STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
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DOVER, DELAWARE 19901

Office of the
Secretary

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Secretary's Order No. 2008-CZ-0026

Re: Application of The Premcor Refining Group, Inc. for a Coastal Zone Act Permit for the Delaware City Refinery Located at 4550 Wrangle Hill Road, Delaware City, New Castle County, in Order to Install Pollution Control Equipment to Reduce the Air Emissions of Nitrogen Oxides-CZA Project No. 378P

Date of Issuance: **June 16, 2008**
Effective Date: **June 16, 2008**

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department") by *29 Del. C. §§8001* et seq., *7 Del. C. Chapter 60* and the Coastal Zone Act in *7 Del. C. Chapter 70* ("CZA"), the following findings, reasons and conclusions are entered as an Order of the Secretary.

This Order considers the CZA permit application of The Premcor Refining Group, Inc. ("Applicant") to allow the construction of pollution control equipment at its Delaware City Refinery ("Facility"). The pollution control equipment would reduce the air emission of nitrogen oxides ("NOx") by 512.5 tons annually. In addition, the Applicant will install pollution control equipment to reduce the nitrates in the treated wastewater into the Delaware River from the air pollution equipment from 219 tons a year to 33 tons a year. The Department required a CZA permit in a November 2007 Status Decision because the air pollution control equipment would increase treated wastewater discharges into the Delaware River over the current levels. The Department

viewed the proposed discharges as having a possible negative environmental impact, and required a CZA permit under the CZA's Regulations.

The Department's Senior Hearing Officer, Robert P. Haynes, in a June 13, 2008 report ("Report"), which is appended hereto and incorporated herein, recommends issuance of the permit. I find and conclude that the Department should approve the issuance of a CZA permit to the Applicant, as recommended by the Report, which is hereby adopted to provide further reasons for this Order. This decision is based upon the Department's administrative record, including the public hearing record, and the technical expertise provided by the Department's personnel in the CZA Program, the Division of Water Resources, and the Division of Air and Waste Management.

I find that this CZA permit will allow the Facility to install air pollution control equipment that will remove 512.5 tons of NOx annually from the Facility's air emissions. This air quality improvement will provide a significant benefit not only to the Coastal Zone's air quality, but will benefit all of Delaware's air quality given the large reduction in NOx emissions. NOx is one of the more harmful of air pollutants and a leading cause of ozone, which, in turn, is harmful to human health and the environment in general. Delaware is in an ozone nonattainment area and is required by federal laws and regulations to improve the air quality to meet the federal standard. The air pollution control equipment approved by this and other Department permits will allow Delaware to take a major step towards improving the air quality.

The air pollution equipment will result in an increase the surface water discharge of nitrates, sulfates and chlorides, but I find that the 512.5 tons annual NOx reduction provide an environmental quality that more than offsets the increased treated waste water discharges. Applicant proposed in its Coastal Zone Act permit application to voluntarily change its wastewater treatment plant's process in order to significantly reduce the

proposed nitrate discharges from the level in its Request for a Status Decision. This change came in response to the Department's and public's concerns with the increased discharge of nitrates from the air pollution equipment. The Department has carefully evaluated the potential discharges and has concluded that the air quality benefits more than offset any negative impact to the Delaware River. Indeed, the discharges are not included in the current Department discharge permit and the proposed increase flow from air pollution equipment will be 360,000 gallon per day out of the waste water treatment plant's total authorized flow of 13,000,000 gallons per day. The proposed discharges will not violate any current Department permit or water quality standard. Nevertheless, the Department will have an opportunity to further review the water quality issues in the upcoming water quality permit review of the Facility's wastewater treatment scheduled for later this year.

In sum, the proposed pollution control project, on balance, satisfies the strict environmental standards imposed by the CZA and the Coastal Zone will be better because of this permit. Accordingly, I direct that the permit be issued to the Applicant, and enter the following findings and conclusions:

1.) The Department has jurisdiction under its statutory authority to issue a CZA permit in this proceeding;

2.) The Department provided adequate public notice of the proceeding and the public hearing in a manner required by the law and regulations;

3.) The Department held a public hearing in a manner required by the law and regulations;

4.) The Department considered all timely and relevant public comments in making its determination; and

5.) The Department has considered all the factors that the CZA requires to be considered and after weighing the considerations determines that a CZA permit should be issued to the Applicant for the Facility based upon the application, subject to such reasonable conditions to protect the environment and public health consistent with the CZA.

s/John A. Hughes
John A. Hughes
Secretary

HEARING OFFICER'S REPORT

TO: The Honorable John A. Hughes
Secretary, Department of Natural Resources and Environmental Control

FROM: Robert P. Haynes, Esquire
Senior Hearing Officer, Office of the Secretary
Department of Natural Resources and Environmental Control

RE: Application of The Premcor Refining Group, Inc. for a Coastal Zone Act Permit for the Delaware City Refinery Located at 4550 Wrangle Hill Road, Delaware City, New Castle County, in Order to Install Pollution Control Equipment to Reduce the Air Emissions of Nitrogen -CZA Project No. 378P

DATE: June 13, 2008

I. BACKGROUND AND PROCEDURAL HISTORY

This hearing officer's report is prepared for the Secretary of the Department of Natural Resources and Environmental Control ("DNREC" or "Department") pursuant to *29 Del. C. §6606, 7 Del. C. Chapter §6004*, and the Coastal Zone Act, *7 Del. C. Chapter 70* ("CZA"). This Report reviews and makes recommendations based upon the administrative record, which includes the public hearing held on April 30, 2008 at the Delaware City Public Library in Delaware City, New Castle County.

The CZA requires a public hearing, which the Department held in order to receive public comments on Premcor Refining Group, Inc's[1] ("Applicant") CZA permit application to install pollution control equipment at Applicant's Delaware City Refinery ("Facility" or "DCR"), located within the "Coastal Zone" at 4550 Wrangle Hill Road, Delaware City, New Castle County. The Applicant named the pollution control project "DCR 20 PPM NOx FCCU Project" ("Project") because it is designed to reduce the air emissions of nitrogen oxides ("NOx") to 20 parts per million ("ppm") from DCR's Fluid Catalytic Cracker Unit, also known as Unit 23. This reduction is required by the Applicant's election in the July 6, 2006 settlement

[1] Applicant is a subsidiary of Valero Energy Corporation. Applicant is the legal successor to CZA Permits Nos. 290 and 291 issued May 12, 1997 and CZA Permit No. 355 issued November 30, 2004.

("Settlement") between the Applicant and the Department that resolved certain appeals and notices of violation. Under the Settlement, the FCCU's NOx air emissions are to be at or below the 20ppm limit by May 1, 2009, which is based upon the Department issuing an air pollution control permit allowing construction to be issued no later than July 1, 2008.[2] The FCCU is an integral part of the refinery operations and the Applicant proposes to install Wet Gas Scrubbing Plus ("WGS+") technology, which would be located on the flue stack.

The Applicant also has proposed changing DCR's existing wastewater treatment plant ("WWTP") in order to reduce nitrate discharges into the Delaware River from the WGS+. This change proposes to convert one of the two existing aerobic reactor tanks into an anoxic tank, which will allow an anoxic treatment process, using microorganisms, to feed on the nitrates, or NO3-N. As a result, the WWTP's projected 219 tons per year nitrate discharges that otherwise would occur when the WGS+ is operating will be reduced to no more than 33 tons per year, based upon the WWTP's 85% reduction in nitrates and an 100% NOx removal by the WGS+. The Project will increase surface water discharges because the WGS+ uses water to scrub the air emissions in order to remove the NOx, which enters the wastewater as nitrates and flows to the WWTP, where it will be treated. The Project expect to increase the WWTP's discharges into the Delaware River by 360,000 gallons per day, which is a relatively small increase compared to the WWTP's total permitted discharge of 13,000,000 gallons per day and the total average volume of approximately 10,000,000 gallons per day in 2007. The CZA permit application is conservatively based on the negative impact upon possible annual discharges of up to 33 tons of nitrate, 6,846 tons of sulfate, and 1,267 tons of chloride. As noted at the public hearing, the FCCU will still emit NOx and the WGS+ will only recover approximately 70% of the NOx air emissions. The concentration levels of the Project on the Delaware River from the nitrate

[2] The air pollution control permit will be issued by the Division of Air and Waste Management ("DAWM") Air Quality Management Section ("AQMS"), and the permit is ready to be issued but must wait for this final Order.

loading after complete mixing, is expected to add less than 0.003 milligram per liter. The Delaware River's flow at the Facility is approximately 15,400 cubic feet per second.

The Department regulates DCR's WWTP under existing permit No DE 0000256 issued by the Division of Water Resources ("DWR") under the National Pollutant Discharge Elimination System ("NPDES"), which is a federal program the Department administers for the United State Environmental Protection Agency ("EPA") under the federal Water Pollution Control Act, or the Clean Water Act. The DCR's NPDES permit is designed to meet the water quality standards established by the State of Delaware, the EPA and the Delaware River Basin Commission ("DRBC").

The Project will not require any change to Applicant's NPDES permit because there are no total maximum daily loads ("TMDL") for nitrate, sulfate or chloride at the Facility or for the Delaware River at this location. Consequently, the Department did not establish limits in the WWTP's NPDES permit for these discharges because the Department determined that they would not cause any pollution.

The Applicant submitted the CZA permit application on January 2, 2008 following the Department's November 14, 2007 CZA status decision, which determined that the Project required a CZA permit due to the Project's proposed associated increase in the WWTP's treated effluent discharges into the Delaware River.

The Department reviewed the CZA permit application in order to determine if it was administratively complete. The Department's CZA Offset Review Committee in a February 19, 2008 memorandum concluded that the Applicant's proposed environmental offset satisfied the Department's *Regulations Governing Delaware's Coastal Zone* ("CZA Regulations"). *7 DE. Admin Code 101.* On February 28, 2008, the Department issued the "Secretary's Environmental Assessment Report," which indicated that the Department's preliminary decision that the CZA

application was administratively complete and that the Applicant's proposed offset was adequate under the CZA Regulations. Consequently, the Department published legal notice of the application and the public hearing in *The News Journal* and *New Castle Weekly*.

This Report summarizes the public hearing record, reviews relevant legal and factual issues, and makes a recommendation for the Secretary, who will make the Department's final decision in an Order.

II. SUMMARY OF THE PUBLIC HEARING RECORD

The public hearing record contains a 53 page verbatim transcript of the public hearing, and documents, marked as DNREC Exhibits ("Exh."), which were admitted into the record as hearing exhibits. Elena Tkacz, from the Department's CZA Program, made a presentation and submitted the relevant documents in the Department's files into the record as DNREC's hearing exhibits, including the permit application, the proof of publication of the legal notices, the Secretary's Environmental Assessment, the Department's letter notifying the Applicant that its application had been determined to be administratively complete, the CZA Offset Review Committee's memorandum, and the public comments received on the application.

The Department received public comments from Richard Schneider, Deanne Camara Ferreira, and Al Denio. Alan Muller and Widener University School of Law's Environmental & Natural Resources Law Clinic ("Widener Law") also submitted written comments. No public comment opposed the air pollution control portion of the Project. Instead, the public comments opposed the increase in the WWTP's discharges into the Delaware River, particularly the nitrates. The public comments questioned whether the CZA permit should be issued because of the WWTP's increased discharges, which the comments contend should be eliminated. The Widener Law comments also raised an issue whether the Department should not require more environmental offsets in order to comply with the CZA Regulations.

In response to the Widener Law comments, the CZA Program submitted a memorandum dated May 23, 2008, a copy of which is appended hereto.

III. DISCUSSION AND REASONS

This Report considers whether the Department should issue a CZA permit and any reasonable permit conditions. The CZA is an important piece of environmental legislation intended to protect Delaware's coastline from excessive use by industrial manufacturing. The General Assembly delegated to the Department the administration of the CZA through management of the Coastal Zone industrial manufacturing by a permit program. The Department's discretion includes permitting new manufacturing, except by a "heavy industrial use" or a "bulk product transfer facility," to locate within the Coastal Zone or the "expansion or extension" of existing industrial manufacturing, including by a "heavy industrial use" or a "bulk transport facility." The CZA expects the Department to exercise its expert judgment and discretion in determining whether a CZA permit should be issued and any reasonable permit conditions.

The CZA requires the Department to consider six factors for a proposed CZA permit, as set forth in Section 7004(b). These factors are summarized by the Project's proposed 1) environmental impact, 2) economic effect, 3) aesthetic effect, 4) the number and type of supporting facilities required and their impact on all Section 7004(b)'s factors, 5) the effect of neighboring land uses, and 6) the compliance with local comprehensive plans. The Secretary's Assessment provided a comprehensive review of these factors and they need not be discussed here again.

As a preliminary matter, I find that the DCR is within the Coastal Zone and that it is a "heavy industrial use[3]" as a large petroleum refinery. The DCR's status under the CZA is a "nonconforming use"[4] because it was in lawful operation as a heavy industrial use on the CZA's effective date of June 28, 1971. Indeed, the Facility commenced manufacturing in 1957. The Department has recognized its nonconforming status in its prior CZA decisions on the DCR. As a nonconforming use, the Department may permit the DCR's "expansion or extension" based upon a 1992 amendment to the CZA because, as noted in the Widener Law comments, the General Assembly did not want the existing nonconforming uses "to wither and die," which may have occurred to DCR's refinery operations if the amendment did not get enacted.

The DCR as a nonconforming use does not raise the same environmental protection issues as a proposed new industrial manufacturing would. While it is unlikely that the DCR will be developed for tourism or recreation use in the foreseeable future, the Department nevertheless remains concerned with DCR's possible negative environmental impacts to the nearby areas of the Coastal Zone that are used for tourism and recreation. The CZA directs the Department to exercise discretion to strike the correct balance between the CZA's twin goals of preserving the coastal areas for tourism and recreational uses while encouraging industrial development, as set forth below:

> It is hereby determined that the coastal areas of Delaware are the most critical areas for the future of the State in terms of the quality of life in the State. It is, therefore, the declared policy of the State to control the location, extent and type of industrial development in Delaware's coastal areas. In so doing, the State can better protect

[3] The CZA defines this as "a use characteristically involving more than 20 acres, and characteristically employing but not necessarily all of such equipment such as, but not limited to, smokestacks, tanks, distillation or reaction column, chemical processing equipment, scrubbing towers, pickling equipment and waste-treatment lagoons; which industry, although conceivably operable without polluting the environment, has the potential to pollute when equipment malfunctions pr human error occurs." The CZA goes on to cite examples, including an oil refinery. Sec. 7002 (e).

[4] The CZA defines "nonconforming use" as "a use, whether of land or of a structure, which does not comply with applicable use provisions of this chapter where such use was lawfully in existence and in active use prior to June 28, 1971." *7 Del. C. § 7002(a).*

> the natural environment of its bay and coastal areas and safeguard their use primarily for recreation and tourism.…While it is the declared public policy of the State to encourage the introduction of new industry into Delaware, the protection of the environment, natural beauty and recreation potential of the State is also of great concern. **In order to strike the correct balance between these 2 policies, careful planning based upon a thorough understanding of Delaware's potential and her needs is required**. Therefore, control of industrial development other than that type of heavy industry in the coastal zone of Delaware through a permit system at the state level is called for….
> *7 Del. C. §7001*.

The Department's discretion "to strike the correct balance" between preservation of the Coastal Zone for tourism and recreation and industrial growth is aided by the CZA Regulations, as adopted by the Coastal Zone Industrial Control Board. One important mechanism in the CZA Regulations to determine the correct balance is the environmental offset proposal established in Section 9.0 of the CZA Regulations. This regulation states that:

> Any application for a Coastal Zone permit for an activity or facility that will result in any negative environmental impact shall contain an offset proposal. Offset proposals must proposals must more than offset the negative environmental impacts associated with the proposed project or activity requiring a permit. It is the responsibility of the applicant to choose an offset project that is clearly and demonstrably more beneficial to the environment in the Coastal Zone than the harm done by the negative impacts associated with the permitting activities themselves.
> *Section 9.1.1 of CZA Regulations.*

The public comments question whether the Project complies with the CZA and the CZA Regulations because of the Project's increased WWTP discharges. I disagree with the public comments and find that they seek to read into the CZA and CZA Regulations a simple mathematical formula based upon quantities and not the qualitative benefits. Indeed, the comments would curtail the very discretion that the General Assembly bestowed upon the Department to strike the correct balance in issuing a CZA permit.

I find and recommend that the Project satisfies Section 9 of the CZA Regulations because of the significant pollution reductions in NOx air emissions that will occur with the installation of the WGS+. NOx air emissions should decrease from 719.5 to 207 tons per year, for a reduction of 512.5 tons or approximately 71%. As noted in the CZA Memorandum, the air emissions are particularly harmful to Delaware's air quality and human health. Unlike most expansions or extensions in a CZA permit application, the Project will not increase the DCR's production capacity and will add only a small amount to the existing manufacturing footprint.[5] Indeed, the only reason the Department required a CZA permit was the November 14, 2007 Status Decision.

I agree that this decision was consistent with Section 5.14 of the CZA Regulations when the Division of Water Resources and public comments, including by Widener Law, raised concerns with the negative environmental impacts from the WWTP's discharges. As a result of this Status Decision, the Applicant submitted a CZA permit application and an offset proposal that was based upon the 512.5 tons NOx air emission reduction and the negative environmental impact of the nitrate discharge dramatically was reduced from the Status Decision's level of 219 tons of nitrates. The Applicant voluntarily proposed the change to its WWTP that will significantly the WGS+ nitrate discharges to no more than 33 tons a year. Indeed, the WWTP's actual discharge may be only between 15 to 16 tons of nitrates because the WGS+ will only recover 70% of the NOx and Applicant's CZA permit application used conservative assumptions.

[5] The Project proposes to add three new above ground storage tanks, to increase the height of the FCCU's Wet Gas Scrubber's flue stack by 30-40 feet to a final height of between 225-235 feet above grade, and to build a truck unloading area and possibly a rail car siding. The CZA regulates "expansion or extension," but allows the Department discretion to determine if expansion or extension means land usage footprint, production capacity increase, or some other measure of expansion or extension. The total area required for the Project is less than one third of an acre.

The CZA Regulations exempt pollution control projects from requiring a CZA permit "providing such installation and modification does not result in any negative environmental impact over and above impacts associated with the present use." *CZA Regulation 5.16.* This exemption is consistent with the Department's discretion to determine what is an "expansion or extension" within the meaning of the CZA. Based upon the possible negative environmental impact from the discharges, the Department's November 14, 2007 Status Decision required a CZA permit. The CZA permit application requires the Department to exercise regulatory discretion to determine if any negative impacts are more than offset so that the Coastal Zone on balance is improved as the result of the CZA permit.

Based upon the expert technical advice from the Department's CZA Program, DWR, and DAWM, I find that the Project will provide sufficient environmental offsets "to more than offset the negative environmental impacts" and that the proposed offset is "clearly and demonstrably more beneficial to the environment than the harm done by the negative environmental impacts." The Department's technical experts, including those on the Offset Review Committee under Chair Harry Otto, Ph.D., and within the CZA Program and the Division of Water Resources, support the issuance of a CZA permit as providing environmental benefits that more than offset any negative impact. Their expert opinion and advice was based upon careful consideration and balancing of the environmental impacts with the negative environmental impacts and is consistent with the exercise of discretion in order "to strike the correct balance."

Another reason why the public comments should not prevent the issuance of a CZA permit is that they fail to recognize that the proposed WWTP discharges are not considered harmful to the Delaware River. The nitrate, sulfate and chloride have not been established as loading limits for this location or the WWTP's discharges. There is no water quality standard, law, regulation or permit that regulates these discharges at this time. While the Department,

through DWR's Surface Water Discharge Section, was concerned with the potential environmental impact from the Project's increased discharge of treated wastewater into the Delaware River, but this concern was resolved with the Applicant's voluntary change to the WWTP. Nevertheless, the Department will have the opportunity to review all the WWTP's discharges in the context of the upcoming renewal of the WWTP's NPDES permit. I agree that this will provide the Department an adequate opportunity to investigate all the WWTP's discharges and impose limits as appropriate.

I find that the Widener Law comments on the discharges are based upon an overly simplistic and technical view of the impacts, namely, the claim of "pollution" from the total amounts of the nitrates, sulfates and chlorides that would be discharged. This view ignores that the Department's experts have considered that the proposed discharges into the predominately brackish Delaware River at the Facility will not be harmful to the water quality. The public comments are correct insofar as some receiving waters are subject to specific limits due to the potential of discharges to be harmful to the water quality. There will be no pollution subject to regulation by either the DRBC or the Department's NPDES permit at this time. Department does include nitrate limits in some NPDES permits when appropriate, but such limits are based upon Department promulgated TMDL regulations. The Department, however, established the limits and TMDL for other surface waters and discharges only after an extensive analysis of the receiving surface water. Surface water discharges may become pollution in one receiving water and not another because of the water quality characteristics of the receiving water. For example, a discharge into a trout stream may be a Clean Water Act violation, but the same discharge into the Atlantic Ocean may not be a violation. The simple amount of a discharge is not controlling. To date, the DRBC and the Department have decided to not establish discharge limits for DCR's

nitrate, sulfates and chloride discharges and the additional discharge of treated wastewater will still be well below the WWTP's total discharge limit in its NPDES permit.

The Department may consider limits in the context of the WWTP's NPDES permit, which is scheduled to for its periodic renewal later this year. The NPDES permit review process will provide the Department, through DWR, with sufficient time to properly consider any changes to the WWTP's discharge limits. The CZA permit process is not to be used to establish water quality limits and there is no authority in the CZA for such environmental regulation of water quality. Moreover, a CZA permit proceeding does not provide adequate time to gather the necessary water quality data and conduct an analysis to make an informed decision to impose discharge limits on the WWTP's discharges of nitrate, sulfates and chlorides other than those offered in a permit application. Nevertheless, the apparent intent of Widener Law's comments is to require no increase in the WWTP's discharge as a result of the CZA permit, assuming the comments support the air portion of the Project and want a CZA permit issued. The denial of the CZA permit based solely on speculative outcome of an extensive water quality analysis is not consistent with the CZA, particularly when the environmental benefits are so great from the Project and the public comments that merely cite the total amount of nitrates to be discharged without any proof that that the discharges will have a negative impact on the Delaware River's water quality. The Department's experts conclude that there will be no harm and that the upcoming NPDES permit is the appropriate place to review the environmental impact of all the WWTP's discharges.

I find that the water quality issues of the WWTP's discharges will be addressed in a NPDES permit review process when there is time for the extensive analysis and more information is available than in this record. For example, the WWTP's discharges are not required to be tested for nitrate levels now under the NPDES permit, although the Applicant has

begun monitoring its nitrate discharges in response to a Department request. This actual information on nitrate levels will be useful in the upcoming NPDES permit process, when, the Department can properly consider all water quality issues in more detail. The CZA permit process requires a final decision on an expedited basis. Consequently, as noted above, the CZA is not the proper permit process to establish water quality standards for the Facility.

I find and recommend, based upon the reasonable determinations and sound scientific evidence relied upon by the Department's experts, that the Department should issue a CZA permit for NOx reduction and the WWTP change despite the increased surface water discharges from the Applicant's WWTP. The CZA requires a balancing and I find that the reduction in the NOx emissions is significant and provides an ample offset for any possible negative impact from the WWTP's discharges. It is clear that the Coastal Zone's environment will be vastly improved by this Project.

The proposed offset for the discharge is the reduced air emission of NOx, which will produce a 71% reduction in the FCCU's NOx emissions. NOx is a harmful air pollutant and a precursor to ozone formation. Ozone, in turn, is harmful to human health and the environment in general. Ozone in hot humid weather common in Delaware's summer months produces an adverse air quality condition known as smog, which is particularly harmful to humans with lung or breathing disorders or illnesses, the elderly and children. All of Delaware is located in an ozone nonattainment area, as determined by the EPA, which means Delaware must meet air quality limits and standards by certain deadlines or face possible federal sanctions. The reduction of NOx emissions is of critical importance to the environment and public health in Delaware and the Project should be approved consistent with furthering this Department's purpose to protect the environment and public health.

In contrast to this significant air quality improvement, the Department's experts consider that the proposed increase discharge into the Delaware River will not harm the water quality, particularly the sulfates and chlorides that are naturally present in the Delaware River's waters at approximately the same concentration levels. The expected annual discharges from the WGS+, after treatment at the WWTP, are not expected to have any negative impact to the Delaware River's water quality. Indeed, there is no permit limit no in effect that regulates this discharge. Moreover, the Department's experts have determined that any surface water impact is more than offset by the NOx reduction. The balancing is on the quality of the environmental benefit from the Project, and I agree with this assessment of a qualitative improvement rather than simply looking at quantity of the WWTP's discharges, particularly of sulfate and chloride. Finally, the Department will have an adequate opportunity to impose water quality limits in a NPDES permit based upon more thorough study than possible in the review period allowed for a CZA permit.

I find the record compelling in support for the Project. The Department's experts conducted the type of careful evaluation "to strike the correct balance" that the CZA and its Regulations require. I rely on the experts' judgment and their consideration of the significant environmental benefits from the 512.5 tons per year NOx air emission decrease. This is an environmental offset that will have a huge environmental and public health benefit not only in the Coastal Zone, but also throughout the state. The CZA permit will allow the Department to issue the permit necessary to install the WGS+, which will produce a significant improvement to the Coastal Zone's and Delaware's air quality. The CZA permit will also result changes to the WWTP in lower nitrates being discharged than otherwise would under the Department's surface water regulations and permits. The CZA permit will result in cleaner air quality than more than offsets any negative impact to the Delaware River's water quality from the discharges from using the WGS+. Based upon the entire record, including the public hearing record, I find that a CZA

permit should be issued, subject to such reasonable permit conditions to ensure that the permit is consistent with the CZA, the Department's regulations and policies, and the Department's statutory purposes and policies.

IV. RECOMMENDED FINDINGS AND CONCLUSIONS

Based on the record developed, and the above stated reasons, I find and conclude that the record supports approval of the issuance of a Coastal Zone Act permit to the Applicant, subject to such reasonable conditions the Secretary determines are appropriate and consistent with the CZA.

In conclusion, I recommend the Secretary adopt the following findings and conclusions:

1.) The Department has jurisdiction under its statutory authority to make a determination in this proceeding;

2.) The Department provided adequate public notice of the proceeding and the public hearing in a manner required by the law and regulations;

3.) The Department held a public hearing in a manner required by the law and regulations;

4.) The Department considered all timely and relevant public comments in making its determination and find that the proposed offset complies with the CZA Regulations; and

5.) The Department has considered all the six factors that the CZA requires to be considered and that, after weighing the factors, determines that a CZA permit should be issued to the Applicant, subject to the Department's reasonable conditions.

s/Robert P. Haynes
Robert P. Haynes, Esquire
Senior Hearing Officer

MEMORANDUM

TO: Robert P. Haynes

THRU: Philip J. Cherry

FROM: Elena M. Tkacz

RE: Response Document to Public Commentary on the Premcor Refining Group, Inc. Coastal Zone Act Permit application

DATE: May 20, 2008

Introduction

On April 30, 2008, a public hearing was held for Premcor Refining Group, Inc. (Premcor) on the matter of their Coastal Zone Act (CZA) Permit application for the installation of new pollution control technology in the Fluid Catalytic Cracking Unit (FCCU) at the Delaware City Refinery. The Department received written comments from Kenneth T. Kristl, Director, and Deanne M. Camara Ferreira, Student Attorney, of Widener University School of Law's Environmental and Natural Resource Law Clinic (Widener). This memorandum serves to respond to the conclusions made by Mr. Kristl and Ms. Ferreira in their April 30, 2008 memorandum.

Analysis

Widener suggests that Premcor has decreased the amount of nitrogen oxides (NOx) the Wet Gas Scrubbing Plus (WGS+) technology will remove as part of their CZA Permit application. Widener accuses Premcor of changing the nature and scope of the project from the original CZA Status Decision application because of the associated costs. However, the nature of the project has not changed between the two applications; the change was in the baseline of the total permitted limit of NOx emitted from the FCCU, not in the amount of NOx the WGS+ would remove.

At the time of the CZA Status Decision request in August 2007, the FCCU did not have an annual tonnage limit incorporated into its DNREC Regulation 1102 Air Permit (then Amendment 6 dated June 28, 2007). The pre-project emission figure used the limit proposed during the Pollution Control Upgrade Project (PCUP) of 907.4 TPY. The post-

project emission figure was based on 20 ppm NOx and past actual stack flow and was calculated to be 207 TPY.

Although, the operating permit did not have an annual tonnage limit, it did have a requirement for Premcor to propose one for incorporation into the permit. DNREC issued an Addendum (#1) to Amendment 6 on October 1, 2007 which incorporated the proposed limit of 719.5 TPY into the permit. Therefore, when Premcor submitted the full CZA Permit application on January 2, 2008, Premcor used the updated permit number as the baseline. The numbers changed because the starting reference point changed between the CZA Status Decision and CZA Permit Application. However, the scope of the air emission reduction project remained unchanged. This is illustrated in the following table:

CZA Application	**Baseline (TPY)**	**Post-project (TPY)**	**Total Reductions (TPY)**
Status Decision	907.4	207	700
Permit	719.5	207	512.5

Another problem with the memorandum is the foundation for the Widener argument that this project will violate the Coastal Zone Act and the *Regulations Governing Delaware's Coastal Zone* (Regulations). They argue that the 512.5 TPY, or 1,025,000 pound per year, of air pollution reductions does not more than offset the water pollution which will result from this project. Therefore, the granting of this CZA Permit would violate the Coastal Zone Act and the Regulations. Widener categorizes all by-products of the WGS+ process, to include sulfates, chlorides and nitrates, as water pollutants which will have a detrimental effect on the Delaware River and quantifies them to equal 16,692,000 pounds per year (8,346 TPY).[1]

In contrast to the law clinic perspective, technical water quality experts within DNREC view the chlorides and sulfates differently than the additional nitrates which will result from the WGS+ process. The chlorides and sulfates are not viewed as "pollutants" by DNREC because the concentrations which will be released are very similar in concentration to the natural levels of chlorides and sulfates found in the Delaware River. DNREC quantifies the amount of water pollutants to be 66,000 pounds per year, or 33 TPY, which is the total amount of nitrates being released into the river.

The discharge from the WGS+ will raise concentrations of sulfates by 12.8 mg/L and chlorides by 2 mg/ L. Typical concentrations in seawater are 2707 mg/L of sulfate and 19812 mg/L of chloride. In freshwater, typical concentrations are 6.6 mg/L of sulfate and 7.0 mg/L of chloride. The percentage of seawater in the Delaware River at the Delaware City Refinery (DCR) ranges from 0.25% to 35%. Since the chemical composition of the river will not be altered, no environmental damages are anticipated by the additional sulfates and chlorides being discharged as a result of this project. Consequently, it is not appropriate to categorize chlorides and sulfate as "serious" pollutants in this case.

Widener cites a study performed in freshwater streams and lakes in Kentucky for its basis of categorizing chlorides as a "serious" pollutant to the Delaware River.[2] The Delaware River is a brackish, tidal river system with a very different chemical composition than a

freshwater stream in Kentucky. It is not appropriate to compare the effects of chlorides on a freshwater system to the effects chlorides will have on a brackish or saltwater system; therefore, it is not appropriate to use the effects documented in Kentucky freshwater studies for a comparison to the potential effects of chlorides on the Delaware River.

Although there are no total maximum daily load restrictions on sulfates, chlorides or nitrates in this section of the Delaware River, increased nitrates are associated with contributing to the loss of dissolved oxygen in a water body. This section of the Delaware River is considered to have a dissolved oxygen impairment, so there is the potential for the additional nitrates to have a negative environmental impact on the ecosystem of the river. DNREC views the additional nitrates as the pollutants which Premcor is required to "offset" as per the Regulations. Premcor states that the reduction of 512.5 TPY of NOx clearly and demonstrably offsets the 33 TPY of nitrates which will be discharged into the Delaware River as a result of this project.

Widener argues that the 512.5 TPY of air pollution reduction is a "modest" reduction which does not maximize the protection of the Coastal Zone and does not more than offset the impacts which will occur in the Delaware River.[3] In contrast, DNREC technical experts view this reduction as significant, and after reviewing the project for its environmental impacts, determined that the 512.5 TPY reduction of NOx is significant enough to more than offset the impacts which the 33 TPY of additional nitrates may have on the Delaware River.[4]

The FCCU was the largest single source of NOx emissions from the refinery in 2006. This project will reduce NOx emissions from the FCCU by 71%.[5] In 2006, Premcor reported 2842 tons of NOx emissions in the Annual Emissions Inventory as per Delaware's Air Quality Regulation 17 and the Federal Clean Air Act (CAA). The 512.5 TPY decrease at the FCCU will lower the total amount of NOx pollution emitted from the entire DCR by 18%.[6] In contrast, the incremental increase in nitrate loading to the Delaware River will be 0.06 mg/L or 33 TPY; representing only a 3% increase over current discharge rates.[7]

The DCR is located within a non-attainment area for ozone as per the CAA. The removal of such a significant amount of NOx pollution from the air will reduce a known ozone precursor, therefore, allowing for the geographic area to be closer to compliance with critical environmental air regulations. NOx is a criteria air pollutant, as per the CAA, and is known to cause lung and respiratory tract damage in humans. Additionally, in combination with other air pollutants, NOx contributes to acid deposition as acid rain, water-quality deterioration, to smog and to global climate change.[8] This reduction of NOx emissions will result in a significant environmental benefit for Delaware's Coastal Zone both in the air and in the water.

Widener also argues that using the air pollution reduction as an offset proposal "…renders §§ [E].16 and [I.1.a] meaningless…"[9] Upon examination of cited sections from the Regulations, it seems inappropriate to come to this conclusion. The first section

details the situation in which the installation of pollution control equipment is exempted from having to obtain a CZA Permit and the second details the requirements which must be contained in the offset proposal.

The installation of pollution control equipment for nonconforming uses is exempted from having to obtain a CZA Permit by Section E.16 of the Regulations. However, it is only exempt under Section E of the Regulations if the installation of equipment does not result in *any* negative environmental impacts. The Secretary determined in a November 14, 2007 Status Decision, that a CZA Permit will be required for this project due to the potential for negative environmental impacts associated with the increase in nitrates that will be released into the Delaware River.

As per Section I.1 of the Regulations, the Secretary *may give preference* to offset projects that occur in the same environmental medium as the source of degradation of the environment, but this section in no way mandates that the offset proposal *must* occur in the same medium. Legal counsel was obtained from the Department of Justice regarding this matter, and after a legal review of the application, it was determined that "…if it appears after balancing the reduced NOx emissions against the additional nitrates in the effluent, it is determined that the proposed project will have an overall positive benefit on the environment, there may be no need for a separate offset proposal.[10] Therefore, Widener is incorrect in their interpretation that "…the offset proposal must 'more than offset' those negative impacts *in the waters* of the Coastal Zone…"[11]

Conclusion

The WGS+ technology will take 1,025,000 pounds per year of NOx out of the air which contaminates the air as well as the water. As a result of this air pollution control technology, 66,000 pounds per year of water pollutants, not the 16,200,000 pounds per year of water pollutants Widener claims, will be released into the Delaware River. The Coastal Zone Act requires that all environmental impacts must be considered in issuing a CZA Permit and the Regulations require that a project must "more than offset" its environmental impacts to the Coastal Zone.

DNREC has reviewed the application and found it consistent with the purpose and objectives stated in the Coastal Zone Act. DNREC has also been consistent with the Regulations while reviewing this application and has found that the offset proposal more than offsets any negative impacts to the Coastal Zone. The 66,000 pounds per year of water pollutants represents only a 3% increase in water pollution from the refinery. This is more than offset by a 71% reduction in NOx emissions from the FCCU and a 17 % total reduction of NOx emissions from the whole Delaware City Refinery. This is an important pollution control project for the Coastal Zone, as well as the entire State of Delaware, and a Coastal Zone Act Permit should be issued for the installation of the pollution control equipment as stated in the application.

[1] Reference page 2 of the April 30, 2008 memorandum ("Memo").
[2] Reference from page 7 of the Memo citing the Kentucky water control board study of Chloride in water supply.
[3] Page 6 of Memo under the heading *Liberal Interpretation to Maximize Applicability*.
[4] See Memorandum dated March 4, 2008 from Dr. Harry Otto to Elena Tkacz regarding the review of proposal CZA-ORC-025. The application for a CZA Permit includes having the applicant list all the impacts to media cited in the CZA §7004(b).
[5] Total reduction of NOx from this project (512.5) divided by the previous emission NOx permitted level (719.5) = 71%
[6] Total reduction of NOx from this project (512.5) divided by the Total NOx emissions from the DCR (2842) = 18%
[7] Reference from page 15 of 43 of the Premcor CZA Permit application.
[8] Kubasek, Nancy K. and Gary S. Silverman. *Environmental Law (6th edition)*. Prentice-Hall Inc., New Jersey, 2007.
[9] Page 6 of Memo
[10] Letter dated January 28, 2008 from Robert F. Phillips, Deputy Attorney General, to Elena Tkacz regarding 378P-Premcor Refining Group Inc.
[11] Page 7 of Memo