-based transportation fuels is unable to meet its renewable fuel mandate through blending, it must purchase RINs in the open market to meet its obligations under the RFS program.

Our Petroleum Segment is exposed to the volatility in the market price of RINs, which can be extreme. We cannot predict the future prices of RINs. RIN prices are dependent upon a variety of factors, including EPA regulations, the availability of RINs for purchase, and levels of transportation fuels produced, the mix of the petroleum business' petroleum products, as well as the fuel blending performed at the Refineries and downstream terminals, all of which can vary significantly from period to period. Additionally, because the petroleum business does not produce renewable fuels, increasing the volume of renewable fuels that must be blended into its products displaces an increasing volume of the Refineries' product pool, potentially resulting in lower earnings and materially adversely affecting the petroleum business' cash flows. If sufficient RINs are unavailable for purchase, if the Petroleum Segment has to pay a significantly higher price for RINs, or if the Petroleum Segment is otherwise unable to meet the EPA's RFS mandates or is unable to participate in programs relieving compliance with RFS obligations, our business, financial condition and results of operations could be materially adversely affected. For the years ended December 31, 2019, 2018, and 2017, we recognized expense totaling \$43 million, \$60 million, and \$249 million, respectively, to comply with RFS. Based upon recent market prices of RINs and current estimates related to the other variable factors, our estimated cost to comply with RFS in 2020 is \$100 to \$110 million.

Changes in CVR Refining's credit profile may affect its relationship with its suppliers, which could have a material adverse effect on our liquidity and ability to operate the Refineries at full capacity.

Changes in CVR Refining's credit profile may affect the way crude oil suppliers view our ability to make payments and may induce them to shorten the payment terms for purchases or require it to post security prior to payment. Given the large dollar amounts and volume of our crude oil and other feedstock purchases, a burdensome change in payment terms may have a material adverse effect on liquidity and our ability to make payments to suppliers. This, in turn, could cause us to be unable to operate the Refineries at full capacity. A failure to operate at full capacity could adversely affect our profitability and cash flows.

The Petroleum Segment's commodity derivative contracts may limit potential gains, exacerbate potential losses, and involve other risks.

We may enter into commodity derivatives contracts to mitigate crack spread risk with respect to a portion of expected refined products production. However, hedging arrangements, if we are able to procure them, may fail to fully achieve this objective for a variety of reasons, including its failure to have adequate hedging contracts, if any, in effect at any particular time and the failure of hedging arrangements to produce the anticipated results. Moreover, such transactions may limit our ability to benefit from favorable changes in margins. In addition, our hedging activities may expose us to the risk of financial loss in certain circumstances, including instances in which:

- the volumes of its actual use of crude oil or production of the applicable refined products is less than the volumes subject to the hedging arrangement;
- accidents, interruptions in transportation, inclement weather, or other events cause unscheduled shutdowns or otherwise adversely affect a refinery, suppliers, or customers;
- the counterparties to its futures contracts fail to perform under the contracts; or
- a sudden, unexpected event materially impacts the commodity or crack spread subject to the hedging arrangement.

As a result, the effectiveness of our risk mitigation strategy could have a material adverse impact on our financial results and cash flows.

Additionally, since we do not apply hedge accounting to its commodity derivative contracts, gains and losses are charged to its earnings based on the increase or decrease in the market value of derivative positions. Such gains and losses are reflected in its income statement in periods that differ from when the underlying hedged items (i.e., gross margin) are reflected in our income statement. Such derivative gains or losses in earnings may produce significant period-to-period earnings volatility that is not necessarily reflective of our Petroleum Segment's operational performance.

We must make substantial capital expenditures in the Refineries and other facilities to maintain their reliability and efficiency. If we are unable to complete capital projects at their expected costs and/or in a timely manner, or if the market conditions assumed in project economics deteriorate, our financial condition, results of operations or cash flows could be adversely affected.

Our Refineries have been in operation for many years. Equipment, even if properly maintained, may require significant capital expenditures and expenses to keep operating at optimum efficiency. These refineries generally require facility turnaround every four to five years. Delays or cost increases related to the engineering, procurement, and construction of new facilities, or improvements and repairs to existing facilities and equipment, could have a material adverse effect on our financial condition, results of operations or cash flows. Such delays or cost increases may arise as a result of unpredictable factors in the marketplace, many of which are beyond our control, including:

- denial or delay in obtaining regulatory approvals and/or permits;
- unplanned increases in the cost of equipment, materials, or labor;
- disruptions in transportation of equipment and materials;
- severe adverse weather conditions, natural disasters, or other events (such as equipment malfunctions, explosions, fires, or spills) affecting our facilities, or those of vendors and suppliers;
- shortages of sufficiently skilled labor or labor disagreements resulting in unplanned work stoppages;
- market-related increases in a project's debt or equity financing costs; and/or
- non-performance or force majeure by, or disputes with, the Petroleum Segment's vendors, suppliers, contractors, or sub-contractors.

Any one or more of these occurrences noted above could have a significant impact on our petroleum business. If we are unable to make up for the delays or to recover the related costs, or if market conditions change, we could materially and adversely affect our financial position, results of operations or cash flows.

More stringent trucking regulations may increase our petroleum business' costs and negatively impact results of operations.

In connection with the trucking operations conducted by our crude gathering division, our petroleum business operates as a motor carrier and, therefore, is subject to regulation by federal and various state agencies. These regulatory authorities exercise broad powers, governing activities such as the authorization to engage in motor carrier operations and regulatory safety, and hazardous materials labeling, placarding, and marking. There are additional regulations specifically relating to the trucking industry, including testing and specification of equipment and product handling requirements. The trucking industry is subject to possible regulatory and legislative changes that may affect the economics of the industry. Some of these possible changes include increasingly stringent fuel-economy environmental regulations, changes in the hours of service regulations that govern the amount of time a driver may drive in any specific period, onboard black box recorder or electronic logging devices, or limits on vehicle weight and size.

To a large degree, intrastate motor carrier operations are subject to state safety regulations that mirror federal regulations. Furthermore, from time to time, various legislative proposals are introduced, such as proposals to increase federal, state or local taxes, including taxes on motor fuels, which may increase our costs or adversely impact the recruitment of drivers. We cannot predict whether, or in what form, any increase in such taxes will be enacted or the extent to which they will apply to our Petroleum Segment and its operations.

Risks Related to the Nitrogen Fertilizer Segment

Any decline in U.S. agricultural production or limitations on the use of nitrogen fertilizer for agricultural purposes could have a material adverse effect on the sales of nitrogen fertilizer, and on our results of operations, financial condition and cash flows.

Conditions in the U.S. agricultural industry significantly impact our operating results. The U.S. agricultural industry can be affected by a number of factors, including weather patterns and field conditions, current and projected grain inventories and prices, domestic and international population changes, demand for U.S. agricultural products, and U.S. and foreign policies regarding trade in agricultural products. For example, a major factor underlying the solid level of demand for nitrogen-based fertilizer products we produce is the use of corn for the production of ethanol in the U.S. Changes in governmental incentives for ethanol production could affect future ethanol demand and production.

State and federal governmental policies, including farm and biofuel subsidies and commodity support programs, as well as the prices of fertilizer products, may also directly or indirectly influence the number of acres planted, the mix of crops planted,

and the use of fertilizers for particular agricultural applications. Developments in crop technology could also reduce the use of chemical fertilizers and adversely affect the demand for nitrogen fertilizer. In addition, from time to time various state legislatures have considered limitations on the use and application of chemical fertilizers due to concerns about the impact of these products on the environment. Unfavorable state and federal governmental policies could negatively affect nitrogen fertilizer prices and therefore have a material adverse effect on our results of operations, financial condition and cash flows.

Ethanol production in the United States is highly dependent upon a myriad of federal statutes and regulations, and is made significantly more competitive by various federal and state incentives and mandated usage of renewable fuels pursuant to the EPA's RFS. To date, the RFS has been satisfied primarily with corn-based fuel ethanol blended into gasoline. However, a number of factors, including the continuing "food versus fuel" debate and studies showing that expanded ethanol usage may increase the level of GHGs in the environment, cause harmful conversion of uncultivated land for biofuel crop productions, and be unsuitable for small engine use, have resulted in calls to reduce subsidies for ethanol, allow increased ethanol imports, and to repeal or waive (in whole or in part) the current RFS. Changes within the RFS program also could affect future ethanol demand and production. Further, while most ethanol is currently produced from corn and other raw grains, such as milo or sorghum, the RFS requires that a portion of the overall RFS renewable fuel mandate come from advanced biofuels, including cellulose-based biomass, such as agricultural waste, forest residue, and municipal solid waste. In addition, there is a continuing trend to encourage the use of products other than corn and raw grains for ethanol production. The repeal of, or reduction in the benefits to ethanol producers under, ethanol incentive programs, an increase in ethanol imports, a substantial decrease in future RVOs under the RFS program, or a significant increase in the use of products other than corn and raw grains for ethanol production could affect the demand for corn-based ethanol and result in a decrease in planted corn acreage and in the demand for nitrogen fertilizer products and have a material adverse effect on our results of operations, financial condition and cash flows.

Our Coffeyville Facility may be adversely affected by the supply and price levels of pet coke. Failure by CVR Energy's Coffeyville Refinery to continue to supply us with pet coke and the availability of third-party pet coke at higher prices could negatively impact our results of operations.

Unlike our competitors, whose primary costs are related to the purchase of natural gas and whose costs are therefore largely variable, our Coffeyville Fertilizer Facility uses a pet coke gasification process to produce nitrogen fertilizer. Our profitability is directly affected by the price and availability of pet coke obtained from our Coffeyville Refinery pursuant to a long-term agreement. Our Coffeyville Fertilizer Facility has obtained the majority of its pet coke from our Coffeyville Refinery over the past five years, although has decreased to 40% in 2019. However, should our Coffeyville Refinery fail to perform in accordance with the existing agreement or to the extent pet coke from the Coffeyville Refinery is insufficient, we would need to purchase pet coke from third parties on the open market, which could negatively impact our results of operations to the extent third-party pet coke is unavailable or available only at higher prices. Currently, we purchase 100% of the pet coke our Coffeyville Refinery produces. However, we are still required to procure additional pet coke from third parties to maintain our production rates. We are currently party to pet coke supply agreements with multiple third-party refineries to provide a significant amount of pet coke at fixed prices. The terms of these agreements currently end in December 2020.

The market for natural gas has been volatile, and fluctuations in natural gas prices could affect our competitive position.

Low natural gas prices benefit our competitors that rely on natural gas as their primary feedstock and disproportionately impact our operations at our Coffeyville Fertilizer Facility by making us less competitive with natural gas-based nitrogen fertilizer manufacturers. Continued low natural gas prices could result in nitrogen fertilizer pricing drops and impair the ability of the Coffeyville Fertilizer Facility to compete with other nitrogen fertilizer producers who use natural gas as their primary feedstock, which, therefore, would have a material adverse impact on the Nitrogen Fertilizer Segment's results of operations, financial condition and ability to make cash distributions.

The East Dubuque Fertilizer Facility uses natural gas as its primary feedstock, and as such, the profitability of operating the East Dubuque Fertilizer Facility is significantly dependent on the cost of natural gas. An increase in natural gas prices could make it less competitive with producers who do not use natural gas as their primary feedstock. In addition, an increase in natural gas prices in the United States relative to prices of natural gas paid by foreign nitrogen fertilizer producers may negatively affect our competitive position in the corn belt, and such changes could have a material adverse effect on our results of operations, financial condition and cash flows.

We expect to purchase a portion of our natural gas for use in the East Dubuque Fertilizer Facility on the spot market. As a result, we remain susceptible to fluctuations in the price of natural gas in general and in local markets in particular. We may use

fixed supply, fixed price forward purchase contracts to lock in pricing for a portion of its natural gas requirements, but we may not be able to enter into such agreements on acceptable terms or at all. Without forward purchase contracts for the supply of natural gas, we would need to purchase natural gas on the spot market, which would impair its ability to hedge exposure to risk from fluctuations in natural gas prices. If we enter into forward purchase contracts for natural gas, and natural gas prices decrease, then its cost of sales could be higher than it would have been in the absence of the forward purchase contracts.

Any interruption in the supply of natural gas to our East Dubuque Fertilizer Facility could have a material adverse effect on our results of operations and financial condition.

Our East Dubuque Fertilizer Facility depends on the availability of natural gas. We have an agreement with Nicor Gas (“Nicor”) pursuant to which we access natural gas from the ANR Pipeline Company and Northern Natural Gas pipelines. Our access to satisfactory supplies of natural gas through Nicor could be disrupted due to a number of causes, including volume limitations under the agreement, pipeline malfunctions, service interruptions, mechanical failures or other reasons. The agreement currently extends through February 29, 2020. Upon expiration of the agreement, we may be unable to extend the service under the terms of the existing agreement or renew the agreement on satisfactory terms, or at all. Any disruption in the supply of natural gas to our East Dubuque Fertilizer Facility could restrict our ability to continue to make products at the facility. In the event we need to obtain natural gas from another source, we may need to build a new connection from that source to the East Dubuque Fertilizer Facility and negotiate related easement rights, which would be costly, disruptive and/or may be unfeasible. As a result, any interruption in the supply of natural gas through Nicor could have a material adverse effect on our results of operations and financial condition.

If licensed technology were no longer available, our business may be adversely affected.

We have licensed, and may in the future license, a combination of patent, trade secret, and other intellectual property rights of third parties for use in our plant operations. If any license agreement on which our operations rely were to be terminated, licenses to alternative technology may not be available, or may only be available on terms that are not commercially reasonable or acceptable. In addition, any substitution of new technology for currently-licensed technology may require substantial changes to manufacturing processes or equipment and may have a material adverse effect on our results of operations, financial condition and cash flows.

Additionally, we may face claims of infringement that could interfere with our ability to use technology that is material to our plant operations. Any litigation of this type related to third-party intellectual property rights could result in substantial costs and diversions of resources, either of which could have a material adverse effect on our results of operations, financial condition and cash flows. In the event a claim of infringement against us is successful, we may be required to pay royalties or license fees for past or continued use of the infringing technology, or we may be prohibited from using the infringing technology altogether. If we are prohibited from using any technology as a result of such a claim, we may not be able to obtain licenses to alternative technology adequate to substitute for the technology we can no longer use, or licenses for such alternative technology may only be available on terms that are not commercially reasonable or acceptable. In addition, any substitution of new technology for currently-licensed technology may require us to make substantial changes to its manufacturing processes or equipment or to our products, and could have a material adverse effect on our results of operations, financial condition and cash flows.

Our operations are dependent on third-party suppliers, which could have a material adverse effect on our results of operations, financial condition and cash flows.

Operations of our Coffeyville Fertilizer Facility depend in large part on the performance of third-party suppliers, and the operations of the Coffeyville Fertilizer Facility could be adversely affected if the operation of the third-party air separation plant located adjacent to it were disrupted. Additionally, this air separation plant has experienced numerous short-term interruptions in the past, causing interruptions in our gasifier operations. With respect to electricity, we are party to an electric services agreement with a third-party supplier through June 30, 2029.

Our East Dubuque Fertilizer Facility operations also depend in large part on the performance of third-party suppliers, including for the purchase of electricity. We entered into a utility service agreement, which terminates on June 1, 2022 and will continue year-to-year thereafter unless either party provides 12-month advance written notice of termination.

Should any of our other third-party suppliers fail to perform in accordance with existing contractual arrangements, or should we otherwise lose the service of any third-party suppliers, our operations (or a portion thereof) could be forced to halt. Alternative sources of supply could be difficult to obtain. Any shutdown of our operations (or a portion thereof), even for a limited period, could have a material adverse effect on our results of operations, financial condition and ability to make cash distributions.

We rely on third-party providers of transportation services and equipment, which subjects the Nitrogen Fertilizer Segment to risks and uncertainties beyond its control that may have a material adverse effect on its results of operations, financial condition and ability to make cash distributions.

Our business relies on railroad and trucking companies to ship finished products to customers of the Coffeyville Fertilizer Facility. We also lease railcars from railcar owners to ship its finished products. Additionally, although customers of the East Dubuque Fertilizer Facility generally pick up products at the facility, the facility occasionally relies on barge, truck and railroad companies to ship products to customers. These transportation operations, equipment and services are subject to various hazards, including extreme weather conditions, work stoppages, delays, spills, derailments and other accidents, and other operating hazards. Further, the limited number of towing companies and barges available for ammonia transport may also impact the availability of transportation for our Nitrogen Fertilizer Segment's products. These transportation operations, equipment and services are also subject to environmental, safety and other regulatory oversight. Due to concerns related to terrorism or accidents, local, state and federal governments could implement new regulations affecting the transportation of our finished products. In addition, new regulations could be implemented affecting the equipment used to ship its finished products.

Any delay in our ability to ship its finished products as a result of these transportation companies' failure to operate properly, the implementation of new and more stringent regulatory requirements affecting transportation operations or equipment, or significant increases in the cost of these services or equipment could have a material adverse effect on our results of operations, financial condition and ability to make cash distributions.

Ammonia can be very volatile and extremely hazardous. Any liability for accidents involving ammonia or other products we produce or transport that cause severe damage to property or injury to the environment and human health could have a material adverse effect on our results of operations, financial condition and ability to make cash distributions. In addition, the costs of transporting ammonia could increase significantly in the future.

Our business manufactures, processes, stores, handles, distributes and transports ammonia, which can be very volatile and extremely hazardous. Major accidents or releases involving ammonia could cause severe damage or injury to property, the environment, and human health, as well as a possible disruption of supplies and markets. Such an event could result in civil lawsuits, fines, penalties and regulatory enforcement proceedings, all of which could lead to significant liabilities. Any damage or injury to persons, equipment or property or other disruption of our ability to produce or distribute products could result in a significant decrease in operating revenues and significant additional costs to replace or repair and insure our assets, which could have a material adverse effect on our results of operations, financial condition and ability to make cash distributions. Our facilities periodically experience minor releases of ammonia related to leaks from our facilities' equipment. Similar events may occur in the future.

In addition, we may incur significant losses or costs relating to the operation of railcars used for the purpose of carrying various products, including ammonia. Due to the dangerous and potentially hazardous nature of the cargo, in particular ammonia, a railcar accident may result in fires, explosions, and releases of material which could lead to sudden, severe damage or injury to property, the environment, and human health. In the event of contamination, under environmental law, we may be held responsible even if we are not at fault, and we complied with the laws and regulations in effect at the time of the accident. Litigation arising from accidents involving ammonia and other products we produce or transport may result in us being named as a defendant in lawsuits asserting claims for substantial damages, which could have a material adverse effect on our results of operations, financial condition and ability to make cash distributions.

Risks Related to Our Capital Structure

Internally generated cash flows and other sources of liquidity may not be adequate for the capital needs of our businesses.

Our businesses are capital intensive, and working capital needs may vary significantly over relatively short periods of time. For instance, crude oil price volatility can significantly impact working capital on a week-to-week and month-to-month basis. If

we cannot generate adequate cash flow or otherwise secure sufficient liquidity to meet our working capital needs or support our short-term and long-term capital requirements, we may be unable to meet our debt obligations, pursue our business strategies, or comply with certain environmental standards, which would have a material adverse effect on our business and results of operations.

Instability and volatility in the capital, credit, and commodity markets in the global economy could negatively impact our business, financial condition, results of operations and cash flows.

Our business, financial condition and results of operations could be negatively impacted by difficult conditions and volatility in the capital, credit, and commodities markets and in the global economy. For example:

- Although we believe CVR Refining has sufficient liquidity under its Amended and Restated ABL Credit Facility to operate the Refineries and CVR Partners has sufficient liquidity under its AB Credit Facility to run the Nitrogen Fertilizer Segment, there can be no assurance that such funds would be available or sufficient, and in such a case, we may not be able to successfully obtain additional financing on favorable terms, or at all.
- Market volatility could exert downward pressure on the price of CVR Partners' common units, which may make it more difficult for us to raise additional capital and thereby limit its ability to grow, which could in turn cause CVR Energy's stock and/or CVR Partners' unit price to drop.
- Market conditions could result in significant customers experiencing financial difficulties. We are exposed to the credit risk of our customers, and their failure to meet their financial obligations when due because of bankruptcy, lack of liquidity, operational failure, or other reasons could result in decreased sales and earnings for us.

CVR Energy, CVR Refining, and CVR Partners' level of indebtedness may increase and affect our ability to operate their respective businesses. In addition, this may have a material adverse effect on our and their financial flexibility, financial condition and results of operations.

As of December 31, 2019, we had total indebtedness outstanding of \$1,195 million, including CVR Partners' \$647 million of senior notes and CVR Refining's \$500 million of senior notes. We had approximately \$50 million in availability under CVR Partners' AB Credit Facility and \$393 million in availability under CVR Refining's Amended and Restated ABL Credit Facility, which includes a \$7 million reduction in availability for issued letters of credit. On January 27, 2020, CVR Energy issued \$600 million and \$400 million of senior notes due 2025 and 2028, respectively, and redeemed CVR Refining's outstanding \$500 million of senior notes due 2022. As of January 31, 2020, our total indebtedness was \$1,691 million, including CVR Partners' \$647 million of senior notes and CVR Energy's \$1,000 million of senior notes.

We may be able to incur substantially more debt in the future, including secured indebtedness. Although existing credit facilities contain restrictions on the occurrence of additional indebtedness, these restrictions are subject to a number of qualifications and exceptions and, under certain circumstances, indebtedness incurred in compliance with these restrictions could be substantial. Also, these restrictions may not prevent incurring new obligations that do not constitute indebtedness. To the extent such new debt or new obligations are added to existing indebtedness, the risks described below could substantially increase. The level of indebtedness could have important consequences, including the following:

- limiting our ability to obtain additional financing to fund working capital needs, capital expenditures, debt service requirements, acquisitions, general corporate, or other purposes;
- requiring us to utilize a significant portion of cash flows to service indebtedness, thereby reducing our funds available for operations, future business opportunities, and distributions to us and public common unitholders of CVR Partners;
- limiting our ability to use operating cash flow in other areas of our business because we must dedicate a substantial portion of these funds to service debt;
- limiting our ability to compete with other companies who are not as highly leveraged, as we may be less capable of responding to adverse economic and industry conditions;
- limiting our ability to make certain payments on debt that is subordinated or secured on a junior basis;
- restricting us from making strategic acquisitions or investments, introducing new technologies or exploiting business opportunities;
- restricting the way in which we conduct business because of financial and operating covenants in the agreements governing existing and future indebtedness, including borrowing additional funds, disposing of assets, and in the case of certain indebtedness of subsidiaries, restricting the ability of subsidiaries to pay dividends or make distributions;

- limiting our ability to enter into certain transactions with our affiliates;
- limiting our ability to designate our subsidiaries as unrestricted subsidiaries;
- exposing us to potential events of default (if not cured or waived) under financial and operating covenants contained in their or their respective subsidiaries' debt instruments that could have a material adverse effect on our business, financial condition and operating results;
- increasing our vulnerability to general adverse economic and industry conditions or adverse pricing of products;
- increasing the likelihood for a reduction in the borrowing base under CVR Refining's Amended and Restated ABL Credit Facility following a periodic redetermination could require us to repay a portion of our then-outstanding bank borrowings; and
- limiting our ability to react to changing market conditions in our industries and in respective customers' industries.

Covenants in our debt agreements could limit our ability to incur additional indebtedness and engage in certain transaction, as well as limit the flexibility in operating the respective business, which could adversely affect our liquidity and ability to pursue our business strategies. In the case of CVR Partners, this may also limit the ability to make distributions to unitholders.

Our debt facilities and instruments contain, and any instruments governing future indebtedness would likely contain, a number of covenants that impose significant operating and financial restrictions on us and our subsidiaries and may limit our ability to engage in acts that may be in our long-term best interest, including restrictions on the ability, among other things, to:

- incur, assume, or guarantee additional indebtedness or issue redeemable or preferred stock;
- pay dividends or distributions in respect of equity securities or make other restricted payments;
- prepay, redeem, or repurchase certain debt;
- enter into agreements that restrict distributions from restricted subsidiaries
- make certain payments on debt that is subordinated or secured on a junior basis;
- make certain investments;
- sell or otherwise dispose of assets, including capital stock of subsidiaries;
- create liens on certain assets;
- consolidate, merge, sell, or otherwise dispose of all or substantially all assets;
- enter into certain transactions with affiliates; and
- designate subsidiaries as unrestricted subsidiaries.

Any of these restrictions could limit our ability to plan for or react to market conditions and could otherwise restrict operating activities. Any failure to comply with these covenants could result in a default under existing debt facilities and instruments. Upon a default, unless waived, the lenders under such debt facilities and instruments would have all remedies available to a secured lender and could elect to terminate their commitments, cease making further loans, institute foreclosure proceedings against assets, and force bankruptcy or liquidation, subject to any applicable intercreditor agreements. In addition, a default under existing debt facilities and instruments would trigger a cross default under other agreements and could trigger a cross default under the agreements governing future indebtedness. Our operating segments' results may not be sufficient to service existing indebtedness or to fund other expenditures, and we may not be able to obtain financing to meet these requirements.

CVR Energy and the Nitrogen Fertilizer Segment may not be able to generate sufficient cash to service existing indebtedness and may be forced to take other actions to satisfy debt obligations that may not be successful.

CVR Energy's and the Nitrogen Fertilizer Segment's ability to satisfy existing debt obligations will depend upon, among other things:

- future financial and operating performance, which will be affected by prevailing economic conditions and financial, business, regulatory, and other factors, many of which are beyond our control;
- future ability to borrow under CVR Refining's Amended and Restated ABL Credit Facility and CVR Partners' AB Credit Facility, the availability of which depends on, among other things, complying with the covenants in the applicable facility; and

- future ability to obtain other financing.

We cannot offer any assurance that our businesses will generate sufficient cash flow from operations, that our Petroleum Segment will be able to draw under its Amended and Restated ABL Credit Facility or that our Nitrogen Fertilizer Segment will be able to draw under its AB Credit Facility or otherwise, or from other sources of financing, in an amount sufficient to fund respective liquidity needs. In addition, our board of directors may in the future elect to pursue other strategic options including acquisitions of other businesses or asset purchases, which would reduce cash available to service our debt obligations.

If cash flows and capital resources are insufficient to service existing indebtedness, we may be forced to reduce or delay capital expenditures, sell assets, seek additional capital, restructure or refinance existing indebtedness, or seek bankruptcy protection. These alternative measures may not be successful and may not permit the meeting of scheduled debt service and other obligations. Our ability to restructure or refinance debt will depend on the condition of the capital markets and our financial condition, including that of our operating segments, at such time. Any refinancing of existing debt could be at higher interest rates and may require compliance with more onerous covenants, which could further restrict business operations.

The borrowings under CVR Refining's Amended and Restated ABL Credit Facility and CVR Partners' AB Credit Facility bear interest at variable rates and other debt we or they incur could likewise be variable-rate debt. If market interest rates increase, variable-rate debt will create higher debt service requirements, which could adversely affect our cash flow and/or distributions to us. Although we may enter into agreements limiting exposure to higher interest rates, any such agreements may not offer complete protection from this risk.

We are authorized to issue up to a total of 350 million shares of our common stock and 50 million shares of preferred stock, potentially diluting equity ownership of current holders and the share price of our common stock.

We maintain a sufficient number of available authorized shares of our common stock and preferred stock to provide us with the flexibility to issue common stock or preferred stock for business purposes that may arise as deemed advisable by our board of directors, including (i) future stock dividends or stock splits, which may increase the liquidity of our shares; (ii) the sale of stock to obtain additional capital or to acquire other companies or businesses, which could enhance our growth strategy or allow us to reduce debt, if needed; (iii) for use in additional stock incentive programs; and (iv) for other bona fide purposes. Our board of directors may authorize us to issue the available authorized shares of common stock or preferred stock without notice to, or further action by, our stockholders, unless stockholder approval is required by law or the rules of the NYSE. The issuance of additional shares of common stock or preferred stock may significantly dilute the equity ownership of the current holders of our common stock.

Our ability to pay dividends on our common stock is subject to market conditions and numerous other factors.

In January 2013, our board of directors adopted a quarterly dividend policy. We began paying regular quarterly dividends in the second quarter of 2013. Dividends are subject to change at the discretion of the board of directors and may change from quarter to quarter. Our ability to continue paying dividends is subject to our ability to continue to generate sufficient cash flow from our operating segments, and the amount of dividends we are able to pay each year may vary, possibly substantially, based on market conditions, crack spreads, our capital expenditure and other business needs, covenants contained in any debt agreements we may enter into in the future, covenants contained in existing debt agreements, and the amount of distributions we receive from CVR Partners. We may not be able to continue paying dividends at the rate we currently pay dividends or at all. If the amount of our dividends decreases, the trading price of our common stock could be materially adversely affected as a result.

Risks Related to Our Corporate Structure

We are a holding company and depend upon our subsidiaries for our cash flow.

We are a holding company, and our subsidiaries conduct substantially all of our operations and own substantially all of our assets. Consequently, our cash flow and our ability to meet our obligations or to pay dividends or make other distributions in the future will depend upon the cash flow of our subsidiaries and the payment of funds by our subsidiaries to us in the form of distributions. The ability of CVR Partners to make any payments to us will depend on, among other things, their earnings, the terms of existing indebtedness (including the terms of any debt facilities and instruments), tax considerations, and legal restrictions.

Mr. Carl C. Icahn exerts significant influence over the Company, and his interests may conflict with the interests of the Company's other stockholders.

Mr. Carl C. Icahn indirectly controls approximately 71% of the voting power of our common stock and, by virtue of such stock ownership, is able to control or exert substantial influence over the Company, including:

- the election and appointment of directors;
- business strategy and policies;
- mergers or other business combinations;
- acquisition or disposition of assets;
- future issuances of common stock, common units, or other securities;
- occurrence of debt or obtaining other sources of financing; and
- the payment of dividends on the Company's common stock and distributions on the common units of CVR Partners.

The existence of a controlling stockholder may have the effect of making it difficult for, or may discourage or delay, a third-party from seeking to acquire a majority of the Company's outstanding common stock, which may adversely affect the market price of the Company's common stock.

Mr. Icahn's interests may not always be consistent with the Company's interests or with the interests of the Company's other stockholders. Mr. Icahn and entities controlled by him may also pursue acquisitions or business opportunities in industries in which we compete, and there is no requirement that any additional business opportunities be presented to us. We also have and may in the future enter into transactions to purchase goods or services with affiliates of Mr. Icahn. To the extent that conflicts of interest may arise between the Company and Mr. Icahn and his affiliates, those conflicts may be resolved in a manner adverse to the Company or its other stockholders.

In addition, if Mr. Icahn were to sell, or otherwise transfer, some or all of his interests in us to an unrelated party or group, a change of control could be deemed to have occurred under the terms of the indenture governing CVR Energy's 5.250% and 5.750% Senior Notes, which would require it to offer to repurchase all outstanding notes at 101% of their principal amount plus accrued interest to the date of repurchase, and an event of default could be deemed to have occurred under CVR Refining's Amended and Restated ABL Credit Facility, which would allow lenders to accelerate indebtedness owed to them. However, it is possible that we will not have sufficient funds at the time of the change of control to make the required repurchase of notes or repay amounts outstanding under CVR Refining's Amended and Restated ABL Credit Facility, if any.

Our stock price may decline due to sales of shares by Mr. Carl C. Icahn.

Sales of substantial amounts of the Company's common stock, or the perception that these sales may occur, may adversely affect the price of the Company's common stock and impede its ability to raise capital through the issuance of equity securities in the future. Mr. Icahn could elect in the future to request that the Company file a registration statement to him to sell shares of the Company's common stock. If Mr. Icahn were to sell a large number of shares into the public markets, Mr. Icahn could cause the price of the Company's common stock to decline.

We are a "controlled company" within the meaning of the NYSE rules and, as a result, qualify for, and are relying on, exemptions from certain corporate governance requirements.

A company of which more than 50% of the voting power is held by an individual, a group, or another company is a "controlled company" within the meaning of the NYSE rules and may elect not to comply with certain corporate governance requirements of the NYSE, including:

- the requirement that a majority of our board of directors consist of independent directors;
- the requirement that we have a nominating/corporate governance committee that is composed entirely of independent directors; and
- the requirement that we have a compensation committee that is composed entirely of independent directors.

We are relying on all of these exemptions as a controlled company. Accordingly, you may not have the same protections afforded to stockholders of companies that are subject to all of the corporate governance requirements of the NYSE. In addition, CVR Partners is relying on exemptions from the same NYSE corporate governance requirements described above.

We have various mechanisms in place to discourage takeover attempts, which may reduce or eliminate our stockholders' ability to sell their shares for a premium in a change of control transaction.

Various provisions of our amended certificate of incorporation and second amended and restated bylaws and of Delaware corporate law may discourage, delay, or prevent a change in control or takeover attempt of our Company by a third-party that our management and board of directors determines is not in the best interest of our Company and its stockholders. Public stockholders who might desire to participate in such a transaction may not have the opportunity to do so. These anti-takeover provisions could substantially impede the ability of public stockholders to benefit from a change of control or change in our management and board of directors. These provisions include:

- preferred stock that could be issued by our board of directors to make it more difficult for a third-party to acquire, or to discourage a third-party from acquiring, a majority of our outstanding voting stock;
- limitations on the ability of stockholders to call special meetings of stockholders;
- limitations on the ability of stockholders to act by written consent in lieu of a stockholders' meeting; and
- advance notice requirements for nominations of candidates for election to our board of directors or for proposing matters that can be acted upon by our stockholders at stockholder meetings.

Compliance with and changes in the tax laws could adversely affect our performance.

We are subject to extensive tax liabilities, including United States and state income taxes and transactional taxes such as excise, sales/use, payroll, franchise, and withholding taxes. New tax laws and regulations are continuously being enacted or proposed that could result in increased expenditures for tax liabilities in the future.

Risks Related to Our Ownership in CVR Partners

If CVR Partners were to be treated as a corporation for U.S. federal income tax purposes or if it becomes subject to entity-level taxation for state tax purposes, its cash available for distribution to its common unitholders, including to us, would be substantially reduced, likely causing a substantial reduction in the value of its common units, including the common units held by us.

The anticipated after-tax economic benefit of an investment in common units of CVR Partners depends largely on it being treated as a partnership for U.S. federal income tax purposes. Despite the fact that CVR Partners is organized as a limited partnership under Delaware law, it would be treated as a corporation for U.S. federal income tax purposes unless it satisfies a "qualifying income" requirement. CVR Partners may not find it possible to meet this qualifying income requirement, may inadvertently fail to meet this qualifying income requirement, or a change in current law could cause CVR Partners to be treated as a corporation for U.S. federal income tax purposes or otherwise subject CVR Partners to entity-level taxation.

If CVR Partners were to be treated as a corporation for U.S. federal income tax purposes, it would pay U.S. federal income tax on all of its taxable income at the corporate tax rate. Distributions to its common unitholders (including us) would generally be taxed again as corporate distributions, and no income, gains, losses, or deductions would flow through to such common unitholders. Because a tax would be imposed upon CVR Partners as a corporation, its cash available for distribution to its common unitholders would be substantially reduced. Therefore, treatment of CVR Partners as a corporation would result in a material reduction in the anticipated cash flow and after-tax return to its common unitholders (including us), likely causing a substantial reduction in the value of such common units.

We may have liability to repay distributions that are wrongfully distributed to us.

Under certain circumstances, we may, as a holder of common units in CVR Partners, have to repay amounts wrongfully returned or distributed to us. Under the Delaware Revised Uniform Limited Partnership Act, a partnership may not make distributions to its unitholders if the distribution would cause its liabilities to exceed the fair value of its assets. Delaware law provides that for a period of three years from the date of an impermissible distribution, limited partners who received the

distribution and who knew at the time of the distribution that it violated Delaware law will be liable to the company for the distribution amount.

Public investors own approximately 66% of the Nitrogen Fertilizer Segment through CVR Partners. Although we own the general partner of CVR Partners, the general partner owes a duty of good faith to public unitholders, which could cause them to manage their respective businesses differently than if there were no public unitholders.

Public investors own approximately 66% of CVR Partners' common units. We are not entitled to receive all of the cash generated by CVR Partners or freely transfer money to finance operations at the Petroleum Segment. Furthermore, although we own the general partner of CVR Partners, the general partner is subject to certain fiduciary duties, which may require the general partner to manage its business in a way that may differ from our best interests.

CVR Partners is managed by the executive officers of its general partner, some of whom are employed by and serve as part of the senior management team of the Company. Conflicts of interest could arise as a result of this arrangement.

CVR Partners is managed by the executive officers of its general partner, some of whom are employed by and serve as part of the senior management team of the Company. Furthermore, although CVR Partners has entered into services agreements with the Company under which it compensates the Company for the services of its management, our management is not required to devote any specific amount of time to the Nitrogen Fertilizer Segment and may devote a substantial majority of their time to other business of the Company. Moreover, the Company may terminate the services agreement with CVR Partners at any time, in each case subject to a 180-day notice period. In addition, key executive officers of the Company, including its president and chief executive officer, chief financial officer, and general counsel, will face conflicts of interest if decisions arise in which CVR Partners and the Company have conflicting points of view or interests.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Refer to Item 1, "Petroleum" and "Nitrogen Fertilizer" for more information on our core business properties. We also lease property for our executive office which is located in Sugar Land, Texas.

Item 3. Legal Proceedings

In the ordinary course of business, we may become party to lawsuits, administrative proceedings, and governmental investigations, including environmental, regulatory, and other matters. Large, and sometimes unspecified, damages or penalties may be sought from us in some matters and certain matters may require years to resolve. Although we cannot provide assurance, we believe that an adverse resolution of the matters described below would not have a material impact on our liquidity, consolidated financial position, or consolidated results of operations.

Unresolved Matters

The U.S. Attorney's office for the Southern District of New York contacted CVR Energy in September 2017 seeking production of information pertaining to CVR Refining's, CVR Energy's and Mr. Carl C. Icahn's activities relating to the RFS and Mr. Icahn's former role as an advisor to the President. CVR Energy cooperated with the request and provided information in response to the subpoena. The U.S. Attorney's office has not made any claims or allegations against CVR Energy or Mr. Icahn. CVR Energy believes it maintains a strong compliance program and, while no assurances can be made, CVR Energy does not believe this inquiry will have a material impact on its business, financial condition, results of operations or cash flows.

On August 21, 2018, CRRM received a letter from the United States Department of Justice ("DOJ") on behalf of the EPA and KDHE alleging violations of the CAA and a 2012 Consent Decree between CRRM, the United States (on behalf of EPA) and KDHE at CRRM's Coffeyville refinery. In September 2018, CRRM executed a tolling agreement with the DOJ and KDHE extending time for negotiation regarding the agencies' allegations through April 30, 2020. At this time the Company cannot reasonably estimate the potential penalties, costs, fines or other expenditures that may result from this matter or any subsequent

enforcement or litigation relating thereto and, therefore, the Company cannot determine if the ultimate outcome of this matter will have a material impact on the Company's financial position, results of operations or cash flows.

During 2019, the Company, CVR Refining and its general partner, CVR Refining Holdings, IEP, and certain directors and affiliates have been named in at least one of nine lawsuits filed in the Court of Chancery of the State of Delaware by purported former unitholders of CVR Refining, on behalf of themselves and an alleged class of similarly situated unitholders (the "Call Option Lawsuits"). The Call Option Lawsuits primarily allege breach of contract, tortious interference and breach of the implied covenant of good faith and fair dealing and seek monetary damages and attorneys' fees, among other remedies, relating to the Company's exercise of the call option under the CVR Refining Amended and Restated Agreement of Limited Partnership assigned to it by CVR Refining's general partner. In January 2020, the court dismissed CVR Holdings and certain former directors of CVR Refining's general partner from the Call Option Lawsuits, though permitted some or all of the claims to proceed against each remaining defendant. The Company believes the Call Option Lawsuits are without merit and intends to vigorously defend against them. The Call Option Lawsuits remain in the early stages of litigation. Accordingly the Company cannot determine at this time the outcome of the Call Option Lawsuits, including whether the outcome of this matter would have a material impact on the Company's financial position, results of operations, or cash flows.

During 2019, WRC intervened in a lawsuit filed by four ethanol and biofuels trade associations against the EPA, claiming the EPA exceeded its authority in granting Wynnewood's 2017 small refinery exemption ("SRE") under the RFS program under the CAA, as well as the SREs of two other unrelated refineries. In January 2020, the 10th Circuit Court of Appeals vacated the three SREs and remanded the matter to the EPA for further proceedings, holding, in part, that the "extension" language in the CAA requires a small refinery to have received an SRE continuously in every year since inception of the program to be eligible. As the EPA has not yet acted following remand by the court, and as Wynnewood intends to appeal this ruling, we cannot currently estimate the outcome, impact, or timing of the resolution of this matter.

Resolved Matters

In September 2018, the Kansas Court of Appeals upheld property tax determinations by the Kansas Board of Tax Appeals in connection with Coffeyville Resources Nitrogen Fertilizer, LLC's ("CRNF") dispute with Montgomery County, Kansas (the "County") over prior year property tax payments as previously disclosed. On October 29, 2018, the County petitioned the Kansas Supreme Court to review the Court of Appeals' determination. Subsequent briefs were filed by CRNF and the County. In April 2019, CRNF and the County executed an agreement which the County agrees to withdraw its petition to the Kansas Supreme Court and CRNF is expected to recover approximately \$8 million through favorable property tax assessments from 2019 through 2028, subject to the terms of the settlement agreement.

Item 4. *Mine Safety Disclosures*

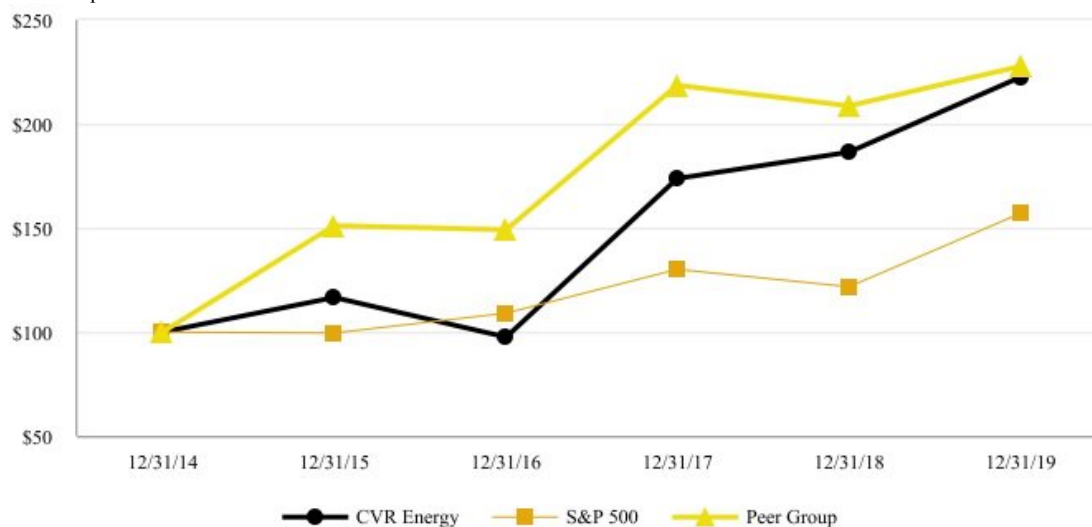
Not applicable.

PART II

Item 5. *Market For Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities*

Performance Graph

The performance graph below compares the cumulative total return of our common stock to (a) the cumulative total return of the S&P 500 Composite Index and (b) a composite peer group (“Peer Group”) consisting of Delek US Holdings, Inc., HollyFrontier Corporation, Marathon Petroleum Corp., PBF Energy and Valero Energy Corporation. The graph assumes that the value of the investment in common stock and each index was \$100 on December 31, 2014 and that all dividends were reinvested. Investment is weighted on the basis of market capitalization.



The share price performance shown on the graph is not necessarily indicative of future price performance. Information used in the graph was obtained from Yahoo! Finance (finance.yahoo.com). The performance graph above is furnished and not filed for purposes of the Securities Act and the Exchange Act. The performance graph is not soliciting material subject to Regulation 14A.

Market Information

Our common stock is listed under the symbol “CVI” on the New York Stock Exchange.

CVR Energy, Inc. - Exchange Offer

In August 2018, CVR Energy completed an exchange offer whereby public unitholders tendered a total of 21,625,106 CVR Refining common units in exchange for a total of 13,699,549 shares of CVR Energy common stock. Following the exchange offer, Icahn Enterprises L.P. and its affiliates (“IEP”) owned approximately 71% of the Company’s outstanding shares. Refer to Note 1 (“Organization and Nature of Business”) in Item 8 for further information.

Purchases of Equity Securities by the Issuer

On October 23, 2019, the Board of Directors of the Company authorized a stock repurchase program (the “Stock Repurchase Program”). The Stock Repurchase Program would enable the Company to repurchase up to \$300 million of the Company’s common stock. Repurchases under the Stock Repurchase Program may be made from time-to-time through open market transactions, block trades, privately negotiated transactions or otherwise in accordance with applicable securities laws.

The timing, price and amount of repurchases (if any) will be made at the discretion of management and are subject to market conditions as well as corporate, regulatory and other considerations. While the Stock Repurchase Program currently has a duration of four years, it does not obligate the Company to acquire any stock and may be terminated by the Company's Board of Directors at any time.

We did not repurchase any of our common stock during the year ended December 31, 2019.

Item 6. *Selected Financial Data*

The following table sets forth certain selected consolidated financial data as of and for each year in the five-year period ended December 31, 2019. The selected consolidated financial information presented below has been derived from our historical consolidated financial statements. The following table should be read in conjunction with Item 7 and our consolidated financial statements and related notes thereto in Item 8.

(in millions)	Year Ended December 31,				
	2019	2018	2017	2016	2015
Statements of Operations					
Net sales	\$ 6,364	\$ 7,124	\$ 5,988	\$ 4,782	\$ 5,433
Net income attributable to CVR Energy stockholders	380	259	263	25	197
Basic and diluted earnings per share	\$ 3.78	\$ 2.80	\$ 3.03	\$ 0.29	\$ 2.27
Dividends declared per share	\$ 3.05	\$ 2.50	\$ 2.00	\$ 2.00	\$ 2.00
Balance Sheet					
Cash and cash equivalents	\$ 652	\$ 668	\$ 482	\$ 736	\$ 765
Total assets	3,905	4,000	3,953	4,159	3,413
Long-term debt and finance lease obligations, net of current portion	1,190	1,167	1,164	1,165	667
Total liabilities	2,237	2,057	2,130	2,371	1,736
Total CVR stockholders' equity	1,393	1,286	988	899	1,025
Total equity	1,668	1,943	1,823	1,788	1,677

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and related notes included elsewhere in this Report. References to CVR Energy, the Company, "we," "us," and "our" may refer to consolidated subsidiaries of CVR Energy, including CVR Refining or CVR Partners, as the context may require.

This discussion and analysis generally discusses the years ended December 31, 2019 and 2018 and year-to-year comparisons between such periods. The discussions of the year ended December 31, 2017 and year-to-year comparisons between the years ended December 31, 2018 and 2017 that are not included in this Annual Report on Form 10-K can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of Exhibit 99.1 to the Company's Current Report on Form 8-K filed on June 12, 2019, and such discussion are incorporated by reference into this Report.

Strategy and Goals

Mission and Core Values

Our mission is to be a top tier North American petroleum refining and nitrogen-based fertilizer company as measured by safe and reliable operations, superior performance and profitable growth. The foundation of how we operate is built on five core values:

- *Safety* - We always put safety first. The protection of our employees, contractors and communities is paramount. We have an unwavering commitment to safety above all else. If it's not safe, then we don't do it.
- *Environment* - We care for our environment. Complying with all regulations and minimizing any environmental impact from our operations is essential. We understand our obligation to the environment and that it's our duty to protect it.
- *Integrity* - We require high business ethics. We comply with the law and practice sound corporate governance. We only conduct business one way—the right way with integrity.
- *Corporate Citizenship* - We are proud members of the communities where we operate. We are good neighbors and know that it's a privilege we can't take for granted. We seek to make a positive economic and social impact through our financial donations and the contributions of time, knowledge and talent of our employees to the places where we live and work.
- *Continuous Improvement* - We believe in both individual and team success. We foster accountability under a performance-driven culture that supports creative thinking, teamwork and personal development so that employees can realize their maximum potential. We use defined work practices for consistency, efficiency and to create value across the organization.

Our core values are driven by our people, inform the way we do business each and every day and enhance our ability to accomplish our mission and related strategic objectives.

Strategic Objectives

We have outlined the following strategic objectives to drive the accomplishment of our mission:

Safety - We aim to achieve continuous improvement in all environmental, health and safety areas through ensuring our people's commitment to environmental, health and safety comes first, the refinement of existing policies, continuous training, and enhanced monitoring procedures.

Reliability - Our goal is to achieve industry-leading utilization factors at our facilities through safe and reliable operations. We are focusing on improvements in day-to-day plant operations, identifying alternative sources for plant inputs to reduce lost

time due to third-party operational constraints, and optimizing our commercial and marketing functions to maintain plant operations at their highest level.

Market Capture - We continuously evaluate opportunities to improve the facilities' netbacks and reduce variable costs incurred in production to maximize our capture of market opportunities.

Financial Discipline - We strive to be as efficient as possible by maintaining low operating costs and a disciplined deployment of capital.

Achievements

We successfully executed a number of achievements in support of our strategic objectives shown below through the date of this filing:

	Safety	Reliability	Market Capture	Financial Discipline
Corporate:				
Achieved year over year environment, health, and safety improvements related to total recordable incident rate, environmental events, and project safety management of 11%, 14%, and 50%, respectively.	✓			
Declared cash dividends of \$3.05 per share in 2019.				✓
Announced \$300 million share repurchase authorization.				✓
Issued \$1.0 billion in Senior Notes due 2025 and 2028 and the associated funding of the redemption of the CVR Refining Senior Notes due 2022 in January 2020.				✓
Petroleum Segment:				
Completed the Wynnewood turnaround safely, on time and under budget.	✓	✓		✓
Increased throughput of regional crudes and condensate by 37% and 58%, respectively, while reducing reliance on WTI Cushing common crude oil by 35% for the fourth quarter 2019 as compared to the fourth quarter 2018.			✓	✓
Completed the Wynnewood refinery's BenFree repositioning project enabling increased premium gasoline production.	✓	✓	✓	✓
Completed the sale of the Cushing, Oklahoma crude oil terminal.				✓
Maintained high utilization at both facilities through the fourth quarter of 2019.	✓	✓		✓
Received Board approval for the Isomerization project at the Wynnewood Refinery, intended to improve liquid yields.	✓	✓		✓
Nitrogen Fertilizer:				
Safely completed the East Dubuque turnaround.	✓	✓		
Maintained high asset reliability and utilization at both facilities through the fourth quarter of 2019 (adjusted for turnaround at East Dubuque).	✓	✓		✓
Paid cash distributions of 40 cents per unit in 2019.				✓

Industry Factors and Market Conditions

Petroleum Segment

The earnings and cash flows of the Petroleum Segment are primarily affected by the relationship between refined product prices and the prices for crude oil and other feedstocks that are processed and blended into refined products. The cost to acquire crude oil and other feedstocks and the price for which refined products are ultimately sold depend on factors beyond the Petroleum Segment's control, including the supply of and demand for crude oil, as well as, gasoline and other refined products which, in turn, depend on, among other factors, changes in domestic and foreign economies, weather conditions, domestic and foreign political affairs, production levels, the availability of imports, the marketing of competitive fuels and the extent of government regulation. Because the Petroleum Segment applies first-in first-out accounting to value its inventory, crude oil price movements may impact net income in the short term because of changes in the value of its unhedged inventory. The effect of changes in crude oil prices on the Petroleum Segment results of operations is partially influenced by the rate at which the process of refined products adjust to reflect these changes.

The prices of crude oil and other feedstocks and refined products are also affected by other factors, such as product pipeline capacity, system inventory local market conditions and the operating levels of competing refineries. Crude oil costs and the prices of refined products have historically been subject to wide fluctuations. Widespread expansion or upgrades of competitors' facilities, price volatility, international political and economic developments and other factors are likely to continue to play an important role in refining industry economics. These factors can impact, among other things, the level of inventories in the market, resulting in price volatility and a reduction in product margins. Moreover, the refining industry typically experiences seasonal fluctuations in demand for refined products, such as increases in the demand for gasoline during the summer driving season and for volatile seasonal exports of diesel from the United States Gulf Coast markets.

In addition to current market conditions, there are long-term factors that may impact the demand for refined products. These factors include mandated renewable fuels standards, proposed climate change laws and regulations and increased mileage standards for vehicles. The petroleum business is also subject to the renewable fuel standards ("RFS") of the EPA, which requires blending "renewable fuels" with transportation fuels or purchase renewable identification numbers ("RINs"), in lieu of blending, by March 31, 2019 or otherwise be subject to penalties. Our cost to comply with RFS is dependent upon a variety of factors, which include the availability of RINs for purchase, the price at which RINs can be purchased, transportation fuel production levels, the mix of our products, as well as the fuel blending performed at our refineries and downstream terminals, all of which can vary significantly from period to period. Based upon recent market prices of RINs and current estimates related to the other variable factors, our estimated cost to comply with RFS is \$100 to \$110 million for 2020.

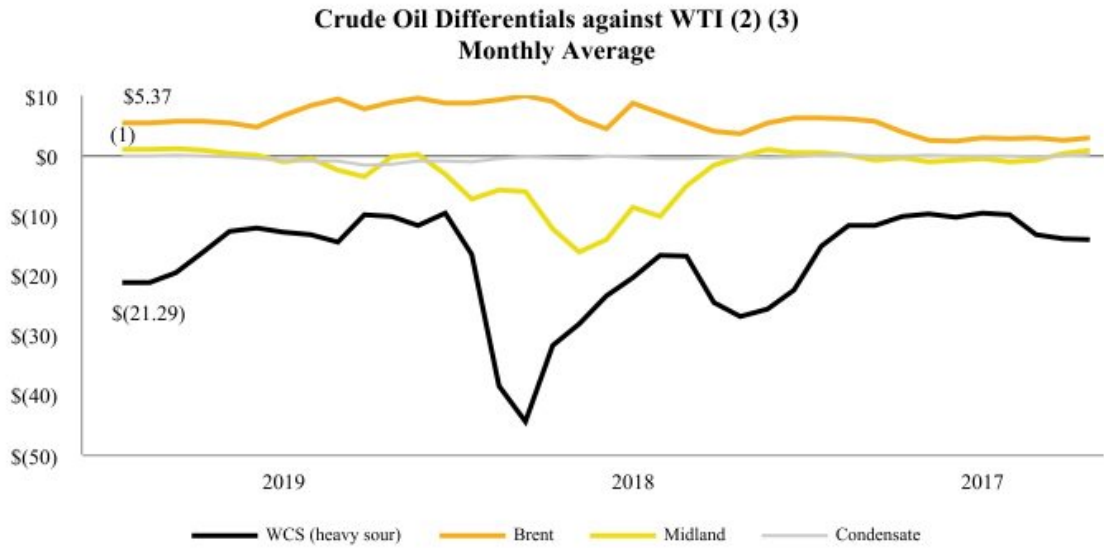
2019 Market Conditions

NYMEX WTI crude oil is an industry wide benchmark that is utilized in the market pricing of a barrel of crude oil. Other crude oils that are compared to WTI, known as differentials, show how the market for other crude oils such as WCS, White Cliffs ("Condensate"), Brent Crude ("Brent"), and Midland WTI ("Midland") are trending. During 2019, there were price fluctuations within these differentials due to the continued curtailments imposed by the Alberta government, therefore, tightening the WCS to WTI differential. Additionally, there have been start-up and line fill of new pipelines from West Texas to the Gulf Coast further tightening the domestic differentials against WTI.

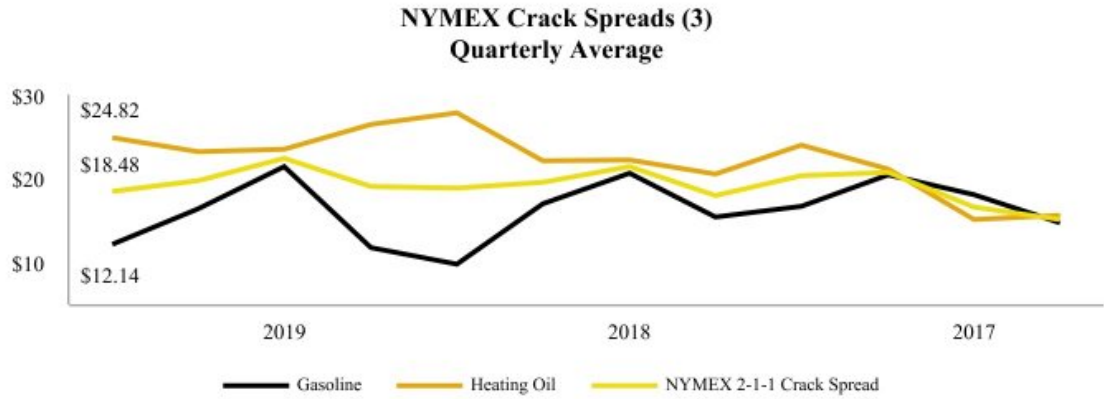
As a performance benchmark and a comparison with other industry participants, we utilize the NYMEX and the Mid-Continent crack spreads. These crack spreads are a measure of the difference between market prices for crude oil and refined products and is a commonly used proxy within the industry to estimate or identify trends in refining margins. Crack spreads can fluctuate significantly over time as a result of market conditions and supply and demand balances. The NYMEX 2-1-1 crack spread is calculated using two barrels of WTI producing one barrel of NYMEX RBOB Gasoline ("RBOB") and one barrel of NYMEX NY Harbor ULSD ("HO"). The Mid-Continent 2-1-1 crack spread is calculated using two barrels of WTI crude oil producing one barrel of Group 3 gasoline and one barrel of Group 3 diesel.

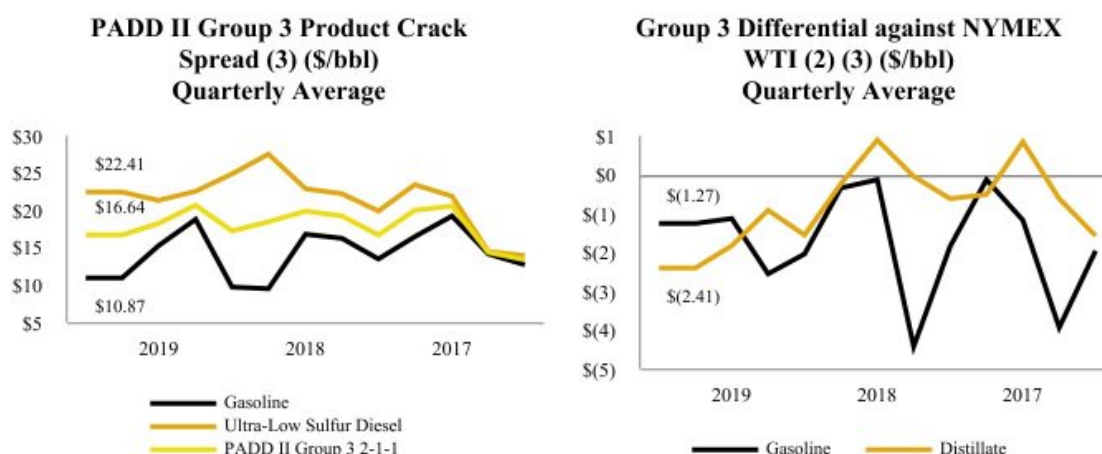
NYMEX 2-1-1 crack spreads increased during 2019 compared to 2018 while the Mid-Continent 2-1-1 crack spreads showed a reduction. The NYMEX 2-1-1 crack spread averaged \$19.93 per barrel in 2019 compared to \$19.42 per barrel in 2018. The Mid-Continent 2-1-1 crack spread averaged \$18.22 per barrel in 2019 compared to \$18.63 per barrel in 2018.

The tables below are presented, on a per barrel basis, for the years ended December 31, 2019, 2018, and 2017:



(1) For December 2019, the average differentials for Midland and Condensate were \$0.97 and \$(0.15), respectively.





(2) The change over time in NYMEX - WTI, as reflected in the charts above, is illustrated below.

(in \$/bbl)	Average 2017	Average December 2017	Average 2018	Average December 2018	Average 2019	Average December 2019
WTI	\$ 50.95	\$ 57.95	\$ 64.77	\$ 48.98	\$ 57.03	\$ 61.06

(3) Information used within these charts was obtained from MarketView.

Nitrogen Fertilizer Segment

Within the Nitrogen Fertilizer Segment, earnings and cash flows from operations are primarily affected by the relationship between nitrogen fertilizer product prices, utilization rates, and operating costs and expenses, including pet coke and natural gas feedstock costs.

The price at which nitrogen fertilizer products are ultimately sold depends on numerous factors, including the global supply and demand for nitrogen fertilizer products which, in turn, depends on, among other factors, world grain demand and production levels, changes in world population, the cost and availability of fertilizer transportation infrastructure, weather conditions, the availability of imports, and the extent of government intervention in agriculture markets.

Nitrogen fertilizer prices are also affected by local factors, including local market conditions and the operating levels of competing facilities. An expansion or upgrade of competitors' facilities, new facility development, political and economic developments and other factors are likely to continue to play an important role in nitrogen fertilizer industry economics. These factors can impact, among other things, the level of inventories in the market, resulting in price volatility and a reduction in product margins. Moreover, the industry typically experiences seasonal fluctuations in demand for nitrogen fertilizer products.

2019 Market Conditions

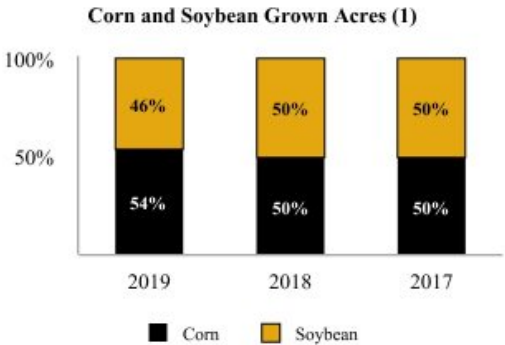
While there is risk of short-term volatility given the inherent nature of the commodity cycle, the Company believes the long-term fundamentals for the U.S. nitrogen fertilizer industry remain intact. The Nitrogen Fertilizer Segment views the anticipated combination of (i) increasing global population, (ii) decreasing arable land per capita, (iii) continued evolution to more protein-based diets in developing countries, (iv) sustained use of corn as feedstock for the domestic production of ethanol and (v) positioning at the lower end of the global cost curve should continue to provide a solid foundation for nitrogen fertilizer producers in the U.S. over the longer term.

During 2019, weather significantly impacted the demand for UAN and ammonia due to lack of extended dry conditions required for planting, caused by excessive rain delaying planting of corn and soybean crops. However, as a result of this delay, there was additional demand for UAN and ammonia due to the catch up from the late start to 2019 application season, but the fall season also had excessive moisture, which limited the ability to apply nitrogen. Consistent with the past 18 months,

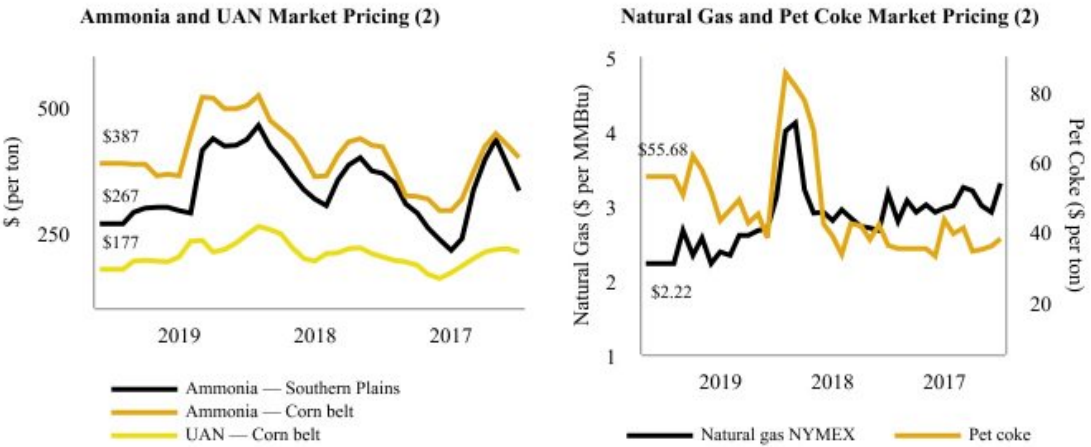
customers have been purchasing fertilizers more ratably and the expectations that harvest will be later than normal has led customers to stage their buying. Weather (i.e., heavy rains, flooding, etc.) is going to dictate the timing of harvest and the available window for ammonia application.

Corn and soybean are two major crops planted by farmers in the U.S. Corn crop has shown to deplete the amount of nitrogen and ammonia within the soil it is grown in, which in turn, results in a need for these nutrients to be replenished after each growing cycle. Unlike corn, soybean is able to obtain its own nitrogen through a process known as “N fixation”. As such, upon harvesting of soybean, the soil retains a certain amount of nitrogen which results in lower demand for nitrogen for the pursuing corn planting cycle. Due to these factors, nitrogen fertilizer consumers generally follow a balanced corn-soybean rotational planting cycle as evident through the chart presented below for 2018 and 2017. Due to the significant weather conditions discussed above, the 2019 planting cycle relied more heavily on corn planting to obtain sufficient crop harvests, which slightly adjusted this balance.

The relationship between the total acres planted for both corn and soybean has a direct impact on the overall demand for UAN and ammonia products. As the number of “corn” acres increases, the market and demand for UAN and ammonia also increases. Correspondingly, as the number of “soybean” acres increases the market and demand for UAN and ammonia decreases.



The table below shows relevant market indicators for the Nitrogen Fertilizer Segment by month through December 31, 2019:



(1) Information used within this chart was obtained from the United States Department of Agriculture, National Agricultural Statistics Service.

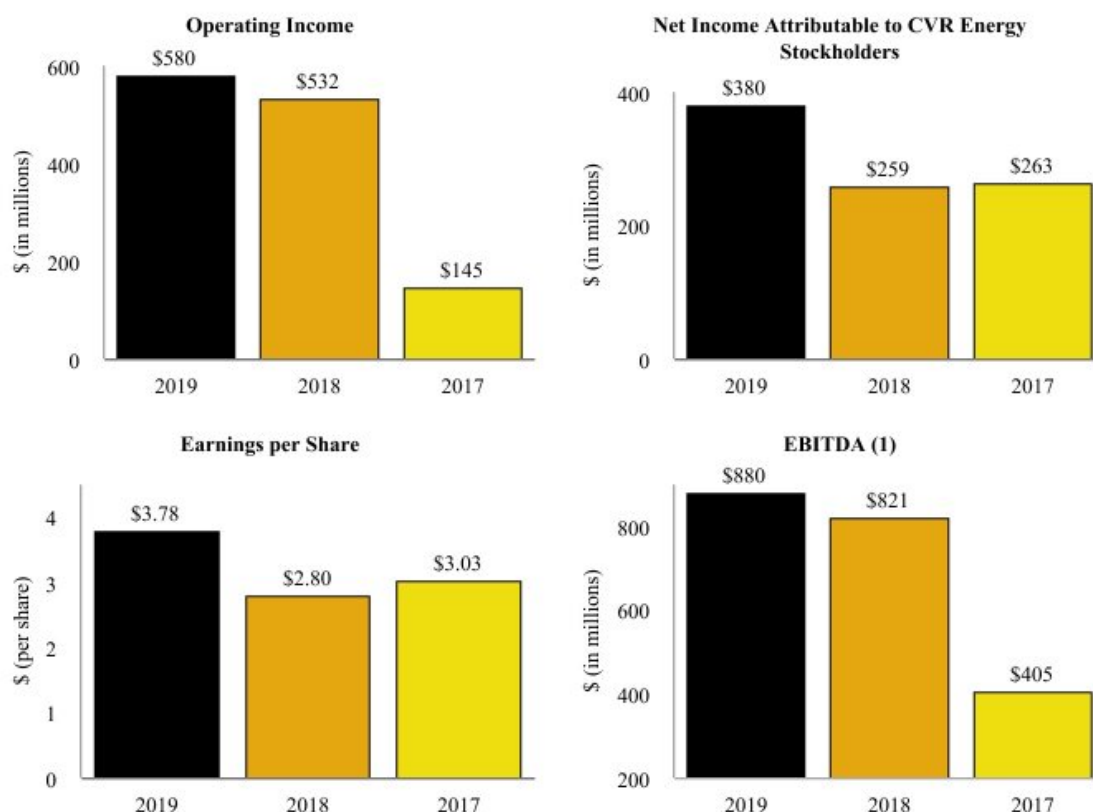
(2) Information used within these charts was obtained from various third-party sources including Green Markets (a Bloomberg Company), Pace Petroleum Coke Quarterly, and the U.S. Energy Information Administration (“EIA”), amongst others.

Results of Operations

Consolidated

The following sections should be read in conjunction with the information outlined within the previous sections of this Part II, Item 7, and the consolidated financial statements and related notes thereto in Part II, Item 8 of this Report. Our consolidated results of operations include certain other unallocated corporate activities and the elimination of intercompany transactions and therefore do not equal the sum of the operating results of the Petroleum and Nitrogen Fertilizer Segments.

Consolidated Financial Highlights



(1) See “Non-GAAP Reconciliations” section below for reconciliations of the non-GAAP measures shown below.

Overview - The Petroleum Segment’s operating income and net income were \$574 million and \$559 million, respectively, for the year ended December 31, 2019. The increases of \$30 million and \$48 million, respectively, are driven primarily by higher refining margins when compared to the year ended December 31, 2018. Refining margin was \$1,203 million, or \$15.26 per throughput barrel, for the year ended December 31, 2019, as compared to \$1,178 million, or \$15.18 per throughput barrel for the year ended December 31, 2018. The increase in refining margin of \$25 million is primarily due to increased throughput volumes and lower RINs expense due to a reduction in market prices. Further, there was a gain on the sale of the Cushing, Oklahoma crude oil terminal of \$9 million (occurred in the second quarter of 2019), positively impacting the Petroleum Segment. For the year ended December 31, 2019, the Nitrogen Fertilizer Segment net sales increased by \$53 million to \$404

million as a result of favorable pricing and higher volumes. The increase in volumes was primarily attributable to a shift in demand from the fourth quarter 2018 to the second quarter of 2019 due to inclement weather.

Income Tax Expense - Income tax expense for the year ended December 31, 2019 was \$129 million, or 26.2% of income before income taxes, as compared to income tax expense for the year ended December 31, 2018 of \$79 million, or 17.8% of income before income taxes. The fluctuation in income tax expense was due primarily to the decrease in non-controlling interest from the year ended December 31, 2018 to the year ended December 31, 2019. The decrease in non-controlling interest is due to the Company's January 29, 2019 purchase of all issued and outstanding CVR Refining common units not already owned by the Company. Refer to Note 1 ("Organization and Nature of Business") for a further discussion of this transaction. The effective income tax rate varies from the federal statutory income tax rate primarily as a result of the decrease in non-controlling interest and the benefits of state income tax credits.

Segment Financial Highlights and Results of Operations

Petroleum Segment

The Petroleum Segment utilizes certain inputs within its refining operations. These inputs include crude oil, butanes, natural gasoline, ethanol, and bio-diesel (these are also known as "throughputs").

Refining Throughput and Production Data by Refinery

Throughput Data

(in bpd)

	Year Ended December 31,		
	2019	2018	2017
Coffeyville			
Regional crude	49,093	31,350	34,805
WTI	67,382	66,952	84,460
WTL	473	—	—
Midland WTI	3,888	15,893	—
Condensate	4,331	4,992	2,169
Heavy Canadian	4,711	5,302	10,135
Other feedstocks and blendstocks	9,160	8,369	9,921
Wynnewood			
Regional crude	53,848	54,746	27,750
WTI	3	2,354	15,251
WTL	668	—	—
Midland WTI	10,995	10,332	29,045
Condensate	7,666	7,237	1,134
Other feedstocks and blendstocks	3,753	5,068	3,511
Total throughput	215,971	212,595	218,181

Production Data

(in bpd)

Coffeyville

	Year Ended December 31,		
	2019	2018	2017
Gasoline	71,817	67,091	72,778
Distillate	57,549	56,307	59,593
Other liquid products	5,810	5,737	4,704
Solids	4,573	5,190	6,631

Wynnewood

Gasoline	38,864	40,291	38,311
Distillate	32,380	33,442	30,816
Other liquid products	3,223	4,025	5,429
Solids	30	41	54

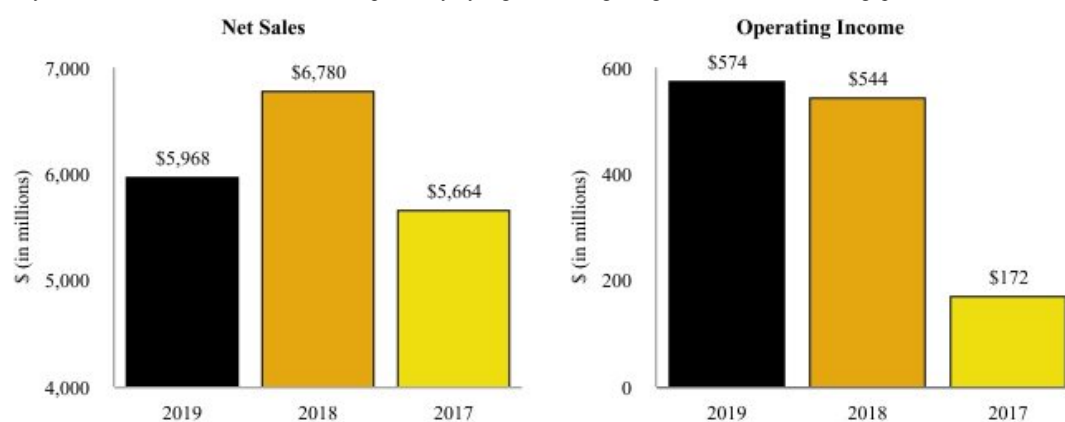
Total production

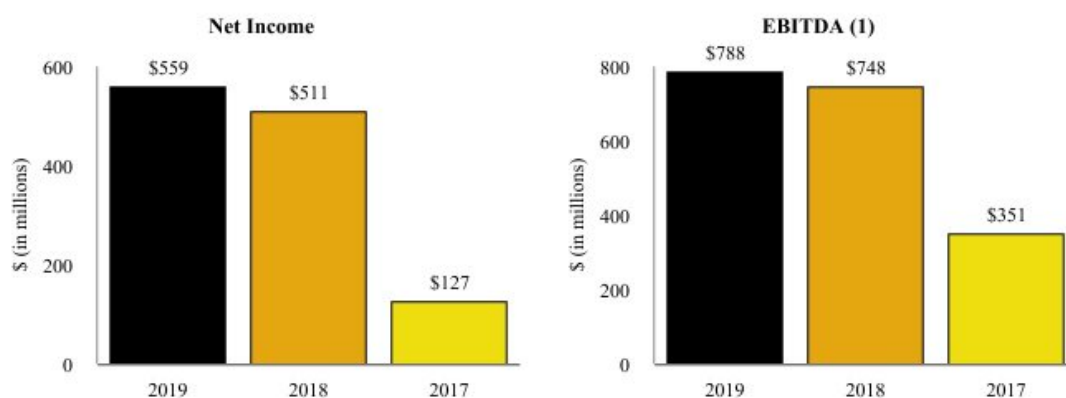
214,246	212,124	218,316
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Liquid volume yield	97.1 %	97.3 %	96.9 %
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Financial Highlights

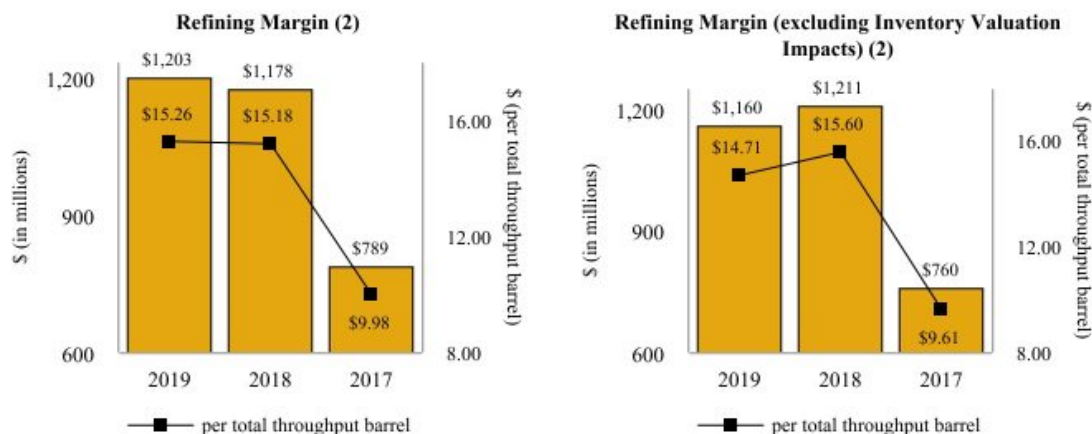
Overview - Petroleum Segment operating income and net income for the year ended December 31, 2019 was \$574 million and \$559 million, a \$30 million and \$48 million increase respectively over the year ended December 31, 2018, driven primarily by higher refining margins and increased throughput volumes.





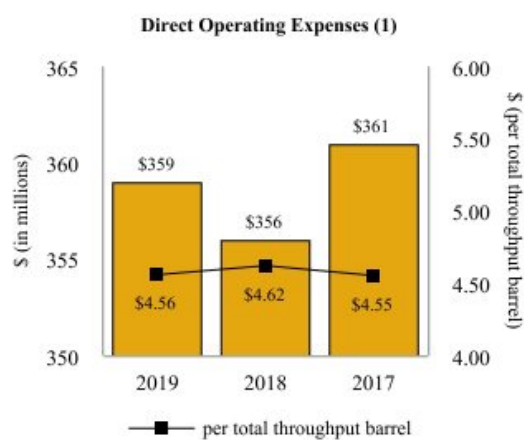
(1) See “Non-GAAP Reconciliations” section below for reconciliations of the non-GAAP measures shown below.

Net sales for the Petroleum Segment decreased by \$812 million for the year ended December 31, 2019, when compared to the year ended December 31, 2018, primarily due to lower gasoline and distillate prices. However, the Petroleum Segment's EBITDA improved by \$40 million from 2018 mainly due to decreased raw materials costs and favorable inventory impact.



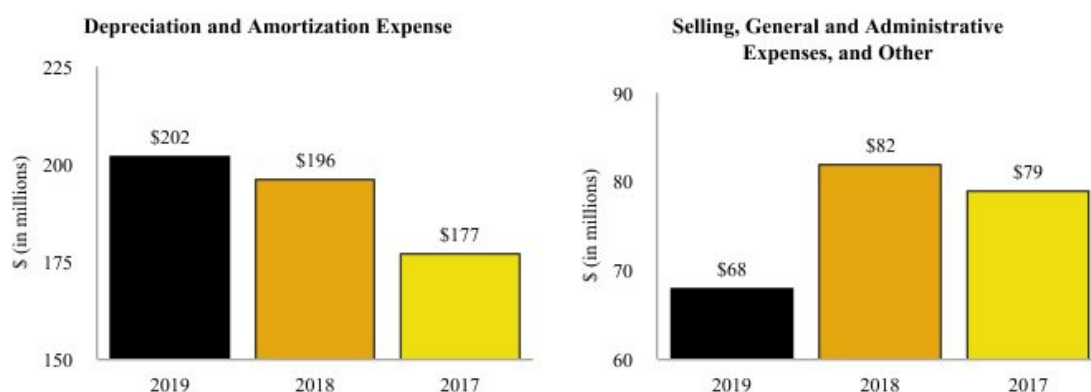
(2) See “Non-GAAP Reconciliations” section below for reconciliations of the non-GAAP measures shown below.

Refining Margin - Refining margin was \$1,203 million, or \$15.26 per throughput barrel, for the year ended December 31, 2019, as compared to \$1,178 million, or \$15.18 per throughput barrel, for the year ended December 31, 2018, primarily due to increased throughput volumes and lower RINs expense resulting from a reduction in market prices, partially offset by decreased gains on derivatives in the current period. Total throughput averaged 215,971 bpd for the year ended December 31, 2019 as compared to 212,595 bpd for the same period in 2018. Derivative gains decreased by \$127 million during 2019 compared to 2018.



(1) Exclusive of depreciation and amortization expense.

Direct Operating Expenses (Exclusive of Depreciation and Amortization) - Direct operating expenses on a total throughput barrel basis decreased to \$4.56 per barrel from \$4.62 per barrel largely due to the increased throughput volumes. Direct operating expenses (exclusive of depreciation and amortization) were \$359 million for the year ended December 31, 2019 compared to \$356 million for the year ended December 31, 2018. The increase of approximately \$3 million was primarily due to increased personnel costs, partially offset by lower natural gas prices.



Depreciation and Amortization Expense - Depreciation and amortization expense increased approximately \$6 million for the year ended December 31, 2019 compared to the year ended December 31, 2018, as a result of net additions during the current year. Capitalization of turnaround expense along with adoption of ASC 842 also contributed to this increase.

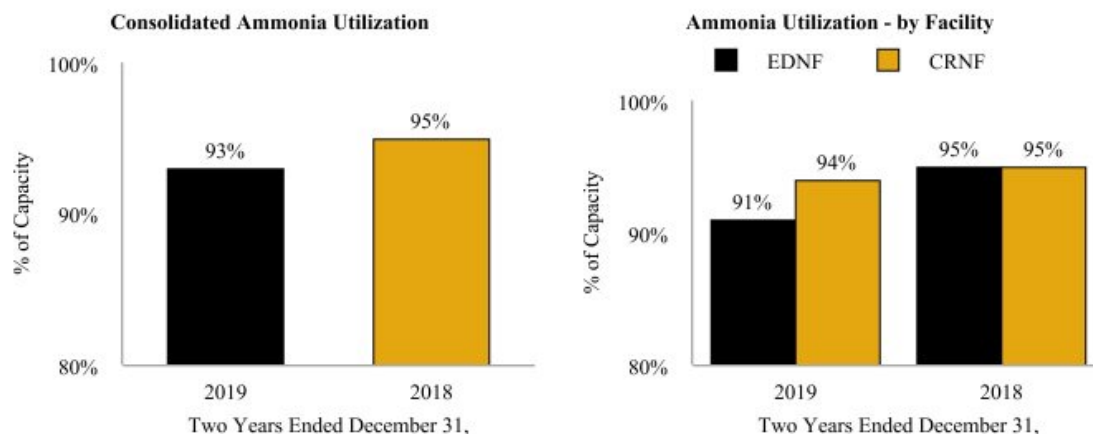
Selling, General, and Administrative Expenses, and Other - Selling, general and administrative expenses and other was \$68 million for the year ended December 31, 2019 compared to \$82 million for the year ended December 31, 2018. The \$14 million decrease was primarily a result of a \$9 million gain on the sale of the Cushing, Oklahoma crude oil terminal in the second quarter of 2019 and a decrease in project write-offs in 2019 compared to 2018.

Nitrogen Fertilizer Segment

The following tables summarize the ammonia utilization at the Coffeyville and East Dubuque facilities. Utilization is an important measure used by management to assess operational output at each of the Nitrogen Fertilizer Segment's facilities. Utilization is calculated as actual tons produced divided by capacity adjusted for planned maintenance and turnarounds.

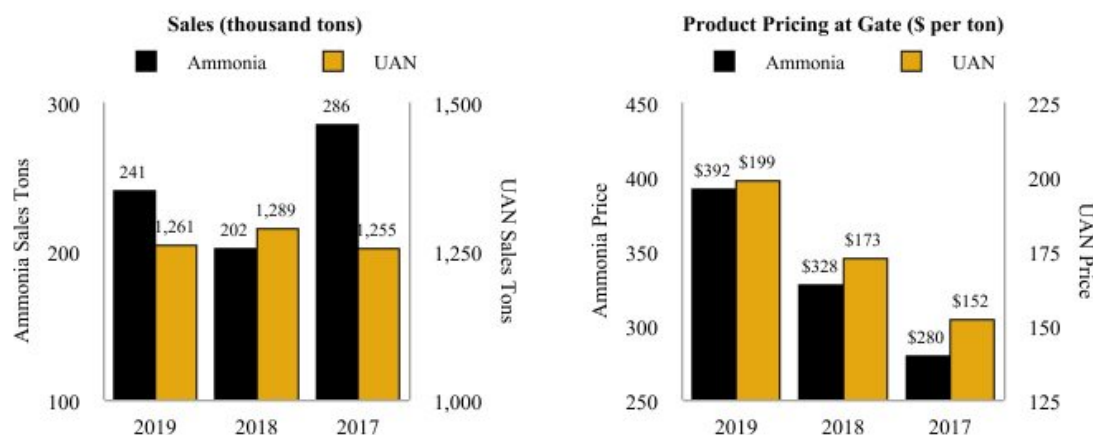
The presentation of our utilization is on a two-year rolling average which takes into account the impact of our planned and unplanned outages on any specific period. We believe the two-year rolling average is a more useful presentation of the long-term utilization performance of the Nitrogen Fertilizer Segment's facilities.

Utilization is presented solely on ammonia production, rather than each nitrogen product, as it provides a comparative baseline against industry peers and eliminates the disparity of facility configurations for upgrade of ammonia into other nitrogen products. With efforts primarily focused on ammonia upgrade capabilities, we believe this measure provides a meaningful view of how well we operate.



On a consolidated basis, the Nitrogen Fertilizer Segment's utilization decreased 2% to 93% for the two years ended December 31, 2019 compared to the two years ended December 31, 2018. This decrease was primarily a result of ammonia storage capacity constraints at the East Dubuque Facility in the first quarter of 2019 due to inclement weather impacting customers' ability to apply ammonia and the turnaround at the East Dubuque Facility in the fourth quarter of 2019.

Sales and Pricing per Ton - Two of the Nitrogen Fertilizer Segment's key operating metrics are total sales for ammonia and UAN along with the product pricing per ton realized at the gate. Product pricing at gate represents net sales less freight revenue divided by product sales volume in tons and is shown in order to provide a pricing measure comparable across the fertilizer industry.



Production Volumes - Gross tons produced for ammonia represent the total ammonia produced, including ammonia produced, that was upgraded into other fertilizer products. Net tons available for sale represent the ammonia available for sale that was not upgraded into other fertilizer products. The table below presents these Nitrogen Fertilizer Segment metrics for the years ended December 31, 2019, 2018 and 2017:

(in thousands of tons)

Ammonia (gross produced)

Ammonia (net available for sale)

UAN

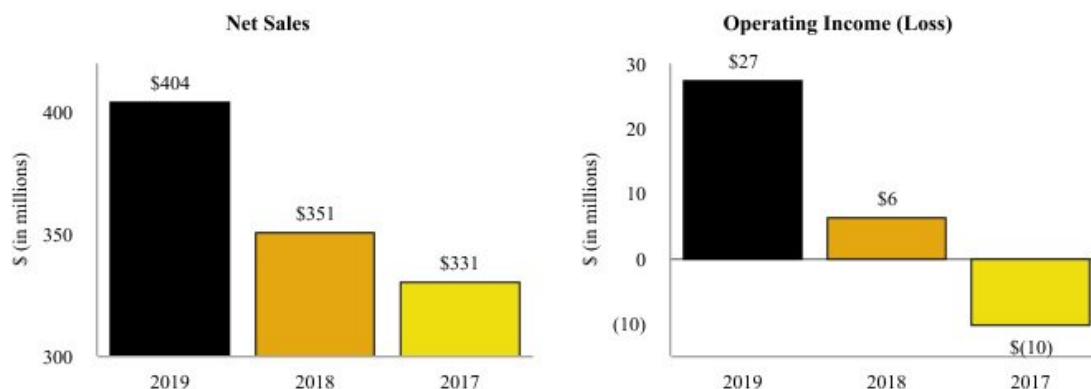
Feedstock - Our Coffeyville Facility utilizes a pet coke gasification process to produce nitrogen fertilizer. Our East Dubuque Facility uses natural gas in its production of ammonia. The table below presents these feedstocks for both facilities within the Nitrogen Fertilizer Segment for the years ended December 31, 2019, 2018, and 2017:

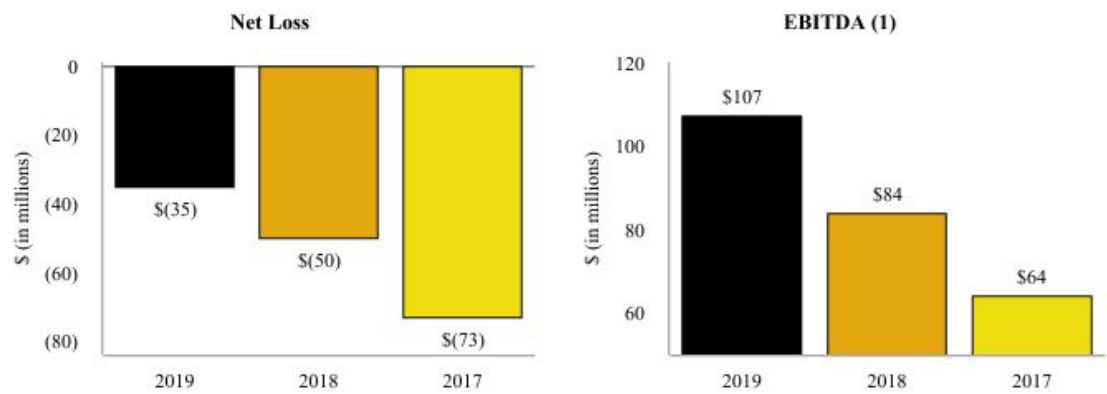
	Year Ended December 31,		
	2019	2018	2017
Petroleum coke used in production (thousand tons)	535	463	488
Petroleum coke (dollars per ton)	\$ 37.47	\$ 28.41	\$ 16.56
Natural gas used in production (thousands of MMBtu) (1)	6,856	7,933	7,620
Natural gas used in production (dollars per MMBtu) (1)	\$ 2.88	\$ 3.28	\$ 3.24
Natural gas cost of materials and other (thousands of MMBtu) (1)	6,961	7,122	8,052
Natural gas cost of materials and other (dollars per MMBtu) (1)	\$ 3.08	\$ 3.15	\$ 3.26

(1) The feedstock natural gas shown above does not include natural gas used for fuel. The cost of fuel natural gas is included in Direct operating expenses (exclusive of depreciation and amortization).

Financial Highlights

Overview - For the year ended December 31, 2019, Nitrogen Fertilizer Segment operating income and net loss were \$27 million and \$35 million, a \$21 million increase and \$15 million decrease, respectively, over the year ended December 31, 2018 driven primarily by increased sales volumes and pricing.





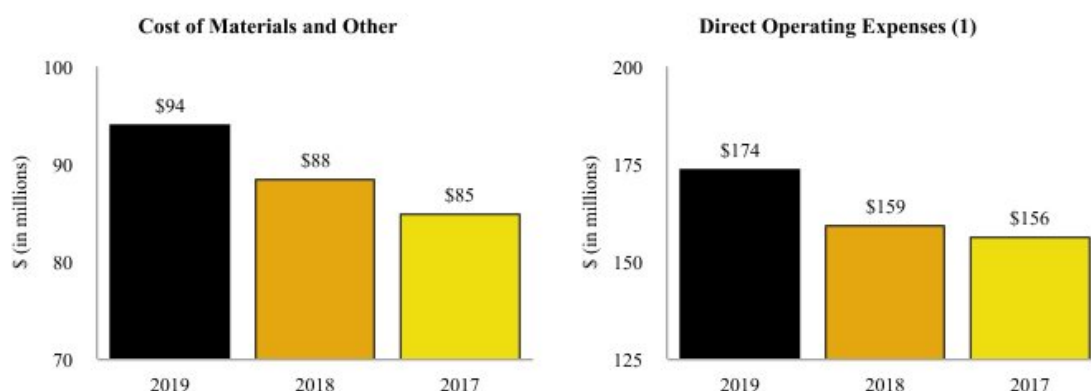
(1) See “Non-GAAP Reconciliations” section below for reconciliations of the non-GAAP measures shown below.

Net Sales - The Nitrogen Fertilizer Segment’s net sales increased by \$53 million to \$404 million for the year ended December 31, 2019 compared to the year ended December 31, 2018. This increase was primarily due to favorable pricing conditions which contributed \$49 million in higher revenues coupled with increased sales volumes contributing \$8 million as compared to the year ended December 31, 2018. The increase in net sales was partially offset by a \$3 million decrease in Urea sales. For the years ended December 31, 2019 and 2018, net sales included \$33 million and \$34 million in freight revenues, respectively, and \$8 million and \$8 million in other revenue, respectively.

The following table demonstrates the impact of changes in sales volumes and pricing for the primary components of net sales, excluding freight, for the year ended December 31, 2019 as compared to the year ended December 31, 2018:

(in millions)	Price Variance		Volume Variance	
	\$		\$	
UAN		34		(5)
Ammonia		15		13

The increase in UAN and ammonia sales pricing for the year ended December 31, 2019 compared to the year ended December 31, 2018 was primarily attributable to a shift in the timing of demand from the fourth quarter of 2018 to the second quarter of 2019, as customers delayed receipt of nitrogen products due to continued inclement weather. As a result, customer demand for ammonia increased in the second quarter of 2019 as customers attempted to make up for the missed application. In addition, the aforementioned ammonia application, coupled with freezing temperatures and flooding throughout the Midwest and Southern Plains in 2019, shifted the demand for ammonia, resulting in increased sales volumes for the year ended December 31, 2019 compared to the year ended December 31, 2018. The decrease in Urea sales for the year ended December 31, 2019 compared to the year ended December 31, 2018 was a result of the turnaround at our East Dubuque Facility.



(1) Exclusive of depreciation and amortization expense.

Cost of Materials and Other - Cost of materials and other for the year ended December 31, 2019 was \$94 million, compared to \$88 million for the year ended December 31, 2018. The \$6 million increase was comprised primarily of a \$5 million increase in pet coke costs at our Coffeyville Facility and a \$6 million increase related to a draw in our ammonia and UAN inventories offset by decreased natural gas costs at our East Dubuque facility contributing \$5 million.

Direct Operating Expenses (exclusive of depreciation and amortization) - For the year ended December 31, 2019, direct operating expenses (exclusive of depreciation and amortization) were \$174 million as compared to \$159 million for the year ended December 31, 2018. The \$15 million increase was primarily due to increased turnaround costs of \$3 million, increased repairs and maintenance costs of \$1 million, and an inventory draw contributing \$10 million.



Depreciation and Amortization Expense - Depreciation and amortization expense increased \$8 million for the year ended December 31, 2019 compared to the year ended December 31, 2018, as a result of accelerated depreciation of certain assets, coupled with additions to property, plant, and equipment during the current year.

Selling, General, and Administrative Expenses, and Other - Selling, general and administrative expenses and other increased approximately \$4 million for the year ended December 31, 2019 compared to the year ended December 31, 2018. The increase was primarily related to asset write offs in the period contributing \$3 million, coupled with increased personnel costs contributing \$1 million.

Non-GAAP Measures

Our management uses certain non-GAAP performance measures to evaluate current and past performance and prospects for the future to supplement our GAAP financial information presented in accordance with U.S. GAAP. These non-GAAP financial measures are important factors in assessing our operating results and profitability and include the performance and liquidity measures defined below.

Effective January 1, 2019, the Company revised its accounting policy method for the costs of planned major maintenance activities (turnarounds) specific to the Petroleum Segment from being expensed as incurred (the direct expensing method) to the deferral method. Refer to Part II, Item 8, Note 2 (“Summary of Significant Accounting Policies”) for a further discussion of the impacts of this change in accounting policy. As a result of this change in accounting policy, the non-GAAP measures of Adjusted EBITDA, Petroleum Adjusted EBITDA, Nitrogen Fertilizer Adjusted EBITDA, Adjusted Net Income (Loss), and Direct Operating Expenses per Total Throughput Barrel net of Turnaround Expense are no longer being presented.

The following are non-GAAP measures we present for the year ended December 31, 2019:

EBITDA - Consolidated net income (loss) before (i) interest expense, net, (ii) income tax expense (benefit) and (iii) depreciation and amortization expense.

Petroleum EBITDA and Nitrogen Fertilizer EBITDA - Segment net income (loss) before segment (i) interest expense, net, (ii) income tax expense (benefit), and (iii) depreciation and amortization.

Refining Margin - The difference between our Petroleum Segment net sales and cost of materials and other.

Refining Margin adjusted for Inventory Valuation Impacts - Refining Margin adjusted to exclude the impact of current period market price and volume fluctuations on crude oil and refined product inventories recognized in prior periods. We record our commodity inventories on the first-in-first-out basis. As a result, significant current period fluctuations in market prices and the volumes we hold in inventory can have favorable or unfavorable impacts on our refining margins as compared to similar metrics used by other publicly-traded companies in the refining industry.

Refining Margin and Refining Margin adjusted for Inventory Valuation Impacts, per Throughput Barrel - Refining Margin divided by the total throughput barrels during period, which is calculated as total throughput barrels per day times the number of days in the period.

Direct Operating Expenses per Throughput Barrel - Direct operating expenses for our Petroleum Segment divided by total throughput barrels for the period, which is calculated as total throughput barrels per day times the number of days in the period.

We present these measures because we believe they may help investors, analysts, lenders and ratings agencies analyze our results of operations and liquidity in conjunction with our U.S. GAAP results, including but not limited to our operating performance as compared to other publicly-traded companies in the refining industry, without regard to historical cost basis or financing methods and our ability to incur and service debt and fund capital expenditures. Non-GAAP measures have important limitations as analytical tools, because they exclude some, but not all, items that affect net earnings and operating income. These measures should not be considered substitutes for their most directly comparable U.S. GAAP financial measures. See “*Non-GAAP Reconciliations*” included herein for reconciliation of these amounts. Due to rounding, numbers presented within this section may not add or equal to numbers or totals presented elsewhere within this document.

Factors Affecting Comparability of Our Financial Results

Refer to the “Non-GAAP Measures” section above for discussion of the changes made to the Company’s definition of certain non-GAAP measures.

Petroleum Segment

Coffeyville Refinery - During the fourth quarter of 2019, our Coffeyville Refinery incurred costs of \$15 million related to preparations for the planned turnaround scheduled to be completed in the spring of 2020. During the first quarter of 2018, our Coffeyville Refinery experienced an outage with its fluid catalytic cracking unit (“FCCU”) lasting 48 days. The FCCU outage had a significant negative impact on production and sales during that period.

Wynnewood Refinery - During the first quarter of 2017, the Wynnewood Refinery underwent a turnaround on its hydrocracking unit at a cost of \$13 million. In addition, the first phase of its planned facility turnaround was completed in the fourth quarter of 2017 at a cost of \$43 million. The second phase of this turnaround was completed in the first quarter of 2019 at a cost of \$24 million.

Nitrogen Fertilizer Segment

During the fourth quarter of 2018, the Partnership recognized a \$6 million business interruption insurance recovery associated with an outage at its Coffeyville Fertilizer Facility during 2017. The recovery is recorded in Other income, net.

Coffeyville Fertilizer Facility - During 2018, the Coffeyville Fertilizer Facility had a planned, full facility turnaround lasting 15 days and incurred approximately \$6 million in turnaround expense in the second quarter of 2018. During 2017, the Coffeyville Fertilizer Facility’s third-party air separation unit experienced a shut down. Paired with this shut down and subsequent operational challenges, the Coffeyville Fertilizer Facility experienced unplanned UAN downtime of 11 days during the second quarter of 2017.

East Dubuque Fertilizer Facility - During 2019, the East Dubuque Fertilizer Facility had a planned, full facility turnaround lasting 32 days and cost approximately \$10 million in the third and fourth quarters of 2019. During 2017, the East Dubuque Fertilizer Facility had a planned, full facility turnaround lasting 14 days and incurred approximately \$3 million in turnaround expense in the third quarter of 2017. Additionally, during the fourth quarter of 2017, the East Dubuque Fertilizer Facility experienced unplanned downtime totaling 12 days.

Non-GAAP Reconciliations

Reconciliation of Net Income to EBITDA

(in millions)	Year Ended December 31,		
	2019	2018	2017
Net income	\$ 362	\$ 366	\$ 258
Add:			
Interest expense, net	102	102	109
Income tax expense (benefit)	129	79	(220)
Depreciation and amortization	287	274	258
EBITDA	<u>\$ 880</u>	<u>\$ 821</u>	<u>\$ 405</u>

Reconciliation of Petroleum Segment Net Income to EBITDA

(in millions)	Year Ended December 31,		
	2019	2018	2017
Petroleum net income	\$ 559	\$ 511	\$ 127
Add:			
Interest expense, net	27	41	47
Depreciation and amortization	202	196	177
Petroleum EBITDA	\$ 788	\$ 748	\$ 351

Reconciliation of Petroleum Segment Gross Profit to Refining Margin and Refining Margin Adjusted for Inventory Valuation Impact

(in millions)	Year Ended December 31,		
	2019	2018	2017
Net sales	\$ 5,968	\$ 6,780	\$ 5,664
Cost of materials and other	4,765	5,602	4,875
Direct operating expenses (exclusive of depreciation and amortization as reflected below)	359	356	361
Depreciation and amortization	199	192	173
Gross profit	645	630	255
Add:			
Direct operating expenses (exclusive of depreciation and amortization as reflected below)	359	356	361
Depreciation and amortization	199	192	173
Refining margin	1,203	1,178	789
Inventory valuation impact, unfavorable (favorable) (1)	(43)	33	(29)
Refining margin, excluding inventory valuation impacts	\$ 1,160	\$ 1,211	\$ 760

- (1) The Petroleum Segment's basis for determining inventory value under GAAP is First-In, First-Out ("FIFO"). Changes in crude oil prices can cause fluctuations in the inventory valuation of crude oil, work in process and finished goods, thereby resulting in a favorable inventory valuation impact when crude oil prices increase and an unfavorable inventory valuation impact when crude oil prices decrease. The inventory valuation impact is calculated based upon inventory values at the beginning of the accounting period and at the end of the accounting period. In order to derive the inventory valuation impact per total throughput barrel, we utilize the total dollar figures for the inventory valuation impact and divide by the number of total throughput barrels for the period.

Reconciliation of Petroleum Segment Total Throughput Barrels

	Year Ended December 31,		
	2019	2018	2017
Total throughput barrels per day	215,971	212,595	218,181
Days in the period	365	365	365
Total throughput barrels	78,829,441	77,597,175	79,636,065

Reconciliation of Petroleum Segment Refining Margin per Total Throughput Barrel

(in millions, except per total throughput barrel)	Year Ended December 31,		
	2019	2018	2017
Refining margin	\$ 1,203	\$ 1,178	\$ 789
Divided by: total throughput barrels	79	78	80
Refining margin per total throughput barrel	\$ 15.26	\$ 15.18	\$ 9.98

Reconciliation of Petroleum Segment Refining Margin Adjusted for Inventory Valuation Impact per Total Throughput Barrel

(in millions, except per total throughput barrel)

Refining margin, excluding inventory valuation impact

Divided by: total throughput barrels

Refining margin per total throughput barrel

Year Ended December 31,		
2019	2018	2017
\$ 1,160	\$ 1,211	\$ 760
79	78	80
\$ 14.71	\$ 15.60	\$ 9.61

Reconciliation of Petroleum Segment Direct Operating Expenses per Total Throughput Barrel

(in millions, except per total throughput barrel)

Direct operating expenses (exclusive of depreciation and amortization)

Divided by: total throughput barrels

Direct operating expenses per total throughput barrel

Year Ended December 31,		
2019	2018	2017
\$ 359	\$ 356	\$ 361
79	78	80
\$ 4.56	\$ 4.62	\$ 4.55

Reconciliation of Nitrogen Fertilizer Segment Net Loss to EBITDA

(in millions)

Nitrogen fertilizer net loss

Add:

Interest expense, net

Depreciation and amortization

Nitrogen fertilizer EBITDA

Year Ended December 31,		
2019	2018	2017
\$ (35)	\$ (50)	\$ (73)
62	62	63
80	72	74
\$ 107	\$ 84	\$ 64

Liquidity and Capital Resources

Our principal source of liquidity has historically been cash from operations. Our principal uses of cash are for working capital, capital expenditures, funding our debt service obligations and paying dividends to our stockholders, as further discussed below.

We believe that our cash from operations and existing cash and cash equivalents, along with borrowings, as necessary, under CVR Partners' AB Credit Facility and CVR Refining's Amended and Restated ABL Credit Facility, will be sufficient to satisfy anticipated cash requirements associated with our existing operations for at least the next 12 months. However, our future capital expenditures and other cash requirements could be higher than we currently expect as a result of various factors. Additionally, our ability to generate sufficient cash from our operating activities and secure additional financing depends on our future operational performance, which is subject to general economic, political, financial, competitive, and other factors, some of which may be beyond our control.

Depending on the needs of our business, contractual limitations, and market conditions, we may from time to time seek to issue equity securities, incur additional debt, issue debt securities, or otherwise refinance our existing debt. There can be no assurance that we will seek to do any of the foregoing or that we will be able to do any of the foregoing on terms acceptable to us or at all.

The Company, and its subsidiaries, were in compliance with all covenants under their respective debt instruments as of December 31, 2019, as applicable.

Cash Balances and Other Liquidity

As of December 31, 2019, we had consolidated cash and cash equivalents of \$652 million, \$393 million available under CVR Refining's Amended and Restated ABL Credit Facility and \$50 million available under CVR Partners' AB Credit Facility.

(in millions)

CVR Partners:

9.25% Senior Secured Notes due June 2023

6.50% Senior Notes due April 2021

Unamortized discount and debt issuance costs

Total CVR Partners debt

CVR Refining:

6.50% Senior Notes due November 2022 (1)

Unamortized debt issuance cost

Total CVR Refining debt

Total long-term debt

	December 31, 2019	December 31, 2018
\$	645	\$ 645
	2	2
	(15)	(18)
\$	632	\$ 629
\$	500	\$ 500
	(3)	(3)
	497	497
\$	1,129	\$ 1,126

(1) On January 27, 2020, the Company redeemed all of the 6.50% Senior Notes due November 2022 for a redemption price equal to 101.083%, plus accrued and unpaid interest, on the redeemed notes.

CVR Partners

The Nitrogen Fertilizer Segment has a 9.25% Senior Secured Notes due 2023, 6.50% Senior Notes due 2021, and an AB Credit Facility, the proceeds of which may be used to fund working capital, capital expenditures, and for other general corporate purposes. Refer to Note 6 ("Long-Term Debt and Finance Lease Obligations") for further discussion.

CVR Refining

As of December 31, 2019, the Petroleum Segment had a 6.50% Senior Secured Notes due 2022 (the "2022 Notes") and an Amended and Restated ABL Credit Facility, the proceeds of which may be used to fund working capital, capital expenditures, and for other general corporate purposes. As discussed above, the Company redeemed all of the 2022 Notes in January 2020. Refer to Note 6 ("Long-Term Debt and Finance Lease Obligations") for further discussion.

CVR Energy

On January 27, 2020, CVR Energy issued \$600 million in aggregate principal amount of 5.25% senior unsecured notes due 2025, (the "2025 Notes"), which mature on February 15, 2025, and \$400 million in aggregate principal amount of 5.75% senior unsecured notes due 2028 (the "2028 Notes"), which mature on February 15, 2028. A portion of the net proceeds from the 2025 Notes and 2028 Notes were used to fund the redemption of the 2022 Notes. The remaining net proceeds will be used for general corporate purposes, which may include funding (i) acquisitions, (ii) capital projects, and/or (iii) share repurchases or other distributions to our stockholders. Refer to Note 6 ("Long-Term Debt and Finance Lease Obligations") for further discussion of the issuance of these new notes and the redemption of the 2022 Notes.

Capital Spending

We divide capital spending needs into two categories: maintenance and growth. Maintenance capital spending includes non-discretionary maintenance projects and projects required to comply with environmental, health, and safety regulations. Growth capital projects generally involve an expansion of existing capacity and/or a reduction in direct operating expenses. We undertake growth capital spending based on the expected return on incremental capital employed.

Our total capitalized costs for the year ended December 31, 2019, along with our estimated expenditures for 2020, by segment, are as follows:

(in millions)	2019 Actual			2020 Estimate (1)					
				Maintenance		Growth		Total	
	Maintenance	Growth	Total	Low	High	Low	High	Low	High
Petroleum	\$ 79	\$ 10	\$ 89	\$ 55	\$ 60	\$ 50	\$ 55	\$ 105	\$ 115
Nitrogen Fertilizer	18	2	20	19	21	4	6	23	27
Other	5	—	5	5	8	—	—	5	8
Total	\$ 102	\$ 12	\$ 114	\$ 79	\$ 89	\$ 54	\$ 61	\$ 133	\$ 150

(1) Total 2020 estimated capitalized costs include approximately \$45 to 55 million of growth related projects that will require additional approvals before commencement.

Our estimated capital expenditures are subject to change due to unanticipated changes in the cost, scope, and completion time for capital projects. For example, we may experience unexpected changes in labor or equipment costs necessary to comply with government regulations or to complete projects that sustain or improve the profitability of the refineries or nitrogen fertilizer facilities. We may also accelerate or defer some capital expenditures from time to time. Capital spending for CVR Partners is determined by the board of directors of its general partner.

In the Petroleum Segment, we capitalized \$38 million and \$8 million of turnaround expenditures incurred during the years ended December 31, 2019 and 2018, respectively. The next planned major turnaround within the Petroleum Segment is at the Coffeyville refinery commencing in the first quarter of 2020 with total estimated expenditures of \$145 million to \$155 million, of which \$130 million to \$140 million is expected to be incurred and capitalized in the spring of 2020. As to the Nitrogen Fertilizer Segment, the East Dubuque facility began a major scheduled turnaround on September 14, 2019, which was completed in October. We incurred \$10 million during the year ended December 31, 2019 related to this turnaround.

Dividends to CVR Energy Stockholders

IEP, through its ownership of the Company's common shares, is entitled to receive dividends that are declared and paid by the Company based on the number of shares held at each record date. The following presents dividends paid to the Company's stockholders, including IEP, during the years ended December 31, 2019:

Related Period	Date Paid	Dividend Per Share	Dividends Paid (in millions)		
			Stockholders	IEP	Total
2018 - 4th Quarter	March 11, 2019	\$ 0.75	\$ 22	\$ 53	\$ 75
2019 - 1st Quarter	May 13, 2019	\$ 0.75	21	54	75
2019 - 2nd Quarter	August 12, 2019	\$ 0.75	21	54	75
2019 - 3rd Quarter	November 11, 2019	\$ 0.80	24	57	81
Total		\$ 3.05	\$ 88	\$ 218	\$ 306

On February 19, 2020, the Company's Board of Directors declared a cash dividend for the fourth quarter of 2019 to the Company's stockholders of \$0.80 per share, or \$80 million in the aggregate. The dividend will be paid on March 9, 2020 to stockholders of record at the close of business on March 2, 2020. IEP will receive approximately \$57 million in respect of its ownership interest in the Company's shares.

Dividends, if any, including the payment, amount and timing thereof, are subject to change at the discretion of the Company's Board of Directors.

During the years ended December 31, 2018 and 2017, the Company paid dividends totaling \$2.50 and \$2.00 per common unit, or \$238 million and \$174 million, respectively. Of these dividends, IEP received \$179 million and \$142 million, respectively, for the same periods.

Distributions to CVR Partners' Unitholders

The following table presents distributions paid by CVR Partners to CVR Partners' unitholders, including amounts received by the Company, as of December 31, 2019.

Related Period	Date Paid	Distribution Per Common Unit	Distributions Paid (in millions)		
			Public Unitholders	CVR Energy	Total
2018 - 4th Quarter	March 11, 2019	\$ 0.12	\$ 9	\$ 5	\$ 14
2019 - 1st Quarter	May 13, 2019	0.07	5	3	8
2019 - 2nd Quarter	August 12, 2019	0.14	11	5	16
2019 - 3rd Quarter	November 11, 2019	0.07	5	3	8
Total		\$ 0.40	\$ 30	\$ 16	\$ 46

Distributions, if any, including the payment, amount, and timing thereof, are subject to change at the discretion of the board of directors of CVR Partners' general partner. No distributions were declared for the fourth quarter of 2019.

The Partnership did not pay distributions during the year ended December 31, 2018, while during the year ended December 31, 2017, it paid a distribution of \$0.02 per common unit, or \$2 million. Of this distribution, CVR Energy received \$1 million.

Capital Structure

On October 23, 2019, the Board of Directors of the Company authorized a stock repurchase program (the "Stock Repurchase Program"). The Stock Repurchase Program would enable the Company to repurchase up to \$300 million of the Company's common stock. Repurchases under the Stock Repurchase Program may be made from time-to-time through open market transactions, block trades, privately negotiated transactions or otherwise in accordance with applicable securities laws. The timing, price and amount of repurchases (if any) will be made at the discretion of management and are subject to market conditions as well as corporate, regulatory and other considerations. While the Stock Repurchase Program currently has a duration of four years, it does not obligate the Company to acquire any stock and may be terminated by the Company's Board of Directors at any time. We did not repurchase any of our common stock during the year ended December 31, 2019.

Cash Flows

The following table sets forth our consolidated cash flows for the periods indicated below:

(in millions)	Year Ended December 31,		
	2019	2018	2017
Net cash provided by (used in):			
Operating activities	\$ 747	\$ 628	\$ 248
Investing activities	(121)	(108)	(276)
Financing activities	(642)	(334)	(226)
Net (decrease) increase in cash and cash equivalents	\$ (16)	\$ 186	\$ (254)

Operating Activities

The change in operating activities for the year ended December 31, 2019, as compared to the year ended December 31, 2018, was primarily due to favorable changes in working capital of \$152 million, partially offset by a reduction in operating results, excluding non-cash items, of \$22 million and unfavorable changes in non-current assets and liabilities of \$11 million.

Investing Activities

The change in investing activities for the year ended December 31, 2019, as compared to the year ended December 31, 2018, was primarily due to the receipt of \$36 million of proceeds from the sale of Cushing assets net of carrying value of inventory sold as part of the divestment. These net proceeds were partially offset by capital expenditures of \$19 million and an increase in turnaround expenditures of \$30 million primarily relating to preparations in the fourth quarter of 2019 for the

Coffeyville refinery turnaround scheduled for completion in 2020 and completion of the Wynnewood refinery turnaround in the second quarter of 2019.

Financing Activities

The change in financing activities for the year ended December 31, 2019, as compared to the year ended December 31, 2018, was primarily due to \$301 million in funds used to acquire the remaining CVR Refining common units not otherwise owned by us, along with increases in CVR Energy dividends and CVR Partners distributions paid to public unitholders of \$68 million and \$30 million, respectively, compared to 2018, partially offset by a decrease in distributions to CVR Refining public unitholders of \$93 million.

Long-Term Commitments

In addition to long-term debt, we are required to make payments relating to various types of obligations. The following table summarizes our minimum payments as of December 31, 2019 relating to contractual obligations and other commercial commitments for the five-year period following December 31, 2019 and thereafter.

(in millions)	Payments Due by Period					
	2020	2021	2022	2023	2024	Thereafter
Contractual Obligations						
Long-term debt (1)	\$ —	\$ 2	\$ 500	\$ 645	\$ —	\$ —
Operating leases (2)	16	14	11	7	4	—
Finance lease obligations (3)	5	6	6	6	7	35
Unconditional purchase obligations (4)	95	80	77	75	71	375
Interest payments (5)	100	99	93	34	3	8
Other long-term liabilities (6)	1	1	2	—	—	2
Total contractual obligations	<u>\$ 217</u>	<u>\$ 202</u>	<u>\$ 689</u>	<u>\$ 767</u>	<u>\$ 85</u>	<u>\$ 420</u>

- (1) Consists of the 2021 Notes, 2022 Notes and 2023 Notes. Subsequent to December 31, 2019, and excluded from the table above, the Company issued the 2025 Notes and 2028 Notes and redeemed the 2022 Notes. Refer to Part II, Item 8, Note 6 (“Long-Term Debt and Finance Lease Obligations”) for further discussion of the issuance of the 2025 Notes and 2028 Notes and the associated redemption of the 2022 Notes.
- (2) We lease railcars, pipelines, storage, real estate, and other assets.
- (3) The amount includes commitments under finance lease arrangements for three leases which include a pipeline lease, a storage and terminal equipment lease, and a bundled truck lease.
- (4) The amount includes (i) commitments for petroleum products storage and petroleum transportation, (ii) electricity supply agreement, (iii) a product supply agreement, (iv) a pet coke supply agreement, (v) commitments related to our biofuels blending obligation, and (vi) various agreements for gas and gas transportation.
- (5) Interest payments for our long-term debt outstanding and finance lease obligations as of December 31, 2019 and commitment fees on the unutilized commitments of the AB Credit Facility.
- (6) The amount includes environmental liabilities. Environmental liabilities represents our estimated payments required by federal and/or state environmental agencies. See Part I, Item 1, “Environmental Matters.”

Off-Balance Sheet Arrangements

We do not have any “off-balance sheet arrangements” as such term is defined within the rules and regulations of the SEC.

Recent Accounting Pronouncements

Refer to Part II, Item 8, Note 2 (“Summary of Significant Accounting Policies”), of this Report for a discussion of recent accounting pronouncements applicable to us.

Critical Accounting Policies

We prepare our consolidated financial statements in accordance with GAAP. In order to apply these principles, management must make judgments, assumptions, and estimates based on the best available information at the time. Actual

results may differ based on the accuracy of the information utilized and subsequent events. Our accounting policies are described in the notes to our audited consolidated financial statements included elsewhere in this Report. Our critical accounting policies, which are listed below, could materially affect the amounts recorded in our consolidated financial statements.

- Derivative instruments and fair value of financial instruments;
- Goodwill impairment;
- Impairment of long-lived assets;
- Income taxes;
- Inventory finished goods valuation; and
- Lease standard adopted by the Company for ASC 842, *Leases*.

Refer to Part II, Item 8, Note 2 (“Summary of Significant Accounting Policies”), of this Report for a discussion of these, and other, accounting policies.

Item 7A. *Quantitative and Qualitative Disclosures About Market Risk*

Our market risk sensitive instruments and positions have inherent risks including potential loss from adverse changes in commodity prices, RINs prices, and interest rates.

Commodity Price Risk

The Petroleum Segment, as a manufacturer of refined petroleum products, and the nitrogen fertilizer segment, as a manufacturer of nitrogen fertilizer products, all of which are commodities, have exposure to market pricing for products sold in the future. In order to realize value from our processing capacity, a positive spread between the cost of raw materials and the value of finished products must be achieved (i.e., gross margin or crack spread). The physical commodities that comprise our raw materials and finished goods are typically bought and sold at a spot or index price that can be highly variable.

The Petroleum Segment uses a crude oil purchasing intermediary, Vitol, to purchase the majority of its non-gathered crude oil inventory for the refineries, which allows it to take title to and price its crude oil at locations in close proximity to the refineries, as opposed to the crude oil origination point, reducing its risk associated with volatile commodity prices by shortening the commodity conversion cycle time. The commodity conversion cycle time refers to the time elapsed between raw material acquisition and the sale of finished goods. In addition, the Petroleum Segment seeks to reduce the variability of commodity price exposure by engaging in hedging strategies and transactions that will serve to protect gross margin as forecasted in the annual operating plan. With regard to its hedging activities, the Petroleum Segment may enter into, or has entered into, derivative instruments which serve to (1) lock in or fix a percentage of the anticipated or planned gross margin in future periods when the derivative market offers commodity spreads that generate positive cash flows, (2) hedge the value of inventories in excess of minimum required inventories, and (3) manage existing derivative positions related to a change in anticipated operations and market conditions.

Compliance Program Price Risk

As a producer of transportation fuels from petroleum, the Petroleum Segment is required to blend biofuels into the products it produces or to purchase RINs in the open market in lieu of blending to meet the mandates established by the EPA. The Petroleum Segment is exposed to market risk related to volatility in the price of RINs needed to comply with the RFS that are not otherwise generated through blending of renewable fuels in our refining and marketing operations. To mitigate the impact of this risk on the Petroleum Segment’s results of operations and cash flows, the Petroleum Segment purchases RINs when prices are deemed favorable. Refer to Part II, Item 8, Note 11 (“Commitments and Contingencies”), of this Report for further discussion about compliance with the RFS.

Item 8. Financial Statements and Supplementary Data

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of CVR Energy, Inc.

Opinion on the financial statements

We have audited the accompanying consolidated balance sheets of CVR Energy, Inc. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2019 and 2018, the related consolidated statements of operations, changes in equity, and cash flows for each of the three years in the period ended December 31, 2019, 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 Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the Company’s internal control over financial reporting as of December 31, 2019, based on criteria established in the 2013 *Internal Control - Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”), and our report dated February 20, 2020 expressed an unqualified opinion.

Basis for opinion

These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company 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. 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 supporting 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.

Critical audit matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Petroleum Segment’s Inventory Finished Goods Valuation

As described in Note 2 to the consolidated financial statements, the Company utilizes the ability-to-bear process to determine the valuation of its Petroleum Segment’s finished goods inventories, which was \$160 million at December 31, 2019. Management makes certain estimates based on observable inputs, including monthly sales prices and current market prices to determine how much raw materials and production costs are capitalized into Inventories. Changes in these estimates could have a significant impact on the Company’s valuation of finished goods inventory.

We identified the Company’s Petroleum Segment’s finished goods inventory valuation process as a critical audit matter. The principal consideration for our determination that the inventory valuation process is a critical audit matter is the degree of complexity and subjectivity inherent in determining management’s estimates.

Our audit procedures to evaluate the valuation of the Company's valuation of finished goods inventory, included the following procedures to test management's process, among others:

- We tested the design and operating effectiveness of management's processes and controls for determining the valuation of finished goods inventory.
- We obtained a sample of invoices to verify the accuracy of the production costs used in estimates.
- We tested or evaluated the reasonableness of inputs including sales volumes, monthly sales prices and current market prices for each product by obtaining third-party market prices and a sample of sales transactions by product to verify the accuracy of the information used by management.

Change in the Petroleum Segment's Turnaround Activities Accounting

As described in Note 2 to the consolidated financial statements, effective January 1, 2019, the accounting policy for turnaround activities was changed to the deferral method for the Petroleum Segment due to its preferability as compared to the direct-expense method. This accounting policy was changed on a retrospective basis. Management made certain assumptions in determining that the deferral method was preferable; such assumptions had a significant impact on the Petroleum Segment's determination of which accounting method was preferable for its turnaround activities.

We identified the change in accounting policy for turnaround activities as a critical audit matter. The principal consideration for our determination that the change in the Petroleum Segment's turnaround accounting policy is a critical audit matter is due to the degree of auditor subjectivity given the limited authoritative guidance and the nature of evidence obtained in determining which method is preferable.

Our audit procedures to evaluate the Company's determination that the deferral method was preferable, included the following procedures, among others:

- We evaluated management's assumptions in their preferability determination, including analysis of consistency to its peer companies and management's conclusion that the deferral method better reflects the economic substance of the benefits earned from turnaround activities. Such evaluation included consultations with our national office resources.
- We analyzed the applicable accounting guidance in assessing whether the deferral method was preferable.
- We tested the design and operating effectiveness of management's process and controls for evaluating unique accounting conclusions and the impact to the Company's financial statements.
- We selected a sample of turnaround invoices from current and historical periods that were used in management's retrospective application of the change in accounting policy and inspected the invoices to determine the amounts were accurately recorded and subsequently amortized in accordance with the change to the deferral method.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2013.

Houston, Texas
February 20, 2020

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of CVR Energy, Inc.

Opinion on internal control over financial reporting

We have audited the internal control over financial reporting of CVR Energy, Inc. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2019, based on criteria established in the 2013 *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in the 2013 *Internal Control - Integrated Framework* issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the consolidated financial statements of the Company as of and for the year ended December 31, 2019, and our report dated February 20, 2020 expressed an unqualified opinion on those financial statements.

Basis for opinion

The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying *Management’s Report on Internal Control Over Financial Reporting*. Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and limitations of internal control over financial reporting

A company’s internal control over financial reporting is a process designed 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. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ GRANT THORNTON LLP

Houston, Texas
February 20, 2020

CVR Energy, Inc. and Subsidiaries
CONSOLIDATED BALANCE SHEETS

(in millions)	December 31,	
	2019	2018
ASSETS		
Current assets:		
Cash and cash equivalents (including \$37 and \$415, respectively, of consolidated variable interest entities (VIEs))	\$ 652	\$ 668
Accounts receivable (including \$34 and \$169, respectively, of VIEs)	182	169
Inventories (including \$54 and \$380, respectively, of VIEs)	390	380
Prepaid expenses and other current assets (including \$5 and \$56, respectively, of VIEs)	67	76
Total current assets	1,291	1,293
Property, plant and equipment, net (including \$952 and \$2,414, respectively, of VIEs)	2,336	2,430
Other long-term assets (including \$55 and \$270, respectively, of VIEs)	278	277
Total assets	\$ 3,905	\$ 4,000
LIABILITIES AND EQUITY		
Current liabilities:		
Note payable and finance lease obligations (including \$0 and \$3, respectively, of VIEs)	\$ 5	\$ 3
Accounts payable (including \$24 and \$317, respectively, of VIEs)	412	320
Other current liabilities (including \$52 and \$154, respectively, of VIEs)	179	173
Total current liabilities	596	496
Long-term liabilities:		
Long-term debt and finance lease obligations, net of current portion (including \$632 and \$1,167, respectively of VIEs)	1,190	1,167
Deferred income taxes	396	380
Other long-term liabilities (including \$10 and \$7, respectively, of VIEs)	55	14
Total long-term liabilities	1,641	1,561
Commitments and contingencies (See Note 11)		
Equity:		
CVR stockholders' equity:		
Common stock \$0.01 par value per share, 350,000,000 shares authorized, 100,629,209 and 100,629,209 shares issued as of December 31, 2019 and 2018, respectively	1	1
Additional paid-in-capital	1,507	1,474
Retained deficit	(113)	(187)
Treasury stock, 98,610 shares at cost	(2)	(2)
Total CVR stockholders' equity	1,393	1,286
Noncontrolling interest	275	657
Total equity	1,668	1,943
Total liabilities and equity	\$ 3,905	\$ 4,000

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

CVR Energy, Inc. and Subsidiaries
CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31,		
	2019	2018	2017
(in millions, except per share data)			
Net sales	\$ 6,364	\$ 7,124	\$ 5,988
Operating costs and expenses:			
Cost of materials and other	4,851	5,683	4,953
Direct operating expenses (exclusive of depreciation and amortization as reflected below)	533	517	516
Depreciation and amortization	278	263	247
Cost of sales	5,662	6,463	5,716
Selling, general and administrative expenses (exclusive of depreciation and amortization as reflected below)	117	112	113
Depreciation and amortization	9	11	11
(Gain) loss on asset disposals	(4)	6	3
Operating income	580	532	145
Other (expense) income:			
Interest expense, net	(102)	(102)	(109)
Other income, net	13	15	2
Income before income taxes	491	445	38
Income tax expense (benefit)	129	79	(220)
Net income	362	366	258
Less: Net (loss) income attributable to non-controlling interest	(18)	107	(5)
Net income attributable to CVR Energy stockholders	\$ 380	\$ 259	\$ 263
Basic and diluted earnings per share	\$ 3.78	\$ 2.80	\$ 3.03
Dividends declared per share	\$ 3.05	\$ 2.50	\$ 2.00
Weighted-average common shares outstanding:			
Basic and Diluted	100.5	92.5	86.8

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

CVR Energy, Inc. and Subsidiaries
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

	Common Stockholders					Noncontrolling Interest	Total Equity
	Shares Issued	Common Stock	Additional Paid-In Capital	Retained Deficit	Treasury Stock		
(in millions, except share data)							
Balance at December 31, 2016	86,929,660	\$ 1	\$ 1,197	\$ (297)	\$ (2)	\$ 889	\$ 1,788
Dividends paid to CVR Energy stockholders	—	—	—	(174)	—	(174)	(174)
Distributions from CVR Partners to public unitholders	—	—	—	—	—	(2)	(2)
Distributions from CVR Refining to public unitholders	—	—	—	—	—	(47)	(47)
Net income (loss)	—	—	—	263	—	(5)	258
Balance at December 31, 2017	86,929,660	1	1,197	(208)	(2)	835	1,823
Exchange offer impact	13,699,549	—	276	—	—	(192)	84
Dividends paid to CVR Energy stockholders	—	—	—	(238)	—	—	(238)
Distributions from CVR Refining to public unitholders	—	—	—	—	—	(93)	(93)
Other	—	—	1	—	—	—	1
Net income	—	—	—	259	—	107	366
Balance at December 31, 2018	100,629,209	1	1,474	(187)	(2)	657	1,943
Dividends paid to CVR Energy stockholders	—	—	—	(306)	—	—	(306)
Distributions from CVR Partners to public unitholders	—	—	—	—	—	(30)	(30)
Acquisition of CVR Refining non-controlling interest	—	—	(2)	—	—	(334)	(336)
Effect of turnaround accounting change	—	—	35	—	—	—	35
Net income (loss)	—	—	—	380	—	(18)	362
Balance at December 31, 2019	<u>100,629,209</u>	<u>\$ 1</u>	<u>\$ 1,507</u>	<u>\$ (113)</u>	<u>\$ (2)</u>	<u>\$ 275</u>	<u>\$ 1,668</u>

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

CVR Energy, Inc. and Subsidiaries
CONSOLIDATED STATEMENTS OF CASH FLOWS

(in millions)	Year Ended December 31,		
	2019	2018	2017
Cash flows from operating activities:			
Net income	\$ 362	\$ 366	\$ 258
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	287	274	258
Deferred income taxes	24	49	(220)
(Gain) loss on asset disposals	(4)	6	3
Share-based compensation	17	16	19
Other non-cash items	6	3	7
Changes in assets and liabilities:			
Accounts receivable	(40)	56	(27)
Inventories	(10)	(9)	(40)
Prepaid expenses and other current assets	16	(29)	34
Due to (from) parent	4	2	(16)
Accounts payable	94	(21)	85
Deferred revenue	(15)	11	1
Other current liabilities	9	(104)	(113)
Other long-term assets and liabilities	(3)	8	(1)
Net cash provided by operating activities	747	628	248
Cash flows from investing activities:			
Capital expenditures	(121)	(102)	(120)
Turnaround expenditures	(38)	(8)	(80)
Proceeds from sale of assets	37	1	—
Investment in affiliates, net of return of investment	—	—	(76)
Other investing activities	1	1	—
Net cash used in investing activities	(121)	(108)	(276)
Cash flows from financing activities:			
Acquisition of CVR Refining common units	(301)	—	—
Dividends to CVR Energy's stockholders	(306)	(238)	(174)
Distributions to CVR Refining's noncontrolling interest holders	—	(93)	(47)
Distributions to CVR Partners' noncontrolling interest holders	(30)	—	(2)
Other financing activities	(5)	(3)	(3)
Net cash used in financing activities	(642)	(334)	(226)
Net (decrease) increase in cash and cash equivalents	(16)	186	(254)
Cash and cash equivalents, beginning of period	668	482	736
Cash and cash equivalents, end of period	\$ 652	\$ 668	\$ 482

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

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(1) Organization and Nature of Business

Organization

CVR Energy, Inc. (“CVR Energy,” “CVR,” “we,” “us,” “our,” or the “Company”) is a diversified holding company primarily engaged in the petroleum refining and nitrogen fertilizer manufacturing industries through its holdings in CVR Refining, LP (the “Petroleum Segment” or “CVR Refining”) and CVR Partners, LP (the “Nitrogen Fertilizer Segment” or “CVR Partners”). CVR Refining is an independent petroleum refiner and marketer of high value transportation fuels. CVR Partners produces and markets nitrogen fertilizers in the form of urea ammonium nitrate (“UAN”) and ammonia. CVR’s common stock is listed on the New York Stock Exchange (“NYSE”) under the symbol “CVI.” Icahn Enterprises L.P. and its affiliates (“IEP”) owned approximately 71% of the Company’s outstanding common shares as of December 31, 2019.

CVR Refining, LP

On January 17, 2019, the general partner of CVR Refining assigned to the Company its right to purchase all of the issued and outstanding CVR Refining common units not already owned by CVR Refining’s general partner or its affiliates. On January 29, 2019, the Company purchased all remaining CVR Refining common units not already owned by the Company or its affiliates for a cash purchase price of \$10.50 per unit (the “Call Price”), or approximately \$241 million in the aggregate (the “Public Unit Purchase”). In conjunction with the exercise of its call right for all CVR Refining common units not already owned by the Company or its affiliates, the Company entered into a purchase agreement with American Entertainment Properties Corporation (“AEP”) and IEP, pursuant to which, on January 29, 2019, all of the Common Units held by AEP and IEP were purchased by the Company for a cash price per unit equal to the Call Price, or approximately \$60 million in the aggregate (the “Affiliate Unit Purchase” together with the Public Unit Purchase, the “CVRR Unit Purchase”). The total purchase price of \$301 million was funded with approximately \$105 million in borrowings under a new credit agreement entered into by the Company on January 29, 2019, with the remaining amount being funded from the Company’s cash on hand. Amounts drawn under the new credit agreement were fully repaid in February 2019. See Note 6 (“Long-Term Debt and Finance Lease Obligations”) for further information on the credit agreement. The consolidated results of operations and financial position of CVR Refining are reflected as CVR’s Petroleum Segment. Following this transaction, CVR Refining became a wholly-owned subsidiary of the Company and, therefore, is no longer accounted for as a variable interest entity (“VIE”). Effective February 8, 2019, CVR Refining’s reporting obligations under the Exchange Act were suspended.

CVR Partners, LP

As of December 31, 2019, public security holders held approximately 66% of CVR Partners’ outstanding common units, and Coffeyville Resources, LLC (“CRLLC”), a wholly-owned subsidiary of CVR Energy, held approximately 34% of CVR Partners’ outstanding common units. In addition, CRLLC owns 100% of CVR Partners’ general partner, CVR GP, LLC, which holds a non-economic general partner interest in CVR Partners. Following the acquisition of the non-controlling interest in CVR Refining in January 2019, the non-controlling interest reflected on the consolidated balance sheets of CVR is only impacted by the net income of, and distributions from, CVR Partners.

Stock Repurchase Program

On October 23, 2019, the Board of Directors of the Company authorized a stock repurchase program (the “Stock Repurchase Program”). The Stock Repurchase Program would enable the Company to repurchase up to \$300 million of the Company’s common stock. Repurchases under the Stock Repurchase Program may be made from time-to-time through open market transactions, block trades, privately negotiated transactions or otherwise in accordance with applicable securities laws. The timing, price and amount of repurchases (if any) will be made at the discretion of management and are subject to market conditions as well as corporate, regulatory and other considerations. While the Stock Repurchase Program currently has a duration of four years, it does not obligate the Company to acquire any stock and may be terminated by the Company’s Board of Directors at any time. We did not repurchase any of our common stock during the year ended December 31, 2019.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Subsequent Events

The Company evaluated subsequent events, if any, that would require an adjustment to the Company's consolidated financial statements or require disclosure in the notes to the consolidated financial statements through the date of issuance of the consolidated financial statements. Where applicable, the notes to these consolidated financial statements have been updated to discuss all significant subsequent events which have occurred.

(2) Summary of Significant Accounting Policies***Principles of Consolidation***

The accompanying consolidated financial statements include the accounts of the Company and its majority-owned direct and indirect subsidiaries. All intercompany accounts and transactions have been eliminated. The ownership interests of noncontrolling investors in the Company's subsidiaries are recorded as noncontrolling interests. CVR Energy has not recognized any other comprehensive income for the periods ended December 31, 2019, 2018, and 2017.

CVR Partners is considered a VIE. As the 100% owner of the general partner of CVR Partners, the Company has the sole ability to direct the activities that most significantly impact the economic performance of the partnership and is considered to be the primary beneficiary. In January 2019, following the CVRR Unit Purchase, CVR Refining was no longer considered a VIE and is accounted for as a wholly-owned subsidiary.

Investments in entities over which the Company has significant influence, but not control, are accounted for using the equity method of accounting. Income from equity method investments represents CVR Energy's proportionate share of net income generated by the equity method investees and is recorded in Other income, net on the Company's Consolidated Statements of Operations.

Reclassifications

Certain reclassifications have been made within the consolidated financial statements for the years ended December 31, 2018 and 2017 to conform with current presentation.

Use of Estimates

These consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"), which requires management to make estimates and assumptions that affect the reported amounts and disclosure of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Estimates are reviewed on an ongoing basis, based on currently available information. Changes in facts and circumstances may result in revised estimates, and actual results could differ from those estimates.

Cash and Cash Equivalents

Cash and cash equivalents include cash on hand and on deposit, investments in highly liquid money market accounts, and debt instruments with original maturities of three months or less.

Accounts Receivable, net

Accounts receivable primarily consist of customer accounts receivable recorded at the invoiced amounts and generally do not bear interest. Also included within accounts receivable of the Nitrogen Fertilizer Segment are unbilled fixed price contracts which is further discussed within Note 7 ("Revenue").

Allowances for doubtful accounts are generally recorded when it becomes probable the receivable will not be collected and is booked to bad debt expense. The largest concentration of credit for any one customer at December 31, 2019 and 2018 was approximately 11% and 12%, respectively, of the net accounts receivable balance. As of December 31, 2019 and 2018, the allowance for doubtful accounts balances were immaterial.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Inventories

Inventories consist primarily of domestic and foreign crude oil, blending stock and components, work-in-progress, fertilizer products, and refined fuels and by-products. All inventories are valued at the lower of the first-in, first-out (“FIFO”) cost, or net realizable value. The Petroleum Segment’s unfinished and finished products inventory values were determined using the ability-to-bear methodology. Other inventories in the Petroleum and Nitrogen Fertilizer Segments, including other raw materials, spare parts, and supplies, are valued at the lower of moving-average cost, which approximates FIFO, or net realizable value. The cost of inventories includes inbound freight costs. At December 31, 2019 and 2018, inventories related to the Nitrogen Fertilizer Segment included depreciation of approximately \$5 million and \$6 million, respectively.

Inventories consisted of the following:

	December 31,	
	2019	2018
(in millions)		
Raw materials	\$ 112	\$ 101
In-process inventories	18	12
Finished goods	177	186
Parts and supplies	83	81
Total Inventories	<u>\$ 390</u>	<u>\$ 380</u>

Property, Plant and Equipment

Additions to property, plant and equipment, including capitalized interest and certain costs allocable to construction and property purchases, are recorded at cost. Expenditures for improvements that increase economic benefit or returns and/or extend useful life are capitalized. Depreciation is computed using the straight-line method over the estimated useful lives of the various classes of depreciable assets. The lives used in computing depreciation for significant asset classes are as follows:

Asset	Range of Useful Lives, in Years
Land and improvements	15 to 30
Buildings and improvements	20 to 30
Machinery and equipment	5 to 30
Furniture and fixtures	3 to 10
ROU finance leases	1 to 25
Other	5 to 30

Property, plant and equipment consisted of the following:

	December 31,	
	2019	2018
(in millions)		
Machinery and equipment (1)	\$ 3,859	\$ 3,785
Buildings and improvements	87	87
Land and improvements	46	43
Furniture and fixtures	35	33
ROU finance leases	27	—
Construction in progress	95	102
Other	14	17
	<u>4,163</u>	<u>4,067</u>
Less: Accumulated depreciation	<u>1,827</u>	<u>1,637</u>
Total Property, plant and equipment, net	<u>\$ 2,336</u>	<u>\$ 2,430</u>

(1) Includes \$29 million in leases classified as finance leases under ASC Topic 842 (Leases) as of December 31, 2019 and \$32 million in leases classified as capital leases under the superseded ASC Topic 840 (Leases) as of December 31, 2018.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Leasehold improvements and assets held under finance leases are depreciated or amortized on the straight-line method over the shorter of the contractual lease term or the estimated useful life of the asset. Expenditures for routine maintenance and repair costs are expensed when incurred. Such expenses are reported in Direct operating expenses (exclusive of depreciation and amortization) in the Company's Consolidated Statements of Operations.

On May 21, 2019, a subsidiary of CVR Energy sold its crude oil storage terminal located in Cushing, Oklahoma and related assets (the "Terminal"). As part of this transaction, the Company received cash consideration of \$43 million for the Terminal and related crude oil inventories resulting in a recognition of a gain on sale of \$9 million. The carrying value of the inventory sold as part of this transaction has been presented on a net basis, with the proceeds on sale, within the net cash used in investing section of the Consolidated Statements of Cash Flows.

Leases

At inception, the Company determines whether an arrangement is a lease and the appropriate lease classification. Operating leases are included as operating lease right-of-use ("ROU") assets within Other long-term assets and lease liabilities within Other current liabilities and Other long-term liabilities on our Consolidated Balance Sheets. Finance leases are included as ROU finance leases within Property, plant, and equipment, net, and finance lease liabilities within Other current liabilities and Long-term debt and finance lease obligations, net of current portion on our Consolidated Balance Sheets. Leases with an initial expected term of 12 months or less are considered short-term and are not recorded on our Consolidated Balance Sheets. The Company recognizes lease expense for these leases on a straight-line basis over the expected lease term.

ROU assets represent the Company's right to use an underlying asset for the lease term, and lease liabilities represent the obligation to make lease payments arising from the lease. ROU assets and liabilities are recognized at the commencement date based on the present value of minimum lease payments over the lease term. The lease term is modified to reflect options to extend or terminate the lease when it is reasonably certain we will exercise such option. The depreciable life of assets and leasehold improvements is limited by the expected lease term, unless there is a transfer of title or purchase option reasonably certain of exercise, in which case the depreciation policy in the "Property, Plant and Equipment" section above is applicable. The periodic lease payments are treated as payments of the lease obligation and interest is recorded as interest expense. See "Recent Accounting Pronouncements - Adoption of Lease Standard" within this Note for a further discussion on the impacts of adopting the lease standard.

Deferred Financing Costs

Lender and other third-party costs associated with debt issuances are deferred and amortized to interest expense and other financing costs using the effective-interest method over the life of the debt. Deferred financing costs related to line-of-credit arrangements are amortized using the straight-line method through the termination date of the facility. The deferred financing costs are included net within long-term debt and in other long-term assets for the line-of-credit arrangements where no debt balance exists.

Impairment of Long-Lived Assets

Long-lived assets (excluding goodwill, intangible assets with indefinite lives, and deferred tax assets) are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future net cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated undiscounted future net cash flows, an impairment charge is recognized for the amount by which the carrying amount of the asset exceeds their fair value. Assets to be disposed of are reported at the lower of their carrying value or fair value less cost to sell.

Goodwill represents the excess of the cost of an acquired entity over the fair value of the assets acquired less liabilities assumed. Intangible assets are assets that lack physical substance (excluding financial assets). Goodwill acquired in a business combination and intangible assets with indefinite useful lives are not amortized, while intangible assets with finite useful lives are amortized. Goodwill and intangible assets not subject to amortization are tested for impairment annually or more frequently if events or changes in circumstances indicate the asset might be impaired. The Company uses November 1 of each year as its annual valuation date for its goodwill impairment test.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The Company performed its annual impairment review of goodwill for 2019, 2018, and 2017 associated with CVR Partners' Coffeyville, Kansas Nitrogen Fertilizer (the "Coffeyville Fertilizer Facility") reporting unit and concluded there were no impairments. For the period ended December 31, 2019, no events or circumstances were identified which would trigger the performance of a quantitative analysis after reviewing all qualitative factors impacting the reporting unit including improved market conditions, financial results, and financial forecasts from those used in the fair value analysis at December 31, 2018. For the periods ended December 31, 2018 and 2017, the fair value of the Coffeyville Fertilizer Facility reporting unit exceeded its carrying value by approximately 36% and 12%, respectively, based upon the results of the reporting unit's goodwill impairment test.

Loss Contingencies

In the ordinary course of business, the Company may become party to lawsuits, administrative proceedings, and governmental investigations, including environmental, regulatory, and other matters. The outcome of these matters cannot always be predicted accurately, but the Company accrues liabilities for these matters if the Company has determined that it is probable a loss has been incurred and the loss can be reasonably estimated.

Environmental, Health & Safety ("EHS") Matters

The Petroleum and Nitrogen Fertilizer Segments are subject to various federal, state, and local EHS rules and regulations. Liabilities related to EHS matters are recognized when the related costs are probable and can be reasonably estimated. Estimates of these costs are based upon currently available facts, internal and third-party assessments of contamination, available remediation technology, site-specific costs, and currently enacted laws and regulations. In reporting environmental liabilities, no offset is made for potential recoveries. Loss contingency accruals, including those for environmental remediation, are subject to revision as further information develops or circumstances change and such accruals can take into account the legal liability of other parties. Environmental expenditures are capitalized at the time of the expenditure when such costs provide future economic benefits.

Revenue Recognition

The Company recognizes revenue based on consideration specified in contracts or agreements with customers when performance obligations are satisfied by transferring control over products or services to a customer. The Company's revenue recognition patterns are described below by reportable segment:

- *Petroleum Segment* - The vast majority of Petroleum Segment contracts contain pricing that is based on the market price for the product at the time of delivery. Obligations to deliver product volumes are typically satisfied and revenue is recognized when control of the product transfers to customers. Concurrent with the transfer of control, the right to payment for the delivered product is received, the customer accepts the product, and the customer has significant risks and rewards of ownership of the product. Payment terms require customers to pay shortly after delivery and do not contain significant financing components. Any pass-through finished goods delivery costs reimbursed by customers are reported in Net sales, while an offsetting expense is included in Cost of materials and other. Non-monetary product exchanges and certain buy/sell transactions which are entered into in the normal course of business are included on a net cost basis in Cost of materials and other on the Consolidated Statements of Operations.
- *Nitrogen Fertilizer Segment* - Revenue is recognized when our customers receive control of the product. The adoption of ASC 606 resulted in the recognition of deferred revenue and related receivables, on a gross basis, associated with contracts that guarantee a price and supply of nitrogen fertilizer products in quantities expected to be delivered in the normal course of business.

Other considerations - For both segments, excise and other taxes collected from customers and remitted to governmental authorities are excluded from reported revenues.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Cost Classifications

Cost of materials and other includes cost of crude oil, other feedstocks, blendstocks, purchased refined products, pet coke expenses, Renewable Identification Number (“RIN”) expenses, derivative gains or losses, and freight and distribution costs. Direct operating expenses (exclusive of depreciation and amortization) consist primarily of energy and other utility costs, direct costs of labor, including applicable share-based compensation expense, property taxes, plant-related maintenance services, and environmental and safety compliance costs, as well as catalyst and chemical costs. Selling, general and administrative expenses (exclusive of depreciation and amortization) consist primarily of labor and other direct expenses associated with the Company’s corporate activities, including accounting, finance, information technology, human resources, legal, and other related administrative functions. For the Company’s Nitrogen Fertilizer Segment, each of these financial statement line items are also impacted by changes in inventory balances.

Derivatives and Fair Value of Financial Instruments

The Petroleum Segment uses futures contracts, swaps, and forward contracts primarily to reduce exposure to changes in crude oil and finished goods product prices to provide economic hedges of inventory positions. These derivative instruments do not qualify as hedges for hedge accounting purposes under ASC Topic 815, *Derivatives and Hedging*, and accordingly are recorded at fair value at the end of each reporting period based on quoted market prices. The Nitrogen Fertilizer Segment may enter into forward contracts with fixed delivery prices to purchase portions of its natural gas requirements. These natural gas contracts are not treated as derivatives under normal purchase and normal sale exclusions. Accordingly, the fair value of these contracts are not recorded at the end of each reporting period. Refer to Note 8 (“Derivative Financial Instruments”) for further discussion of the Company’s derivative activity.

Other financial instruments consisting of cash and cash equivalents, accounts receivable, and accounts payable are carried at cost, which approximates fair value, as a result of the short-term nature of the instruments. Refer to Note 8 (“Derivative Financial Instruments”) for further fair value disclosures.

Turnaround Expenses

Turnarounds represent major maintenance activities that require the shutdown of significant parts of a plant to perform necessary inspection, cleaning, repairs, and replacements of assets. Costs incurred for routine repairs and maintenance or unplanned outages at our facilities are expensed as incurred. Planned turnaround activities for the Petroleum Segment vary in frequency dependent on refinery units, but generally occur every four to five years, while the frequency of turnarounds in the Nitrogen Fertilizer Segment is every two to three years. Further details of each segment’s turnaround expensing method are discussed below.

Petroleum Segment - Effective January 1, 2019, the Company revised its accounting policy method for the costs of planned major maintenance activities (turnarounds) specific to the Petroleum Segment from being expensed as incurred (the direct-expense method) to the deferral method. Under the deferral method, the costs of turnarounds are deferred and amortized on a straight-line basis over a four-year period of time, which represents the estimated time until the next turnaround occurs. The new method of accounting for turnarounds is considered preferable as it is more consistent with the accounting policy of our peer companies and better reflects the economic substance of the benefits earned from turnaround expenditures. The Consolidated Balance Sheets for the period ended December 31, 2018, the related Consolidated Statements of Operations, Consolidated Statements of Changes in Equity, and Consolidated Statements of Cash Flows for each of the two years in the period ended December 31, 2018 have been recast to reflect our new accounting policy. Turnaround costs, and related accumulated amortization, are included in the Consolidated Balance Sheets as Other long-term assets. The amortization expense related to turnaround costs is included in Depreciation and amortization in the Consolidated Statements of Operations. During the years ended December 31, 2019, 2018, and 2017, the Petroleum Segment capitalized \$38 million, \$8 million, and \$87 million, respectively.

Nitrogen Fertilizer Segment - The Nitrogen Fertilizer Segment follows the direct-expense method of accounting for turnaround activities. Costs associated with these turnaround activities were included in Direct operating expenses (exclusive of depreciation and amortization) in the Consolidated Statements of Operations. During the years ended December 31, 2019, 2018, and 2017, the Nitrogen Fertilizer Segment incurred turnaround expenses of \$10 million, \$6 million, and \$3 million, respectively.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The following presents the financial statement line items impacted by the Petroleum Segment turnaround accounting change for each of the periods presented within these consolidated financial statements.

Effect of Turnaround Accounting Change on Consolidated Balance Sheet as of December 31, 2018

	December 31, 2018		
	As Previously Reported	Effect of Turnaround Accounting Change	As Stated
(in millions)			
Property, plant and equipment, net of accumulated depreciation	\$ 2,445	\$ (15)	\$ 2,430
Other long-term assets (1)	169	108	277
Total assets	\$ 3,907	\$ 93	\$ 4,000
Long-term liabilities:			
Deferred income taxes (2)	\$ 362	\$ 18	\$ 380
Total long-term liabilities	1,543	18	1,561
Equity:			
CVR stockholders' equity:			
Additional paid-in-capital	\$ 1,473	\$ 1	\$ 1,474
Retained deficit	(226)	39	(187)
Total CVR stockholders' equity	1,246	40	1,286
Noncontrolling interest	622	35	657
Total equity	1,868	75	1,943
Total liabilities and equity	\$ 3,907	\$ 93	\$ 4,000

(1) This represents the capitalized turnaround asset recognized due to the turnaround policy change.

(2) This represents the increase in deferred tax liability due to the recognition of the capitalized turnaround asset.

Effect of Turnaround Accounting on Consolidated Statement of Operations and Consolidated Statement of Cash Flows for the Years Ended December 31, 2018 and 2017

	Year Ended December 31,					
	2018			2017		
	As Previously Reported	Effect of Turnaround Accounting Change	As Stated	As Previously Reported	Effect of Turnaround Accounting Change	As Stated
(in millions)						
Consolidated Statement of Operations						
Direct operating expenses	\$ 523	\$ (6)	\$ 517	\$ 598	\$ (82)	\$ 516
Depreciation and amortization	202	61	263	203	44	247
Income tax expense (benefit)	89	(10)	79	(217)	(3)	(220)
Net income (loss)	\$ 411	\$ (45)	\$ 366	\$ 217	\$ 41	\$ 258
Less: Net income attributable to noncontrolling interest	122	(15)	107	(18)	13	(5)
Net income attributable to CVR Energy stockholders	\$ 289	\$ (30)	\$ 259	\$ 235	\$ 28	\$ 263
Consolidated Statement of Cash Flows						
Net cash provided by operating activities	\$ 620	\$ 8	\$ 628	\$ 168	\$ 80	\$ 248
Net cash used by investing activities	\$ (100)	\$ (8)	\$ (108)	\$ (196)	\$ (80)	\$ (276)

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Share-Based Compensation

The Company accounts for share-based compensation in accordance with ASC Topic 718, *Compensation — Stock Compensation* (“ASC 718”). Currently, all of the Company’s share-based compensation awards, including those issued by CVR Refining and CVR Partners, are liability-classified and are measured at fair value at the end of each reporting period based on the applicable closing unit price. Compensation expense will fluctuate based on changes in the applicable share or unit prices and expense reversals resulting from employee terminations prior to award vesting. Additionally, the Company has issued certain performance unit awards. The fair value of these performance unit awards is recognized as compensation expense only if the attainment of the performance conditions is considered probable. Uncertainties involved in this estimate include continued employment requirements and whether or not the performance conditions will be attained. The performance objectives are set in accordance with approved levels of the business plan for the fiscal year during the performance cycle and, therefore, are considered reasonably possible of being achieved. If this assumption proves not to be true and the awards do not vest, compensation expense recognized during the performance cycle will be reversed. See Note 9 (“Share-Based Compensation”) for further discussion.

Income Taxes

Income taxes are accounted for utilizing the asset and liability approach. Under this method, deferred tax assets and liabilities are recognized for the anticipated future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax basis. Deferred amounts are measured using enacted tax rates expected to apply to taxable income in the year those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. In assessing the realizability of the deferred income tax assets, including net operating loss and state tax credit carryforwards, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred income tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred income tax liabilities, projected future taxable income, and tax planning strategies in making this assessment. Further, the Company recognizes interest expense (income) and penalties on uncertain tax positions and income tax deficiencies (refunds) in Income tax expense (benefit).

Earnings Per Share

There were no dilutive awards outstanding during the years ended December 31, 2019, 2018, and 2017.

Recent Accounting Pronouncements - Adoption of Lease Standard

In February 2016, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2016-02, “*Leases*” (“ASU 2016-02”), creating a new topic, FASB ASC Topic 842, “*Leases*” (“Topic 842”), which supersedes lease requirements in FASB ASC Topic 840, “*Leases*.” The new standard revises accounting for operating leases by a lessee, among other changes, and requires a lessee to recognize a liability related to future lease payments and a right-of-use (“ROU”) asset representing its right to use of the underlying asset for the lease term on the consolidated balance sheets.

We adopted Topic 842 as of January 1, 2019, electing the option to apply the transition provisions at the adoption date instead of the earliest comparative period presented in the financial statements. In connection with the adoption of Topic 842, we made the following elections:

- Only ROU assets and related lease liabilities for leases with an initial term greater than one year were and will be recognized;
- The accounting treatment for existing land easements was carried forward;
- Lease and non-lease components were and will not be bifurcated for all of the Company’s asset groups, respectively; and
- The portfolio approach was, and will be, used in the selection of the discount rate used to calculate minimum lease payments and the related ROU asset and operating lease liability amounts.

The Company’s adoption of Topic 842 resulted in the recognition of additional ROU assets and lease liabilities of approximately \$56 million as of January 1, 2019, in addition to the recognition of a finance lease asset of \$26 million with an

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

obligation of \$23 million. There were no impacts to our consolidated statements of operations or cash flows. See Note 4 (“Leases”) for further discussion.

(in millions)	December 31, 2018 As Stated (1)	Effect of Adoption of Topic 842	January 1, 2019 As Adjusted
Current assets:			
Prepaid expenses and other current assets	\$ 76	\$ (3) (2)	\$ 73
Total current assets	1,293	(3)	1,290
Property, plant and equipment, net	2,430	26 (3)	2,456
Other long-term assets	277	56 (4)	333
Total assets	<u>\$ 4,000</u>	<u>\$ 79</u>	<u>\$ 4,079</u>
Current liabilities:			
Other current liabilities	\$ 176	\$ 16 (5)	\$ 192
Total current liabilities	496	16	512
Long-term debt and finance lease obligations	1,167	23 (3)	1,190
Other long-term liabilities	14	40 (5)	54
Total long-term liabilities	1,561	63	1,624
Equity:			
Total liabilities and equity	<u>\$ 4,000</u>	<u>\$ 79</u>	<u>\$ 4,079</u>

- (1) Represents the retrospectively adjusted balance sheet amounts upon reflection of the turnaround accounting change, for which the Recast Form 8-K for 2018 was filed on June 12, 2019, prior to the adoption of Topic 842.
- (2) Represents lease prepayments reclassified to ROU assets.
- (3) The additional \$26 million ROU asset and \$23 million in lease liability represents a lease with a third-party that met the definition of a finance lease under ASC 842 as compared to an operating lease under ASC 840.
- (4) Represents recognition of initial ROU assets for operating leases, including the reclassification of certain lease prepayments as noted above.
- (5) Represents the initial recognition of lease liabilities.

Recent Accounting Pronouncements - Adoption of Internal-Use Software Standard

In August 2018, the FASB issued ASU 2018-15, Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40). This ASU better aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is also a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. Effective January 1, 2019, we adopted this ASU and chose to apply the prospective approach for all implementation costs incurred after the date of adoption. We evaluated the effects of adopting this new accounting guidance and concluded it did not have a material impact on the Company’s consolidated financial position or results of operations.

Recent Accounting Pronouncements - New Accounting Standards Issued But Not Yet Implemented

In June 2016, the FASB issued ASU 2016-13, Financial Instruments - Credit Losses (Topic 326). The ASU replaces the incurred loss model with a current expected credit loss model for more timely recognition of expected impairment losses for most financial assets and certain other instruments that are not measured at fair value through net income. Effective January 1, 2020, the Company adopted this ASU and evaluated the effects of adopting this new accounting guidance. The adoption will not have a material impact on the Company’s consolidated financial position or results of operations.

In August 2018, the FASB issued ASU 2018-13, Fair Value Measurement (Topic 820). The ASU eliminates such disclosures as the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy. Certain disclosures are required to be applied on a retrospective basis and others on a prospective basis. Effective January 1, 2020, we adopted this ASU and evaluated the effects of adopting this new accounting guidance. The adoption did not have a material impact on the Company’s disclosures.

In December 2019, the FASB issued ASU 2019-12, Income Taxes (Topic 740). The ASU simplifies the accounting for income taxes by removing certain exceptions to the general principles in Topic 740 and modifies other areas of the topic to clarify the application of GAAP. Certain amendments within the standard are required to be applied on a retrospective basis.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

and others on a prospective basis. This standard is effective for the company beginning January 1, 2021, with early adoption permitted. The Company is evaluating the effect of adopting this new accounting guidance on its consolidated financial statements, but does not currently expect adoption will have a material impact on the Company's consolidated financial position or results of operations.

(3) Equity Method Investments

For each of the following investments, CVR Refining has the ability to exercise influence through its participation in the management committees, which make all significant decisions. However, since CVR Refining has equal or proportionate influence over each committee as a joint partner without regard to its economic interest and does not serve as the day-to-day operator, we have determined that these entities should not be consolidated and have applied the equity method of accounting.

- *Enable South Central Pipeline, LLC* ("Enable JV", formerly Velocity Pipeline Partners, LLC) - CVR Refining owns a 40% interest in Enable JV, which operates a 12-inch 26-mile crude oil pipeline with a capacity of approximately 115,000 barrels per day that is connected to the Wynnewood Refinery. The remaining interest in Enable JV is owned by Enable Midstream Partners, LP.
- *Midway Pipeline, LLC* ("Midway JV") - CVR Refining owns a 50% interest in Midway JV, which operates a 16-inch 100 mile crude oil pipeline with a capacity of approximately 120,000 barrels per day which connects the Coffeyville Refinery to the Cushing Oklahoma oil hub.

(in millions)	Enable JV	Midway JV	Total
Balance at December 31, 2017	6	77	83
Cash Distributions	(2)	(5)	(7)
Equity income	2	6	8
Balance at December 31, 2018	6	78	84
Cash Distributions	(4)	(9)	(13)
Equity income	4	6	10
Balance at December 31, 2019	\$ 6	\$ 75	\$ 81

(4) Leases

Lease Overview

We lease certain pipelines, storage tanks, railcars, office space, land, and equipment across our refining, fertilizer, and corporate operations. Most leases include one or more options to renew, with renewal terms that can extend the lease term from one to 20 years or more. The exercise of lease renewal options is at our sole discretion. Certain leases also include options to purchase the leased property. The depreciable life of assets and leasehold improvements is limited by the expected lease term, unless there is a transfer of title or purchase option reasonably certain of exercise. Certain of our lease agreements include rental payments which are adjusted periodically for factors such as inflation. Our lease agreements do not contain any material residual value guarantees or material restrictive covenants. Additionally, we do not have any material lessor or sub-leasing arrangements.

The adoption of Topic 842 impacted our January 1, 2019 consolidated balance sheet, as shown below, only for those line items impacted.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Effect of Initial Adoption of Topic 842 - January 1, 2019

ROU Assets. Upon initial recognition, our ROU assets for operating and finance leases were comprised of the following:

(in millions)	January 1, 2019 (initial recognition)
Pipeline and storage agreements (1)	\$ 29
Railcar leases (2)	15
Real Estate and other leases (3)	35
Total ROU assets	<u>\$ 79</u>

(1) Includes finance leased assets of \$1 million as of January 1, 2019.

(2) Includes \$14 million of railcar leases recognized by CVR Partners.

(3) Includes finance leased assets of \$25 million recognized upon adoption of Topic 842 as of January 1, 2019.

Lease Liabilities. Upon initial recognition, our lease liabilities for operating and finance leases were comprised of the following:

(in millions)	January 1, 2019 (initial recognition)
Current liabilities:	
Operating leases	\$ 14
Finance leases	2
Long-term liabilities:	
Operating leases	40
Finance leases	23
Total lease liabilities	<u>\$ 79</u>

Balance Sheet Summary as of December 31, 2019

The following tables summarize the right of use asset and lease liability balances for the Company's operating and finance leases at December 31, 2019:

(in millions)	December 31, 2019
Operating Leases:	
ROU assets, net	
Pipeline and storage	\$ 20
Railcars	12
Real estate and other	16
Lease liability	
Pipelines and storage	\$ 22
Railcars	12
Real estate and other	14

(in millions)	December 31, 2019
Finance Leases:	
ROU assets, net	
Pipeline and storage	\$ 29
Real estate and other	24
Lease liability	
Pipelines and storage	\$ 40
Real estate and other	25

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Lease Expense Summary for the Year Ended December 31, 2019

We recognize lease expense on a straight-line basis over the lease term. For the year ended December 31, 2019, we recognized lease expense comprised of the following components:

(in millions)	December 31, 2019
Operating lease expense	\$ 12
Finance lease expense:	
Amortization of ROU	\$ 7
Interest expense on lease liability	6

Short-term lease expense, recognized within Direct operating expenses (exclusive of depreciation and amortization), was \$8 million for the year ended December 31, 2019.

Lease Terms and Discount Rates

The following outlines the remaining lease terms and discount rates used in the measurement of the Company's ROU assets and liabilities:

	December 31, 2019	January 1, 2019 (initial recognition)
Weighted-average remaining lease term (years)		
Operating Leases	3.7	4.4
Finance Leases	9.0	10.3
Weighted-average discount rate		
Operating Leases	5.6 %	5.8 %
Finance Leases	8.9 %	9.8 %

Maturities of Lease Liabilities

The following summarizes the remaining minimum lease payments through maturity of the Company's right-of-use assets and liabilities at December 31, 2019:

(in millions)	Operating Leases	Finance Leases
2020	\$ 16	\$ 11
2021	14	11
2022	11	11
2023	7	10
2024	4	10
Thereafter	—	43
Total lease payments	52	96
Less: imputed interest	(4)	(31)
Total lease liability	\$ 48	\$ 65

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

(5) Other Current Liabilities

Other current liabilities were as follows:

	December 31,	
	2019	2018
(in millions)		
Personnel accruals	\$ 47	\$ 40
Accrued taxes other than income taxes	28	28
Deferred revenue	28	69
Accrued income taxes	24	—
Operating lease liabilities (1)	14	—
Accrued interest	9	9
Accrued derivatives	7	—
Accrued Renewable Fuel Standards (“RFS”) obligation	7	4
Share-based compensation	6	5
Other accrued expenses and liabilities	9	18
Total other current liabilities	<u>\$ 179</u>	<u>\$ 173</u>

(1) The lease standard was adopted on January 1, 2019 on a prospective basis. Therefore, only 2019 disclosures are applicable to be included within the table above.

(6) Long-Term Debt and Finance Lease Obligations

	December 31,	
	2019	2018
(in millions)		
CVR Partners:		
9.25% Senior Secured Notes due June 2023 (1)	\$ 645	\$ 645
6.50% Senior Notes due April 2021	2	2
Unamortized discount and debt issuance costs	(15)	(18)
Total CVR Partners debt	<u>\$ 632</u>	<u>\$ 629</u>
CVR Refining:		
6.50% Senior Notes due November 2022 (2)	\$ 500	\$ 500
Finance lease obligations, net of current portion (3)	61	41
Unamortized debt issuance cost	(3)	(3)
Total CVR Refining debt	<u>558</u>	<u>538</u>
Total long-term debt and finance lease obligations	<u>\$ 1,190</u>	<u>\$ 1,167</u>

- (1) This debt was issued at a \$16 million discount which is being amortized, as interest expense, over the remaining term of the debt. Debt issuance costs associated with this debt totaled \$9 million.
- (2) Debt issuance costs associated with this debt totaled \$9 million. On January 29, 2019, the 2022 Notes were amended such that CVR Energy was included as the primary guarantor, on a senior unsecured basis, of the 2022 Notes. The CVR Energy guarantee is full and unconditional and joint and several. On January 27, 2020, the Company redeemed all of the 2022 Notes for a redemption price equal to 101.083%, plus accrued and unpaid interest, on the redeemed notes.
- (3) Current portion of finance lease obligations was approximately \$5 million and \$3 million as of December 31, 2019 and 2018, respectively.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Credit Facilities

(in millions)	Total Capacity	Amount Borrowed as of December 31, 2019	Outstanding Letters of Credit	Available Capacity as of December 31, 2019	Maturity Date
CVR Partners:					
Asset Based (“AB”) Credit Facility (1)	50	—	—	50	September 30, 2021
CVR Refining:					
Amended and Restated Asset Based (“Amended and Restated ABL”) Credit Facility (2)	\$ 400	\$ —	\$ 7	\$ 393	November 14, 2022

- (1) Loans under the AB Credit Facility initially bear interest at an annual rate equal to (i) 2.00% plus LIBOR or (ii) 1.00% plus a base rate, subject to a 0.50% step-down based on the previous quarter’s excess availability.
- (2) Loans under the Amended and Restated ABL Credit Facility initially bear interest at an annual rate equal to (i) 1.50% plus LIBOR or (ii) 0.50% plus a base rate, subject to quarterly excess availability.

The Company is in compliance with all covenants of the AB credit facilities, Amended and Restated ABL, and the senior notes as of December 31, 2019.

CVR Partners

AB Credit Facility - On September 30, 2016, CVR Partners entered into a senior secured asset based revolving credit facility (the “AB Credit Facility”) with a group of lenders and UBS AG (“UBS”), as administrative agent and collateral agent. The AB Credit Facility has an aggregate principal amount of availability of up to \$50 million with an incremental facility, which permits an increase in borrowings of up to \$25 million in the aggregate subject to additional lender commitments and certain other conditions. The AB Credit Facility is scheduled to mature on September 30, 2021.

2023 Notes - On June 10, 2016, CVR Partners and CVR Nitrogen Finance Corporation (“CVR Nitrogen Finance”), an indirect wholly-owned subsidiary of CVR Partners (together the “2023 Notes Issuers”), certain subsidiary guarantors named therein and Wilmington Trust, National Association, as trustee and as collateral trustee, completed a private offering of \$645 million aggregate principal amount of 9.25% Senior Secured Notes due 2023 (the “2023 Notes”). The 2023 Notes mature on June 15, 2023, unless earlier redeemed or repurchased by the issuers. Interest on the 2023 Notes is payable semi-annually in arrears on June 15 and December 15 of each year. The 2023 Notes are guaranteed on a senior secured basis by all of the Nitrogen Fertilizer Partnership’s existing subsidiaries.

On or after June 15, 2019, the 2023 Notes Issuers may on any one or more occasions, redeem all or part of the 2023 Notes at the redemption prices set forth below expressed as a percentage of the principal amount of the 2023 Notes plus accrued and unpaid interest to the applicable redemption date.

12-month period beginning June 15,	Percentage
2019	104.625%
2020	102.313%
2021 and thereafter	100.000%

The 2023 Notes contain customary covenants for a financing of this type that, among other things, restrict CVR Partners’ ability and the ability of certain of its subsidiaries to: (i) sell assets; (ii) pay distributions on, redeem or repurchase the Nitrogen Fertilizer Partnership’s units or redeem or repurchase its subordinated debt; (iii) make investments; (iv) incur or guarantee additional indebtedness or issue preferred units; (v) create or incur certain liens; (vi) enter into agreements that restrict distributions or other payments from the CVR Partners’ restricted subsidiaries to CVR Partners; (vii) consolidate, merge or transfer all or substantially all of the CVR Partners’ assets; (viii) engage in transactions with affiliates; and (ix) create unrestricted subsidiaries. In addition, the indenture contains customary events of default, the occurrence of which would result in or permit the trustee or the holders of at least 25% of the 2023 Notes to cause the acceleration of the 2023 Notes, in addition to the pursuit of other available remedies.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

CVR Refining

Amended and Restated ABL Credit Facility - On November 14, 2017, CRLLC, CVR Refining, its wholly-owned subsidiary, CVR Refining, LLC (“Refining LLC”) and each of the operating subsidiaries of Refining LLC (collectively, the “Credit Parties”) entered into Amendment No. 1 to the Amended and Restated ABL Credit Agreement (the “Amendment”) with a group of lenders and Wells Fargo Bank, National Association (“Wells Fargo”), as administrative agent and collateral agent. The Amended and Restated ABL is a \$400 million asset-based revolving credit facility, with sub-limits for letters of credit and swingline loans of \$60 million and \$40 million, respectively. The Amended and Restated ABL also includes a \$200 million uncommitted incremental facility.

2022 Notes - On October 23, 2012, CVR Refining, LLC (“Refining LLC”) and Coffeyville Finance Inc. (“Coffeyville Finance”) completed a private offering of \$500 million aggregate principal amount of 6.50% Second Lien Senior Notes due 2022 (the “2022 Notes”). The 2022 Notes mature on November 1, 2022, unless earlier redeemed or repurchased by the issuers. Interest is payable on the 2022 Notes semi-annually on May 1 and November 1 of each year, commencing on May 1, 2013. The 2022 Notes are unsecured and fully and unconditionally guaranteed by CVI, CVR Refining and each of Refining LLC’s existing domestic subsidiaries (other than the co-issuer, Coffeyville Finance) on a joint and several basis. CVR Refining has no independent assets or operations and Refining LLC is a 100% owned finance subsidiary of CVR Refining. On January 29, 2019, the Company, and certain of the Company’s subsidiaries, executed a full and unconditional guarantee of the 2022 Notes.

On January 27, 2020, the Company redeemed all of the outstanding 2022 Notes and settled accrued interest of approximately \$8 million through the date of redemption. The redeemed notes were repurchased for approximately \$505 million, or 101.083% of par value. Previously deferred financing charges related to the 2022 Notes totaled approximately \$3 million. As a result of this transaction, the Company will recognize a \$8 million loss on extinguishment of debt in the first quarter of 2020, which includes the total premiums paid of \$5 million and the write-off of previously deferred financing charges of \$3 million.

CVR Energy

2025 Notes and 2028 Notes - On January 27, 2020, CVR Energy completed a private offering of \$600 million aggregate principal amount of 5.25% Senior Unsecured Notes due 2025 (the “2025 Notes”) and \$400 million aggregate principal amount of 5.75% Senior Unsecured Notes due 2028 (the “2028 Notes” and, collectively with the 2025 Notes, the “Notes”). Interest on the Notes is payable semi-annually in arrears on February 15 and August 15 each year, commencing on August 15, 2020. The 2025 Notes mature on February 15, 2025, unless earlier redeemed or repurchased by the issuers. The 2028 Notes mature on February 15, 2028, unless earlier redeemed or repurchased by the issuers. The Notes are jointly and severally guaranteed on a senior unsecured basis by the wholly-owned subsidiaries of CVR Energy with the exception of CVR Partners and its subsidiaries and certain immaterial wholly-owned subsidiaries of CVR Energy.

In relation to the issuance of the Notes, the Company received \$993 million of net cash proceeds, net of underwriting fees and other third-party fees and expenses associated with the offering. The debt issuance costs of the Notes totaled approximately \$7 million and are being amortized over the terms of the respective notes as interest expense using the effective-interest amortization method.

On or after February 15, 2022 and February 15, 2023, we may on any one or more occasions, redeem all or part of the 2025 Notes and 2028 Notes, respectively, at the redemption prices set forth below expressed as a percentage of the principal amount of the respective notes, plus accrued and unpaid interest to the applicable redemption date.

2025 Notes		2028 Notes	
12-month period beginning February 15,	Percentage	12-month period beginning February 15,	Percentage
2022	102.625%	2023	102.875%
2023	101.313%	2024	101.917%
2024 and thereafter	100.000%	2025	100.958%
		2026 and thereafter	100.000%

The indenture governing the Notes imposes covenants that will, among other things, limit our ability and the ability of our restricted subsidiaries to: (i) incur additional indebtedness or issue certain disqualified equity; (ii) create liens on certain assets

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

to secure debt; (iii) pay dividends or make other equity distributions; (iv) purchase or redeem capital stock; (v) make certain investments; (vi) sell assets; (vii) agree to certain restrictions on the ability of restricted subsidiaries to make distributions, loans, or other asset transfers to us; (viii) consolidate, merge, sell, or otherwise dispose of all or substantially all of our assets; (ix) engage in transactions with affiliates; and (x) designate our restricted subsidiaries as unrestricted subsidiaries. In addition, the indenture contains customary events of default, the occurrence of which would result in or permit the trustee or the holders of at least 25% of the 2025 Notes and 2028 Notes to cause, amongst other available remedies, the acceleration of the respective notes.

Credit Agreement - On January 29, 2019, the Company entered into a credit agreement (the “Credit Agreement”) with Jefferies Finance LLC to provide a term loan credit facility with a maturity date of March 10, 2019. The borrowings under the Credit Agreement of \$105 million were used to fund a portion of the CVRR Unit Purchase. All amounts were repaid on February 11, 2019. As the original maturity was less than three months from the issuance date, the borrowings and repayments under the credit agreement qualified for net reporting on the Consolidated Statements of Cash Flows.

(7) Revenue

The following tables present the Company’s revenue disaggregated by major product. The following tables include a reconciliation of the disaggregated revenue by product and other revenue components for the Company’s reportable segments.

(in millions)	Year Ended December 31, 2019			
	Petroleum	Nitrogen Fertilizer	Other / Eliminations	Consolidated
Gasoline	\$ 3,050	\$ —	\$ —	\$ 3,050
Distillates (1)	2,705	—	—	2,705
Ammonia	—	94	—	94
UAN	—	251	—	251
Other urea products	—	18	—	18
Freight revenue	23	33	—	56
Other (2)	129	8	(8)	129
Revenue from product sales	5,907	404	(8)	6,303
Crude oil sales	58	—	—	58
Other revenue (2)	3	—	—	3
Total revenue	\$ 5,968	\$ 404	\$ (8)	\$ 6,364

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

(in millions)	Year Ended December 31, 2018			
	Petroleum	Nitrogen Fertilizer	Other / Eliminations	Consolidated
Gasoline	\$ 3,383	\$ —	\$ —	\$ 3,383
Distillates (1)	3,083	—	—	3,083
Ammonia	—	66	—	66
UAN	—	222	—	222
Other urea products	—	21	—	21
Freight revenue	23	34	—	57
Other (2)	190	8	(7)	191
Revenue from product sales	6,679	351	(7)	7,023
Crude oil sales	96	—	—	96
Other revenue (2)	5	—	—	5
Total revenue	\$ 6,780	\$ 351	\$ (7)	\$ 7,124

(1) Distillates consist primarily of diesel fuel, kerosene, and jet fuel.

(2) Other revenue consists primarily of feedstock and asphalt sales and Cushing, OK storage tank lease revenue. See Note 2 (“Summary of Significant Accounting Policies”) for further discussion on the Cushing, OK storage tanks.

Petroleum Segment

The Petroleum Segment’s revenue from product sales is recorded upon delivery to customers, which is the point at which title is transferred and the customer has assumed the risk of loss. This generally takes place as product passes into the pipeline, as a product transfer order occurs within a pipeline system, or as product enters equipment or locations supplied or designated by the customer. Qualifying excise and other taxes collected from the Petroleum Segment’s customers and remitted to governmental authorities are not included in reported revenues.

Many of the Petroleum Segment’s contracts have index-based pricing which is considered variable consideration that should be estimated in determining the transaction price. The Petroleum Segment determined that it does not need to estimate the variable consideration because the uncertainty related to the consideration is resolved on the pricing date or the date when the product is delivered.

The Petroleum Segment may incur broker commissions or transportation costs prior to product transfer on some of its sales. The Petroleum Segment expenses these broker costs, since the contract durations are less than a year. Transportation costs are accounted for as fulfillment costs and are expensed as incurred since they do not meet the requirement for capitalization.

The Petroleum Segment’s contracts with its customers state the terms of the sale, including the description, quantity, and price of each product sold. Depending on the product sold, payment from customers is generally due in full within 2 to 32 days of product delivery or invoice date. The Petroleum Segment generally provides no warranty other than the implicit promise that goods delivered are free of liens and encumbrances and meet the agreed upon specification. The Petroleum Segment has determined that product returns or refunds are very rare and will account for them as they occur.

Freight revenue recognized by the Petroleum Segment is primarily tariff and line loss charges rebilled to customers to reimburse the Petroleum Segment for expenses incurred from a pipeline operator. An offsetting expense is included in Cost of materials and other.

Nitrogen Fertilizer Segment

The Nitrogen Fertilizer Segment sells its products on a wholesale basis under a contract or by purchase order. The Nitrogen Fertilizer Segment’s contracts with customers generally contain fixed pricing and most have terms of less than one year. The Nitrogen Fertilizer Segment recognizes revenue at the point in time at which the customer obtains control of the product, which is generally upon delivery and acceptance by the customer. The customer acceptance point is stated in the contract and may be

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

at one of the Nitrogen Fertilizer Segment's manufacturing facilities, at one of the Nitrogen Fertilizer Segment's off-site loading facilities, or at the customer's designated facility. Freight revenue recognized by the Nitrogen Fertilizer Segment represents the pass-through finished goods delivery costs incurred prior to customer acceptance and is reimbursed by customers. An offsetting expense for freight is included in Cost of materials and other. Qualifying excise and other taxes collected from the Nitrogen Fertilizer Segment's customers and remitted to governmental authorities are not included in reported revenues.

Depending on the product sold and the type of contract, payments from customers are generally either due prior to delivery or within 15 to 30 days of product delivery.

The Nitrogen Fertilizer Segment generally provides no warranty other than the implicit promise that goods delivered are free of liens and encumbrances and meet the agreed upon specifications. Product returns are rare, and as such, the Nitrogen Fertilizer Segment does not record a specific warranty reserve or consider activities related to such warranty, if any, to be a separate performance obligation.

The Nitrogen Fertilizer Segment has an immaterial amount of variable consideration for contracts with an original duration of less than a year. A small portion of the Nitrogen Fertilizer Segment's revenue includes contracts extending beyond one year, some of which contain variable pricing in which the majority of the variability is attributed to the market-based pricing. The Nitrogen Fertilizer Segment's contracts do not contain a significant financing component.

The Nitrogen Fertilizer Segment has an immaterial amount of fee-based revenue, included in other revenue in the table above, that is recognized based on the net amount of the proceeds received, consistent with prior accounting practice.

Remaining performance obligations

As of December 31, 2019, the Nitrogen Fertilizer Segment had approximately \$9 million of remaining performance obligations for contracts with an original expected duration of more than one year. The Nitrogen Fertilizer Segment expects to recognize approximately \$4 million of these performance obligations as revenue by the end of 2020, an additional \$3 million by 2021, and the remaining balance thereafter.

Contract balances

The Nitrogen Fertilizer Segment's deferred revenue is a contract liability that primarily relates to fertilizer sales contracts requiring customer prepayment prior to product delivery to guarantee a price and supply of nitrogen fertilizer. Deferred revenue is recorded at the point in time in which a prepaid contract is legally enforceable and the associated right to consideration is unconditional prior to transferring product to the customer. An associated receivable is recorded for uncollected prepaid contract amounts. Contracts requiring prepayment are generally short-term in nature and, as discussed above, revenue is recognized at the point in time in which the customer obtains control of the product. At December 31, 2019, \$19 million of the deferred revenue balance pertained to prepaid contracts where the associated receivable was recognized as it had not yet been collected by the Nitrogen Fertilizer Segment.

A summary of the Nitrogen Fertilizer Segment's deferred revenue activity during the year ended December 31, 2019 is presented below:

(in millions)	
Balance at December 31, 2018	\$ 69
Add:	
New prepay contracts entered into during the period (1)	46
Less:	
Revenue recognized that was included in the contract liability balance at the beginning of the period	68
Revenue recognized related to contracts entered into during the period	18
Other changes	1
Balance at December 31, 2019	<u>\$ 28</u>

(1) Includes \$27 million where the payment associated with prepaid contracts was collected.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Major Customers

Petroleum Segment - The Petroleum Segment has two customers who comprise 25%, 25%, and 27% of petroleum net sales for the years ended December 31, 2019, 2018, and 2017, respectively.

Nitrogen Fertilizer Segment - The Nitrogen Fertilizer Segment has two customers who comprised 28%, 20%, and 16% of nitrogen fertilizer net sales for the years ended December 31, 2019, 2018, and 2017, respectively.

(8) Derivative Financial Instruments

Our segments are subject to price fluctuations caused by supply conditions, weather, economic conditions, interest rate fluctuations, and other factors. To manage price risk on crude oil and other inventories and to fix margins on certain future production, the Petroleum Segment from time to time enters into various commodity derivative transactions. On a regular basis, the Company enters into commodity contracts with counterparties for the purchases or sale of crude oil, blendstocks, various finished products, and RINs. The contracts usually qualify for the normal purchase normal sale exception and follow the accrual method of accounting. All other derivative instruments are recorded at fair value using mark-to-market accounting on a periodic basis utilizing third-party pricing.

The Petroleum Segment holds derivative instruments, such as exchange-traded crude oil futures and certain over-the-counter forward swap agreements, which it believes provide an economic hedge on future transactions, but such instruments are not designated as hedges under GAAP. There are no premiums paid or received at inception of the derivative contracts or upon settlement. The Petroleum Segment may enter into forward purchase or sale contracts associated with RINs. As of December 31, 2019, the Petroleum Segment had open fixed-price commitments to purchase 20 million RINs.

Commodity derivatives include commodity swaps and forward purchase and sale commitments. There were no outstanding commodity swap positions as of December 31, 2019 and 2018. There were approximately 3 million and 1 million in forward purchase commitments as of December 31, 2019 and 2018, respectively, and 1 million and 1 million in forward sale commitments as of December 31, 2019 and 2018, respectively.

The following outlines the gains (losses) recognized on the Company's derivative activities, all of which are recorded in Cost of materials and other on the Consolidated Statements of Operations:

Gain (Loss) on Derivatives

	Year Ended December 31,		
	2019	2018	2017
(in millions)			
Forward purchases and sales, net	\$ 20	\$ 103	\$ (26)
Swaps	—	44	(43)
Futures	(1)	(1)	(1)
Total gain (loss) on derivatives, net	\$ 19	\$ 146	\$ (70)

The following outlines our open commodity derivative instruments, which are classified as Prepaid expenses and other current assets and Other current liabilities on the Consolidated Balance Sheets:

Open Commodity Derivative Instruments

	Year Ended December 31,	
	2019	2018
(in millions of barrels)		
Forward Contracts:		
Canadian crude oil	5	2

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Offsetting Assets and Liabilities

The Company elected to offset the fair value amounts recognized for multiple derivative contracts executed with the same counterparty. These amounts are recognized as current assets and current liabilities within the Prepaid expenses and other current assets and Other current liabilities financial statement line items, respectively, in the Consolidated Balance Sheets as follows:

(in millions)	Derivative Assets		Derivative Liabilities	
	December 31,		December 31,	
	2019	2018	2019	2018
Commodity Derivatives	\$ 3	\$ 8	\$ (11)	\$ 1
Less: Counterparty Netting	(3)	(1)	3	(1)
Total Net Fair Value of Derivatives	\$ —	\$ 7	\$ (8)	\$ —

In accordance with FASB ASC Topic 820 — *Fair Value Measurements and Disclosures* (“ASC 820”), the Company utilizes the market approach to measure fair value for its financial assets and liabilities. The market approach uses prices and other relevant information generated by market transactions involving identical or comparable assets, liabilities, or a group of assets or liabilities, such as a business.

ASC 820 utilizes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The following is a brief description of those three levels:

- Level 1 — Quoted prices in active markets for identical assets or liabilities
- Level 2 — Other significant observable inputs (including quoted prices in active markets for similar assets or liabilities)
- Level 3 — Significant unobservable inputs (including the Company’s own assumptions in determining the fair value)

The following table sets forth the assets and liabilities measured or disclosed at fair value on a recurring basis, by input level, as of December 31, 2019 and 2018:

(in millions)	December 31, 2019			
	Level 1	Level 2	Level 3	Total
Location and Description				
Other current liabilities (commodity derivatives)	\$ —	\$ (8)	\$ —	\$ (8)
Other current liabilities (RFS obligation)	—	(7)	—	(7)
Long-term debt	—	(1,180)	—	(1,180)
Total Liabilities	\$ —	\$ (1,195)	\$ —	\$ (1,195)
(In millions)	December 31, 2018			
	Level 1	Level 2	Level 3	Total
Location and Description				
Cash equivalents	\$ 50	\$ —	\$ —	\$ 50
Other current assets (derivative agreements)	—	7	—	7
Total Assets	50	7	—	57
Other current liabilities (RFS obligation)	—	(2)	—	(2)
Long-term debt	—	(1,163)	—	(1,163)
Total Liabilities	\$ —	\$ (1,165)	\$ —	\$ (1,165)

As of December 31, 2019 and 2018, the only financial assets and liabilities that are measured at fair value on a recurring basis are the Company’s cash equivalents, derivative instruments, and the RFS obligation. The Petroleum Segment’s commodity derivative contracts and RFS obligation, which use fair value measurements and are valued using broker quoted

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

market prices of similar instruments, are considered Level 2 inputs. The Company had no transfers of assets or liabilities between any of the above levels during the year ended December 31, 2019.

(9) Share-Based Compensation

Overview

CVR Energy, CVR Refining, and CVR Partners all have a Long-Term Incentive Plans (collectively, the “LTIPs”) which permit the granting of options, stock and unit appreciation rights (“SARs”), restricted shares, restricted stock units, phantom units, unit awards, substitute awards, other unit-based awards, cash awards, dividend and distribution equivalent rights, share awards, and performance awards (including performance share units, performance units, and performance-based restricted stock). Individuals who are eligible to receive awards and grants under the LTIPs include the employees, officers, and directors of the Company, CVR Refining, and CVR Partners. The Company had 6.8 million shares or units, as applicable, available for future grants under our plans at December 31, 2019.

Incentive and Phantom Unit Awards

Incentive and phantom unit awards have been granted to officers, employees, and directors (collectively, the “Share-Based Awards”) under the LTIPs. As a result, Share-Based Awards that reflect the value and dividend or distributions of CVR Energy, CVR Refining, or CVR Partners have been granted and remain outstanding as of December 31, 2019. Each Share-Based Award and the related dividend or distribution equivalent right represents the right to receive, upon vesting, a cash payment equal to (i) the average fair market value of one share or unit, as applicable, in accordance with the award agreement, plus (ii) the per share or unit cash value of all dividends or distributions declared and paid, as applicable, from the grant date through the vesting date. The Share-Based Awards are generally graded-vesting awards, which are expected to vest over three years with one-third of the award vesting each year the grantee remains employed by the Company or its subsidiaries. Compensation expense is recognized ratably, based on service provided to the Company and its subsidiaries, with the amount recognized fluctuating as a result of the Share-Based Awards being re-measured to fair value at the end of each reporting period due to their liability-award classification.

A summary of activity for the Company’s Share-Based Awards for the year ended December 31, 2019 is presented below:

	Shares or Units	Weighted-Average Grant-Date Fair Value (per share or unit)	Aggregate Intrinsic Value (in millions)
Non-vested at December 31, 2018	2,432,073	\$ 12.13	\$ 24
Granted	1,317,661	16.21	
Vested	(1,142,021)	10.98	
Forfeited	(154,026)	11.94	
Non-vested at December 31, 2019	2,453,687	\$ 14.88	\$ 33

Performance Unit Awards

Pursuant to an employment agreement with the Company’s current chief executive officer, the Company entered into two performance award agreements on November 1, 2017. In connection with the performance period of January 1, 2018 to December 31, 2018, a performance award was granted with a target value of \$1.5 million (the “2018 CEO Performance Award”). The payout of \$1.9 million, paid in February 2019, under the 2018 CEO Performance Award was based on the Company’s performance against certain safety, operating, and financial measures. Additionally, the Company entered into a performance award agreement (the “CEO Performance Award”). The CEO Performance Award represents the right to receive upon vesting, a cash payment equal to \$10 million if the average closing price of the Company’s common stock over the 30-trading day period from January 4, 2022 to February 15, 2022 is equal to or greater than \$60 per share.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Compensation Expense

A summary of total share based compensation expense and unrecognized compensation expense related to the Share-Based Awards and the Company's performance awards, the amounts allocated to each of the Company's segments, and the amounts that were not allocated to segments during the years ended December 31, 2019, 2018, and 2017 is presented below:

(in millions)	Expenses For the year ended December 31,			Unrecognized Expense At December 31, 2019	
	2019	2018	2017	Amount	Weighted-Average Remaining Years
Share based awards					
Incentive Units	\$ 12	\$ 4	\$ 7	\$ 22	2.4
Phantom Units	5	8	8	5	2.3
Performance awards					
CEO Performance Award	—	2	—	7	2.0
2018 CEO Performance Award	—	2	—	—	0.0
Former CEO Performance Award	—	—	4	—	0.0
Total expense	\$ 17	\$ 16	\$ 19	\$ 34	

The total tax benefit recognized during the years ended December 31, 2019, 2018, and 2017 related to compensation expense was \$4 million, \$4 million and \$7 million respectively. For the years ended December 31, 2019, 2018, and 2017, the Company paid cash of \$23 million, \$17 million, and \$16 million, respectively, to settle liability-classified awards upon vesting.

Other Benefit Plans

The Company sponsors and administers two defined-contribution 401(k) plans, the CVR Energy 401(k) Plan and the CVR Energy 401(k) Plan for Represented Employees (the "Plans"), in which the Company's employees may participate. Participants in the Plans may elect to contribute a designated percentage of their eligible compensation in accordance with the Plans, subject to statutory limits. The Company provides a matching contribution of 100% of the first 6% of eligible compensation contributed by participants. Participants in both Plans are immediately vested in their individual contributions. The Plans provide for a three-year vesting schedule for the Company's matching contributions and contain a provision to count service with predecessor organizations. The Company's contributions under the Plans were approximately \$9 million, \$9 million, and \$9 million for the years ended December 31, 2019, 2018, and 2017, respectively.

(10) Income Taxes

Tax Allocation Agreement

Prior to the CVRR Unit Exchange, CVR Energy was a member of the consolidated federal tax group of AEP, an affiliate of IEP, and party to a tax allocation agreement with AEP (the "Tax Allocation Agreement"). The Tax Allocation Agreement provides that AEP will pay all consolidated federal income taxes on behalf of the consolidated tax group. As a result, CVR Energy was required to make payments to AEP in an amount equal to the tax liability, if any, that it would have had paid if it were to file as a consolidated group separate and apart from AEP.

Following the CVRR Unit Exchange, IEP and affiliates' ownership of CVR Energy was reduced below 80% and, since that time, CVR Energy is no longer eligible to file as a member of the AEP consolidated federal income tax group. Beginning with the tax period after the exchange, CVR Energy became the parent of a new consolidated group for U.S. federal income tax purposes and will file and pay its federal income tax obligations directly to the IRS. Pursuant to the terms of the Tax Allocation Agreement, however, CVR Energy may be required to make payments in respect of taxes owed by AEP for periods prior to the exchange. Similar principles may apply for state or local income tax purposes where CVR Energy filed combined, consolidated or unitary tax returns with AEP. AEP has been notified by the IRS that its income tax return for the period ended December 31, 2017 will be examined.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

As of December 31, 2019 and 2018, the Company recognized a nominal payable and \$4 million receivable for income taxes due to or from AEP. The receivable is recognized as Prepaid expenses and other current assets in the Consolidated Balance Sheets. As of December 31, 2019 and 2018, the Company's Consolidated Balance Sheets also reflected a payable of \$20 million to and receivable of \$12 million from, respectively, the IRS and certain state jurisdictions.

Income Tax Expense (Benefit)

Income tax expense (benefit) is comprised of the following:

(in millions)	Year Ended December 31,		
	2019	2018	2017
Current:			
Federal	\$ 96	\$ 31	\$ (1)
State	5	(7)	(22)
Total current	101	24	(23)
Deferred:			
Federal	3	39	(186)
State	25	16	(11)
Total deferred	28	55	(197)
Total income tax expense (benefit)	\$ 129	\$ 79	\$ (220)

The following is a reconciliation of total income tax expense (benefit) to income tax expense (benefit) computed by applying the statutory federal income tax rate to pretax income:

(in millions)	Year Ended December 31,		
	2019	2018	2017
Tax computed at federal statutory rate	\$ 103	\$ 94	\$ 14
State income taxes, net of federal tax benefit	29	12	(14)
State tax incentives, net of federal tax expense	(4)	(4)	(7)
Noncontrolling interest	4	(23)	1
Other, net	(3)	—	—
Adjustment to deferred tax assets and liabilities for enacted change in federal tax rate (1)	—	—	(214)
Total income tax expense (benefit)	\$ 129	\$ 79	\$ (220)

- (1) The income tax benefit for the year ended December 31, 2017 was favorably impacted as a result of the Tax Cuts and Jobs Act legislation that was signed into law in December 2017, reducing the federal income tax rate from 35% to 21% beginning in 2018. As a result, the Company's net deferred tax liabilities at December 31, 2017 were remeasured to reflect the lower tax rate in effect for the years in which the deferred tax assets and liabilities will be realized.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Deferred Tax Assets and Liabilities

The income tax effect of temporary differences that give rise to the Deferred income tax assets and Deferred income tax liabilities at December 31, 2019 and 2018 are as follows:

(in millions)	December 31,	
	2019	2018
Deferred income tax assets:		
State tax credit carryforward, net	\$ 7	\$ 11
Total gross deferred income tax assets	7	11
Deferred income tax liabilities:		
Investment in CVR Partners	(61)	(59)
Investment in CVR Refining	(341)	(327)
Other	(1)	(5)
Total gross deferred income tax liabilities	(403)	(391)
Net deferred income tax liabilities	\$ (396)	\$ (380)

Although realization is not assured, management believes that it is more likely than not that all of the Deferred income tax assets will be realized, and therefore, no valuation allowance was recognized as of December 31, 2019 and 2018.

As of December 31, 2019, CVR Energy has state tax credits of approximately \$16 million, which are available to reduce future state income taxes. These credits can be carried forward indefinitely.

Uncertain Tax Positions

A reconciliation of unrecognized tax benefits is as follows:

(in millions)	Year Ended December 31,		
	2019	2018	2017
Balance, beginning of year	\$ 23	\$ 29	\$ 44
Increase in current year tax positions (interest expense)	2	—	—
Reductions related to expirations from statute of limitations	(3)	(6)	(15)
Balance, end of year	\$ 22	\$ 23	\$ 29

Included in the balance of unrecognized tax benefits as of December 31, 2019, 2018, and 2017 are \$15 million, \$18 million, and \$23 million, respectively, of tax benefits that, if recognized, would affect the effective tax rate. Approximately \$5 million, \$6 million, and \$15 million of the unrecognized tax positions relating to state income tax credits were recognized in 2019, 2018, and 2017, respectively, as a result of expirations from statute of limitations. Additionally, the Company believes that it is reasonably possible that approximately \$3 million of its unrecognized tax positions related to state income tax credits may be recognized by the end of 2020 as a result of the expiration of statute of limitations. Approximately \$10 million and \$22 million of unrecognized tax benefits were netted with Deferred income tax asset carryforwards as of December 31, 2019 and 2018, respectively. The remaining unrecognized tax benefits are included in Other long-term liabilities in the Consolidated Balance Sheets.

CVR Energy recognized nominal interest benefit and nominal liability for interest as of December 31, 2019, interest benefit of approximately \$1 million and a nominal liability for interest as of December 31, 2018, and interest expense of approximately \$7 million and recognized a liability for interest of approximately \$1 million as of December 31, 2017. No penalties were recognized during 2019, 2018, or 2017.

At December 31, 2019, the Company's tax filings are generally open to examination in the United States for the tax years ended December 31, 2016 through December 31, 2018 and in various individual states for the tax years ended December 31, 2015 through December 31, 2018.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

(11) Commitments and Contingencies

Supply Commitments

The minimum required payments for unconditional purchase obligations are as follows:

Year Ended December 31, (in millions)	Unconditional Purchase Obligations
2020	\$ 95
2021	80
2022	77
2023	75
2024	71
Thereafter	375
	\$ 773

Supply Commitments - The Company is a party to various supply agreements with both related and third parties which commit the Company to purchase minimum volumes of crude oil, hydrogen, oxygen, nitrogen, pet coke, and natural gas to run its facilities' operations. For the years ended December 31, 2019, 2018, and 2017, amounts purchased under these supply agreements totaled approximately \$167 million, \$214 million, and \$209 million, respectively.

Crude Oil Supply Agreement

On August 31, 2012, an indirect, wholly-owned subsidiary of CVR Refining entered into an Amended and Restated Crude Oil Supply Agreement (as amended, the "Crude Oil Supply Agreement") with Vitol Inc. ("Vitol"). Under the Crude Oil Supply Agreement, Vitol supplies the Petroleum Segment with crude oil and intermediation logistics helping to reduce the amount of inventory held at a certain locations and mitigate crude oil pricing risk. Volumes contracted under the Crude Oil Supply Agreement, as a percentage of the total crude oil purchases (in barrels), was approximately 36%, 42% and 55% for the years ended December 31, 2019, 2018, and 2017, respectively. The Crude Oil Supply Agreement, which currently extends through December 31, 2020, automatically renews for successive one-year terms (each such term, a "Renewal Term") unless either party provides the other with notice of nonrenewal at least 180 days prior to expiration of any Renewal Term.

Contingencies

CVRR Unit Purchase - During 2019, the Company, CVR Refining and its general partner, CVR Refining Holdings, IEP, and certain directors and affiliates have been named in at least one of nine lawsuits filed in the Court of Chancery of the State of Delaware by purported former unitholders of CVR Refining, on behalf of themselves and an alleged class of similarly situated unitholders (the "Call Option Lawsuits"). The Call Option Lawsuits primarily allege breach of contract, tortious interference and breach of the implied covenant of good faith and fair dealing and seek monetary damages and attorneys' fees, among other remedies, relating to the Company's exercise of the call option under the CVR Refining Amended and Restated Agreement of Limited Partnership assigned to it by CVR Refining's general partner. In January 2020, the court dismissed CVR Holdings and certain former directors of CVR Refining's general partner from the Call Option Lawsuits, although permitted some or all of the claims to proceed against each remaining defendant. The Company believes the Call Option Lawsuits are without merit and intends to vigorously defend against them. The Call Option Lawsuits remain in the early stages of litigation. Accordingly the Company cannot determine at this time the outcome of the Call Option Lawsuits, including whether the outcome of this matter would have a material impact on the Company's financial position, results of operations, or cash flows.

Property Tax Matter - In September 2018, the Kansas Court of Appeals upheld property tax determinations by the Kansas Board of Tax Appeals in connection with Coffeyville Resources Nitrogen Fertilizer, LLC's ("CRNF") dispute with Montgomery County, Kansas (the "County") over prior year property tax payments as previously disclosed. On October 29, 2018, the County petitioned the Kansas Supreme Court to review the Court of Appeals' determination. Subsequent briefs were filed by CRNF and the County. In April 2019, CRNF and the County executed an agreement which the County agrees to withdraw its petition to the Kansas Supreme Court and CRNF is expected to recover approximately \$8 million through favorable property tax assessments from 2019 through 2028, subject to the terms of the settlement agreement.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Wynnewood Small Refinery Exemption - During 2019, Wynnewood Refining Company, LLC (“WRC”) intervened in a lawsuit filed by four ethanol and biofuels trade associations against the EPA, claiming the EPA exceeded its authority in granting Wynnewood’s 2017 small refinery exemption (“SRE”) under the RFS program under the CAA, as well as the SREs of two other unrelated refineries. In January 2020, the 10th Circuit Court of Appeals vacated the three SREs and remanded the matter to the EPA for further proceedings, holding, in part, that the “extension” language in the CAA requires a small refinery to have received an SRE continuously in every year since inception of the program to be eligible. As the EPA has not yet acted following remand by the court, and as Wynnewood intends to appeal this ruling, we cannot currently estimate the outcome, impact, or timing of the resolution of this matter.

Environmental, Health, and Safety (“EHS”) Matters

Clean Air Act Matter - On August 21, 2018, Coffeyville Resources Refining and Marketing (“CRRM”), a subsidiary of CVR Refining, received a letter from the United States Department of Justice (“DOJ”) on behalf of the EPA and Kansas Department of Health and Environment (“KDHE”) alleging violations of the Clean Air Act (“CAA”) and a 2012 Consent Decree between CRRM, the United States (on behalf of EPA), and KDHE at CRRM’s Coffeyville refinery. In September 2018, CRRM executed a tolling agreement with the DOJ and KDHE extending time for negotiation regarding the agencies’ allegations through March 2019, and this tolling agreement was extended through April 30, 2020. At this time the Company cannot reasonably estimate the potential penalties, costs, fines or other expenditures that may result from this matter or any subsequent enforcement or litigation relating thereto and, therefore, the Company cannot determine if the ultimate outcome of this matter will have a material impact on the Company’s financial position, results of operations or cash flows.

Renewable Fuel Standards - The Company’s Petroleum Segment is subject to the RFS of the Environmental Protection Agency (“EPA”) that require refiners to either blend renewable fuels in with their transportation fuels or purchase renewable fuel credits, known as RINs, in lieu of blending. The Petroleum Segment is not able to blend the substantial majority of its transportation fuels and has to purchase RINs on the open market, and may have to obtain waiver credits for cellulosic biofuels from the EPA, in order to comply with the RFS.

The Company recognized an expense of approximately \$43 million, \$60 million, and \$249 million for the years ended December 31, 2019, 2018, and 2017, respectively, for the Petroleum Segment’s compliance with the RFS. The recognized amounts are included within Cost of materials and other in the Consolidated Statements of Operations. The Company’s costs to comply with the RFS include the purchased cost of RINs acquired, the impact of recognizing the Petroleum Segment’s uncommitted biofuel blending obligation at fair value based on market prices at each reporting date, and the valuation change of RINs acquired in excess of its RFS obligation as of the reporting date. During the year ended December 31, 2019, the Company’s cost to comply with RFS was favorably impacted by a reduction in CVR Refining’s RFS obligation and reduced market pricing. As of December 31, 2019 and 2018, the Petroleum Segment’s RFS obligation was approximately \$7 million and \$4 million, respectively, which is recorded in Other current liabilities in the Consolidated Balance Sheets.

Environmental Remediation - As of December 31, 2019 and 2018, environmental accruals representing estimated costs for future remediation efforts at certain Petroleum Segment sites totaled approximately \$6 million and \$8 million, respectively. These amounts are reflected in Other current liabilities or Other long-term liabilities depending on when the Company expects to expend such amounts.

Wynnewood Refinery Incident - On September 28, 2012, the Petroleum Segment’s Wynnewood refinery, owned and operated by WRC, an indirect wholly-owned subsidiary of CVR Refining, experienced an explosion in a boiler unit during startup after a short outage as part of the turnaround process. Two employees were fatally injured. Damage at the refinery was limited to the boiler. Additionally, there was no environmental impact. The refinery was in the final stages of shutdown for turnaround maintenance at the time of the incident. The Company completed an internal investigation of the incident and cooperated with the Occupational Safety and Health Administration (“OSHA”) in its investigation. OSHA also conducted a general inspection of the facility during the boiler incident investigation. In March 2013, OSHA completed its investigation, communicated its citations, and placed WRC in its Severe Violators Enforcement Program (“SVEP”). The Company is vigorously contesting the citations and OSHA’s placement of WRC in the SVEP. Any penalties associated with OSHA’s citations are not expected to have a material adverse effect on the consolidated financial statements.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

(12) Business Segments

The Company has two operating segments: Petroleum and Nitrogen Fertilizer. These operating segments are also the Company's reportable segments. As discussed in Note 1 ("Organization and Nature of Business"), the Petroleum Segment is comprised entirely of the consolidated operations of CVR Refining and its subsidiaries, while the Nitrogen Fertilizer Segment is comprised entirely of the consolidated operations of CVR Partners and its subsidiaries. The other amounts reflect intercompany eliminations, corporate cash and cash equivalents, income tax activities, and other corporate activities that are not allocated to the operating segments. All operations of the segments are located within the United States.

The following tables summarize operating results, capital expenditures, and total asset information by segment:

(in millions)	Year Ended December 31,		
	2019	2018	2017
Net sales			
Petroleum	\$ 5,968	\$ 6,780	\$ 5,664
Nitrogen Fertilizer	404	351	331
Other	(8)	(7)	(7)
Total	<u>\$ 6,364</u>	<u>\$ 7,124</u>	<u>\$ 5,988</u>
Operating income (loss)			
Petroleum	\$ 574	\$ 544	\$ 172
Nitrogen Fertilizer	27	6	(10)
Other	(21)	(18)	(17)
Total	<u>580</u>	<u>532</u>	<u>145</u>
Interest expense, net	(102)	(102)	(109)
Other income, net	13	15	2
Income before income taxes	<u>\$ 491</u>	<u>\$ 445</u>	<u>\$ 38</u>
Depreciation and amortization			
Petroleum	\$ 202	\$ 196	\$ 177
Nitrogen Fertilizer	80	72	74
Other	5	6	7
Total	<u>\$ 287</u>	<u>\$ 274</u>	<u>\$ 258</u>
Capital expenditures (1)			
Petroleum	\$ 89	\$ 89	\$ 103
Nitrogen fertilizer	20	19	12
Other	5	3	—
Total	<u>\$ 114</u>	<u>\$ 111</u>	<u>\$ 115</u>

The following table summarizes total assets by segment:

(in millions)	December 31,	
	2019	2018
Petroleum	\$ 3,187	\$ 2,453
Nitrogen Fertilizer	1,138	1,254
Other (2)	(420)	293
Total assets	<u>\$ 3,905</u>	<u>\$ 4,000</u>

(1) Capital expenditures are shown exclusive of capitalized turnaround and capitalized software costs.

(2) Includes elimination of intercompany assets.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

(13) Supplemental Cash Flow Information

Cash flows related to income taxes, interest, leases, and capital expenditures included in accounts payable were as follows:

(in millions)	Year Ended December 31,		
	2019	2018	2017
Supplemental disclosures:			
Cash paid for income taxes, net of refunds	\$ 69	\$ 31	\$ 15
Cash paid for interest	104	103	106
Cash paid for amounts included in the measurement of lease liabilities (1):			
Operating cash flows from operating leases	16		
Operating cash flows from finance leases	6		
Financing cash flows from finance leases	5		
Non-cash investing and financing activities:			
Change in construction in progress included in accounts payable (2)	(7)	9	(5)

- (1) The lease standard was adopted on January 1, 2019 on a prospective basis. Therefore, only 2019 disclosures are applicable to be included within the table above. See Note 2 (“Summary of Significant Accounting Policies”).
- (2) Capital expenditures are shown exclusive of capitalized turnaround expenditures and capitalized software.

(14) Related Party Transactions

Activity associated with the Company’s related party arrangements for the years ended December 31, 2019, 2018, and 2017 is summarized below:

Expenses with related parties

(in millions)	Year Ended December 31,		
	2019	2018	2017
<u>Cost of materials and other</u>			
Joint Venture Transportation Agreement:			
Enable JV	\$ 12	\$ 8	\$ 2

Payments (received) made

Dividends (1)	218	179	142
Tax Allocation Agreement:			
American Entertainment Properties Corporation	(3)	12	15

Amounts due from related parties

(in millions)	December 31, 2019		December 31, 2018	
Tax Allocation Agreement:				
American Entertainment Properties Corporation	\$	—	\$	4

- (1) See below for a summary of the dividends paid to IEP for the years ended December 31, 2019, 2018, and 2017.

Enable Joint Venture Agreement

CVR Refining is party to a transportation agreement as part of the Enable JV for an initial term of 20 years under which Enable provides transportation services for crude oil purchased within a defined geographic area. Additionally, CVR Refining entered into a terminalling services agreement with Enable JV under which it receives access to Enable JV’s terminal in Lawrence, Oklahoma to unload and pump crude oil into Enable JV’s pipeline for an initial term of 20 years.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Midway Joint Venture

For the years ended December 31, 2019, 2018, and 2017, CRRM incurred costs of \$21 million, \$18 million, and \$3 million, respectively, from crude oil transportation services incurred on the Midway JV through Vitol as the intermediary purchasing agent.

Property Exchange

On October 18, 2019, the audit committee of CVR Energy and the Conflicts Committee of the board of directors of CVR GP each agreed to authorize the exchange of certain parcels of property owned by subsidiaries of CVR Energy with an equal number of parcels owned by subsidiaries of CVR Partners, all located in Coffeyville, Kansas (the "Property Exchange"). On February 19, 2020, a subsidiary of CVR Energy and a subsidiary of CVR Partners executed the Property Exchange agreement. This Property Exchange will enable each such subsidiary to create a more usable, contiguous parcel of land near its own operating footprint. CVR Energy and the Partnership accounted for this transaction in accordance with the ASC 805-50 guidance on transferring assets between entities under common control. This transaction had a net impact to the Partnership's partners' capital of approximately \$0.1 million.

Dividends to CVR Energy Stockholders

IEP, through its ownership of the Company's common shares, is entitled to receive dividends that are declared and paid by the Company based on the number of shares held at each record date. The following presents dividends paid to the Company's stockholders, including IEP, during the years ended December 31, 2019:

Related Period	Date Paid	Dividend Per Share	Dividends Paid (in millions)		
			Stockholders	IEP	Total
2018 - 4th Quarter	March 11, 2019	\$ 0.75	\$ 22	\$ 53	\$ 75
2019 - 1st Quarter	May 13, 2019	0.75	21	54	75
2019 - 2nd Quarter	August 12, 2019	0.75	21	54	75
2019 - 3rd Quarter	November 11, 2019	0.80	24	57	81
Total		\$ 3.05	\$ 88	\$ 218	\$ 306

On February 19, 2020, the Company's Board of Directors declared a cash dividend for the fourth quarter of 2019 to the Company's stockholders of \$0.80 per share, or \$80 million in the aggregate. The dividend will be paid on March 9, 2020 to stockholders of record at the close of business on March 2, 2020. IEP will receive approximately \$57 million in respect of its ownership interest in the Company's shares.

Dividends, if any, including the payment, amount and timing thereof, are subject to change at the discretion of the Company's Board of Directors.

During the years ended December 31, 2018 and 2017, the Company paid dividends totaling \$2.50 and \$2.00 per common unit, or \$238 million and \$174 million, respectively. Of these dividends, IEP received \$179 million and \$142 million, respectively, for the same periods.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Distributions to CVR Partners' Unitholders

The following table presents distributions paid by CVR Partners to CVR Partners' unitholders, including amounts received by the Company, as of December 31, 2019.

Related Period	Date Paid	Distribution Per Common Unit	Distributions Paid (in millions)		
			Public Unitholders	CVR Energy	Total
2018 - 4th Quarter	March 11, 2019	\$ 0.12	\$ 9	\$ 5	\$ 14
2019 - 1st Quarter	May 13, 2019	0.07	5	3	8
2019 - 2nd Quarter	August 12, 2019	0.14	11	5	16
2019 - 3rd Quarter	November 11, 2019	0.07	5	3	8
Total		\$ 0.40	\$ 30	\$ 16	\$ 46

Distributions, if any, including the payment, amount, and timing thereof, are subject to change at the discretion of the board of directors of CVR Partners' general partner. No distributions were declared for the fourth quarter of 2019.

The Partnership did not pay distributions during the year ended December 31, 2018, while during the year ended December 31, 2017, it paid a distribution of \$0.02 per common unit, or \$2 million. Of this distribution, CVR Energy received \$1 million.

Affiliate Pension Obligations

Prior to the exchange offer discussed in Note 1 ("Organization and Nature of Business"), Mr. Carl C. Icahn, through certain affiliates, owned approximately 82% of the Company's capital stock. Applicable pension and tax laws make each member of a "controlled group" of entities, generally defined as entities in which there is at least an 80% common ownership interest, jointly and severally liable for certain pension plan obligations of any member of the controlled group. These pension obligations include ongoing contributions to fund the plan, as well as liability for any unfunded liabilities that may exist at the time the plan is terminated. As a result of the historical ownership interest in CVR Energy by Mr. Icahn's affiliates (prior to the exchange offer), the Company was subject to the pension liabilities of all entities in which Mr. Icahn had a direct or indirect ownership interest of at least 80%. Two such entities, ACF Industries LLC ("ACF") and Federal-Mogul, are the sponsors of several pension plans. As members of the controlled group, CVR Energy would be liable for any failure of ACF and Federal-Mogul to make ongoing pension contributions or to pay the unfunded liabilities upon a termination of their respective pension plans. The unfunded plan balances for these sponsors was \$435 million and \$424 million as of June 30, 2018 and December 31, 2017, respectively. These results are based on the information provided by Mr. Icahn's affiliates based on information from the plans' actuaries. As of December 31, 2019 and 2018, and following the exchange offer, Mr. Icahn's affiliates owned approximately 71% of the Company's capital stock, and therefore, the Company is no longer considered to be liable for the aforementioned pension obligations of the controlled group. On October 1, 2018, Federal-Mogul was sold by Mr. Icahn's affiliates to a third-party.

CVR Energy, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

(15) Selected Quarterly Financial Information

Summarized quarterly financial data for December 31, 2019 and 2018 is as follows:

(in millions)	Year Ended December 31, 2019			
	Quarter			
	First	Second	Third	Fourth
Net sales	\$ 1,486	\$ 1,687	\$ 1,622	\$ 1,569
Cost of materials and other (1)	1,101	1,267	1,221	1,262
Direct operating expenses (1)	126	132	139	136
Operating income	160	192	159	69
Net income	102	128	104	28
Net income (loss) attributable to noncontrolling interest	1	12	(15)	(16)
Net income attributable to CVR Energy stockholders	\$ 101	\$ 116	\$ 119	\$ 44
Basic and diluted earnings per share	\$ 1.00	\$ 1.16	\$ 1.18	\$ 0.44
Dividends declared per share	\$ 0.75	\$ 0.75	\$ 0.75	\$ 0.80
Weighted-average common shares outstanding - basic and diluted	100.5	100.5	100.5	100.5

(in millions)	Year Ended December 31, 2018			
	Quarter			
	First	Second	Third	Fourth
Net sales	\$ 1,536	\$ 1,915	\$ 1,935	\$ 1,738
Cost of materials and other (1)	1,179	1,560	1,556	1,388
Direct operating expenses (1)	130	140	120	127
Operating income	136	108	164	124
Net income	93	70	108	95
Net income attributable to noncontrolling interest	33	24	28	22
Net income attributable to CVR Energy stockholders	\$ 60	\$ 46	\$ 80	\$ 73
Basic and diluted earnings per share	\$ 0.69	\$ 0.53	\$ 0.85	\$ 0.73
Dividends declared per share	\$ 0.50	\$ 0.50	\$ 0.75	\$ 0.75
Weighted-average common shares outstanding - basic and diluted	86.8	86.8	95.8	100.5

(1) Excludes depreciation and amortization expenses.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures. As of December 31, 2019, the Company has evaluated, under the direction of the Chief Executive Officer, Chief Financial Officer and Chief Accounting Officer, the effectiveness of our disclosure controls and procedures, as defined in Exchange Act Rule 13a-15(e). There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even effective disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives. Based upon, and as of the date of that evaluation, the Company's Chief Executive Officer, Chief Financial Officer and Chief Accounting Officer concluded that disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed in the reports filed or submitted under the Exchange Act is accurately recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Such information is accumulated and communicated to the Company's management, including the Chief Executive Officer, Chief Financial Officer and Chief Accounting Officer, as appropriate, to allow accurate and timely decisions regarding required disclosure.

Management's Report on Internal Control Over Financial Reporting. The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. Under the supervision and with the participation of management, we conducted an evaluation of the effectiveness of its internal control over financial reporting based on the framework in the 2013 *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on that evaluation, the Company's Chief Executive Officer, Chief Financial Officer and Chief Accounting Officer have concluded that internal control over financial reporting was effective as of December 31, 2019. The Company's independent registered public accounting firm, that audited the consolidated financial statements included herein under Item 8, has issued a report on the effectiveness of the Company's internal control over financial reporting. This report can be found under Item 8.

Changes in Internal Control Over Financial Reporting. There has been no change in the Company's internal control over financial reporting required by Rule 13a-15 of the Exchange Act that occurred during the fiscal quarter ended December 31, 2019 that has materially affected or is reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. *Directors, Executive Officers and Corporate Governance*

The information required by Items 401, 405, 406, and 407(c)(3), (d)(4), and (d)(5) of Regulation S-K in response to this item will be set forth in our definitive proxy statement for our 2020 annual meeting of stockholders.

Item 11. *Executive Compensation*

The information required by Items 402 and 407(e)(4) and (e)(5) of Regulation S-K in response to this item will be set forth in our definitive proxy statement for our 2020 annual meeting of stockholders.

Item 12. *Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters*

The equity compensation plan information required by Items 201(d) and the information required by Item 403 of Regulation S-K in response to this item will be set forth in our definitive proxy statement for our 2020 annual meeting of stockholders.

Item 13. *Certain Relationships and Related Transactions, and Director Independence*

The information required by Items 404 and 407(a) of Regulation S-K in response to this item will be set forth in our definitive proxy statement for our 2020 annual meeting of stockholders.

Item 14. *Principal Accounting Fees and Services*

The information required by Items 9(e) of Schedule 14A in response to this item will be set forth in our definitive proxy statement for our 2020 annual meeting of stockholders.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a)(1) Financial Statements - See Part II, Item 8 of this Annual Report on Form 10-K.

(a)(2) Financial Statement Schedules - All schedules for which provision is made in the applicable accounting regulations of the Securities and Exchange Commission (the “SEC”) are not required under the related instructions or are inapplicable and therefore have been omitted.

(a)(3) Exhibits

Exhibit Number	Exhibit Description
2.1**	Transaction Agreement among CVR Energy, Inc., IEP Energy LLC and each of the other Offeror Parties (as defined therein) dated as of April 18, 2012 (incorporated by reference to Exhibit 2.1 to the Company's Form 8-K filed on April 23, 2012).
3.1**	Amended and Restated Certificate of Incorporation of CVR Energy, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed on June 15, 2018).
3.2**	Second Amended and Restated Bylaws of CVR Energy, Inc. (incorporated by reference to Exhibit 3.2 to the Company's Form 8-K filed on June 15, 2018).
4.1*	Description of Common Stock.
4.2**	Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form S-1/A, File No. 333-137588, filed on June 5, 2007).
4.3**	Indenture, dated June 10, 2016, by and among CVR Partners, LP, CVR Nitrogen Finance Corporation, the Guarantors (as defined therein) and Wilmington Trust, National Association, as Trustee and Collateral Trustee (incorporated by reference to Exhibit 4.1 of the Form 8-K filed by CVR Partners, LP on June 16, 2016 (Commission File No. 001-35120)).
4.4**	Form of 9.250% Senior Secured Note due 2023 (included within the Indenture filed as Exhibit 4.4 and incorporated by reference to Exhibit 4.1 to the Form 8-K filed by CVR Partners, LP on June 16, 2016 (Commission File No. 001-35120)).
4.5**	Indenture, dated as of April 12, 2013, among Rentech Nitrogen Partners, L.P., Rentech Nitrogen Finance Corporation, the guarantors named therein, Wells Fargo Bank, National Association, as Trustee, and Wilmington Trust, National Association, as Collateral Trustee (incorporated by reference to Exhibit 4.1 to the Form 8-K filed by Rentech Nitrogen Partners, L.P. on April 16, 2013 (Commission File No. 001-35334)).
4.6**	Forms of 6.5% Second Lien Senior Secured Notes due 2021 (incorporated by reference to Exhibit 4.1 to the Form 8-K filed by Rentech Nitrogen Partners, L.P. on April 16, 2013 (Commission File No. 001-35334)).
4.7**	First Supplemental Indenture, dated as of June 10, 2016, among CVR Nitrogen, LP, CVR Nitrogen Finance Corporation, the guarantors party thereto, Wells Fargo Bank, National Association, as Trustee, and Wilmington Trust, National Association, as Collateral Trustee (incorporated by reference to Exhibit 10.3 of the Form 8-K filed by CVR Partners, LP on June 16, 2016 (Commission File No. 001-35120)).
4.8**	First Supplemental Indenture, dated as of January 29, 2019, among CVR Energy, Inc., CVR Refining, LLC, Coffeyville Finance Inc., the guarantors named therein and Wells Fargo Bank, National Association (incorporated by reference to Exhibit 4.1 to the Company's Form 8-K filed on January 29, 2019).
4.9**	Indenture, dated as of January 27, 2020, among CVR Energy, Inc., the guarantors named therein and Wells Fargo Bank, National Association, as Trustee (incorporated by reference to Exhibit 4.1 to the Form 8-K filed on January 27, 2020).
4.10**	Form of 5.250% Senior Notes due 2025 (incorporated by reference to Exhibit 4.2 to the Form 8-K filed on January 27, 2020).

4.11**	Form of 5.750% Senior Notes due 2028 (incorporated by reference to Exhibit 4.3 to the Form 8-K filed on January 27, 2020).
10.1**	Amended and Restated ABL Credit Agreement, dated as of December 20, 2012, among Coffeyville Resources, LLC, CVR Refining, LP, CVR Refining, LLC, Coffeyville Resources Refining & Marketing, LLC, Coffeyville Resources Pipeline, LLC, Coffeyville Resources Crude Transportation, LLC, Coffeyville Resources Terminal, LLC, Wynnewood Energy Company, LLC, Wynnewood Refining Company, LLC and certain of their affiliates, the lenders from time to time party thereto, Wells Fargo Bank, National Association, as collateral agent and administrative agent (incorporated by reference to Exhibit 1.1 to the Company's Form 8-K filed on December 27, 2012).
10.1.1**	Amendment No. 1 to Amended and Restated ABL Credit Agreement, dated November 14, 2017, by and among CVR Refining, LP, Coffeyville Finance Inc., CVR Refining, LLC, Coffeyville Resources Refining & Marketing, LLC, Coffeyville Resources Pipeline, LLC, Coffeyville Resources Crude Transportation, LLC, Coffeyville Resources Terminal, LLC, Wynnewood Energy Company, LLC, Wynnewood Refining Company, LLC, CVR Logistics, LLC, a group of lenders and Wells Fargo, National Association, as administrative agent and collateral agent (incorporated by reference as Exhibit 10.1 to the Form 8-K filed by CVR Refining, LP on November 17, 2017).
10.1.2*	Amendment No. 2 to Amended and Restated ABL Credit Agreement, dated as of December 23, 2019, and effective December 31, 2019, by and among CVR Refining, LP, Coffeyville Finance Inc., CVR Refining, LLC, Coffeyville Resources Refining & Marketing, LLC, Coffeyville Resources Pipeline, LLC, Coffeyville Resources Crude Transportation, LLC, Coffeyville Resources Terminal, LLC, Wynnewood Energy Company, LLC, Wynnewood Refining Company, LLC, CVR Logistics, LLC, a group of lenders and Wells Fargo Bank, National Association, as collateral agent and administrative agent.
10.2**	Amended and Restated ABL Pledge and Security Agreement, dated as of December 20, 2012, among CVR Refining, LP, CVR Refining, LLC, Coffeyville Resources Refining & Marketing, LLC, Coffeyville Resources Pipeline, LLC, Coffeyville Resources Crude Transportation, LLC, Coffeyville Resources Terminal, LLC, Wynnewood Energy Company, LLC, Wynnewood Refining Company, LLC and certain of their affiliates, and Wells Fargo Bank, National Association, as collateral agent (incorporated by reference to Exhibit 1.2 to the Company's Form 8-K filed on December 27, 2012).
10.3**	Hydrogen Purchase and Sale Agreement, dated as of January 1, 2017, by and between Coffeyville Resources Refining & Marketing, LLC and Coffeyville Resources Nitrogen Fertilizers, LLC (incorporated by reference to Exhibit 10.1 to CVR Partners, LP's Form 10-Q filed on April 27, 2017 (Commission File No. 001-35120)).
10.4*	Master Service Agreement among Coffeyville Resources Refining & Marketing, LLC and Coffeyville Resources Nitrogen Fertilizers, LL, dated February 19, 2020.
10.5*	Master Service Agreement among CVR Services, LLC and subsidiaries of CVR Energy, dated February 19, 2020.
10.6**	Purchase Agreement, by and among CVR Energy, Inc., American Entertainment Properties Corp., and Icahn Enterprises Holdings L.P. (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed on January 17, 2019).
10.7**	Amended and Restated Crude Oil Supply Agreement, dated August 31, 2012, by and between Vitol Inc. and Coffeyville Resources Refining & Marketing, LLC (incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q filed on November 6, 2012) (Certain portions of this exhibit have been omitted and separately filed with the SEC pursuant to a request for confidential treatment which has been granted by the SEC).
10.7.1**	First Amendment to Amended and Restated Crude Oil Supply Agreement, dated as of June 8, 2015, by and between Vitol Inc. and Coffeyville Resources Refining & Marketing, LLC (incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q filed on July 30, 2015).
10.8**+	Employment Agreement, dated as of November 1, 2017, by and between CVR Energy, Inc. and David L. Lamp (incorporated by reference as Exhibit 10.20 to the Form 10-K filed by CVR Partners, LP on February 23, 2018 (Commission File No. 001-35120)).
10.9**+	Performance Unit Award Agreement, dated as of November 1, 2017, by and between CVR Energy, Inc. and David L. Lamp (incorporated by reference as Exhibit 10.22 to the Form 10-K filed by CVR Partners, LP on February 23, 2018 (Commission File No. 001-35120)).
10.10**	Second Amended and Restated Agreement of Limited Partnership of CVR Partners, LP, dated April 13, 2011 (incorporated by reference to Exhibit 10.7 to the Company's Form 8-K/A filed on May 23, 2011).

10.11**	<u>Amended and Restated Contribution, Conveyance and Assumption Agreement, dated as of April 7, 2011, among Coffeyville Resources, LLC, CVR GP, LLC, Coffeyville Acquisition III LLC, CVR Special GP, LLC and CVR Partners, LP (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K/A filed on May 23, 2011).</u>
10.12**	<u>Environmental Agreement, dated as of October 25, 2007, by and between Coffeyville Resources Refining & Marketing, LLC and Coffeyville Resources Nitrogen Fertilizers, LLC (incorporated by reference to Exhibit 10.7 to the Company's Form 10-Q filed on December 6, 2007).</u>
10.12.1**	<u>Supplement to Environmental Agreement, dated as of February 15, 2008, by and between Coffeyville Resources Refining and Marketing, LLC and Coffeyville Resources Nitrogen Fertilizers, LLC (incorporated by reference to Exhibit 10.17.1 to the Company's Form 10-K filed on March 28, 2008).</u>
10.12.2**	<u>Second Supplement to Environmental Agreement, dated as of July 23, 2008, by and between Coffeyville Resources Refining and Marketing, LLC and Coffeyville Resources Nitrogen Fertilizers, LLC (incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q filed on August 14, 2008).</u>
10.13**	<u>Second Amended and Restated Feedstock and Shared Services Agreement, dated as of January 1, 2017, by and between Coffeyville Resources Refining & Marketing, LLC and Coffeyville Resources Nitrogen Fertilizers, LLC (incorporated by reference to Exhibit 10.2 to the Form 10-Q filed by CVR Partners, LP on April 27, 2017).</u>
10.13.1**	<u>Amendment to the Second Amended and Restated Feedstock and Shared Services Agreement, dated as of November 1, 2017, by and between Coffeyville Resources Refining & Marketing, LLC and Coffeyville Resources Nitrogen Fertilizers, LLC (incorporated by reference to Exhibit 10.7.1 to the Form 10-K filed by CVR Partners, LP on February 23, 2018).</u>
10.14**	<u>Raw Water and Facilities Sharing Agreement, dated as of October 25, 2007, by and between Coffeyville Resources Refining & Marketing, LLC and Coffeyville Resources Nitrogen Fertilizers, LLC (incorporated by reference to Exhibit 10.9 to the Company's Form 10-Q filed on December 6, 2007).</u>
10.15**	<u>Third Amended and Restated Services Agreement, dated as of January 1, 2017, among CVR Partners, LP, CVR GP, LLC and CVR Energy, Inc. (incorporated by reference to Exhibit 10.3 to the Form 10-Q filed by CVR Partners, LP on April 27, 2017).</u>
10.16**	<u>Amended and Restated Omnibus Agreement, dated as of April 13, 2011, among CVR Energy, Inc., CVR GP, LLC and CVR Partners, LP (incorporated by reference to Exhibit 10.2 to the Company's Form 8-K/A filed on May 23, 2011).</u>
10.17**	<u>Coke Supply Agreement, dated as of October 25, 2007, by and between Coffeyville Resources Refining & Marketing, LLC and Coffeyville Resources Nitrogen Fertilizers, LLC (incorporated by reference to Exhibit 10.5 to the Company's Form 10-Q filed on December 6, 2007).</u>
10.18**	<u>Amended and Restated Cross-Easement Agreement, dated as of April 13, 2011, by and between Coffeyville Resources Refining & Marketing, LLC and Coffeyville Resources Nitrogen Fertilizers, LLC (incorporated by reference to Exhibit 10.5 to the Company's Form 8-K/A filed on May 23, 2011).</u>
10.19**	<u>GP Services Agreement, dated as of November 29, 2011, by and between CVR Partners, LP, CVR GP, LLC and CVR Energy, Inc. (incorporated by reference to Exhibit 10.22 to the Form 10-K filed by CVR Partners, LP on February 24, 2012 (Commission File No. 001-35120)).</u>
10.19.1**	<u>Amendment to GP Services Agreement, dated as of June 27, 2014, by and between CVR Partners, LP, CVR GP, LLC and CVR Energy, Inc. (incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q filed on August 1, 2014).</u>
10.20**	<u>Trademark License Agreement, dated as of April 13, 2011, by and between CVR Energy, Inc. and CVR Partners, LP (incorporated by reference to Exhibit 10.9 to the Company's Form 8-K/A filed on May 23, 2011).</u>
10.21**	<u>Lease and Operating Agreement, dated as of May 4, 2012, by and between Coffeyville Resources Terminal, LLC and Coffeyville Resources Nitrogen Fertilizers, LLC (incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q filed on August 2, 2012).</u>
10.22**	<u>Form of Indemnification Agreement (incorporated by reference to Exhibit 10.49 to the Company's Form 10-K for the year ended December 31, 2008, filed on March 13, 2009).</u>

10.23**+	Amended and Restated CVR Energy, Inc. 2007 Long Term Incentive Plan, dated as of December 26, 2013 (incorporated by reference to Exhibit 10.32 to the Company's Form 10-K filed on February 26, 2014).
10.24**+	Form of Incentive Unit Agreement (incorporated by reference to Exhibit 10.30.7 to the Company's Form 10-K filed on February 21, 2018.)
10.25**+	Form of CVR Energy, Inc. Incentive Unit Agreement (incorporated by reference to Exhibit 10.31 to the Company's Form 10-K filed on February 21, 2019).
10.25.1**+	Form CVR Energy, Inc. Incentive Unit Agreement (Executive) (incorporated by reference to Exhibit 10.31.1 to the Company's Form 10-K filed on February 21, 2019).
10.26**+	CVR Energy, Inc. Change in Control and Severance Plan (incorporated by reference to Exhibit 10.1 of CVR Energy, Inc.'s Form 10-Q filed on October 25, 2018).
10.27**+	CVR Energy, Inc. Performance-Based Bonus Plan, approved March 19, 2019 (incorporated by reference to Exhibit 10.1 to the Form 10-Q filed on April 25, 2019).
10.28**+	CVR Partners, LP Performance-Based Bonus Plan, approved March 19, 2019 (incorporated by reference to Exhibit 10.2 to the Form 10-Q filed on April 25, 2019).
10.29**+	CVR Refining, LP Performance-Based Bonus Plan, approved March 19, 2019 (incorporated by reference to Exhibit 10.3 to the Form 10-Q filed on April 25, 2019).
10.30**+	CVR Partners, LP Long-Term Incentive Plan (adopted March 16, 2011) (incorporated by reference to Exhibit 10.1 to the Form S-8 filed by CVR Partners, LP on April 12, 2011).
10.30.1**+	Form of CVR Partners, LP Long-Term Incentive Plan Employee Phantom Unit Agreement (incorporated by reference to Exhibit 10.38.3 to the Company's Form 10-K filed on February 20, 2015).
10.30.2**+	Form of CVR Partners, LP Long-Term Incentive Plan Employee Phantom Unit Agreement (Executive).
10.30.3**+	Form of CVR Partners, LP Long-Term Incentive Plan Employee Phantom Unit Agreement.
10.31**+	CVR Refining, LP Long-Term Incentive Plan (incorporated by reference to Exhibit 10.2 to the Partnership's Form 8-K filed on January 23, 2013 (Commission File No. 001-35781)).
10.31.1**+	Form of CVR Refining, LP Long-Term Incentive Plan Employee Phantom Unit Agreement (incorporated by reference to Exhibit 10.44.2 to the Company's Form 10-K filed on February 20, 2015).
10.32**	Registration Rights Agreement, dated as of August 9, 2015, by and among CVR Partners, Coffeyville Resources, LLC, Rentech Nitrogen Holdings, Inc., and DSHC, LLC (incorporated by reference to Exhibit 4.1 to the Form 8-K filed by CVR Partners, LP on August 13, 2015 (Commission File No. 001-35120)).
10.33**	Collateral Trust Agreement, dated as of June 10, 2016, among CVR Partners, LP, CVR Nitrogen Finance Corporation, the Guarantors (as defined therein) and Wilmington Trust, National Association, as Trustee and Collateral Trustee (incorporated by reference to Exhibit 10.1 of the Form 8-K filed by CVR Partners on June 16, 2016 (Commission File No. 001-35120)).
10.34**	Parity Lien Security Agreement, dated as of June 10, 2016, among CVR Partners, LP, CVR Nitrogen Finance Corporation, the Guarantors (as defined therein) and Wilmington Trust, National Association, as Trustee and Collateral Trustee (incorporated by reference to Exhibit 10.2 of the Form 8-K filed by CVR Partners on June 16, 2016 (Commission File No. 001-35120)).
10.35**	ABL Credit Agreement, dated as of September 30, 2016, among CVR Partners, LP, CVR Nitrogen, LP, East Dubuque Nitrogen Fertilizers, LLC, Coffeyville Resources Nitrogen Fertilizers, LLC, CVR Nitrogen Holdings, LLC, CVR Nitrogen Finance Corporation, CVR Nitrogen GP, LLC, certain of their affiliates from time to time party thereto, the lenders from time to time party thereto, UBS AG, Stamford Branch, as administrative agent and collateral agent (incorporated by reference to Exhibit 10.1 of the Form 8-K filed by CVR Partners, LP on October 6, 2016 (Commission File No. 001-35120)).
10.36**	Security Agreement, dated as of September 30, 2016, among CVR Partners, LP, CVR Nitrogen, LP, East Dubuque Nitrogen Fertilizers, LLC, Coffeyville Resources Nitrogen Fertilizers, LLC, CVR Nitrogen Holdings, LLC, CVR Nitrogen Finance Corporation, CVR Nitrogen GP, LLC, certain of their affiliates from time to time party thereto, and UBS AG, Stamford Branch, as administrative agent and collateral agent (incorporated by reference to Exhibit 10.2 of the Form 8-K filed by CVR Partners, LP on October 6, 2016 (Commission File No. 001-35120)).

10.37**	Intercreditor Agreement, dated as of September 30, 2016, among CVR Partners, LP, CVR Nitrogen, LP, East Dubuque Nitrogen Fertilizers, LLC, Coffeyville Resources Nitrogen Fertilizers, LLC, CVR Nitrogen Holdings, LLC, CVR Nitrogen Finance Corporation, CVR Nitrogen GP, LLC, certain of their affiliates from time to time party thereto, UBS AG, Stamford Branch, as administrative agent and collateral agent for the secured parties, Wilmington Trust, National Association, as trustee and collateral trustee for the secured parties in respect of the outstanding senior secured notes and other parity lien obligations and other parity lien representative from time to time party thereto (incorporated by reference to Exhibit 10.3 of the Form 8-K filed by CVR Partners, LP on October 6, 2016 (Commission File No. 001-35120)).
10.38*+	CVR Energy, Inc. 2020 Performance-Based Bonus Plan, approved February 19, 2020.
10.39*+	CVR Partners, LP 2020 Performance-Based Bonus Plan, approved February 19, 2020.
10.40*+	CVR Refining, LP 2020 Performance-Based Bonus Plan, approved February 19, 2020.
21.1*	List of Subsidiaries of CVR Energy, Inc.
23.1*	Consent of Grant Thornton LLP.
31.1*	Rule 13a-14(a)/15d-14(a) Certification of President and Chief Executive Officer.
31.2*	Rule 13a-14(a)/15d-14(a) Certification of Executive Vice President, Chief Financial Officer
31.3*	Rule 13a-14(a)/15d-14(a) Certification of Chief Accounting Officer and Corporate Controller
32.1†	Section 1350 Certification of President and Chief Executive Officer and Executive Vice President, Chief Financial Officer, and Chief Accounting Officer and Corporate Controller
101*	The following financial information for CVR Energy, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2019, formatted in XBRL ("Extensible Business Reporting Language") includes: (i) Consolidated Balance Sheets, (ii) Consolidated Statements of Operations, (iii) Consolidated Statements of Comprehensive Income, (iv) Consolidated Statements of Changes in Equity, (v) Consolidated Statements of Cash Flows, and (vi) the Notes to Consolidated Financial Statements, tagged in detail. The instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
104*	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

* Filed herewith.

** Previously filed.

† Furnished herewith.

+ Denotes management contract or compensatory plan or arrangement.

PLEASE NOTE: Pursuant to the rules and regulations of the SEC, we may file or incorporate by reference agreements as exhibits to the reports that we file with or furnish to the SEC. The agreements are filed to provide investors with information regarding their respective terms. The agreements are not intended to provide any other factual information about the Company or its business or operations. In particular, the assertions embodied in any representations, warranties and covenants contained in the agreements may be subject to qualifications with respect to knowledge and materiality different from those applicable to investors and may be qualified by information in confidential disclosure schedules not included with the exhibits. These disclosure schedules may contain information that modifies, qualifies and creates exceptions to the representations, warranties and covenants set forth in the agreements. Moreover, certain representations, warranties and covenants in the agreements may have been used for the purpose of allocating risk between the parties, rather than establishing matters as facts. In addition, information concerning the subject matter of the representations, warranties and covenants may have changed after the date of the respective agreement, which subsequent information may or may not be fully reflected in the Company's public disclosures. Accordingly, investors should not rely on the representations, warranties and covenants in the agreements as characterizations of the actual state of facts about the Company or its business or operations on the date hereof.

Item 16. *Form 10-K Summary*

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized.

CVR Energy, Inc.

By: /s/ DAVID L. LAMP
David L. Lamp
President and Chief Executive Officer

Date: February 20, 2020

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report had been signed below by the following persons on behalf of the registrant and in the capacity and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ DAVID L. LAMP</u> David L. Lamp	President, Chief Executive Officer, and Director (Principal Executive Officer)	February 20, 2020
<u>/s/ TRACY D. JACKSON</u> Tracy D. Jackson	Executive Vice President, Chief Financial Officer (Principal Financial Officer)	February 20, 2020
<u>/s/ MATTHEW W. BLEY</u> Matthew W. Bley	Chief Accounting Officer and Corporate Controller (Principal Accounting Officer)	February 20, 2020
<u>/s/ SUNGHWAN CHO</u> SungHwan Cho	Chairman of the Board of Directors	February 20, 2020
<u>/s/ BOB G. ALEXANDER</u> Bob G. Alexander	Director	February 20, 2020
<u>/s/ JONATHAN FRATES</u> Jonathan Frates	Director	February 20, 2020
<u>/s/ STEPHEN MONGILLO</u> Stephen Mongillo	Director	February 20, 2020
<u>/s/ PATRICIA AGNELLO</u> Patricia Agnello	Director	February 20, 2020
<u>/s/ HUNTER C. GARY</u> Hunter C. Gary	Director	February 20, 2020
<u>/s/ JAMES M. STROCK</u> James M. Strock	Director	February 20, 2020

DESCRIPTION OF COMMON STOCK

General

Our authorized capital stock consists of 350,000,000 shares of common stock, par value \$0.01 per share, and 50,000,000 shares of preferred stock, par value \$0.01 per share, the rights and preferences of which may be established from time to time by our board of directors.

The following description of our capital stock does not purport to be complete and is subject to and qualified by our amended and restated certificate of incorporation, as amended and restated on October 16, 2007 and as subsequently amended on June 15, 2018 (our “certificate of incorporation”), and our second amended and restated bylaws, as amended on June 15, 2018 (our “bylaws”), which are included as exhibits to our Annual Report on Form 10-K, and by the provisions of applicable Delaware law.

Common Stock

Holders of our common stock are entitled to one vote for each share on all matters voted upon by our stockholders, including the election of directors, and do not have cumulative voting rights. Subject to the rights of holders of any then outstanding shares of our preferred stock, our common stockholders are entitled to any dividends that may be declared by our board of directors. Holders of our common stock are entitled to share ratably in our net assets upon our dissolution or liquidation after payment or provision for all liabilities and any preferential liquidation rights of our preferred stock then outstanding. Holders of our common stock have no preemptive rights to purchase shares of our capital stock. The shares of our common stock are not subject to any redemption provisions and are not convertible into any other shares of our capital stock. All outstanding shares of our common stock are fully paid and nonassessable. The rights, preferences and privileges of holders of our common stock will be subject to those of the holders of any shares of our preferred stock we may issue in the future.

Limitation on Liability and Indemnification of Officers and Directors

Our certificate of incorporation limits the liability of directors to the fullest extent permitted by Delaware law. The effect of these provisions is to eliminate the rights of our company and our stockholders, through stockholders’ derivative suits on behalf of our company, to recover monetary damages against a director for breach of fiduciary duty as a director, including breaches resulting from grossly negligent behavior. However, our directors will be personally liable to us and our stockholders for any breach of the director’s duty of loyalty, for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, under Section 174 of the Delaware General Corporation Law or for any transaction from which the director derived an improper personal benefit. In addition, our certificate of incorporation and bylaws provide that we will indemnify our directors and officers to the fullest extent permitted by Delaware law. Our board of directors has approved a form of indemnification agreement for our directors and officers, and expects that each of its current and future directors and officers will enter into substantially similar indemnification agreements. We also maintain directors and officers insurance.

Delaware Anti-Takeover Law

Our certificate of incorporation provides that we are not subject to Section 203 of the Delaware General Corporation Law which regulates corporate acquisitions. This law provides that specified persons who, together with affiliates and associates, own, or within three years did own, 15% or more of the outstanding voting stock of a corporation may not engage in business combinations with the corporation for a period of three years after the date on which the person became an interested stockholder. The law defines the term “business combination” to include mergers, asset sales and other transactions in which the interested stockholder receives or could receive a financial benefit on other than a pro rata basis with other stockholders.

Removal of Directors; Vacancies

Our certificate of incorporation and bylaws provide that any director or the entire board of directors may be removed with or without cause by the affirmative vote of the majority of all shares then entitled to vote at an election of directors. Our certificate of incorporation and bylaws also provide that any vacancies on our board of directors will be filled by the affirmative vote of a majority of the board of directors then in office, even if less than a quorum, or by a sole remaining director.

Voting

The affirmative vote of a plurality of the shares of our common stock present, in person or by proxy will decide the election of any directors, and the affirmative vote of a majority of the shares of our common stock present, in person or by proxy will decide all other matters voted on by stockholders, unless the question is one upon which, by express provision of law, under our certificate of incorporation, or under our bylaws, a different vote is required, in which case such provision will control.

Action by Written Consent

Our certificate of incorporation and bylaws provide that stockholder action can be taken by written consent of the stockholders if a consent in writing, setting forth the action to be taken, has been signed by the holders of outstanding shares having not less than the minimum number of shares that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted.

Ability to Call Special Meetings

Our bylaws provide that special meetings of our stockholders can only be called pursuant to a resolution adopted by a majority of our board of directors or by the chairman of our board of directors.

Amending Our Certificate of Incorporation and Bylaws

Our certificate of incorporation provides that our certificate of incorporation may be amended by the affirmative vote of a majority of the board of directors and by the affirmative vote of the majority of all shares of our common stock then entitled to vote at any annual or special meeting of stockholders. In addition, our certificate of incorporation and bylaws provide that our bylaws may be amended, repealed or new bylaws may be adopted by the affirmative vote of a majority of the board of directors or by the affirmative vote of the majority of all shares of our common stock then entitled to vote at any annual or special meeting of stockholders.

Advance Notice Provisions for Stockholders

In order to nominate directors to our board of directors or bring other business before an annual meeting of our stockholders, a stockholder's notice in proper form must be received by the Secretary of the Company at the principal executive offices of the Company not later than the close of business on the 90th calendar day, and no earlier than the 120th calendar day, prior to the anniversary of the previous year's annual meeting of stockholders, subject to certain exceptions contained in our bylaws. If no annual meeting was held in the previous year, or if the date of the applicable annual meeting was changed by more than 30 days from the date of the previous year's annual meeting, then a stockholder's notice, to be considered timely, must be delivered to the Secretary of the Company at the principal executive offices of the Company not later than the close of business on the later of the 90th calendar day prior to such annual meeting or the tenth day following the day on which notice of the date of the annual meeting was mailed or a public announcement of such date was first made.

Listing

Our common stock is listed on the New York Stock Exchange under the symbol "CVI."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC.

AMENDMENT NO. 2
TO AMENDED AND RESTATED ABL CREDIT AGREEMENT

AMENDMENT NO. 2 TO AMENDED AND RESTATED ABL CREDIT AGREEMENT, dated December 23, 2019 (this "Amendment No. 2"), is by and among WELLS FARGO BANK, NATIONAL ASSOCIATION, a national banking association, in its capacity as Administrative Agent and Collateral Agent pursuant to the Credit Agreement (as hereinafter defined) acting for and on behalf of the parties thereto as lenders (in such capacity, "Agent"), the parties to the Credit Agreement as lenders (individually, each a "Lender" and collectively, "Lenders"), COFFEYVILLE RESOURCES REFINING & MARKETING, LLC, a Delaware limited liability company ("Refining LLC"), CVR REFINING, LLC, a Delaware limited liability company ("CVR LLC"), COFFEYVILLE RESOURCES PIPELINE, LLC, a Delaware limited liability company ("Pipeline LLC"), COFFEYVILLE RESOURCES CRUDE TRANSPORTATION, LLC, a Delaware limited liability company ("Transportation LLC"), COFFEYVILLE RESOURCES TERMINAL, LLC, a Delaware limited liability company ("Terminal LLC"), WYNNEWOOD ENERGY COMPANY, LLC, a Delaware limited liability company ("Wynnewood Energy"), WYNNEWOOD REFINING COMPANY, LLC, a Delaware limited liability company ("Wynnewood Refining"), CVR LOGISTICS, LLC, a Delaware limited liability company ("CVR Logistics") and, together with Refining LLC, CVR LLC, Pipeline LLC, Transportation LLC, Terminal LLC, Wynnewood Energy and Wynnewood Refining, each individually a "Borrower" and, collectively, "Borrowers"), CVR REFINING, LP, a Delaware limited partnership (the "MLP" or "Company") and COFFEYVILLE FINANCE, INC., a Delaware corporation ("CVR Holdings") and CVR SERVICES, LLC, a Delaware limited liability company ("FinCo"), and together with MLP, each a "Guarantor" and, collectively, "Guarantors").

WITNESSETH:

WHEREAS, Agent, Lenders, Borrowers and Guarantors have entered into financing arrangements pursuant to which Lenders (or Agent on behalf of Lenders) may make loans and advances and provide other financial accommodations to Borrowers as set forth in the Amended and Restated ABL Credit Agreement, dated as of December 20, 2012, by and among Agent, Lenders, Borrowers and Guarantors (as amended by Amendment No. 1 to Amended and Restated ABL Credit Agreement, dated November 14, 2017, and as the same may hereafter be further amended, modified, supplemented, extended, renewed, restated or replaced, the "Credit Agreement") and the other Credit Documents and have agreed to amend the Credit Agreement pursuant to the terms and conditions of this Amendment No. 2;

WHEREAS, whereas Borrowers have asked the Agent to agree to certain amendments to the Credit Agreement pursuant to Section 13.12(d)(y) thereof, which permits the Agent and the Credit Parties to amend the Credit Agreement to the extent they jointly identify an ambiguity, inconsistency, obvious error or any error or omission of a technical or immaterial nature in any provision thereof;

WHEREAS, Agent is willing to agree to such amendments, subject to the terms and conditions of the Credit Agreement, including, without limitation, Section 13.12(d)(y) thereof and the condition therein that states that such amendments shall become effective without any

further consent of any other party to any Credit Documents if the same is not objected to in writing by the Required Lenders within five (5) Business Days following receipt of notice thereof;

NOW THEREFORE, in consideration of the foregoing and the mutual agreements and covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. Definitions. For purposes of this Amendment No. 2, all terms used herein which are not otherwise defined herein, including but not limited to, those terms used in the recitals hereto, shall have the respective meanings assigned thereto in the Credit Agreement as amended by this Amendment No. 2.

2. Amendment of Credit Agreement.

(a) The definitions of "Borrowing Base", "Payment Conditions" and "Qualified Debt Conditions" are amended, and Sections 10.04(q), 10.04(r) and 15.01 are amended, in each case, by inserting immediately after the text "Test Period then most recently ended", the following text: "for which financial statements have been (or are required to be) delivered pursuant to Sections 9.01(b) or (c), as applicable,".

(b) The definition of "Calculation Period" is amended by replacing "delivered to the Lenders pursuant to this Agreement" with the following text: "(or are required to be) delivered pursuant to Sections 9.01(b) or (c), as applicable,".

(c) The definition of "First Purchaser Reserve" is amended by inserting, immediately after the text "for the most recently ended Test Period", the following text: "for which financial statements have been (or are required to be) delivered pursuant to Sections 9.01(b) or (c), as applicable,".

(d) Section 10.07(a) is amended by: (i) replacing the text "for which financial statements are available" with the text "for which financial statements have been (or are required to be) delivered pursuant to Sections 9.01(b) or (c), as applicable,"; (ii) replacing the text "for which financial statements first become available" with the text "for which financial statements have been (or are required to be) delivered pursuant to Sections 9.01(b) or (c), as applicable,"; and (iii) replacing the text "for which financial statements are required to be delivered" with the text "for which financial statements have been (or are required to be) delivered pursuant to Sections 9.01(b) or (c), as applicable,".

3. Representations and Warranties. Each Borrower and each Guarantor represents and warrants with and to Agent and Lenders as follows, which representations and warranties shall survive the execution and delivery hereof:

(a) no Default or Event of Default exists or has occurred and is continuing as of the date of this Amendment No. 2;

(b) this Amendment No. 2 has been duly authorized, executed and delivered by all necessary corporate, limited liability company or limited partnership, as applicable, action on the part of each Borrower and each Guarantor which is a party hereto and, if necessary, its equity holders and is in full force and effect as of the date hereof and the agreements and obligations of each Borrower and each Guarantor contained herein constitute legal, valid and binding obligations of each Borrower and each Guarantor, enforceable against each Borrower and each Guarantor in accordance with its terms, except as enforceability is limited by bankruptcy, insolvency, reorganization, moratorium or other laws relating to or affecting generally the enforcement of creditors' rights and except to the extent that availability of the remedy of specific performance or injunctive relief is subject to the discretion of the court before which any proceeding therefor may be brought;

(c) the execution, delivery and performance of this Amendment No. 2 by each Borrower and each Guarantor (i) are all within its corporate, limited liability company or limited partnership powers, as applicable, and (ii) are not in contravention of law or the terms of its certificate or articles of incorporation of formation, by laws, operating agreement or other organizational documentation, or any indenture, agreement or undertaking to which it is a party or by which it or its property are bound; and

(d) all of the representations and warranties set forth in the Credit Agreement and the other Credit Documents, each as amended hereby, are true and correct in all material respects on and as of the date hereof, as if made on the date hereof (it being understood and agreed that (i) any representation or warranty which by its terms is made as of a specified date shall be required to be true and correct in all material respects only as of such specified date and (ii) any representation or warranty that is qualified as to "materiality," "Material Adverse Effect" or similar language shall be true and correct in all respects on any such date).

4. Conditions to Effectiveness. This Amendment No. 2 shall be effective only upon the later to occur of the following conditions (the "Amendment No. 2 Effective Date") and otherwise without any further action or consent of any other party to any Credit Document:

(a) Agent shall have received counterparts of this Amendment No. 2, duly authorized, executed and delivered by Borrowers and Guarantors; and

(b) the Required Lenders shall not have objected to this Amendment No. 2 in writing to Agent on or prior to December 31, 2019 in accordance with Section 13.12(d)(y) of the Credit Agreement.

Agent shall notify the Company and the Lenders promptly upon the earlier to occur of (i) the Amendment No. 2 Effective Date and (ii) receipt of written objection from the Required Lenders to this Amendment No. 2.

5. Effect of this Amendment. Except as expressly set forth herein, no other amendments, changes or modifications to the Credit Documents are intended or implied, and in all other respects the Credit Documents are hereby specifically ratified, restated and confirmed by all parties hereto as of the effective date hereof and Borrower shall not be entitled to any other

or further amendment by virtue of the provisions of this Amendment No. 2 or with respect to the subject matter of this Amendment No. 2. To the extent of conflict between the terms of this Amendment No. 2 and the other Credit Documents, the terms of this Amendment No. 2 shall control. The Credit Agreement and this Amendment No. 2 shall be read and construed as one agreement.

6. No Novation. The amendment of the Credit Agreement pursuant to this Amendment No. 2 shall not, in any manner, be construed to constitute payment of, or impair, limit, cancel or extinguish, or constitute a novation in respect of, the Obligations and other obligations and liabilities of Borrowers and Guarantors evidenced by or arising under the Credit Agreement or any of the other Credit Documents and each Borrower and each Guarantor confirms and agrees that it continues to remain liable for all such Obligations and other obligations and liabilities, and the liens and security interests in the Collateral of Agents and Lenders securing such Obligations and other obligations and liabilities, which shall not in any manner be impaired, limited, terminated, waived or released, but shall continue in full force and effect in favor of Agent for the benefit of Lenders.

7. Governing Law. The validity, interpretation and enforcement of this Amendment No. 2 and any dispute arising out of the relationship between the parties hereto whether in contract, tort, equity or otherwise, shall be governed by the internal laws of the State of New York.

8. Binding Effect. This Amendment No. 2 shall be binding upon and inure to the benefit of each of the parties hereto and their respective successors and assigns.

9. Entire Agreement. This Amendment No. 2 represents the entire agreement and understanding concerning the subject matter hereof among the parties hereto, and supersedes all other prior agreements, understandings, negotiations and discussions, representations, warranties, commitments, proposals, offers and contracts concerning the subject matter hereof, whether oral or written.

10. Headings. The headings listed herein are for convenience only and do not constitute matters to be construed in interpreting this Amendment No. 2.

11. Counterparts. This Amendment No. 2 may be executed in any number of counterparts, each of which shall be an original, but all of which taken together shall constitute one and the same agreement. Delivery of an executed counterpart of this Amendment No. 2 by telefacsimile or other electronic method of transmission (including by e-mail pdf transmission) shall have the same force and effect as delivery of an original executed counterpart of this Amendment No. 2. Any party delivering an executed counterpart of this Amendment No. 2 by telefacsimile or other electronic method of transmission (including by e-mail pdf transmission) shall also deliver an original executed counterpart of this Amendment No. 2, but the failure to do so shall not affect the validity, enforceability, and binding effect of this Amendment No. 2.

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IN WITNESS WHEREOF, the parties hereto have caused this Amendment No. 2 to be duly executed and delivered by their authorized officers as of the day and year first above written.

WELLS FARGO BANK, NATIONAL
ASSOCIATION, as Agent and a Lender

By: _____
Name: Ryan Tozier
Title: Vice President

BORROWERS

COFFEYVILLE RESOURCES REFINING & MARKETING, LLC

By: _____
Name: Tracy D. Jackson
Title: EVP and CFO

CVR REFINING, LLC

By: _____
Name: Tracy D. Jackson
Title: EVP and CFO

COFFEYVILLE RESOURCES PIPELINE, LLC

By: _____
Name: Tracy D. Jackson
Title: EVP and CFO

COFFEYVILLE RESOURCES CRUDE TRANSPORTATION, LLC

By: _____
Name: Tracy D. Jackson
Title: EVP and CFO

COFFEYVILLE RESOURCES TERMINAL, LLC

By: _____
Name: Tracy D. Jackson
Title: EVP and CFO

WYNNEWOOD ENERGY COMPANY, LLC

By: _____
Name: Tracy D. Jackson
Title: EVP and CFO

WYNNEWOOD REFINING COMPANY, LLC

By: _____
Name: Tracy D. Jackson
Title: EVP and CFO

CVR LOGISTICS, LLC

By: _____

Name: Tracy D. Jackson

Title: EVP and CFO

GUARANTORS

CVR REFINING, LP

BY CVR REFINING GP, LLC, ITS GENERAL PARTNER

By: _____

Name: Melissa M. Buhrig

Title: EVP, General Counsel & Secretary

COFFEYVILLE FINANCE INC.

By: _____

Name: Melissa M. Buhrig

Title: EVP, General Counsel & Secretary

COFFEYVILLE MASTER SERVICE AGREEMENT

THIS COFFEYVILLE MASTER SERVICE AGREEMENT (this “**Agreement**”) is dated as of February 19, 2020 but effective as of January 1, 2020 (the “**Effective Date**”) by and between Coffeyville Resources Refining & Marketing, LLC, a Delaware limited liability company (“**CRRM**”), and Coffeyville Resources Nitrogen Fertilizers, LLC, a Delaware limited liability company (“**CRNF**”). CRRM and CRNF are referred to individually as a “**Party**” and collectively as the “**Parties**”.

RECITALS

WHEREAS, CRRM owns and operates a petroleum refinery located at Coffeyville, Kansas, which refinery is shown on Schedule A (including any additions or other modifications made thereto from time to time, and which are collectively referred to herein as the “**Refinery**”);

WHEREAS, CRNF owns and operates a nitrogen fertilizer complex located adjacent to the Refinery, shown on Schedule B (including any additions or other modifications made thereto from time to time, and which are collectively referred to herein as the “**Fertilizer Plant**”);

WHEREAS, CRRM and CRNF entered into that certain Amended and Restated Cross Easement Agreement made as of April 13, 2011 pursuant to which CRRM and CRNF granted to each other certain non-exclusive easements and rights of use upon real property located in Montgomery County, Kansas and owned by either Party (the “**Cross Easement Agreement**”);

WHEREAS, CRRM and CRNF entered into that certain Hydrogen Purchase and Sale Agreement effective as of January 1, 2017 pursuant to which CRRM agreed to sell and CRNF agreed to purchase a fixed volume of Hydrogen per month produced by the Refinery (the “**Hydrogen Sale Agreement**”);

WHEREAS, CRRM and CRNF entered into that certain Raw Water and Facilities Sharing Agreement effective as of October 25, 2007 pursuant to which CRRM and CRNF agreed to share the benefits and costs of various water rights and facilities set forth in the agreement (the “**Raw Water and Facilities Sharing Agreement**”);

WHEREAS, CRRM and CRNF entered into that certain Coke Supply Agreement effective as of October 25, 2007 pursuant to which CRRM agreed to provide Coke to CRNF (the “**Coke Supply Agreement**”);

WHEREAS, CRRM and CRNF entered into that certain Second Amended and Restated Feedstock and Shared Services Agreement, as amended, effective as of January 1, 2017 by which CRRM and CRNF agreed to share access to certain structures and property as well as provide each other with certain feedstocks and services (the “**Feedstock and Shared Services Agreement**”);

WHEREAS, CRRM and CRNF entered into that certain Amended and Restated Lease Agreement (South Administration, Laboratory and Oil and Chemical Storage Buildings), effective as of April 13, 2011 pursuant to which CRRM leases certain property to CRNF (the “**Lease**” and, collectively with the Cross Easement Agreement, Hydrogen Sale Agreement, Raw Water and Facilities Sharing Agreement, Coke Supply Agreement and Feedstock and Shared Services Agreement, each a “**Service Agreement**” and together, the “**Service Agreements**”);

WHEREAS, CRRM, in each applicable case as Service Recipient or Service Provider, wishes to continue to provide or obtain from CRNF, in each applicable case as Service Recipient or Service

Provider, the services that were provided or obtained under the Service Agreements, and CRNF, in each applicable case as Service Recipient or Service Provider, wishes to continue to provide or obtain the same to and from CRRM;

WHEREAS, CRRM and CRNF, in order to aid the provision and administration of the Services, seek to terminate the Service Agreements and replace the Service Agreements with the terms and provisions of this Agreement; and

WHEREAS, all such services are necessary for the operation of each Service Recipient's business, and each Service Recipient desires to utilize such services so as to better carry on the operation of its business.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the Parties, intending to be legally bound hereby, covenant and agree as follows:

AGREEMENT

1. SERVICES.

(a) The services provided under this Agreement (the "**Services**") are described in Exhibits A-F attached hereto and incorporated herein, which exhibits may be updated and added to from time to time by written agreement between the Parties (collectively, the "**Statements of Service**" and each, a "**Statement of Service**").

(b) Each Party hereby engages the other Party as its Service Provider to provide the Services, and Service Provider, as requested by Service Recipient, hereby agrees to render the Services to Service Recipient.

(c) The Parties hereby agree that in discharging its obligations hereunder, Service Provider may engage any of its Affiliates or other Persons to perform the Services (or any part of the Services) on its behalf and that the performance of the Services (or any part of the Services) by any such Affiliate or other Person shall be treated as if Service Provider performed such Services itself. No such delegation by Service Provider to Affiliates or other Persons shall relieve Service Provider of its obligations hereunder.

2. CHARGE FOR SERVICES.

(a) Service Recipient will pay Service Provider fees for the Services as set forth in the Statements of Service or as otherwise mutually agreed between the Parties (the "**Payment Amount**").

(b) Services which are provided under other agreements and not superseded by the Statements of Service between CRRM and CRNF shall not be part of this Agreement. For the avoidance of doubt, any secondment or other charges related to personnel costs incurred in connection with the Services will be subject to that certain Master Services Agreement, dated as of February 19, 2020, but effective as of January 1, 2020, by and among CVR Services, LLC, as service provider, and the other entities party thereto.

3. REPORTS AND PAYMENTS.

(a) During the term of this Agreement, Service Provider shall send an invoice to Service Recipient at the end of the second month of each calendar quarter (or as otherwise mutually agreed

between the Parties) specifying the Payment Amount for Services provided pursuant to this Agreement or any Statement of Service. Service Provider shall make available to Service Recipient, upon its reasonable request (and no more than quarterly), the calculations and other work papers supporting the charges to Service Recipient.

(b) Service Recipient shall pay the amount of any invoice within 30 days after the date of the invoice in immediately available funds or as otherwise agreed between Service Provider and Service Recipient. Payment shall be in US Dollars, unless otherwise agreed by Service Provider and Service Recipient. Any undisputed past due amounts will bear interest at the Default Rate.

(c) Notwithstanding the foregoing, CRRM may setoff any Payment Amounts owed to CRNF pursuant to Section 4(b) against any Payment Amount owed by CRNF to CRRM pursuant to Section 4(b), and CRNF may setoff any Payment Amount owed to CRRM pursuant to Section 4(b) against any Payment Amount owed by CRRM to CRNF pursuant to Section 4(b), such that either CRRM or CRNF is making a net payment to the other Party in full satisfaction of the amount each Party owes to the other Party pursuant to Section 4(b).

(d) SERVICE RECIPIENT MAY, WITHIN 30 DAYS AFTER RECEIPT OF A CHARGE FROM SERVICE PROVIDER, TAKE WRITTEN EXCEPTION TO SUCH CHARGE, ON THE GROUND THAT THE SAME WAS NOT A REASONABLE COST INCURRED BY SERVICE PROVIDER OR ITS AFFILIATES IN CONNECTION WITH THE SERVICES. SERVICE RECIPIENT WILL NEVERTHELESS PAY IN FULL WHEN DUE THE FULL PAYMENT AMOUNT OWED TO SERVICE PROVIDER. SUCH PAYMENT SHALL NOT BE DEEMED A WAIVER OF THE RIGHT OF SERVICE RECIPIENT TO RECOUP ANY CONTESTED PORTION OF ANY AMOUNT SO PAID. HOWEVER, IF THE AMOUNT AS TO WHICH SUCH WRITTEN EXCEPTION IS TAKEN, OR ANY PART THEREOF, IS ULTIMATELY DETERMINED NOT TO BE A REASONABLE COST INCURRED BY SERVICE PROVIDER IN CONNECTION WITH ITS PROVIDING THE SERVICES HEREUNDER, SUCH AMOUNT OR PORTION THEREOF (AS THE CASE MAY BE) WILL BE REFUNDED BY SERVICE PROVIDER TO SERVICE RECIPIENT TOGETHER WITH INTEREST THEREON AT THE DEFAULT RATE DURING THE PERIOD FROM THE DATE OF PAYMENT BY SERVICE RECIPIENT TO THE DATE OF REFUND BY SERVICE PROVIDER.

4. STANDARDS OF PERFORMANCE. Service Provider agrees to utilize ordinary care and diligence in rendering the Services provided for under this Agreement and to perform such Services in accordance with recognized practice in the industry. Without limiting the generality of any other provision hereof, it is not the intent of Service Provider or its Affiliates to render professional advice or opinions, whether with regard to tax, legal, treasury, finance, intellectual property, environmental, health and safety, employment or other matters; Service Recipients shall not rely on any Service rendered by or on behalf of Service Provider or its Affiliates for such professional advice or opinions; and notwithstanding a Service Recipient's receipt of any proposal, recommendation or suggestion in any way relating to tax, legal, treasury, finance, intellectual property, environmental, health and safety, employment or any other subject matter, such Service Recipient shall seek all third-party professional advice and opinions as it may desire or need, and, **in any event such Service Recipient shall be solely responsible for and assume all risks associated with the Services, except to the limited extent set forth herein.**

5. NON-EXCLUSIVITY. The Parties agree expressly that this Agreement shall be non-exclusive with respect to each Party and that, accordingly, (a) Service Provider may from time to time render

similar advice and services to other companies; and (b) Service Recipient may from time to time retain similar services from other parties.

6. CONFIDENTIALITY.

(a) Service Recipient and Service Provider each acknowledge and agree that all documents, instruments, records, reports and information (regardless of how embodied or conveyed) which are received from the other Party during the Term (collectively, “**Confidential Information**”) are highly confidential and shall be maintained in strict confidence. Accordingly, each of Service Recipient and Service Provider agrees that it shall not, at any time during or after the expiration of this Agreement, use in a manner unauthorized by the disclosing Party, any Confidential Information of the disclosing Party or, without the prior written consent of the disclosing Party, directly or indirectly disclose any such Confidential Information to any other Person, other than to any Affiliate, provided that the receiving Party shall require the same agreement from such Affiliate to whom Confidential Information is disclosed

(b) The term “Confidential Information” does not include any data or information which the receiving Party can establish is already known to the receiving Party at the time it was initially disclosed to the receiving Party. Furthermore, the term “Confidential Information” does not include any data or information which before being divulged by the receiving Party, the receiving Party can establish (i) has become generally known to the public through no wrongful act of the receiving Party or breach of its obligations under this Agreement; (ii) has been rightfully received by the receiving Party from a third party without restriction on disclosure and without, to the knowledge of the receiving Party, a breach of an obligation of confidentiality running directly or indirectly to the disclosing Party; or (iii) has been approved for release by a written authorization by the disclosing Party.

(c) In the event that the receiving Party is legally requested or required (by oral questions, interrogatories, requests for information or documents, subpoena, civil investigative demand or similar process, or, in the opinion of counsel for such Party, by federal or state securities or other statutes, regulations, or laws) to disclose any Confidential Information, such Party shall, to the extent practicable without violation of applicable legal requirements, promptly notify the disclosing Party of such requests or requirement prior to disclosure so that the disclosing Party may, at its expense, seek an appropriate protective order and/or waive compliance with the terms of this Agreement.

7. **INDEMNIFICATION.** Service Recipient shall indemnify, reimburse, defend and hold harmless Service Provider, its Affiliates and their respective successors and permitted assigns, together with their respective current and future employees, officers, members, managers, directors, agents and representatives (collectively the “**Indemnified Parties**”), from and against all losses, costs, damages, injuries, taxes, penalties, interests, expenses, obligations, claims and liabilities (joint or severable) of any kind or nature whatsoever, including for injury, sickness, disease or death to employees or other persons (collectively “**Losses**”) that are incurred by such Indemnified Parties in connection with, relating to or arising out of (i) the breach of any term or condition of this Agreement, or (ii) the performance of any Services hereunder; provided, however, that Service Recipient shall not be obligated to indemnify, reimburse, defend or hold harmless any Indemnified Party for any Losses incurred by such Indemnified Party in connection with, relating to or arising out of:

(a) the gross negligence, willful misconduct, bad faith or reckless disregard of such Indemnified Party in the performance of any Services hereunder; or

(b) fraudulent or dishonest acts of such Indemnified Party with respect to Service Recipient.

Service Recipient's obligation to indemnify, defend, reimburse and hold the Indemnified Parties harmless shall extend to and include, but not be limited to, claims, demands, judgments, liabilities and expenses resulting from the personal injury, sickness, disease or death of any persons, regardless of whether Service Recipient has paid the person under the provisions of any workers' compensation statute or law, or other similar federal or state legislation for the protection of employees.

The rights of any Indemnified Party referred to above are in addition to any rights that such Indemnified Party otherwise has at law or in equity. Without the prior written consent of Service Recipient, no Indemnified Party may settle, compromise or consent to the entry of any judgment in, or otherwise seek to terminate any, claim, action, proceeding or investigation in respect of which indemnification could be sought hereunder unless (A) such Indemnified Party indemnifies Service Recipient from any liabilities arising out of such claim, action, proceeding or investigation, (B) such settlement, compromise or consent includes an unconditional release of Service Recipient and any Indemnified Party from all liability arising out of such claim, action, proceeding or investigation and (C) the parties involved agree that the terms of such settlement, compromise or consent remain confidential, except to the extent disclosure is required by law, legal process, order of court or pursuant to any government agency or security exchange. In the event that indemnification is provided for under any other agreements between Service Provider or any of its Affiliates and Service Recipient or any of its Affiliates, and such indemnification is for any particular Losses, then such indemnification (and any limitations thereon) as provided in such other agreement applies as to such particular Losses and will supersede and be in lieu of any indemnification that would otherwise apply to such particular Losses under this Agreement.

In the event that any indemnity provisions of this Agreement are contrary to the law governing this Agreement, then the indemnity obligations applicable hereunder will be construed to be to the fullest extent allowed by applicable law.

8. EXPRESS NEGLIGENCE. EXCEPT AS OTHERWISE EXPRESSED HEREIN, THE INDEMNITY, RELEASES AND LIMITATIONS ON DAMAGES, RECOURSE AND LIABILITIES IN THIS AGREEMENT (INCLUDING SECTION 7) ARE INTENDED TO BE ENFORCEABLE AGAINST THE PARTIES IN ACCORDANCE WITH THE EXPRESS TERMS AND SCOPE HEREOF, **REGARDLESS OF CAUSE**.

9. LIMITATION OF DUTIES AND LIABILITIES. The relationship of Service Provider to Service Recipient pursuant to this Agreement is as an independent contractor and nothing in this Agreement shall be construed to impose on Service Provider or its Affiliates, or on any of their respective successors and permitted assigns, or on their respective employees, officers, members, managers, directors, agents and representatives (each, a "***Service Provider Party***"), an express or implied fiduciary duty. No Service Provider Party shall be liable for, and Service Recipient shall not take, or permit to be taken, any action against any Service Provider Party to hold such Service Provider Party liable for, (a) any error of judgment or mistake of law or for any liability or loss suffered by Service Recipient in connection with the performance of any Services under this Agreement, except for a liability or loss resulting from gross negligence, willful misconduct, bad faith or reckless disregard in the performance of the Services, or (b) any fraudulent or dishonest acts with respect to Service Recipient. In no event, whether based on contract, indemnity, warranty, tort (including negligence), strict liability or otherwise, shall any Service Provider Party be liable for loss of profits or revenue or special, incidental, exemplary, punitive or consequential damages; provided, however, that the foregoing limitation does not preclude recourse to any insurance coverage maintained by the Parties pursuant to the requirements of this Agreement or otherwise.

10. TERM OF AGREEMENT/TERMINATION. This Agreement shall be effective from the Effective Date and shall continue in effect until terminated in accordance with the terms of this Section 10 (the “**Term**”). This Agreement shall automatically terminate without any further action by any Party (a) immediately prior to the time at which either Party ceases to be under common control (measured with respect to indirect equity ownership or, in the case of CRNF, ownership of CVR GP, LLC) with the other Party or (b) at such time that all Services and all Statements of Service have been terminated in accordance with the terms set forth therein (including any amendments thereto). The Parties may agree to terminate a particular Statement of Service, without terminating the remaining Statements of Service or this Agreement, by (i) written agreement of the Parties or (ii) pursuant to the terms of a particular Statement of Service.

11. INSURANCE.

(a) During the Term, the Parties will each carry the minimum insurance described below.

(i) Workers’ compensation with no less than the minimum limits as required by applicable law.

(ii) Employer’s liability insurance with not less than the following minimum limits: (A) bodily injury by accident - \$1,000,000 each accident; (B) bodily injury by disease - \$1,000,000 each employee; and (C) bodily injury by disease - \$1,000,000 policy limit.

(iii) Commercial general liability insurance covering liability from premises, operations, independent contractor, property damage, bodily injury, personal injury, products, completed operations and liability assumed under an insured contract, all on an occurrence basis, with limits of liability of not less than \$1,000,000 combined single limits.

(iv) Automobile liability insurance, on each and every unit of automobile equipment, whether owned, non-owned, hired, operated, or used by the Insuring Party or their employees, agents, contractors and/or their subcontractors covering injury, including death, and property damage, in an amount of not less than \$1,000,000 per accident.

(v) Umbrella or excess liability insurance in the amount of \$10,000,000 covering the risks and in excess of the limits set for in Section 11(a)(ii), 11(a)(iii) and 11(a)(iv) above.

(b) Each Party will abide by the following additional insurance requirements with respect to all insurance policies required by Section 11(a), as follows:

(i) All insurance policies purchased and maintained in compliance with Section 11(a)(iii), 11(a)(iv), and 11(a)(v) by one Party (the “**Insuring Party**”), as well as any other excess and/or umbrella insurance policies maintained by the Insuring Party, will name the other Party and their collective directors, officers, partners, members, managers, general partners, agents, and employees as additional insureds, with respect to any claims related to losses caused by the Insuring Party’s business activities or premises. Those policies referred to in Section 11(a)(iii) will be endorsed to provide that the coverage provided by the Insuring Party’s insurance carriers will always be primary coverage and non-contributing with respect to any insurance carried by the other Party with respect to any claims related to liability or losses caused by the Insuring Party’s business activities or premises.

(ii) Those policies referred to in Section 11(a), and in Section 11(b)(v), will be endorsed to provide that underwriters and insurance companies of the Insuring Party will not have any right of subrogation against the other Party or any of such other Party's directors, officers, members, managers, general partners, agents, employees, contractors, subcontractors, or insurers.

(iii) Those policies referred to in Section 11(a) will be endorsed to provide that 30 days prior written notice be given to the other Party in the event of cancellation, no-payment of premium, or material change in the policies.

(iv) Each Party will furnish the other, prior to the commencement of any operations under this Agreement, with a certificate or certificates, properly executed by its insurance carrier(s), showing all the insurance described in Section 11(a) to be in full force and effect.

(v) Each Party will be responsible for its own property and business interruption insurance.

(vi) Notwithstanding the foregoing, the Parties acknowledge and agree that the insurance required by this Agreement may be purchased and maintained jointly by the Parties or their affiliates. If such insurance is purchased and maintained jointly and each Party is a named insured thereunder, then the requirements of Section 11(b)(i) through 11(b)(v) will be deemed waived by the Parties.

12. DISPUTES.

(a) The Parties will in good faith attempt to resolve promptly and amicably any dispute between the Parties arising out of or relating to this Agreement (each a "**Dispute**") pursuant to the terms of this Section 12. The Parties will first submit the Dispute to a representative appointed by each of the Parties, who will then meet within 15 days to resolve the Dispute. If the Dispute has not been resolved within 45 days after the submission of the Dispute to such representatives, the Dispute will be submitted to a mutually agreed non-binding mediation. The costs and expenses of the mediator will be borne equally by the Parties, and the Parties will pay their own respective attorneys' fees and other costs. If the Dispute is not resolved by mediation within 90 days after the Dispute is first submitted to the representatives appointed by each Party as provided above, then the Parties may exercise all available remedies.

(b) The Parties acknowledge that they or their respective affiliates contemplate entering or have entered into various additional agreements with third parties that relate to the subject matter of this Agreement and that, as a consequence, Disputes may arise hereunder that involve such third parties (each a "**Multi-Party Dispute**"). Accordingly, the Parties agree, with the consent of such third parties, that any such Multi-Party Dispute, to the extent feasible, shall be resolved by and among all the interested parties consistent with the provisions of this Section 12.

13. FORCE MAJUERE. Neither Party shall be liable to the other for failure of or delay in performance hereunder (except for the payment of amounts due hereunder) to the extent that the failure or delay is due to Force Majeure. Performance under this Agreement shall be suspended (except for the payment of amounts due hereunder) during the period of Force Majeure to the extent made necessary by the Force Majeure. No failure of or delay in performance pursuant to this Section 13 shall operate to extend the term of this Agreement. Performance under this Agreement shall resume to the extent made possible by the end or amelioration of the Force Majeure event. Upon the occurrence of any event of Force Majeure, the Party claiming Force Majeure shall notify the other Party promptly in writing of such

event and, to the extent possible, inform the other Party of the expected duration of the Force Majeure event and the performance to be affected by the event of Force Majeure under this Agreement. Each Party shall designate a person with the power to represent such Party with respect to the event of Force Majeure. The Party claiming Force Majeure shall use commercially reasonable efforts, in cooperation with the other Party and such Party's designee, to diligently and expeditiously end or ameliorate the Force Majeure event. In this regard, the Parties shall confer and cooperate with one another in determining the most cost-effective and appropriate action to be taken. If the Parties are unable to agree upon such determination, the matter shall be determined by dispute resolution in accordance with Section 12.

14. NOTICES. All notices, offers, acceptances, waivers and other communications under this Agreement shall be in writing and shall be deemed to have been given and received (i) upon receipt when delivered by hand, (ii) upon transmission, if sent by electronic mail transmission (in each case with receipt verified by electronic confirmation), or (iii) one business day after being sent by overnight courier or express delivery service; provided, that in each case the notice or other communication is sent to the address, electronic mail address set forth beneath the name of such Party below (or to such other address or electronic mail address as such Party shall have specified in a written notice given to the other Parties hereto):

(a) If to CRRM:

Coffeyville Resources Refining & Marketing, LLC
400 N. Linden St., P.O. Box 1566
Coffeyville, Kansas 67337
Attention: Vice President, Refinery General Manager

With a copy to:

Coffeyville Resources Refining & Marketing, LLC
2277 Plaza Drive, Suite 500
Sugar Land, Texas 77479
Attention: Office of the General Counsel
Email: LegalServices@CVREnergy.com

(b) If to CRNF:

Coffeyville Resources Nitrogen Fertilizers, LLC
710 E. Martin St., P.O. Box 5000
Coffeyville, Kansas 67337
Attention: Vice President, Facility General Manager

With a copy to:

Coffeyville Resources Nitrogen Fertilizers, LLC
2277 Plaza Drive, Suite 500
Sugar Land, Texas 77479
Attention: Office of the General Counsel
Email: LegalServices@CVREnergy.com

15. ASSIGNMENT. This Agreement and all of the provisions hereof shall be binding upon and inure to the benefit of each of the Parties hereto and their respective successors and permitted assigns.

Neither of the Parties may assign this Agreement or any rights, benefits or obligations set forth herein without the prior written consent of the other Party.

16. ENTIRE AGREEMENT. This Agreement, together with all Schedules, Exhibits and Annexes hereto, sets forth the entire agreement of the Parties and supersedes all prior representations, agreements and understandings, oral or written, between the Parties with respect to the matters contained herein. The Parties agree that all prior agreements between the Parties are hereby terminated to the extent they relate to Services. For the avoidance of doubt, the Parties agree that each of the Service Agreements is hereby terminated in its entirety.

17. MODIFICATION AND AMENDMENT. This Agreement may be modified or amended only by a writing that is signed by both Parties and which expresses an intention to modify or amend this Agreement.

18. NO THIRD PARTY BENEFICIARIES. The Parties each acknowledge and agree that there are no third party beneficiaries, including any employees of CRRM or CRNF, having rights under or with respect to this Agreement.

19. INDEPENDENT CONTRACTORS. The Parties acknowledge and agree that neither Party, by reason of this Agreement, shall be an agent, employee or representative of the other with respect to any matters relating to this Agreement, unless specifically provided to the contrary in writing by the other Party. This Agreement shall not be deemed to create a partnership or joint venture of any kind between CRRM and CRNF.

20. ANCILLARY DOCUMENTATION, AMENDMENTS AND WAIVER. The Parties may, from time to time, use purchase orders, acknowledgments or other instruments to order, acknowledge or specify delivery times, suspensions, quantities or other similar specific matters concerning the Agreement or relating to performance hereunder, but the same are intended for convenience and record purposes only and any provisions which may be contained therein are not intended to (nor shall they serve to) add to or otherwise amend or modify any provision of this Agreement, even if signed or accepted on behalf of either Party with or without qualification. This Agreement may not be amended, modified or waived except by a writing signed by all parties to this Agreement that specifically references this Agreement and specifically provides for an amendment, modification or waiver of this Agreement. No waiver of or failure or omission to enforce any provision of this Agreement or any claim or right arising hereunder shall be deemed to be a waiver of any other provision of this Agreement or any other claim or right arising hereunder.

21. CONSTRUCTION AND SEVERABILITY. Every covenant, term and provision of this Agreement shall be construed simply according to its fair meaning and in accordance with industry standards and not strictly for or against either Party. Each Party represents and acknowledges that it has had the opportunity to discuss and review the terms of this Agreement with counsel, and that they are freely and voluntarily entering into this Agreement in exchange for the benefits provided herein. Every provision of this Agreement is intended to be severable. If any term or provision hereof is illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity or legality of the remainder of this Agreement.

22. WAIVER. The waiver by either Party of any breach of any term, covenant or condition contained in this Agreement shall not be deemed to be a waiver of such term, covenant or condition or of any subsequent breach of the same or of any other term, covenant or condition contained in this

Agreement. No term, covenant or condition of this Agreement will be deemed to have been waived unless such waiver is in writing.

23. GOVERNING LAW AND VENUE. THIS AGREEMENT WILL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS WITHOUT REGARD TO THE CONFLICT OF LAWS PRINCIPLES OF SAID STATE. THE PARTIES AGREE THAT ANY ACTION BROUGHT IN CONNECTION WITH THIS AGREEMENT MAY BE MAINTAINED IN ANY COURT OF COMPETENT JURISDICTION LOCATED IN HOUSTON, TEXAS, AND EACH PARTY AGREES TO SUBMIT PERSONALLY TO THE JURISDICTION OF ANY SUCH COURT AND HEREBY WAIVES THE DEFENSES OF FORUM NON-CONVENIENS OR IMPROPER VENUE WITH RESPECT TO ANY ACTION BROUGHT IN ANY SUCH COURT IN CONNECTION WITH THIS AGREEMENT.

24. COUNTERPARTS. This Agreement may be executed in one or more counterparts, any one of which may be by facsimile, and all of which taken together shall constitute one and the same instrument. The exchange of copies of this Agreement and of signature pages by electronic transmission, including by electronic mail in portable document format (“.pdf”), or by any other electronic means intended to preserve the original graphic and pictorial appearance of a document, or by a combination of such means, shall constitute effective execution and delivery of this Agreement as to the Parties and may be used in lieu of an original Agreement for all purposes. Signatures of the Parties transmitted by facsimile or other electronic transmission shall be deemed to be original signatures for all purposes.

25. ATTORNEY-CLIENT PRIVILEGE. In connection with the Services, no Party waives, or shall be construed to have waived, the attorney-client, attorney work product or similar privileges and protections, and such privileges and protections are hereby extended to and shared between Service Provider and Service Recipients in all respects.

26. DEFINITIONS.

(a) “*Affiliate*” means with respect to any Person, any other Person that directly or indirectly through one or more intermediaries, controls, is controlled by, or is under common control with, such specified Person. For purposes of this definition, “control” when used with respect to any Person means the power to direct the management and policies of such Person, directly or indirectly, through the ownership of voting securities, by contract or otherwise (provided that, solely for purposes of this Agreement, CRNF shall not be deemed an Affiliate of CRRM). Moreover, when referring to CRRM, the term “Affiliate” shall include only CVR Energy, Inc. and its wholly-owned subsidiaries, and when referring to CRNF, the term “Affiliate” shall include only CVR Partners, LP and its wholly-owned subsidiaries.

(b) “*Agreement*” has the meaning set forth in the preamble.

(c) “*Coke Supply Agreement*” has the meaning set forth in the Recitals.

(d) “*Confidential Information*” has the meaning set forth in Section 6(a).

(e) “*CRNF*” has the meaning set forth in the preamble.

(f) “*CRNF Representative*” means the plant manager of the Fertilizer Plant or such other person as is designated in writing by CRNF.

- (g) “**Cross Easement Agreement**” has the meaning set forth in the Recitals.
- (h) “**CRRM**” has the meaning set forth in the preamble.
- (i) “**CRRM Representative**” means the plant manager of the Refinery or such other person as is designated in writing by CRRM.
- (j) “**Default Rate**” means an interest rate (which in no event will be higher than the rate permitted by applicable law) equal to 300 basis points over LIBOR.
- (k) “**Dispute**” has the meaning set forth in Section 12(a).
- (l) “**Effective Date**” has the meaning set forth in the preamble.
- (m) “**Feedstock and Shared Services Agreement**” has the meaning set forth in the Recitals.
- (n) “**Fertilizer Plant**” has the meaning set forth in the Recitals.
- (o) “**Force Majeure**” means war (whether declared or undeclared); fire, flood, lightning, earthquake, storm, tornado, or any other act of God; strikes, lockouts or other labor difficulties; unplanned plant outages; civil disturbances, riot, sabotage, terrorist act, accident, any official order or directive, including with respect to condemnation, or industry-wide requirement by any governmental authority or instrumentality thereof, which, in the reasonable judgment of the Party affected, interferes with such Party’s performance under this Agreement; any inability to secure necessary materials and/or services to perform under this Agreement, including, but not limited to, inability to secure materials and/or services by reason of allocations promulgated by governmental agencies; or any other contingency beyond the reasonable control of the affected Party, which interferes with such Party’s performance under this Agreement.
- (p) “**Hydrogen Sale Agreement**” has the meaning set forth in the Recitals.
- (q) “**Indemnified Parties**” has the meaning set forth in Section 7.
- (r) “**Insuring Party**” has the meaning set forth in Section 11(b)(i).
- (s) “**Losses**” has the meaning set forth in Section 7.
- (t) “**Multi-Party Dispute**” has the meaning set forth in Section 12(b).
- (u) “**Party**” has the meaning set forth in the preamble.
- (v) “**Payment Amount**” has the meaning set forth in Section 2(a).
- (w) “**Person**” means an individual, corporation, partnership, joint venture, trust, limited liability company, unincorporated organization or other entity.
- (x) “**Raw Water and Facilities Sharing Agreement**” has the meaning set forth in the Recitals.

- (y) “**Refinery**” has the meaning set forth in the Recitals.
- (z) “**Representative**” means each of the CRNF Representative and CRRM Representative.
- (aa) “**Service Agreement**” has the meaning set forth in the Recitals.
- (bb) “**Service Provider**” means CRRM or CRNF, to the extent it is providing the Services to the other Party.
- (cc) “**Service Provider Party**” has the meaning set forth in Section 9.
- (dd) “**Service Recipient**” means CRRM or CRNF, to the extent it is receiving the Services from the other Party.
- (ee) “**Services**” has the meaning set forth in Section 1(a).
- (ff) “**Statement of Services**” has the meaning set forth in Section 1(a).
- (gg) “**Term**” has the meaning set forth in Section 10.

[Remainder of page intentionally left blank. Signature page follows.]

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

COFFEYVILLE RESOURCES REFINING & MARKETING, LLC

By: /s/ Brent Traxel

Name: Brent Traxel

Title: Vice President, Refinery General Manager

COFFEYVILLE RESOURCES NITROGEN FERTILIZERS, LLC

By: /s/ Neal Barkley

Name: Neal Barkley

Title: Vice President, Facility General Manager

Signature Page to Coffeyville Master Service Agreement

SCHEDULE A

REFINERY



SCHEDULE B

FERTILIZER PLANT



EXHIBIT A

CROSS EASEMENTS

CRNF is the owner of certain real property located in Montgomery County, Kansas, as legally described on Annex A to this Exhibit A (the “**Fertilizer Parcel**”), and CRRM is the owner of certain real property located in Montgomery County, Kansas, as legally described on Annex B to this Exhibit A (the “**Refinery Parcel**”). The Refinery Parcel and the Fertilizer Parcel are herein collectively referred to as the “**Parcels**”, and each, as a “**Parcel**”.

The Parties have reconfigured the boundaries of their respective Parcels to divide and separate the operations of CRRM’s Refinery from the operations of CRNF’s adjacent Fertilizer Plant operations.

The Parties desire to grant to each other certain non-exclusive easements and rights of use upon, over and across the Fertilizer Parcel and the Refinery Parcel, respectively, for, but not limited to, the following purposes: (a) the use of pipelines, transmission lines, equipment, drainage facilities, other plant facilities and improvements and the maintenance thereof; (b) pedestrian and vehicular access; and (c) all other purposes as necessary for the use, operation and maintenance of the business and operations currently conducted on the Parcels and as necessary to carry out the purposes and intent of this Exhibit A.

ARTICLE 1. DEFINITIONS

1.1 All terms not defined in this Exhibit A but which are used herein as so defined in the Agreement. The following terms shall have the meanings set forth below, for purposes of this Exhibit A and all Annexes hereto:

“**Access Areas**” has the meaning given such term in Section 2.1(A) of this Exhibit A.

“**Aerial**” means that aerial photograph attached hereto as Annex C to this Exhibit A.

“**Coke Conveyor Belt Easement Area**” has the meaning given such term in Section 2.3(C) of this Exhibit A.

“**Coke Haul Road Easement Area**” has the meaning given such term in Section 2.3(C) of this Exhibit A.

“**Connection Purposes**” has the meaning given such term in Section 3.2 of this Exhibit A.

“**Constructing Party**” has the meaning given such term in Section 2.2(C)(1) of this Exhibit A.

“**Construction Buffer Zone Easement Area**” has the meaning given such term in Section 2.3(I) of this Exhibit A.

“**CRNF Clarifier Tract**” has the meaning given such term in Section 2.3(A) of this Exhibit A.

“**Easement Areas**” has the meaning given such term in Section 4.1 of this Exhibit A.

“**Easements**” has the meaning given such term in Section 4.1 of this Exhibit A.

“**East Tank Farm Area (Refinery Parcel)**” has the meaning given such term in Section 2.3(F) of this Exhibit A.

“**East Tank Farm Easements**” has the meaning given such term in Section 2.3(F) of this Exhibit A.

“**East Tank Farm Roadway Area (Fertilizer Parcel)**” has the meaning given such term in Section 2.3(F) of this Exhibit A.

“**Fertilizer Parcel**” has the meaning set forth in the recitals to this Exhibit A.

“**Fertilizer Water Pipeline Easement Area**” has the meaning given such term in Section 2.3(A) of this Exhibit A.

“**Interconnect Points**” has the meaning given such term in Section 3.1 of this Exhibit A.

“**Interconnect Points Drawing**” has the meaning given such term in Section 3.1 of this Exhibit A.

“**Interconnect Points Easement**” has the meaning given such term in Section 3.2 of this Exhibit A.

“**Mortgage**” has the meaning given such term in Section 4.12(B) of this Exhibit A.

“**Non-Performing Party**” has the meaning given such term in Section 4.6 of this Exhibit A.

“**Parcels**” has the meaning given such term in the recitals to this Exhibit A.

“**Performing Party**” has the meaning given such term in Section 4.7 of this Exhibit A.

“**Pipe Rack Easement Area**” has the meaning given such term in Section 2.3(B) of this Exhibit A.

“**Railroad Trackage Easement Area (Fertilizer Parcel)**” has the meaning given such term in Section 2.3(G)(1) of this Exhibit A.

“**Railroad Trackage Easement Area (Refinery Parcel)**” has the meaning given such term in Section 2.3(G)(2) of this Exhibit A.

“**Refinery Parcel**” has the meaning given such term in the recitals to this Exhibit A.

“**Refinery Shared Parking Area**” has the meaning given such term in Section 2.3(H) of this Exhibit A.

“**Shared Pipeline Easement**” has the meaning given such term in Section 2.2(B) of this Exhibit A.

“**Shared Pipeline Easement Area**” means the land legally described on Annex D to this Exhibit A and depicted on the Aerial.

“**Sunflower Street Pipeline Crossing Easement Area (Fertilizer Parcel)**” has the meaning given such term in Section 2.3(E)(1) of this Exhibit A.

“**Sunflower Street Pipeline Crossing Easement Area (Refinery Parcel)**” has the meaning given such term in Section 2.3(E)(2) of this Exhibit A.

“*Temporary Construction/Maintenance Easements*” has the meaning given such term in Section 2.2(C)(1) of this Exhibit A.

“*Trackage Storage Area*” means the real property shown on the Aerial.

“*Unavoidable Delay*” has the meaning given such term in Section 4.6 of this Exhibit A.

“*Water Rights Easement*” has the meaning given such term in Section 2.3(A) of this Exhibit A.

“*Work*” has the meaning given such term in Section 2.2(C)(1) of this Exhibit A.

ARTICLE 2. GRANTS OF EASEMENTS

The Parties hereby grant to each other the following easements and rights of use, subject to the other provisions of this Exhibit A:

2.1 Access Easements.

(A) The term “*Access Areas*” as used in this Exhibit A shall mean the following portions of the Fertilizer Parcel and the Refinery Parcel, respectively, as the same may be located from time to time:

(1) all vehicular roadways, driveways and pathways on the Parcels, however surfaced, and all interior vehicular roadways across parking lot areas (except those portions thereof which may from time to time constitute a duly dedicated public roadway); and

(2) all sidewalks, walkways and other pathways providing pedestrian access to and across the Parcels.

(B) CRNF hereby grants to CRRM, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Refinery Parcel, a perpetual, non-exclusive easement and right of use in the Access Areas located from time to time on the Fertilizer Parcel for pedestrian and vehicular access, ingress and egress, all in common with CRNF, as may be reasonably required for access, ingress and egress for the Refinery’s operations.

(C) Reciprocally, CRRM hereby grants to CRNF, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Fertilizer Parcel: (i) a perpetual, non-exclusive easement and right of use in the existing Access Areas on the Refinery Parcel for the purpose of pedestrian and vehicular ingress and egress to and from the Verdigris River, CRNF Clarifier Tract, the “Water Facilities” which are for the use of CRNF (as provided for and defined in Exhibit B) and the Fertilizer Water Pipeline Easement Area; and (ii) a perpetual, non-exclusive easement and right of use in the other Access Areas located from time to time on the Refinery Parcel for pedestrian and vehicular access, ingress and egress, all in common with CRRM, as may be reasonably required for access, ingress and egress for the Fertilizer Plant operations.

(D) The Parties agree that while neither Party, as grantor of the foregoing access easements, respectively, has any right or obligation to retain the existing Access Areas in their present configurations or locations (and may relocate, change or modify the Access Areas on its Parcel from time to time), each grantor Party shall provide at all times routes of vehicular and pedestrian access, ingress and egress across such Party’s respective Parcel to reasonably facilitate the other Party’s operations on its Parcel and exercise of its rights under this Exhibit A.

2.2 Shared Pipeline Easement.

(A) The Parties acknowledge that CRNF requires access to and rights of use in certain improvements and structures located on the Refinery Parcel (including, without limitation, pipelines, transmission lines and other conduits and equipment, to operate its Fertilizer Plant).

(B) Accordingly, in order to carry out the intent and provisions of each of the Statements of Service, CRRM hereby grants to CRNF, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Fertilizer Parcel, a perpetual, non-exclusive easement and right of use in, to, over, under and across the Shared Pipeline Easement Area, as required and necessary for implementation of the Statements of Service, which easement and right of use shall include, without limitation, the right to: (i) maintain, repair, inspect and replace all existing pipelines, transmission lines, transport lines, equipment, and drainage facilities of CRNF now located in the Shared Pipeline Easement Area that are used in the operation of the Fertilizer Plant; and (ii) utilize each of the Interconnect Points therein (as defined in Section 3.1 of this Exhibit A) (such easement and right of use being called the “**Shared Pipeline Easement**”).

(C) Temporary Construction / Maintenance Easements.

(1) In connection with the exercise of the foregoing Access Easements, the Shared Pipeline Easement and the Easements granted hereinafter in Section 2.3 of this Exhibit A, each Party (a “**Constructing Party**”) is hereby granted by the other Party a temporary construction and maintenance easement as needed from time to time to use necessary portions of the other Party’s Parcel, as the servient estate under such Easement, in connection with:

- (a) all construction activities as permitted under the applicable Easement;
- (b) inspecting, maintaining, repairing and replacing the Constructing Party’s pipelines, transmission lines, conduits, equipment and other improvements; and
- (c) the transportation and hauling of heavy vehicles, loads and equipment over any road within an Access Area of the other Party, in which case the Constructing Party may temporarily cap (with gravel, asphalt or other suitable, protective material) such road in order to prevent or mitigate damage thereby caused to such road. Notwithstanding anything to the contrary contained in this Exhibit A, any damage to any such road of a Party caused by such transportation and hauling by the Constructing Party shall be promptly repaired by the Constructing Party at its sole cost and expense.

The foregoing easements are collectively referred to herein as the “**Temporary Construction/ Maintenance Easements**”. Any and all activities described in Sections 2.2(E)(1)(a) and (b) are collectively referred to as “**Work**”.

(2) Within a reasonable time before it begins any Work, the Constructing Party shall provide reasonable prior notice (except in an emergency situation, in which case no prior notice is required, but instead the Constructing Party shall submit subsequent notice) to the other Party outlining those portions of the other Party’s Parcel in which the Temporary Construction/Maintenance Easement is needed, identifying the Work to be undertaken, and the estimated duration of such Work.

(3) When the Constructing Party ceases using the other Party's Parcel for such Work, it must promptly restore such area to the condition in which it existed before the commencement of the Work within a reasonable period of time. This restoration Work shall include clearing the area of all loose dirt, debris, equipment and construction materials and the repair or replacement of equipment areas, equipment connections, utility services, paving, and landscaping and repairs and replacements to such other items as may be required to reasonably restore.

(4) The Constructing Party must also restore any portions of the other Party's Parcel that may be damaged by its Work promptly upon the occurrence of such damage without delay.

(5) All Work shall be performed by the Constructing Party in a manner so as to avoid material interference with Fertilizer Plant and Refinery operations within such Easement Areas and on surrounding areas. At the completion of Work, a given Temporary Construction/Maintenance Easement shall automatically be deemed terminated.

2.3 Easements for Specific Operations. In addition to the foregoing Access Easements, Shared Pipeline Easement and Temporary Construction/Maintenance Easement grants, the Parties hereby grant the following additional easements for the specific operations designated therein:

(A) **Water Rights Easement.** In order to provide for the real property rights and interests necessary to effectuate the provisions of Exhibit C and to provide for the transportation of water from the Water Facilities (as defined in Exhibit C) into CRNF's Fertilizer Plant facilities located on the Fertilizer Parcel, CRRM hereby grants to CRNF, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Fertilizer Parcel:

(i) a perpetual, non-exclusive easement in and right of use of: (a) the Refinery's Water Intake Structure, River Water Pumps, other Water Facilities and equipment related thereto (all as defined and described in Exhibit C) to the extent provided in Exhibit C; and (b) any existing water supply pipeline of CRRM (and related equipment) which carries raw water from the River Water Pumps (y) into pipelines of CRNF located on the Refinery Parcel that runs to the tract of land owned by CRNF on which its clarifier is located, which tract of land is legally described on Annex N to this Exhibit A ("**CRNF Clarifier Tract**") or (z) directly to CRNF Clarifier Tract. CRRM hereby reserves the right to alter, relocate, expand or replace all of its herein described water supply equipment from time to time, so long as it continues to supply sufficient, uninterrupted water and pipeline service to CRNF pursuant to the terms of Exhibit C and as provided in clauses (a) and (b) above. The Parties acknowledge that such water supply equipment described in clause (a) presently provides the single source of water to both the Refinery and the Fertilizer Plant.

(ii) a perpetual, non-exclusive easement in and right of use of such portions of the Refinery Parcel on which the CRNF's existing separate water supply pipelines are located that carry water from the "Y Intersection" (as defined in Exhibit C) to CRNF Clarifier Tract and from CRNF Clarifier Tract southerly across the Refinery Parcel onto the Fertilizer Parcel and into the Fertilizer Plant located thereon. The general location of the area of the Refinery Parcel in which such pipelines are located is shown on the Aerial and legally described on Annex O to this Exhibit A ("**Fertilizer Water Pipeline Easement Area**"). Such easement includes a non-exclusive easement and right in favor of CRNF to operate, maintain, alter, relocate, repair and replace such water supply pipelines within the Fertilizer Water Pipeline Easement Area in a manner that does not materially interfere with the operation or use of the Refinery or any part thereof.

(iii) during the term of the Raw Water and Facilities Sharing Agreement, the right of use, privilege and interest for CRNF, at any future time upon prior notice to, and reasonable coordination with CRRM so as to not materially impair any operations on the Refinery Parcel, to construct separate water facilities, as contemplated by Exhibit C, which separate water facilities may include, without limitation, a separate intake valve, water plant structure and associated water pumping equipment within the “**separate Raw Water pumping area**” generally depicted on the Aerial. Upon CRNF’s relocation of its existing water facilities and/or its construction of separate water facilities pursuant to the rights granted in this paragraph, the areas in which such separate water facilities are located (and any areas to connect such separate water facilities to the Verdigris River and to CRRM’s then-existing Water Intake Structure, River Water Pumps and Water Facilities as may then be reasonably necessary for the operation, alteration, maintenance, repair and replacement of CRNF’s separate water facilities), shall be automatically deemed additional Easement Areas pursuant to the terms of this Exhibit A and the easement granted in Section 2.3(A)(i)(a) shall terminate to the extent no longer required due to construction of such separate water facilities.

The foregoing easements and rights of use are collectively referred to herein as the “**Water Rights Easement**”.

(iv) **Raw Water and Facilities Sharing.** The raw water and facilities sharing agreement set forth in Exhibit C contains various other rights, options, interests and obligations of the Parties in the event either Party elects to terminate the sharing of Water Facilities and Water Rights, all as more particularly set forth in Exhibit C.

(B) **Pipe Rack Easement.** CRRM hereby grants to CRNF, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Fertilizer Parcel, a perpetual, non-exclusive easement and right of use to operate and otherwise utilize for Fertilizer Plant operations, in common with CRRM, all existing pipe rack installations of CRRM (as such pipe rack installations may be altered, relocated, expanded or replaced from time to time by CRRM, at its sole cost, so long as comparable uninterrupted pipe rack service is provided to CRNF) located on that portion of the Refinery Parcel legally described on Annex F to this Exhibit A and generally depicted on the Aerial (the “**Pipe Rack Easement Area**”).

(C) **Coke Conveyor Belt Easement; Coke Haul Road Easement.** CRRM hereby grants to CRNF, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Fertilizer Parcel, perpetual, non-exclusive easements and rights of use in: (i) the land legally described on Annex G to this Exhibit A and generally depicted on the Aerial (the “**Coke Conveyor Belt Easement Area**”), for the construction, operation, repair, maintenance and replacement of a conveyor belt system for the transportation of coke and coke related materials to and from the Fertilizer Plant; and (ii) the land legally described on Annex P to this Exhibit A and generally depicted on the Aerial (the “**Coke Haul Road Easement Area**”), for the transportation of coke and coke related materials to and from the Fertilizer Plant over the existing roadways located thereon.

(D) **TKI Pipelines Easement.** In addition to the Shared Pipeline Easement granted to CRNF in Section 2.2(B) above, CRRM hereby grants to CRNF, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Fertilizer Parcel, a perpetual, non-exclusive easement and right of use to operate and otherwise utilize the existing TKI-dedicated pipelines and related pipeline equipment (as such pipelines and pipeline equipment may in the future be altered, relocated, expanded or replaced by CRRM, at its sole cost, so long as comparable uninterrupted TKI pipeline service is provided to CRNF) which traverse the Refinery Parcel and leads into the TKI sulphur plant, which plant is generally depicted on the Aerial.

(E) Sunflower Street Pipeline Crossing Easements.

(1) CRNF hereby grants to CRRM, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Refinery Parcel, a perpetual, non-exclusive easement in and right of use to operate and otherwise utilize for Refinery operations, in common with CRNF, all existing pipeline crossing and pipe rack equipment (both above and below-ground equipment, as such pipeline crossing and pipe rack equipment may be altered, relocated, expanded or replaced from time to time by CRNF at its sole cost, so long as comparable uninterrupted pipeline crossing service is provided to CRRM) located on: (i) that portion of the Fertilizer Parcel legally described on Annex H to this Exhibit A and generally depicted on the Aerial (the “***Sunflower Street Pipeline Crossing Easement Area (Fertilizer Parcel)***”); and (ii) the portion of the public street right-of-way for Sunflower Street over which the subject pipeline crossings traverse but only to the extent CRNF has the legal right to grant such easement and right.

(2) Reciprocally, CRRM hereby grants to CRNF, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Fertilizer Parcel, a perpetual, non-exclusive easement and right of use to operate and otherwise utilize for Fertilizer Plant operations, in common with CRRM, all existing pipeline crossing and pipe rack equipment (both above and below-ground equipment, as such pipeline crossing and pipe rack equipment may be altered, relocated, expanded or replaced from time to time by CRRM at its sole cost, so long as comparable, uninterrupted pipeline crossing service is provided to CRNF) located on: (i) that portion of the Refinery Parcel legally described on Annex I to this Exhibit A and generally depicted on the Aerial (the “***Sunflower Street Pipeline Crossing Easement Area (Refinery Parcel)***”); and (ii) the portion, if any, of the public street right-of-way for Sunflower Street over which the subject pipeline crossings traverse but only to the extent CRRM has the legal right to grant such easement and right.

(F) East Tank Farm Easements. CRNF hereby grants to CRRM, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Refinery Parcel, the following two easements:

(i) a perpetual, non-exclusive access, ingress and egress easement and right of use to traverse the roadway located on that portion of the Fertilizer Parcel legally described on Annex J to this Exhibit A and generally depicted on the Aerial (the “***East Tank Farm Roadway Area (Fertilizer Parcel)***”), for such pedestrian and vehicular access, ingress and egress as may be reasonably required for access, ingress and egress to that portion of the Refinery Parcel legally described on Annex K to this Exhibit A and generally depicted on the Aerial (the “***East Tank Farm Area (Refinery Parcel)***”).

(ii) a perpetual, non-exclusive easement and right of use to maintain the existing underground pipelines and related equipment owned by CRRM and located underneath the East Tank Farm Roadway Area (Fertilizer Parcel) (as such pipelines and equipment may be altered, relocated, expanded or replaced from time to time by CRRM, at its sole cost and expense, but not so as to materially interfere with the use of the roadway on the East Tank Farm Roadway Area (Fertilizer Parcel)).

The foregoing easements are collectively referred to herein as the “***East Tank Farm Easements***”.

(G) Railroad Trackage Easements.

(1) In order to provide for the real property rights and interests necessary to effectuate the provisions of Exhibit E with regard to railroad track sharing, CRNF hereby grants to CRRM, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Refinery Parcel, a perpetual, non-exclusive easement in and right of use to access, operate (with the term, ‘operate’ being deemed to include the right to temporarily store railroad cars in accordance with commercially reasonable practices) and otherwise utilize for the receipt of feedstocks to, and delivery out of products, from the Refinery’s operations, in common with CRNF, all existing railroad tracks and trackage equipment (as such railroad tracks and trackage equipment may be altered, relocated, expanded or replaced from time to time by CRNF, at its sole cost and expense, so long as comparable uninterrupted railroad trackage service is provided to CRRM) on that portion of the Fertilizer Parcel legally described on Annex L to this Exhibit A and generally depicted on the Aerial (the “***Railroad Trackage Easement Area (Fertilizer Parcel)***”). The Parties acknowledge that the Main Trackage (as defined in Exhibit E) within the subject Easement Area and in the Easement Area set forth in Section 2(G)(2) of this Exhibit A is presently owned by Union Pacific Railroad Company and is operated by South Kansas & Oklahoma Railroad, Inc.

(2) Reciprocally, in order to provide for the real property rights and interests necessary to effectuate the provisions of Exhibit E with regard to railroad track sharing, CRRM hereby grants to CRNF, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Fertilizer Parcel, a perpetual, non-exclusive easement in and right of use to access, operate (which operations shall be deemed to include the right to temporarily store railroad cars in accordance with commercially reasonable operating practices) and otherwise utilize for the receipt of feedstocks to, and delivery out of products from the Fertilizer Plant’s operations, in common with CRRM, all existing railroad tracks and trackage equipment (as such railroad tracks and trackage equipment may be altered, relocated, expanded or replaced from time to time by CRRM, at its sole cost and expense, so long as comparable uninterrupted railroad trackage service is provided to CRNF) on that portion of the Refinery Parcel legally described on Annex M to this Exhibit A and generally depicted on the Aerial (the “***Railroad Trackage Easement Area (Refinery Parcel)***”); provided, however, and notwithstanding the foregoing provisions of this Section 2.3(G)(2), CRRM hereby grants CRNF an additional perpetual, non-exclusive easement and right to use 75% of the trackage constructed in 2006 within the Trackage Storage Area for railroad car storage in connection with Fertilizer Plant’s operations, and the Parties hereby agree to reasonably cooperate with each other so as to be able to access and move their respective railroad cars and equipment stored on the Trackage Storage Area.

(H) **Parking Easement.** CRRM hereby grants to CRNF, for use by its employees, agents, contractors, licensees and lessees, as an appurtenance to the Fertilizer Parcel, a perpetual, non-exclusive easement and right of use of the parking areas legally described on Annex Q to this Exhibit A and shown on the Aerial (the “***Refinery Shared Parking Area***”) for the parking of vehicles of CRNF and its employees, agents, employees, contractors, licensees and lessees, all in common with CRRM; provided, however, CRRM hereby agrees that no less than 50 parking spaces on the Refinery Shared Parking Areas shall be exclusively available to CRNF at all times.

(I) **Construction Buffer Zone Easements.** Currently, CRRM is using a designated portion of the buffer zone area owned by CRNF legally described on Annex R to this Exhibit A (the “***Construction Buffer Zone Easement Area***”) for construction staging in connection with the construction of certain improvements on the Refinery Parcel. It is agreed and understood that CRNF shall

have the right to at any time terminate such use by CRRM upon giving no less than 30 days prior written notice, and if such notice is so given, CRRM shall remove all of its equipment and other property within the Construction Buffer Zone Easement Area it is so using and shall restore such portion to the same condition as existed prior to CRRM's entry for staging purposes. Should either Party in the future grant to the other Party the right to stage construction on its respective buffer zone area, then unless otherwise expressly agreed between the Parties in writing to the contrary, such right shall likewise be terminable by the granting party upon 30 days prior notice and the removal and restoration covenants set forth above in this Section 2.3(I) shall apply.

(J) **Fiber Optic Cable Easements.** CRRM hereby grants to CRNF, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Fertilizer Parcel, a perpetual, non-exclusive easement and right of use to install, repair, maintain, replace and otherwise utilize for Fertilizer Plant operations, in common with CRRM, any existing fiber optic cables of CRRM, whether on the Fertilizer Parcel or within any structure located thereon, currently utilized by CRNF (as the same may be altered, relocated, expanded or replaced from time to time by CRRM, at its sole cost and expense, so long as comparable fiber optic cabling is provided to CRNF), and CRNF hereby grants to CRRM, for use by its agents, employees, contractors, licensees and lessees, as an appurtenance to the Refinery Parcel, a perpetual, non-exclusive easement and right of use to install, repair, maintain, replace and otherwise utilize for Refinery operations, in common with CRNF, any existing fiber optic cables of CRNF, whether on the Refinery Parcel or within any structure located thereon, currently utilized by CRRM (as the same may be altered, relocated, expanded or replaced from time to time by CRNF, at its sole cost and expense, so long as comparable fiber optic cabling is provided to CRRM).

(K) **Additional Easements.** In order for the Parties to provide any and all other real property easement interests and rights of use necessary to fully effectuate the purpose and intent of the Statements of Service and without limiting the foregoing grants of Easements and the Easements granted below in Article 3 for the Interconnect Points, each of the Parties hereby grants to the other Party, to the extent an easement therefor is not otherwise granted herein, non-exclusive easements over and across the granting Party's Parcel for such purposes as may be reasonably necessary to carry out the purposes and intents of the Statements of Service.

ARTICLE 3. INTERCONNECT POINTS AND EASEMENTS

3.1 **Interconnect Points; Definition.** There currently exist numerous pipelines, facilities and other production equipment which serve both the Fertilizer Plant and the Refinery or which provide for distribution of feedstocks between the Fertilizer Plant and Refinery and other uses and operations covered under the Statements of Service and which involve portions of both the Fertilizer Parcel and the Refinery Parcel. As used herein, the term "**Interconnect Points**" shall mean those designated points of demarcation of ownership and control for certain operations, equipment and facilities between the Fertilizer Plant and the Refinery located within the Shared Pipeline Easement Area, which points are depicted on the "**Interconnect Points Drawing**" shown on Annex E to this Exhibit A. CRNF is hereby deemed to own such of its operations, equipment and facilities which are located at points beginning at the common boundary of the Fertilizer Parcel and the Shared Pipeline Easement Area and which extend to and connect with the Interconnect Points located on the Refinery Parcel.

3.2 **Rights to Connect at Interconnect Points.** As generally provided for in the Shared Pipeline Easement granted in Section 2.2 of this Exhibit A, and in order to effectuate the provisions of the Service Agreements, particularly the provisions of the Feedstock and Shared Services Agreement, each of CRNF and CRRM is hereby granted a nonexclusive easement in and right of use to connect, at the Interconnect Points, to the operations, equipment and facilities of the other Party, with the attendant rights

to access, inspect, maintain, repair and replace such operations, equipment and facilities (collectively, the “**Connection Purposes**”) (such easement and rights herein called the “**Interconnect Points Easement**”). The Interconnect Points Easement shall be deemed to cover all Interconnect Points, some of which are located on Parcel boundary lines and some of which are located within the interiors of the Parcels.

Furthermore, the Interconnect Easement includes an easement and right for any and all existing incidental encroachments of facilities, equipment and other improvements onto the other Party’s Parcel and the right to access reasonably necessary portions of the other Party’s Parcel immediately adjacent to Interconnect Points for Connection Purposes, subject to the terms of the Temporary Construction/Maintenance Easement granted in Section 2.2(E) of this Exhibit A.

3.3 Future Interconnect Points. The Parties acknowledge that there may be a need for additional Interconnect Points in the future as may be mutually agreed upon between the Parties, and the Parties hereby agree that the provisions of Sections 3.1 and 3.2 shall apply with respect to such future Interconnect Points.

ARTICLE 4. EASEMENT PROVISIONS — GENERAL

4.1 Collective Definition — Easements. The foregoing easements granted in Articles 2 and 3 of this Exhibit A are collectively referred to herein as the “**Easements**”, and each as an “**Easement**”, within the various areas set forth herein in which the Easements are located, which are collectively referred to herein as the “**Easement Areas**”, and each as an “**Easement Area**”.

4.2 Duration of Easements.

(A) The duration of those Easements granted herein which are specified as being perpetual shall be perpetual (even though some of the Easements so specified as perpetual are also herein specifically stated as being for the purpose of carrying out one or more of the Statements of Service) unless terminated in accordance with Section 4.2(E).

(B) Those Easements herein specifically stated as being granted to carry out the purposes and intent of one or more referenced Statements of Service (and not specifically stated to be perpetual or as being of a specific limited duration) shall be in effect concurrently with the term of such Statements of Service and shall expire when the last of the Statements of Service to which such Easement pertains is no longer in effect pursuant to its terms unless terminated in accordance with Section 4.2(E).

(D) All other Easements herein granted which do not fall within the provisions of Sections 4.2(A) or (B) shall be perpetual.

(E) Upon the expiration of an Easement, neither Party shall have any further liability under such Easement except as shall have arisen or accrued prior to such termination. Furthermore, an individual Easement granted herein shall be deemed terminated if such Easement is abandoned by a Party pursuant to applicable law. In the event that an Easement so expires or is deemed terminated as provided in this Section 4.2, upon the request of either Party, the Parties agree to execute a memorandum giving notice of such expiration or termination and to record such memorandum in the county real estate records.

4.3 Reserved Rights; Modification of Easement Areas. Each Party, as grantor, hereto reserves for itself the right from time to time to remove, relocate, expand, substitute and use, at its sole cost and expense, any building, improvement, structure, equipment, road, pipeline, curb cut, utility or other facility currently or hereafter existing on its Parcel within an applicable Easement Area; provided, however, that in no event shall the exercise of any of foregoing rights by a Party deprive or materially

adversely affect or interfere with the use by the other Party hereto of the Easements herein granted to such other Party or the exercise of such other Party's rights thereunder.

4.4 **Service Agreements; Provision of Services.** The Parties intend that this Exhibit A and the Easements granted herein do not cover the specifics of the provision of the services (e.g., feedstock, coke, water, etc.) attendant to the purposes of the Easements. Instead, the Parties' agreements regarding the services themselves are detailed in the Statements of Service. Nothing in this Exhibit A shall be deemed to in any way modify, impair or otherwise limit the specific provisions or stated purposes of the Statements of Service.

4.5 **Maintenance — General.** With regard to those facilities, improvements and equipment of any kind, including pipelines, pipe racks and conduits, owned by a Party on its Parcel which are necessary to carry out the purposes of one or more Statements of Service or the Easements granted herein, CRNF and CRRM each agrees to maintain in good order and condition (with the term 'maintain', as used in this paragraph, hereby deemed inclusive of repairs and replacements, as necessary) at its sole cost and expense, those facilities, improvements and equipment located on its Parcel and owned by it. Each Party shall also maintain its facilities, equipment and other improvements up to the Interconnect Points therefor which are located from time to time on the other Party's Parcel. Notwithstanding the foregoing, neither Party has the obligation at any time to maintain facilities owned by the other Party, whether such facilities, equipment and other improvements are located on the other Party's Parcel or on a Party's own Parcel.

4.6 **Unavoidable Delay.** Neither Party shall be deemed to be in default in the performance of any obligation created under or pursuant to this Exhibit A, other than an obligation requiring the execution of documents or the payment of money, if and so long as non-performance of such obligation shall be directly caused by fire or other casualty, national emergency, governmental or municipal law or restrictions, enemy action, civil commotion, strikes, lockouts, inability to obtain labor or materials, war or national defense preemptions, acts of God, energy shortages, or similar causes beyond the reasonable control of such Party (each, an "**Unavoidable Delay**"), and the time limit for such performance shall be extended for a period equal to the period of such Unavoidable Delay; provided, however, that the Party unable to perform (the "**Non-Performing Party**") shall notify the other Party in writing, of the existence and nature of any Unavoidable Delay, within 10 days after such other Party has notified the Non-Performing Party pursuant to this Exhibit A of its failure to perform. Thereafter, the Non-Performing Party shall, from time to time upon written request of the other Party, keep the other Party fully informed, in writing, of all further developments concerning the Unavoidable Delay and its nonperformance.

4.7 **Right of Self-Help.** If a Non-Performing Party shall default in its performance of an obligation under this Exhibit A, the other Party, (the "**Performing Party**"), in addition to all other remedies such Performing Party may have at law or in equity, after 15 days' prior written notice to Non-Performing Party and to any Mortgage holder of whose interest Performing Party has actual knowledge (or in the event of an emergency, after giving such notice as is practical under the circumstances), may (but shall not be obligated to) perform Non-Performing Party's obligation, in which case Non-Performing Party shall promptly reimburse Performing Party upon demand for: (a) all reasonable expenses, including, but not limited to, attorneys' fees, incurred by Performing Party to so perform the cure and to prepare on the outstanding amount thereof; and (b) interest thereon from the date of expenditure thereof (until the date) at a rate equal to the lesser of: (i) 2% per annum over the then-current prime commercial rate of interest as published by the Wall Street Journal (or if no longer published, a comparable rate of a nationally recognized publication designated by Performing Party); or (ii) the highest rate permitted by applicable law to be paid by Non-Performing Party.

4.8 **Safety Measures.** Each Party in the exercise of any of the Easement rights and interests granted to it hereunder shall take all safety and precautionary measures necessary to protect the other Party hereto and its Parcel and the improvements thereon from any injury or damage caused by the exercise of such rights and interests.

4.9 **Compliance with Laws.** In all Work required of a Party or otherwise allowed under this Exhibit A, and in connection with all entries by one Party onto the other Party's Parcel permitted hereunder, each Party's Work, entries and related actions of any kind shall comply with all applicable requirements, administrative and judicial orders, laws, statutes, ordinances, rules and regulations of all federal, state, county, municipal and local departments, commissions, boards, bureaus, agencies and offices thereof having or claiming jurisdiction.

4.10 **Plant Security; Rules and Restrictions.** Each Party may, from time to time and with advance notice to and reasonable coordination with the other Party, impose reasonable rules and restrictions with regard to use of the various Easements within its Parcel which are herein granted to the other Party, specifically including, without limitation, reasonable security measures and restrictions which may be instituted from time to time by a Party within its Parcel; provided, however, that no rule or regulation imposed pursuant to this Section 4.10 shall materially interfere with a Party's ability as a grantee to effectively utilize an Easement granted in this Exhibit A.

4.11 **Temporary Closure of Easement Areas.** Each Party shall have the right from time to time and with advance notice to and reasonable coordination with the other Party (except in the event of an emergency, in which case advance notice need not be given) to temporarily close off and/or erect barriers across the Easement Areas located on its Parcel, as deemed reasonably necessary by the Party owning the servient Parcel under a given Easement, for the following purposes: (a) blocking off access to an area in order to avoid the possibility of dedicating the same for public use or creating prescriptive rights therein; and (b) attending to security issues which threaten the industrial operations within an Easement Area. During the period of any such temporary closure, the Party taking the closing action shall use commercially reasonable efforts to provide to the other Party such continuous alternate access and usage rights as are provided in the applicable Easement.

4.12 **Title Matters; Mortgage Subordination; and Subsequent Grants.**

(A) The Easements and rights granted hereunder are made subject to any and all prior existing easements, grants, leases, licenses, agreements, encumbrances, defects and other matters and states of fact affecting the Parcels, or any part thereof, as of the Effective Date whether or not of record and the rights of others with respect thereto. Each Party, as grantee under the each of various Easements, agrees to abide by the terms of all matters of public record and of which it otherwise has notice binding upon the other Party, as the owner of the servient Parcel pursuant to such Easement(s).

(B) The liens of any future mortgage or deed of trust (a "**Mortgage**") on the Parcels and the interest of any entity holding the position of lessor on what is commonly referred to as a "sale-leaseback", "synthetic lease", or "lease-leaseback" transaction are also hereby automatically subordinated to this Exhibit A.

(C) Amendments and other modifications to this Exhibit A shall be considered an extension of the rights granted herein and shall remain superior to any future mortgage, deed of trust or other encumbrance placed upon the property or appearing in title prior to such amendment or modification. Each of CRNF and CRRM, in its role as grantor, as applicable, agrees to promptly execute such instruments as may be required to confirm such priority.

(D) Each Party shall have the continuing right to grant easements and other rights and interests in and to, and permit uses of the Parcel owned by it in favor of and by such other parties as each Party may deem appropriate; provided, however, that any such easements, rights, interests and uses shall be subject to the terms of this Exhibit A and the terms of the Easements granted herein and shall not materially interfere with the grantee Party's rights and usage of the Easements granted herein.

4.13 **Easement Appurtenant to Land under Common Ownership.** The Easements granted in this Exhibit A are appurtenant to the dominant estate Parcels as indicated herein and are also appurtenant to any land that may hereafter come into common ownership with the dominant estate Parcel thereunder which is contiguous thereto. Any areas physically separated from such dominant estate Parcel but having access thereto by means of a public right-of-way or a private easement (including the Easements granted herein) is deemed to be contiguous to such Parcel.

4.14 **Cooperation.** Each of the Parties acknowledges and agrees that upon reasonable request of the other, at the cost and expense of the requesting Party, each Party shall promptly and duly execute and deliver such reasonable documents and take such further reasonable action to acknowledge, confirm and effect the intent of, and actions described in, this Exhibit A and the Easements herein.

4.15 **Restoration.** If by reason of fire or other casualty, the improvements, pipelines, equipment or other facilities on a Party's Parcel which serve or benefit the operations on the Parcel of the other Party as set forth in this Exhibit A or in any of the Statements of Service shall be damaged or destroyed and such Party shall not be obligated by this Exhibit A to repair or restore such damaged or destroyed improvements, pipeline, equipment or other facilities, then the other Party shall have the right to go on such Party's Parcel and repair and restore the same at such other Party's sole cost and expense, but the work undertaken in doing so shall be deemed "Work" and be subject to the provisions of Section 2.2(E)(2), (3), (4) and (5).

ARTICLE 5. FINANCING REQUIREMENTS

If, in connection with either Party obtaining financing for its respective Parcel, a banking, insurance or other recognized institutional lender shall request any modification(s) to this Exhibit A as a condition to such financing, the Parties covenant and agree to make such modifications to this Exhibit A as reasonably requested by such financing party (including the creation of such instrument (in recordable form to the extent required)) provided that such modification(s) do not increase the obligations or reduce the rights of the Parties or adversely (other than in a de minimis respect) affect the Easement interests, rights and privileges granted herein, the Parties' rights under the Statements of Service, or either Party's right to otherwise improve, construct, use, operate and maintain its respective Parcel and the improvements, equipment and facilities thereon.

ARTICLE 6. NO LIENS OR ENCUMBRANCES

Each of the Parties, in its role as a grantee, hereby covenants that it shall not, as a result of any act or omission of, directly or indirectly, create, incur, assume or suffer to exist any liens on or with respect to its respective Easement interests and rights of use in the Fertilizer Parcel or the Refinery Parcel, respectively, if such lien shall have or may gain superiority over this Exhibit A. Each Party shall promptly notify the other Party of the imposition of any such liens not permitted above of which it is aware and shall promptly, at its own expense, take such action as may be necessary to immediately fully discharge or release any such lien of record by payment, bond or otherwise (but this shall not preclude a contest of such lien so long as the same shall be removed of record).

ARTICLE 7. MISCELLANEOUS

7.1 **Running of Benefits and Burdens.** All provisions of this Exhibit A, including the benefits and burdens set forth herein with respect to the Fertilizer Parcel and the Refinery Parcel, respectively, shall run with the land.

7.2 **No Prescriptive Rights or Adverse Possession.** Each Party agrees that its past, present, or future use of its respective Easement interests and rights of usage granted herein shall not be deemed to permit the creation or further the existence of prescriptive easement rights or the procurement of title by adverse possession with respect to all or any portion of either Party's Parcel.

7.3 **Annexes.** Attached hereto and forming a part of this Exhibit A by this reference are the following Annexes:

ANNEX A — Legal Description of the Fertilizer Parcel

ANNEX B — Legal Description of the Refinery Parcel

ANNEX C — Aerial

ANNEX D — Legal Description of Shared Pipeline Easement Area

ANNEX E — Interconnect Points Drawing

ANNEX F — Legal Description of Area for Pipe Rack Easement Area

ANNEX G — Legal Description of Coke Conveyor Belt Easement Area

ANNEX H — Legal Description of Sunflower Street Pipeline Crossing Easement Area (Fertilizer Parcel)

ANNEX I — Legal Description of Sunflower Street Pipeline Crossing Easement Area (Refinery Parcel)

ANNEX J — Legal Description of East Tank Farm Roadway Area (Fertilizer Parcel)

ANNEX K — Legal Description of East Tank Farm Area (Refinery Parcel)

ANNEX L — Legal Description of Railroad Trackage Easement Area (Fertilizer Parcel)

ANNEX M — Legal Description of Railroad Trackage Easement Area (Refinery Parcel)

ANNEX N — Legal Description of CRNF Clarifier Tract

ANNEX O — Fertilizer Water Pipeline Easement Area

ANNEX P — Legal Description of Coke Haul Road

ANNEX Q — Legal Description of Refinery Shared Parking Area

ANNEX R — Legal Description of Construction Buffer Zone Easement Area

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ANNEX A

Legal Description of the Fertilizer Parcel

NEW NITROGEN UNIT (PARCELS 2, 3, 4, 7, 8, 8A & 9)

A PART OF COFFEYVILLE HEIGHTS ADDITION TO THE CITY OF COFFEYVILLE, PART OF MONTGOMERY'S ADDITION TO THE CITY OF COFFEYVILLE, PART OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY, AND PART OF THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 200.17 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09"W ALONG SAID NORTHERLY LINE A DISTANCE OF 1007.15 FEET TO THE TRUE POINT OF BEGINNING; THENCE S00°00'00"E A DISTANCE OF 304.05 FEET; THENCE S88°14'41"E A DISTANCE OF 158.79 FEET; THENCE S00°00'00"E A DISTANCE OF 6.77 FEET; THENCE N90°00'00"E A DISTANCE OF 25.00 FEET; THENCE N00°00'00"W A DISTANCE OF 6.00 FEET; THENCE S88°14'40"E A DISTANCE OF 245.71 FEET; THENCE S12°15'53"E A DISTANCE OF 11.77 FEET; THENCE S82°32'25"E A DISTANCE OF 43.08 FEET; THENCE S00°00'00"E A DISTANCE OF 33.41 FEET; THENCE S90°00'00"W A DISTANCE OF 14.72 FEET; THENCE S86°44'02"W A DISTANCE OF 368.60 FEET; THENCE S00°00'00"E A DISTANCE OF 25.00 FEET; THENCE N90°00'00"E A DISTANCE OF 20.00 FEET; THENCE S00°31'37"E A DISTANCE OF 197.51 FEET; THENCE N90°00'00"E A DISTANCE OF 165.00 FEET; THENCE S00°00'00"E A DISTANCE OF 24.03 FEET; THENCE N90°00'00"E A DISTANCE OF 249.97 FEET; THENCE N00°00'00"W A DISTANCE OF 18.64 FEET; THENCE N90°00'00"E A DISTANCE OF 51.39 FEET; THENCE S00°00'00"E A DISTANCE OF 15.00 FEET; THENCE N90°00'00"E A DISTANCE OF 56.01 FEET; THENCE S00°00'00"E A DISTANCE OF 169.40 FEET; THENCE N89°00'00"W A DISTANCE OF 636.08 FEET; THENCE S00°00'00"E A DISTANCE OF 377.30 FEET TO THE CENTERLINE OF MARTIN STREET; THENCE N89°14'03"W ALONG SAID CENTERLINE A DISTANCE OF 60.59 FEET; THENCE CONTINUING ALONG SAID CENTERLINE, N89°22'21"W A DISTANCE OF 608.53 FEET; THENCE CONTINUING ALONG SAID CENTERLINE, N89°29'08"W A DISTANCE OF 40.11 FEET TO THE CENTERLINE OF PINE STREET; THENCE S00°00'14"W ALONG THE CENTERLINE OF SAID PINE STREET A DISTANCE OF 35.18 FEET; THENCE N89° 33'26"W A DISTANCE OF 40.15 FEET TO THE NE CORNER OF BLOCK 6 OF SAID MONTGOMERY'S ADDITION; THENCE N89°13'09"W ALONG THE NORTH LINE OF SAID BLOCK 6 A DISTANCE OF 399.88 FEET TO THE NW CORNER OF SAID BLOCK 6; THENCE N89°05'43"W A DISTANCE OF 79.80 FEET TO THE NE CORNER OF BLOCK 5 OF SAID MONTGOMERY'S ADDITION; THENCE N00°08'24"E A DISTANCE OF 69.57 FEET TO THE SE CORNER OF BLOCK 10 OF SAID MONTGOMERY'S ADDITION; THENCE N00°00'00"W A DISTANCE OF 277.85 FEET TO THE SOUTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N15°00'43"W A DISTANCE OF 104.03 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N30°29'51"W A DISTANCE OF 20.00 FEET; THENCE N59°30'09"E A DISTANCE OF 465.00 FEET; THENCE S30°29'51"E A DISTANCE OF 20.00 FEET TO SAID NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N59° 30'09"E ALONG SAID NORTHERLY LINE A DISTANCE OF 32.23 FEET; THENCE S00°01'28"E A DISTANCE OF 276.43 FEET; THENCE N90°00'00"E A DISTANCE OF 365.00 FEET; THENCE N00°00'00"W A DISTANCE OF 491.48 FEET TO SAID NORTHERLY LINE OF THE FORMER

UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N59°30'09"E ALONG SAID NORTHERLY LINE A DISTANCE OF 536.40 FEET TO THE POINT OF BEGINNING.

AND

“LOADING DOCK”

A PART OF COFFEYVILLE HEIGHTS ADDITION TO THE CITY OF COFFEYVILLE AND A PART OF THE NE/4 OF SECTION 36, T34S, R16E, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NE CORNER OF THE NE/4 OF SAID SECTION 36; THENCE ON AN ASSUMED BEARING OF S00° 00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 316.23 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF THE UNION PACIFIC RAILROAD; THENCE S59°30'09"W ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE A DISTANCE OF 34.82 FEET TO THE WEST RIGHT-OF-WAY LINE OF SUNFLOWER STREET; THENCE S00°00'00"E ALONG SAID WEST RIGHT-OF-WAY LINE A DISTANCE OF 1148.43 FEET; THENCE CONTINUING ALONG SAID WEST RIGHT-OF-WAY LINE, S00°05'12"E A DISTANCE OF 60.63 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID WEST RIGHT-OF-WAY LINE, S00°05'12"E A DISTANCE OF 12.01 FEET TO THE NE CORNER OF BLOCK 12 OF SAID COFFEYVILLE HEIGHTS ADDITION; THENCE CONTINUING ALONG SAID WEST RIGHT-OF-WAY LINE AND THE EAST LINE OF SAID BLOCK 12, S00°00'48"W A DISTANCE OF 267.47 FEET; THENCE LEAVING SAID WEST RIGHT-OF-WAY LINE AND THE EAST LINE OF SAID BLOCK 12, N38°21'27"W A DISTANCE OF 131.96 FEET; THENCE N00°00'00"W A DISTANCE OF 176.00 FEET; THENCE N90°00'00"E A DISTANCE OF 81.94 FEET TO THE POINT OF BEGINNING.

AND

“CLARIFIER TRACT”

A PART OF THE SE/4 OF SECTION 25, T34S, R16E, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE SE CORNER OF SAID SE/4; THENCE ON AN ASSUMED BEARING OF N00°22'55"E ALONG THE EAST LINE OF SAID SE/4 A DISTANCE OF 1285.62 FEET; THENCE S90°00'00"W A DISTANCE OF 1774.69 FEET TO THE TRUE POINT OF BEGINNING; THENCE N76°25'09"W A DISTANCE OF 25.41 FEET TO THE EASTERLY RIGHT-OF-WAY LINE OF THE A.T.&S.F. RAILROAD; THENCE N13°34'51"E ALONG SAID EASTERLY RIGHT-OF-WAY LINE A DISTANCE OF 298.51 FEET; THENCE LEAVING SAID EASTERLY RIGHT-OF-WAY LINE, S67° 00'00"E A DISTANCE OF 101.78 FEET; THENCE S18°00'36"W A DISTANCE OF 62.14 FEET; THENCE S11° 06'08"E A DISTANCE OF 70.97 FEET; THENCE SOUTHWESTERLY ON A NON-TANGENT CURVE TO THE LEFT HAVING A RADIUS OF 450.00 FEET AND A CENTRAL ANGLE OF 23°41'14" A DISTANCE OF 186.04 FEET TO THE POINT OF BEGINNING.

AND

NEW FERTILIZER STORAGE AREA (PARCELS 6 & 10)

A PART OF THE NW/4 OF SECTION 31, T34S, R17E, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NW CORNER OF SAID NW/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE WEST LINE OF SAID NW/4 A DISTANCE OF 1013.07 FEET TO THE SW CORNER OF THE NORTH 75 ACRES OF LOTS 2 AND

3 OF SAID SECTION 31; THENCE S86°24'15"E ALONG THE SOUTH LINE OF SAID NORTH 75 ACRES OF LOTS 2 AND 3 A DISTANCE OF 30.06 FEET TO THE EAST RIGHT-OF-WAY LINE OF SUNFLOWER STREET AND THE TRUE POINT OF BEGINNING; THENCE CONTINUING ALONG THE SOUTH LINE OF SAID NORTH 75 ACRES OF LOTS 2 AND 3, S86°24'15"E A DISTANCE OF 3049.00 FEET MORE OR LESS TO THE CENTERLINE OF THE VERDIGRIS RIVER; THENCE ALONG THE APPROXIMATE CENTERLINE OF SAID VERDIGRIS RIVER THE FOLLOWING COURSES: S15°13'05"W A DISTANCE OF 90.34 FEET; THENCE S03°03'48"W A DISTANCE OF 488.35 FEET; THENCE LEAVING SAID CENTERLINE OF THE VERDIGRIS RIVER S89°44'00"W A DISTANCE OF 2993.22 FEET MORE OR LESS TO THE EAST RIGHT-OF-WAY LINE OF SUNFLOWER STREET; THENCE N00°00'00"W A DISTANCE OF 779.98 FEET TO THE POINT OF BEGINNING.

ANNEX B**Legal Description of the Refinery Parcel****TRACT EAST OF SUNFLOWER STREET**

ALL OF LOTS 2, 3, 4 AND 5, SECTION 31, T34S, R17E, MONTGOMERY COUNTY, KANSAS, LYING WEST OF THE CENTERLINE OF THE VERDIGRIS RIVER, EXCEPT THE FOLLOWING DESCRIBED TRACTS: THE NORTH 75 ACRES OF SAID LOTS 2 AND 3; AND EXCEPT A TRACT COMMENCING AT THE SOUTHWEST CORNER OF LOT 4, THENCE NORTH 400 FEET, THENCE EAST 425 FEET, THENCE SOUTH APPROXIMATELY 420 FEET (426.46' MEASURED) TO THE SOUTH BOUNDARY OF SAID LOT 4, THENCE WEST (425.82' MEASURED) TO THE PLACE OF BEGINNING; AND EXCEPT A TRACT DESCRIBED AS FOLLOWS IN A GENERAL WARRANTY DEED DATED JULY 1, 1976, FROM GEORGE W. MULLER AND FERRIS M. MULLER, HUSBAND AND WIFE, TO CRA, INC., RECORDED IN BOOK 353 OF DEEDS, PAGE 19: COMMENCING AT A POINT 538 FEET SOUTH OF THE NORTHWEST CORNER OF LOT 4, SECTION 31, TOWNSHIP 34 SOUTH, RANGE 17 EAST IN THE PRESENT WEST FENCE LINE OF SAID LOT 4, THENCE SOUTH 75 FEET ALONG SAID FENCE, THENCE EAST 20 FEET, THENCE NORTH 75 FEET, THENCE WEST 20 FEET TO THE POINT OF BEGINNING; AND EXCEPT A TRACT DESCRIBED AS FOLLOWS IN SAID LAST-MENTIONED GENERAL WARRANTY DEED: COMMENCING IN CENTER OF VERDIGRIS RIVER 21 RODS NORTH OF SOUTH LINE OF SAID LOT 5, THENCE WEST AND SOUTHWESTERLY ALONG LEFT BANK OF RAVINE 33 FEET FROM CENTER OF RAVINE TO SOUTH LINE OF LOT 5, THENCE EAST ALONG SOUTH LINE OF LOT 5 TO CENTER OF VERDIGRIS RIVER, UP RIVER TO BEGINNING.

AND EXCEPT:

“FERTILIZER STORAGE”

A PART OF THE NW/4 OF SECTION 31, T34S, R17E, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NW CORNER OF SAID NW/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE WEST LINE OF SAID NW/4 A DISTANCE OF 1013.07 FEET TO THE SW CORNER OF THE NORTH 75 ACRES OF LOTS 2 AND 3 OF SAID SECTION 31; THENCE S86°24'15"E ALONG THE SOUTH LINE OF SAID NORTH 75 ACRES OF LOTS 2 AND 3 A DISTANCE OF 30.06 FEET TO THE EAST RIGHT-OF-WAY LINE OF SUNFLOWER STREET AND THE TRUE POINT OF BEGINNING; THENCE CONTINUING ALONG THE SOUTH LINE OF SAID NORTH 75 ACRES OF LOTS 2 AND 3, S86°24'15"E A DISTANCE OF 3049.00 FEET MORE OR LESS TO THE CENTERLINE OF THE VERDIGRIS RIVER; THENCE ALONG THE APPROXIMATE CENTERLINE OF SAID VERDIGRIS RIVER THE FOLLOWING COURSES: S15°13'05"W A DISTANCE OF 90.34 FEET; THENCE S03°03'48"W A DISTANCE OF 488.35 FEET; THENCE LEAVING SAID CENTERLINE OF THE VERDIGRIS RIVER S89°44'00"W A DISTANCE OF 2993.22 FEET MORE OR LESS TO THE EAST RIGHT-OF-WAY LINE OF SUNFLOWER STREET; THENCE N00°00'00"W A DISTANCE OF 779.98 FEET TO THE POINT OF BEGINNING.

TRACT NORTH OF FORMER UNION PACIFIC RAILROAD

ALL THAT PART OF THE SE/4 OF SECTION 25, TOWNSHIP 34, RANGE 16 EAST OF THE 6TH P.M., LYING WEST OF THE WESTERLY RIGHT-OF-WAY LINE AND NORTH OF THE NORTHERLY RIGHT-OF-WAY LINE OF THE ATCHISON, TOPEKA AND SANTA FE

RAILROAD, EXCEPT 3 ACRES IN THE NORTHWEST CORNER AS EXCEPTED FROM A GENERAL WARRANTY DEED DATED AUGUST 23, 1951, FROM R.L. EDWARDS AND MILDRED EDWARDS, HUSBAND AND WIFE, TO THE COOPERATIVE REFINERY ASSOCIATION, RECORDED IN BOOK 245 OF DEEDS, PAGE 586, IN THE REGISTER OF DEEDS OFFICE OF MONTGOMERY COUNTY, KANSAS.

AND

ALL THAT PART OF THE E/2 OF SECTION 25 AND ALL THAT PART OF THE NE/4 OF SECTION 36 LYING EAST OF THE EASTERLY RIGHT-OF-WAY LINE OF THE ATCHISON, TOPEKA AND SANTE FE RAILROAD AND NORTH OF THE NORTHERLY RIGHT-OF-WAY LINE OF THE FORMER MISSOURI-KANSAS-TEXAS RAILROAD (NOW UNION PACIFIC RAILROAD), ALL IN TOWNSHIP 34, RANGE 16, MONTGOMERY COUNTY, KANSAS.

AND EXCEPT:

A PART OF THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 563.00 FEET; THENCE N90°00'00"W A DISTANCE OF 1992.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE N84°14'00"W A DISTANCE OF 100.00 FEET; THENCE N05°46'00"E A DISTANCE OF 50.00 FEET; THENCE S84°14'00"E A DISTANCE OF 100.00 FEET; THENCE S05°46'00"W A DISTANCE OF 50.00 FEET TO THE POINT OF BEGINNING.

AND EXCEPT THAT PART DESCRIBED AS FOLLOWS:

“CLARIFIER TRACT”

A PART OF THE SE/4 OF SECTION 25, T34S, R16E, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE SE CORNER OF SAID SE/4; THENCE ON AN ASSUMED BEARING OF N00°22'55"E ALONG THE EAST LINE OF SAID SE/4 A DISTANCE OF 1285.62 FEET; THENCE S90°00'00"W A DISTANCE OF 1774.69 FEET TO THE TRUE POINT OF BEGINNING; THENCE N76°25'09"W A DISTANCE OF 25.41 FEET TO THE EASTERLY RIGHT-OF-WAY LINE OF THE A.T.&S.F. RAILROAD; THENCE N13°34'51"E ALONG SAID EASTERLY RIGHT-OF-WAY LINE A DISTANCE OF 298.51 FEET; THENCE LEAVING SAID EASTERLY RIGHT-OF-WAY LINE, S67°00'00"E A DISTANCE OF 101.78 FEET; THENCE S18° 00'36"W A DISTANCE OF 62.14 FEET; THENCE S11°06'08"E A DISTANCE OF 70.97 FEET; THENCE SOUTHWESTERLY ON A NON-TANGENT CURVE TO THE LEFT HAVING A RADIUS OF 450.00 FEET AND A CENTRAL ANGLE OF 23°41'14" A DISTANCE OF 186.04 FEET TO THE POINT OF BEGINNING.

TRACT SOUTH OF FORMER UNION PACIFIC RAILROAD AND NORTH OF MARTIN STREET

A PART OF COFFEYVILLE HEIGHTS ADDITION TO THE CITY OF COFFEYVILLE, PART OF MONTGOMERY'S ADDITION TO THE CITY OF COFFEYVILLE, AND PART OF THE NE/4 OF SECTION 36, T34S, R16E, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NE CORNER OF THE NE/4 OF SAID SECTION 36; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 316.23 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF THE UNION PACIFIC RAILROAD;

THENCE S59°30'09"W ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE A DISTANCE OF 34.82 FEET TO THE WEST RIGHT-OF-WAY LINE OF SUNFLOWER STREET AND THE TRUE POINT OF BEGINNING; THENCE ALONG SAID WEST RIGHT-OF-WAY LINE OF SUNFLOWER STREET THE FOLLOWING BEARINGS AND DISTANCES: THENCE S00°00'00"E A DISTANCE OF 1148.43 FEET; THENCE S00°05'12"E A DISTANCE OF 72.64 FEET; THENCE S00°00'48"E A DISTANCE OF 300.00 FEET TO THE NORTH RIGHT-OF-WAY LINE OF MARTIN STREET; THENCE N89°11'00"W ALONG SAID NORTH RIGHT-OF-WAY LINE A DISTANCE OF 439.35 FEET TO THE WEST RIGHT-OF-WAY LINE OF ASH STREET; THENCE S02° 06'58"E ALONG SAID WEST RIGHT-OF-WAY LINE A DISTANCE OF 35.21 FEET TO THE CENTER OF MARTIN STREET; THENCE ALONG THE CENTER OF SAID MARTIN STREET THE FOLLOWING BEARINGS AND DISTANCES: THENCE N89°13'34"W A DISTANCE OF 399.88 FEET; THENCE N89°14'03"W A DISTANCE OF 60.59 FEET; THENCE N89°22'21"W A DISTANCE OF 608.53 FEET; THENCE N89°29'08"W A DISTANCE OF 40.11 FEET TO THE CENTERLINE OF PINE STREET; THENCE S00°00'14"W ALONG THE CENTERLINE OF SAID PINE STREET A DISTANCE OF 35.18 FEET; THENCE N89°33'26"W A DISTANCE OF 40.15 FEET TO THE NE CORNER OF BLOCK 6 OF SAID MONTGOMERY'S ADDITION; THENCE N89°13'09"W ALONG THE NORTH LINE OF SAID BLOCK 6 A DISTANCE OF 399.88 FEET TO THE NW CORNER OF SAID BLOCK 6; THENCE N89°05'43"W A DISTANCE OF 79.80 FEET TO THE NE CORNER OF BLOCK 5 OF SAID MONTGOMERY'S ADDITION; THENCE N00°08'24"E A DISTANCE OF 34.78 FEET TO THE CENTERLINE OF SAID MARTIN STREET; THENCE N89°13'15"W ALONG SAID CENTERLINE A DISTANCE OF 200.14 FEET TO THE SOUTHERLY EXTENSION OF THE EAST LINE OF LOT 2, BLOCK 10, OF SAID MONTGOMERY'S ADDITION; THENCE LEAVING THE CENTERLINE OF SAID MARTIN STREET, N00°22'34"E ALONG THE EXTENSION OF AND THE EAST LINE OF SAID LOT 2 A DISTANCE OF 163.74 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF SAID UNION PACIFIC RAILROAD; THENCE NORTHEASTERLY ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE ON A CURVE TO THE RIGHT HAVING A RADIUS OF 1500.00 FEET AND A CENTRAL ANGLE OF 10°30'27", A DISTANCE OF 275.09 FEET TO THE POINT OF TANGENCY OF SAID CURVE; THENCE CONTINUING ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, N59°30'09"E A DISTANCE OF 2370.80 FEET TO THE POINT OF BEGINNING.

AND

ALL THAT PART OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY LYING WEST OF THE WEST RIGHT-OF-WAY LINE OF SUNFLOWER STREET AND LYING EAST OF THE EASTERLY RIGHT-OF-WAY LINE OF THE A.T.&S.F. RAILROAD IN THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST OF THE 6TH P.M., MONTGOMERY COUNTY, KANSAS, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 200.17 FEET TO THE NORTHERLY RIGHT-OF-WAY LINE OF THE FORMER UNION PACIFIC RAILROAD; THENCE S59°30'09"W ALONG SAID NORTHERLY RIGHT-OF-WAY LINE A DISTANCE OF 34.82 FEET TO THE WEST RIGHT-OF-WAY LINE OF SUNFLOWER STREET AND THE TRUE POINT OF BEGINNING; THENCE CONTINUING S59° 30'09"W ALONG SAID NORTHERLY RIGHT-OF-WAY LINE A DISTANCE OF 2429.70 FEET; THENCE SOUTHWESTERLY ON A CURVE TO THE LEFT HAVING A RADIUS OF 1600.00 FEET, A CHORD WHICH BEARS S49°43'27"W, A CHORD DISTANCE OF 543.47 FEET AND AN ARC LENGTH OF 546.12 FEET TO THE EASTERLY RIGHT-OF-WAY LINE OF THE A.T.&S.F. RAILROAD; THENCE S13°34'51"W ALONG SAID EASTERLY RIGHT-OF-WAY LINE A

DISTANCE OF 269.10 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF THE FORMER UNION PACIFIC RAILROAD; THENCE ON A NON-TANGENT CURVE TO THE RIGHT HAVING A RADIUS OF 1500.00 FEET, A CHORD WHICH BEARS N45°05'58"E, A CHORD DISTANCE OF 746.22 FEET AND AN ARC LENGTH OF 754.14 FEET; THENCE CONTINUING ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE N59°30'09"E A DISTANCE OF 2370.80 FEET TO THE WEST RIGHT-OF-WAY LINE OF SUNFLOWER STREET; THENCE N00°00'00"E ALONG SAID WEST RIGHT-OF-WAY LINE A DISTANCE OF 116.06 FEET TO THE POINT OF BEGINNING.

LESS AND EXCEPT THE FOLLOWING TRACTS OF LAND:

“LOADING DOCK”

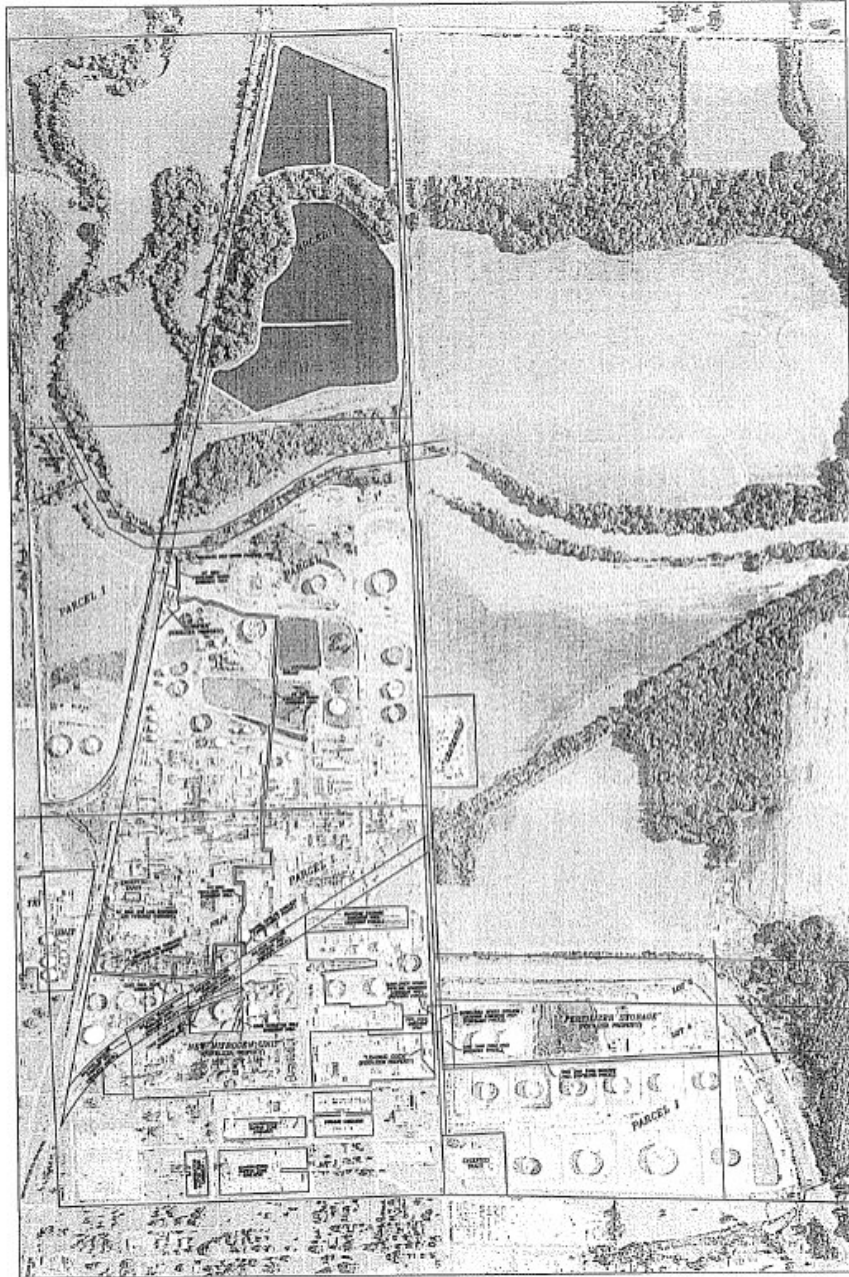
A PART OF COFFEYVILLE HEIGHTS ADDITION TO THE CITY OF COFFEYVILLE AND A PART OF THE NE/4 OF SECTION 36, T34S, R16E, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NE CORNER OF THE NE/4 OF SAID SECTION 36; THENCE ON AN ASSUMED BEARING OF S00° 00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 316.23 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF THE UNION PACIFIC RAILROAD; THENCE S59°30'09"W ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE A DISTANCE OF 34.82 FEET TO THE WEST RIGHT-OF-WAY LINE OF SUNFLOWER STREET; THENCE S00°00'00"E ALONG SAID WEST RIGHT-OF-WAY LINE A DISTANCE OF 1148.43 FEET; THENCE CONTINUING ALONG SAID WEST RIGHT-OF-WAY LINE, S00°05'12"E A DISTANCE OF 60.63 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID WEST RIGHT-OF-WAY LINE, S00°05'12"E A DISTANCE OF 12.01 FEET TO THE NE CORNER OF BLOCK 12 OF SAID COFFEYVILLE HEIGHTS ADDITION; THENCE CONTINUING ALONG SAID WEST RIGHT-OF-WAY LINE AND THE EAST LINE OF SAID BLOCK 12, S00°00'48"W A DISTANCE OF 267.47 FEET; THENCE LEAVING SAID WEST RIGHT-OF-WAY LINE AND THE EAST LINE OF SAID BLOCK 12, N38°21'27"W A DISTANCE OF 131.96 FEET; THENCE N00°00'00"W A DISTANCE OF 176.00 FEET; THENCE N90°00'00"E A DISTANCE OF 81.94 FEET TO THE POINT OF BEGINNING.

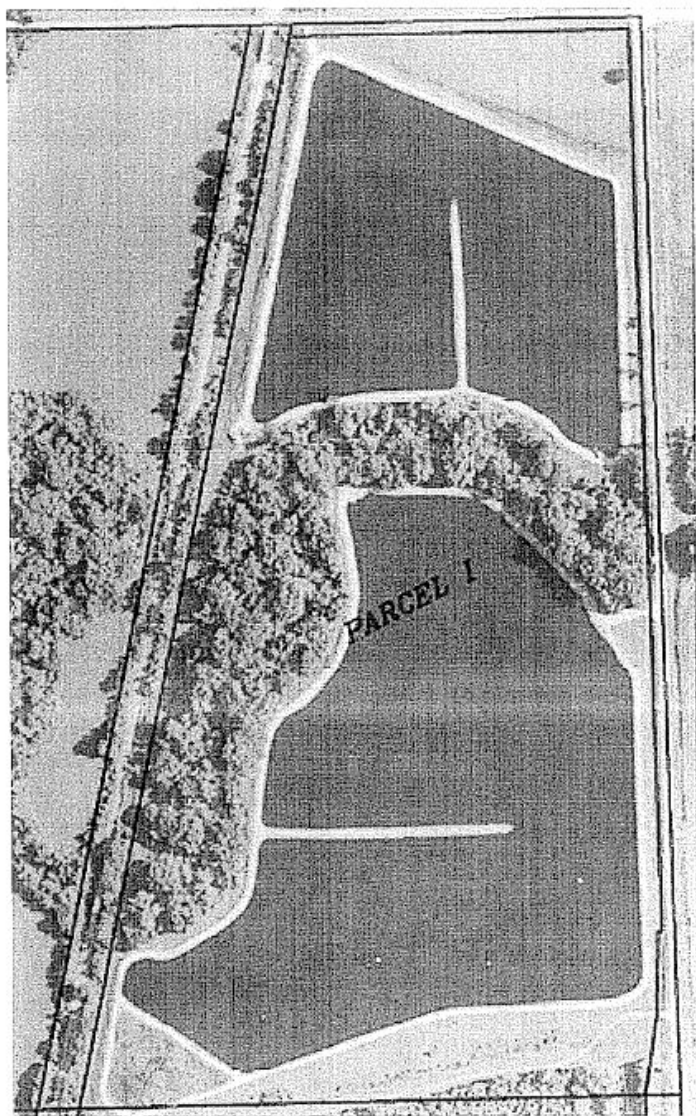
“NEW NITROGEN UNIT”

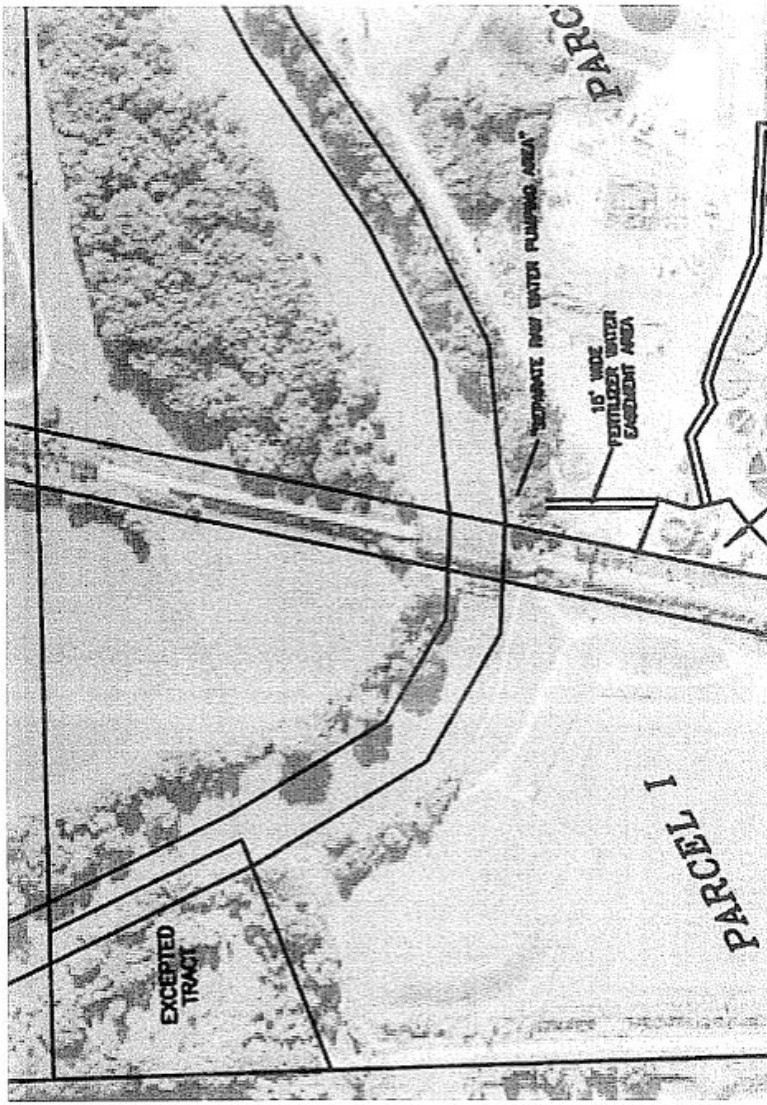
A PART OF COFFEYVILLE HEIGHTS ADDITION TO THE CITY OF COFFEYVILLE, PART OF MONTGOMERY'S ADDITION TO THE CITY OF COFFEYVILLE, PART OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY, AND PART OF THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 200.17 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09"W ALONG SAID NORTHERLY LINE A DISTANCE OF 1007.15 FEET TO THE TRUE POINT OF BEGINNING; THENCE S00°00'00"E A DISTANCE OF 304.05 FEET; THENCE S88°14'41"E A DISTANCE OF 158.79 FEET; THENCE S00°00'00"E A DISTANCE OF 6.77 FEET; THENCE N90°00'00"E A DISTANCE OF 25.00 FEET; THENCE N00°00'00"W A DISTANCE OF 6.00 FEET; THENCE S88°14'40"E A DISTANCE OF 245.71 FEET; THENCE S12°15'53"E A DISTANCE OF 11.77 FEET; THENCE S82°32'25"E A DISTANCE OF 43.08 FEET; THENCE S00°00'00"E A DISTANCE OF 33.41 FEET; THENCE S90°00'00"W A DISTANCE OF 14.72 FEET; THENCE S86°44'02"W A DISTANCE OF 368.60 FEET; THENCE S00°00'00"E A DISTANCE OF 25.00 FEET; THENCE N90°00'00"E A DISTANCE OF 20.00 FEET; THENCE S00°31'37"E A DISTANCE OF 197.51 FEET; THENCE N90°00'00"E A DISTANCE OF 165.00 FEET; THENCE S00°00'00"E A DISTANCE OF 24.03 FEET; THENCE N90°00'00"E A

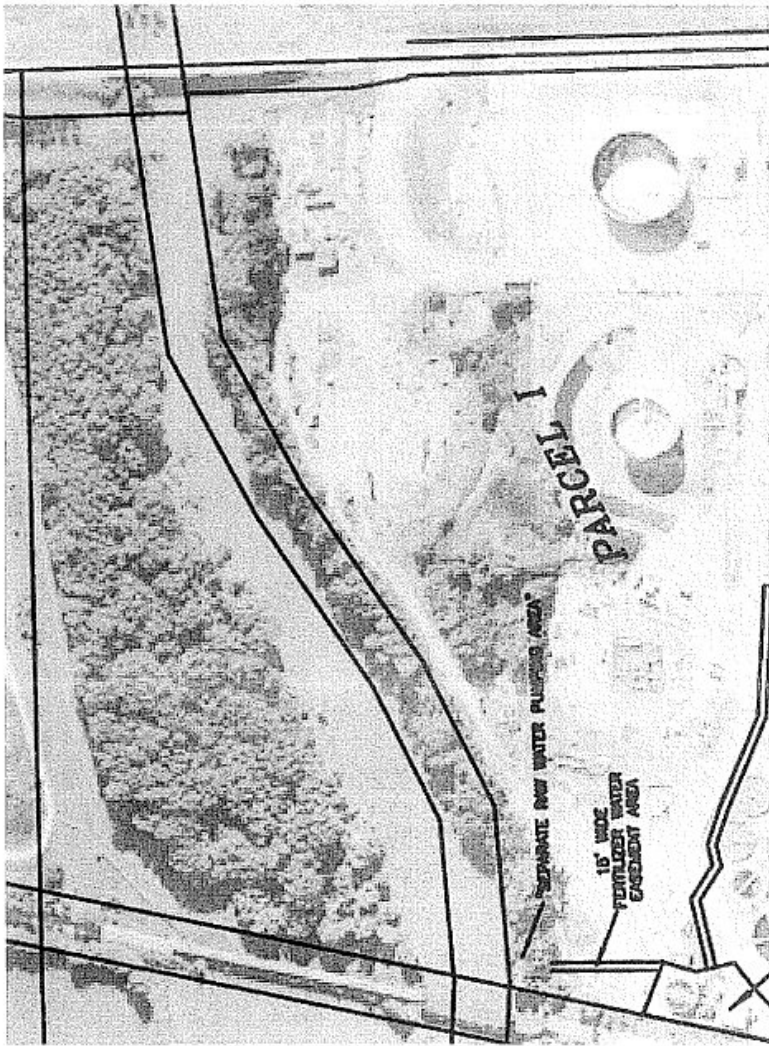
DISTANCE OF 249.97 FEET; THENCE N00°00'00"W A DISTANCE OF 18.64 FEET; THENCE N90°00'00"E A DISTANCE OF 51.39 FEET; THENCE S00°00'00"E A DISTANCE OF 15.00 FEET; THENCE N90°00'00"E A DISTANCE OF 56.01 FEET; THENCE S00°00'00"E A DISTANCE OF 169.40 FEET; THENCE N89°00'00"W A DISTANCE OF 636.08 FEET; THENCE S00°00'00"E A DISTANCE OF 377.30 FEET TO THE CENTERLINE OF MARTIN STREET; THENCE N89°14'03"W ALONG SAID CENTERLINE A DISTANCE OF 60.59 FEET; THENCE CONTINUING ALONG SAID CENTERLINE, N89°22'21"W A DISTANCE OF 608.53 FEET; THENCE CONTINUING ALONG SAID CENTERLINE, N89°29'08"W A DISTANCE OF 40.11 FEET TO THE CENTERLINE OF PINE STREET; THENCE S00°00'14"W ALONG THE CENTERLINE OF SAID PINE STREET A DISTANCE OF 35.18 FEET; THENCE N89°33'26"W A DISTANCE OF 40.15 FEET TO THE NE CORNER OF BLOCK 6 OF SAID MONTGOMERY'S ADDITION; THENCE N89°13'09"W ALONG THE NORTH LINE OF SAID BLOCK 6 A DISTANCE OF 399.88 FEET TO THE NW CORNER OF SAID BLOCK 6; THENCE N89°05'43"W A DISTANCE OF 79.80 FEET TO THE NE CORNER OF BLOCK 5 OF SAID MONTGOMERY'S ADDITION; THENCE N00°08'24"E A DISTANCE OF 69.57 FEET TO THE SE CORNER OF BLOCK 10 OF SAID MONTGOMERY'S ADDITION; THENCE N00°00'00"W A DISTANCE OF 277.85 FEET TO THE SOUTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N15°00'43"W A DISTANCE OF 104.03 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N30°29'51"W A DISTANCE OF 20.00 FEET; THENCE N59°30'09"E A DISTANCE OF 465.00 FEET; THENCE S30°29'51"E A DISTANCE OF 20.00 FEET TO SAID NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N59°30'09"E ALONG SAID NORTHERLY LINE A DISTANCE OF 32.23 FEET; THENCE S00°01'28"E A DISTANCE OF 276.43 FEET; THENCE N90°00'00"E A DISTANCE OF 365.00 FEET; THENCE N00°00'00"W A DISTANCE OF 491.48 FEET TO SAID NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N59°30'09"E ALONG SAID NORTHERLY LINE A DISTANCE OF 536.40 FEET TO THE POINT OF BEGINNING.

ANNEX C

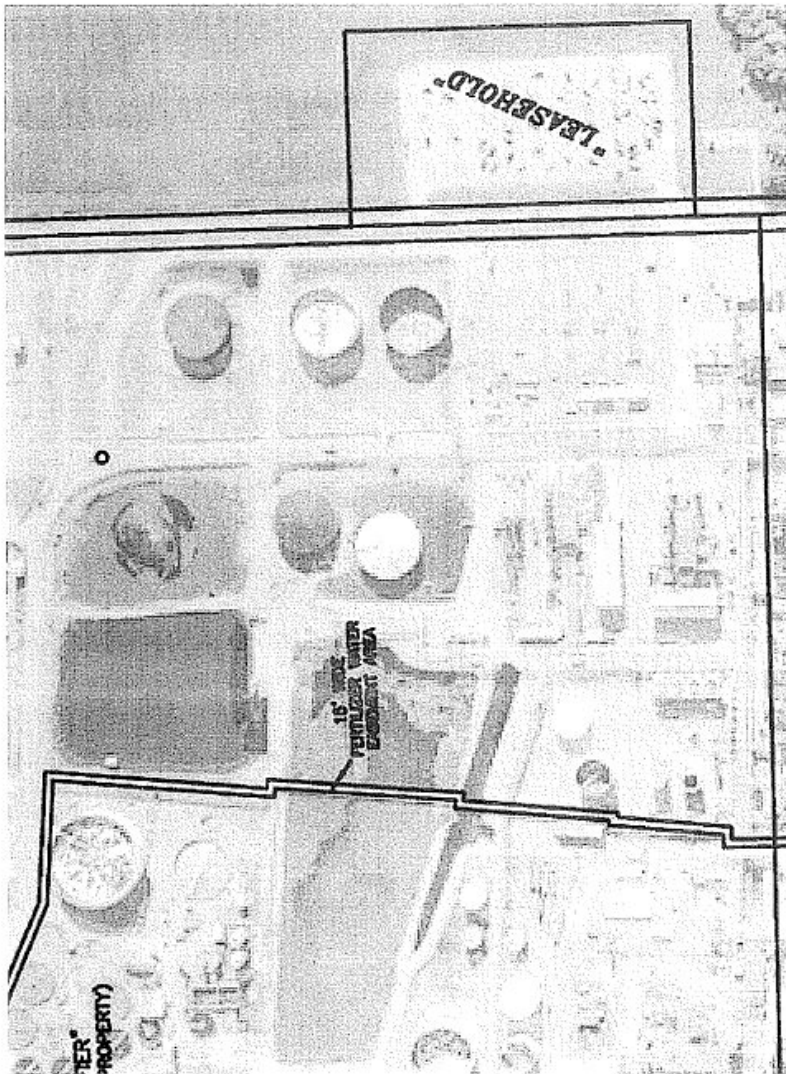
Aerial

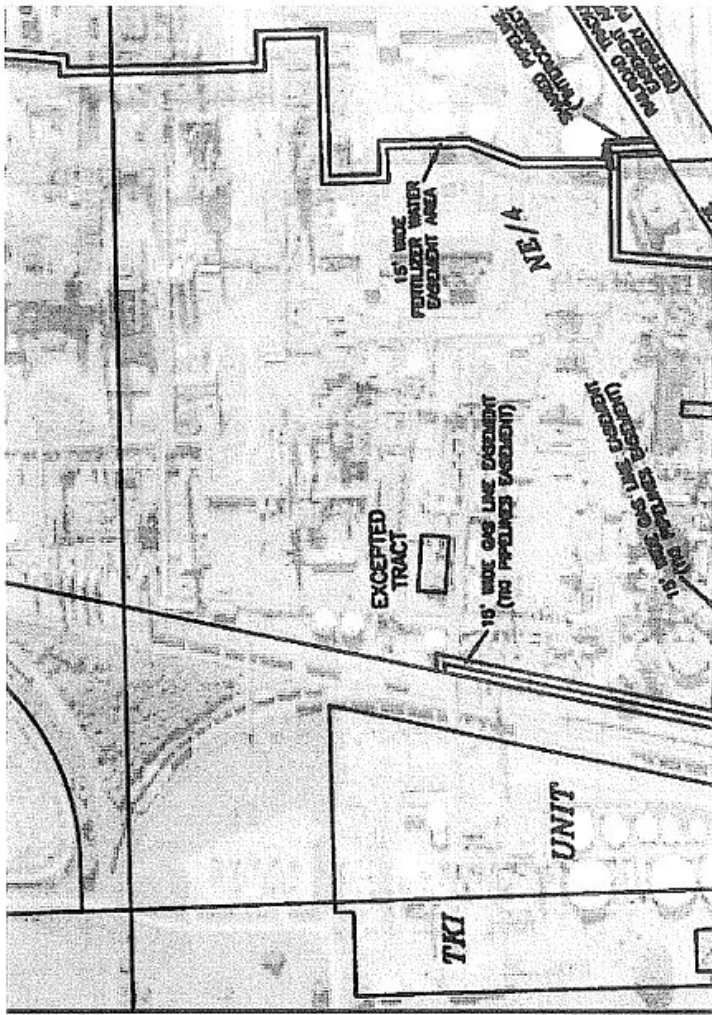


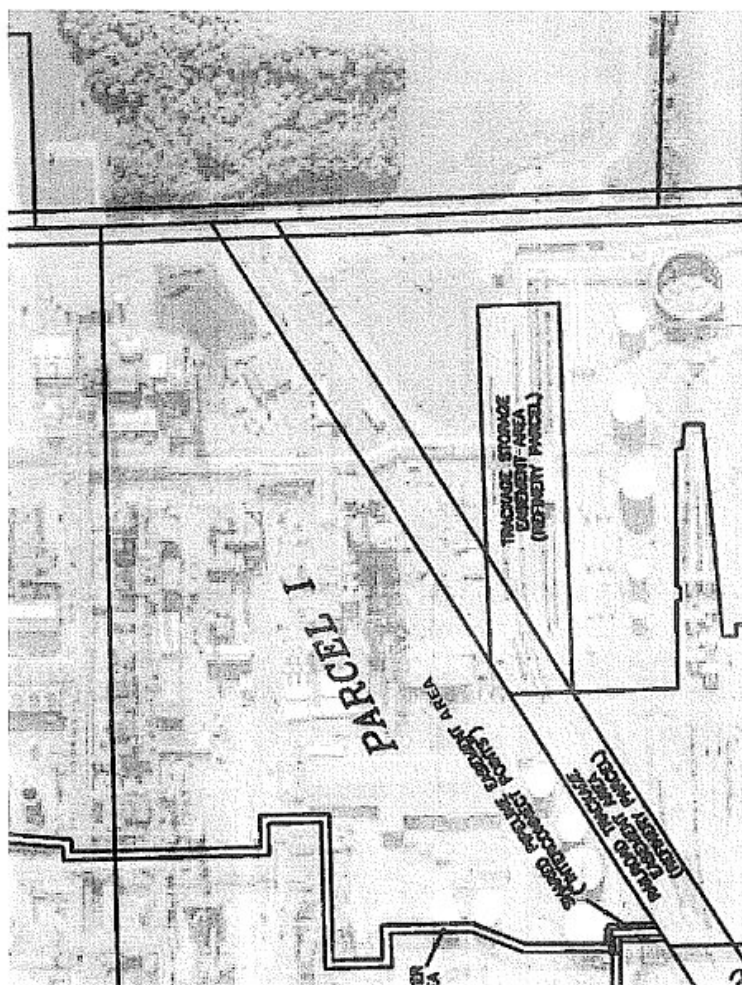


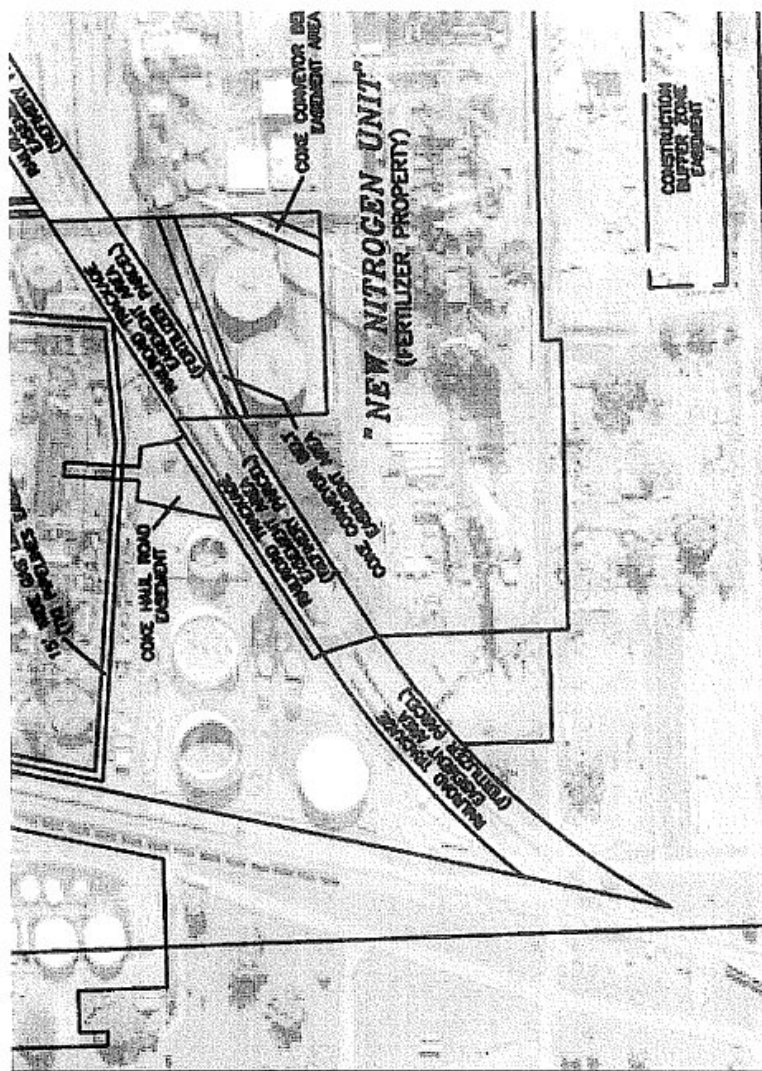


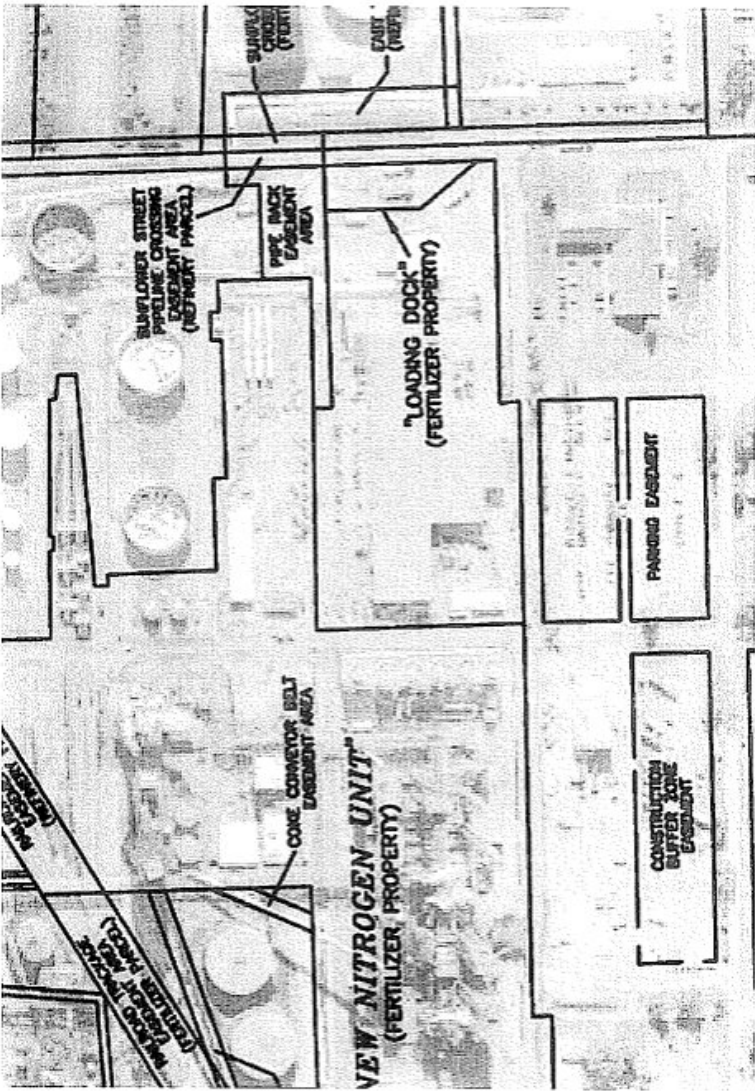


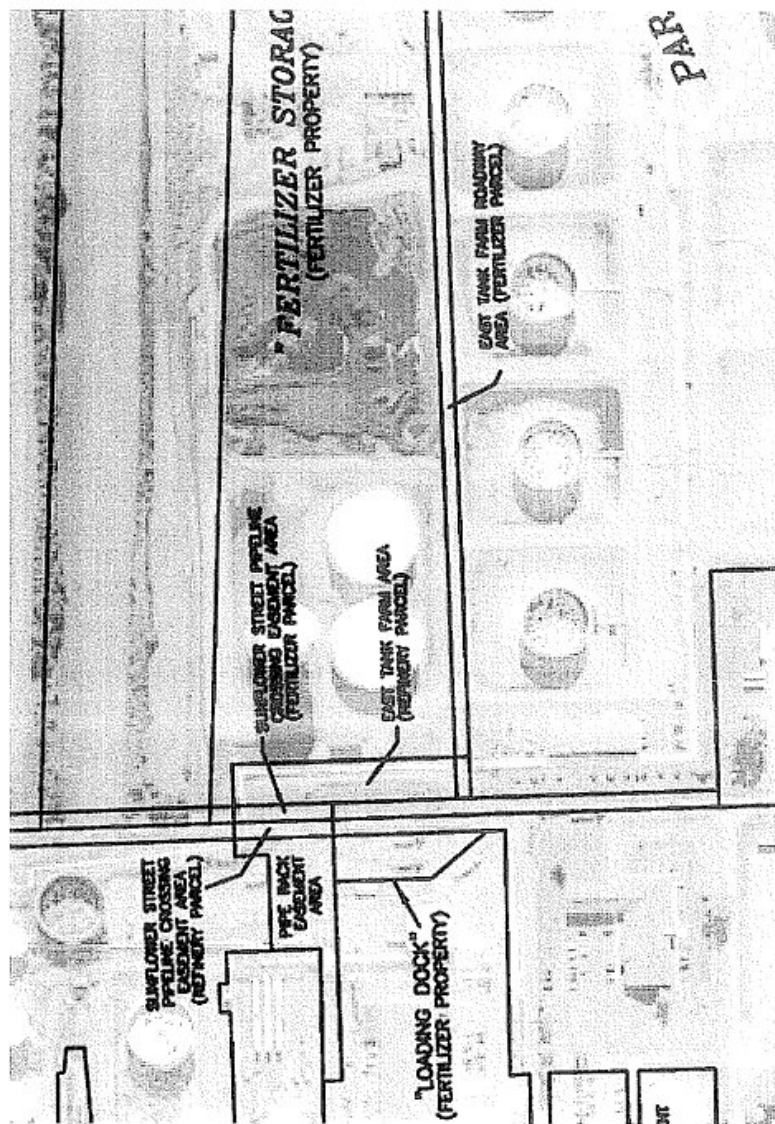


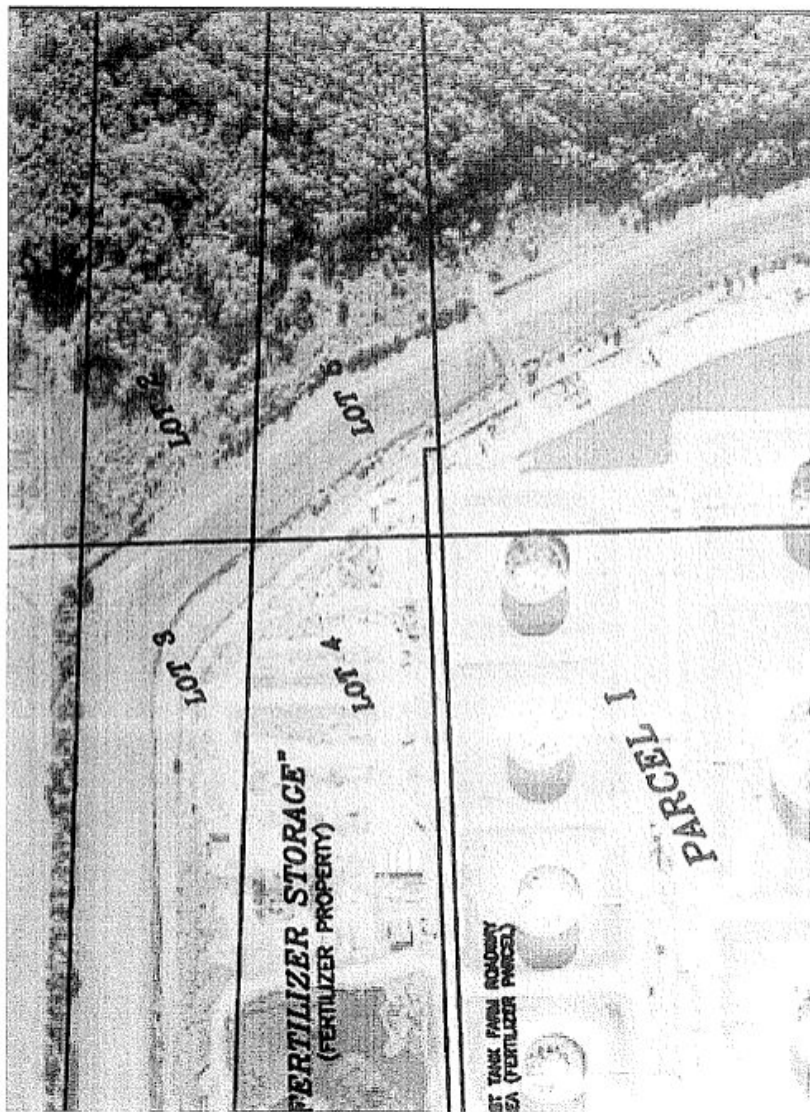


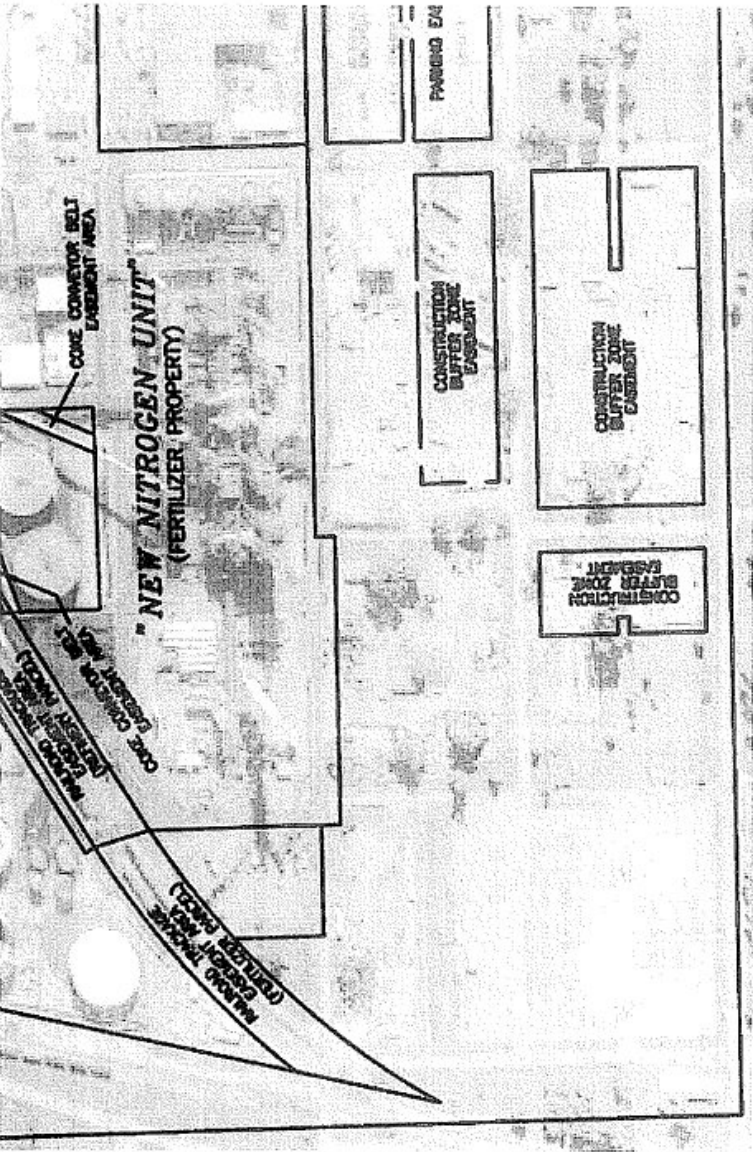


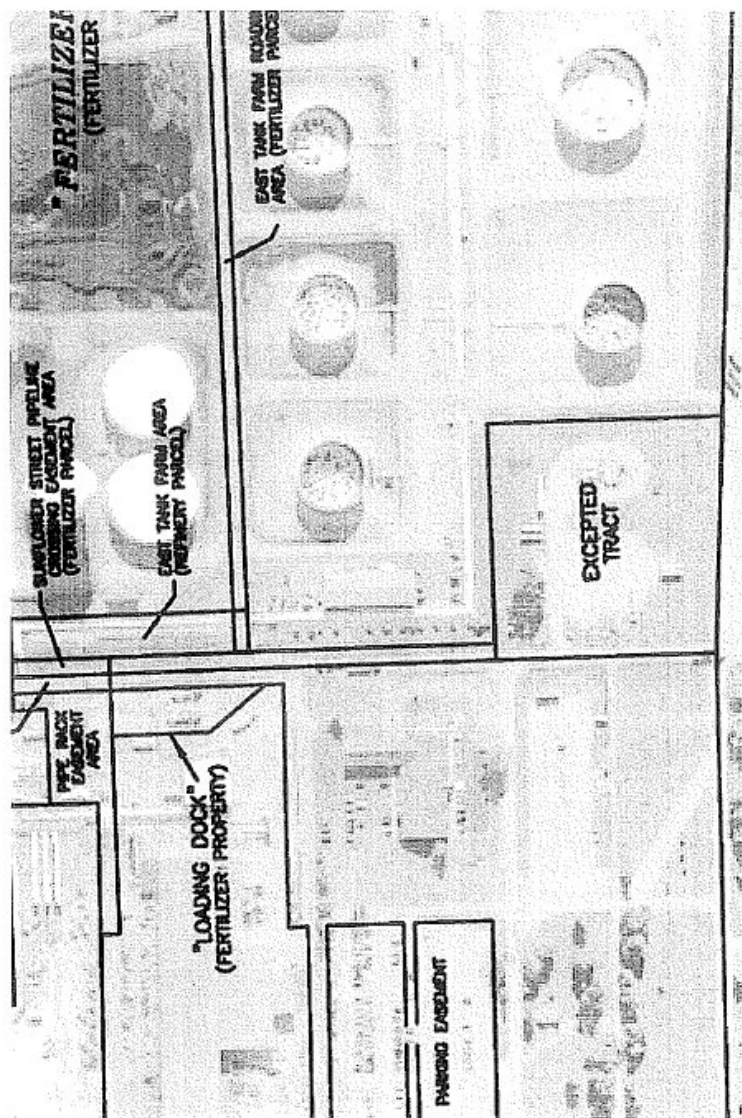


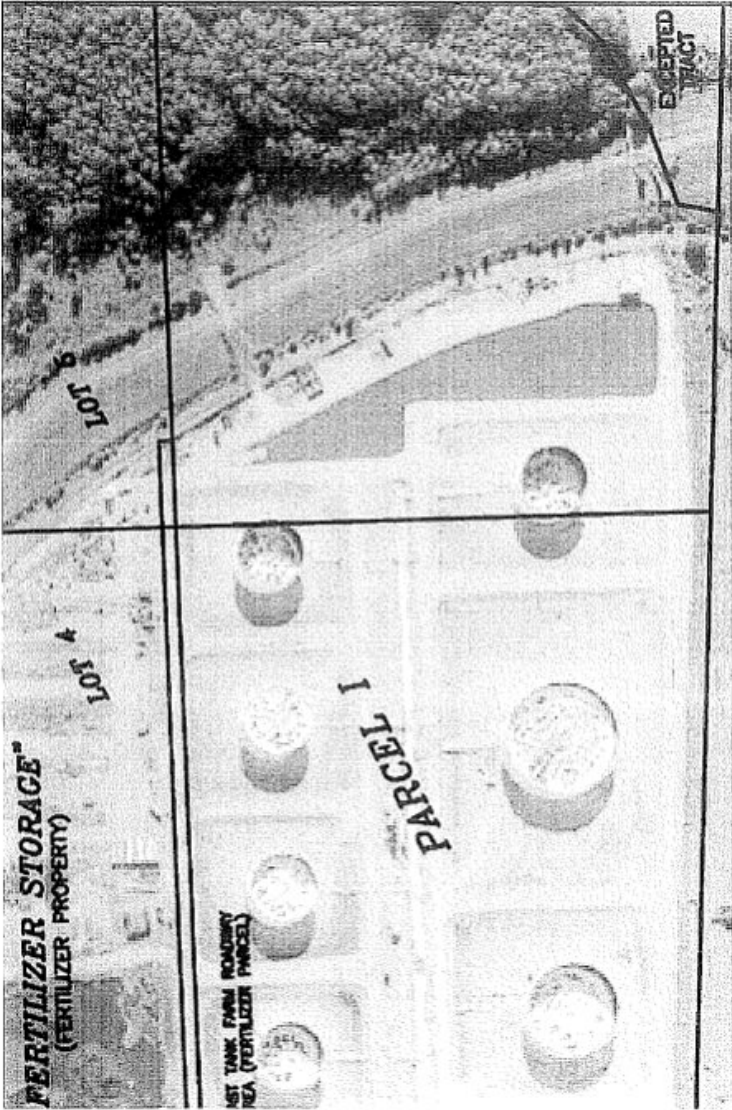














ANNEX D

Legal Description of Shared Pipeline Easement Area

TRACT I

A PART OF THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00° 00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 200.17 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09"W ALONG SAID NORTHERLY LINE A DISTANCE OF 1494.58 FEET TO THE TRUE POINT OF BEGINNING; THENCE N00° 00'00"W A DISTANCE OF 82.60 FEET; THENCE S90°00'00"W A DISTANCE OF 51.00 FEET; THENCE S00° 00'00"E A DISTANCE OF 20.50 FEET; THENCE N90°00'00"E A DISTANCE OF 20.00 FEET; THENCE S00° 00'00"E A DISTANCE OF 80.36 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N59°30'09"E ALONG SAID NORTH LINE A DISTANCE OF 35.98 FEET TO THE POINT OF BEGINNING.

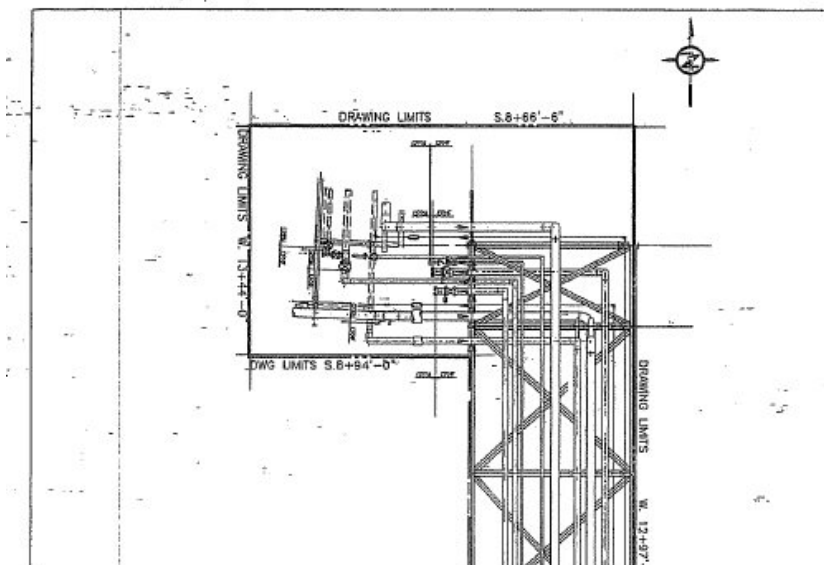
TRACT II (THE UAN PIPELINE EASEMENT)

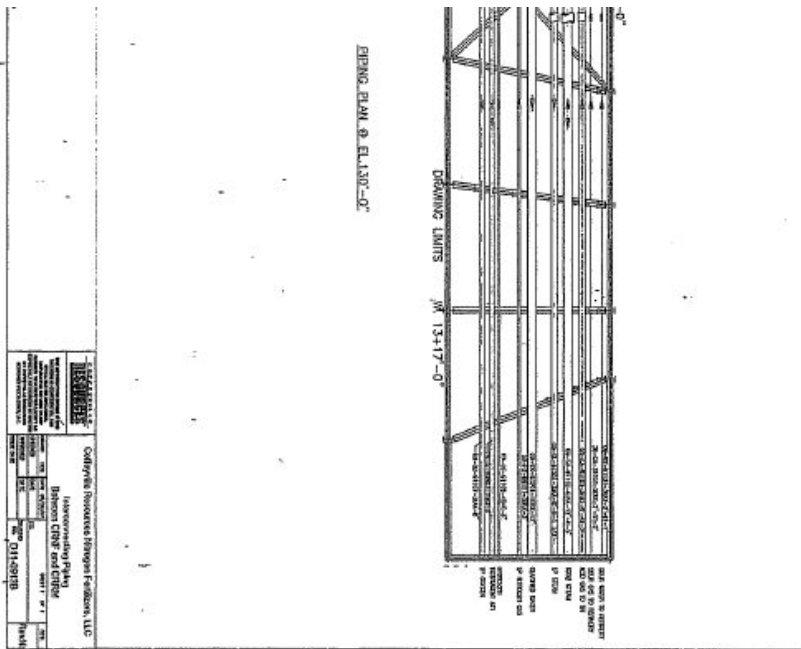
A PART OF THE SOUTHWEST QUARTER (SW/4) OF SECTION 25 AND IN A PART OF THE NORTH HALF (N/2) OF SECTION 36, ALL IN TOWNSHIP 34 SOUTH, RANGE 16 EAST OF THE 6TH P.M., MONTGOMERY COUNTY, KANSAS, THE CENTERLINE OF SAID EASEMENT BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID N/2 OF SECTION 36; THENCE S00°00'00"E ALONG THE EAST LINE OF SAID N/2 OF SECTION 36 A DISTANCE OF 1182.47 FEET; THENCE LEAVING SAID EAST LINE, N90°00'00"W A DISTANCE OF 781.33 FEET TO THE TRUE POINT OF BEGINNING OF SAID CENTERLINE; THENCE CONTINUING N90°00'00"W A DISTANCE OF 20.86 FEET; THENCE N00°00'00"W A DISTANCE OF 80.46 FEET; THENCE N90°00'00"W A DISTANCE OF 491.71 FEET; THENCE S84°14'34"W A DISTANCE OF 27.29 FEET; THENCE S75°10'27"W A DISTANCE OF 51.13 FEET; THENCE S72°42'41"W A DISTANCE OF 36.25 FEET; THENCE S70°02'53"W A DISTANCE OF 58.25 FEET; THENCE S66°23'00"W A DISTANCE OF 71.76 FEET; THENCE S61°23'12"W A DISTANCE OF 29.96 FEET; THENCE N33°21'36"W A DISTANCE OF 66.37 FEET; THENCE S59°38'13"W A DISTANCE OF 662.46 FEET; THENCE N31°46'26"W A DISTANCE OF 27.00 FEET; THENCE N36°13'25"W A DISTANCE OF 62.05 FEET; THENCE N76°17'17"W A DISTANCE OF 6.80 FEET; THENCE N31°27'21"W A DISTANCE OF 50.25 FEET; THENCE N83°45'09"W A DISTANCE OF 148.82 FEET; THENCE S06°14'51"W A DISTANCE OF 7.07 FEET; THENCE N76°25'28"W A DISTANCE OF 54.39 FEET; THENCE N13°34'32"E A DISTANCE OF 7.01 FEET; THENCE N76°24'59"W A DISTANCE OF 79.72 FEET; THENCE N70°38'33"W A DISTANCE OF 294.91 FEET; THENCE ON A CURVE TO THE RIGHT HAVING A RADIUS OF 100.00 FEET, A CHORD WHICH BEARS N57°51'45"W, A CHORD LENGTH OF 44.24 FEET AND AN ARC LENGTH OF 44.61 FEET; THENCE ON A CURVE TO THE RIGHT HAVING A RADIUS OF 300.00 FEET, A CHORD WHICH BEARS N22°32'30"W, A CHORD LENGTH OF 230.01 FEET AND AN ARC LENGTH OF 236.05 FEET; THENCE N00°00'00"W A DISTANCE OF 1266.86 FEET; THENCE N83°36'17"W A DISTANCE OF 433.11 FEET TO THE TERMINUS OF SAID CENTERLINE.

THE EASEMENT ON TRACT II OF THE SHARED PIPELINE EASEMENT AREA BEING 50 FEET IN WIDTH, 25 FEET ON EITHER SIDE OF THE CENTERLINE DESCRIBED ABOVE.

ANNEX E

Interconnect Points Drawing





ANNEX F

Legal Description of Area for Pipe Rack Easement Area

A PART OF COFFEYVILLE HEIGHTS ADDITION TO THE CITY OF COFFEYVILLE AND A PART OF THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE EAST LINE OF NE/4 A DISTANCE OF 1364.58 FEET; THENCE S90° 00'00"W A DISTANCE OF 30.00 FEET TO THE WEST RIGHT-OF-WAY LINE OF SUNFLOWER STREET AND THE TRUE POINT OF BEGINNING; THENCE S00°00'00"E ALONG SAID WEST RIGHT-OF-WAY LINE A DISTANCE OF 117.75 FEET; THENCE CONTINUING ALONG SAID WEST RIGHT-OF-WAY LINE S00°05'12"E A DISTANCE OF 60.63 FEET; THENCE S90°00'00"W A DISTANCE OF 438.45 FEET; THENCE N00°00'00"W A DISTANCE OF 34.79 FEET; THENCE S89°00'00"E A DISTANCE OF 236.57 FEET; THENCE N00°00'00"W A DISTANCE OF 87.72 FEET; THENCE N90°00'00"E A DISTANCE OF 171.82 FEET; THENCE N00°00'00"W A DISTANCE OF 60.00 FEET; THENCE N90°00'00"E A DISTANCE OF 30.00 FEET TO THE POINT OF BEGINNING.

ANNEX G

Legal Description of Coke Conveyor Belt Easement Area

A PART OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY AND PART OF THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 200.17 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09"W ALONG SAID NORTHERLY LINE A DISTANCE OF 1543.55 FEET; THENCE S00°00'00"E A DISTANCE OF 195.69 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING S00°00'00"E A DISTANCE OF 31.57 FEET; THENCE S71°51'39"W A DISTANCE OF 384.15 FEET; THENCE N00°01'28"W A DISTANCE OF 31.56 FEET; THENCE N71°51'39"E A DISTANCE OF 384.17 FEET TO THE POINT OF BEGINNING.

AND

A PART OF THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00° 00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 200.17 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09"W ALONG SAID NORTHERLY LINE A DISTANCE OF 1543.55 FEET; THENCE S00°00'00"E A DISTANCE OF 310.27 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING S00°00'00"E A DISTANCE OF 72.41 FEET; THENCE S24°28'25"W A DISTANCE OF 119.53 FEET; THENCE S90°00'00"W A DISTANCE OF 32.96 FEET; THENCE N24°28'25"E A DISTANCE OF 199.10 FEET TO THE POINT OF BEGINNING.

ANNEX H

Legal Description of Sunflower Street Pipeline Crossing Easement Area (Fertilizer Parcel)

A PART OF THE NW/4 OF SECTION 31, T34S, R17E, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID NW/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE WEST LINE OF SAID NW/4 A DISTANCE OF 1364.58 FEET TO THE TRUE POINT OF BEGINNING; THENCE N90°00'00"E A DISTANCE OF 30.00 FEET TO THE EAST RIGHT-OF-WAY LINE OF SUNFLOWER STREET; THENCE S00°00'00"E ALONG SAID EAST RIGHT-OF-WAY LINE A DISTANCE OF 178.38 FEET; THENCE S90°00'00"W A DISTANCE OF 30.00 FEET TO THE WEST LINE OF SAID NW/4; THENCE N00°00'00"W ALONG SAID WEST LINE A DISTANCE OF 178.38 FEET TO THE POINT OF BEGINNING.

ANNEX I

Legal Description of Sunflower Street Pipeline Crossing Easement Area (Refinery Parcel)

A PART OF COFFEYVILLE HEIGHTS ADDITION TO THE CITY OF COFFEYVILLE AND A PART OF THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE EAST LINE OF NE/4 A DISTANCE OF 1364.58 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING S00°00'00"E ALONG SAID EAST LINE A DISTANCE OF 178.38 FEET; THENCE S90°00'00"W A DISTANCE OF 29.91 FEET TO THE WEST RIGHT-OF-WAY LINE OF SUNFLOWER STREET; THENCE N00°05'12"W ALONG SAID WEST RIGHT-OF-WAY LINE A DISTANCE OF 60.63 FEET; THENCE CONTINUING ALONG SAID WEST RIGHT-OF-WAY LINE N00°00'00"W A DISTANCE OF 117.75 FEET; THENCE N90°00'00"E A DISTANCE OF 30.00 FEET TO THE POINT OF BEGINNING.

ANNEX J

Legal Description of East Tank Farm Roadway Area (Fertilizer Parcel)

A PART OF THE NW/4 OF SECTION 31, T34S, R17E, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID NW/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE WEST LINE OF SAID NW/4 A DISTANCE OF 1767.00 FEET; THENCE N90°00'00"E A DISTANCE OF 30.00 FEET TO THE EAST RIGHT-OF-WAY LINE OF SUNFLOWER STREET AND THE TRUE POINT OF BEGINNING; THENCE N90°00'00"E A DISTANCE OF 1120.00 FEET; THENCE N88°35'26"E A DISTANCE OF 914.89 FEET; THENCE S00°00'00"E A DISTANCE OF 25.00 FEET; THENCE S89°44'00"W A DISTANCE OF 2035.00 FEET TO SAID EAST RIGHT-OF-WAY LINE OF SUNFLOWER STREET; THENCE N00°00'00"E ALONG SAID EAST RIGHT-OF-WAY LINE A DISTANCE OF 27.93 FEET TO THE POINT OF BEGINNING.

ANNEX K

Legal Description of East Tank Farm Area (Refinery Parcel)

A PART OF THE NW/4 OF SECTION 31, T34S, R17E, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID NW/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE WEST LINE OF SAID NW/4 A DISTANCE OF 1364.58 FEET; THENCE N90°00'00"E A DISTANCE OF 30.00 FEET TO THE EAST RIGHT-OF-WAY LINE OF SUNFLOWER STREET AND THE TRUE POINT OF BEGINNING; THENCE CONTINUING N90°00'00"E A DISTANCE OF 75.00 FEET; THENCE S00°00'00"E A DISTANCE OF 430.00 FEET; THENCE S89°44'00"W A DISTANCE OF 75.00 FEET TO THE EAST RIGHT-OF-WAY LINE OF SUNFLOWER STREET; THENCE N00°00'00"W ALONG SAID EAST RIGHT-OF-WAY LINE A DISTANCE OF 430.35 FEET TO THE POINT OF BEGINNING.

ANNEX L

Legal Description of Railroad Trackage Easement Area (Fertilizer Parcel)

PARCEL 8 A PART OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY IN THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00° 00'00" E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 200.17 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09" W ALONG SAID NORTHERLY LINE A DISTANCE OF 1967.29 FEET TO THE TRUE POINT OF BEGINNING; THENCE S00°01'28" E A DISTANCE OF 116.03 FEET TO THE SOUTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09" W ALONG SAID SOUTHERLY LINE A DISTANCE OF 438.39 FEET; THENCE SOUTHWESTERLY ON A CURVE TO THE LEFT HAVING A RADIUS OF 1500.00 FEET, A CHORD WHICH BEARS S58°58'19" W, A CHORD DISTANCE OF 27.78 FEET AND AN ARC LENGTH OF 27.78 FEET; THENCE N15°00'43" W A DISTANCE OF 104.03 FEET TO SAID NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N59°30'09" E ALONG SAID NORTHERLY LINE A DISTANCE OF 497.23 FEET TO THE POINT OF BEGINNING.

AND

PARCEL 9

A PART OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY IN THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4;

THENCE ON AN ASSUMED BEARING OF S00° 00'00" E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 200.17 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09" W ALONG SAID NORTHERLY LINE A DISTANCE OF 1007.15 FEET TO THE TRUE POINT OF BEGINNING; THENCE S00°00'00" E A DISTANCE OF 116.06 FEET TO THE SOUTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09" W ALONG SAID SOUTHERLY LINE A DISTANCE OF 536.40 FEET; THENCE N00°00'00" W A DISTANCE OF 116.06 FEET TO SAID NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N59°30'09" E ALONG SAID NORTHERLY LINE A DISTANCE OF 536.40 FEET TO THE POINT OF BEGINNING.

ANNEX M

Legal Description of Railroad Trackage Easement Area (Refinery Parcel)

A PART OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY IN THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00° 00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 200.17 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09"W ALONG SAID NORTHERLY LINE A DISTANCE OF 2464.52 FEET TO THE TRUE POINT OF BEGINNING; THENCE S15° 00'43"E A DISTANCE OF 104.03 FEET TO THE SOUTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE ALONG SAID SOUTHERLY LINE ON A NON-TANGENT CURVE TO THE LEFT HAVING A RADIUS OF 1500.00 FEET, A CHORD WHICH BEARS S44°34'08"W, A CHORD DISTANCE OF 719.29 FEET AND AN ARC LENGTH OF 726.36 FEET TO THE EASTERLY LINE OF THE A.T.&S.F. RAILROAD RIGHT-OF-WAY; THENCE N13°34'51"E ALONG SAID EASTERLY LINE A DISTANCE OF 269.10 FEET TO SAID NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE ON A NON-TANGENT CURVE TO THE RIGHT HAVING A RADIUS OF 1600.00 FEET, A CHORD WHICH BEARS N49°43'27"E, A CHORD DISTANCE OF 543.47 FEET AND AN ARC LENGTH OF 546.12 FEET TO THE POINT OF BEGINNING.

AND

A PART OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY IN THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00° 00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 200.17 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09"W ALONG SAID NORTHERLY LINE A DISTANCE OF 1543.55 FEET TO THE TRUE POINT OF BEGINNING; THENCE S00° 00'00"E A DISTANCE OF 116.06 FEET TO THE SOUTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09"W ALONG SAID SOUTHERLY LINE A DISTANCE OF 423.68 FEET; THENCE N00°01'28"W A DISTANCE OF 116.03 FEET TO SAID NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE N59°30'09"E ALONG SAID NORTHERLY LINE A DISTANCE OF 423.74 FEET TO THE POINT OF BEGINNING.

ANNEX N

Legal Description of CRNF Clarifier Tract

A PART OF THE SE/4 OF SECTION 25, T34S, R16E, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE SE CORNER OF SAID SE/4; THENCE ON AN ASSUMED BEARING OF N00°22'55"E ALONG THE EAST LINE OF SAID SE/4 A DISTANCE OF 1285.62 FEET; THENCE S90°00'00"W A DISTANCE OF 1774.69 FEET TO THE TRUE POINT OF BEGINNING; THENCE N76°25'09"W A DISTANCE OF 25.41 FEET TO THE EASTERLY RIGHT-OF-WAY LINE OF THE A.T.&S.F. RAILROAD; THENCE N13°34'51"E ALONG SAID EASTERLY RIGHT-OF-WAY LINE A DISTANCE OF 298.51 FEET; THENCE LEAVING SAID EASTERLY RIGHT-OF-WAY LINE, S67°00'00"E A DISTANCE OF 101.78 FEET; THENCE S18°00'36"W A DISTANCE OF 62.14 FEET; THENCE S11°06'08"E A DISTANCE OF 70.97 FEET; THENCE SOUTHWESTERLY ON A NON-TANGENT CURVE TO THE LEFT HAVING A RADIUS OF 450.00 FEET AND A CENTRAL ANGLE OF 23°41'14" A DISTANCE OF 186.04 FEET TO THE POINT OF BEGINNING.

ANNEX O

Legal Description of Fertilizer Water Pipeline Easement Area

A 15.00 FEET WIDE WATERLINE EASEMENT IN PART OF THE SE/4 OF SECTION 25 AND PART OF THE NE/4 OF SECTION 36, ALL IN TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, THE CENTERLINE OF SAID EASEMENT DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4 OF SECTION 36; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE EAST LINE OF SAID NE/4 OF SECTION 36 A DISTANCE OF 200.17 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09"W ALONG SAID NORTHERLY LINE A DISTANCE OF 1511.96 FEET TO THE TRUE POINT OF BEGINNING OF SAID CENTERLINE; THENCE N00°00'00"W A DISTANCE OF 89.44 FEET; THENCE S90°00'00"W A DISTANCE OF 26.00 FEET; THENCE N01° 43'52"E A DISTANCE OF 156.82 FEET; THENCE N22°41'07"E A DISTANCE OF 103.61 FEET; THENCE N00° 46'08"E A DISTANCE OF 155.84 FEET; THENCE N89°50'42"W A DISTANCE OF 60.12 FEET; THENCE N00° 23'50"E A DISTANCE OF 104.00 FEET; THENCE S89°26'05"E A DISTANCE OF 262.50 FEET; THENCE N00° 33'55"E A DISTANCE OF 111.00 FEET; THENCE N89°26'05"W A DISTANCE OF 56.50 FEET; THENCE N00° 33'55"E A DISTANCE OF 359.35 FEET; THENCE S89°26'05"E A DISTANCE OF 23.01 FEET; THENCE N06° 42'59"E A DISTANCE OF 207.51 FEET; THENCE S84°30'54"E A DISTANCE OF 8.00 FEET;

THENCE N06° 33'18"E A DISTANCE OF 280.54 FEET; THENCE S83°49'05"E A DISTANCE OF 14.50 FEET; THENCE N05° 54'52"E A DISTANCE OF 341.96 FEET; THENCE N82°58'38"W A DISTANCE OF 16.55 FEET; THENCE N06° 29'35"E A DISTANCE OF 402.81 FEET; THENCE N84°58'42"W A DISTANCE OF 229.39 FEET; THENCE N65° 07'03"W A DISTANCE OF 177.14 FEET; THENCE N69°37'43"W A DISTANCE OF 70.47 FEET; THENCE S78° 34'08"W A DISTANCE OF 39.02 FEET; THENCE N55°44'37"W A DISTANCE OF 72.09 FEET; THENCE S78° 53'48"W A DISTANCE OF 125.30 FEET TO THE TERMINUS OF SAID CENTERLINE.

AND

A 15.00 FEET WIDE WATERLINE EASEMENT IN PART OF THE SE/4 OF SECTION 25, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, THE CENTERLINE OF SAID EASEMENT DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SE/4; THENCE ON AN ASSUMED BEARING OF N00°22'55"E ALONG THE EAST LINE OF SAID SE/4 A DISTANCE OF 1285.62 FEET; THENCE S90°00'00"W A DISTANCE OF 1774.69 FEET; THENCE NORTHEASTERLY ON A NON-TANGENT CURVE TO THE RIGHT HAVING A RADIUS OF 450.00 FEET, A CHORD WHICH BEARS N46°17'51"E, A CHORD DISTANCE OF 184.72 FEET AND AN ARC LENGTH OF 186.04 FEET; THENCE N11°06'08"W A DISTANCE OF 70.97 FEET; THENCE N18°00'36"E A DISTANCE OF 62.14 FEET; THENCE N67°00'00"W A DISTANCE OF 7.82 FEET TO THE TRUE POINT OF BEGINNING OF SAID CENTERLINE; THENCE N01°33'06"E A DISTANCE OF 199.38 FEET TO THE TERMINUS OF SAID CENTERLINE.

ANNEX P

Legal Description of Coke Haul Road

A PART OF THE NE/4 OF SECTION 36, TOWNSHIP 34 SOUTH, RANGE 16 EAST, MONTGOMERY COUNTY, KANSAS, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NE/4; THENCE ON AN ASSUMED BEARING OF S00°00'00"E ALONG THE EAST LINE OF SAID NE/4 A DISTANCE OF 200.17 FEET TO THE NORTHERLY LINE OF THE FORMER UNION PACIFIC RAILROAD RIGHT-OF-WAY; THENCE S59°30'09"W ALONG SAID NORTHERLY LINE A DISTANCE OF 1999.52 FEET; THENCE N30° 29'51"W A DISTANCE OF 20.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE S59°30'09"W A DISTANCE OF 167.41 FEET; THENCE N13°52'53"E A DISTANCE OF 162.82 FEET; THENCE S84°33'01"E A DISTANCE OF 36.48 FEET; THENCE N05°26'59"E A DISTANCE OF 135.92 FEET; THENCE S84°33'01"E A DISTANCE OF 25.00 FEET; THENCE S05°26'59"W A DISTANCE OF 135.92 FEET; THENCE S84°33'01"E A DISTANCE OF 35.47 FEET; THENCE S07°39'48"E A DISTANCE OF 64.30 FEET TO THE POINT OF BEGINNING.

ANNEX Q

Legal Description of Refinery Shared Parking Area

All of Block 14, COFFEYVILLE HEIGHTS ADDITION to the City of Coffeyville, Montgomery County, Kansas.

ANNEX R

Legal Description of Construction Buffer Zone Easement Area

LOTS 9, 10, 11, 12, 13, 14, 15 AND 16, BLOCK 15, COFFEYVILLE HEIGHTS ADDITION TO THE CITY OF COFFEYVILLE, MONTGOMERY COUNTY, KANSAS.

AND

LOTS 9 THROUGH 16 INCLUSIVE, BLOCK 16, COFFEYVILLE HEIGHTS ADDITION TO THE CITY OF COFFEYVILLE, MONTGOMERY COUNTY, KANSAS.

EXHIBIT B

HYDROGEN PURCHASE AND SALE

CRRM wishes to sell and CRNF wishes to purchase a fixed volume of Hydrogen per month that is produced by the Refinery.

CRRM has been delivering and CRNF has been purchasing Hydrogen from the Refinery since November 1, 2016.

1. DEFINITIONS. The following terms have the meanings set forth below for purposes of this Exhibit B:

“*Capital Costs*” or “*CC*” has the meaning given such term in Annex B to this Exhibit B.

“Committed Volume” means the minimum monthly volume of Hydrogen set forth in Annex B to this Exhibit B that CRRM is required to deliver and sell to CRNF and CRNF is required to receive and purchase from CRRM unless otherwise detailed in this Exhibit B.

“Excess Volume” means monthly volume of Hydrogen in excess of the Committed Volume that CRNF purchases from CRRM, up to the maximum set forth in Annex B to this Exhibit B.

“Fixed Costs” or **“FC”** has the meaning given such term in Annex B to this Exhibit B.

“Hydrogen” means hydrogen in its gaseous form, as described in Annex B to this Exhibit B, all within the tolerances and in compliance with the specifications therein contained.

“Hydrogen Delivery Points” means the points at which the Hydrogen is transferred from CRRM to CRNF and as shown on Plot Plan A and Drawing D11-0913B constituting a part of Annex A to this Exhibit B.

“mscf” means one thousand scf.

“mscfd” means one thousand scf per day.

“Month” or **“Monthly”** means a calendar month.

“Monthly Adjusted Fixed Fee” means the fee as detailed in Annex B to this Exhibit B.

“Monthly Excess Fee” means the fee as detailed in Annex B to this Exhibit B.

“Monthly Fee” means the fee as detailed in Annex B to this Exhibit B.

“Monthly Fixed Fee” means the fee as detailed in Annex B to this Exhibit B.

“Monthly Variable Fee” means the fee as detailed in Annex B to this Exhibit B.

“Natural Gas Price” or **“NGP”** means the price as detailed in Annex B to this Exhibit B.

“Other Variable Costs” or **“OVC”** means all the variable costs detailed in Annex B to this Exhibit B.

“RCV” means the actual total monthly volume of Hydrogen, up to the Committed Volume, received by CRNF from CRRM.

“REV” means the actual total monthly Excess Volume received by CRNF from CRRM.

“scf” means standard cubic feet at 60°F and at atmospheric pressure equal to 29.92 inches of mercury absolute, measured by standard sharp edge orifice plate and differential pressure transmitters located at the Fertilizer Plant.

2. SALE AND PURCHASE OF HYDROGEN.

(a) Sale and Purchase of Hydrogen.

(i)Committed Volume: CRRM agrees to sell and deliver the Committed Volume to CRNF and CRNF agrees to purchase and receive the Committed Volume during the Term. The intent of the Parties is that CRNF will receive 3,000 mscfd of Hydrogen, ratably, from CRRM.

(A) In the event CRNF fails to take delivery of the full Committed Volume, CRNF remains obligated to pay CRRM for the Monthly Fixed Fee and the Monthly Variable Fee (related to the RCV) for the applicable Month.

(B) In the event CRRM fails to deliver any portion of the Committed Volume for the applicable Month (subject to Section 4.2(a) and Section 5 of this Exhibit B), CRNF will be entitled to a pro-rata reduction of the Monthly Fixed Fee equal to the portion of the Committed Volume that CRRM fails to deliver and will only be required to pay the Monthly Adjusted Fixed Fee and the Monthly Variable Fee (related to RCV).

(ii)Excess Volume: CRNF is hereby granted the option to purchase the Excess Volume from CRRM, if available for purchase.

(A) By the 20th day of each Month, the CRNF Representative will provide to the CRRM Representative a forecast of the amount of Excess Volume CRNF wishes to purchase and receive for the subsequent Month.

(B) If CRRM can provide the Excess Volume as detailed in the forecast, then the forecast will be considered a final nomination by CRNF for the applicable Month.

(C) If CRRM cannot provide the Excess Volume as detailed in the forecast, then the Representatives will work to adjust the Excess Volume forecast numbers for the applicable Month and agree to the final nomination volume by CRNF for the applicable Month.

(D) If any portion of Excess Volume is anticipated to change during the course of the applicable Month after the nomination

has been finalized (subject to Sections 2.2 and 4.2(a) and Section 5 of this Exhibit B), the Parties will provide notice to the other as soon as reasonably possible (and in any event within 24 hours) in the event of such changes and the nomination will be adjusted accordingly without penalty to either Party.

(iii) Monthly Fee: CRNF agrees to pay a Monthly Fee to CRRM for the Committed Volume and Excess Volume as detailed in Annex B to this Exhibit B. Except as otherwise provided in this Exhibit B, CRNF agrees to pay the Monthly Fixed Fee to CRRM, regardless of whether CRNF receives any Committed Volume for the applicable Month.

(b) Exceptions.

(i) CRRM will not be obligated to provide any Excess Volume to CRNF if such Hydrogen is required, as determined in a commercially reasonable manner by CRRM based on its then current or anticipated operation requirements, for the operation of the Refinery.

(ii) CRRM will not be obligated to provide any Hydrogen to CRNF if CRRM or the board of directors of the general partner of CVR Refining, LP (the sole member of CVR Refining, LLC, the sole member of CRRM) determines, in each case in their sole discretion, that such sale of Hydrogen would adversely affect the classification of CVR Refining, LP as a partnership for federal income tax purposes. The Parties agree they will continue to be bound by Section 2.1(a) of this Exhibit B in the event CRRM fails to deliver any portion of the Committed Volume pursuant to this Section 2.2(b) of this Exhibit B.

3. **TERMINATION.**

(a) Termination. This Exhibit B may be terminated as follows:

(i) by one Party (the “**Non-Breaching Party**”) upon notice to the other Party (the “**Breaching Party**”), following the occurrence of an Event of Breach with respect to the Breaching Party. For purposes hereof, an “**Event of Breach**” occurs when both of the following exist: (i) a breach of this Exhibit B by the Breaching Party has not been cured by such Breaching Party within 30 days after receipt of written notice thereof from the Non-Breaching Party or, in the case of a breach that is not reasonably feasible to effect a cure within said 30-day period, within 90 days after such receipt provided that the Breaching Party diligently prosecutes the cure of such breach; and (ii) the breach materially and adversely affects the Non-Breaching Party;

(ii) by CRRM if it is unable to provide CRNF with the Committed Volume pursuant to Section 2.2.b of this Exhibit B; provided, notice of such termination must be provided as soon as reasonably practicable;

(iii) by CRRM effective as of the permanent termination of substantially all of the operations at the Refinery (with no intent by CRRM or its successor to recommence operations at the Refinery); provided, however, that notice of such permanent termination of operations must be provided by CRRM to CRNF at least 12 months prior to such permanent termination;

(iv) by CRNF effective as of the permanent termination of substantially all of the fertilizer production operations at the Fertilizer Plant (with no intent by CRNF or its successor to recommence operations at the Fertilizer Plant); provided, however, that notice of such permanent termination of operations must be provided by CRNF to CRRM at least 12 months prior to such permanent termination; or

(v) by one Party upon notice to the other Party following (A) the appointment of a receiver for such other Party or any part of its property, (B) a general assignment by such other Party for the benefit of creditors of such other Party, or (C) the commencement of a proceeding under any bankruptcy, insolvency, reorganization, arrangement or other law relating to the relief of debtors by or against such other Party; provided, however, that if any such appointment or proceeding is initiated without the consent or application of such other Party, such appointment or proceeding will not constitute a termination event under this Agreement until the same has remained in effect for 60 days.

(b) Effects of Expiration or Termination. CRRM and CRNF agree that upon and after expiration or termination of this Exhibit B:

(i) CRNF will remain obligated to make any payment due to CRRM hereunder for the Monthly Fee up to the date of expiration or termination.

(ii) CRRM will remain obligated to sell and delivery Hydrogen to CRNF up to the date of expiration or termination.

(iii) Liabilities of any Party arising from any act, breach or occurrence prior to termination will remain with such Party.

(iv) The Parties’ rights and obligations under Sections 4(a) and 4(d) of this Exhibit B will survive the expiration or termination of this Agreement.

4. **OPERATION OF FERTILIZER PLANT AND REFINERY.**

(a) Cooperation. CRRM and CRNF will cause their respective personnel located at the Refinery and the Fertilizer Plant to fully cooperate with, and comply with the reasonable requests of, the other Party and its employees, agents and contractors to support such other Party’s operations in a safe and efficient manner; provided, however, that nothing in this Section 4.1 requires the expenditure of any monies other than may otherwise be required elsewhere in this Exhibit B.

(b) Suspension of Hydrogen.

(i) Temporary Suspension of Hydrogen for Planned Repairs/Maintenance. Delivery of Hydrogen by CRRM may be temporarily suspended

by either Party during and for such periods of time as are necessary to carry out scheduled maintenance or scheduled necessary repairs or improvements to the Refinery or Fertilizer Plant (which include each Party's planned turnaround schedule), as the case may be (each, a "**Temporary Service Suspension**"). In connection with any such Temporary Service Suspension, CRRM or CRNF (as applicable) may elect to reduce, interrupt, allocate, alter or change the sale or purchase of the Committed Volume that is required hereunder, provided that the applicable Party will deliver reasonable advance notice to the other Party of any planned Temporary Service Suspension, including relevant details relating to the proposed reduction, interruption, allocation, alteration or change in the Hydrogen delivery and acceptance as a result of the Temporary Service Suspension. Upon the occurrence and during the continuation of Temporary Service Suspension, the Parties will cooperate to attempt to arrange for Hydrogen to be furnished to the other Party or to minimize or reduce the effect of such Temporary Service Suspension on the applicable Party's operations. In the event of a Temporary Service Suspension, Fertilizer Plant will continue to be bound to Section 2.1(c) of this Exhibit B.

(ii) Unscheduled Emergency Repairs or Maintenance. The Parties will provide notice to the other as soon as reasonably possible (and in any event within 24 hours) in the event of any emergency repair or unplanned required maintenance that is affecting or will affect the delivery of Hydrogen under this Exhibit B (each, an "**Unplanned Temporary Service Suspension**"). Each Party will use commercially reasonable efforts to complete any such emergency repairs in a timely manner and to resume the delivery of Hydrogen as soon as practicable. The Parties agree they will continue to be bound by Section 2.1(a) of this Exhibit B in the event of an Unplanned Temporary Service Suspension.

(c) Priority Supply. CRNF will have priority over third parties with respect to any Hydrogen to be made available by CRRM under this Agreement, provided that, to the extent that purchase of Hydrogen is discretionary on the part of CRNF and CRNF has not purchased from CRRM the quantity of the Hydrogen that is presently available from CRRM, then CRRM may offer and sell such available Hydrogen to a third party so long as CRRM first gives to CRNF written notice of such prospective offer and sale and the option to purchase such Hydrogen on the terms provided in this Exhibit B with respect to such available Hydrogen, provided that CRNF exercises such option by written notice to CRRM within five days following the date CRRM gives its written notice to CRNF with respect to the available Hydrogen.

(d) Audit and Inspection Rights. Each of CRRM and CRNF (the "**Requesting Party**") have the right, upon reasonable written notice to the other Party (the "**Other Party**"), to audit, examine and inspect, at reasonable times and locations, all documentation, records, equipment, facilities, and other items owned or under the control of the Other Party that are reasonably related to the Hydrogen provided for under this Exhibit B, solely for the purpose of confirming the measurement or pricing of, or tolerances or specifications of, Hydrogen, confirming compliance and performance by the Other Party, or exercising any rights of the Requesting Party, under this Exhibit B.

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ANNEX A

Facilities Description

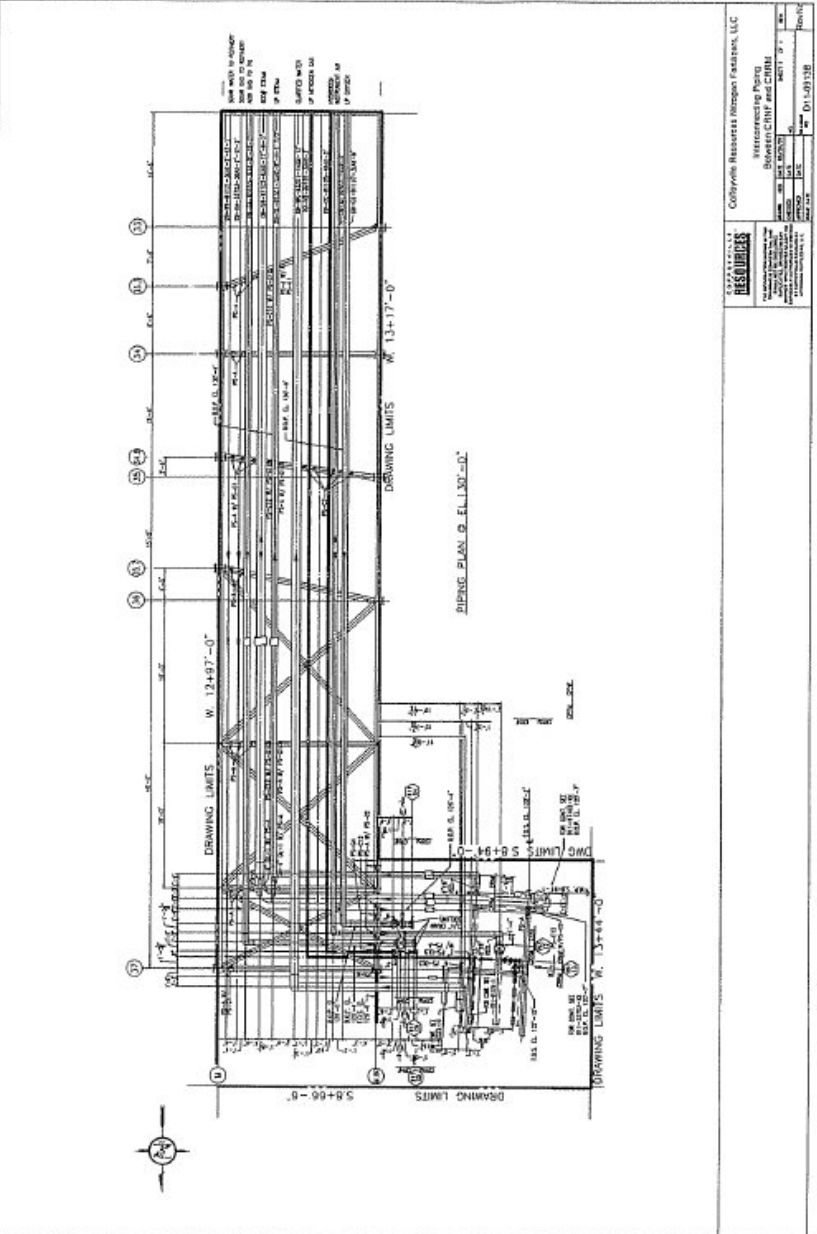
1. The Fertilizer Plant is shown on Plot Plan A attached hereto.
2. The Hydrogen Delivery Points are shown on Plot Plan A and Drawing D11-0913B attached hereto.
3. The Refinery is shown on Plot Plan A attached hereto.
4. The Hydrogen Plan is shown on Plot Plan A attached hereto.

Plot Plan A





Drawing D11-0913B



ANNEX B**Analysis, Specifications and Pricing for Hydrogen**

Hydrogen	
- Gaseous	
- Purity	not less than 99.9 mol.%
- Flow	
- Pressure	450 psig ± 30 psi
- Carbon Monoxide	less than 10 ppm
- Carbon Dioxide	less than 10 ppm
- Committed Volume	90,000 mscf of Hydrogen per Month with the intent of providing 3,000 mscfd, ratably, to CRNF
- Excess Volume	Up to 60,000 mscf of Hydrogen per Month, or more upon mutual agreement of the Parties, with the intent of providing up to an additional 2,000 mscfd to CRNF.
- Monthly Fee	CRNF will pay CRRM a Monthly Fee equal to the sum of the: • Monthly Fixed Fee, plus • Monthly Variable Fee, plus • Monthly Excess Fee.
- Monthly Fixed Fee	The Monthly Fixed Fee is equal to all Fixed Costs and Capital Costs associated with producing 90,000 mscf of Hydrogen per Month (see the formula below). The initial Monthly Fixed Fee is \$185,400. Monthly Fixed Fee = (FC + CC) * 90,000 mscf per Month <i>Monthly Fixed Fee (\$185,400.00) = (Fixed Costs plus Capital Costs for Committed Volume (initially \$2.060/mscf Hydrogen)) * Committed Volume (90,000 mscf of Hydrogen per Month)</i> The Parties agree that after the Initial Term and during any Renewal Term, the Monthly Fixed Fee will be reduced to \$56,250.00 which equals the Fixed Costs associated with producing 90,000 mscf of Hydrogen per Month (see the formula below). Monthly Fixed Fee = FC * 90,000 mscf per Month <i>Monthly Fixed Fee (\$56,250.00) = Fixed Costs for Committed Volume (initially \$0.625/mscf Hydrogen) * Committed Volume (90,000 mscf per Month)</i>
- Fixed Costs or FC	The fixed costs of producing one mscf of Hydrogen, which initially shall be \$0.625 / mscf of Hydrogen
- Capital Costs or CC	The capital costs of producing one mscf of Hydrogen, which initially shall be \$1.435 / mscf of Hydrogen

- Monthly Variable Fee	The Monthly Variable Fee is equal to the RCV multiplied by the sum of (a) 52% of the Natural Gas Price plus (b) Other Variable Costs per mscf (see the formula below). [Note: 52% is used based upon the estimate of 11,180 mscfd of natural gas needed (for feed and furnace) to produce 21,500 mscfd of Hydrogen.] Monthly Variable Fee = RCV * [(NGP * .52) + OVC] Therefore, if CRNF received the entire Committed Volume and the Natural Gas Price was \$3.00, the Monthly Variable Fee would be \$100,800. Monthly Variable Fee (\$100,800) = RCV (90,000 mscf per Month) * [(NGP*.52) + OVC] [(\$3.00*.52) - \$0.44]
- Monthly Excess Fee	The Monthly Excess Fee is equal to the REV multiplied by the sum of (a) 52% of the Natural Gas Price plus (b) Other Variable Costs and (c) Fixed Costs per mscf (see the formula below). Monthly Excess Fee = REV * [(NGP * .52) + OVC + FC] Therefore, if CRNF received the maximum Excess Volume and the Natural Gas Price was \$3.00, the Monthly Excess Fee would be \$104,700. Monthly Excess Fee (\$104,700) = REV (60,000 mscf per Month) * [(NGP*.52) + OVC+FC] [(\$3.00*.52) - \$0.44 + \$0.625]
- Monthly Adjusted Fixed Fee	The Monthly Adjusted Fixed Fee is equal to the Monthly Fixed Fee multiplied by a fraction, the numerator of which is the RCV for the applicable Month and the denominator of which is the Committed Volume. Monthly Adjusted Fixed Fee = Monthly Fixed Fee * (RCV/Committed Volume) Example 1: If the CCR is down in the Refinery for 20 days and for the remaining 10 days of the applicable Month, CRNF receives a total of 50,000 mscf of Hydrogen for the applicable Month, CRNF pays a Monthly Adjusted Fix Fee of \$103,000. Monthly Adjusted Fixed Fee = 185,400 * (50,000 mscf/90,000 mscf) = \$103,000 Example 2: If the CCR is down in the Refinery for 10 days in the applicable Month and for the remaining 20 days of the applicable Month, CRNF receives a total of 100,000 mscf of Hydrogen for the applicable Month, then CRNF will not receive a pro-rata reduction and be required to pay the full Monthly Fixed Fee and Monthly Variable Fee and Monthly Excess Fee.
- Natural Gas Price or NGP	Natural gas measured at a per mmbtu rate based on the price for natural gas actually paid by CRRM for the month preceding the sale.
- Other Variable Costs or OVC	#VALUE!

- Escalation	The Fixed Costs set forth in this <u>Annex B</u> are subject to change annually commencing on January 1, 2021 and on each January 1 thereafter. The Fixed Costs will be adjusted using the Bureau of Labor Statistics (“BLS”) Employment Costs Index Average for Private Industry Workers (all workers) published in December of the previous year. For example, if the Fixed Costs for 2020 are \$.0625 and the BLS index published for December 2019 is 2.0% (not a real value), the 2021 Fixed Costs would be calculated as follows: <i>2021 FC = 2020 FC + 2020 FC*(2019 BLS Index published in December 2019)</i> <i>2021 FC = .0625 + .0625*2% = .06375</i>
- Flow measurement	All Hydrogen flows will be measured by a standard sharp edge orifice plate and differential pressure transmitter located at the Fertilizer Plant. The measured flow will be pressure and temperature compensated and totalized by Fertilizer Plant’s Honeywell process control computer (TDC 3000) or any replacement computer. All transmitter signals and computer calculations are available to CRRM through the existing communications bus for verification. Calibration of the transmitter will be done at least annually and may be done more frequently at CRRM’s request.

EXHIBIT C

RAW WATER AND FACILITIES SHARING

CRRM and CRNF are each owners of an undivided one-half interest in and to the following water rights (collectively, the “**Water Rights**”):

1. Kansas Vested Right File No. MG011, which authorizes the diversion of surface water from the Verdigris River at the rate and quantity set forth in such File No;
2. Kansas Approved Application for Permit to Appropriate Water, Application No. 43,782 with a priority date of May 14, 1999; and
3. Contract for Industrial Water Supply, Water Purchase Contract No. 99-5 dated December 3, 1999, originally between Farmland and the Kansas Water Office and subsequently assigned by Farmland on March 3, 2004 jointly to CRRM and CRNF (the “**Water Contract**”).

CRRM owns and operates certain equipment used to withdraw and transport raw water from the Verdigris River pursuant to the Water Rights, including the River Intake Structure, the River Water Pumps and the Y Intersection, and other raw water meters, piping and related facilities shown in the diagram set forth in Annex A to this Exhibit C (collectively the “**Water Facilities**”).

CRRM and CRNF desire to share the benefits and the costs of the Water Rights and Water Facilities as set forth in this Exhibit C.

- 1. DEFINITIONS.** The following terms have the meanings set forth below for purposes of this Exhibit C:

“**Available Raw Water**” has the meaning given such term in Section 3(c) to this Exhibit C.

“**Calendar Month Percentage**” has the meaning given such term in Section 3(b) to this Exhibit C.

“**Calendar Year Percentage**” has the meaning given such term in Section 3(b) to this Exhibit C.

“**Electricity Estimate**” has the meaning given such term in Section 3(e)(ii) to this Exhibit C.

“**New Water Facilities**” has the meaning given such term in Section 4(c) to this Exhibit C.

“**Non-Terminating Party**” has the meaning given such term in Section 4 to this Exhibit C.

“**Raw Water**” means water withdrawn from the Verdigris River pursuant to the Water Rights.

“**Raw Water Insufficiency**” has the meaning given such term in Section 3(c) to this Exhibit C.

“**River Intake Structure**” means the structure (including the diversion dam) in the Verdigris River upon which the River Water Pumps are situated, including any additions or other modifications made thereto from time to time.

“**River Water Pumps**” means the three river water pumps situated on the River Intake Structure and which are used to withdraw water from the Verdigris River and pump it into the Y Intersection, including any additions or other modifications made thereto from time to time.

“**Terminating Party**” has the meaning given such term in Section 4 to this Exhibit C.

“**Termination Date**” has the meaning given such term in Section 4 to this Exhibit C.

“**Water Contract**” has the meaning given such term in the Recitals to this Exhibit C.

“**Water Facilities**” has the meaning given such term in the Recitals to this Exhibit C, and includes any additions or other modifications made thereto from time to time.

“**Water Management Team**” has the meaning given such term in Section 2 to this Exhibit C.

“**Water Rights**” has the meaning given such term in the Recitals to this Exhibit C.

“**Y Intersection**” means that portion of the Raw Water piping near the River Water Pumps, as shown in the diagram set forth in Annex A to this Exhibit C, where the water piping splits, with one pipe leading to the Fertilizer Plant and the other pipe leading to the Refinery, including any additions or other modifications made thereto from time to time.

2. COMPANY REPRESENTATIVE. CRNF and CRRM hereby respectively designate the CRRM Representative and the CRNF Representative for purposes of making determinations on behalf of CRRM and CRNF, respectively, relating to the management, supervision and control of the Water Facilities and the Water Rights. The CRRM Representative and the CRNF Representative shall constitute the “**Water Management Team**”.

3. RAW WATER AND FACILITIES SHARING.

(a) Operational Responsibility. CRRM shall have day-to-day operational responsibility for the Water Facilities and the Water Rights but shall conduct such operations at the direction of the Water Management Team. The Water Management Team shall meet on a regular basis and at any time a Representative reasonably requests a meeting to implement the provisions of this Exhibit C and/or to ensure compliance by the Water Facilities with applicable laws and regulations.

(b) Measurements of Usage. The total amount of Raw Water withdrawn from the Verdigris River will be measured by a meter included as a part of the Water Facilities, and the total amount of such Raw Water supplied by the Water Facilities to the Fertilizer Plant and the Refinery, respectively, will be measured by meters on the pipes that transport the Raw Water from the Water Facilities to the Fertilizer Plant and the Refinery. Readings from such meters will be communicated to each Party electronically. For purposes of this Exhibit C, Raw Water will be deemed used by a Party based upon the supply of Raw Water as measured by such meters. A percentage of usage of Raw Water supplied by the Water Facilities to the Fertilizer Plant and the Refinery will be determined for each calendar month (a “**Calendar Month Percentage**”) and for each calendar year (a “**Calendar Year Percentage**”), which percentages will be determined for each applicable period by dividing the amount of Raw Water supplied to a Party during such period by the total Raw Water quantity withdrawn from the Verdigris River by the Water Facilities during such period. In the event that a Party had any complete (or substantially complete) operational outage due to a planned turnaround, mechanical difficulties, or for any other reason, during any period included for purposes of computing a Calendar Month Percentage or a Calendar Year Percentage for such Party, then, notwithstanding such outage, such Party shall be deemed to have used the same amount of Raw Water during each calendar month in which such outage occurs as the Party used during the most recent full calendar month ending prior to the commencement of such outage, prorated for any partial calendar month of outage.

(c) Allocating Water. The Fertilizer Plant and the Refinery will each be entitled to receive sufficient amounts of Raw Water each day to enable the Fertilizer Plant and the Refinery to conduct their operations at the operational levels determined to be appropriate by CRNF and CRRM, respectively. Each Representative shall advise the other Representative, and the CRRM personnel operating the Water Facilities, of the amount of Raw Water required by its respective company for its operational level. If the amount of Raw Water that the Water Facilities are capable of providing (“**Available Raw Water**”) is insufficient at any time to provide the aggregate amount of Raw Water required to operate the Fertilizer Plant and the Refinery at their respective operational levels (“**Raw Water Insufficiency**”), then the Available Raw Water shall be allocated between the Fertilizer Plant and the Refinery on a prorated basis, which prorated basis shall be determined by reference to the average of the Calendar Year Percentages for the Fertilizer Plant and the Refinery, respectively, for the two full calendar year periods most recently ending prior to the date of the applicable Raw Water Insufficiency. CRNF and CRRM shall reasonably cooperate in good faith to obtain sufficient Raw Water for their respective operational levels, including (without limitation) enforcement of all rights which may exist under the Water Rights.

(d) Modifications to Facilities and Amendments to Contracts. No material modification or alterations to, or replacements of, the Water Facilities or their operations and no amendments or supplements to, or waivers of enforcement of, the provisions of the Water Rights shall be made without the written consent of each Party, which consent shall not be unreasonably withheld or delayed.

(e) Allocation of Costs.

(i) CRNF and CRRM shall each pay their prorated share of all costs related to the operation, maintenance, repair, modification, alteration, or replacement of the Water Facilities and administration of the Water Rights, which costs shall include the cost of labor, materials and other costs reasonably allocable to the operation, maintenance, repair or replacement of the Water Facilities, and any charges pursuant to the Water Contract, except that payment of the cost of electricity shall be made as provided in Section 3(e)(ii) of this Exhibit C. Each Party’s prorated share of such costs shall be determined by reference to such Party’s Calendar Year Percentage for the calendar year in which such costs are incurred. CRRM shall determine each Party’s prorated share of costs and invoice CRNF for CRNF’s prorated share of such costs in accordance with Section 4 of the Agreement. Notwithstanding the foregoing and subject to Section 3(d) of this Exhibit C, in the event that any operation, maintenance, repair, modification, alteration, or replacement of any of the Water Facilities is required solely by reason of the requirements of one Party’s operations, obligations to third parties, or mandates of any governmental authority, or is caused by any acts or omissions of such Party or anyone acting for or on behalf of such Party, then such Party shall bear all costs related to such operation, maintenance, repair, modification, alteration, or replacement. Notwithstanding any payment of costs by CRNF under this Section 3(e)(i), the Water Facilities shall remain the property of CRRM, except as otherwise provided in Section 4 of this Exhibit C.

(ii) CRNF shall reimburse CRRM for electricity required to operate the River Water Pumps. Such reimbursement shall be determined on a monthly basis as follows: (A) an estimate (the “**Electricity Estimate**”) will be made of the amount of electricity used by the River Water Pumps for each calendar month based on the horsepower of the pumps; (B) the Fertilizer Plant’s Calendar Month Percentage for such calendar month will be multiplied by the Electricity Estimate in order to determine the number of kilowatt hours of electricity to be allocated to the Fertilizer Plant; and (C) the number of kilowatt hours will be multiplied by the rate per kilowatt hour the Refinery pays for electricity. CRRM invoice CRNF in accordance with Section 4 of the Agreement.

4. TERMINATION. This Exhibit C may be terminated as follows:

(a) either Party (the “**Terminating Party**”) may elect to terminate the sharing of the Water Facilities and Water Rights upon the separation of the Water Facilities and the Water Rights into two independent sets of facilities and contractual arrangements for the benefit of CRNF and CRRM, which termination of sharing shall be effective as of the termination date (the “**Termination Date**”) specified in a written notice of such election by the Terminating Party to the other Party (the “**Non-Terminating Party**”), provided that such notice shall be given at least three years prior to the specified Termination Date. In the event a Terminating Party gives such a notice of termination to a Non-Terminating Party, the Parties shall proceed in good faith to do the following prior to the Termination Date:

(i) The Parties will allocate and divide the Water Rights on a commercially reasonable basis consistent with and in proportion to the average of the Calendar Year Percentages for the Fertilizer Plant and the Refinery for the two full calendar year periods most recently ending prior to the Termination Date.

(ii) CRRM will grant CRNF such easements and access over the Refinery premises as CRNF may reasonably require in order to establish separate usage of the Water Rights as determined pursuant to Section 4(a) of this Exhibit C, including easements and access over Refinery premises to the Verdigris River for the creation, operation, maintenance, repair and replacement, as reasonably necessary, of a separate Raw Water intake and distribution system for the Fertilizer Plant, provided that no such easements or access over the Refinery premises shall have a material adverse effect on the CRRM’S business or operations at the Refinery.

(iii) In the event that CRNF is the Terminating Party, CRNF shall at its cost and expense purchase and install the additional pumps, piping, and other equipment and structures (collectively, “**New Water Facilities**”) necessary for CRNF to have a separate Raw Water intake and distribution system for the Fertilizer Plant. In the event that CRRM is the Terminating Party, CRNF shall have the option, exercisable upon written notice to CRRM at least 30 months prior to the Termination Date, to either (A) purchase and install at its cost and expense New Water Facilities necessary for CRNF to have a separate Raw Water intake and distribution system for the Fertilizer Plant, or (B) require CRRM to transfer the Water Facilities to CRNF, as of the Termination Date, for use by CRNF as a separate Raw Water intake and distribution system for the Fertilizer Plant, in which event CRNF shall pay to CRRM an amount equal to the depreciated value of the Water Facilities at and as of the date of transfer, as determined from the books and records of CRRM, and CRRM shall purchase and install at its cost and expense New Water Facilities necessary for CRRM to have a separate Raw Water intake and distribution system for the Refinery. To the extent any costs and expenses are incurred by mutual agreement of the Parties for the mutual benefit of both the Water Facilities and the New Water Facilities, then any such costs and expenses shall be allocated as mutually agreed upon by the Parties.

(iv) CRNF and CRRM shall work with, and obtain all necessary approvals from, applicable governmental agencies and authorities to the extent required to effectuate the separation of Water Rights, installation of any New Water Facilities, and other actions as contemplated in this Section 4.

5. OPERATION OF FERTILIZER PLANT AND REFINERY.

(a) Cooperation. CRNF and CRRM each hereby agree reasonably to cooperate with the other in good faith in implementing and administering this Exhibit C. CRRM and CRNF shall cause their respective personnel located at the Refinery and the Fertilizer Plant to fully cooperate with, and comply with the reasonable requests of, the other Party and its employees, agents and contractors to support such other Party’s operations in a safe and efficient manner; provided, however, that nothing in this Section 5 shall require the expenditure of any monies other than may otherwise be required elsewhere in this Exhibit C.

(b) Suspension of Supply.

(i) Temporary Suspension for Repairs/Maintenance. The supply of Raw Water by the Water Facilities may be temporarily suspended by CRRM for such periods of time as are necessary to carry out scheduled maintenance or necessary repairs or improvements to the Water Facilities. In connection with any such temporary suspension, CRRM may elect to reduce, interrupt, allocate, alter or change the supply of Raw Water required to be provided hereunder, provided that, except in the case of emergencies, CRRM shall deliver not less than 30 days prior written notice to CRNF of any planned temporary suspension, including relevant details relating to the proposed reduction, interruption, allocation, alteration or change in the supply of Raw Water as a result of such temporary suspension. Upon the occurrence and during the continuation of such a temporary suspension, the Parties shall cooperate to attempt to minimize or reduce the effect of such temporary suspension on each Party’s operations.

(ii) Emergency Repairs. CRRM shall provide notice to CRNF as soon as reasonably possible (and in any event within 24 hours) in the event of any emergency repair or unplanned required maintenance that is affecting or will affect provision of the Raw Water hereunder. CRRM shall use commercially reasonable efforts to complete any such emergency repairs in a timely manner and to resume the provision of Raw Water hereunder as soon as reasonably practicable.

(iii) Operation by CRNF. In the event that the provision of Raw Water hereunder is suspended due to any inability or failure of CRRM (other than in connection with any suspensions contemplated in Section 5(b)(i) or (ii) of this Exhibit C) to provide Raw Water in accordance with

the terms of this Exhibit C, then CRNF shall, during the period of such suspension, have the right to access the Water Facilities for the purpose of operating the Water Facilities in a manner consistent with the operation thereof as otherwise contemplated in this Exhibit C.

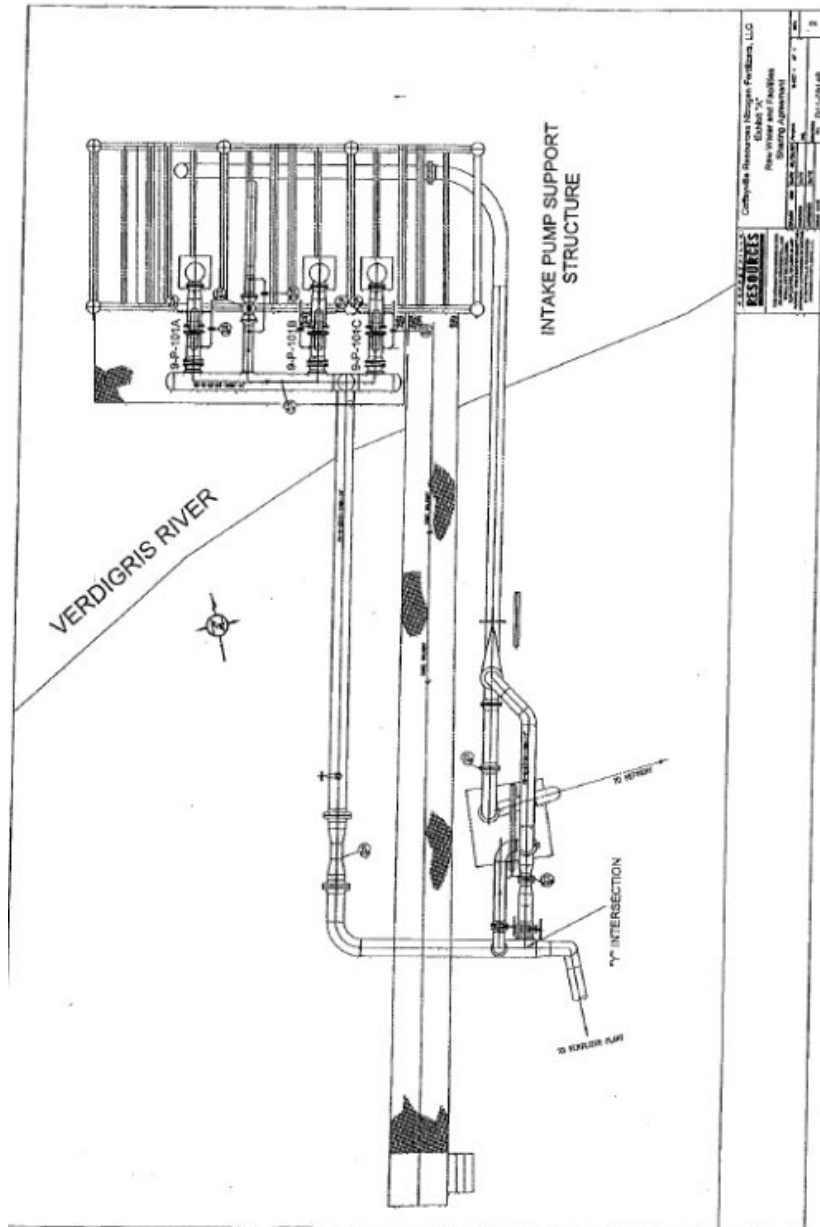
(c) Audit and Inspection Rights. Each of CRRM and CRNF (the “**Requesting Party**”) have the right, upon reasonable written notice to the other Party (the “**Other Party**”), to audit, examine and inspect, at reasonable times and locations, all documentation, records, equipment, facilities, and other items owned or under the control of the Other Party that are reasonably related to the Water Rights or Water Facilities solely for the purpose of confirming the measurement or pricing of, or tolerances or specifications of, any Water Rights or Water Facilities, confirming compliance and performance by the Other Party, or exercising any rights of the Requesting Party, under this Exhibit C.

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ANNEX A

Water Facilities

See below diagram of the Verdigris River, the River Intake Structure, the River Water Pumps, the Y Intersection, and other Raw Water piping and



facilities included in the Water Facilities.

EXHIBIT D

COKE SUPPLY

CRNF and CRRM desire to provide for the provision of Coke by CRRM to CRNF, all upon the terms and subject to the conditions set forth in this Exhibit D.

1. **DEFINITIONS.** The following terms have the meanings set forth below for purposes of this Exhibit D:

“**Advance Sustained Off-Spec Notice**” has the meaning given such term in Section 2(d)(iii) of this Exhibit D.

“**Assurance Amount**” has the meaning given such term in Section 2(b)(iv) of this Exhibit D.

“**Assurances**” has the meaning given such term in Section 2(b)(iv) of this Exhibit D.

“**Base Monthly Amount**” has the meaning given such term in Section 2(a)(i) of this Exhibit D.

“**Breaching Party**” has the meaning given such term in Section 3(a)(i) of this Exhibit D.

“**Coke**” means petroleum coke that meets the specifications set forth on Annex A to this Exhibit D. It is agreed that “Coke” may include API sludges and other oily sludges added to the petroleum coke so long as such petroleum coke continues to meet the specifications for “Coke” set forth on Annex A to this Exhibit D.

“**Delivery Point**” has the meaning given such term in Section 2(c)(i) of this Exhibit D.

“**Event of Breach**” has the meaning given such term in Section 3(a)(i) of this Exhibit D.

“**Excess Coke**” has the meaning given such term in Section 2(a)(i) of this Exhibit D.

“**Intermediate Coke Storage Site**” means that certain intermediate coke storage site owned by CRNF located east of Sunflower Road.

“**Material Adverse Change**” has the meaning given such term in Section 2(b)(iv) of this Exhibit D.

“**Maximum Required Amount**” has the meaning given such term in Section 2(a)(i) of this Exhibit D.

“**Off-Spec Coke**” has the meaning given such term in Section 2(d)(ii) of this Exhibit D.

“**Off-Spec Costs**” has the meaning given such term in Section 2(d)(ii) of this Exhibit D.

“**Purchase Price**” has the meaning given such term in Section 2(b)(i) of this Exhibit D.

“**Sustained Off-Spec Coke**” has the meaning given such term in Section 2(d)(iii) of this Exhibit D.

“**Sustained Off-Spec Costs**” has the meaning given such term in Section 2(d)(iii) of this Exhibit D.

“**Terminating Party**” has the meaning given such term in Section 3(a)(i) of this Exhibit D.

2. COKE SUPPLY.

(a) Coke.

(i) Subject to the terms of this Exhibit D, CRRM agrees to sell and deliver to CRNF, and CRNF agrees to purchase and accept delivery of, each calendar year during the term of this Exhibit D, an amount (the “**Maximum Required Amount**”) equal to the lesser of (i) 100% of the Coke produced at the Refinery during such calendar year, or (ii) 500,000 tons of Coke. In the event that CRRM produces during a calendar month a quantity of Coke that exceeds 41,667 tons of Coke (“**Base Monthly Amount**”), then CRRM may sell the excess amount of Coke (“**Excess Coke**”) to any third party, provided that CRRM first gives CRNF notice of the availability of such Excess Coke and the option of CRNF to purchase all or part of such Excess Coke at the Purchase Price, which option must be exercised by CRNF’s taking delivery of such Excess Coke within 10 days following the date CRRM gives notice of such Excess Coke to CRNF. Coke shall be measured as provided for in Annex B to this Exhibit D.

(ii) During the term of this Exhibit D, CRRM will (i) not less than 30 days prior to the commencement of each calendar quarter, provide CRNF with a good faith written forecast, for the 12 month period commencing on the first day of such calendar quarter, of the quantity of Coke to be produced for such 12 month period, and (ii) on or before February 1 of each calendar year, provide CRNF with a good faith written forecast for the three calendar year period commencing on the first day of the calendar year in which such forecast is provided. Such forecasts shall be part of, or consistent with, CRRM’s business plan. It is understood that the forecasts provided in accordance with this Section 2(a)(ii) are solely for the purpose of facilitating scheduling and delivery of Coke and are not binding upon CRRM or CRNF. CRRM will not have any liability to CRNF arising out of or relating to such forecasts.

(b) Price, Invoices and Payment.

(i) The price for Coke purchased hereunder will be as indicated on Annex A to this Exhibit D (the “**Purchase Price**”).

(ii) To the extent legally permissible, all present and future taxes imposed by any federal, state, local or foreign authority which CRRM may be required to pay or collect, upon or with reference to the sale, purchase, transportation, delivery, storage, use or consumption of Coke, including taxes upon or measured by the receipts therefrom (except net income and equity franchise taxes) will be for the account of CRNF.

(iii) CRRM will invoice CRNF, and CRNF will pay CRRM in accordance with Section 4 of the Agreement.

(iv) As soon as available, and in any event within 90 days after the end of the CRNF's fiscal year and 45 days after the end of each of the first three fiscal quarters of the CRNF's fiscal year, CRNF will provide financial statements to CRRM to support its purchase of Coke under the terms of this Exhibit D on an unsecured basis. In the event that, in CRRM's sole judgment and utilizing financial and credit metrics commonly used to analyze the CRRM's existing customer base, there is deemed to exist any material adverse change in the financial condition or liquidity of CRNF and/or in the then current ability of CRNF to discharge its existing or future payment obligations hereunder (a "**Material Adverse Change**"), CRRM will have the right, upon written notice to CRNF, to require that CRNF provide additional assurances ("**Assurances**") to CRRM as security for CRNF's obligations hereunder, which notice shall include (A) a summary of the information upon which CRRM has based its determination that such a Material Adverse Change has occurred, and (B) the dollar amount of the required Assurances (the "**Assurance Amount**"), which Assurance Amount shall not exceed the product of the following: (1) the average daily dollar value of Coke purchased by CRNF from CRRM for the 90 day period preceding the date on which CRRM gives notice to CRNF that a Material Adverse Change has occurred, multiplied by (2) 21. Unless otherwise agreed by the Parties with respect to a Material Adverse Change that is the subject of such a notice, any requirement of such Assurances with respect to such Material Adverse Change shall be satisfied only by CRNF's delivery to CRRM of Assurances in the form and nature of any of the following: (x) an irrevocable standby or documentary letter of credit, for a duration and in an amount sufficient to cover the Assurance Amount, in a format reasonably satisfactory to CRRM and issued or confirmed by a bank reasonably acceptable to CRRM; (y) a prepayment to cover the Assurance Amount; and/or (z) a surety instrument for a duration and in an amount sufficient to cover the Assurance Amount, in a format reasonably satisfactory to CRRM and issued by a financial institution or insurance company reasonably acceptable to CRRM. All bank charges relating to any letter of credit and any fees, commissions, premiums, costs and expenses incurred with respect to furnishing such Assurances will be for CRNF's account. CRNF agrees, at any time and from time to time upon the request of CRRM, to execute, deliver and acknowledge, or cause to execute, deliver and acknowledge, such further documents and instruments and do such other acts and things as CRRM may reasonably request in order to fully effect the purposes of this Section 2.2(b)(iv). If CRNF does not provide such Assurances within five days following the giving of written notice by CRRM that a Material Adverse Change has occurred and that such Assurances are required, CRRM may, in addition to any and all remedies available to CRRM hereunder or at law or in equity, require CRNF to pay for future deliveries of Coke on a cash-on-delivery basis, failing which CRRM may suspend further delivery of Coke until such Assurances are provided and terminate this Exhibit D upon 30 days prior written notice to CRNF. Notwithstanding anything to the contrary in this Exhibit D, CRNF may, within 60 days after it provides Assurances to CRRM as required hereunder, terminate this Exhibit D upon five days prior written notice to CRRM, provided that such termination shall not limit or affect the right of CRRM to draw upon the Assurances, or pursue any other remedies available hereunder, at law, or in equity, with respect to any obligations of CRNF hereunder. Any Assurances provided by CRNF shall be promptly released following such termination and satisfaction of any remaining obligations to CRRM.

(c) Delivery, Title and Risk of Loss.

- (i) Delivery of Coke to CRNF will take place FOB Refinery in the eastern half of the Refinery's Coke pit (the "**Delivery Point**") and will be loaded at the Delivery Point by CRNF, at its expense, into transport trucks supplied by CRNF or its contractor. Title and risk of loss to the Coke delivered under this Exhibit D will pass from CRRM to CRNF upon loading of the Coke into such trucks at the Delivery Point. CRRM shall permit such trucks to enter upon Refinery premises as reasonably necessary to load the Coke into such trucks and related ingress and egress.
- (ii) CRNF is required to take delivery of Coke and remove it from the Delivery Point on a ratable basis so that Coke inventory accumulation at the Delivery Point will not exceed 1,500 tons at any time, and so that the Delivery Point will, at least once during every calendar day, not contain any Coke (other than residual Coke fines or Coke that is at or below the water level in the Coke pit at the Delivery Point). In the event that the daily production of Coke by CRRM increases, CRNF will be required to take delivery of Coke as often as is necessary based upon the increased production by CRRM so as to continue to satisfy CRNF's obligations under the immediately preceding sentence. Notwithstanding the foregoing, CRNF shall have no obligation to take delivery of Excess Coke unless CRNF elects to purchase such Excess Coke.
- (iii) If CRNF does not take delivery of the Coke in accordance with this Exhibit D, such quantities will be delivered by CRRM on CRNF's behalf to the Intermediate Coke Storage Site. CRNF will pay CRRM for all Coke delivered into the Intermediate Coke Storage Site, the Purchase Price, plus CRRM's costs of delivering the Coke. Title and risk of loss or damage to such Coke will pass to CRNF upon delivery into the Intermediate Coke Storage Site, and CRRM will invoice CRNF the Purchase Price plus the fee upon delivery into the Intermediate Coke Storage Site.

(d) Sampling, Analysis and Weighing.

- (i) CRRM will sample the Coke produced by each production turn and the Coke purchased by CRNF as per its standard practice, perform chemical and physical analyses in accordance with Annex B to this Exhibit D, and either average the analyses of such samples, or composite the samples for one analysis, to determine a weekly average analysis that will be deemed to be the analysis of Coke loaded into trucks by CRNF or delivered to CRNF, as the case may be, during such week. The weekly weighted average Coke analysis will be transmitted electronically or telefaxed to such Person as CRNF may from time to time direct as soon as available, it being understood that such analysis will be available as soon as practicable, normally within 24 to 48 hours of the analyzed Coke's delivery. Such weekly average analyses will be rebuttably presumptively correct as to the quality of Coke sold hereunder; however, if CRNF should encounter material discrepancies between CRRM's weekly average analyses and CRNF's own quality analyses, CRNF and CRRM will meet to discuss the reasons for such discrepancies and any appropriate remedial action. If CRNF encounters any such material discrepancy, then CRNF will retain a sample of the Coke sampled pursuant to this Section 2(d)(i) for its own quality analysis, labeled so as to identify the truck load that was sampled. In the event that CRNF and CRRM cannot agree as to the quality of the Coke, either party may, without limitation, submit such dispute for resolution in accordance with Section 13 of the Agreement.

(ii) CRRM shall give to CRNF at least 24 hours advance notice if CRRM has actual knowledge that any petroleum coke to be made available for delivery to CRNF hereunder on a specified date will not meet the specifications for Coke set forth on Annex A to this Exhibit D (“**Off-Spec Coke**”). CRNF shall have the right to refuse delivery of such Off-Spec Coke, provided that if CRNF does accept delivery of any Off-Spec Coke, then such Off-Spec Coke accepted by CRNF shall be deemed Coke for all other purposes of this Exhibit D. In the event that CRRM gives advance notice of Off-Spec Coke to CRNF, with respect to the Coke that is available on more than 20 days in any calendar year, or Off-Spec Coke is otherwise delivered to CRNF on more than 20 days in any calendar year, and CRNF is required to incur additional capital costs to handle such Off-Spec Coke (“**Off-Spec Costs**”), then CRNF shall give written notice of such Off-Spec Costs to CRRM and CRRM shall, within 30 days thereafter, elect by written notice to CRNF to either (A) adjust the Purchase Price on a mutually agreeable commercially reasonable basis to address such additional Off-Spec Costs, or (B) share such additional Off-Spec Costs on a mutually agreeable commercially reasonable basis.

(iii) CRRM shall give to CRNF not less than three years advance written notice (the “**Advance Sustained Off-Spec Notice**”) that CRRM reasonably anticipates, based upon reasonably expected expansion or revamp plans for the Refinery or reasonably expected changes in the feedstocks used in the production of Coke, that the Coke to be made available hereunder will, for a sustained period of more than seven consecutive days, have either of the following (“**Sustained Off-Spec Coke**”): (A) HGI below 30, or (B) sulfur content in excess of 5.0 wt. %. CRNF shall determine, on a commercially reasonable basis, and deliver to CRRM within 90 days following the Advance Sustained Off-Spec Notice, written notice of the additional capital costs that CRNF reasonably anticipates that it will be required to incur in order to handle such Sustained Off-Spec Coke on a commercially reasonable basis (“**Sustained Off-Spec Costs**”). Following receipt by CRRM of such notice of Sustained Off-Spec Costs, CRRM shall, within 90 days thereafter, elect by written notice to CRNF to either (x) adjust the Purchase Price on a mutually agreeable commercially reasonable basis to address such additional Sustained Off-Spec Costs, or (y) direct CRNF to invoice CRRM for the actual commercially reasonable Sustained Off-Spec Costs as and when incurred by CRNF, which invoice shall include reasonable documentation of such Sustained Off-Spec Costs as incurred.

(iv) CRNF reserves the right to perform quality analyses more often than weekly and, in the event that any such quality analyses demonstrates a material discrepancy between the analyses performed by CRRM and CRNF, such discrepancy shall be addressed as provided in Section 2(d)(i) of this Exhibit D.

(v) With respect to shipments of Coke, the quantities used for billing hereunder will be as determined in accordance with the Coke quantity measurement provision in Annex B to this Exhibit D.

(e) Terms and Conditions of Sale.

(i) In the event that any shipment of Coke does not conform to the applicable specifications, the Party discovering the nonconformity will provide prompt written notice to the other Party (and in any event, within two days after the arrival of the shipment) of the nonconformity, which notice will include copies of all analyses and other documentation describing and quantifying the nonconformity, and the Parties will promptly undertake negotiations in good faith to effectuate an appropriate disposition of the nonconforming material, which may include an equitable price adjustment. In the event that the Parties are unable to agree to an appropriate disposition of the nonconforming material within 14 days, either Party may submit such dispute for resolution in accordance with Section 13 of the Agreement.

(ii) In the event of a conflict between the terms and conditions of this Exhibit D and the terms or conditions contained in any notice, shipment, specifications, purchase order, sales order, acknowledgement or other document which may be used in connection with the transactions contemplated by this Exhibit D, the terms and conditions of this Exhibit D will supersede and govern, unless expressly waived in accordance with Section 21 of the Agreement.

(f) Warranty. Except for Off-Spec Coke identified in advance and delivered to CRNF in accordance with Section 2(d)(ii) of this Exhibit D, CRRM warrants that all Coke sold by CRRM hereunder will conform to the specifications set forth in Annex A to this Exhibit D. OTHER THAN AS AFORESAID, CRRM MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE ARE HEREBY EXPRESSLY DISCLAIMED BY CRRM AND EXCLUDED HEREUNDER.

3. **TERMINATION.** This Exhibit D may be terminated as follows:

(a) Termination. In addition to the termination provisions provided in the Agreement

(i) by one Party (the “**Non-Breaching Party**”) upon notice to the other Party (the “**Breaching Party**”), following the occurrence of an Event of Breach with respect to the Breaching Party. For purposes hereof, an “**Event of Breach**” occurs when a breach of this Exhibit B by the Breaching Party has not been cured by such Breaching Party within 10 days after receipt of written notice thereof from the Non-Breaching Party with respect to breach of any monetary payment obligation, or, in the case of a breach other than of any monetary payment obligation, within 30 days after such receipt, or, in the case of a breach that is not reasonably feasible to effect a cure within said 30-day period, within 90 days after such receipt provided that the Breaching Party diligently prosecutes the cure of such breach;

(ii) by CRRM effective as of the permanent termination of substantially all of the operations at the Refinery (with no intent by CRRM or its successor to recommence operations at the Refinery); provided, however, that notice of such permanent termination of operations shall be provided by CRRM to CRNF at least 12 months prior to such permanent termination;

(iii) by CRNF effective as of the permanent termination of substantially all of the fertilizer production operations at the Fertilizer Plant (with no intent by CRNF or its successor to recommence operations at the Fertilizer Plant); provided, however, that notice of such permanent termination of operations shall be provided by CRNF to CRRM at least 12 months prior to such permanent termination; or

(iv) by one Party upon notice to the other Party following (A) the appointment of a receiver for such other Party or any part of its property, (B) a general assignment by such other Party for the benefit of creditors of such other Party, or (C) the commencement of a proceeding under any bankruptcy, insolvency, reorganization, arrangement or other law relating to the relief of debtors by or against such other Party; provided, however, that if any such appointment or proceeding is initiated without the consent or application of such other Party, such appointment or proceeding shall not constitute a termination event under this Exhibit D until the same shall have remained in effect for 60 days.

(b) Effects of Expiration or Termination. CRRM and CRNF agree that upon and after expiration or termination of this Exhibit D:

(i) CRNF will remain obligated to make any payment due to CRRM hereunder for any Coke delivered to or purchased by CRNF prior to termination.

(ii) Liabilities of any Party arising from any act, breach or occurrence prior to termination will remain with such Party.

(iii) The Parties' rights and obligations under Sections 2(b), 2(c), 2(e) and 2(f) of this Exhibit D, will survive the expiration or termination of this Exhibit D.

[Remainder of page intentionally left blank.]

ANNEX A

Analysis, Specifications and Pricing for Coke

- Sulfur	3.5 wt. % (dry, typical); provided, however, that the sulfur will not exceed 4.5% on a monthly average basis and will not exceed 6% on a weekly composite basis
- Ash	0.35 wt. % (dry, maximum)
- Chloride content	30.0 ppm by wt. dry basis (maximum)
- Moisture content	CRRM to provide report of moisture content for available Coke on a monthly basis.
- Volatile matter	9 to 14%
- Hardness	30.0 HGI (maximum)
- Purchase Price	The Purchase Price per ton of Coke will be the lesser of the Index Price or the UAN Netback Based Price. The Index Price shall be the mid-point for the most recent published quarter in the Pace Petroleum Coke Quarterly under the heading "Midwest Green Coke, Chicago Area, FOB Source." (in the event Pace Petroleum Coke Quarterly ceases to be published or ceases to include a heading for "Midwest Green Coke, Chicago Area", the Parties will agree on a substitute Coke index). The UAN Netback Based Price shall be \$25 per ton at a UAN netback plant price of \$205, adjusted up or down \$0.50 per ton for each \$1 change in the UAN netback plant price, up to a UAN Netback Based Price cap of \$40 per ton or down to a UAN Netback Based Price floor of \$5 per ton. The UAN netback plant price will be the netback price realized by CRNF at the Fertilizer Plant for the calendar month preceding the month of Coke delivery based upon the books and records of the CRNF. In no event shall the Purchase Price per ton of Coke be below \$0. The Purchase Price shall be subject to adjustment as provided in <u>Sections 2(d)(ii) and (iii)</u> of this <u>Exhibit D</u> .

ANNEX B

Coke Measurement, Sampling and Testing Procedures

- Quantity measurement	CRRM shall, upon opening a coke drum and prior to emptying the contents of such coke drum into the coke pit, determine Coke quantity by measuring the "outage" for a coke drum which is the distance from the designated spot near the top of each coke drum down to the level in the drum where the Coke begins. An outage table, attached as <u>Appendix 1</u> to this <u>Annex B</u> , will then be utilized along with the measured outage to determine the quantity of Coke in the coke drum. The Coke quantity so determined shall be recorded in the CRRM's outage log. A copy of the outage log shall be provided to CRNF with each invoice. CRRM shall maintain for three years all records related to the determination of Coke quantity along with the outage log and the CRNF, upon reasonable request, may review such records and logs and may observe the physical measurement of the coke drum outage.
- Sampling and testing	Representative drum cut samples will be composited and tested for ash, sulfur and chlorine per the following methodology: Sample Preparation: ASTM D346-90 "Collection and Preparation of Coke Samples For Laboratory

Analysis”

Deviation: A 2.5 gallon sample will be used.

Ash: ASTM D3174-02 “Ash in the Analysis Sample of Coal and Coke from Coal”

Deviation: Ashed at 750C to constant weight.

Sulfur and Chlorine: X-ray analysis of whole coke as pressed pellet against known Standards.

ANNEX B

Appendix 1

Coke Chamber Gauge Coffeyville Refinery

Outage feet	tons EW	tons NS	Outage feet	tons EW	tons NS	Outage feet	tons EW	tons NS
54	194	137						
53 1/2	198	140	41 1/2	288	214	29 1/2	378	287
53	201	143	41	292	217	29	382	291
52 1/2	205	146	40 1/2	295	220	28 1/2	386	294
52	209	149	40	299	223	28	389	297
51 1/2	213	152	39 1/2	303	226	27 1/2	393	300
51	216	155	39	307	229	27	397	303
50 1/2	220	159	38 1/2	310	232	26 1/2	401	306
50	224	162	38	314	235	26	405	309
49 1/2	228	165	37 1/2	318	238	25 1/2	408	312
49	231	168	37	322	241	25	412	315
48 1/2	235	171	36 1/2	326	245	24 1/2	416	318
48	239	174	36	329	248	24	420	321
47 1/2	243	177	35 1/2	333	251	23 1/2	423	324
47	246	180	35	337	254	23	427	327
46 1/2	250	183	34 1/2	341	257	22 1/2	431	330
46	254	186	34	344	260	22	435	334
45 1/2	258	189	33 1/2	348	263	21 1/2	438	337
45	262	192	33	352	266	21	442	340
44 1/2	265	195	32 1/2	356	269	20 1/2	446	343
44	269	198	32	359	272	20	450	346
43 1/2	273	202	31 1/2	363	275	19 1/2	453	349
43	277	205	31	367	278	19	457	352
42 1/2	280	208	30 1/2	371	281	18 1/2	461	355
42	284	211	30	374	284	18	465	358

EXHIBIT E

FEEDSTOCK AND SHARED SERVICES

CRRM requires access to certain property and structures located on the Fertilizer Plant site to conduct its business, and CRNF requires access to certain structures and property located on the Refinery site to conduct its business.

ARTICLE 1

DEFINITIONS.

The following terms shall have the meanings set forth below, unless the context otherwise dictates, both for purposes of this Exhibit E and all Annexes hereto:

“*Ammonia Price*” means the price for anhydrous ammonia determined for a particular month as follows: The price per short ton of anhydrous ammonia shall be the average of (i) the average of the price range published in each weekly issue of “Green Markets” under the heading of “Ammonia” for “Southern Plains” averaged over such weekly issues published in the applicable calendar month, and (ii) the average of the price range published in each weekly issue of “Fertilizer Week America” under the heading of “Ammonia” for FOB Southern Plains” averaged over such weekly issues published in the applicable calendar month. In the event that either of the aforesaid publications ceases to be published, then the price per short ton of anhydrous ammonia shall be determined by reference to the publication that does not cease publication, using the average price range as provided for above. In the event that both of the aforesaid publications cease to be published, then the price per short ton of anhydrous ammonia shall be determined by reference to

such generally accepted industry publication as CRNF may designate with the consent of the CRRM, which consent shall not be unreasonably withheld or delayed.

“Ammonia Synthesis Loop” means that ammonia synthesis loop within the Fertilizer Plant shown on Annex A hereto, including any additions or other modifications made thereto from time to time.

“Coke” has the meaning given such term in Exhibit D.

“Coke Supply Agreement” means the agreement set forth in Exhibit D.

“cscf” means one hundred scf.

“Easement Agreement” means the agreement set forth in Exhibit A.

“Feedstock” means the materials and streams described in Annex B to this Exhibit E, all within the tolerances and to the specifications therein contained, that are provided by or on behalf of CRRM to CRNF, or by or on behalf of CRNF to CRRM, as the case may be and as otherwise may be agreed by the Parties.

“Feedstock Delivery Points” means the points at which the Feedstock is transferred from CRNF to CRRM, or from CRRM to CRNF, as the case may be and as shown on Plot Plan A and Drawing D11-0913B constituting a part of Annex A to this Exhibit E.

“Fertilizer Plant Water Clarifier” means the CRNF’s water clarifier and associated equipment as shown on Plot Plan A constituting a part of Annex A to this Exhibit E.

“Fire Water” means the water and related systems to provide water for use in fire emergencies and the like.

“Gasification Unit” means that gasification unit shown on Plot Plan A constituting a part of Annex A to this Exhibit E, including any additions or other modifications made thereto from time to time.

“Grounds” means the realty on which the Fertilizer Plant is situated, which Grounds are shown on Plot Plan A constituting a part of Annex A to this Exhibit E.

“High Pressure Steam” means steam described in Annex B to this Exhibit E under the heading “High Pressure Steam,” all within the tolerances and in compliance with the specifications therein contained.

“Hydrogen” means hydrogen in its gaseous form, as described in Annex B to this Exhibit E, all within the tolerances and in compliance with the specifications therein contained.

“Hydrogen Purchase and Sale Agreement” means the agreement set forth in Exhibit B.

“Instrument Air” means air produced by mechanical compression as described in Annex B to this Exhibit E, all within the tolerances and in compliance with the specifications therein contained.

“Messer” means Messer, LLC, a Delaware limited liability company.

“Messer Agreement” means that certain Amended and Restated On-Site Project Supply Feedstock and Shared Services Agreement between CRNF and Messer (as successor in interest to Linde, LLC, as successor in interest to The BOC Group, Inc.), dated as of June 1, 2005, as amended.

“Messer Facility” means the plant for the production of certain products and argon, including metering and related facilities, together with an inter-connected liquid nitrogen product storage vessel and vaporization equipment, as shown on Annex A hereto, all connected to the pipelines owned by Messer, including any additions or other modifications made thereto from time to time.

“mlbs” means one thousand pounds.

“MMBtu” means one million British thermal units.

“mmscf” means one million scf.

“mmscfd” means one million scf per day.

“mscf” means one thousand scf.

“Natural Gas Line” means the pipeline delivering natural gas in form, as described in Annex B to this Exhibit E, from Southern Star’s pipeline to the Refinery.

“NG Interconnect Line” means the former Tail Gas line that will deliver natural gas from the Refinery to the Fertilizer Plant.

“Nitrogen” means nitrogen in its gaseous form, as described in Annex B to this Exhibit E, all within the tolerances and in compliance with the specifications therein contained.

“Offsite Sulfur Recovery Unit” means that sulfur processing facility owned and operated by TKI pursuant to the TKI Phase II Feedstock and Shared Services Agreement, which Offsite Sulfur Recovery Unit is shown on Plot Plan A constituting a part of Annex A to this Exhibit E, including any additions or other modifications made thereto from time to time.

“Owner” means CRNF or CRRM, as the context requires.

“Oxygen” means oxygen in its gaseous form, as described in Annex B to this Exhibit E, all within the tolerances and in compliance with the specifications therein contained.

“PPM” means parts per million.

“psf” means pounds per square inch.

“psig” means pounds per square inch gauge.

“Raw Water and Facilities Sharing Agreement” means the agreement set forth in Exhibit C.

“Refinery Water Clarifier” means the CRRM’s water clarifier and associated equipment.

“scf” means standard cubic feet at 60°F and at atmospheric pressure equal to 29.92 inches of mercury absolute, measured by standard sharp edge orifice plate and differential pressure transmitters located at the Fertilizer Plant. The measured flow shall be pressure and temperature compensated and totalized by the Fertilizer Plant’s Honeywell process control computer (TDC 3000) or any replacement computer. All transmitter signals and computer calculations are available to the Refinery through the existing communications bus for verification. Calibration of the transmitters shall be done at least annually and may be done more frequently at CRRM’s request.

“Security Contract” means any agreement for security services to which CRRM is a party pursuant to which security services are provided on the Refinery premises and environs and on the Fertilizer Plant premises and environs.

“Services” means the services described as such on Annex B to this Exhibit E.

“Sour Water” means the process stream described on Annex B to this Exhibit E that meets the tolerances and specifications therein contained.

“ST” means short tons.

“STPD” means short tons per day.

“TKI” means Tessenderlo Kerley, Inc.

“TKI General Plant and Labor Costs” means (a) the costs incurred and appropriately billed to CRRM pursuant to the TKI Phase I Agreement and (b) the costs incurred and appropriately billed to CRNF pursuant to the TKI Phase II Agreement.

“TKI Phase I Agreement” means that certain Amended and Restated Phase I Sulfur Processing Agreement, dated June 28, 2009, between CRRM and TKI, as amended from time to time.

“TKI Phase I Unit” means the sulfur processing facility owned and operated by TKI pursuant to the TKI Phase I Agreement.

“TKI Phase II Agreement” means that certain Amended and Restated Phase II Sulfur Processing Agreement, dated June 28, 2009, between CRNF and TKI, as amended from time to time.

“Transfer” means the sale, exchange, gift or other assignment of rights or interests, whether by specific assignment, merger, consolidation, entity conversion or other disposition, but not including any bona fide pledge or assignment for collateral purpose in connection with any financing.

“UAN Plant” means the urea ammonium nitrate plant shown on Annex A to this Exhibit E, including any additions or other modifications made thereto from time to time.

“UAN Price” means the price for 32% urea ammonium nitrate determined for a particular month as follows: The price per short ton of 32% urea ammonium nitrate shall be the average of (a) the average of the price range published in each weekly issue of “Green Markets” under the heading of “UAN” for “Mid Comber averaged over such weekly issues published in the applicable calendar month and then multiplied by 32, and (b) the average of the price range published in each weekly issue of “Fertilizer Week America” under the heading of “UAN” for “FOB Midwest” averaged over such weekly issues published in the applicable calendar month. In the event that either of the aforesaid publications ceases to be published, then the price per short ton of 32% urea ammonium nitrate shall be determined by reference to the publication that does not cease publication, using the average price range as provided for above. In the event that both of the aforesaid publications cease to be published, then the price per short ton of 32% urea ammonium nitrate shall be determined by reference to such generally accepted industry publication as CRNF may designate with the consent of the CRRM, which consent shall not be unreasonably withheld or delayed.

“Utility Facilities” mean the utility facilities shown on Annex A to this Exhibit E, including any additions or other modifications made thereto from time to time.

ARTICLE 2

FEEDSTOCK AND SHARED SERVICES

Section 2.1 Steam.

2.1.1 Refinery Steam Obligations

(a) Start-up Steam. CRRM shall, upon reasonable request by the CRNF, make available to CRNF High Pressure Steam at a cost to CRNF as designated on Annex B to this Exhibit E, at sufficient pressure and in sufficient amounts, to allow CRNF to commence and recommence operation of the Fertilizer Plant from time to time at CRNF's request. The parties anticipate that commencement and/or recommencement of Fertilizer Plant operations will require approximately 75,000 pounds per hour of High Pressure Steam. For purposes of this Section 2.1.1(a), such High Pressure Steam shall be referred to as "Start-Up Steam." CRRM shall use commercially reasonable efforts to make available Start-Up Steam when requested by CRNF; provided that CRRM shall not be obligated to make available Start-Up Steam hereunder if doing so would have a material adverse effect on Refinery operations. CRNF shall provide reasonable notice to CRRM of the approximate time and date of each of its requirements for Start-Up Steam.

(b) Messer Steam. CRRM shall make commercially reasonable efforts as its operations permit, at a cost to CRNF as set forth in Annex B to this Exhibit E, to make available High Pressure Steam produced at the Refinery to the CRNF, solely for use at the Messer Facility. CRNF shall provide reasonable notice to CRRM of the approximate time and date of each of its requirements for High Pressure Steam under this Section 2.1.1(b); provided that CRRM shall not be obligated to make available High Pressure Steam hereunder if doing so would have a material adverse effect on Refinery operations.

2.1.2 Fertilizer Plant Steam Obligations

CRNF shall make available at a cost to CRRM as set forth in Annex B to this Exhibit E, solely for use at the Refinery, any High Pressure Steam produced by the Fertilizer Plant that is not required for the operation of the Fertilizer Plant, following reasonable notice from CRRM requesting such steam.

2.1.3 Mutual Steam Obligations

(a) Low Pressure Steam. CRRM and CRNF may supply each other any steam (other than High Pressure Steam) produced by either of their respective operations, which is not required by such operation and is required for the other Party's operation, at no cost; provided, however, there shall be no obligation by either Party to supply any such steam and the Party requiring such steam shall give reasonable notice to the other Party of any request.

(b) Steam Condensate. CRRM shall retain all steam condensate for steam delivered to CRRM hereunder and CRNF shall retain all steam condensate for all steam delivered to CRNF hereunder.

Section 2.2 Nitrogen. CRNF shall make available to CRRM, solely for use at the Refinery, any Nitrogen produced by the Messer Facility and available to CRNF that is not required, as determined in a commercially reasonable manner by CRNF based on its then current or anticipated operational requirements, for the operation of the Fertilizer Plant, following reasonable notice from CRRM requesting such Nitrogen, at a cost to CRRM as designated on Annex B to this Exhibit E.

Section 2.3 Instrument Air.

(a) CRNF shall make available for purchase by CRRM, for use solely at the Refinery, Instrument Air at a flow rate of not less than 3mscf/minute to the extent produced by the Messer Facility and available to CRNF and not required, as determined in a commercially reasonable manner by CRNF based on its then current or anticipated operational requirements, for the operation of the Fertilizer Plant, at a cost to CRRM as designated on Annex B to this Exhibit E and following reasonable request and notice from CRRM.

(b) CRRM shall make available for purchase by CRNF for use solely at the Fertilizer Plant, Instrument Air to the extent that Instrument Air is not available from the Messer Facility and is available from CRRM and not required, as determined in a commercially reasonable manner by CRRM based on its then current or anticipated operational requirements, for the operation of the Refinery, at a flow rate of not less than 3 mscf/minute and at a cost to CRNF as designated on Annex B to this Exhibit E and following reasonable request and notice from the CRNF.

(c) Either CRNF or CRRM may terminate its obligation to make Instrument Air available for purchase by the other Party hereunder upon not less than 12 months prior written notice to the other Party.

Section 2.4 Oxygen Supply to Refinery. CRNF shall provide to CRRM, solely for use at the Refinery, any Oxygen produced by the Messer Facility and made available to CRNF, as determined in a commercially reasonable manner by Messer based on its then current or anticipated operational requirements for the operation of the Fertilizer Plant, following reasonable notice from CRRM requesting such Oxygen and as further detailed in Annex B to this Exhibit E.

Section 2.5 Coke Supply to Fertilizer Plant. The terms and conditions governing CRRM's sales of Coke to CRNF shall be set forth in the Coke Supply Agreement.

Section 2.6 Sulfur; TKI Agreements.

(a) TKI Phase II Agreement. CRRM shall provide to TKI the utilities described in Section 2.6 of the TKI Phase II Agreement. CRNF shall reimburse CRRM for such utilities provided. Without limiting the foregoing, CRNF shall reimburse CRRM for electricity used by the Offsite Sulfur Recovery Unit as determined by the estimated electrical load of the Offsite Sulfur Recovery Unit, which estimated electrical load is 1,051 kilowatts. The number of kilowatts provided for in the immediately preceding sentence will be multiplied by the average rate per kilowatt hour that CRRM pays for

electricity times the hours the Offsite Sulfur Recovery Unit is in operation in the calendar month for which such electricity reimbursement is being calculated. CRRM shall receive, at no cost to either Owner, all return utility streams consisting primarily of low pressure steam (but excluding sulfur from the Offsite Sulfur Recovery Unit) and steam condensate under the TKI Phase II Agreement. CRNF shall not amend or terminate the TKI Phase II Agreement without the prior written consent of CRRM, which consent shall not be unreasonably withheld or delayed. CRRM shall not amend or terminate the TKI Phase I Agreement without the prior written consent of CRNF, which consent shall not be unreasonably withheld or delayed.

(b) Cost Sharing. The TKI General Plant and Labor Costs shall be shared equally by the Parties; provided, however, that in those instances where a particular cost can be reasonably determined to be associated with a particular Party, such Party shall bear such cost.

(c) Sulfur to Block. If at any time the pricing mechanisms for sulfur contained in Section 8.1 of the TKI Phase II Agreement do not accurately reflect then current sulfur market conditions, resulting in CRNF retaining sulfur in lieu of selling such excess sulfur to TKI, then CRRM agrees to remove and take title to such sulfur in exchange for a fee payable by CRNF to CRRM of \$11.50 per long ton, with such fee representing the costs incurred by CRRM to transport and store sulfur to block. The foregoing fee may be adjusted from time to time by mutual agreement of the parties to take into account charges assessed by third parties for loading sulfur into equipment owned or controlled by CRRM, or other potential increases or decreases in charges.

Section 2.7 Water.

(a) Raw Water. The allocation of raw water rights and obligations between CRNF and CRRM is provided in the Raw Water and Facilities Sharing Agreement.

(b) Sour Water. CRRM shall receive and process, at no cost to CRNF, all of the Sour Water produced at the Fertilizer Plant which does not exceed the volume parameters set forth on Annex B to this Exhibit E.

(c) Refinery Supply of Fire Water. CRRM shall, at no cost or expense to CRNF, use reasonable efforts to keep and maintain its Fire Water systems, tanks, water inventory and equipment in such condition, repair and state of readiness so as to allow uninterrupted service to CRNF for use at the Fertilizer Plant and shall grant CRNF access to the Fire Water system for use of such system in conjunction with the Fire Water system of the Fertilizer Plant, for use in connection with CRNF's street sweeper and for use in washing down the Fertilizer Plant coke pad. The Refinery's Fire Water system and the points of access by CRNF to the Fire Water system are shown on Plot Plan A which constitutes part of Annex A to this Exhibit E. Notwithstanding the foregoing, CRNF acknowledges and agrees that CRRM shall not be liable for any damages incurred resulting from its failure or inability to provide Fire Water hereunder. If CRRM should cease operations of the Refinery (including the Refinery Fire Water system), CRRM shall provide advance notice of such cessation of operations to CRNF and CRNF may, upon notice to CRRM, operate such Refinery Fire Water System, at the cost and expense of CRNF and for the benefit of CRNF for a period of up to two years.

Section 2.8 Security. CRNF agrees to pay its pro rata share (determined as provided in Annex B to this Exhibit E) of security services provided under the Security Contract upon receipt of an invoice from CRRM for such pro rata share, as provided in Annex B to this Exhibit E. CRRM and CRNF shall also cooperate in developing and administering a mutual security plan. CRRM may, upon six months prior written notice to CRNF, require CRNF to enter into a separate agreement for security services and adopt and administer a security plan covering solely its premises. CRNF may, upon six months prior written notice to CRRM, terminate taking security services from CRRM, whereupon at the end of such six month period, CRNF may cease paying CRRM for such security services and will adopt and administer its own security plan. CRNF acknowledges and agrees that CRRM shall not be liable to CRNF for any damages, losses or other liability arising, directly or indirectly, out of the services performed by any service provider engaged by CRRM to perform security services, or arising, directly or indirectly, out of any mutual security plan.

Section 2.9 Hydrogen Supply.

(a) Upon reasonable request by CRRM from time to time during the term of this Exhibit E, and to the extent available to CRNF, CRNF agrees to provide Hydrogen to CRRM in accordance with the specifications set forth on Annex B to this Exhibit E and for the applicable prices set forth on Annex B to this Exhibit E, in each case subject to the following:

(i) CRNF will not be obligated to provide any Hydrogen to CRRM if such Hydrogen is required, as determined in a commercially reasonable manner by CRNF based on its then current or anticipated operation requirements, for the operation of the Fertilizer Plant;

(ii) CRNF will not be obligated to provide any Hydrogen to CRRM if CRNF or the board of directors of the general partner of CVR Partners, LP (the sole member of CRNF) determines, in each case in their sole discretion, that such sale of Hydrogen would adversely affect the classification of CVR Partners, LP as a partnership for federal income tax purposes; and

(iii) CRNF will not be obligated to provide any Hydrogen to CRRM if CRNF determines in its sole discretion that such sale of Hydrogen would not be in CRNF's best interest.

(b) Notwithstanding the provisions of (a) above, CRRM and CRNF may purchase Hydrogen from the other party upon such terms and conditions as the parties mutually agree upon in writing from time to time with respect to any single purchase, any series of purchases, or otherwise.

Section 2.10 Natural Gas. CRRM purchases natural gas on Southern Star and such natural gas is transported and delivered to the Refinery by the Natural Gas Line and transported and delivered from the Refinery to the Fertilizer Plant by the NG Interconnect Line. CRRM will nominate and purchase natural gas transportation and natural gas supplies for the CRNF and CRNF agrees to coordinate with CRRM with respect to such nominations and to provide CRRM timely information regarding CRNF's requirements for natural gas transportation and natural gas supplies. CRRM shall provide CRNF with an invoice for natural gas supply and transportation services received by CRNF promptly following CRRM's receipt of invoices from Southern Star (or CRRM's then-current natural gas transportation provider(s)), any relevant natural gas pipeline and the then current natural gas supplier(s) and for agreed to fees related to infrastructure constructed by CRRM to supply natural gas to CRNF, as further detailed in Annex B to this Exhibit E.

Section 2.11 At the request of either CRNF or CRRM, the Parties agree to use their commercially reasonable efforts to (a) add CRNF as a party to any natural gas transporter, any successor natural gas provider, or to reach some other mutually acceptable accommodation (including, but not limited to separate natural gas transportation agreements or sales agreements) whereby both CRRM and CRNF would each be able to receive, on an individual basis, natural gas transportation service from the current natural gas provider or a successor natural gas provider on similar terms and conditions; and (b) separate natural gas purchasing so that the CRRM and CRNF would each purchase for their own account the natural gas supplies to be delivered to the Refinery and Fertilizer Plant respectively.

Section 2.12 Railroad Tracks. CRRM and CRNF currently share rail services on railroad tracks that traverse the Refinery premises in part and the Fertilizer Plant premises in part, some of which railroad tracks are owned by Union Pacific and operated by South Kansas & Oklahoma Railroad, Inc., or their successors ("**Main Tracks**"), some of which railroad tracks are owned and operated by CRRM ("**Refinery Tracks**"), and some of which railroad tracks are owned and operated by CRNF ("**Fertilizer Tracks**"). The Parties agree to coordinate and cooperate to ensure that each Party has access to the Main Tracks, the Refinery Tracks, and the Fertilizer Tracks for the receipt of Feedstocks and delivery out of products, and to pay a mutually agreed prorated share of the costs and expense of maintaining such railroad tracks based upon an approximation of actual use. Each Party shall use its best commercially reasonable efforts to move railroad cars from the Main Tracks to the Refinery Tracks or the Fertilizer Tracks as soon as possible following arrival of such railroad cars. Each Party shall utilize such Party's own railroad sidings for the loading and unloading of any products or other items by such Party. Railroad track sharing between the Parties shall also be subject to and in accordance with the railroad trackage easements provided for in the Easement Agreement.

Section 2.13 South Administration Building, Laboratory Building, and Oil Storage Building Use and Occupancy. The CRRM will allow CRNF to occupy a portion of the buildings known on the date hereof as the "South Administration Building," the "Laboratory Building," and the Oil Storage Building for, without limitation, purposes of office space, maintenance space, storage and laboratory space therein, as more specifically provided in the Agreement.

Section 2.14 Tank Capacity. To the extent available, CRRM and CRNF agree to provide the other Party with finished product tank capacity from time to time. The terms under which such tank capacity will be provided, including the fee, term and tank designation will be mutually agreed upon by the Parties.

ARTICLE 3

TERMINATION

Section 3.1 Termination. This Exhibit E may be terminated as follows:

(a) by one Party (the "**Non-Breaching Party**") upon notice to the other Party (the "**Breaching Party**"), following the occurrence of an Event of Breach with respect to the Breaching Party. For purposes hereof, an "**Event of Breach**" occurs when both of the following exist: (i) a breach of this Exhibit E by the Breaching Party has not been cured by such Breaching Party within 30 days after receipt of written notice thereof from the Non-Breaching Party or, in the case of a breach that is not reasonably feasible to effect a cure within said 30-day period, within 90 days after such receipt provided that the Breaching Party diligently prosecutes the cure of such breach; and (ii) the breach materially and adversely affects the ability of the Non-Breaching Party to operate its Refinery or its Fertilizer Plant, as the case may be;

(b) by CRRM effective as of the permanent termination of substantially all of the operations at the Refinery (with no intent by CRRM or its successor to recommence operations at the Refinery); provided, however, that notice of such permanent termination of operations shall be provided by CRRM to CRNF at least 12 months prior to such permanent termination;

(c) by CRNF effective as of the permanent termination of substantially all of the fertilizer production operations at the Fertilizer Plant (with no intent by CRNF or its successor to recommence operations at the Fertilizer Plant); provided, however, that notice of such permanent termination of operations shall be provided by CRNF to CRRM at least 12 months prior to such permanent termination; or

(d) by one Party upon notice to the other Party following (i) the appointment of a receiver for such other Party or any part of its property, (b) a general assignment by such other Party for the benefit of creditors of such other Party, or (c) the commencement of a proceeding under any bankruptcy, insolvency, reorganization, arrangement or other law relating to the relief of debtors by or against such other Party; provided, however, that if any such appointment or proceeding is initiated without the consent or application of such other Party, such appointment or proceeding shall not constitute a termination event under this Exhibit E until the same shall have remained in effect for 60 days.

Section 3.2 Effects of Expiration or Termination. CRRM and CRNF agree that upon and after expiration or termination of this Exhibit E:

(a) Each Party will remain obligated to make any payment due to the other Party hereunder for any Feedstock or Service delivered to or purchased by such Party prior to termination.

(b) Liabilities of any Party arising from any act, breach or occurrence prior to termination will remain with such Party.

(c) The Parties' rights and obligations under Sections 4.1 and 4.6 and the second paragraph of Section 2.10 will survive the expiration or termination of this Exhibit E.

ARTICLE 4

OPERATION OF FERTILIZER PLANT AND REFINERY

Section 4.1 Cooperation. CRRM and CRNF shall cause their respective personnel located at the Refinery and the Fertilizer Plant to fully cooperate with, and comply with the reasonable requests of, the other Party and its employees, agents and contractors to support such other Party's

operations in a safe and efficient manner; provided, however, that nothing in this Section 4.1 shall require the expenditure of any monies other than may otherwise be required elsewhere in this Exhibit E. In addition, the Parties agree to (a) meet promptly following the request by either Party to develop a long term plan for the bifurcation of those properties and services that one Party or the other deems appropriate to bifurcate and (b) cooperate fully with each other to implement such plan in an expeditious and cost effective manner. The costs of implementing any such program, such as costs and expense of negotiating with contract counterparties and legal fees, shall be borne equally unless otherwise agreed.

Section 4.2 Fertilizer Plant Operations. Subject to the express obligations of the Parties under this Exhibit E, no provision of this Exhibit E is intended as, or shall be construed to be, any agreement on the part of CRNF to operate the Fertilizer Plant in any particular manner or to continue operations at the Fertilizer Plant, all in its sole discretion; provided, however, that prior notice of any permanent termination of operations shall be provided by CRNF to CRRM pursuant to Section 3.2(c).

Section 4.3 Refinery Operations. Subject to the express obligations of the Parties under this Exhibit E, no provision of this Exhibit E is intended as, or shall be construed to be, any agreement on the part of CRRM to operate the Refinery in any particular manner or to continue operations at the Refinery, all in its sole discretion; provided, however, that prior notice of any permanent termination of operations shall be provided by CRRM to CRNF pursuant to Section 3.2(b).

Section 4.4 Suspension of Services.

(a) Temporary Suspension of Feedstock or Services for Repairs/Maintenance. The provision of one or more of the Feedstocks or Services by the Parties may be temporarily suspended for such periods of time as are necessary to carry out scheduled or unscheduled maintenance or necessary repairs or improvements to the Refinery or the Fertilizer Plant, as the case may be (each, a “**Temporary Service Suspension**”). In connection with any such Temporary Service Suspension, CRRM or CRNF (as applicable) may elect to reduce, interrupt, allocate, alter or change the Feedstock or Services that it is required to provide hereunder, provided that, except in the case of emergencies, the applicable Party shall deliver not less than 30 days prior written notice to the other Party of any planned Temporary Service Suspension, including relevant details relating to the proposed reduction, interruption, allocation, alteration or change in the Feedstock or Services as a result of the Temporary Service Suspension. Upon the occurrence and during the continuation of Temporary Service Suspension, the parties shall cooperate to attempt to arrange for Feedstock or Services to be furnished to the other Party in an alternate manner or by a third party acceptable to affected Party, to minimize or reduce the effect of such Temporary Service Suspension on the applicable Party’s operations.

(b) Emergency Repairs. The Parties shall provide notice to the other as soon as reasonably possible (and in any event within 24 hours) in the event of any emergency repair or unplanned required maintenance that is affecting or will affect provision of the Services. Each Party shall use commercially reasonable efforts to complete any such emergency repairs in a timely manner and to resume the provision of such Service as soon as practicable.

Section 4.5 Priority Supply. CRRM and CRNF shall each have priority over third parties with respect to any Feedstocks and Services to be made available to such Party (the “**Receiving Party**”) by the other Party (the “**Supplying Party**”) under this Exhibit E, provided that, to the extent that purchase of any particular Feedstock or Service by a Receiving Party is discretionary on the part of the Receiving Party and the Receiving Party has not purchased from the Supplying Party the quantity of the Feedstock or Service that is presently available from the Supplying Party, then the Supplying Party may offer and sell such available Feedstock or Service to a third party so long as the Supplying Party first gives to the Receiving Party written notice of such prospective offer and sale and the option to purchase such Feedstock or Service on the terms provided in this Exhibit E with respect to such available Feedstock or Service, provided that the Receiving Party exercises such option by written notice to the Supplying Party within five days following the date Supplying Party gives its written notice to Receiving Party with respect to the available Feedstock or Service.

Section 4.6 Audit and Inspection Rights. CRRM and CRNF shall each (“**Requesting Party**”) have the right, upon reasonable written notice to the other Party (“**Other Party**”), to audit, examine and inspect, at reasonable times and locations, all documentation, records, equipment, facilities, and other items owned or under the control of the Other Party that are reasonably related to the Feedstocks and Services provided for under this Exhibit E, solely for the purpose of confirming the measurement or pricing of, or tolerances or specifications of, any Feedstocks or Services, confirming compliance and performance by the Other Party, or exercising any rights of the Requesting Party, under this Exhibit E.

Section 4.7 Upgrade Costs. In the event that either CRRM or CRNF (“**Requiring Company**”) requires that any capital or other upgrades be made by the other Party (“**Upgrading Party**”) to any of the Upgrading Party’s equipment or other facilities in connection with the provision of any Feedstock or Services under this Exhibit E, the Upgrading Party shall cooperate in implementing any such upgrades, provided that: (a) such upgrade does not adversely affect in a material respect the Upgrading Party’s facilities or operations, and (b) the Requiring Party pays (on terms and conditions acceptable to the Upgrading Party) any and all costs of implementing such upgrade, and any increase in ongoing costs to the Upgrading Party (including without limitation the costs of insurance, licenses, maintenance, permits, repairs, replacements, and taxes).

Section 4.8 Successor Third Party Agreements. In the event that any of the Messer Agreement, TKI Phase I Agreement, TKI Phase II Agreement, Gas Contract, or any other agreement with or between any third parties that relates to any Feedstock or Services referred to in this Exhibit E, terminates prior to the termination of this Exhibit E, the parties shall in good faith cooperate to replace any such agreements with successor agreements with commercially similar terms, in which case reference herein to the terminated third party agreement shall be deemed a reference to the applicable successor agreement. In the event that such a successor agreement is not entered into or is entered into on terms that are not commercially similar, then the parties will negotiate in good faith to determine the terms and conditions, if any, that are commercially practicable for the applicable Feedstock or Services to be furnished by one party to the other.

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ANNEX A

FACILITIES DESCRIPTION

The Fertilizer Plant is shown on Plot Plan A attached hereto.

The Gasification Unit is shown on Plot Plan A attached hereto.

The Ammonia Synthesis Loop is shown on Plot Plan A attached hereto.

The UAN Plant is shown on Plot Plan A attached hereto.

The Messer Facility is shown on Plot Plan A attached hereto.

The Administrative and Warehouse Building is shown on Plot Plan A attached hereto.

The Feedstock Delivery Points are shown on Plot Plan A and Drawing D11-0913B attached hereto. The coke Feedstock Delivery Point is the south side of the Refinery's coke pit.

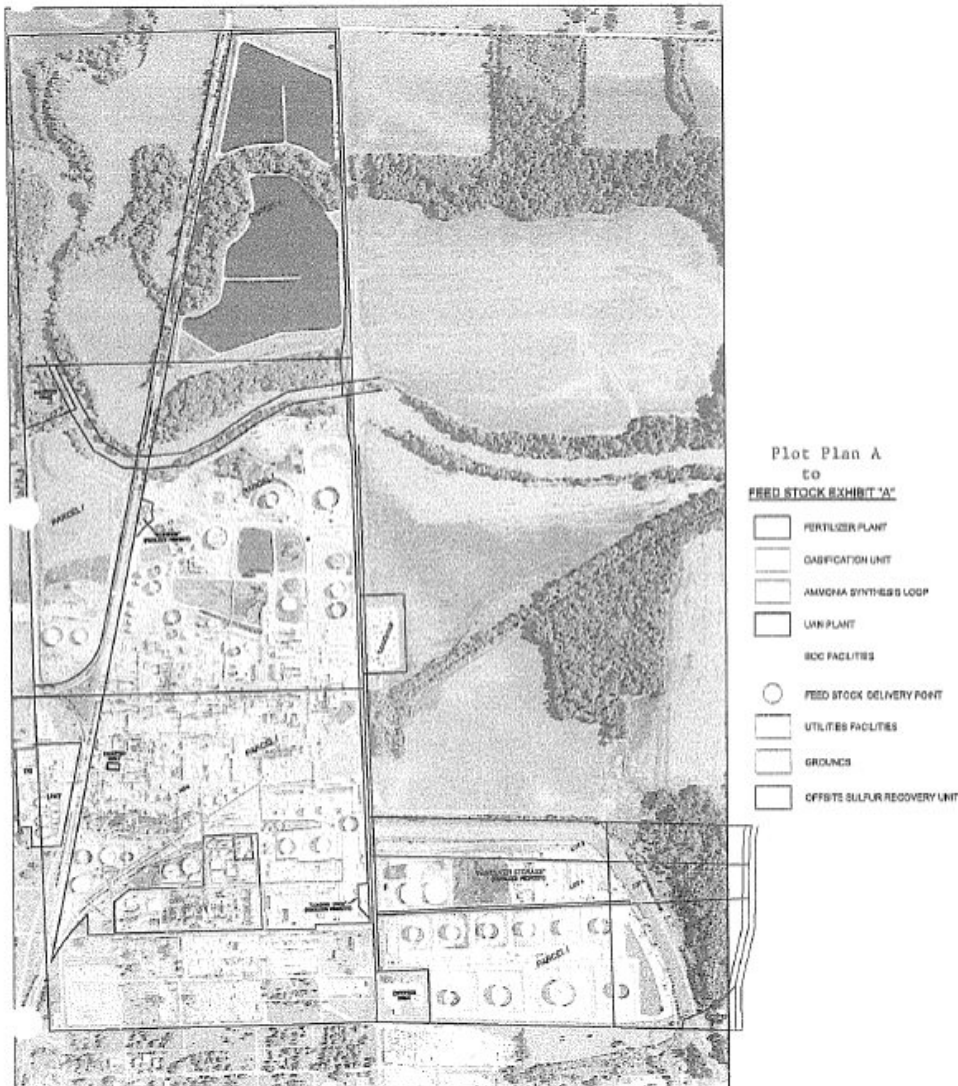
The Utility Facilities are shown on Plot Plan A attached hereto.

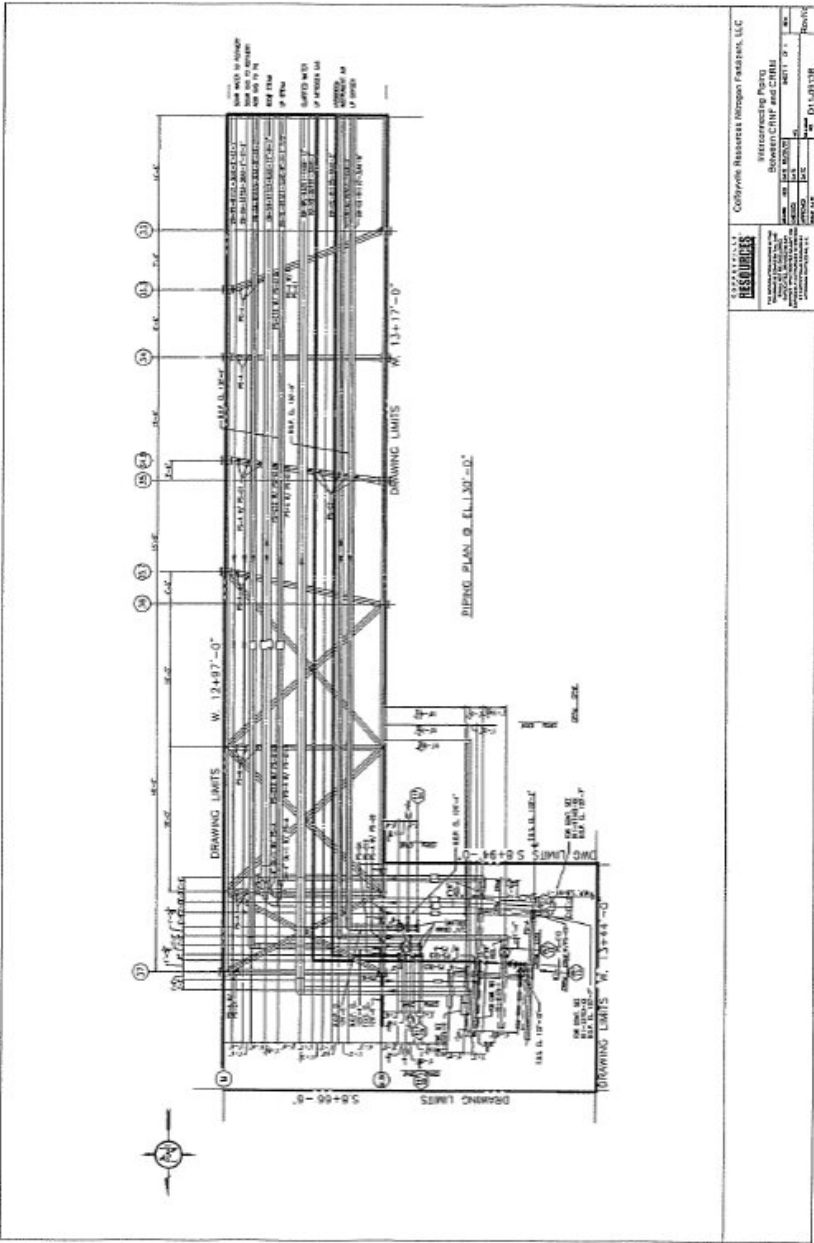
The Grounds are shown on Plot Plan A attached hereto.

The Offsite Sulfur Recovery Unit is shown on Plot Plan A attached hereto.

The Refinery is shown on Plot Plan A attached hereto.

Plot Plan A





ANNEX B

ANALYSIS, SPECIFICATIONS AND PRICING FOR FEEDSTOCK AND SERVICES

FEEDSTOCKS:

Hydrogen

- Gaseous
- Purity
- Flow
- Pressure
- Carbon Monoxide
- Carbon Dioxide
- Price for sales from Fertilizer Company to Refinery Company

not less than 99.9 mol. %
21 mmscf/day maximum
450 psig $\pm$ 30 psi
less than 10 ppm
less than 10 ppm

For the first 1.675 mmscfd (aggregated monthly) of Hydrogen, the Hydrogen price shall be \$0.46 per 100scf based on an Ammonia Price of \$300.00 per short ton. For any Hydrogen in excess of 1.675 mmscfd (aggregated monthly), the Hydrogen price for such excess Hydrogen shall be \$0.55 per 100scf based on a UAN Price of \$150.00 per short ton. The Hydrogen price per 100scf shall adjust as of the first day of each calendar month up or down in the same percentage as the Ammonia Price or UAN Price for the immediately preceding calendar month adjusts up or down from \$300.00 per short ton or \$150.00 per short ton, respectively.

- Flow measurement

All Hydrogen flows shall be measured by a standard sharp edge orifice plate and differential pressure transmitter located at the Fertilizer Plant. The measured flow shall be pressure and temperature

compensated and totaled by the Fertilizer Plant's Honeywell process control computer (TDC 3000) or any replacement computer. All transmitter signals and computer calculations are available to the Refinery through the existing communications bus for verification. Calibration of the transmitter shall be done at least annually and may be done more frequently at Refinery Company's request.

Nitrogen	
-Gaseous	
-Purity	99.99 mol. % (minimum) (5 ppm oxygen maximum)
-Pressure	180 psig (± 10 psig)
-Flow	20,000 scfh (normal); 40,000 scfh (maximum)
-Temperature	Ambient
-Price	\$0.25 per cscf based on a total electric energy cost of \$0.035 per KWH; provided, however, that this price will increase or decrease in the same percentage as the Fertilizer Company's electric bill from the City of Coffeyville (or from such other electric utility provider as the Fertilizer Company may have from time to time in the future) increases or decreases on a per/KWH basis and each such price adjustment shall apply to any gaseous nitrogen sold by Fertilizer Company after the date of such adjustment to the date of the next adjustment.

-Flow measurement

All Nitrogen flows shall be measured by a standard sharp edge orifice plate and differential pressure transmitter located at the Fertilizer Plant. The measured flow shall be pressure and temperature compensated and totalized by the Fertilizer Plant's Honeywell process control computer (TDC 3000) or any replacement computer. All transmitter signals and computer calculations are available to the Refinery through the existing communications bus for verification. Calibration of the transmitter shall be done at least annually and may be done more frequently at Refinery Company's request.

Oxygen**-Gaseous****-Purity**

99.6 mol. % (minimum)

-Pressure

65 psig (± 5 psig)

-Flow

29.8 STPD or more upon the request of the Refinery Company

-Price

For Flow from 0 - 29.8 STPD, there will be no charge to the Refinery Company

For Flow greater than 29.8 STPD, Refinery Company will pay Fertilizer Company \$50.00 per short ton of gaseous Oxygen.

This price will be effective from November 1, 2017. In addition, Refinery Company agrees to pay Fertilizer Company a one-time payment of \$74,779.50 within a reasonable amount of time after Refinery Company's receipt of invoice.

-Temperature

Ambient

-Flow measurement

All Oxygen flows shall be measured by a standard sharp edge orifice plate and differential pressure transmitter located at the Fertilizer Plant. The measured flow shall be pressure and temperature compensated and totalized by the Fertilizer Plant's Honeywell process control computer (TDC 3000) or any replacement computer. All transmitter signals and computer calculations are available to the Refinery through the existing communications bus for verification. Calibration of the transmitter shall be done at least annually and may be done more frequently at Refinery Company's request.

The meter measures Oxygen in SCF. The parties agree that the conversion rate from SCF to short ton is 24,157 SCF/ short ton.

Sour water**-Composition**

.80% ammonia (maximum)
0.05 mol. % H₂S (maximum)

-Pressure

90 psig (maximum)
35 psig (minimum)

-Temperature

125°F (normal)

-Flow

20 gpm (maximum)
12 gpm (normal)

-Price

Zero dollars (\$0)

High Pressure Steam

-Pressure	600 psig $\pm$ 10 psi (normal)
#VALUE!	As available, up to 75,000 pounds per hour (to Fertilizer Company) As available, 50,000 $\pm$ 20,000 pounds per hour (to Refinery Company)
-Price	The price is dependent upon the natural gas price (symbolized by "NGP" in the formulae below) and "steam flow" in the formulae below is determined by the Fertilizer Plant's process control computer:
To Fertilizer Company:	Price = (1.22)(NGP)(steam flow)/1000
To Refinery Company:	Price = (1.10)(NGP)(steam flow)/1000

For purposes of determining the price of High Pressure Steam hereunder, NGP means the price of natural gas measured at a per mmbtu rate based on the price for natural gas actually paid by Refinery Company for the month preceding the sale. Notwithstanding anything to the contrary set forth herein, Refinery Company shall have no obligation to pay for High Pressure Steam during periods when Refinery Company is flaring fuel gas.

-Flow measurement	All High Pressure Steam flows shall be measured by a standard sharp edge orifice plate and differential pressure transmitter located at the Fertilizer Plant. The measured flow shall be totalized by the Fertilizer Plant's Honeywell process control computer (TDC 3000) or any replacement computer. All transmitter signals and computer calculations are available to the Refinery through the existing communications bus for verification. Calibration of the transmitter shall be done at least annually and may be done more frequently at Refinery Company's request.
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Low Pressure Steam

-Flow	Variable
-Pressure	Approximately 120-170 psi
-Price	Zero dollars (\$0)

Natural Gas

-Purity	Pipeline quality natural gas (Refinery fuel gas will not be considered natural gas for the purposes of this section)
-Flow	All-natural gas required by the Fertilizer Plant will be variable but anticipated to be approximately 2,500 MMBtu/day
-Price:	Fertilizer Company will pay Refinery Company each month a fee equal to the sum of: • Natural Gas Costs, plus • \$0.081 per MMBtu of natural gas received by Fertilizer Plant for the Refinery Company's transportation fee for the Natural Gas Line, plus • \$0.01 per MMBtu of natural gas received by Fertilizer Plant for the Refinery Company's transportation fee for the NG Interconnect Line.

This price will be effective from November 1, 2017.

-Natural Gas Costs	Fertilizer Company agrees to pay Refinery Company for the actual costs per MMBtu of natural gas delivered to and accepted by the Fertilizer Plant as invoiced to the Refinery Company by Southern Star. These costs include fees for the natural gas commodity, Southern Star transportation fees and any other fees detailed on the Southern Star invoice.
Refinery Company's Transportation Fee for the Natural Gas Line and Escalation Fee	Fertilizer Company agrees to pay Refinery Company's transportation cost of \$0.081/MMBtu which consists of Fertilizer Company's share of the Refinery Company's interest costs to construct the pipeline and costs to operate, maintain and transport natural gas on the Natural Gas Line. The Parties agree that that cost to operate and maintain the Natural Gas Line is \$0.007/MMBtu and this portion of the transportation fee will be subject to change commencing January 1, 2020 and each anniversary thereafter. The cost will be adjusted using the Bureau of Labor Statistics ("BLS") Employment Costs Index Average for Private Industry Workers (all workers) for the previous year.
Refinery Company's Transportation Fee for the NG Interconnect Line	Refinery Company's cost to transport, operate and maintain the NG Interconnect Line from the Refinery to the Fertilizer Plant is \$0.01/MMBtu.
Stand-by Sales and Transportation Agreement	Fertilizer Company agrees that upon the effective date and during the initial term of Refinery Company's stand-by sales and transportation agreement with Atmos Energy for natural gas in the event Southern Star is not able to deliver natural gas to the Refinery, Fertilizer Company will pay Refinery Company \$500.00 per month during the initial term of such stand-by agreement. The Parties agree to negotiate such payment for any renewal term(s) or new agreement for stand-by natural gas service. To the extent any natural gas is delivered and received from Atmos Energy, the Parties agree that the price for natural gas detailed above is not in effect and each of the Parties will pay for its pro-rata share of natural gas delivered and received and any other costs detailed on Atmos Energy's invoice that is applicable to such Party.

SERVICES:**Firewater**

-Pressure	185 psig (maximum) 100 psig (minimum)
-Temperature	70°F (normal)
-Flow	2,000 gpm (maximum) 0 gpm (normal)
-Price	Zero dollars (\$0)

Instrument Air

-Purity	-40°F dew point (normal operating)
-Pressure	125 psig $\pm$ 10 psi (normal operating)

-Flow	4000 scfm maximum (normal operating)
-Temperature	Ambient
-Price	
To the Refinery Company:	\$18,000 per month (prorated on a per diem basis to reflect the number of days, including partial days, in the applicable month that Instrument Air is provided) based on \$.035 total laid in cost per KWH; provided, that this price will increase or decrease in the same percentage as the Fertilizer Company's total laid in cost for electricity from the City of Coffeyville (or from such other electric utility provider as the Fertilizer Company may have from time to time in the future) increases or decreases on a per/KWH basis and each such price adjustment shall apply to any Instrument Air sold by Fertilizer Company after the date of such adjustment until the date of the next adjustment; provided, however, that such cost shall be reduced on a pro-rata basis for each day that such Instrument Air is not available from the Messer Facility.
To the Fertilizer Company:	\$18,000 per month (prorated on a per diem basis to reflect the number of days, including partial days, in the applicable month that Instrument Air is provided) based on \$.039 total laid in cost per KWH; provided, that this price will increase or decrease in the same percentage as the Refinery Company's total cost for electricity from Kansas Gas and Electric Company (or from such other electric utility provider as the Refinery Company may have from time to time in the future) increases or decreases on a per/KWH basis and each such price adjustment shall apply to any Instrument Air sold by Refinery Company after the date of such adjustment until the date of the next adjustment.
-Flow measurement	All Instrument Air flows shall be measured by a standard sharp edge orifice plate and differential pressure transmitter located at the Fertilizer Plant. The measured flow shall be totaled by the Fertilizer Plant's Honeywell process control computer (TDC 3000) or any replacement computer. All transmitter signals and computer calculations are available to the Refinery through the existing communications bus for verification. Calibration of the transmitter shall be done at least annually and may be done more frequently at Refinery Company's request.

SECURITY

Fertilizer Company shall pay Refinery Company a pro rata share of Refinery Company's direct costs of providing security services for the entire Fertilizer Plant/Refinery complex, which pro rata share shall be mutually agreed upon by the Parties based upon a commercially reasonable allocation of such costs in relation to the security services as provided to the Fertilizer Plant and the Refinery.

EXHIBIT F

LEASE

ARTICLE 1 DEFINITIONS.

1. Premises. Subject to the covenants and conditions of this Lease, CRRM leases to CRNF, and CRNF leases from CRRM, the premises (the "**Premises**") described on Annex A to this Exhibit F, which Premises are located in (a) a building currently known as CRRM's South Administration Building (the "**Admin Building**"), (b) a building currently known as CRRM's Laboratory Building (the "**Lab Building**"), and (c) a building currently known as CRRM's Oil and Chemical Storage Building (the "**Storage Building**"). CRRM reserves the right, upon not less than 30 days prior written notice to CRNF, to relocate any of the Premises within the Admin Building, the Lab Building or the Storage Building to any reasonably equivalent space therein.

2. Use of Premises. The Premises may be used for the following purposes (the "**Permitted Uses**"):

(a) The portion of the Premises located in the Admin Building shall be used only for general office, storage and warehouse space, and for maintenance and repair activities (including, but not limited to, welding, machining, and other equipment maintenance and repairs as needed to support CRNF's plant operations)'

(b) The portion of the Premises located in the Lab Building shall be used only for general laboratory work; and

(c) The portion of the Premises located in the Storage Building shall be used only for oil and chemical storage.

CRNF shall also have the right to reasonable non-exclusive use of the parking areas, driveways, sidewalks and approaches adjoining or otherwise serving

the Admin Building, the Lab Building or the Storage Building that are owned or leased by CRRM, for the purpose of ingress and egress in connection with CRNF's use of the Premises for the Permitted Uses, and the right to reasonable non-exclusive use of lobby areas, hallways, restroom facilities, break rooms, closets, conference rooms, and copy rooms within the Admin Building, the Lab Building, or the Storage Building in connection with CRNF's use of the Premises for the Permitted Uses, provided that all such uses shall be subject to such reasonable requirements, restrictions, and rules as CRRM may designate from time to time for purposes of coordination of CRNF's use with use by CRRM and its employees, agents, contractors, and other invitees, or for purposes of safety, security, preservation of property, or compliance with laws or insurance requirements, as CRRM may reasonably determine from time to time.

3. Termination. This Exhibit F may be terminated by CRNF by providing CRRM with at least 180 days prior written notice.

4. Rent Payments. CRNF shall pay to CRRM rent in monthly installments of Eight Thousand Dollars (\$8,000) per month (the "**Monthly Rent**"), with each monthly installment being due and payable on the first day of each calendar month, in advance and without notice or demand, at CRRM's address set forth in the Agreement, or at any other place CRRM designates in writing, provided, however, that the Monthly Rent shall increase effective as of the third anniversary of the Effective Date, and on each anniversary date thereafter until this Exhibit F is terminated in accordance with its terms, to reflect any percentage increase in the Consumer Price Index for All Urban Consumers, U.S. City Average, All Items (1982-84 = 100) as published by the United States Department of Labor, Bureau of Labor Statistics (the "**CPI**"), as reflected by any percentage increase between the CPI as most recently published prior to the Effective Date (the "**Effective Date CPI**") and the CPI as most recently published prior to the effective date of any such increase in Monthly Rent (the "**Current CPI**"). In the event of such increase, the Monthly Rent shall be increased by an amount equal to the product obtained by multiplying the original Monthly Rent by a fraction, the numerator of which shall be the Current CPI and the denominator of which shall be the Effective Date CPI. In the event that the CPI ceases to be published or available within 60 days prior to the effective date of any such increase in Monthly Rent, then CRRM may utilize any similar governmental price index for purposes of determining and computing any applicable increase in Monthly Rent. Rent shall be prorated for any partial month upon termination of this Exhibit F.

5. Possession at Beginning of Term. CRRM shall give possession of the Premises to CRNF as of the Effective Date.

6. Condition of Premises.

(a) CRNF acknowledges that CRNF has inspected the Premises and, except as may be provided otherwise in this Lease and without abrogating CRRM's obligations under Section 11 hereof, CRNF accepts the Premises in their present condition.

(b) Upon termination of this Exhibit E, except for damage caused by fire or other insured perils, CRNF shall at CRNF's expense: (i) surrender the Premises in as good a condition as the Permitted Uses will have reasonably permitted, subject to normal wear and tear, and subject to all other obligations of CRNF in this Lease; (ii) have removed all of CRNF's property from the Premises; (iii) have promptly repaired any damage to the Premises caused by the removal of CRNF's property; and (iv) leave the Premises free of trash and debris and the building in "broom clean" condition.

7. Signs and Advertisements. CRNF shall be entitled to place reasonable signs on the building, and shall be permitted to affix such other signs and advertising as CRNF shall deem appropriate, so long as such signs comply with local ordinances.

8. Utilities and Services. CRNF shall pay for and provide all electricity, gas, water, telephone, and heating, ventilating and air conditioning services, used in commercially reasonable quantities by CRNF in the Premises. CRRM shall provide reasonable trash removal and other routine janitorial services for office space within the Premises.

9. Alterations. CRNF shall not make any substantial alterations or additions in or to the Premises without the prior written consent of CRRM, which consent shall not be unreasonably withheld.

10. Maintenance and Repair by CRNF. Except for the obligations imposed upon CRRM in Section 11 hereof, and except for damage resulting from fire or other casualty and ordinary wear and tear, CRNF shall, at CRNF's sole cost and expense, keep the Premises in good order, repair and condition. CRNF will perform maintenance and repair obligations imposed upon CRRM in Section 11 hereof subject to a mutually agreed upon reduction in the Monthly Rent.

11. Maintenance and Repair by CRRM. CRRM, during the Term and at CRRM's sole cost and expense, will maintain and keep in good repair the roof, exterior walls, windows, doors, gutters, downspouts, foundations and all other structural components of the Premises, and all heating, ventilating, air conditioning, plumbing, sewer, electric, gas, water, and telephone lines, fixtures and systems, and parking areas, serving the Premises, including light ballasts or bulbs for ceiling lighting fixtures, but excluding any lines, fixtures or systems owned or installed by or for CRNF for purposes of accommodating any special requirements of CRNF. CRRM will be under no obligation, and will not be liable for any failure, to make any repairs until and unless CRNF notifies CRRM in writing they are necessary, in which event CRRM will have a reasonable time after notice to make such repairs. CRNF shall bear the cost and expense of any repairs or replacements required by, or any damages to the Premises or other property of CRRM caused by, the acts or omissions of CRNF or any of CRNF's employees, agents, contractors, or other invitees.

12. Real Estate Taxes and Special Assessments. CRRM shall pay all real estate taxes and special assessments imposed upon the Premises.

13. Legal Requirements. CRNF shall comply with all laws, order, ordinances and other public requirements now or hereafter affecting the Premises or the use thereof, including without limitation ADA, OSHA and like requirements, and indemnify and hold CRRM harmless from expense or damage resulting from failure to do so. Notwithstanding the foregoing, neither CRNF nor CRRM shall be required to make any improvements or alterations to the Premises to bring the Premises into compliance. In the event of noncompliance and the failure of CRNF or CRRM to make required improvements or alterations, either Party may terminate this Lease effective as of a date not less than 30 days after written notice to the other Party.

14. Toxic or Hazardous Materials. CRNF shall not store, use or dispose of any toxic or hazardous materials in, on or about the Premises in

violation of any law without the prior written consent of CRRM. CRNF, at its sole cost, will comply with all laws relating to CRNF's storage, use and disposal of hazardous or toxic materials. CRNF shall be solely responsible for and will defend, indemnify and hold CRRM, its agents and employees, harmless from and against all claims, costs and liabilities, including attorney's fees and costs, arising out of or in connection with the removal, clean-up and restoration work and materials necessary to return the Premises, and any other property of whatever nature affected, to their condition existing prior to contamination by CRNF, if and as may be required by applicable laws or regulations. CRNF's obligations under this Section 14 will survive any expiration or termination of this Lease.

15. Environmental. CRRM shall be solely responsible for and will defend, indemnify and hold CRNF, its agents and employees, harmless from and against all claims, costs and liabilities, including attorney's fees and costs, arising out of or in connection with, the presence of any toxic or hazardous materials in, on, beneath or about the Premises, at or prior to the Effective Date, or thereafter placed, released or discharged in, on, beneath or about the Premises by CRRM or any of its affiliates or their respective agents, employees, contractors, subcontractors and invitees.

16. Personal Property. CRRM shall not be liable for any loss or damage to any merchandise inventory, goods, fixtures, improvements or personal property of CRNF in or about the Premises, regardless of the cause use of such loss or damage.

17. CRRM's Right of Entry. CRRM or CRRM's agent may, after reasonable advance notice to CRNF, enter the Premises at reasonable hours to examine the same, to show the same to prospective lenders and purchasers, and to do anything CRRM may be required to do hereunder or which CRRM may deem reasonably necessary for the good of the Premises.

18. CRNF Default; CRRM Remedies. A default of this Lease shall occur upon any of the following events:

(a) CRNF fails to pay the rent and/or other sums payable hereunder within 10 days after written notice from CRRM that same has not been paid when due; or

(b) CRNF fails to comply with any other provision, covenant, warranty or term of this Lease, and such failure or noncompliance continues for a period of 30 days after written notice from CRRM; provided that CRNF shall not be in default if such failure or noncompliance cannot reasonably be cured within such 30 days, so long as CRNF in good faith commences such cure within such 30 days and completes same within 90 days after such notice; or

(c) CRNF is adjudged a bankrupt, or CRNF makes an assignment for the benefit of its creditors, or a receiver is appointed over any property of CRNF in or upon the Premises or for any part or all of CRNF's property wherever located pursuant to any action, suit or proceeding and such assignment or receivership is not vacated or annulled within 60 days of such assignment or appointment of the receiver.

Upon the occurrence of any of the foregoing events of default by CRNF, CRRM shall have the right to reenter and repossess the Premises, and CRRM shall have full rights of use and enjoyment and shall have the right to terminate this Lease. CRRM shall have the right to recover all rent accrued through the date of CRRM's reentry, including all reasonable costs of collection and reasonable attorney's fees incurred by CRRM in covering the rent. After such reentry, CRRM may lease the Premises for the remainder of the Term to another party for a reasonable rent. CRRM shall have the right to recover any expenses it incurs in reletting the Premises, including without limitation, necessary renovations and alterations of the Premises, reasonable attorney's fees, and real estate commissions paid. CRRM shall also have the right to recover any deficiency in rent or other charges that would have been payable by CRNF if it had not defaulted and this Lease continued until the end of the then current Term. All of the foregoing remedies shall be in addition to any rights or remedies CRRM may have should a default occur.

19. CRRM Default; CRNF Remedies.

(a) If CRNF believes that CRRM has breached or failed to comply with any provision of this Lease applicable to CRRM, CRNF will give written notice to CRRM describing the alleged breach or noncompliance. CRRM will not be deemed in default under this Lease if CRRM cures the breach or non-compliance within 20 days after receipt of CRNF's notice or, if the same cannot reasonably be cured within such 20 day period, if CRRM in good faith commences to cure such breach or non-compliance within such period and then diligently pursues the cure to completion.

(b) If CRRM breaches or fails to comply with any provision of this Lease applicable to CRRM and such breach or noncompliance is not cured within the period of time described in Section 19(a), then CRNF may (i) terminate this Lease; and/or (ii) incur any expense necessary to perform the obligation of CRRM specified in such notice and set off any amount expended against the next payment of rent coming due under this Lease; and/or (iii) sue for injunctive relieve, specific performance and/or damages; and/or (iv) seek any other remedy available at law or in equity.

20. Damage by Casualty.

(a) In the event, during the Term, the Premises hereby let, or the buildings on said Premises, shall be destroyed or shall be so damaged by fire or other casualty as to become untenable, then in such event, at the option of either CRRM or CRNF, this Lease may be terminated. Any option to terminate granted herein must be exercised by written notice to the other within 30 days of the date of such damage or destruction. If either Party exercises its option to terminate this Lease, (a) the Lease will expire and this Lease shall terminate as of the date of such damage or destruction, (b) CRNF shall immediately surrender said Premises and all interest therein to CRRM, and (c) CRNF shall pay rent within the Term only to the time of such damage or destruction.

(b) In the event neither CRRM nor CRNF elects to terminate this Lease, this Lease shall continue in full force and effect and CRRM will repair and restore such damage with reasonable promptness, subject to force majeure, delays for insurance adjustments and delays caused by matters beyond CRRM's control. In no event will CRRM be obligated to repair, restore or replace any of the property required to be insured by CRNF in accordance with Section 22(b).

(c) In the event the Premises is rendered untenable but the Parties do not elect to terminate this Lease, the rent will abate beginning on the date of such damage. Such abatement will end on the date that CRRM has substantially completed the repairs and restoration of the Premises. Such abatement will be an amount bearing the same ratio of the total amount of rent for such period as the untenable portion of the Premises bears to the entire Premises. Notwithstanding the foregoing, in the event the Premises shall be but slightly injured by fire or other casualty, so as not to render the same untenable and unfit for occupancy, then CRRM shall repair and restore the same with all reasonable promptness, but in that case the rent shall not abate. Except as provided herein, no compensation or claim shall be made by or allowed to CRNF by reason of any inconvenience or annoyance arising from the necessity of repairing any portion of the building or the Premises, however the necessity may occur.

(d) In any event, CRRM may terminate this Lease as of the date 50% or more of the building of which the Premises are a part is destroyed, by providing written notice to CRNF within 30 days after such destruction.

21. Eminent Domain.

(a) If the Premises or any substantial part thereof shall be taken under the power of eminent domain or be acquired for any public or quasi-public use or purpose, the Lease shall cease and terminate upon the date when the possession of said premises or the part thereof so taken shall be required for such use or purpose and the rent at the then current rate shall be apportioned as of the date of termination.

(b) If any condemnation proceeding shall be instituted in which it is sought to take or damage any part of the Premises or the building of which the Premises are a part or the land under it, or if the grade of any street or alley adjacent to the Premises is changed in any legal authority and such change of grade makes it necessary or desirable to remodel the Premises to conform to the changed grade, either CRRM or CRNF shall have the right to terminate this Lease after having given written notice of termination to the other Party within 60 days after being notified of the taking of the Premises. Such termination shall be effective as of the date when physical possession of the applicable portion of the Premises is taken by the condemning authority and the rent at the then current rate shall be apportioned as of the date of termination.

(c) If there is a partial taking and the Premises is left untenable or CRNF's access or parking are materially and adversely affected by such partial taking and CRNF cannot reasonably operate because of such taking, CRNF shall have the right to terminate this Lease after having given written notice of termination to CRRM within 60 days after CRNF is notified of the taking of the Premises. Such termination shall be effective as of the date when physical possession of the applicable portion of the Premises is taken by the condemning authority and the rent at the then current rate shall be apportioned as of the date of termination.

(d) If there is a partial taking which does not affect CRNF's ability to operate within the Premises, the rent payable under this Lease will be abated by an amount allocable to the portion of the Premises which was so taken or sold, and CRRM will, at CRRM's sole cost and expense, promptly restore and reconstruct the Premises to substantially its former condition to the extent the same is feasible.

(e) In the event this Lease is terminated under Sections 21(a), (b) or (c), no money or other consideration shall be payable by CRRM or CRNF for the right of termination and CRNF shall have no right to share in the condemnation award or in any judgment for termination, and CRNF shall have no right to share in the condemnation award or in any judgment for damages caused by the taking or the change of grade. Nothing in this Section 21(c) shall preclude any award being made to CRNF for loss of business or depreciation to and cost of removal of equipment or fixtures.

22. CRNF's Insurance.

(a) CRNF shall maintain, at all times until the termination of this Lease, commercial general liability insurance on ISO form CG 00 01 10 93 or an equivalent form covering liability from premises, operations, independent contractors, property damage, bodily injury, personal injury, products, completed operations and liability assumed under an insured contract, all on an occurrence basis, with limits of liability of not less than Two Million Dollars (\$2,000,000) combined single limit.

(b) CRNF shall maintain, at all times until the termination of this Lease, all risk or fire insurance (including standard extended endorsement perils, leakage from fire protective devices and other water damage) relating to CRNF's fixtures, furnishings, equipment, personal property, documents, files, inventory and work products in amounts which CRNF from time to time reasonably determines sufficient.

(c) At all times until the termination of this Lease, CRNF shall furnish CRRM with a certificate or certificates of insurance evidencing such insurance so maintained by CRNF and naming CRRM and CRRM's mortgagees, if any, as additional insureds.

(d) The Parties acknowledge and agree that the insurance required by this Lease may be purchased and maintained jointly by the Parties or their affiliates. If such insurance is purchased and maintained jointly and each Party is a named insured thereunder, then the requirements of Section 22(c) and Section 24 will be deemed waived by the Parties.

23. CRRM's Insurance. CRRM shall maintain, at all times until the termination of this Lease, all risk or fire insurance relating to the Premises (but excluding CRNF's fixtures, furnishings, equipment, personal property, documents, files, inventory and work products) in amounts that CRRM from time to time reasonably determines sufficient or CRRM's mortgagee requires.

24. Waiver of Subrogation. As part of the consideration for this Lease, each of the Parties hereby releases the other Party hereto from all liability for damage due to any act or neglect of the other Party (except as hereinafter provided) occasioned to property owned by said Parties which is or might be incident to or the result of a fire or any other casualty against loss for which either of the Parties is now carrying or hereafter may carry insurance; provided, however, that the releases herein contained shall not apply to any loss or damage occasioned by intentional acts of either of the Parties hereto. The Parties hereto further covenant that any insurance they obtain on their respective properties shall contain an appropriate provision whereby the insurance company, or companies, consent to the mutual release of liability contained in this Section.

25. Subletting.

(a) Except as provided in Section 25(b), CRNF shall not sublease the Premises or any part thereof or allow any other person to be in possession thereof without the prior written consent of CRRM, , which consent or consents shall not be unreasonably withheld or delayed.

(b) Notwithstanding anything to the contrary set forth herein, CRRM's consent shall not be necessary if the subletting of this Lease is to any of the following: (a) the surviving entity in the event of the merger or consolidation of CRNF with another entity; (b) the purchaser of all or substantially all of CRNF's assets or equity interests; or (c) any Affiliates of CRNF.

(c) Notwithstanding any permitted subletting, except for a subletting in accordance with Section 25(b), CRNF shall at all times remain directly, primarily and fully responsible and liable for the payment of the rent herein specified and for compliance with all of its other obligations under the terms and provisions of this Lease.

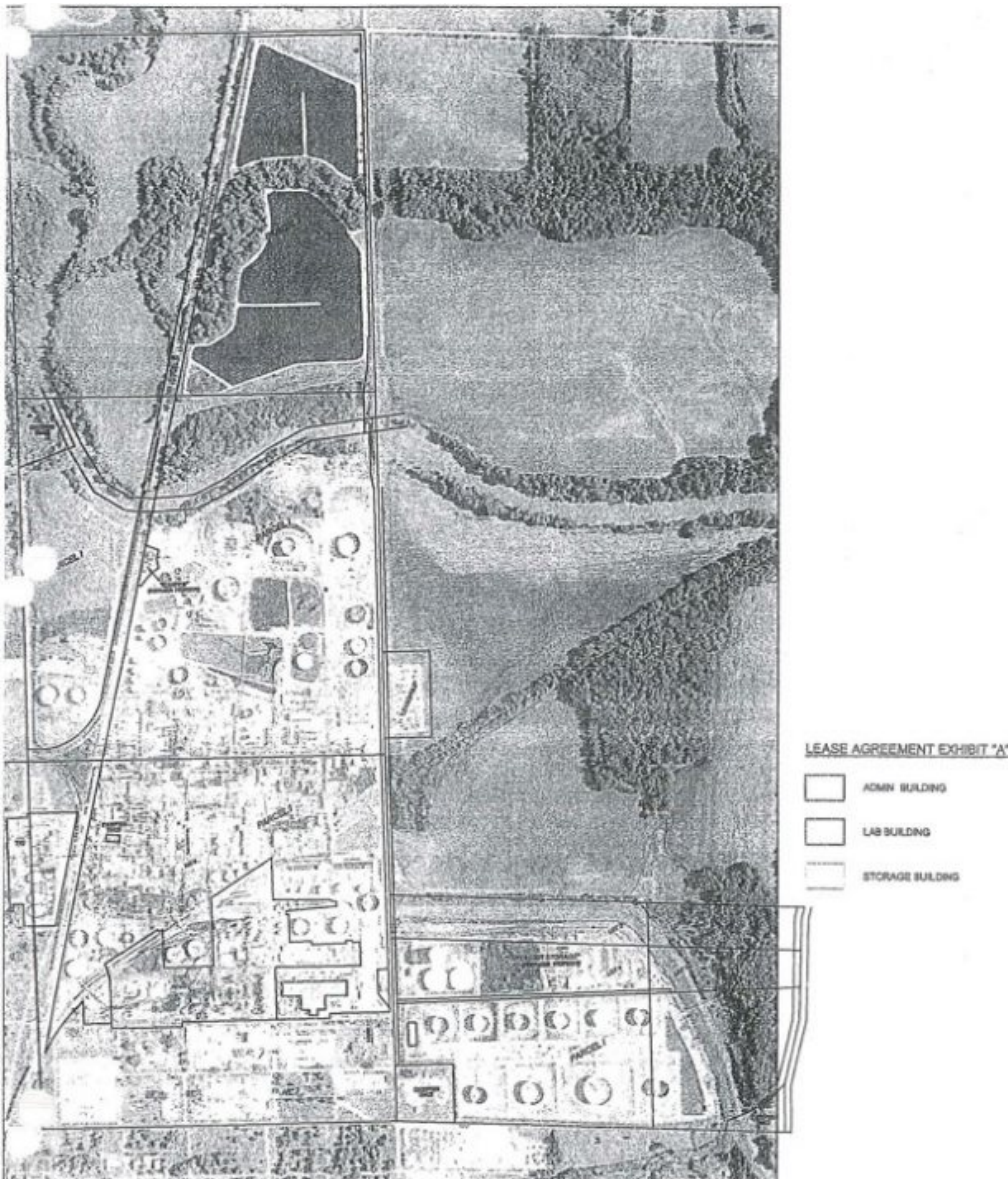
26. Quiet Possession. CRRM agrees, so long as CRNF fully complies with all of the terms, covenants and conditions herein contained on CRNF's part to be kept and performed, CRNF shall and may peaceably and quietly have, hold and enjoy the Premises for the Term, it being expressly understood and agreed that the aforesaid covenant of quiet enjoyment shall be binding upon CRRM, its heirs, successors or assigns, but only during such Party's ownership of the Premises. CRRM and CRNF further covenant and represent that each has full right, title, power and authority to make, execute and deliver this Lease.

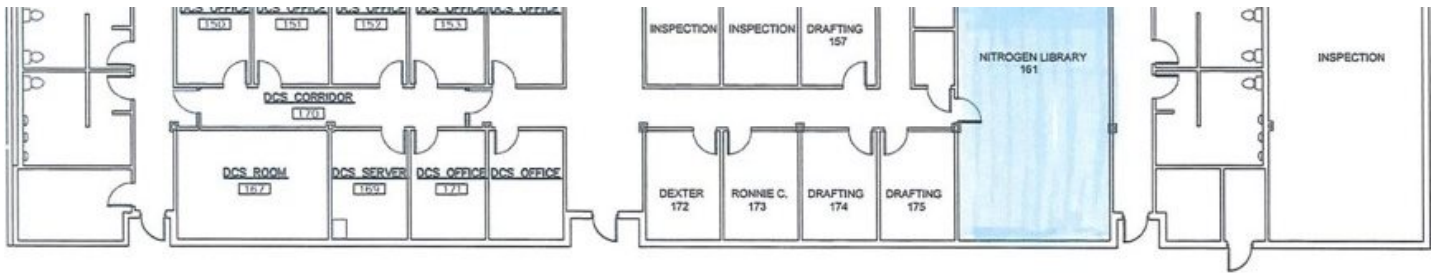
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ANNEX A

LEASED PREMISES

See location of Admin Building, Lab Building and Storage Building as indicated on attached plot plan and location of Premises as highlighted on attached diagrams.

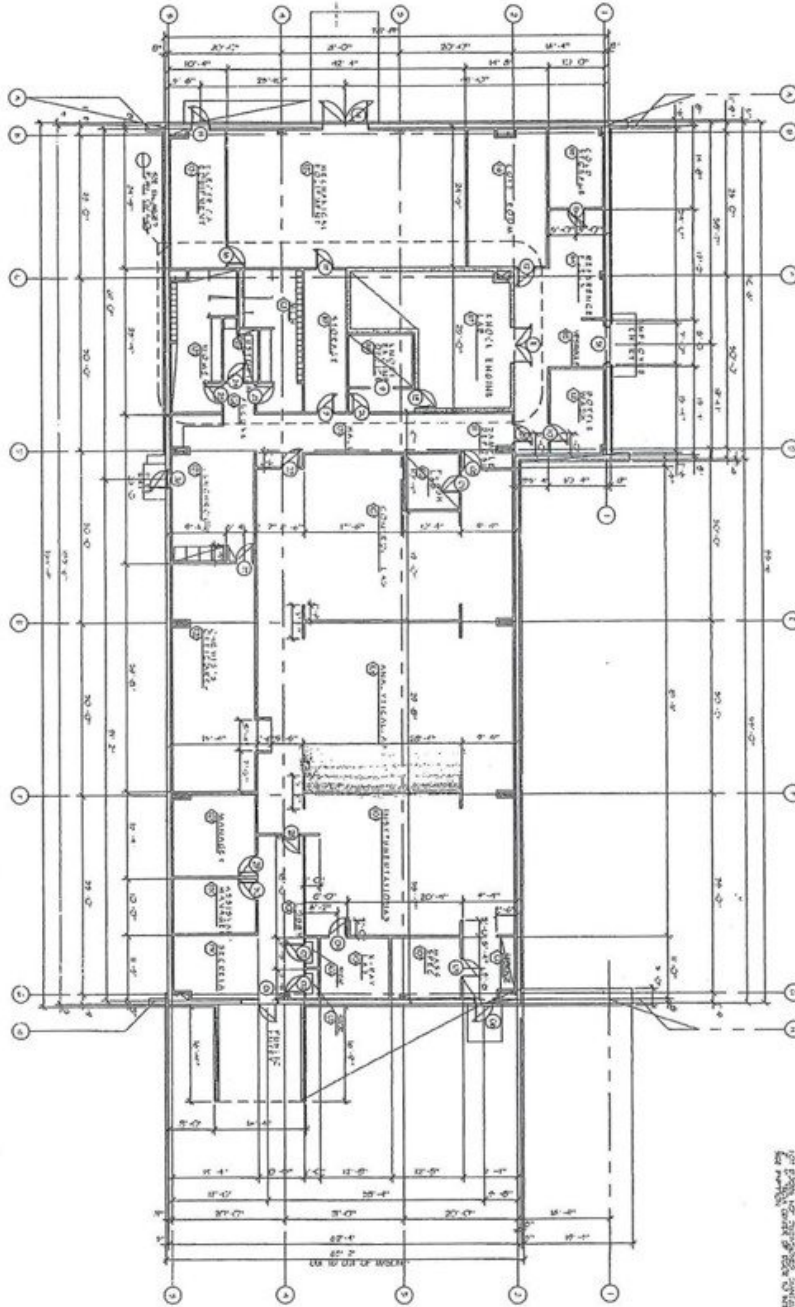




1st Floor

○ LABORATORY FLOOR PLAN

Fertilizer Lab Space



CORPORATE MASTER SERVICE AGREEMENT

This Corporate Master Service Agreement (this “**Agreement**”) is dated as of February 19, 2020, but effective as of January 1, 2020 (the “**Effective Date**”) by and between CVR Services, LLC, a Delaware limited liability company (“**Service Provider**”), and the entities listed on Exhibit A attached hereto and incorporated herein, as it may be amended from time to time by written agreement of Service Provider and such entity (each a “**Service Recipient**” and collectively the “**Service Recipients**”). Service Provider and Service Recipients are referred to individually as a “**Party**” and collectively as the “**Parties**”.

RECITALS

WHEREAS, each Service Recipient wishes to obtain from Service Provider, and Service Provider wishes to provide to each Service Recipient, certain professional services as described herein (collectively, the “**Services**”); and

WHEREAS, all such Services are necessary for the operation of each Service Recipient’s businesses, and each Service Recipient desires to utilize such Services so as to better carry on the operation of its businesses; and

WHEREAS, CVR Energy and CVR Partners are owners of certain marks as indicated on Exhibit C attached hereto and incorporated herein (the “**Marks**”), and each desires to allow Service Provider and other Service Recipients the right to use the Marks on and in connection with their businesses and products (the “**Business and Goods**”).

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the Parties, intending to be legally bound hereby, covenant and agree as follows:

AGREEMENT

1. SERVICES.

(a) The Services provided under this Agreement are described in Exhibit B attached hereto and incorporated herein, which exhibit may be updated from time to time by written agreement between the Parties.

(b) Each Service Recipient hereby engages Service Provider to provide the Services, and Service Provider, as requested by each Service Recipient, hereby agrees to render the Services to each Service Recipient.

(c) The Parties hereby agree that in discharging its obligations hereunder, Service Provider may engage any of its Affiliates or other Persons to perform the Services (or any part of the Services) on its behalf and that the performance of the Services (or any part of the Services) by any such Affiliate or other Person shall be treated as if Service Provider performed such Services itself. No such delegation by Service Provider to Affiliates or other Persons shall relieve Service Provider of its obligations hereunder.

2. CHARGE FOR SERVICES.

(a) Monthly Fee. Each Service Recipient shall pay Service Provider a monthly fee (the “**Monthly Fee**”), the amount of which shall be determined in January of each year during the Term by the Parties and which shall be equal to the amount of the direct or indirect expenses incurred by Service Provider in connection with the provision of the Services to such Service Recipient (the “**Allocations**”), determined as follows:

i. A pro rata share of all Personnel Costs of Shared Personnel, as determined by Service Provider on a commercially reasonable basis, based on the estimated percent of total working time that such respective personnel are engaged in performing any of the Services taking into consideration the reasonableness of the most recently completed fiscal year actual allocations, current back office operations of Service Provider and other relevant factors deemed pertinent by Service Provider; **plus**

ii. A pro rata share of all general and administrative costs (excluding Personnel Costs) relating to such Service Recipient, as determined by Service Provider on a commercially reasonable basis, based on the estimated portion of such general and administrative services that are for the benefit of such Service Recipient taking into consideration the reasonableness of the most recently completed fiscal year actual allocations, current back office operations of Service Provider and other relevant factors deemed pertinent by Service Provider; **plus**

iii. For each Service Recipient, the reasonable and actual amount of any additional direct costs or expenses incurred by Service Provider or its Affiliates in connection with the Services; **plus**

iv. Any other cost or expense agreed to by the Parties, including those based on any Services added following the date hereof; **minus**

v. Any costs and expenses that are direct charged to such Service Recipient, such as commercial insurance costs.

(b) **Annual True-Up.** At least annually, Service Provider and each Service Recipient shall conduct a true-up under which Service Provider shall compare the Monthly Fee paid by such Service Recipient to the actual Allocations incurred by Service Provider or its Affiliates in connection with the provision of Services to such Service Recipient. Service Provider or such Service Recipient, as applicable, shall pay to the other Party the net amount owing as a result of any such true-up (the “**True-Up Amount**”), at such time and on such terms as may be agreed to by Service Provider and such Service Recipient. Notwithstanding the foregoing, Service Provider may, for any reason including upon request by any Service Recipient, in Service Provider’s sole discretion and at any time, perform such true-ups more frequently than annually.

(c) The Services which are being provided by Service Provider and for which each Service Recipient is being charged hereunder provide a direct benefit to such Service Recipient and are necessary to the generation of income by such Service Recipient or its Affiliates.

(d) There shall be no charge for services performed by Service Provider that merely duplicate a service that a Service Recipient is already performing for itself. Services which are provided under other agreements between Service Provider and each Service Recipient shall not be part of this Agreement.

3. REPORTS AND PAYMENTS.

(a) Each Service Recipient shall pay the Monthly Fee on such date as may be agreed to by the Parties, but no later than the 25th of each month. Any True-Up Amount shall be paid by Service Provider or Service Recipients, as applicable, within 30 days following written request of the Party entitled to receive a True-Up Amount hereunder. All payments shall be in immediately available US Dollars, unless otherwise agreed by Service Provider and such Service Recipient. Any undisputed amounts not paid within thirty days following the due date shall bear interest at the Default Rate.

(b) Service Provider shall retain all accounting records and related work papers and documents supporting the Monthly Fee and any True-Up Amount (collectively, “**Backup**”) for a reasonable period of time consistent with Service Provider’s records retention policies, and shall provide access to such Backup upon the reasonable request of any Service Recipient.

(c) ANY SERVICE RECIPIENT MAY, WITHIN 30 DAYS AFTER RECEIPT OF A CHARGE FROM SERVICE PROVIDER, TAKE WRITTEN EXCEPTION TO SUCH CHARGE, ON THE GROUND THAT THE SAME WAS NOT A REASONABLE COST INCURRED BY SERVICE PROVIDER OR ITS AFFILIATES IN CONNECTION WITH THE SERVICES. SERVICE RECIPIENT WILL NEVERTHELESS PAY IN FULL WHEN DUE THE FULL PAYMENT AMOUNT OWED TO SERVICE PROVIDER. SUCH PAYMENT SHALL NOT BE DEEMED A WAIVER OF THE RIGHT OF SERVICE RECIPIENT TO RECOUP ANY CONTESTED PORTION OF ANY AMOUNT SO PAID. HOWEVER, IF THE AMOUNT AS TO WHICH SUCH WRITTEN EXCEPTION IS TAKEN, OR ANY PART THEREOF, IS ULTIMATELY DETERMINED NOT TO BE A REASONABLE COST INCURRED BY SERVICE PROVIDER IN CONNECTION WITH ITS PROVIDING THE SERVICES HEREUNDER, SUCH AMOUNT OR PORTION THEREOF (AS THE CASE MAY BE) WILL BE REFUNDED BY SERVICE PROVIDER TO SERVICE RECIPIENT TOGETHER WITH INTEREST THEREON AT THE DEFAULT RATE DURING THE PERIOD FROM THE DATE OF PAYMENT BY SERVICE RECIPIENT TO THE DATE OF REFUND BY SERVICE PROVIDER.

4. STANDARDS OF PERFORMANCE. Service Provider agrees to utilize ordinary care and diligence in rendering the Services provided for under this Agreement and to perform such Services in accordance with recognized practice in the industry. Without limiting the generality of any other provision hereof, it is not the intent of Service Provider or its Affiliates to render professional advice or opinions, whether with regard to tax, legal, treasury, finance, intellectual property, environmental, health and safety, employment or other matters; Service Recipients shall not rely on any Service rendered by or on behalf of Service Provider or its Affiliates for such professional advice or opinions; and notwithstanding a Service Recipient’s receipt of any proposal, recommendation or suggestion in any way relating to tax, legal, treasury, finance, intellectual property, environmental, health and safety, employment or any other subject matter, such Service Recipient shall seek all third-party professional advice and opinions as it may desire or need, and, **in any event such Service Recipient shall be solely responsible for and assume all risks associated with the Services, except to the limited extent set forth herein.**

5. GRANT OF LICENSE TO USE MARKS. CVR Energy and CVR Partners (each, a “**Mark Owner**”), as applicable, each grant to Service Provider and Service Recipients (each, a “**Mark User**”) a non-exclusive and non-transferable license to use the Marks on and in connection with the Business and Goods, with the right to sublicense subject to the following terms and conditions:

(a) Each Mark User agrees to use the Marks only in the form and manner and with appropriate legends as reasonably prescribed from time to time by Mark Owner, and not to use any other names, logos or marks in combination with the Marks without prior approval of Mark Owner, provided that such approval shall not be unreasonably withheld, conditioned or delayed;

(b) Each Mark User agrees that the nature and quality of the Business and Goods will conform to standards currently applied by Mark Owner;

(c) Each Mark User will permit reasonable inspection of its operations, and will supply Mark Owner with specimens of use of the Marks upon request;

(d) Each Mark User acknowledges that Mark Owner owns all right, title and interest in and to the Marks, agrees that it will do nothing inconsistent with Mark Owner's ownership of the Marks and that all use of the Marks by Mark User will inure to the benefit of and be on behalf of Mark Owner;

(e) Each Mark User agrees that nothing in this Agreement will give Mark User any right, title or interest in the Marks, other than the right to use the Marks in accordance with this Agreement and each Mark User agrees that it will not attack the title of Mark Owner to the Marks or attack the validity of the license granted hereunder; and

(f) Each Mark User agrees that Mark Owner will have the sole right and discretion, but not the obligation, to bring infringement or unfair competition proceedings involving the Marks.

6. NON-EXCLUSIVITY. The Parties agree expressly that this Agreement shall be non-exclusive with respect to each Party and that, accordingly, (a) Service Provider may from time to time render similar advice and services to other companies; and (b) any Service Recipient may from time to time retain similar advice and services from other parties.

7. CONFIDENTIALITY.

(a) Service Recipients and Service Provider each acknowledge and agree that all documents, instruments, records, reports and information (regardless of how embodied or conveyed) which are received from the other Party during the Term (collectively, "**Confidential Information**") are highly confidential and shall be maintained in strict confidence. Accordingly, each of the Service Recipients and Service Provider agrees that it shall not, at any time during or after the expiration of this Agreement, use in a manner unauthorized by the disclosing Party, any Confidential Information of the disclosing Party or, without the prior written consent of the disclosing Party, directly or indirectly disclose any such Confidential Information to any other Person, other than to any Affiliate, provided that the receiving Party shall require the same agreement from such Affiliate to whom Confidential Information is disclosed.

(b) The term "Confidential Information" does not include any data or information which the receiving Party can establish is already known to the receiving Party at the time it was initially disclosed to the receiving Party. Furthermore, the term "Confidential Information" does not include any data or information which before being divulged by the receiving Party, the receiving Party can establish (a) has become generally known to the public through no wrongful act of the receiving Party or breach of its obligations under this Agreement; (b) has been rightfully received by the receiving Party from a third party without restriction on disclosure and without, to the knowledge of the receiving Party, a breach of an obligation of confidentiality running directly or indirectly to the disclosing Party; or (c) has been approved for release by a written authorization by the disclosing Party.

(c) In the event that the receiving Party is legally requested or required (by oral questions, interrogatories, requests for information or documents, subpoena, civil investigative demand or similar process, or, in the opinion of counsel for such Party, by federal or state securities or other statutes, regulations, or laws) to disclose any Confidential Information, such Party shall, to the extent practicable without violation of applicable legal requirements, promptly notify the disclosing Party of such requests or requirement prior to disclosure so that the disclosing Party may, at its expense, seek an appropriate protective order and/or waive compliance with the terms of this Agreement.

8. INDEMNIFICATION. Each Service Recipient shall indemnify, reimburse, defend and hold harmless Service Provider, its Affiliates and their respective successors and permitted assigns, together with their respective current and future employees, officers, members, managers, directors, agents and representatives (collectively the "**Indemnified Parties**"), from and against all losses, costs, damages, injuries, taxes, penalties, interests, expenses, obligations, claims and liabilities (joint or severable) of any

kind or nature whatsoever, including for injury, sickness, disease or death to employees or other persons (collectively “**Losses**”) that are incurred by such Indemnified Parties in connection with, relating to or arising out of (i) the breach of any term or condition of this Agreement, or (ii) the performance of any Services hereunder; provided, however, that Service Recipients shall not be obligated to indemnify, reimburse, defend or hold harmless any Indemnified Party for any Losses incurred by such Indemnified Party in connection with, relating to or arising out of:

- (a) the gross negligence, willful misconduct, bad faith or reckless disregard of such Indemnified Party in the performance of any Services hereunder; or
- (b) fraudulent or dishonest acts of such Indemnified Party with respect to the Service Recipients.

Each Service Recipient’s obligation to indemnify, defend, reimburse and hold the Indemnified Parties harmless shall extend to and include, but not be limited to, claims, demands, judgments, liabilities and expenses resulting from the personal injury, sickness, disease or death of any persons, regardless of whether such Service Recipient has paid the person under the provisions of any workers’ compensation statute or law, or other similar federal or state legislation for the protection of employees.

The rights of any Indemnified Party referred to above are in addition to any rights that such Indemnified Party otherwise has at law or in equity. Without the prior written consent of the Service Recipients, no Indemnified Party may settle, compromise or consent to the entry of any judgment in, or otherwise seek to terminate any, claim, action, proceeding or investigation in respect of which indemnification could be sought hereunder unless (A) such Indemnified Party indemnifies the Service Recipients from any liabilities arising out of such claim, action, proceeding or investigation, (B) such settlement, compromise or consent includes an unconditional release of the Service Recipients and Indemnified Party from all liability arising out of such claim, action, proceeding or investigation and (C) the parties involved agree that the terms of such settlement, compromise or consent remain confidential. In the event that indemnification is provided for under any other agreements between CVR Energy or any of its Affiliates and any of the Service Recipients or any of their Affiliates, and such indemnification is for any particular Losses, then such indemnification (and any limitations thereon) as provided in such other agreement applies as to such particular Losses and will supersede and be in lieu of any indemnification that would otherwise apply to such particular Losses under this Agreement.

In the event that any indemnity provisions of this Agreement are contrary to the law governing this Agreement, then the indemnity obligations applicable hereunder will be construed to be to the fullest extent allowed by applicable law.

9. EXPRESS NEGLIGENCE. EXCEPT AS OTHERWISE EXPRESSED THEREIN, THE INDEMNITY, RELEASES AND LIMITATIONS ON DAMAGES, RECOURSE AND LIABILITIES IN THIS AGREEMENT (INCLUDING SECTION 8) ARE INTENDED TO BE ENFORCEABLE AGAINST THE PARTIES IN ACCORDANCE WITH THE EXPRESS TERMS AND SCOPE THEREOF, **REGARDLESS OF CAUSE**.

10. LIMITATION OF DUTIES AND LIABILITIES. The relationship of Service Provider to Service Recipient pursuant to this Agreement is as an independent contractor and nothing in this Agreement shall be construed to impose on Service Provider or its Affiliates, or on any of their respective successors and permitted assigns, or on their respective employees, officers, members, managers, directors, agents and representatives (each, a “**Service Provider Party**”), an express or implied fiduciary duty. No Service Provider Party shall be liable for, and Service Recipient shall not take, or permit to be taken, any action against any Service Provider Party to hold such Service Provider Party liable for, (a) any error of judgment or mistake of law or for any liability or loss suffered by Service Recipient in connection

with the performance of any Services under this Agreement, except for a liability or loss resulting from gross negligence, willful misconduct, bad faith or reckless disregard in the performance of the Services, or (b) any fraudulent or dishonest acts with respect to Service Recipient. In no event, whether based on contract, indemnity, warranty, tort (including negligence), strict liability or otherwise, shall any Service Provider Party be liable for loss of profits or revenue or special, incidental, exemplary, punitive or consequential damages; provided, however, that the foregoing limitation does not preclude recourse to any insurance coverage maintained by the Parties pursuant to the requirements of this Agreement or otherwise.

11. TERM OF AGREEMENT/TERMINATION. This Agreement shall be effective from the Effective Date and shall continue in effect until January 1, 2025, and shall be automatically renewed for successive five-year terms (collectively, the “**Term**”), unless terminated by either Party at any time during the initial term or any renewal term by providing the other Party at least 90 days prior written notice of termination, or as otherwise agreed to by the Parties. Notwithstanding the foregoing, this Agreement shall automatically terminate as to a Party without any further action by any Party immediately prior to the time at which such Party ceases to be under common control (measured with respect to indirect equity ownership or, in the case of CVR Partners, ownership of its general partner) with the other Parties.

12. NOTICES. All notices, offers, acceptances, waivers and other communications under this Agreement shall be in writing and shall be deemed to have been given and received (i) upon receipt when delivered by hand, (ii) upon transmission, if sent by electronic mail transmission (in each case with receipt verified by electronic confirmation), or (iii) one business day after being sent by overnight courier or express delivery service; provided, that in each case the notice or other communication is sent to the address, electronic mail address set forth beneath the name of such Party below (or to such other address or electronic mail address as such Party shall have specified in a written notice given to the other Parties hereto):

(a) If to Service Provider:

CVR Services, LLC
2277 Plaza Drive, Suite 500
Sugar Land, Texas 77479
Attention: Chief Accounting Officer
Email: mwbley@CVREnergy.com
With a copy to the Office of the General Counsel at the above address
Email: LegalServices@CVREnergy.com

(b) If to any Service Recipient other than CVR Partners or one of its subsidiaries:

Service Recipient
2277 Plaza Drive, Suite 500
Sugar Land, Texas 77479
Attention: EVP & Chief Financial Officer
Email: tdjackson@CVREnergy.com
With a copy to the Office of the General Counsel at the above address
Email: LegalServices@CVREnergy.com

(c) If to any Service Recipient that is CVR Partners or one of its subsidiaries:

Service Recipient
2277 Plaza Drive, Suite 500
Sugar Land, Texas 77479

Attention: President & Chief Executive Officer
Email: mpytosh@CVREnergy.com
With a copy to the Office of the General Counsel at the above address
Email: LegalServices@CVREnergy.com

13. ASSIGNMENT. This Agreement and all of the provisions hereof shall be binding upon and inure to the benefit of each of the Parties hereto and their respective successors and permitted assigns. Service Provider may not assign this Agreement or any rights, benefits or obligations set forth herein without the prior written consent of each Service Recipient. No Service Recipient may assign this Agreement or any rights, benefits or obligations set forth herein without the prior written consent of Service Provider.

14. ENTIRE AGREEMENT. This Agreement sets forth the entire agreement of the Parties and supersedes all prior representations, agreements and understandings, oral or written, between the Parties with respect to the matters contained herein. The Parties agree that all prior agreements between the Parties are hereby terminated to the extent they relate to Services.

15. NO THIRD PARTY BENEFICIARIES. The Parties each acknowledge and agree that there are no third party beneficiaries, including any employees of Service Provider or any Service Recipient, having rights under or with respect to this Agreement.

16. MODIFICATION AND AMENDMENT. This Agreement may be modified or amended only by a writing that is signed by both Parties and which expresses an intention to modify or amend this Agreement.

17. GOVERNING LAW AND VENUE. This Agreement shall be governed by and construed in accordance with the internal laws of the State of Texas, without regard to conflict of law principles (whether of the State of Texas or any other jurisdiction) that would cause the application of the laws of any jurisdiction other than the State of Texas. Each Party hereby submits to the exclusive jurisdiction of the state and federal courts in the State of Texas and to venue in Houston, Texas, and hereby waives any objection thereto.

18. COUNTERPARTS. This Agreement may be executed in one or more counterparts, any one of which may be by facsimile, and all of which taken together shall constitute one and the same instrument. The exchange of copies of this Agreement and of signature pages by electronic transmission, including by electronic mail in portable document format (“pdf”), or by any other electronic means intended to preserve the original graphic and pictorial appearance of a document, or by a combination of such means, shall constitute effective execution and delivery of this Agreement as to the Parties and may be used in lieu of an original Agreement for all purposes. Signatures of the Parties transmitted by facsimile or other electronic transmission shall be deemed to be original signatures for all purposes.

19. ATTORNEY-CLIENT PRIVILEGE. In connection with the Services, no Party waives, or shall be construed to have waived, the attorney-client, attorney work product or similar privileges and protections, and such privileges and protections are hereby extended to and shared between Service Provider and Service Recipients in all respects.

20. DEFINITIONS.

(a) “*Affiliate*” means with respect to any Person, any other Person that directly or indirectly through one or more intermediaries, controls, is controlled by, or is under common control with, such specified Person. For purposes of this definition, “control” when used with respect to any Person means the power to direct the management and policies of such Person, directly or indirectly, through the

ownership of voting securities, by contract or otherwise (provided that, solely for purposes of this Agreement, the Service Recipients shall not be deemed Affiliates of Service Provider). Notwithstanding anything herein to the contrary, no Person may be an Affiliate of either Service Recipient or Service Provider unless such Person is CVR Energy, Inc. or a wholly-owned subsidiary of CVR Energy, Inc.

- (b) “**Agreement**” has the meaning set forth in the preamble.
- (c) “**Allocations**” has the meaning set forth in Section 2(a).
- (d) “**Backup**” has the meaning set forth in Section 3(b).
- (e) “**Business and Goods**” has the meaning set forth in the Recitals.
- (f) “**Confidential information**” has the meaning set forth in Section 7(a).
- (g) “**Default Rate**” means an interest rate (which in no event will be higher than the rate permitted by applicable law) equal to 300 basis points over LIBOR.
- (h) “**Effective Date**” has the meaning set forth in the preamble.
- (i) “**Indemnified Party**” has the meaning set forth in Section 8.
- (j) “**Losses**” has the meaning set forth in Section 8.
- (k) “**Marks**” has the meaning set forth in the Recitals.
- (l) “**Mark Owner**” has the meaning set forth in Section 5.
- (m) “**Mark User**” has the meaning set forth in Section 5.
- (n) “**Monthly Fee**” shall have the meaning set forth in Section 2(a).
- (o) “**Party**” has the meaning set forth in the preamble.
- (p) “**Person**” means an individual, corporation, partnership, joint venture, trust, limited liability company, unincorporated organization or other entity.
- (q) “**Personnel Costs**” means all compensation costs incurred by an employer in connection with the employment by such employer of applicable personnel, including all payroll and benefits but excluding any share-based compensation costs.
- (r) “**Service Provider**” has the meaning set forth in the preamble.
- (s) “**Service Provider Party**” has the meaning set forth in Section 10.
- (t) “**Service Recipient**” has the meaning set forth in the preamble.
- (u) “**Services**” has the meaning set forth in the Recitals.
- (v) “**Shared Personnel**” means individuals who are employed by Service Provider or any of its Affiliates and provided on a part-time basis to the Service Recipients in connection with provision of the Services.
- (w) “**Term**” has the meaning set forth in Section 11.

- (x) “***True-Up Amount***” has the meaning set forth in Section 2(b).

[Remainder of page intentionally left blank. Signature page follows.]

IN WITNESS WHEREOF, the Parties have executed this Agreement on the date set forth below, to be effective as of the date first written above.

CVR SERVICES, LLC

By: /s/ Matthew W. Bley
Name: Matthew W. Bley
Title: Chief Accounting Officer
Date: February 19, 2020

WYNNEWOOD ENERGY COMPANY, LLC

By: /s/ Tracy D. Jackson
Name: Tracy D. Jackson
Title: EVP & Chief Financial Officer
Date: February 19, 2020

WYNNEWOOD REFINING COMPANY, LLC

By: /s/ Tracy D. Jackson
Name: Tracy D. Jackson
Title: EVP & Chief Financial Officer
Date: February 19, 2020

COFFEYVILLE RESOURCES REFINING & MARKETING, LLC

By: /s/ Tracy D. Jackson
Name: Tracy D. Jackson
Title: EVP & Chief Financial Officer
Date: February 19, 2020

COFFEYVILLE RESOURCES CRUDE TRANSPORTATION, LLC

By: /s/ Tracy D. Jackson
Name: Tracy D. Jackson
Title: EVP & Chief Financial Officer
Date: February 19, 2020

Signature Page to Corporate Master Service Agreement

COFFEYVILLE RESOURCES TERMINAL, LLC

By: /s/ Tracy D. Jackson
Name: Tracy D. Jackson
Title: EVP & Chief Financial Officer
Date: February 19, 2020

COFFEYVILLE RESOURCES PIPELINE, LLC

By: /s/ Tracy D. Jackson
Name: Tracy D. Jackson
Title: EVP & Chief Financial Officer
Date: February 19, 2020

CVR REFINING, LP

By: CVR Refining GP, LLC, its general partner

By: /s/ Tracy D. Jackson
Name: Tracy D. Jackson
Title: EVP & Chief Financial Officer
Date: February 19, 2020

CVR REFINING GP, LLC

By: /s/ Tracy D. Jackson
Name: Tracy D. Jackson
Title: EVP & Chief Financial Officer
Date: February 19, 2020

CVR REFINING, LLC

By: /s/ Tracy D. Jackson
Name: Tracy D. Jackson
Title: EVP & Chief Financial Officer
Date: February 19, 2020

COFFEYVILLE RESOURCES NITROGEN FERTILIZER, LLC

By: /s/ Mark A. Pytosh

Name: Mark A. Pytosh

Title: President & Chief Executive Officer

Date: February 19, 2020

EAST DUBUQUE NITROGEN FERTILIZER, LLC

By: /s/ Mark A. Pytosh

Name: Mark A. Pytosh

Title: President & Chief Executive Officer

Date: February 19, 2020

CVR NITROGEN HOLDINGS, LLC

By: /s/ Mark A. Pytosh

Name: Mark A. Pytosh

Title: President & Chief Executive Officer

Date: February 19, 2020

CVR NITROGEN, LLC

By: /s/ Mark A. Pytosh

Name: Mark A. Pytosh

Title: President & Chief Executive Officer

Date: February 19, 2020

CVR NITROGEN, LP

By: CVR Nitrogen GP, LLC, its general partner

By: /s/ Mark A. Pytosh

Name: Mark A. Pytosh

Title: President & Chief Executive Officer

Date: February 19, 2020

CVR NITROGEN FINANCE CORPORATION

By: /s/ Mark A. Pytosh

Name: Mark A. Pytosh

Title: President & Chief Executive Officer

Date: February 19, 2020

CVR PARTNERS, LP

By CVR GP, LLC, its general partner

By: /s/ Mark A. Pytosh

Name: Mark A. Pytosh

Title: President & Chief Executive Officer

Date: February 19, 2020

CVR GP, LLC

By: /s/ Mark A. Pytosh

Name: Mark A. Pytosh

Title: President & Chief Executive Officer

Date: February 19, 2020

CVR ENERGY, INC.

By: /s/ Tracy D. Jackson

Name: Tracy D. Jackson

Title: EVP & Chief Financial Officer

Date: February 19, 2020

WYNNEWOOD INSURANCE CORPORATION

By: /s/ Tracy D. Jackson

Name: Tracy D. Jackson

Title: EVP & Chief Financial Officer

Date: February 19, 2020

CVR AVIATION, LLC

By: /s/ Tracy D. Jackson
Name: Tracy D. Jackson
Title: EVP & Chief Financial Officer
Date: February 19, 2020

CVR ENERGY HOLDINGS, INC.

By: /s/ Tracy D. Jackson
Name: Tracy D. Jackson
Title: EVP & Chief Financial Officer
Date: February 19, 2020

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EXHIBIT A

Service Recipients

1. Wynnewood Energy Company, LLC a Delaware limited liability company
2. Wynnewood Refining Company, LLC, a Delaware limited liability company
3. Coffeyville Resources Refining & Marketing, LLC, a Delaware limited liability company
4. Coffeyville Resources Crude Transportation, LLC, a Delaware limited liability company
5. Coffeyville Resources Terminal, LLC, a Delaware limited liability company
6. Coffeyville Resources Pipeline, LLC, a Delaware limited liability company
7. CVR Refining, LP, a Delaware limited partnership
8. CVR Refining GP, LLC, a Delaware limited liability company
9. CVR Refining, LLC, a Delaware limited liability company
10. Coffeyville Resources Nitrogen Fertilizer, LLC, a Delaware limited liability company
11. East Dubuque Nitrogen Fertilizer, LLC, a Delaware limited liability company
12. CVR Nitrogen Holdings, LLC, a Delaware limited liability company
13. CVR Nitrogen, LLC, a Delaware limited liability company
14. CVR Nitrogen, LP, a Delaware limited partnership
15. CVR Nitrogen Finance Corporation, a Delaware corporation
16. CVR Partners, LP, a Delaware limited partnership (“**CVR Partners**”)
17. CVR GP, LLC
18. CVR Energy, Inc., a Delaware corporation (“**CVR Energy**”)
19. Wynnewood Insurance Corporation, a Delaware corporation
20. CVR Aviation, LLC, a Delaware limited liability company
21. CVR Energy Holdings, Inc., a Delaware corporation

Exhibit A

EXHIBIT B

The following comprise the Services to be provided by Service Provider to Service Recipient under this Agreement:

1. Executive Services. Services in capacities equivalent to the capacities of corporate executive officers, except that the persons serving in such capacities will serve in such capacities as Shared Personnel on a shared, part-time basis only, unless and to the extent otherwise agreed by Services Provider.
2. Information Technology (“IT”) Management Services. Management of IT resources to facilitate business of Service Recipients.
3. SOX Compliance. Consultation, audit and other services relating to compliance with the Sarbanes-Oxley Act of 2002, as amended (“**SOX**”), including maintenance of a control environment structure sufficient to satisfy any Service Recipient’s obligations under and compliance with SOX.
4. Accounting, Analysis and Audit Services. Accounting services including establishing and maintaining books and records of Service Recipients in accordance with customary practice and generally accepted accounting principles and performance of external reporting, including filings with the Securities and Exchange Commission. Coordination of external audit services. Financial analysis including forecasting, annual budgeting and business analytics and reporting.
5. Tax Services. Tax services including attending to the timely calculation and payment of taxes, the filing of all tax returns due, and assistance with tax audits and other tax documentation or needs encountered by Service Recipients.
6. Treasury and Investor Relations Services. Treasury services including liquidity and capital resources management, credit and related activities, risk management relating to credit activities, debt compliance activities and capital structure services including recommending to the board of directors or other governing authority of any Service Recipient (a) capital raising activities, including the issuance of debt or equity securities of Service Recipient, the entry into credit facilities or other credit arrangements, structured financings or other capital market transactions, or (b) changes or other modifications in the capital structure of Service Recipient, including repurchases. Services relating to engagement with investors, participation in investor conferences and related services.
7. Legal Services. Legal services relating to contracts, regulatory matters, finance, corporate governance, mergers and acquisitions and all other legal matters of the Service Recipients including management and oversight of litigation, administrative or regulatory proceedings, investigations or any other reviews of Service Recipients’ business or operations that may arise in the ordinary course of business or otherwise, subject to the approval of the board of directors or other governing authority of such Service Recipient to the extent necessary in connection with the settlement, compromise, consent to the entry of an order or judgment or other agreement resolving any of the foregoing.
8. Corporate Compliance and Enterprise Risk Management Services. Administration of corporate compliance and enterprise risk management functions including maintenance and administration of whistleblower hotlines, enterprise risk management and mapping, monitoring of emerging enterprise risks and related activities.
9. Business Development Services. Corporate planning and business development including mergers and acquisitions activity and related services.

Exhibit B

10. Environmental, Health, Safety & Security (“EHS&S”) Advisory Services. Corporate oversight over certain EHS&S compliance programs including management of corporate audits, facility support, engagement with regulators, periodic reporting and related services, provided that no EHS&S services provided hereunder shall replace or impair the sole responsibility of each facility for EHS&S at each such facility.
11. Corporate Affairs Services. Government affairs services including advocacy and lobbying; corporate communications services including employee engagement, media engagement and public relations; charitable giving services including management of community impact committees and related activities; and advertising and sponsorship services.
12. Human Resources (“HR”) Services. Corporate HR services including management and administration of investment and benefits committees, employee services, labor relations management, and other related activities.
13. Insurance Services. Corporate insurance and related services including establishing and maintaining appropriate insurance policies with respect to Service Recipients’ business and operations, management of claims and other insurance-related risk management services.
14. Consultant Services. Services relating to the engagement or recommendation to Service Recipients of agents, consultants or other third-party service providers, including accountants, lawyers or experts, in each case, as may be necessary or appropriate from time to time.
15. Other Services. Any other services as may be agreed to between Service Provider and Service Recipient from time to time.

Exhibit B

EXHIBIT C

All Marks owned by CVR Energy

All Marks owned by CVR Partners

Exhibit C

CVR PARTNERS, LP
LONG-TERM INCENTIVE PLAN
EMPLOYEE PHANTOM UNIT AGREEMENT

THIS AGREEMENT (this "Agreement"), made as of the) ____ day of _____ (the "Grant Date"), between CVR Partners, LP, a Delaware limited partnership (the "Partnership"), and the individual grantee designated on the signature page hereof (the "Grantee").

WHEREAS, the board of directors of CVR GP, LLC, a Delaware limited liability company (the "General Partner"), has adopted the CVR Partners, LP Long-Term Incentive Plan (the "Plan") in order to provide an additional incentive to certain of the Partnership's and its Subsidiaries' and Parents' employees, officers, consultants and directors; and

WHEREAS, the Committee responsible for administration of the Plan has authorized the grant of Phantom Units to the Grantee as provided herein.

NOW, THEREFORE, the parties hereto agree as follows:

1. Grant of Phantom Units.

(a) The Partnership hereby grants to the Grantee, and the Grantee hereby accepts from the Partnership on the terms and conditions set forth in this Agreement, an award of _____ Phantom Units. Subject to the terms of this Agreement, each Phantom Unit represents the right of the Grantee to receive, if such Phantom Unit becomes vested, a cash payment equal to the average closing price of the Units for the 10 business days preceding the applicable date of vesting pursuant to Section 2 or Section 3(a) or (b). The reference to the Units of the Partnership is used herein solely to calculate the cash payout, if any, to be awarded to the Grantee in accordance with this Agreement, and does not create any separate rights with respect to the Units of the Partnership or otherwise.

(b) This Agreement shall be construed in accordance with and consistent with, and subject to, the provisions of the Plan (the provisions of which are incorporated herein by reference). Except as otherwise expressly set forth herein, the capitalized terms used in this Agreement shall have the same definitions as set forth in the Plan.

2. Vesting Date.

The Phantom Units are unvested on and after the Grant Date and shall vest, with respect to thirty-three and one-third percent (33 – 1/3%) of the total number of Phantom Units granted hereunder, on _____, _____, and _____ (each such date, a "Vesting Date"), provided the Grantee continues to serve as an employee of the Partnership or its Subsidiaries or Parents through the applicable Vesting Date.

3. Termination of Employment.

(a) In the event of the Grantee's termination of employment with the Partnership or one of its Subsidiaries or Parents prior to any Vesting Date by reason of his or her death or Disability, then any Phantom Units scheduled to vest in the year in which such event occurs shall become immediately vested, and all other Phantom Units shall be deemed forfeited and Grantee shall have no rights with respect thereto.

(b) If the Grantee's employment is terminated by the Partnership or one of its Subsidiaries or Parents other than for Cause or Disability, then any Phantom Units scheduled to vest in the year in which such event occurs shall become immediately vested, and all other Phantom Units shall be deemed forfeited and Grantee shall have no rights with respect thereto.

(c) Any Phantom Units that do not become vested in connection with the Grantee's termination of employment in accordance with Sections 3(a) or (b) of this Agreement shall be forfeited immediately upon the Grantee's termination of employment.

(d) To the extent any payments provided for under this Agreement are treated as "nonqualified deferred compensation" subject to Section 409A of the Code, (i) this Agreement shall be interpreted, construed and operated in accordance with Section 409A of the Code and the Treasury regulations and other guidance issued thereunder, (ii) if on the date of the Grantee's separation from service (as defined in Treasury Regulation §1.409A-1(h)) with the Partnership or its Subsidiaries or Parents the Grantee is a specified employee (as defined in Section 409A of the Code and Treasury Regulation §1.409A-1(i)), no payment constituting the "deferral of compensation" within the meaning of Treasury Regulation §1.409A-1(b) and after application of the exemptions provided in Treasury Regulation §§1.409A-1(b)(4) and 1.409A-1(b)(9)(iii) shall be made to the Grantee at any time prior to the earlier of (A) the expiration of the six (6) month period following the Grantee's separation from service or (B) the Grantee's death, and any such amounts deferred during such applicable period shall instead be paid in a lump sum to the Grantee (or, if applicable, to the Grantee's estate) on the first payroll payment date following expiration of such six (6) month period or, if applicable, the Grantee's death, and (iii) for purposes of conforming this Agreement to Section 409A of the Code, any reference to termination of employment, severance from employment, resignation from employment or similar terms shall mean and be interpreted as a "separation from service" as defined in Treasury Regulation §1.409A-1(h). For purposes of applying Section 409A of the Code to this Agreement (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), each payment that the Grantee may be entitled to receive under this Agreement shall be treated as a separate and distinct payment and shall not collectively be treated as a single payment.

4. Distribution Equivalent Rights

The Partnership hereby grants to the Grantee, and the Grantee hereby accepts from the Partnership, one Distribution Equivalent Right for each Phantom Unit granted herein equal to the cash value of all distributions declared and paid by the Partnership on Units from the Grant Date to and including the Vesting Date. The reference to the cash value of such

distributions is used herein solely to calculate the cash payout, if any, to be awarded in respect of such Distribution Equivalent Rights and does not create any separate rights with respect to the Distribution Equivalent Rights. The payment of Distribution Equivalent Rights will be deferred until and conditioned upon the underlying Phantom Units becoming vested pursuant to Section 2 or 3 hereof. Upon each Vesting Date, Distribution Equivalent Rights on all vested Phantom Units, with no interest thereon, shall become payable to the Grantee in accordance with Section 5 hereof.

5. Payment Date.

Within 15 business days following (i) each Vesting Date, or (ii) if, prior to any Vesting Date, the Grantee's termination of employment with the Partnership or its Subsidiaries or Parents under circumstances described in Section 3(a) or (b), the date of such termination of employment, the Partnership will deliver to the Grantee the cash payment underlying the Phantom Units and Distribution Equivalent Rights (if any) that become vested pursuant to Section 2 or 3 of this Agreement.

6. Non-transferability.

The Phantom Units may not be sold, transferred or otherwise disposed of and may not be pledged or otherwise hypothecated, other than by will or by the laws of descent or distribution. The Phantom Units shall not be subject to execution, attachment or other process.

7. Incentive Compensation Recoupment.

(a) In the event of a restatement of the Partnership's (or any of its Subsidiaries') financial results that would reduce (or would have reduced) the amount of any previously awarded Phantom Units to Grantee, any related outstanding Phantom Units will be cancelled or reduced accordingly as determined by the Board or Committee in its sole and absolute discretion. For Phantom Units that have been paid, the Grantee shall be obligated and required to pay over to the Partnership an amount equal to any gain realized by Grantee in respect of such Phantom Units.

(b) The Board or the Committee may at any time, in its sole and absolute discretion, cancel, declare forfeited, rescind, or require the return of any outstanding Phantom Units (or a portion thereof) upon the Board or Committee determining, at any time (whether before or after the Grant Date), that the Grantee has engaged in misconduct (including by omission) or that an event or condition has occurred, which, in each case, would have given the Partnership or its Subsidiaries the right to terminate the Grantee's employment for Cause. In addition, at any time following any payment in respect of the Phantom Units, the Board or Committee may, in its sole and absolute discretion, rescind any such payment and require the repayment of such amounts (or a portion thereof) upon the Board or Committee determining, at any time (whether before or after the payment date), that the Grantee has engaged in misconduct (including by omission) or that an event or condition has occurred, which, in each case, would

have given the Partnership or its Subsidiaries the right to terminate the Grantee's employment for Cause.

(c) The Board's or Committee's determination that the Grantee has engaged in misconduct (including by omission), or that an event or condition has occurred, which, in each case, would have given the Partnership or its Subsidiaries the right to terminate the Grantee's employment for Cause, and its decision to require rescission of any payment made in respect of the Phantom Units, shall be conclusive, binding, and final on all parties. The Board's or Committee's determination that the Grantee has violated the terms of this Agreement (or any other agreement between Grantee and the Partnership or any of its affiliates), and the Board's or Committee's decision to cancel, declare forfeited, or rescind the Phantom Units (or any portion thereof) or to require rescission of any payment made in respect thereof shall be conclusive, binding, and final on all parties. In connection with any cancellation, forfeiture or rescission contemplated by this Section 10, the terms of repayment by the Grantee shall be determined in the Board's and/or Committee's sole and absolute discretion, which may include, among other terms, the repayment being required to be made (i) in one or more installments or payroll deductions or deducted from future bonus payments or (ii) immediately in a lump sum in the event that the Grantee incurs a termination of employment.

(d) To the extent not prohibited under applicable law, the Partnership, in its sole and absolute discretion, will have the right to set off (or cause to be set off) any amounts otherwise due to the Grantee from the Partnership (or any of its affiliates) in satisfaction of any repayment obligation of the Grantee hereunder, provided that any such amounts are exempt from, or set off in a manner intended to comply with the requirements of, Section 409A of the Code.

(e) If the Partnership subsequently determines that it is required by law to apply a "clawback" or alternate recoupment provision to the Phantom Units granted hereunder, under the Dodd-Frank Wall Street Reform and Consumer Protection Act or otherwise, then such clawback or recoupment provision also shall apply to such Phantom Units, as if it had been included on the effective date of this Agreement.

8. No Right to Continued Employment.

Nothing in this Agreement or the Plan shall be interpreted or construed to confer upon the Grantee any right with respect to continuance of employment by the Partnership or any of its Subsidiaries or Parents, nor shall this Agreement or the Plan interfere in any way with the right of the Partnership and its Subsidiaries and Parents to terminate the Grantee's employment therewith at any time.

9. Withholding of Taxes.

The Grantee shall pay to the Partnership, or the Partnership and the Grantee shall agree on such other arrangements necessary for the Grantee to pay, the applicable federal, state and local income taxes required by law to be withheld (the "Withholding Taxes"), if any, upon

the vesting or payment of the Phantom Units. The Partnership shall have the right to deduct from any payment of cash to the Grantee an amount equal to the Withholding Taxes in satisfaction of the Grantee's obligation to pay Withholding Taxes.

10. Grantee Bound by the Plan.

The Grantee hereby acknowledges receipt of a copy of the Plan and agrees to be bound by all the terms and provisions thereof.

11. Modification of Agreement.

This Agreement may be modified, amended, suspended or terminated, and any terms or conditions may be waived, but only by a written instrument executed by the parties hereto; provided, however, that the Partnership may modify or amend this Agreement without the written consent of the Grantee to the extent that such action is necessary for compliance with an applicable law, regulation or exchange requirement that impacts this Agreement. No waiver by either party hereto of any breach by the other party hereto of any provision of this Agreement to be performed by such other party shall be deemed a waiver of similar or dissimilar provisions at the time or at any prior or subsequent time.

12. Severability.

Should any provision of this Agreement be held by a court of competent jurisdiction to be unenforceable or invalid for any reason, the remaining provisions of this Agreement shall not be affected by such holding and shall continue in full force in accordance with their terms.

13. Governing Law.

The validity, interpretation, construction and performance of this Agreement shall be governed by the laws of the State of New York without giving effect to the conflicts of laws principles thereof.

14. Entire Understanding.

This Agreement embodies the entire understanding and agreement of the parties in relation to the subject matter hereof, and no promise, condition, representation or warranty, expressed or implied, not herein stated, shall bind either party hereto.

15. Rights as Equity Holder.

In no event whatsoever shall the Grantee possess any incidents of ownership in any equity of the Partnership with respect to the Phantom Units granted hereunder.

16. Successors in Interest.

This Agreement shall inure to the benefit of and be binding upon any successor to the Partnership. This Agreement shall inure to the benefit of the Grantee's beneficiaries, heirs, executors, administrators, successors and legal representatives. All obligations imposed upon the Grantee and all rights granted to the Partnership under this Agreement shall be final, binding and conclusive upon the Grantee's beneficiaries, heirs, executors, administrators, successors and legal representatives.

17. Unfunded Status.

The Phantom Units constitute an unfunded and unsecured promise of the Partnership to deliver (or cause to be delivered) to the Grantee, subject to the terms and conditions of this Agreement, cash on the applicable vesting date for the applicable portion of such Phantom Units as provided herein. By accepting this grant of Phantom Units, the Grantee understands that this grant does not confer any legal or equitable right (other than those constituting the Phantom Units) against the Partnership or any of its Affiliates, directly or indirectly, or give rise to any cause of action at law or in equity against the Partnership or any of its Affiliates. The rights of the Grantee (or any person claiming through the Grantee) under this Agreement shall be solely those of an unsecured general creditor of the Partnership.

18. Resolution of Disputes.

Any dispute or disagreement which may arise under, or as a result of, or in any way relate to, the interpretation, construction or application of this Agreement shall be determined by the Committee (in its sole and absolute discretion). Any determination made hereunder shall be final, binding and conclusive on the Grantee and the Partnership for all purposes.

[signature page follows]

IN WITNESS WHEREOF, this Agreement has been executed as of the date first written above.

CVR PARTNERS, LP
By: CVR GP, LLC, its general partner

GRANTEE

Name:

Name:

[Signature Page to Phantom Unit Agreement]

CVR PARTNERS, LP
LONG-TERM INCENTIVE PLAN
EMPLOYEE PHANTOM UNIT AGREEMENT

THIS AGREEMENT (this “Agreement”), made as of the ____ day of _____ (the “Grant Date”), between CVR Partners, LP, a Delaware limited partnership (the “Partnership”), and the individual grantee designated on the signature page hereof (the “Grantee”).

WHEREAS, the board of directors of CVR GP, LLC, a Delaware limited liability company (the “General Partner”), has adopted the CVR Partners, LP Long-Term Incentive Plan (the “Plan”) in order to provide an additional incentive to certain of the Partnership’s and its Subsidiaries’ and Parents’ employees, officers, consultants and directors; and

WHEREAS, the Committee responsible for administration of the Plan has authorized the grant of Phantom Units to the Grantee as provided herein.

NOW, THEREFORE, the parties hereto agree as follows:

1. Grant of Phantom Units.

(a) The Partnership hereby grants to the Grantee, and the Grantee hereby accepts from the Partnership on the terms and conditions set forth in this Agreement, an award of _____ Phantom Units. Subject to the terms of this Agreement, each Phantom Unit represents the right of the Grantee to receive, if such Phantom Unit becomes vested, a cash payment equal to the average closing price of the Units for the 10 business days preceding the applicable date of vesting pursuant to Section 2 or Section 3(a). The reference to the Units of the Partnership is used herein solely to calculate the cash payout, if any, to be awarded to the Grantee in accordance with this Agreement, and does not create any separate rights with respect to the Units of the Partnership or otherwise.

(b) This Agreement shall be construed in accordance with and consistent with, and subject to, the provisions of the Plan (the provisions of which are incorporated herein by reference). Except as otherwise expressly set forth herein, the capitalized terms used in this Agreement shall have the same definitions as set forth in the Plan.

2. Vesting Date.

The Phantom Units are unvested on and after the Grant Date and shall vest, with respect to thirty-three and one-third percent (33 – 1/3%) of the total number of Phantom Units granted hereunder, on _____, _____, and _____, (each such date, a “Vesting Date”), provided the Grantee continues to serve as an employee of the Partnership or its Subsidiaries or Parents through the applicable Vesting Date.

3. Termination of Employment.

(a) In the event of the Grantee's termination of employment with the Partnership or one of its Subsidiaries or Parents prior to any Vesting Date by reason of his or her death or Disability, then any Phantom Units scheduled to vest in the year in which such event occurs shall become immediately vested, and all other Phantom Units shall be deemed forfeited and Grantee shall have no rights with respect thereto.

(b) Any Phantom Units that do not become vested in connection with the Grantee's termination of employment in accordance with Section 3(a) of this Agreement shall be forfeited immediately upon the Grantee's termination of employment.

(c) To the extent any payments provided for under this Agreement are treated as "nonqualified deferred compensation" subject to Section 409A of the Code, (i) this Agreement shall be interpreted, construed and operated in accordance with Section 409A of the Code and the Treasury regulations and other guidance issued thereunder, (ii) if on the date of the Grantee's separation from service (as defined in Treasury Regulation §1.409A-1(h)) with the Partnership or its Subsidiaries or Parents the Grantee is a specified employee (as defined in Section 409A of the Code and Treasury Regulation §1.409A-1(i)), no payment constituting the "deferral of compensation" within the meaning of Treasury Regulation §1.409A-1(b) and after application of the exemptions provided in Treasury Regulation §§1.409A-1(b)(4) and 1.409A-1(b)(9)(iii) shall be made to the Grantee at any time prior to the earlier of (A) the expiration of the six (6) month period following the Grantee's separation from service or (B) the Grantee's death, and any such amounts deferred during such applicable period shall instead be paid in a lump sum to the Grantee (or, if applicable, to the Grantee's estate) on the first payroll payment date following expiration of such six (6) month period or, if applicable, the Grantee's death, and (iii) for purposes of conforming this Agreement to Section 409A of the Code, any reference to termination of employment, severance from employment, resignation from employment or similar terms shall mean and be interpreted as a "separation from service" as defined in Treasury Regulation §1.409A-1(h). For purposes of applying Section 409A of the Code to this Agreement (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), each payment that the Grantee may be entitled to receive under this Agreement shall be treated as a separate and distinct payment and shall not collectively be treated as a single payment.

4. Distribution Equivalent Rights

The Partnership hereby grants to the Grantee, and the Grantee hereby accepts from the Partnership, one Distribution Equivalent Right for each Phantom Unit granted herein equal to the cash value of all distributions declared and paid by the Partnership on Units from the Grant Date to and including the Vesting Date. The reference to the cash value of such distributions is used herein solely to calculate the cash payout, if any, to be awarded in respect of such Distribution Equivalent Rights and does not create any separate rights with respect to the Distribution Equivalent Rights. The payment of Distribution Equivalent Rights will be deferred until and conditioned upon the underlying Phantom Units becoming vested pursuant to Section 2 or 3 hereof. Upon each Vesting Date, Distribution Equivalent Rights on all vested Phantom

Units, with no interest thereon, shall become payable to the Grantee in accordance with Section 5 hereof.

5. Payment Date.

Within 15 business days following (i) each Vesting Date, or (ii) if, prior to any Vesting Date, the Grantee's termination of employment with the Partnership or its Subsidiaries or Parents under circumstances described in Section 3(a), the date of such termination of employment, the Partnership will deliver to the Grantee the cash payment underlying the Phantom Units and Distribution Equivalent Rights (if any) that become vested pursuant to Section 2 or 3 of this Agreement.

6. Non-transferability.

The Phantom Units may not be sold, transferred or otherwise disposed of and may not be pledged or otherwise hypothecated, other than by will or by the laws of descent or distribution. The Phantom Units shall not be subject to execution, attachment or other process.

7. Incentive Compensation Recoupment.

(a) In the event of a restatement of the Partnership's (or any of its Subsidiaries') financial results that would reduce (or would have reduced) the amount of any previously awarded Phantom Units to Grantee, any related outstanding Phantom Units will be cancelled or reduced accordingly as determined by the Board or Committee in its sole and absolute discretion. For Phantom Units that have been paid, the Grantee shall be obligated and required to pay over to the Partnership an amount equal to any gain realized by Grantee in respect of such Phantom Units.

(b) The Board or the Committee may at any time, in its sole and absolute discretion, cancel, declare forfeited, rescind, or require the return of any outstanding Phantom Units (or a portion thereof) upon the Board or Committee determining, at any time (whether before or after the Grant Date), that the Grantee has engaged in misconduct (including by omission) or that an event or condition has occurred, which, in each case, would have given the Partnership or its Subsidiaries the right to terminate the Grantee's employment for Cause. In addition, at any time following any payment in respect of the Phantom Units, the Board or Committee may, in its sole and absolute discretion, rescind any such payment and require the repayment of such amounts (or a portion thereof) upon the Board or Committee determining, at any time (whether before or after the payment date), that the Grantee has engaged in misconduct (including by omission) or that an event or condition has occurred, which, in each case, would have given the Partnership or its Subsidiaries the right to terminate the Grantee's employment for Cause.

(c) The Board's or Committee's determination that the Grantee has engaged in misconduct (including by omission), or that an event or condition has occurred, which, in each case, would have given the Partnership or its Subsidiaries the right to terminate the Grantee's

employment for Cause, and its decision to require rescission of any payment made in respect of the Phantom Units, shall be conclusive, binding, and final on all parties. The Board's or Committee's determination that the Grantee has violated the terms of this Agreement (or any other agreement between Grantee and the Partnership or any of its affiliates), and the Board's or Committee's decision to cancel, declare forfeited, or rescind the Phantom Units (or any portion thereof) or to require rescission of any payment made in respect thereof shall be conclusive, binding, and final on all parties. In connection with any cancellation, forfeiture or rescission contemplated by this Section 10, the terms of repayment by the Grantee shall be determined in the Board's and/or Committee's sole and absolute discretion, which may include, among other terms, the repayment being required to be made (i) in one or more installments or payroll deductions or deducted from future bonus payments or (ii) immediately in a lump sum in the event that the Grantee incurs a termination of employment.

(d) To the extent not prohibited under applicable law, the Partnership, in its sole and absolute discretion, will have the right to set off (or cause to be set off) any amounts otherwise due to the Grantee from the Partnership (or any of its affiliates) in satisfaction of any repayment obligation of the Grantee hereunder, provided that any such amounts are exempt from, or set off in a manner intended to comply with the requirements of, Section 409A of the Code.

(e) If the Partnership subsequently determines that it is required by law to apply a "clawback" or alternate recoupment provision to the Phantom Units granted hereunder, under the Dodd-Frank Wall Street Reform and Consumer Protection Act or otherwise, then such clawback or recoupment provision also shall apply to such Phantom Units, as if it had been included on the effective date of this Agreement.

8. No Right to Continued Employment.

Nothing in this Agreement or the Plan shall be interpreted or construed to confer upon the Grantee any right with respect to continuance of employment by the Partnership or any of its Subsidiaries or Parents, nor shall this Agreement or the Plan interfere in any way with the right of the Partnership and its Subsidiaries and Parents to terminate the Grantee's employment therewith at any time.

9. Withholding of Taxes.

The Grantee shall pay to the Partnership, or the Partnership and the Grantee shall agree on such other arrangements necessary for the Grantee to pay, the applicable federal, state and local income taxes required by law to be withheld (the "Withholding Taxes"), if any, upon the vesting or payment of the Phantom Units. The Partnership shall have the right to deduct from any payment of cash to the Grantee an amount equal to the Withholding Taxes in satisfaction of the Grantee's obligation to pay Withholding Taxes.

10. Grantee Bound by the Plan.

The Grantee hereby acknowledges receipt of a copy of the Plan and agrees to be bound by all the terms and provisions thereof.

11. Modification of Agreement.

This Agreement may be modified, amended, suspended or terminated, and any terms or conditions may be waived, but only by a written instrument executed by the parties hereto; provided, however, that the Partnership may modify or amend this Agreement without the written consent of the Grantee to the extent that such action is necessary for compliance with an applicable law, regulation or exchange requirement that impacts this Agreement. No waiver by either party hereto of any breach by the other party hereto of any provision of this Agreement to be performed by such other party shall be deemed a waiver of similar or dissimilar provisions at the time or at any prior or subsequent time.

12. Severability.

Should any provision of this Agreement be held by a court of competent jurisdiction to be unenforceable or invalid for any reason, the remaining provisions of this Agreement shall not be affected by such holding and shall continue in full force in accordance with their terms.

13. Governing Law.

The validity, interpretation, construction and performance of this Agreement shall be governed by the laws of the State of New York without giving effect to the conflicts of laws principles thereof.

14. Entire Understanding.

This Agreement embodies the entire understanding and agreement of the parties in relation to the subject matter hereof, and no promise, condition, representation or warranty, expressed or implied, not herein stated, shall bind either party hereto.

15. Rights as Equity Holder.

In no event whatsoever shall the Grantee possess any incidents of ownership in any equity of the Partnership with respect to the Phantom Units granted hereunder.

16. Successors in Interest.

This Agreement shall inure to the benefit of and be binding upon any successor to the Partnership. This Agreement shall inure to the benefit of the Grantee's beneficiaries, heirs, executors, administrators, successors and legal representatives. All obligations imposed upon the Grantee and all rights granted to the Partnership under this Agreement shall be final, binding and

conclusive upon the Grantee's beneficiaries, heirs, executors, administrators, successors and legal representatives.

17. Unfunded Status.

The Phantom Units constitute an unfunded and unsecured promise of the Partnership to deliver (or cause to be delivered) to the Grantee, subject to the terms and conditions of this Agreement, cash on the applicable vesting date for the applicable portion of such Phantom Units as provided herein. By accepting this grant of Phantom Units, the Grantee understands that this grant does not confer any legal or equitable right (other than those constituting the Phantom Units) against the Partnership or any of its Affiliates, directly or indirectly, or give rise to any cause of action at law or in equity against the Partnership or any of its Affiliates. The rights of the Grantee (or any person claiming through the Grantee) under this Agreement shall be solely those of an unsecured general creditor of the Partnership.

18. Resolution of Disputes.

Any dispute or disagreement which may arise under, or as a result of, or in any way relate to, the interpretation, construction or application of this Agreement shall be determined by the Committee (in its sole and absolute discretion). Any determination made hereunder shall be final, binding and conclusive on the Grantee and the Partnership for all purposes.

[signature page follows]

IN WITNESS WHEREOF, this Agreement has been executed as of the date first written above.

CVR PARTNERS, LP
By: CVR GP, LLC, its general partner

GRANTEE

Name:

Name:

[Signature Page to Phantom Unit Agreement]

CVR Energy, Inc.
Performance-Based Bonus Plan

Philosophy / Background

CVR Energy, Inc. (the “Company”) is committed to wages and benefits that are competitive with a market-based, pay-for-performance compensation philosophy, providing such base pay, bonus and long-term incentive awards in line with those of the refining and fertilizer industries. This Performance-Based Bonus Plan (the “Plan”) is intended to reward high performance employees, and to retain these employees in critical roles, through the issuance of bonus awards (each, a “Bonus”).

Administration

The Plan is maintained and administered by, or under the direction of, the Compensation Committee (the “Compensation Committee”) of the board of directors (the “Board”) of the Company with respect to employees of the Company and its subsidiaries, excluding CVR Refining, LP (“CVR”), CVR Partners, LP (“UAN”), their respective general partners and their respective subsidiaries (references to “employees” within this Plan are references to all employees of the foregoing entities).

The Compensation Committee shall annually approve all salaries, targets and bonus metrics for employees in Grade E14 and above, and shall annually approve a total bonus pool for employees in Grade E13 and below. The Compensation Committee delegates to the Chief Executive Officer the authority to approve payouts from such total bonus pool to employees in Grade E13 and below, in his sole discretion. The Chief Executive Officer shall also be responsible for assigning salaries, bonus targets, and Grade levels to employees in Grade 13 and below.

In the event of a claim or dispute brought forth by any employee with a Grade level of E13 or below, the decision of the Chief Executive as to the facts in the case and the meaning and intent of any provision of the Plan, or its application, shall be final, binding, and conclusive. In the event of a claim or dispute brought forth by any employee with a Grade level of E14 or above, the decision of the Compensation Committee as to the facts in the case and the meaning and intent of any provision of the Plan, or its application, shall be final, binding, and conclusive.

The Plan described herein does not create a contractual obligation on the part of the Company. The Company expressly reserves the right to modify, discontinue, or otherwise change the Plan outlined in this document at the sole and absolute discretion of the Company without advance notice.

Introduction

The purpose of the Plan and any Bonus to be paid hereunder is to enhance the Company’s ability to attract, motivate, reward and retain employees, and to strengthen their commitment to the success of the Company.

Eligibility and Administration

Bonuses are made based on the applicable calendar year during which the employees performed the services and are generally paid (to the extent payable) after the financials have been audited and within 90 days of the end of the calendar year (the “Performance Period” or “Period”).

Generally, only exempt, non-exempt and non-union hourly employees are eligible to receive a Bonus, provided that, to receive a Bonus, an employee must: (i) be actively employed with the Company for at least 180 days during the calendar year; (ii) consistently perform at or above expectations for their role; (iii) be actively employed on the date of payout and not on a performance improvement plan or in

corrective or disciplinary action status as a result of poor performance during the Performance Period. Employees hired prior to October 1 during the Performance Period will be eligible to receive a Bonus provided the above requirements (ii) and (iii) are met.

Subject to annual review, Bonuses are computed in accordance with each eligible employee's Grade (as shown in Appendix A), prorated for time in an eligible position, as well as a performance multiplier of zero to 150 percent, based on performance against the achievement of the allocated Company and individual performance measures described herein. Appendices A-E present: the overall compensation structure (Appendix A), example calculations (Appendices B, C), eligibility (Appendix D) and bonus payout measures (Appendix E). The Individual Performance Multiplier component of a Bonus, if any, is entirely discretionary.

In addition, if the Adjusted EBITDA Threshold established for the Company for a given Performance Period is not reached, no Bonus will be paid for the Period, subject to Compensation Committee discretion. The Compensation Committee may, in its sole and absolute discretion, wave the adjusted EBITDA threshold requirement, increase, decrease, or otherwise adjust performance measures, targets, and payout ranges used hereunder, as a result of extraordinary or non-recurring events, changes in applicable accounting rules or principles, changes in the Company's methods of accounting, changes in applicable law, changes due to consolidations, growth capital spend programs, acquisitions, or reorganizations affecting the Company and its subsidiaries and affiliates, or other similar changes in the Company's business.

Company Performance: Environmental Health & Safety (EH&S) Measures – 25%

EH&S measures are as follows (see appendix F for definitions):

- Personal Safety – Total Recordable Injury Rate (TRIR);
- Process Safety – Process Safety Incident Rate (PSIR); and
- Environmental Events (EE).

Company Performance: Financial Measures – 75%

Financial measures are objectives related to the following (see appendix F for definitions):

- Reliability;
- Equipment Utilization;
- Operating Expense; and
- Return on Capital Employed.

Spot Bonus

Introduction

Employees making an extraordinary contribution to the furtherance of Company financial performance or advances in Company culture may be nominated by their manager or executive sponsor for a Bonus on a spot basis (a "Spot Bonus"), subject to approval by the Chief Executive. Spot Bonuses will be limited to employees in salary grades E13 and below and a maximum value of five thousand dollars (\$5,000).

Terms and Conditions of Spot Bonus

Except as specifically set forth herein, the foregoing provisions of the Plan will likewise apply to a Spot Bonus. For the avoidance of doubt, these provisions relate to, among others, forfeiture and/or recoupment, amendment or termination, tax withholding, data protection and consent and governing law.

General Provisions

See Appendix F for definitions relating to the Plan.

Participation in the Plan is subject to (i) each individual employee's compliance with the Company's mission and values, its code of ethics and its policies and procedures, including, without limitation, the Corporate Policies and Procedures and employee handbook (collectively, "Company Policies"), and (ii) the Clawback and Recoupment Policy attached as Appendix G.

Each employee that is eligible and receives a Bonus or Spot Bonus will be liable for any and all federal, state, provincial, local or foreign taxes, pension plan contributions, employment insurance premiums, social insurance contributions, amounts payable to a governmental and/or regulatory body in the employee's country and other levies of any kind required by applicable laws to be deducted or withheld with respect to any such award (collectively, the "Withholding Taxes"). The Company will have the right to deduct and withhold all required Withholding Taxes from any payment or other consideration deliverable to an employee pursuant to any such payment. All awards under the Plan are intended to be exempt from Section 409A of the Internal Revenue Code of 1986, as amended, and shall be construed and interpreted in accordance with such intent.

Participation in the Plan does not confer upon any employee any right to continue in the employ of the Company or its subsidiaries, nor interfere in any way with the right of the Company and its subsidiaries to terminate any employee's employment at any time. The Company and its subsidiaries are under no obligation to continue the Plan in future years.

The Compensation Committee may at any time, or from time to time, in its sole and absolute discretion, (a) amend, alter or modify the provisions of this Plan, (b) terminate this Plan, or (c) terminate the participation of an employee or group of employees in this Plan; provided, however, that in the event of the termination of the Plan or a termination of participation, the Compensation Committee, in its sole and absolute discretion, may determine that a prorated award is payable to employees who were participants in this Plan under such terms and conditions as established by the Compensation Committee.

Notwithstanding anything herein to the contrary, whether or not any payment or award is authorized, earned or paid under the Plan will be determined by the Compensation Committee in its sole and absolute discretion, and no such payment or award shall be earned, nor shall any right to any such payment or award exist or accrue, unless, among other factors, such payment or award has been authorized by the Compensation Committee in its sole and absolute discretion, and actually paid to the employee. In addition, whether or not any payment or award is authorized, earned or paid pursuant to the Plan is without regard to whether any of the individual performance metrics, financial performance targets and/or goals, or any other benchmarks, targets, personal goals or criteria set forth in the Plan are met, not met, exceeded or not exceeded.

No employee, beneficiary or other person shall have any right, title or interest in any amount awarded under the Plan prior to the payment of such award to him or her. An employee's rights to a payment under the Plan are no greater than those of unsecured general creditors of the Company or its subsidiaries.

By participating in the Plan, each employee consents to the holding and processing of personal information provided by such employee to the employer, any affiliate of the employer, trustee or third party service provider, for all purposes relating to the operation of the Plan. Consents include, but are not limited to: (i) administering and maintaining employee records; (ii) providing information to the

employer, its affiliates, trustees of any employee benefit trust, registrars, brokers or third party administrators of the Plan; (iii) providing information to future purchasers or merger partners of the employer or any of its affiliates, or the business in which the employee works; and (iv) to the extent not prohibited by applicable law, transferring information about the employee to any country or territory that may not provide the same protection for the information as the employee's home country.

The Plan is governed by the laws of the State of New York and as such will be construed under and in accordance with the laws of the State of New York without regard to conflicts of law.

Appendix A
Compensation Structure: Base Pay & Incentive Plans

[Table redacted.]

Individual Performance Measures

Supervisor's assessment of employee's performance will be based on the following categories:

- Interpersonal effectiveness
- Business conduct
- Professional and technical development
- Leadership
- Achievement of goals
- Results orientation

The assessment is discretionary and based on a wide range of considerations which often change over the course of the year.

Appendix B

Bonus Payout and Company Performance Calculations

Bonus Payout Calculation:

Eligible Compensation	X	Target Bonus % based on Salary Grade	X	Company Performance Allocation* (0-100%)	X	Company Performance Multiplier (0-150%)	+	Individual Performance Allocation* (0-100%)	X	Individual Performance Multiplier (0-150%)
*Company Performance Allocation + Individual Performance Allocation = 100%										
Allocations are based on employee salary grade										

**Company Performance Multiplier:

25%	X	EH&S Achievement (0-150%)	+	75%	X	25% X Reliability (0-150%)	+	25% X Equipment Utilization (0-150%)	+	25% X Operating Expense (0-150%)	+	25% X ROCE (0-150%)
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Appendix C
Bonus Payout Examples

Example Bonus Calculation 1:													
Salary Grade	E12												
Eligible Compensation	\$196,000	Eligible Compensation		Bonus Target %		Co. Perf. Alloc.		Co. Perf. Multiplier		Ind. Perf. Alloc.		Ind. Perf. Multiplier	
Performance Rating	Exceeds	\$196,000	X	40%	X	(50%	X	110%	+	50%	X	125%	)
Bonus Target %	40%												
Company Performance Allocation	50%		=	\$92,120									
Company Performance Multiplier (0-150%)	110%												
Individual Performance Allocation	50%												
Individual Performance Multiplier (0-150%)	125%												
Example Bonus Calculation 2:													
Salary Grade	E06												
Eligible Compensation	\$90,000	Eligible Compensation		Bonus Target %		Ind. Perf. Alloc.		Ind. Perf. Multiplier					
Performance Rating	Far Exceeds	\$90,000	X	14%	X	(100%	X	150%	)				
Bonus Target %	14%												
Company Performance Allocation	N/A		=	\$18,900									
Company Performance Multiplier (0-150%)	N/A												
Individual Performance Allocation	100%												
Individual Performance Multiplier (0-150%)	150%												
Example Bonus Calculation 3:													
Hourly Non-Represented	Hrly Non-Rep												
Eligible Compensation	\$70,000	Eligible Compensation		Bonus Target %		Co. Perf. Alloc.		Co. Perf. Multiplier					
Performance Rating	None	\$70,000		6%	X	(100%	X	110%	)				
Bonus Target %	6%												
Company Performance Allocation	100%		=	\$4,620									
Company Performance Multiplier (0-150%)	110%												
Individual Performance Allocation	N/A												
Individual Performance Multiplier (0-150%)	N/A												

Appendix D
CVR Energy, Inc.

Eligibility

Non-union General & Administrative and Shared Services employees of the Company and its subsidiaries, including Executive, Legal, Communications, Risk Management, Flight Operations, Finance & Accounting, Treasury, Investor Relations, Tax, IT, Financial Planning & Analysis, Human Resources, Internal Audit, Procurement, Environmental Health & Safety and Ranch Management.

Company Performance: Bonus Payout

The Company Performance Multiplier for the Performance Period will be derived from the corresponding outcomes for CVRR and UAN (Appendix E) as follows for the Period:

- Weighted based on man-hours worked for the Total Recordable Incident Rate and Process Safety Incident Rate Measures
- Weighted based on Adjusted EBITDA for the Environmental Events Measure and all Financial Measures

Appendix E
CVR Refining, LP and CVR Partners, LP
Bonus Payout Measures

Environmental Health & Safety (EH&S) Measures (25%)

Three measures evenly weighted (33-1/3% each): Total Recordable Incident Rate (TRIR), Process Safety Tier I Incident Rate (PSIR), and Environmental Events (EE):

Percentage Change (over the prior year)

Increase in Incident Rate or Incidents
0%
Decrease > 0% and < 3%
Decrease of 3%
Decrease > 3% and < 10%
Decrease of 10% or more, or if TRIR is maintained at or below 1.0, PSIR at or below 0.2 and EE at or below 20

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

Financial Measures (75%)

Four measures evenly weighted (25% each):

Reliability

Greater than 8.0%
8.00%
6.01% to 7.99%
6.00%
5.0% to 5.99%
Less than 5.0%

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

Equipment Utilization

Less than 95%
95%
95.01% to 99.99%
100%
100.01% to 104.99%
Greater than 105%

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

Operating Expense

Greater than 103.0%
103%
100.1% to 102.99%
100%
95.0% to 99.99%
Less than 95%

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

CVRR and UAN ROCE (Ranking vs. Peer Group)**

First (highest)
Second
Third
Fourth
Fifth
Sixth
Seventh

Bonus Achievement

150% of Target (Maximum)
125% of Target Percentage
112.5% of Target Percentage
Target Percentage (100%)
75% of Target Percentage
50% of Target Percentage (Minimum)
Zero

Performance measures subject to peer group ranking will be based on LTM data as of September 30 of the Performance Period.

*The Refining Industry peer group will include Valero, Marathon, PBF Energy, Delek, Holly Frontier and Par Pacific.

**The Fertilizer Industry peer group will consist of CF Industries, LSB Industries, Nutrien Ltd., The Andersons, Inc., Green Plains Partners and Flotek Industries.

Appendix F

Definitions

“Adjusted EBITDA” for the Company means earnings before interest, taxes, depreciation and amortization, and adjusted for inventory valuation impacts, unrealized gains and losses on derivative transactions, turnaround expenses to the extent they are included in EBITDA, loss on extinguishment of debt, asset impairment charges, - and board-directed actions.

“Adjusted EBITDA Threshold” means actual maintenance and sustaining capital expenditures plus reserves for turnaround expenses plus interest on debt for the given Performance Period, and board-directed actions. **[Redacted.]**

“Chief Executive” means the President and Chief Executive Officer of the Company.

“Eligible Compensation” means (i) for eligible exempt employees, such employee’s base salary at the time the Bonus or Spot Bonus is determined (prorated for time in an eligible position), and (ii) for eligible non-exempt and non-union hourly employees, such employees’ eligible wages for the applicable year as determined by the Company to be required by law.

“Environmental Events” (“EE”) means the total number of reportable quantities and water deviations.

- Reportable quantities are releases of substances during a 24-hour period that exceed a federal, state or local reporting threshold.
 - o Reportable quantity is an event or contemporaneous combination of events during at 24-hour period that results in a release that exceeds a reportable quantity or quantities of a EPCRA/CERCLA compound as defined in the EPA List of Lists or a release that exceeds any other federal, state or local reporting threshold. Federally permitted releases and continuous releases defined in 40 CFR §302.6 and §302.8 are not considered reportable quantities under this measure.
 - o A reportable quantity is counted by event or contemporaneous combination of events, not by the number of individual reports that are filed or number of compounds which exceed their reportable quantity. Events are considered contemporaneous if they occur within 24-hours or when a common cause results in one or more reportable quantities during contiguous or overlapping 24-hour periods.
- Water deviations are exceedances of a NPDES-based permit limit, wastewater bypasses and sheens to water of the United States.
 - o The number of deviations is based on the number of individual permit limits exceeded irrespective of the number of causal events attributed to the deviation. However, a continuance of an ongoing permit limit deviation would not be double-counted if it were contemporaneous with a prior deviation and/or event.
 - o Oil sheens and reportable quantities to water are only counted once as a water deviation environmental event.

A single event that results in multiple reportable quantities and/or when a water deviation is also a regulatory reportable quantity is not “double-counted” and will only be considered one Environmental Event.

“Executive Officer” of the Company means an “executive officer” as that term is defined in Rule 3b-7 of the Securities Exchange Act of 1934, as amended (the “Exchange Act”) or an “officer” of the Company for purposes of Section 16 of the Exchange Act.

“Equipment Utilization” means (i) for CVRR, actual throughput for the Performance Period divided by the planned throughput for the Performance Period, and (ii) for UAN, adjusted equivalent tons of urea ammonium nitrate production divided by the planned equivalent tons of production for the Performance Period, in each case, as adjusted at the discretion of the Compensation Committee for events or downtime caused by third parties. Planned throughput and production is reflected in the Company’s annual volumetric plan. Monthly targets may be adjusted on a month by month basis to optimize production for which there is an economic incentive to do so during the given period. In such cases, the annual volumetric plan will be adjusted for the purposes of Bonus calculations with the new targets in place of the original targets.

“Operating Expense” means measurement of actual controllable and fixed operating costs divided by budgeted amounts. For purposes of calculating the Bonus, budgeted amounts are subject to revision by the Board in its discretion based on changes in business conditions or configuration of the business (e.g., items such as acquisitions or divestitures, unusual or non-recurring charges and changes in staffing relating to changed strategy approved by the Board will be considered as items for potential adjustment).

“Process Safety Incident Rate” (“PSIR”) means a standardized measure of process safety performance for the number of process safety tier 1 events per 100 full-time equivalent employees, as defined in the recommended practice for process safety performance indicators, ANSI/API RP 754.

A process safety tier 1 event is an unplanned or uncontrolled loss of primary containment of any material, including non-toxic and non-flammable materials, from a process that results in one or more consequences, including:

- an employee, contractor or subcontractor “days away from work” injury and/or fatality;
- a hospital admission and/or fatality or a third-party;
- an officially declared community evacuation or community shelter-in-place;
- a fire or explosion resulting in greater than or equal to \$25,000 of direct cost to the company;
- an officially declared community evacuation or community shelter-in-place;
- a pressure relief device (PRD) discharge to atmosphere whether directly or via a downstream destructive device that results in one or more of four defined consequences and a PRD discharge quantity greater than defined threshold quantities in a one-hour period; or,
- a release of material greater than defined threshold quantities described in any one-hour period.

“Reliability” means Lost Profit Opportunity (“LPO”), defined as foregone gross margin that results from operational variance due to factors within the Company’s control, specifically including human and equipment performance, divided by the sum of actual gross margin plus LPO.

“Return on Capital Employed” (“ROCE”) means operating income before depreciation and amortization (excluding asset impairments, non-cash asset write-downs and inventory valuation gains or losses) divided by average Capital Employed during the Period (averages calculated using 5-quarter end balances for the measurement period).

“Capital Employed” means the total assets, less current liabilities (adjusted for any asset or inventory valuations imputed on operating income).

“Total Recordable Injury Rate” (“TRIR”) means a standardized measure of safety performance for the number of work-related injuries per 100 full-time equivalent employees, as defined by OSHA.

“Throughput” means total crude oil and other feedstocks charged to the refinery including isobutane, normal butane, natural gasoline, gas oil, biodiesel and ethanol used for blending.

Appendix G

Clawback and Recoupment Policy

This Clawback and Recoupment Policy applies to each Bonus and Spot Bonus (for purposes of this Plan, an “Award”).

If the Compensation Committee in its sole and absolute discretion, determines that (i) there has been misconduct or a gross dereliction of duty resulting in either a violation of law or Company Policy, that, in either case, causes significant financial or reputational harm to the Company (or any of its affiliates), and that an employee committed the misconduct or gross dereliction of duty, or failed in his or her responsibility to manage or monitor the applicable conduct or risk; (ii) an employee has committed an immoral act which is reasonably likely to impair the reputation of the Company (or any of its affiliates); (iii) an employee committed, or was indicted for, a felony or any crime involving fraud or embezzlement or dishonesty or was convicted of, or entered a plea of *nolo contendere* to a misdemeanor (other than a traffic violation) punishable by imprisonment under federal, state or local law; (iv) an employee violated any securities or employment laws or regulations; (v) an employee materially breached a Company Policy or any non-compete and/or non-solicitation clause included in an agreement or offer letter with such employee’s employer; (vi) an employee embezzled and/or misappropriated any property of the Company (or any of its affiliates) or committed any act involving fraud with respect to the Company (or any of its affiliates); or (vii) an employee engaged in conduct (including by omission) or an event or condition has occurred, which, in each case, would have given the Company or its subsidiaries the right to terminate the employee’s employment for Cause (as defined herein), then, to the extent not prohibited by applicable law, such Compensation Committee, in its sole and absolute discretion, may cancel, declare forfeited, or rescind such Award, or may seek reimbursement from such employee (and such employee will be obligated to repay) all or any portion of any payments made to such employee in respect of such Award.

If the Compensation Committee determines, in its sole and absolute discretion, that calculations underlying the performance measures and targets, including but not limited to mistakes in the Company’s financial statements, were incorrect, then such Compensation Committee may, in its sole and absolute discretion, seek to recover the amount of any payment made to employees that exceeded the amount that would have been paid based on the corrected calculations.

To the extent not prohibited by applicable law, if an employee is an officer, or, if applicable, has otherwise been designated by the Board of the Company as an Executive Officer, the Board may seek reimbursement of any payment made to such employee in respect of an Award in the event of a restatement of such Company’s (or any of its subsidiaries’) financial results (occurring due to material noncompliance with any financial reporting requirements under applicable securities laws) that reduced a previously granted payment made to such employee in respect of an Award. In that event, the Compensation Committee may, in its sole and absolute discretion, seek to recover the amount of any such payment made to the employee that exceeded the amount that would have been paid based on the restated financial results.

If the Company subsequently determines that it is required by law to apply a “clawback” or alternate recoupment provision to an Award, under the Dodd-Frank Wall Street Reform and Consumer Protection Act or otherwise, then such clawback or recoupment provision also shall apply to such Award, as if it had been included on the effective date of such Award.

To the extent not prohibited under applicable law, the Company (or any of its subsidiaries) (as applicable), in its sole and absolute discretion, will have the right to set off (or cause to be set off) any amounts otherwise due to employee from such Company or a subsidiary in satisfaction of any repayment obligation of such employee

hereunder, provided that any such amounts are exempt from, or set off in a manner intended to comply with the requirements of Section 409A of the Internal Revenue Code of 1986, as amended.

For the avoidance of doubt, the Company's and its subsidiaries' rights under this Plan will apply to employees, without regard to whether any such employee is currently providing, or previously provided, services to the Company or its subsidiary as an employee.

"Cause" for purposes of any Award means such employee's (i) refusal or neglect to perform substantially his or her employment-related duties or services, (ii) personal dishonesty, incompetence, willful misconduct or breach of fiduciary duty, (iii) indictment for, conviction of or entering a plea of guilty or nolo contendere to a crime constituting a felony or his or her willful violation of any applicable law (other than a traffic violation or other offense or violation outside of the course of employment or services to the Company or its affiliates which in no way adversely affects the Company and its affiliates or their reputation or the ability of the employee to perform his or her employment-related duties or services or to represent the Company or any affiliate of the Company that employs such employee or to which the employee performs services), (iv) failure to reasonably cooperate, following a request to do so by the Company, in any internal or governmental investigation of the Company or any of its affiliates or (v) material breach of any written covenant or agreement with the Company or any of its affiliates not to disclose any information pertaining to the Company or such affiliate or not to compete or interfere with the Company or such affiliate; provided that, in the case of any employee who, as of the date of determination, is party to an effective services, severance or employment agreement with the Company or any affiliate, "Cause" will have the meaning, if any, specified in such agreement.

CVR Partners, LP

Performance-Based Bonus Plan

Philosophy / Background

CVR Partners, LP (the “Company”) is committed to wages and benefits that are competitive with a market-based, pay-for-performance compensation philosophy, providing such base pay, bonus and long-term incentive awards in line with those of the fertilizer industry. This Performance-Based Bonus Plan (the “Plan”) is intended to reward high performance employees, and to retain these employees in critical roles, through the issuance of bonus awards (each, a “Bonus”).

Administration

The Plan is maintained and administered by, or under the direction of, the Compensation Committee (the “Compensation Committee”) of the board of directors (the “Board”) of the general partner of the Company with respect to employees of the Company and its subsidiaries, excluding CVR Energy, Inc. (“CVI”), CVR Refining, LP (“CVRR”), their respective general partners and their respective subsidiaries (references to “employees” within this Plan are references to all employees of the foregoing entities).

The Compensation Committee shall annually approve all salaries, targets and bonus metrics for employees in Grade E14 and above, and shall annually approve a total bonus pool for employees in Grade E13 and below. The Compensation Committee delegates to the Chief Executive Officer the authority to approve payouts from such total bonus pool to employees in Grade E13 and below, in his sole discretion. The Chief Executive Officer shall also be responsible for assigning salaries, bonus targets, and Grade levels to employees in Grade 13 and below.

In the event of a claim or dispute brought forth by any employee with a Grade level of E13 or below, the decision of the Chief Executive as to the facts in the case and the meaning and intent of any provision of the Plan, or its application, shall be final, binding, and conclusive. In the event of a claim or dispute brought forth by any employee with a Grade level of E14 or above, the decision of the Compensation Committee as to the facts in the case and the meaning and intent of any provision of the Plan, or its application, shall be final, binding, and conclusive.

The Plan described herein does not create a contractual obligation on the part of the Company. The Company expressly reserves the right to modify, discontinue, or otherwise change the Plan outlined in this document at the sole and absolute discretion of the Company without advance notice.

Introduction

The purpose of the Plan and any Bonus to be paid hereunder is to enhance the Company’s ability to attract, motivate, reward and retain employees, and to strengthen their commitment to the success of the Company.

Eligibility and Administration

Bonuses are made based on the applicable calendar year during which the employees performed the services and are generally paid (to the extent payable) after the financials have been audited and within 90 days of the end of the calendar year (the “Performance Period” or “Period”).

Generally, only exempt, non-exempt and non-union hourly employees are eligible to receive a Bonus, provided that, to receive a Bonus, an employee must: (i) be actively employed with the Company for at least 180 days during the calendar year; (ii) consistently perform at or above expectations for their role; (iii) be actively employed on the date of payout and not on a performance improvement plan or in

corrective or disciplinary action status as a result of poor performance during the Performance Period. Employees hired prior to October 1 during the Performance Period will be eligible to receive a Bonus provided the above requirements (ii) and (iii) are met.

Subject to annual review, Bonuses are computed in accordance with each eligible employee's Grade (as shown in Appendix A), prorated for time in an eligible position, as well as a performance multiplier of zero to 150 percent, based on performance against the achievement of the allocated Company and individual performance measures described herein. Appendices A-E present the overall compensation structure (Appendix A), example calculations (Appendices B, C), eligibility (Appendix D) and bonus payout measures (Appendix E). The Individual Performance Multiplier component of a Bonus, if any, is entirely discretionary.

In addition, if the Adjusted EBITDA Threshold established for the Company for a given Performance Period is not reached, no Bonus will be paid for the Period, subject to Compensation Committee discretion. The Compensation Committee may, in its sole and absolute discretion, wave the adjusted EBITDA threshold requirement, increase, decrease, or otherwise adjust performance measures, targets, and payout ranges used hereunder, as a result of extraordinary or non-recurring events, changes in applicable accounting rules or principles, changes in the Company's methods of accounting, changes in applicable law, changes due to consolidations, growth capital spend programs, acquisitions, or reorganizations affecting the Company and its subsidiaries and affiliates, or other similar changes in the Company's business.

Company Performance: Environmental Health & Safety (EH&S) Measures – 25%

EH&S measures are as follows (see Appendix F for definitions):

- Personal Safety – Total Recordable Injury Rate (TRIR);
- Process Safety – Process Safety Incident Rate (PSIR); and
- Environmental Events (EE).

Company Performance: Financial Measures – 75%

Financial measures are objectives related to the following (see Appendix F for definitions):

- Reliability;
- Equipment Utilization;
- Operating Expense; and
- Return on Capital Employed.

Spot Bonus

Introduction

Employees making an extraordinary contribution to the furtherance of Company financial performance or advances in Company culture may be nominated by their manager or executive sponsor for a Bonus on a spot basis (a "Spot Bonus"), subject to approval by the Chief Executive. Spot Bonuses will be limited to employees in salary grades E13 and below and a maximum value of five thousand dollars (\$5,000).

Terms and Conditions of Spot Bonus

Except as specifically set forth herein, the foregoing provisions of the Plan will likewise apply to a Spot Bonus. For the avoidance of doubt, these provisions relate to, among others, forfeiture and/or recoupment, amendment or termination, tax withholding, data protection and consent and governing law.

General Provisions

See Appendix F for definitions relating to the Plan.

Participation in the Plan is subject to (i) each individual employee's compliance with the Company's mission and values, its code of ethics and its policies and procedures, including, without limitation, the Corporate Policies and Procedures and employee handbook (collectively, "Company Policies"), and (ii) the Clawback and Recoupment Policy attached as Appendix G.

Each employee that is eligible and receives a Bonus or Spot Bonus will be liable for any and all federal, state, provincial, local or foreign taxes, pension plan contributions, employment insurance premiums, social insurance contributions, amounts payable to a governmental and/or regulatory body in the employee's country and other levies of any kind required by applicable laws to be deducted or withheld with respect to any such award (collectively, the "Withholding Taxes"). The Company will have the right to deduct and withhold all required Withholding Taxes from any payment or other consideration deliverable to an employee pursuant to any such payment. All awards under the Plan are intended to be exempt from Section 409A of the Internal Revenue Code of 1986, as amended, and shall be construed and interpreted in accordance with such intent.

Participation in the Plan does not confer upon any employee any right to continue in the employ of the Company or its subsidiaries, nor interfere in any way with the right of the Company and its subsidiaries to terminate any employee's employment at any time. The Company and its subsidiaries are under no obligation to continue the Plan in future years.

The Compensation Committee may at any time, or from time to time, in its sole and absolute discretion, (a) amend, alter or modify the provisions of this Plan, (b) terminate this Plan, or (c) terminate the participation of an employee or group of employees in this Plan; provided, however, that in the event of the termination of the Plan or a termination of participation, the Compensation Committee, in its sole and absolute discretion, may determine that a prorated award is payable to employees who were participants in this Plan under such terms and conditions as established by the Compensation Committee.

Notwithstanding anything herein to the contrary, whether or not any payment or award is authorized, earned or paid under the Plan will be determined by the Compensation Committee in its sole and absolute discretion, and no such payment or award shall be earned, nor shall any right to any such payment or award exist or accrue, unless, among other factors, such payment or award has been authorized by the Compensation Committee in its sole and absolute discretion, and actually paid to the employee. In addition, whether or not any payment or award is authorized, earned or paid pursuant to the Plan is without regard to whether any of the individual performance metrics, financial performance targets and/or goals, or any other benchmarks, targets, personal goals or criteria set forth in the Plan are met, not met, exceeded or not exceeded.

No employee, beneficiary or other person shall have any right, title or interest in any amount awarded under the Plan prior to the payment of such award to him or her. An employee's rights to a payment under the Plan are no greater than those of unsecured general creditors of the Company or its subsidiaries.

By participating in the Plan, each employee consents to the holding and processing of personal information provided by such employee to the employer, any affiliate of the employer, trustee or third party service provider, for all purposes relating to the operation of the Plan. Consents include, but are not limited to: (i) administering and maintaining employee records; (ii) providing information to the

employer, its affiliates, trustees of any employee benefit trust, registrars, brokers or third party administrators of the Plan; (iii) providing information to future purchasers or merger partners of the employer or any of its affiliates, or the business in which the employee works; and (iv) to the extent not prohibited by applicable law, transferring information about the employee to any country or territory that may not provide the same protection for the information as the employee's home country.

The Plan is governed by the laws of the State of New York and as such will be construed under and in accordance with the laws of the State of New York without regard to conflicts of law.

Appendix A
Compensation Structure: Base Pay & Incentive Plans

[Table redacted.]

Individual Performance Measures

Supervisor's assessment of employee's performance will be based on the following categories:

- Interpersonal effectiveness
- Business conduct
- Professional and technical development
- Leadership
- Achievement of goals
- Results orientation

The assessment is discretionary and based on a wide range of considerations which often change over the course of the year.

Appendix B

Bonus Payout and Company Performance Calculations

Bonus Payout Calculation:

Eligible Compensation	X	Target Bonus % based on Salary Grade	X	Company Performance Allocation* (0-100%)	X	Company Performance Multiplier (0-150%)	+	Individual Performance Allocation* (0-100%)	X	Individual Performance Multiplier (0-150%)
*Company Performance Allocation + Individual Performance Allocation = 100%										
Allocations are based on employee salary grade										

**Company Performance Multiplier:

25%	X	EH&S Achievement (0-150%)	+	75%	X	25% X Reliability (0-150%)	+	25% X Equipment Utilization (0-150%)	+	25% X Operating Expense (0-150%)	+	25% X ROCE (0-150%)
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Appendix C
Bonus Payout Examples

Example Bonus Calculation 1:													
Salary Grade	E12												
Eligible Compensation	\$196,000	Eligible Compensation		Bonus Target %		Co. Perf. Alloc.		Co. Perf. Multiplier		Ind. Perf. Alloc.		Ind. Perf. Multiplier	
Performance Rating	Exceeds	\$196,000	X	40%	X	(50%	X	110%	+	50%	X	125%	)
Bonus Target %	40%												
Company Performance Allocation	50%		=	\$92,120									
Company Performance Multiplier (0-150%)	110%												
Individual Performance Allocation	50%												
Individual Performance Multiplier (0-150%)	125%												
Example Bonus Calculation 2:													
Salary Grade	E06												
Eligible Compensation	\$90,000	Eligible Compensation		Bonus Target %		Ind. Perf. Alloc.		Ind. Perf. Multiplier					
Performance Rating	Far Exceeds	\$90,000	X	14%	X	(100%	X	150%	)				
Bonus Target %	14%												
Company Performance Allocation	N/A		=	\$18,900									
Company Performance Multiplier (0-150%)	N/A												
Individual Performance Allocation	100%												
Individual Performance Multiplier (0-150%)	150%												
Example Bonus Calculation 3:													
Hourly Non-Represented	Hrly Non-Rep												
Eligible Compensation	\$70,000	Eligible Compensation		Bonus Target %		Co. Perf. Alloc.		Co. Perf. Multiplier					
Performance Rating	None	\$70,000		6%	X	(100%	X	110%	)				
Bonus Target %	6%												
Company Performance Allocation	100%		=	\$4,620									
Company Performance Multiplier (0-150%)	110%												
Individual Performance Allocation	N/A												
Individual Performance Multiplier (0-150%)	N/A												

Appendix D
CVR Partners, LP

Eligibility

Non-union direct employees of Company, its general partner and their respective subsidiaries, including Fertilizer Executives, Marketing, Logistics, Company Controller, Coffeyville Nitrogen Planning and East Dubuque Nitrogen Fertilizers Planning.

Appendix E
CVR Partners, LP
Bonus Payout Measures

Environmental Health & Safety (EH&S) Measures (25%)

Three measures evenly weighted (33-1/3% each): Total Recordable Incident Rate (TRIR), Process Safety Tier I Incident Rate (PSIR), and Environmental Events (EE):

Percentage Change(over the prior year)

Increase in Incident Rate or Incidents
0%
Decrease > 0% and < 3%
Decrease of 3%
Decrease > 3% and < 10%
Decrease of 10% or more, or if TRIR is maintained at or below 1.0, PSIR at or below 0.2 and EE at or below 20

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

Financial Measures (75%)

Four measures evenly weighted (25% each):

Reliability

Greater than 8.0%
8.00%
6.01% to 7.99%
6.00%
5.0% to 5.99%
Less than 5.0%

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

Equipment Utilization

Less than 95%
95%
95.01% to 99.99%
100%
100.01% to 104.99%
Greater than 105%

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

Operating Expense

Greater than 103.0%
103%
100.1% to 102.99%
100%
95.0% to 99.99%
Less than 95%

ROCE (Ranking vs. Peer Group*)

First (highest)
Second
Third
Fourth
Fifth
Sixth
Seventh

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

Bonus Achievement

150% of Target (Maximum)
125% of Target Percentage
112.5% of Target Percentage
Target Percentage (100%)
75% of Target Percentage
50% of Target Percentage (Minimum)
Zero

Performance measures subject to peer group ranking will be based on LTM data as of September 30 of the Performance Period.

*The Fertilizer Industry peer group will consist of CF Industries, LSB Industries, Nutrien Ltd., The Andersons, Inc., Green Plains Partners and Flotek Industries.

Appendix F Definitions

“Adjusted EBITDA” for the Company means earnings before interest, taxes, depreciation and amortization, and adjusted for inventory valuation impacts, unrealized gains and losses on derivative transactions, turnaround expenses to the extent they are included in EBITDA, loss on extinguishment of debt, asset impairment charges, and board-directed actions.

“Adjusted EBITDA Threshold” means actual maintenance and sustaining capital expenditures plus reserves for turnaround expenses plus interest on debt for the given Performance Period, and board-directed actions. [Redacted.]

“Chief Executive” means the President and Chief Executive Officer of the Company.

“Eligible Compensation” means (i) for eligible exempt employees, such employee’s base salary at the time the Bonus or Spot Bonus is determined (prorated for time in an eligible position), and (ii) for eligible non-exempt and non-union hourly employees, such employees’ eligible wages for the applicable year as determined by the Company to be required by law.

“Environmental Events” (“EE”) means the total number of reportable quantities and water deviations.

- Reportable quantities are releases of substances during a 24-hour period that exceed a federal, state or local reporting threshold.
 - o Reportable quantity is an event or contemporaneous combination of events during at 24-hour period that results in a release that exceeds a reportable quantity or quantities of a EPCRA/CERCLA compound as defined in the EPA List of Lists or a release that exceeds any other federal, state or local reporting threshold. Federally permitted releases and continuous releases defined in 40 CFR §302.6 and §302.8 are not considered reportable quantities under this measure.
 - o A reportable quantity is counted by event or contemporaneous combination of events, not by the number of individual reports that are filed or number of compounds which exceed their reportable quantity. Events are considered contemporaneous if they occur within 24-hours or when a common cause results in one or more reportable quantities during contiguous or overlapping 24-hour periods.
- Water deviations are exceedances of a NPDES-based permit limit, wastewater bypasses and sheens to water of the United States.
 - o The number of deviations is based on the number of individual permit limits exceeded irrespective of the number of causal events attributed to the deviation. However, a continuance of an ongoing permit limit deviation would not be double-counted if it were contemporaneous with a prior deviation and/or event.
 - o Oil sheens and reportable quantities to water are only counted once as a water deviation environmental event.

A single event that results in multiple reportable quantities and/or when a water deviation is also a regulatory reportable quantity is not “double-counted” and will only be considered one Environmental Event.

“Executive Officer” of the Company means an “executive officer” as that term is defined in Rule 3b-7 of the Securities Exchange Act of 1934, as amended (the “Exchange Act”) or an “officer” of the Company for purposes of Section 16 of the Exchange Act.

“Equipment Utilization” means adjusted equivalent tons of urea ammonium nitrate production divided by the planned equivalent tons of production for the Performance Period, as adjusted at the discretion of the Compensation Committee for events or downtime caused by third parties. Planned production is reflected in the Company’s annual volumetric plan. Monthly targets may be adjusted on a month by month basis to optimize production for which there is an economic incentive to do so during the given period. In such cases, the annual volumetric plan will be adjusted for the purposes of Bonus calculations with the new targets in place of the original targets.

“Operating Expense” means measurement of actual controllable and fixed operating costs divided by budgeted amounts. For purposes of calculating the Bonus, budgeted amounts are subject to revision by the Board in its discretion based on changes in business conditions or configuration of the business (e.g., items such as acquisitions or divestitures, unusual or non-recurring charges and changes in staffing relating to changed strategy approved by the Board will be considered as items for potential adjustment).

“Process Safety Incident Rate” (“PSIR”) means a standardized measure of process safety performance for the number of process safety tier 1 events per 100 full-time equivalent employees, as defined in the recommended practice for process safety performance indicators, ANSI/API RP 754.

A process safety tier 1 event is an unplanned or uncontrolled loss of primary containment of any material, including non-toxic and non-flammable materials, from a process that results in one or more consequences, including:

- an employee, contractor or subcontractor “days away from work” injury and/or fatality;
- a hospital admission and/or fatality or a third-party;
- an officially declared community evacuation or community shelter-in-place;
- a fire or explosion resulting in greater than or equal to \$25,000 of direct cost to the company;
- an officially declared community evacuation or community shelter-in-place;
- a pressure relief device (PRD) discharge to atmosphere whether directly or via a downstream destructive device that results in one or more of four defined consequences and a PRD discharge quantity greater than defined threshold quantities in a one-hour period; or,
- a release of material greater than defined threshold quantities described in any one-hour period.

“Reliability” means Lost Profit Opportunity (“LPO”), defined as foregone gross margin that results from operational variance due to factors within the Company’s control, specifically including human and equipment performance, divided by the sum of actual gross margin plus LPO.

“Return on Capital Employed” (“ROCE”) means operating income before depreciation and amortization (excluding asset impairments, non-cash asset write-downs and inventory valuation gains or losses) divided by average Capital Employed during the Period (averages calculated using 5-quarter end balances for the measurement period).

“Capital Employed” means total assets, less current liabilities (adjusted for any asset or inventory valuations imputed on operating income).

“Total Recordable Injury Rate” (“TRIR”) means a standardized measure of safety performance for the number of work-related injuries per 100 full-time equivalent employees, as defined by OSHA.

Appendix G

Clawback and Recoupment Policy

This Clawback and Recoupment Policy applies to each Bonus and Spot Bonus (for purposes of this Plan, an “Award”).

If the Compensation Committee in its sole and absolute discretion, determines that (i) there has been misconduct or a gross dereliction of duty resulting in either a violation of law or Company Policy, that, in either case, causes significant financial or reputational harm to the Company (or any of its affiliates), and that an employee committed the misconduct or gross dereliction of duty, or failed in his or her responsibility to manage or monitor the applicable conduct or risk; (ii) an employee has committed an immoral act which is reasonably likely to impair the reputation of the Company (or any of its affiliates); (iii) an employee committed, or was indicted for, a felony or any crime involving fraud or embezzlement or dishonesty or was convicted of, or entered a plea of *nolo contendere* to a misdemeanor (other than a traffic violation) punishable by imprisonment under federal, state or local law; (iv) an employee violated any securities or employment laws or regulations; (v) an employee materially breached a Company Policy or any non-compete and/or non-solicitation clause included in an agreement or offer letter with such employee’s employer; (vi) an employee embezzled and/or misappropriated any property of the Company (or any of its affiliates) or committed any act involving fraud with respect to the Company (or any of its affiliates); or (vii) an employee engaged in conduct (including by omission) or an event or condition has occurred, which, in each case, would have given the Company or its subsidiaries the right to terminate the employee’s employment for Cause (as defined herein), then, to the extent not prohibited by applicable law, such Compensation Committee, in its sole and absolute discretion, may cancel, declare forfeited, or rescind such Award, or may seek reimbursement from such employee (and such employee will be obligated to repay) all or any portion of any payments made to such employee in respect of such Award.

If the Compensation Committee determines, in its sole and absolute discretion, that calculations underlying the performance measures and targets, including but not limited to mistakes in the Company’s financial statements, were incorrect, then such Compensation Committee may, in its sole and absolute discretion, seek to recover the amount of any payment made to employees that exceeded the amount that would have been paid based on the corrected calculations.

To the extent not prohibited by applicable law, if an employee is an officer, or, if applicable, has otherwise been designated by the Board of the Company as an Executive Officer, the Board may seek reimbursement of any payment made to such employee in respect of an Award in the event of a restatement of such Company’s (or any of its subsidiaries’) financial results (occurring due to material noncompliance with any financial reporting requirements under applicable securities laws) that reduced a previously granted payment made to such employee in respect of an Award. In that event, the Compensation Committee may, in its sole and absolute discretion, seek to recover the amount of any such payment made to the employee that exceeded the amount that would have been paid based on the restated financial results.

If the Company subsequently determines that it is required by law to apply a “clawback” or alternate recoupment provision to an Award, under the Dodd-Frank Wall Street Reform and Consumer Protection Act or otherwise, then such clawback or recoupment provision also shall apply to such Award, as if it had been included on the effective date of such Award.

To the extent not prohibited under applicable law, the Company (or any of its subsidiaries) (as applicable), in its sole and absolute discretion, will have the right to set off (or cause to be set off) any

amounts otherwise due to employee from such Company or a subsidiary in satisfaction of any repayment obligation of such employee hereunder, provided that any such amounts are exempt from, or set off in a manner intended to comply with the requirements of Section 409A of the Internal Revenue Code of 1986, as amended.

For the avoidance of doubt, the Company's and its subsidiaries' rights under this Plan will apply to employees, without regard to whether any such employee is currently providing, or previously provided, services to the Company or its subsidiary as an employee.

"Cause" for purposes of any Award means such employee's (i) refusal or neglect to perform substantially his or her employment-related duties or services, (ii) personal dishonesty, incompetence, willful misconduct or breach of fiduciary duty, (iii) indictment for, conviction of or entering a plea of guilty or nolo contendere to a crime constituting a felony or his or her willful violation of any applicable law (other than a traffic violation or other offense or violation outside of the course of employment or services to the Company or its affiliates which in no way adversely affects the Company and its affiliates or their reputation or the ability of the employee to perform his or her employment-related duties or services or to represent the Company or any affiliate of the Company that employs such employee or to which the employee performs services), (iv) failure to reasonably cooperate, following a request to do so by the Company, in any internal or governmental investigation of the Company or any of its affiliates or (v) material breach of any written covenant or agreement with the Company or any of its affiliates not to disclose any information pertaining to the Company or such affiliate or not to compete or interfere with the Company or such affiliate; provided that, in the case of any employee who, as of the date of determination, is party to an effective services, severance or employment agreement with the Company or any affiliate, "Cause" will have the meaning, if any, specified in such agreement.

CVR Refining, LP

Performance-Based Bonus Plan

Philosophy / Background

CVR Refining, LP (the “Company”) is committed to wages and benefits that are competitive with a market-based, pay-for-performance compensation philosophy, providing such base pay, bonus and long-term incentive awards in line with those of the refining industry. This Performance-Based Bonus Plan (the “Plan”) is intended to reward high performance employees, and to retain these employees in critical roles, through the issuance of bonus awards (each, a “Bonus”).

Administration

The Plan is maintained and administered by, or under the direction of, the Compensation Committee (the “Compensation Committee”) of the board of directors (the “Board”) of the general partner of the Company with respect to employees of the Company and its subsidiaries, excluding CVR Energy, Inc. (“CVI”), CVR Partners, LP (“UAN”), their respective general partners and their respective subsidiaries (references to “employees” within this Plan are references to all employees of the foregoing entities).

The Compensation Committee shall annually approve all salaries, targets and bonus metrics for employees in Grade E14 and above, and shall annually approve a total bonus pool for employees in Grade E13 and below. The Compensation Committee delegates to the Chief Executive Officer the authority to approve payouts from such total bonus pool to employees in Grade E13 and below, in his sole discretion. The Chief Executive Officer shall also be responsible for assigning salaries, bonus targets, and Grade levels to employees in Grade 13 and below.

In the event of a claim or dispute brought forth by any employee with a Grade level of E13 or below, the decision of the Chief Executive as to the facts in the case and the meaning and intent of any provision of the Plan, or its application, shall be final, binding, and conclusive. In the event of a claim or dispute brought forth by any employee with a Grade level of E14 or above, the decision of the Compensation Committee as to the facts in the case and the meaning and intent of any provision of the Plan, or its application, shall be final, binding, and conclusive.

The Plan described herein does not create a contractual obligation on the part of the Company. The Company expressly reserves the right to modify, discontinue, or otherwise change the Plan outlined in this document at the sole and absolute discretion of the Company without advance notice.

Introduction

The purpose of the Plan and any Bonus to be paid hereunder is to enhance the Company’s ability to attract, motivate, reward and retain employees, and to strengthen their commitment to the success of the Company.

Eligibility and Administration

Bonuses are made based on the applicable calendar year during which the employees performed the services and are generally paid (to the extent payable) after the financials have been audited and within 90 days of the end of the calendar year (the “Performance Period” or “Period”).

Generally, only exempt, non-exempt and non-union hourly employees are eligible to receive a Bonus, provided that, to receive a Bonus, an employee must: (i) be actively employed with the Company for at least 180 days during the calendar year; (ii) consistently perform at or above expectations for their role; (iii) be actively employed on the date of payout and not on a performance improvement plan or in

corrective or disciplinary action status as a result of poor performance during the Performance Period. Employees hired prior to October 1 during the Performance Period will be eligible to receive a Bonus provided the above requirements (ii) and (iii) are met.

Subject to annual review, Bonuses are computed in accordance with each eligible employee's Grade (as shown in Appendix A), prorated for time in an eligible position, as well as a performance multiplier of zero to 150 percent, based on performance against the achievement of the allocated Company and individual performance measures described herein. Appendices A-E present the overall compensation structure (Appendix A), example calculations (Appendices B, C), eligibility (Appendix D) and bonus payout measures (Appendix E). The Individual Performance Multiplier component of a Bonus, if any, is entirely discretionary.

In addition, if the Adjusted EBITDA Threshold established for the Company for a given Performance Period is not reached, no Bonus will be paid for the Period, subject to Compensation Committee discretion. The Compensation Committee may, in its sole and absolute discretion, waive the Adjusted EBITDA Threshold requirement, increase, decrease, or otherwise adjust performance measures, targets, and payout ranges used hereunder, as a result of extraordinary or non-recurring events, changes in applicable accounting rules or principles, changes in the Company's methods of accounting, changes in applicable law, changes due to consolidations, growth capital spend programs, acquisitions, or reorganizations affecting the Company and its subsidiaries and affiliates, or other similar changes in the Company's business.

Company Performance: Environmental Health & Safety (EH&S) Measures – 25%

EH&S measures are as follows (see Appendix F for definitions):

- Personal Safety – Total Recordable Injury Rate (TRIR);
- Process Safety – Process Safety Incident Rate (PSIR); and
- Environmental Events (EE).

Company Performance: Financial Measures – 75%

Financial measures are objectives related to the following (see Appendix F for definitions):

- Reliability;
- Equipment Utilization;
- Operating Expense; and
- Return on Capital Employed.

Spot Bonus

Introduction

Employees making an extraordinary contribution to the furtherance of Company financial performance or advances in Company culture may be nominated by their manager or executive sponsor for a Bonus on a spot basis (a "Spot Bonus"), subject to approval by the Chief Executive. Spot Bonuses will be limited to employees in salary grades E13 and below and a maximum value of five thousand dollars (\$5,000).

Terms and Conditions of Spot Bonus

Except as specifically set forth herein, the foregoing provisions of the Plan will likewise apply to a Spot Bonus. For the avoidance of doubt, these provisions relate to, among others, forfeiture and/or recoupment, amendment or termination, tax withholding, data protection and consent and governing law.

General Provisions

See Appendix F for definitions relating to the Plan.

Participation in the Plan is subject to (i) each individual employee's compliance with the Company's mission and values, its code of ethics and its policies and procedures, including, without limitation, the Corporate Policies and Procedures and employee handbook (collectively, "Company Policies"), and (ii) the Clawback and Recoupment Policy attached as Appendix G.

Each employee that is eligible and receives a Bonus or Spot Bonus will be liable for any and all federal, state, provincial, local or foreign taxes, pension plan contributions, employment insurance premiums, social insurance contributions, amounts payable to a governmental and/or regulatory body in the employee's country and other levies of any kind required by applicable laws to be deducted or withheld with respect to any such award (collectively, the "Withholding Taxes"). The Company will have the right to deduct and withhold all required Withholding Taxes from any payment or other consideration deliverable to an employee pursuant to any such payment. All awards under the Plan are intended to be exempt from Section 409A of the Internal Revenue Code of 1986, as amended, and shall be construed and interpreted in accordance with such intent.

Participation in the Plan does not confer upon any employee any right to continue in the employ of the Company or its subsidiaries, nor interfere in any way with the right of the Company and its subsidiaries to terminate any employee's employment at any time. The Company and its subsidiaries are under no obligation to continue the Plan in future years.

The Compensation Committee may at any time, or from time to time, in its sole and absolute discretion, (a) amend, alter or modify the provisions of this Plan, (b) terminate this Plan, or (c) terminate the participation of an employee or group of employees in this Plan; provided, however, that in the event of the termination of the Plan or a termination of participation, the Compensation Committee, in its sole and absolute discretion, may determine that a prorated award is payable to employees who were participants in this Plan under such terms and conditions as established by the Compensation Committee.

Notwithstanding anything herein to the contrary, whether or not any payment or award is authorized, earned or paid under the Plan will be determined by the Compensation Committee in its sole and absolute discretion, and no such payment or award shall be earned, nor shall any right to any such payment or award exist or accrue, unless, among other factors, such payment or award has been authorized by the Compensation Committee in its sole and absolute discretion, and actually paid to the employee. In addition, whether or not any payment or award is authorized, earned or paid pursuant to the Plan is without regard to whether any of the individual performance metrics, financial performance targets and/or goals, or any other benchmarks, targets, personal goals or criteria set forth in the Plan are met, not met, exceeded or not exceeded.

No employee, beneficiary or other person shall have any right, title or interest in any amount awarded under the Plan prior to the payment of such award to him or her. An employee's rights to a payment under the Plan are no greater than those of unsecured general creditors of the Company or its subsidiaries.

By participating in the Plan, each employee consents to the holding and processing of personal information provided by such employee to the employer, any affiliate of the employer, trustee or third party service provider, for all purposes relating to the operation of the Plan. Consents include, but are not limited to: (i) administering and maintaining employee records; (ii) providing information to the

employer, its affiliates, trustees of any employee benefit trust, registrars, brokers or third party administrators of the Plan; (iii) providing information to future purchasers or merger partners of the employer or any of its affiliates, or the business in which the employee works; and (iv) to the extent not prohibited by applicable law, transferring information about the employee to any country or territory that may not provide the same protection for the information as the employee's home country.

The Plan is governed by the laws of the State of New York and as such will be construed under and in accordance with the laws of the State of New York without regard to conflicts of law.

Appendix A
Compensation Structure: Base Pay & Incentive Plans

[Table redacted.]

Individual Performance Measures

Supervisor's assessment of employee's performance will be based on the following categories:

- Interpersonal effectiveness
- Business conduct
- Professional and technical development
- Leadership
- Achievement of goals
- Results orientation

The assessment is discretionary and based on a wide range of considerations which often change over the course of the year.

Appendix B

Bonus Payout and Company Performance Calculations

Bonus Payout Calculation:

Eligible Compensation	X	Target Bonus % based on Salary Grade	X	Company Performance Allocation* (0-100%)	X	Company Performance Multiplier (0-150%)	+	Individual Performance Allocation* (0-100%)	X	Individual Performance Multiplier (0-150%)
*Company Performance Allocation + Individual Performance Allocation = 100%										
Allocations are based on employee salary grade										

**Company Performance Multiplier:

25%	X	EH&S Achievement (0-150%)	+	75%	X	25% X Reliability (0-150%)	+	25% X Equipment Utilization (0-150%)	+	25% X Operating Expense (0-150%)	+	25% X ROCE (0-150%)
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Appendix C
Bonus Payout Examples

Example Bonus Calculation 1:													
Salary Grade	E12												
Eligible Compensation	\$196,000	Eligible Compensation		Bonus Target %		Co. Perf. Alloc.		Co. Perf. Multiplier		Ind. Perf. Alloc.		Ind. Perf. Multiplier	
Performance Rating	Exceeds	\$196,000	X	40%	X	(50%	X	110%	+	50%	X	125%	)
Bonus Target %	40%												
Company Performance Allocation	50%		=	\$92,120									
Company Performance Multiplier (0-150%)	110%												
Individual Performance Allocation	50%												
Individual Performance Multiplier (0-150%)	125%												
Example Bonus Calculation 2:													
Salary Grade	E06												
Eligible Compensation	\$90,000	Eligible Compensation		Bonus Target %		Ind. Perf. Alloc.		Ind. Perf. Multiplier					
Performance Rating	Far Exceeds	\$90,000	X	14%	X	(100%	X	150%	)				
Bonus Target %	14%												
Company Performance Allocation	N/A		=	\$18,900									
Company Performance Multiplier (0-150%)	N/A												
Individual Performance Allocation	100%												
Individual Performance Multiplier (0-150%)	150%												
Example Bonus Calculation 3:													
Hourly Non-Represented	Hrly Non-Rep												
Eligible Compensation	\$70,000	Eligible Compensation		Bonus Target %		Co. Perf. Alloc.		Co. Perf. Multiplier					
Performance Rating	None	\$70,000		6%	X	(100%	X	110%	)				
Bonus Target %	6%												
Company Performance Allocation	100%		=	\$4,620									
Company Performance Multiplier (0-150%)	110%												
Individual Performance Allocation	N/A												
Individual Performance Multiplier (0-150%)	N/A												

Appendix D
CVR Refining, LP

Eligibility

Non-union direct employees of Company, its general partner and their respective subsidiaries, including Commercial Executives, Pipeline, Trucking, Marketing, Company Controller, Crude, Planning, Wholesale, Wynnewood and Coffeyville refineries and Capital Projects.

Appendix E
CVR Refining, LP
Bonus Payout Measures

Environmental Health & Safety (EH&S) Measures (25%)

Three measures evenly weighted (33-1/3% each): Total Recordable Incident Rate (TRIR), Process Safety Tier I Incident Rate (PSIR), and Environmental Events (EE):

Percentage Change(over the prior year)

Increase in Incident Rate or Incidents
0%
Decrease > 0% and < 3%
Decrease of 3%
Decrease > 3% and < 10%
Decrease of 10% or more, or if TRIR is maintained at or below 1.0, PSIR at or below 0.2 and EE at or below 20

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

Financial Measures (75%)

Four measures evenly weighted (25% each):

Reliability

Greater than 8.0%
8.00%
6.01% to 7.99%
6.00%
5.0% to 5.99%
Less than 5.0%

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

Equipment Utilization

Less than 95%
95%
95.01% to 99.99%
100%
100.01% to 104.99%
Greater than 105%

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

Operating Expense

Greater than 103.0%
103%
100.1% to 102.99%
100%
95.0% to 99.99%
Less than 95%

CVRR ROCE (Ranking vs. Peer Group*)

First (highest)
Second
Third
Fourth
Fifth
Six
Seventh

Bonus Achievement

Zero
50% of Target Percentage (Threshold)
Linear Interpolation between Threshold and Target
Target Percentage
Linear Interpolation between Target and Maximum
150% of Target (Maximum)

Bonus Achievement

150% of Target (Maximum)
125% of Target Percentage
112.5% of Target Percentage
Target Percentage (100%)
75% of Target Percentage
50% of Target Percentage (Minimum)
Zero

Performance measures subject to peer group ranking will be based on LTM data as of September 30 of the Performance Period.

*The Refining Industry peer group will include Valero, Marathon, PBF Energy, Delek, Holly Frontier and Par Pacific.

Appendix F

Definitions

“Adjusted EBITDA” for the Company means earnings before interest, taxes, depreciation and amortization, and adjusted for inventory valuation impacts, unrealized gains and losses on derivative transactions, turnaround expenses to the extent they are included in EBITDA, loss on extinguishment of debt, asset impairment charges, and board-directed actions.

“Adjusted EBITDA Threshold” means actual maintenance and sustaining capital expenditures plus reserves for turnaround expenses plus interest on debt for the given Performance Period, and board-directed actions. **[Redacted.]**

“Chief Executive” means the President and Chief Executive Officer of the Company.

“Eligible Compensation” means (i) for eligible exempt employees, such employee’s base salary at the time the Bonus or Spot Bonus is determined (prorated for time in an eligible position), and (ii) for eligible non-exempt and non-union hourly employees, such employees’ eligible wages for the applicable year as determined by the Company to be required by law.

“Environmental Events” (“EE”) means the total number of reportable quantities and water deviations.

- Reportable quantities are releases of substances during a 24-hour period that exceed a federal, state or local reporting threshold.
 - o Reportable quantity is an event or contemporaneous combination of events during a 24-hour period that results in a release that exceeds a reportable quantity or quantities of a EPCRA/CERCLA compound as defined in the EPA List of Lists or a release that exceeds any other federal, state or local reporting threshold. Federally permitted releases and continuous releases defined in 40 CFR §302.6 and §302.8 are not considered reportable quantities under this measure.
 - o A reportable quantity is counted by event or contemporaneous combination of events, not by the number of individual reports that are filed or number of compounds which exceed their reportable quantity. Events are considered contemporaneous if they occur within 24-hours or when a common cause results in one or more reportable quantities during contiguous or overlapping 24-hour periods.
- Water deviations are exceedances of a NPDES-based permit limit, wastewater bypasses and sheens to water of the United States.
 - o The number of deviations is based on the number of individual permit limits exceeded irrespective of the number of causal events attributed to the deviation. However, a continuance of an ongoing permit limit deviation would not be double-counted if it were contemporaneous with a prior deviation and/or event.
 - o Oil sheens and reportable quantities to water are only counted once as a water deviation environmental event.

A single event that results in multiple reportable quantities and/or when a water deviation is also a regulatory reportable quantity is not “double-counted” and will only be considered one Environmental Event.

“Executive Officer” of the Company means an “executive officer” as that term is defined in Rule 3b-7 of the Securities Exchange Act of 1934, as amended (the “Exchange Act”) or an “officer” of the Company for purposes of Section 16 of the Exchange Act.

“Equipment Utilization” means actual throughput for the Performance Period divided by the planned throughput for the Performance Period, as adjusted at the discretion of the Compensation Committee for events or downtime caused by third parties. Planned throughput is reflected in the Company’s annual volumetric plan. Monthly targets may be adjusted on a month by month basis to optimize production for which there is an economic incentive to do so during the given period. In such cases, the annual volumetric plan will be adjusted for the purposes of Bonus calculations with the new targets in place of the original targets.

“Operating Expense” means measurement of actual controllable and fixed operating costs divided by budgeted amounts. For purposes of calculating the Bonus, budgeted amounts are subject to revision by the Board in its discretion based on changes in business conditions or configuration of the business (e.g., items such as acquisitions or divestitures, unusual or non-recurring charges and changes in staffing relating to changed strategy approved by the Board will be considered as items for potential adjustment).

“Process Safety Incident Rate” (“PSIR”) means a standardized measure of process safety performance for the number of process safety tier 1 events per 100 full-time equivalent employees, as defined in the recommended practice for process safety performance indicators, ANSI/API RP 754.

A process safety tier 1 event is an unplanned or uncontrolled loss of primary containment of any material, including non-toxic and non-flammable materials, from a process that results in one or more consequences, including:

- an employee, contractor or subcontractor “days away from work” injury and/or fatality;
- a hospital admission and/or fatality or a third-party;
- an officially declared community evacuation or community shelter-in-place;
- a fire or explosion resulting in greater than or equal to \$25,000 of direct cost to the company;
- an officially declared community evacuation or community shelter-in-place;
- a pressure relief device (PRD) discharge to atmosphere whether directly or via a downstream destructive device that results in one or more of four defined consequences and a PRD discharge quantity greater than defined threshold quantities in a one-hour period; or,
- a release of material greater than defined threshold quantities described in any one-hour period.

“Reliability” means Lost Profit Opportunity (“LPO”), defined as foregone gross margin that results from operational variance due to factors within the Company’s control, specifically including human and equipment performance, divided by the sum of actual gross margin plus LPO.

“Return on Capital Employed” (“ROCE”) means operating income before depreciation and amortization (excluding asset impairments, non-cash asset write-downs and inventory valuation gains or losses) divided by average Capital Employed during the Period (averages calculated using 5-quarter end balances for the measurement period).

“Capital Employed” means the total assets, less current liabilities (adjusted for any asset or inventory valuations imputed on operating income).

“Total Recordable Injury Rate” (“TRIR”) means a standardized measure of safety performance for the number of work-related injuries per 100 full-time equivalent employees, as defined by OSHA.

“Throughput” means total crude oil and other feedstocks charged to the refinery including isobutane, normal butane, natural gasoline, gas oil, biodiesel and ethanol used for blending.

Appendix G

Clawback and Recoupment Policy

This Clawback and Recoupment Policy applies to each Bonus and Spot Bonus (for purposes of this Plan, an “Award”).

If the Compensation Committee in its sole and absolute discretion, determines that (i) there has been misconduct or a gross dereliction of duty resulting in either a violation of law or Company Policy, that, in either case, causes significant financial or reputational harm to the Company (or any of its affiliates), and that an employee committed the misconduct or gross dereliction of duty, or failed in his or her responsibility to manage or monitor the applicable conduct or risk; (ii) an employee has committed an immoral act which is reasonably likely to impair the reputation of the Company (or any of its affiliates); (iii) an employee committed, or was indicted for, a felony or any crime involving fraud or embezzlement or dishonesty or was convicted of, or entered a plea of *nolo contendere* to a misdemeanor (other than a traffic violation) punishable by imprisonment under federal, state or local law; (iv) an employee violated any securities or employment laws or regulations; (v) an employee materially breached a Company Policy or any non-compete and/or non-solicitation clause included in an agreement or offer letter with such employee’s employer; (vi) an employee embezzled and/or misappropriated any property of the Company (or any of its affiliates) or committed any act involving fraud with respect to the Company (or any of its affiliates); or (vii) an employee engaged in conduct (including by omission) or an event or condition has occurred, which, in each case, would have given the Company or its subsidiaries the right to terminate the employee’s employment for Cause (as defined herein), then, to the extent not prohibited by applicable law, such Compensation Committee, in its sole and absolute discretion, may cancel, declare forfeited, or rescind such Award, or may seek reimbursement from such employee (and such employee will be obligated to repay) all or any portion of any payments made to such employee in respect of such Award.

If the Compensation Committee determines, in its sole and absolute discretion, that calculations underlying the performance measures and targets, including but not limited to mistakes in the Company’s financial statements, were incorrect, then such Compensation Committee may, in its sole and absolute discretion, seek to recover the amount of any payment made to employees that exceeded the amount that would have been paid based on the corrected calculations.

To the extent not prohibited by applicable law, if an employee is an officer, or, if applicable, has otherwise been designated by the Board of the Company as an Executive Officer, the Board may seek reimbursement of any payment made to such employee in respect of an Award in the event of a restatement of such Company’s (or any of its subsidiaries’) financial results (occurring due to material noncompliance with any financial reporting requirements under applicable securities laws) that reduced a previously granted payment made to such employee in respect of an Award. In that event, the Compensation Committee may, in its sole and absolute discretion, seek to recover the amount of any such payment made to the employee that exceeded the amount that would have been paid based on the restated financial results.

If the Company subsequently determines that it is required by law to apply a “clawback” or alternate recoupment provision to an Award, under the Dodd-Frank Wall Street Reform and Consumer Protection Act or otherwise, then such clawback or recoupment provision also shall apply to such Award, as if it had been included on the effective date of such Award.

To the extent not prohibited under applicable law, the Company (or any of its subsidiaries) (as applicable), in its sole and absolute discretion, will have the right to set off (or cause to be set off) any amounts otherwise due to employee from such Company or a subsidiary in satisfaction of any repayment obligation of such employee hereunder, provided that any such amounts are exempt from, or set off in a manner intended to comply with the requirements of Section 409A of the Internal Revenue Code of 1986, as amended.

For the avoidance of doubt, the Company's and its subsidiaries' rights under this Plan will apply to employees, without regard to whether any such employee is currently providing, or previously provided, services to the Company or its subsidiary as an employee.

"Cause" for purposes of any Award means such employee's (i) refusal or neglect to perform substantially his or her employment-related duties or services, (ii) personal dishonesty, incompetence, willful misconduct or breach of fiduciary duty, (iii) indictment for, conviction of or entering a plea of guilty or nolo contendere to a crime constituting a felony or his or her willful violation of any applicable law (other than a traffic violation or other offense or violation outside of the course of employment or services to the Company or its affiliates which in no way adversely affects the Company and its affiliates or their reputation or the ability of the employee to perform his or her employment-related duties or services or to represent the Company or any affiliate of the Company that employs such employee or to which the employee performs services), (iv) failure to reasonably cooperate, following a request to do so by the Company, in any internal or governmental investigation of the Company or any of its affiliates or (v) material breach of any written covenant or agreement with the Company or any of its affiliates not to disclose any information pertaining to the Company or such affiliate or not to compete or interfere with the Company or such affiliate; provided that, in the case of any employee who, as of the date of determination, is party to an effective services, severance or employment agreement with the Company or any affiliate, "Cause" will have the meaning, if any, specified in such agreement.

LIST OF SUBSIDIARIES OF
CVR ENERGY, INC*

The following is a list of all subsidiaries of CVR Energy, Inc and their jurisdiction of organization.

Entity	Jurisdiction
Coffeyville Refining & Marketing Holdings, Inc.	Delaware
Coffeyville Refining & Marketing, Inc.	Delaware
Coffeyville Nitrogen Fertilizers, Inc.	Delaware
Coffeyville Crude Transportation, Inc.	Delaware
Coffeyville Terminal, Inc.	Delaware
Coffeyville Pipeline, Inc.	Delaware
CL JV Holdings, LLC	Delaware
Wynnewood Insurance Corporation	Texas
Coffeyville Resources, LLC	Delaware
CVR Refining Holdings, LLC	Delaware
CVR Refining Holdings Sub, LLC	Delaware
CVR Refining GP, LLC	Delaware
CVR Refining, LP	Delaware
CVR Refining, LLC	Delaware
Coffeyville Finance Inc.	Delaware
Wynnewood Energy Company, LLC	Delaware
Wynnewood Refining Company, LLC	Delaware
Coffeyville Resources Refining & Marketing, LLC	Delaware
Coffeyville Resources Crude Transportation, LLC	Delaware
Coffeyville Resources Terminal, LLC	Delaware
Coffeyville Resources Pipeline, LLC	Delaware
CVR GP, LLC	Delaware
CVR Partners, LP	Delaware
CVR Nitrogen GP, LLC	Delaware
CVR Nitrogen, LP	Delaware
CVR Nitrogen Finance Corporation	Delaware
East Dubuque Nitrogen Fertilizers, LLC	Delaware
Coffeyville Resources Nitrogen Fertilizers, LLC	Delaware

* Pursuant to Item 601(b)(21)(ii) of Regulation S-K, the names of other subsidiaries of CVR Energy, Inc. are omitted because, considered in the aggregate, they would not constitute a significant subsidiary as of the end of the year covered by this report.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our reports dated February 20, 2020, with respect to the consolidated financial statements and internal control over financial reporting included in the Annual Report of CVR Energy, Inc. on Form 10-K for the year ended December 31, 2019. We consent to the incorporation by reference of said reports in the Registration Statements of CVR Energy, Inc. on Forms S-8 (File No. 333-146907 and File No. 333-148783).

/s/ GRANT THORNTON LLP

Houston, Texas
February 20, 2020

**Certification of President and Chief Executive Officer Pursuant to
Rule 13a-14(a) or 15d-14(a) under the Securities Exchange Act of 1934,
As Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002**

I, David L. Lamp, certify that:

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

Date: February 20, 2020

By: /s/ DAVID L. LAMP

David L. Lamp

President and Chief Executive Officer

(Principal Executive Officer)

**Certification of Executive Vice President and Chief Financial Officer Pursuant to
Rule 13a-14(a) or 15d-14(a) under the Securities Exchange Act of 1934,
As Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002**

I, Tracy D. Jackson, certify that:

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

Date: February 20, 2020

By: /s/ TRACY D. JACKSON

Tracy D. Jackson

*Executive Vice President and Chief Financial Officer
(Principal Financial Officer)*

**Certification of Chief Accounting Officer and Corporate Controller Pursuant to
Rule 13a-14(a) or 15d-14(a) under the Securities Exchange Act of 1934,
As Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002**

I, Matthew W. Bley, certify that:

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

Date: February 20, 2020

By: /s/ MATTHEW W. BLEY

Matthew W. Bley

Chief Accounting Officer and Corporate Controller

(Principal Accounting Officer)

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

In connection with the filing of the Annual Report on Form 10-K of CVR Energy, Inc., a Delaware corporation (the "Company"), for the fiscal year ended December 31, 2019, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned officers of the Company certifies, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of such officer's knowledge and belief:

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

Date: February 20, 2020

By: /s/ DAVID L. LAMP
David L. Lamp
President and Chief Executive Officer

By: /s/ TRACY D. JACKSON
Tracy D. Jackson
Executive Vice President, Chief Financial Officer

By: /s/ MATTHEW W. BLEY
Matthew W. Bley
Chief Accounting Officer and Corporate Controller