

**DOCKET NO. D-1993-004-7**

**DELAWARE RIVER BASIN COMMISSION**

**Delaware City Refining Company, LLC  
Groundwater and Surface Water Withdrawal  
Delaware City, New Castle County, Delaware**

**PROCEEDINGS**

This docket is issued in response to an Application submitted to the Delaware River Basin Commission (DRBC or Commission) on June 23, 2017 for renewal of an allocation of groundwater and surface water and review of a groundwater and surface water withdrawal project (Application). These withdrawals will continue to be regulated by Delaware Department of Natural Resources and Environmental Control (DNREC) in accordance with the Administrative Agreement (AA) between DRBC and the State of Delaware, Section IV.C.4, enacted on July 2010 and modified on May 8, 2013. The project wells were approved by the Delaware Department of Natural Resources and Environmental Control (DNREC) as follows:

<b>WELL OR INTAKE NO.</b>	<b>DNREC PERMIT NO.</b>	<b>DNREC APPROVAL DATE</b>
Delaware River	94-0017AM3	July 31, 1995
Dragon Run	94-0017CM2	July 31, 1995
Red Lion	94-0017BM2	July 31, 1995
P3B, P4B, P5B, P1A, P6, R15, P9A, P16A and P10A	94-0017DM5	July 31, 1995

The Application was reviewed for approval under Section 3.8 of the *Delaware River Basin Compact*. The New Castle County Department of Land Use has been notified of pending action. A public hearing on this project was held by the DRBC on February 13, 2019.

**A. DESCRIPTION**

**1.** The purpose of this project is to renew the approval of an existing surface water withdrawal of up to 452 million gallons per day (mgd) from the Delaware River intake to supply the docket holder's facility. The Delaware River intake withdrawal is limited to 303 mgd average over a year period. This project will also renew the approval of an existing groundwater withdrawal of up to 186 mgm (based on 31 days) from existing Wells P3B, P4B, P5B, P1A, P6, R15, P9A, P16A and

P10A. This project will also renew the approval of an existing surface water withdrawals from their existing Red Lion Creek and Dragon Run intakes with allocations of up to 38.9 mgm and 56.2 mgm, respectively; and to limit the total combined surface water withdrawal to 14,296.27 mgm (based on 31 days). The docket holder is not requesting an increase in its system groundwater or surface water withdrawal allocations.

2. **Location.** The project intakes and wells are located in the C&D Canal East, Dragon Run Creek, Red Lion Creek and Delaware River Watersheds, and in the Upper, Middle, and Lower Potomac Formations, respectively. The Delaware River intake structure is located in a channelized backwater of the Delaware River (known as Cedar Creek) in Water Quality Zone 5. The project wells are located in the Potomac Formation, all the wells but P1A and R15 are in the Lower Zone of the Potomac Formation. Well P1A is in the Upper Zone and R15 is in the Middle Zone. Specific location information has been withheld for security reasons.

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3. **Area Served.** The wells and intakes supply water to the docket holder's Delaware City refinery and electric generating station. For the purpose of defining Area Served, the Application is incorporated herein by reference consistent with conditions contained in the Decisions section of this docket.

4. **Design criteria.** The docket holder operates a refinery and electric generating station which is supplied by both ground and surface water withdrawals. Fuels that are manufactured at the facility include liquefied petroleum gas (lpg), conventional and reformulated gasoline including final blends containing renewables such as ethanol, diesel, low sulfur diesel, ultra-low sulfur diesel, home heating oil and petroleum coke; as well as electric generation. The docket holder projects the 10-year average and maximum water demand of groundwater to be 3.31 mgd and 4.54 mgd, respectively. The docket holder projects the 10-year average and maximum water demand of surface water to be 273.73 mgd and 452.00 mgd, respectively. The docket holder does not expect an increase in the water demand over the next 10 years.

The docket holder utilizes an interconnection with United Water Delaware which is used regularly and has a capacity of 3.6 mgd. The docket holder bulk purchases water with an average and maximum water use of 1.86 mgd and 2.24 mgd, respectively.

In 2004, The Premcor Refining Group, Inc. purchased the Delaware City refinery which includes a 320-megawatt (MW) power plant and gasification complex (constructed in 1961). In September 2005 Valero Energy Corp became the owner of the Delaware City Refinery, operating the facility as The Premcor Refining Group, Inc (Premcor). Premcor assumed operation of the power plant and gasification complex from Connectiv effective November 1, 2006. The Power Plant was constructed in the late 1950's, with the Gasification Units added in the early 2000's. The Power Plant Gasification Complex has the ability to make enough power to cover the Delaware City Refinery energy needs as well as export power to the Pennsylvania-Maryland-New Jersey Interconnection Grid.

5. **Facilities.** The existing project wells have the following characteristics:

WELL NO.	DEPTH (FEET)	CASED DEPTH (FEET)	PUMP CAPACITY (GPM)	YEAR DRILLED
P1A	283	237	500	1983
P3B	550	510	400	2007
P4B	500	375	400	2007
P5B	519	343	400	1988
P6A	707	668	400	1955
P9A	588	545	850	1999
P10A	718	630	1,000	1983
R15	335	302	650	1954
P16A	591	513	400	1992

INTAKE DESIGNATION	WITHDRAWAL WATER BODY	PUMP CAPACITY (GPM)
Delaware River	Delaware River (Cedar Creek)	342,000
Red Lion Creek	Red Lion Creek	900
Dragon Run	Dragon Run	1,300

The Delaware River intake structure is situated at the end of a 4,500 foot long by 300 foot wide channelized tidal backwater of the Delaware River known as Cedar Creek. A trash fence designed to catch large debris is located 200 feet from the actual intake structure. After water enters the structure, further screening of marine life is provided by nine traveling screens with 1/4-inch by 3/8-inch mesh. Suction is taken through six eight-foot-square reinforced concrete openings in a 118-foot wide by 54.5 foot high intake works and pump house. The water is pumped to the refinery and power plant via nine full-sized pumps and one half-sized pump.

The docket holder's power plant facilities consist of four gas-fired steam boilers supplying steam to four turbine generators (Units 1, 2, 3 and 4). Units 1, 2 and 4 supply steam and electricity for Refining Operations, and Unit 3 operates when needed for the Pennsylvania-Maryland-New Jersey Interconnection Grid connection. The Gasification/AGR facilities consists of 2 Gasifiers and AGR (Acid Gas Removal Unit) that convert petroleum coke into a synthetic gas that is burned in two 92 MW Combustion Turbines. These combustion turbines are combined with 2 HRSG's (Heat Recovery Steam Generators) that provide additional steam to the Refinery and Steam Turbines in the Power Plant.

All sources are metered.

Prior to entering the distribution system, the water is treated by an iron oxidizer waterfall, followed by clarifiers and filters. The water is then treated by either zeolite softeners, degasification and pH adjustment, or is demineralized and degasified.

The project facilities are above the 100-year flood elevation.

The water system is presently interconnected with the United Water Delaware distribution system for both potable and industrial supply.

6. **Other.** Wastewater is conveyed to the docket holder's industrial treatment facility which received approval most recently under Section 3.8 of the *Compact* by DRBC Docket No. D-1978-097 on March 28, 1979. DNREC issued its most recent NPDES Permit No. DE0000256 on July 13, 2018 for this treatment facility. That approval consolidated NPDES Permit No. DE005060 for the power plant into the NPDES permit for the industrial treatment facility. The treatment facility has adequate capacity to receive wastewater from the proposed project.

## **B. FINDINGS**

### **1. Surface Water Charges**

The docket holder operates two Pre-Compact surface water withdrawals in the Red Lion Creek and Dragon Run intakes. Pre-Compact withdrawers are allowed to continue their historical withdrawals up to Pre-Compact amounts without being subject to surface water charges as per Section 5.1.3 of the Commission's *Administrative Manual Party III: Basin Regulations – Water Supply Charges*.

### **2. Water Allocation**

The docket holder's groundwater use is from nine (9) wells and is not expected to exceed 186 mgm. As such, the docket holder requested a monthly allocation of 186 mgm in their DRBC withdrawal Application. However, the existing groundwater withdrawals are approved by the DNREC in Permit No. 94-0017DM5 and will continue to be regulated by DNREC in accordance with the Administrative Agreement (AA) between DRBC and the State of Delaware, Section IV.C.4, enacted on July 2010 and modified on May 8, 2013. As such, this allocation may change as a result of future permit actions by DNREC (See Condition C.3.).

The surface water use excluding the Delaware River intake is from two (2) intakes, one located on Red Lion Creek and the other on Dragon Run. The docket holder has requested a monthly allocation of 38.9 for the Red Lion Creek intake and 56.2 mgm for the Dragon Run intake in their DRBC withdrawal Application. However, these existing surface water withdrawals are approved by the DNREC in Permit Nos. 94-0017BM2 (Red Lion Creek) and 94-0017CM2 (Dragon Run) and will continue to be regulated by DNREC in accordance with the Administrative Agreement (AA) between DRBC and the State of Delaware, Section IV.C.4, enacted on July 2010

and modified on May 8, 2013. As such, this allocation may change as a result of future permit actions by DNREC (See Condition C.3.).

The DNREC water allocation is valid for a period of 30 years from date of issue, with review every five years.

The docket holder estimates that the project withdrawals, used for the purpose of industrial processes, result in a consumptive use of 46 percent of the total water use. Withdrawals used for the purpose of non-contact cooling water for refinery process cooling and power generation activities result in a consumptive use of 1.15 percent. The DRBC definition of consumptive use is defined in Article 5.5.1.D of the *Administrative Manual – Part III – Basin Regulations – Water Supply Charges*.

The project is designed to conform to the requirements of the *Water Code* and *Water Quality Regulations* of the DRBC.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

### C. DECISION

Effective on the approval date for Docket No. D-1993-004-7 below, Docket No. D-1993-004-6 is terminated and replaced by Docket No. D-1993-004-7. The project and appurtenant facilities as described in in Section A.4. (Design Criteria) and A.5. (Facilities) are approved subject to the following conditions, pursuant to Section 3.8 of the *Compact*:

#### Monitoring and Reporting

1. The project withdrawals shall be metered by means of an automatic continuous recording device, flow meter, or other method, and shall be measured to within 5 percent of actual flow. An exception to the 5 percent performance standard, but no greater than 10 percent, may be granted for surface water withdrawals by the designated agency if maintenance of the 5 percent performance is not technically feasible or economically practicable. Meters or other methods of measurement shall be subject to approval and inspection by the DNREC as to the type, method, installation, maintenance, calibration, reading and accuracy. A record of biweekly withdrawals shall be maintained, and monthly totals shall be reported to the DNREC annually and shall be available at any time to the Commission if requested by the Executive Director.

#### Other Conditions

2. During any month, the withdrawal from the Delaware River intake shall not exceed 13,845.7 mgm (based on 31 days). The total combined surface water withdrawal shall not

exceed 14,296.27 mgm (based on 31 days). The Delaware River intake shall not be pumped above the maximum rate and monthly allocation as indicated below:

<b>INTAKE NO.</b>	<b>MAXIMUM RATE (GPM)</b>	<b>MONTHLY ALLOCATION (MGM)</b>
Delaware River	342,000	13,845.7

The Delaware River intake withdrawal is limited to 303 mgd average over a year period.

3. During any month, the total withdrawal of groundwater from wells in the Delaware River Basin shall not exceed 186 million gallons (based on 31 days). This allocation may be modified as a result of future permit actions by DNREC in accordance with the Administrative Agreement (AA) between DRBC and the State of Delaware, Section IV.C.4, enacted on July 2010 and modified on May 8, 2013.

4. During any month, the total withdrawal of surface water from the Red Lion Creek and Dragon Run intakes, located in the Delaware River Basin, shall not exceed 38.9 mgm and 56.2 mgm, respectively. These allocations may be modified as a result of future permit actions by DNREC in accordance with the Administrative Agreement (AA) between DRBC and the State of Delaware, Section IV.C.4, enacted on July 2010 and modified on May 8, 2013.

5. During any month, consumptive use may not exceed 461 mgd for use at the electric generating facility.

6. The docket holder shall pay for surface water use in accordance with *Basin Regulations – Water Supply Charges (18 CFR Part 420)*.

7. The docket holder is permitted to provide the water approved in this docket to the areas included in Section A.3. Area Served of this docket. Any expansion beyond those included in Section A.3. Area Served is subject to DRBC review and approval in accordance with Section 3.8 of the *Compact*.

8. The docket holder is responsible for timely submittal to the DRBC of a docket renewal application on the appropriate application form including the appropriate docket application filing fee (see 18 CFR 401.43) at least 6 months in advance of the docket expiration date set forth below. The docket holder will be subject to late filed renewal surcharges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below, the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

9. For the duration of a critical hydrologic condition as announced by the Commission, on a daily basis the docket holder shall cause to be released from a replacement water source approved by the Commission an amount of water equal to the amount consumptively used by the docketed facility, multiplied by the applicable relative effect factor, if assigned. For the duration of such critical hydrologic condition, the docket holder shall operate its facility only at a level commensurate with the amount of replacement water it is capable of causing to be released.

10. The surface water intakes and operational records shall be available at all times for inspection by the DRBC.

11. The surface water intakes shall be operated at all times to comply with the requirements of the *Water Code* and *Water Quality Regulations* of the DRBC.

12. Each new water service connection shall include a water meter in accordance with the DRBC's Resolution No. 87-7 (Revised).

13. No water service connections shall be made to newly constructed premises with plumbing fixtures and fittings that do not comply with water conservation performance standards contained in Resolution No. 88-2 (Revision 2).

14. The docket holder shall continue to implement its Water Conservation Plan as approved by DNREC, and shall report to the DNREC on actions taken pursuant to this program and the impact

15. The docket holder shall implement to the satisfaction of the DNREC, a drought or other water supply emergency plan.

16. No new water service connections shall be made to premises connected to sewerage systems which are not in compliance with all applicable effluent limits contained in State permits and the *Water Quality Regulations* of the Commission.

17. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

18. The docket holder shall be subject to applicable DRBC regulatory program fees, in accordance with duly adopted DRBC resolutions and/or regulations. (see 18 CFR 401.43).

19. This approval is transferable by request to the DRBC Executive Director provided that the project purpose and area served approved by the Commission in this docket will not be materially altered because of the change in project ownership. The request shall be submitted on the appropriate form and be accompanied by the appropriate fee (see 18 CFR 401.35).

20. The docket holder shall request a name change of the entity to which this approval is issued if the name of the entity to which this approval is issued changes its name. The

request for name change shall be submitted on the appropriate form and be accompanied by the appropriate fee (see 18 CFR 401.35).

21. The issuance of this docket approval shall not create any private or proprietary rights in the water of the Basin, and the Commission reserves the rights to amend, alter or rescind any actions taken hereunder in order to insure the proper control, use and management of the water resources of the Basin.

22. If the monitoring required herein or any other relevant data or information demonstrates that the operation of this project is interfering with or otherwise impairing existing uses of ground or surface water, or if the docket holder receives a complaint from an existing ground or surface water user within the zone of influence of the withdrawal alleging such interference or impairment, the permit holder shall immediately notify the Executive Director, and unless excused by the Executive Director, shall investigate the demonstrated or alleged impacts. For purposes of this condition, notification shall mean either (a) electronic transmittal of written notice to the Executive Director via email (using addresses posted on the DRBC website); or (b) written notice to the Executive Director and a telephone call to the Project Review Section at 609-883-9500, ext. 216. (Oral notification must always be accompanied by immediate written notification directed to the Executive Director.) In addition, the docket holder shall provide written notice to all potentially affected water users of the docket holder's responsibilities under this condition. **Any well or surface water supply that is impaired as a result of the docket holder's project withdrawal shall be repaired, replaced or mitigated at the docket holder's expense.** The scope of the options to consider for repair, replacement and/or mitigation shall not be limited solely to those that are owned, operated, or controlled by the project sponsor. An investigation report and/or mitigation plan prepared and certified by a licensed professional engineer and/or a licensed professional geologist shall be submitted to the Executive Director as soon as practicable following notice of the demonstrated or alleged impairment consistent with this paragraph. The Executive Director shall make the final determination regarding the scope and sufficiency of the investigation and the extent of any mitigation measures that may be required. Where ground and surface waters are rendered unavailable, unusable, or unsuitable for the pre-existing use, the Executive Director may direct the docket holder to take interim actions to mitigate such impacts, pending completion of the investigative report and any long-term repair, replacement or mitigation.

23. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

24. For the duration of a critical hydrologic condition as announced by the Commission, on a daily basis the docket holder shall cause to be released from a replacement water source approved by the Commission an amount of water equal to the amount consumptively used by the docketed facility, multiplied by the applicable relative effect factor, if assigned. For the duration of such critical hydrologic condition, the docket holder shall operate its facility only at a level commensurate with the amount of replacement water it is capable of causing to be released



**25.** Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the *Rules of Practice and Procedure*. In accordance with Section 15.1(p) of the *Delaware River Basin Compact*, cases and controversies arising under the *Compact* are reviewable in the United States district courts.

**BY THE COMMISSION**

**APPROVAL DATE:**

**EXPIRATION DATE: March 13, 2029**

**DRAFT**