

BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

| | | |
|---------------------------------|---|--------------------|
| IN THE MATTER OF: |) | |
| |) | |
| CITGO PETROLEUM CORPORATION and |) | |
| PDV MIDWEST REFINING, L.L.C., |) | |
| |) | PCB _____ |
| Petitioners, |) | (Variance - Water) |
| |) | |
| v. |) | |
| |) | |
| ILLINOIS ENVIRONMENTAL |) | |
| PROTECTION AGENCY, |) | |
| |) | |
| Respondent. |) | |

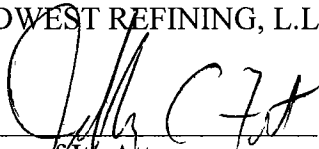
NOTICE OF FILING

To:

| | |
|---|--|
| Dorothy M. Gunn, Clerk Illinois Pollution Control Board 100 West Randolph, Suite 11-500 Chicago, IL 60601 | Douglas Scott, Director Illinois Environmental Protection Agency 1021 N. Grand Avenue East, P.O. Box 19274 Springfield, IL 62794-9274 |
| James A. Day, Office of General Counsel Illinois Environmental Protection Agency 1021 N. Grand Avenue East P.O. Box 19274 Springfield, IL 62794-9274 | |

Please take notice that on November 14, 2007, we filed electronically with the Office of the Clerk of the Illinois Pollution Control Board the attached **Petition for Extension of Variance**, a copy of which is served upon you.

CITGO PETROLEUM CORPORATION and
PDV MIDWEST REFINING, L.L.C.

By: 
One of Its Attorneys

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CITGO PETROLEUM CORPORATION and)
PDV MIDWEST REFINING, L.L.C.,)
) PCB _____
Petitioners,) (Variance - Water)
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v.)
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ILLINOIS ENVIRONMENTAL)
PROTECTION AGENCY,)
)
Respondent.)

PETITION FOR EXTENSION OF VARIANCE

PDV Midwest Refining, L.L.C. ("PDVMR") and CITGO Petroleum Corporation petition the Illinois Pollution Control Board ("Board") for an extension of dates to undertake certain actions as contained in an existing variance authorizing discharges of Total Dissolved Solids ("TDS"). See PCB 05-95, issued April 21, 2005. PDVMR is the owner of the Refinery described herein, and CITGO Petroleum Corporation is the operator of the Refinery. (Hereafter, these Petitioners will be jointly referred to as "CITGO"). This Petition is brought pursuant to Section 35 of the Act, 415 ILCS 5/35, and Part 104 of Chapter 35 of the Illinois Administrative Code, 35 IAC § 104.100 et seq. In support of this Petition, CITGO states as follows:

I. EXISTING CONDITIONS

1. In November, 2004, CITGO sought a variance from the Board's water quality standards for TDS in relation to an agreement CITGO had reached with U.S. EPA, the State of Illinois and other states. The Board granted that relief in an opinion and order entered April 21, 2005. That order is attached hereto as Exhibit A and incorporated here by reference.

2. Since the granting of the referenced variance several material facts have changed. First, the Board increased the water quality standard for total dissolved solids at the I-55 Bridge in the Des Plaines River, and in the Des Plaines River to its confluence with the Kankakee River. *See Revisions to Water Quality Standards for Total Dissolved Solids in the Lower Des Plaines River ExxonMobil Oil Corporation*, R06-24 (Site-Specific Rulemaking - Water), Board Order (February 15, 2007). Had this order been in effect in 2004 when the prior variance was filed, one of the two places where the TDS standard had been exceeded would not have been a violation. Second, the Board has proposed a First Notice to eliminate the water quality standard for TDS in General Use waters. *See Triennial Review of Sulfate and Total Dissolved Solids Water Quality Standards*, R07-09, (Rulemaking - Water) Board Order (September 20, 2007). The Agency is the proponent of this change and no one has testified against that part of the Agency's proposal. This leaves the odd situation of there being a water quality standard for TDS in the Chicago Sanitary & Ship Canal ("Canal"), but either a higher level, or no standard at all in the general use waters downstream. Third, CITGO indeed participated in the proceedings in R07-09 and requested that the Board exempt its discharge from meeting a TDS water quality standard. While the Board declined to make such a change in the proceeding dealing with the General Use standard, it did state that CITGO could, and perhaps should, seek to extend the dates for taking certain actions as expected by certain conditions of the variance. *See Id.*, p. 30. Fourth, the Agency has finally proposed to remove the TDS standard in the Canal (R08-09), a statement which has been repeated for several years. Therefore, CITGO is filing this Petition to extend the prior variance, as per 35 Ill. Admin. Code 104.210. CITGO has undertaken the activities required by the prior variance; and would propose that the requested variance build upon the prior variance by making the following extensions to the prior variance order:

The Board grants CITGO and PDVMR a variance from the TDS water quality standards of 35 Ill. Admin. Code 302.208(g) and 302.407, subject to the following conditions:

1. The duration of the variance relief from the identified TDS water quality standards is from ~~April 21, 2005~~ [date of Board order] through December 15, 200912. This variance modifies and extends certain conditions of the variance in PCB 05-95, entered April 21, 2005.
2. This variance applies only to petitioners' Lemont Refinery at 135th Street and New Avenue in Lemont, Will County, regarding elevated TDS levels in the effluent of Outfall 001 due to operation of the wet gas scrubber under the Consent Decree entered January 26, 2005, in the United States District Court for the Southern District of Texas, Case No. H-04-3833.
3. ~~By October 1, 2006,~~ Petitioners must identify a location near the I-55 Bridge for collecting water samples from the Des Plaines River and secure access for the sampling. ~~By November 1, 2006,~~ Petitioners must retain a contractor to collect TDS samples at that location. ~~From December 1, 2006 through~~ Until March 30, 2008, petitioners must collect TDS samples from the Des Plaines River three times per week during the winter months (December 1 to March 30). Petitioners must submit the TDS sample results monthly to the Agency.
4. ~~From December 1, 2006 through~~ Until March 30, 2008, the effluent of Outfall 001 must be monitored for TDS two times per week during the winter months (December 1 to March 30). Petitioners must submit the TDS sample results monthly to the Agency.
5. Petitioners must diligently attempt to identify any relationship between TDS levels in the effluent of Outfall 001 and TDS levels in the Des Plaines River at the I-55 Bridge. Petitioners must use any resulting relevant information to identify the time period that may be needed to hold the FCCU wet gas scrubber bleed.
6. By May 1, ~~2008~~ 2011, petitioners must begin to size the system needed to retain the FCCU wet gas scrubber bleed for the maximum number of days that the TDS level in the ~~Des Plaines River at the I-55 Bridge exceeds 1,000 mg/l~~ Chicago Sanitary and Ship Canal exceeds the applicable water quality standard for TDS.
7. By June 1, ~~2008~~ 2011, petitioners must begin to design the system needed to retain the FCCU wet gas scrubber bleed for the maximum number of days that the TDS level in the ~~Des Plaines River at the I-55 Bridge exceeds 1,000 mg/l~~ Chicago Sanitary and Ship Canal exceeds the applicable water quality standard for TDS.
8. By December 1, ~~2008~~ 2011, if needed to meet an applicable water quality standard for TDS, petitioners must submit to the Agency a wastewater construction permit application for the FCCU wet gas scrubber bleed retention system.

9. By March 1, ~~2009~~ 2012, if needed to meet an applicable water quality standard for TDS, petitioners must begin construction as needed on the FCCU wet gas scrubber bleed retention system.

10. By December 1, ~~2009~~ 2012, if needed to meet an applicable water quality standard for TDS, petitioners must operate the FCCU wet gas scrubber bleed retention system as needed. From December 1, ~~2009~~ 2012 through March 30, ~~2010~~ 2013, if such system is necessary, petitioners must collect TDS samples from the ~~Des Plaines River at the I-55 Bridge exceeds 1,000 mg/l~~ Chicago Sanitary and Ship Canal five days per week (excluding weekends and holidays). Petitioners must submit the TDS sample results monthly to the Agency.

These adjusted dates are requested so as to avoid unnecessary activities. The proposed variance basically moves the prior schedule back 3 years. If the Board acts on this request before March 30, 2008, the final date in paragraph 10 would need to be adjusted accordingly. Further, if the Board removes the existing water quality standard for TDS in the Ship Canal, this variance will become moot according to its terms, and not require further action by the Board. The prior Variance Order is attached as Exhibit A.

3. The Refinery was constructed during the period 1967 through 1970. It became operational in late fall of 1969. Currently, the average daily production is 168,626 barrels per day. The Refinery employs approximately 530 people.

4. Approximately twenty-five different products are produced at the Refinery, including gasolines, turbine fuels, diesel fuels, furnace oils, petroleum coke and various specialty naphthas which can be manufactured into many intermediate products, including antifreeze, dacron, detergent, industrial alcohols, plastics and synthetic rubber. Ninety percent of the Refinery's output goes into making gasolines, diesel fuels, home heating oils and turbine fuels for use in Illinois and throughout the Midwest.

5. The Refinery draws from and discharges to the Canal. The Refinery takes approximately 5.0 million gallons of water daily from the Canal, and discharges approximately

4.5 million gallons to the Canal, the difference being cooling tower evaporation and steam losses. The wastewater effluent contains dissolved solids derived from compounds present in crude oil that are removed from the crude by various Refinery operations, as well as concentrating the TDS present in the intake water from the Canal from the evaporation cooling.

6. The Board adopted Title 35 § 302.208(g) to control TDS in the Illinois River system and § 302.407 to control TDS in the Canal. The need for the prior Variance arose due to the potential impact both in the Canal and downstream at the I-55 Bridge over the Des Plaines River.

7. The Refinery operates under a National Pollutant Discharge Elimination System (“NPDES”) permit (No. IL 0001589), issued by the Illinois Environmental Protection Agency (“IEPA”). The NPDES permit includes outfall 001 at the Refinery at river mile 296.5 on the Canal (Latitude 41°38’58”, Longitude 88°03’31”). The current NPDES permit was re-issued and modified on June 22, 2007; it does not have effluent limits on TDS, but it does reflect the likelihood of further actions by the Board with respect to the Refinery. It is attached as Exhibit B.

8. The Refinery includes a physical/chemical and biological wastewater treatment plant. The treatment plant performs primary, secondary and tertiary treatment on the generated wastewater before it is discharged into the Canal. The original wastewater treatment plant, which began operation in 1969, included two oil/water separators, a flow equalization tank, a primary clarifier, an activated sludge system and a polishing pond. Several wastewater treatment plant modifications have been made since the original installation. Major changes to the system

induced gas flotation, new oil/water separators, process water storage tanks, a new aeration basin, a high efficiency aeration system, and a second final clarifier.

9. The primary treatment portion of the current plant consists of four sour water strippers for ammonia and sulfide removal, oil/water separators for free oil removal, and equalization tanks.

10. Effluent from the equalization tanks flows to the secondary treatment plant which consists of induced gas flotation ("IGF") and activated sludge treatment system. The activated sludge system includes three aeration basins operated in parallel with a total aeration basin volume of 1.92 million gallons. Aeration is provided by a fine-bubble diffused aeration system. Activated sludge is settled in two 100-ft. diameter secondary clarifiers. Within the aeration basin, phosphorous is added as a nutrient for biological organisms. During the winter, steam is injected to the equalization tank to maintain operating temperatures at a minimum of 70°F in the aeration basin effluent.

11. The tertiary system consists of a 16-million gallon basin. The purpose of the basin is to remove any carryover solids from the secondary clarifier. The basin also serves as a water supply for fire protection.

12. Since 1987, the Refinery has been subject to a site-specific rule concerning ammonia discharges, has made improvements to the wastewater treatment system, and has continued its efforts to reduce the contaminants in its wastewater. In the last ten years, the Refinery has invested \$45 million in various upgrades to the wastewater treatment system. These improvements include: induced gas flotation (with polymer addition) in 2000, additional strippers in the sour water system in 2003, upgrading diffused aerators in Cell B in 2003,

upgrading the feed system for phosphoric acid in 2006, upgrading diffused aerators in Cell A in 2006, a purge treatment unit (PTU) for scrubber discharge in 2007, and upgrading diffused aerators in Cell C in 2007.

II. EXISTING WATER QUALITY

13. The Refinery discharges into the Canal, upstream of the Lockport Lock & Dam. Below the dam, the Canal merges with the Des Plaines River, passes through Joliet and 11 miles downstream of Joliet passes beneath the I-55 Bridge. Until the I-55 Bridge, the receiving waters are designated as Secondary Contract waters; below the I-55 Bridge, the Des Plaines River is designated as General Use water, the General Use waters begin 18.5 miles below CITGO's outfall. Illinois has adopted different water quality standards for Secondary Contact and General Use streams. The relevant standards are as follows:

| | <u>General Use</u> | <u>Exxon-Mobil¹</u> | <u>Secondary Contact</u> |
|-----------------------------------|--------------------|--------------------------------|--------------------------|
| Total Dissolved Solids (TDS) mg/l | 1,000 | 1,686 | 1,500 |

14. Water Quality Based Effluent Limits are based on low flow stream conditions (7-day, 10-year). Estimated values for stream low flows are listed below:

| | <u>Low Flow, MGD</u> |
|----------------------------------|----------------------|
| Canal at CITGO Refinery | 1,134 |
| Des Plaines River at I-55 Bridge | 1,260 |

15. The General Use Standard is proposed to be deleted in R07-09; the standard for a portion of the Lower Des Plaines was changed in R06-24 and would appear to be superseded by

¹ Limit applies during winter months from point of discharge to confluence of lower Des Plaines River with Kankakee River.

R07-09. The Agency has just filed a proposal (R08-09) which inter alia, would delete the TDS standard for Secondary Contact waters.

16. At the time of the prior variance petition, the peak TDS result at the I-55 Bridge was 1,194 mg/l, which occurred on January 25, 2001, and on the Canal was 1,595mg/l, which occurred January 4, 2001. Both were likely due to road deicing activities. During the more recent sampling, the two results in the Canal above 1,500 mg/l were recorded upstream of the Refinery discharge: 1,656 mg/l on January 29, 2007 and 1,520 mg/l on February 26, 2007. See Exhibit C. The highest recent levels at the I-55 Bridge was 1,300 mg/l on February 28, 2007. See Exhibit D.

17. Under the Consent Decree, CITGO will install a wet gas scrubber in the Fluid Catalytic Converter ("FCC") unit at the Refinery to remove sulfur dioxide air emissions. The sulfur dioxide is ultimately converted to sodium sulfate salts which are contained in a purge stream. This purge stream is then discharged into the Refinery wastewater treatment system. The design specifications for the wet gas scrubber blowdown will limit the exit temperature to 90°F, before discharge to the basin. Other design features have been made to address nitrates and ammonia nitrogen levels and avoid the need for relief from any other regulation. The preliminary estimates are that the scrubbing system would add 304,000 lbs/day of TDS.²

² Assumes all sodium salts.

III. PROJECTED IMPACT OF SCRUBBER

18. At low flow conditions, CITGO will increase the sulfate and TDS levels in the waterways after mixing, as follows:

| | <u>Incremental Increase</u> | |
|---------------|-----------------------------|---|
| | <u>Canal</u> | <u>Des Plaines River</u> <u>@I-55 Bridge</u> |
| Sulfate, mg/l | 20 | 18 |
| TDS, mg/l | 32 | 29 |

19. The projected sulfates would achieve the applicable water quality standards, after complete mixing, while the TDS probably would continue to exceed the existing water quality standard for the secondary contact waters to the I-55 Bridge during times of snow melt run-off.

IV. REGULATORY CONSTRAINTS

20. Effluent Limits - There are no specific Illinois effluent limits on sulfates or TDS. Therefore, to the extent there are water quality impacts, effluent limits would be based on Water Quality Based Effluent Limits (“WQBELs”), factoring in antidegradation, Total Maximum Daily Limits (“TMDLs”), and mixing zones.

21. Mixing Zone - Under Illinois regulations, the maximum allowable mixing zone is 25 percent of the stream flow. Water quality standards must be achieved at the edge of the mixing zone. Using the projected discharge loadings and only 25 percent of the Canal’s low flow yields the following incremental change in water quality results:

Projected Increase in WQ
at Edge of Mixing Zone

| | |
|---------------|-----|
| Sulfate, mg/l | 81 |
| TDS, mg/l | 128 |

22. Categorical Limits - U.S. EPA has promulgated categorical limits on various industries, including the petroleum refining industry. These regulations found, in 40 CFR 419, do not include specific effluent limits on sulfates or TDS. The Board has previously found that the wastewater treatment system goes beyond Best Available Technology (“BAT”) requirements.

23. Impaired Waterways - Section 303(d) of the Clean Water Act requires states to identify impaired waterways and the causes of impairment and then develop what is essentially a waste load allocation for addressing the impairment. Illinois prepared its list of impaired waterways in 1998: 738 segments were identified. Illinois also developed a priority list for addressing these 738 segments. According to IEPA’s *Illinois Water Quality Report 2002*, the entire stretch of the Canal and the downstream Des Plaines River both are listed as impaired waterways, for a variety of reasons. However, none of the reasons listed are for TDS.

24. CITGO has conducted the water quality sampling for TDS as required by the existing variance. Those data continue to show elevated TDS and chloride levels during periods of snow-melt conditions. The results of the sampling upstream of the Refinery are included in Exhibit C, and the sampling at the I-55 Bridge are included in Exhibit D. It would appear that there is no relationship between the discharges from the Refinery and the water quality conditions relating to TDS, either for the conditions upstream of the Refinery intake, or for the conditions at the I-55 Bridge. The recent data does not indicate an exceedance of the applicable

water quality standards at the I-55 Bridge. The highest levels recently recorded was 1,300 ppm, below both the 1,500 mg/l standard for secondary contact waters upstream of the bridge and the 1,686 mg/l seasonal standard for general use waters downstream of the bridge.

25. If, however, the data recorded at the bridge is to be used, it would appear that the extent of elevated TDS levels may be longer than previously thought -- the 2006-07 winter alone produced elevated TDS levels over a three week long stretch. While the prior variance condition assumes that storage could occur for a long enough time so that the Refinery could avoid discharging during these events, the length of time and the volume of water required is greater than assumed when CITGO put together its compliance plan for the variance in PCB 05-95.

26. Based on the foregoing, CITGO submits that the relief here requested is not inconsistent with the effluent standards and areawide planning criteria under the Clean Water Act.

V. ARBITRARY AND UNREASONABLE HARDSHIP

27. The existing variance was caused by the Consent Decree, to which the Agency is a party, lodged by U.S. EPA to substantially reduce emissions of sulfur dioxide, nitrogen oxides and Particulate Matter. CITGO agreed to these reductions and is investing over \$140 million at the Refinery, most of which costs are for the very wet gas scrubber which generates the TDS and sulfates identified above. These investments are projected to reduce SO₂ emissions by 15,300 tons/year, NO_x emissions by 1,100 tons/ year, and PM emissions by 92 tons/year.

28. The relative contribution from CITGO is readily within the assimilative capacity of the waterway, and there is no water quality violation for TDS in the Canal, except in

association with snow melt conditions. And since the adoption of the modified TDS standard in the Lower Des Plaines River, as requested by Exxon-Mobil, there is no longer a violation of the modified TDS standard for that General Use body of water.

29. The Agency has been investigating changes in water quality standards for TDS. These investigations indicate that the existing TDS standard is unnecessary and that a higher numerical standard for sulfate would still be protective of water quality uses. Under the First Notice proposal in R07-09, TDS would be removed as a water quality parameter, and sulfate water quality standards would be increased to 1,800 mg/l. We would expect the proposed rule for TDS in Secondary Contact waters to be no more stringent than for the General Use waters. At these proposed standards, even during snow melt conditions, there would not be a water quality exceedance in the Canal. Hence, there would be no reason to store wastewater before discharging.

30. Moreover, with the change in the water quality standards downstream, the point to assess the water quality conditions now would be the Canal, rather than at the I-55 Bridge on the Lower Des Plaines River.

31. CITGO has investigated methods of avoiding releasing the wastewater from the FCC to the existing wastewater treatment system, including deep well disposal and removal technologies.

32. The Agency has rejected the deep well disposal option because in its view this would constitute a Class I injection well. Class I injection wells are permissible only where there exists a cap rock to prevent the injected fluids from migrating upwards. In northeastern Illinois, no cap rock exists over the depth where disposal wells are drilled. This alternative is not viable.

33. Technologies for removing sodium sulfate from a dilute aqueous stream are limited. Electrodialysis has never been applied in the chemical or refinery industries on the scale required at the Refinery. Biological sulfate reduction is theoretically possible, but this will not reduce the overall TDS concentration merely by replacing the sulfate ions with carbonate ions. The concentration of sodium sulfate is too high for reverse osmosis concentration, as scaling problems would develop.

34. The sole technology potentially available is evaporation, an energy intensive approach, which will result in increased carbon dioxide emissions to the atmosphere. The evaporation approach would require a multi-effect evaporator to minimize energy consumption. A falling film evaporator with mechanical vapor recompression (“MVR”) is the most energy efficient approach. Subsequent crystallization would produce a dry sodium sulfate by-product. Whether this by-product would be of sufficient purity to have any market value has not been determined. Exhibit E depicts a conceptual process flow diagram of a falling film evaporator with MVR. A feed pump lifts the steam to the top of the evaporator, where the water falls through steam-heated tubes. Once sufficient water is driven off, the stream is cooled, resulting in sodium sulfate crystals in the crystallizer. The water vapor is compressed and routed to the shell side of the falling-film tubes to become steam. The sodium sulfate crystals are directed to a centrifuge to concentrate the solids, followed by a dryer producing a dry sodium sulfate by-product.

35. The capital cost in 2004 dollars for applying this technology to this wastewater stream is on the order of \$7,000,000. Operating costs, including depreciation, are estimated at \$1,000,000 per year, with 40 percent of this amount representing energy costs. The above cost estimate assumes the Refinery has sufficient steam capacity, and that a new boiler is not

required. Moreover, CITGO is not aware of a situation where such a massive evaporation system has been constructed or operated, and further notes the increased energy demand and emission impact that such an evaporation system would entail. Further investigation would be warranted before such an approach were pursued.

36. Requiring CITGO to install evaporation wastewater treatment for the scrubber discharges into the wastewater system would impose an arbitrary and unreasonable hardship. CITGO is not the cause of any current water quality standard exceedance; upstream conditions in the Ship Canal from snow melt conditions exceed the existing TDS standard, and the Agency has asked the Board to remove that standard as well. Further, CITGO is investing substantial monies in the Refinery to substantially reduce air emissions and substantially reducing the overall environmental releases from the Refinery, and the wastewater discharge involved is relatively modest. Hence, requiring control of the increased wastewater discharge would impose an arbitrary and unreasonable hardship on CITGO.

VI. WAIVER OF REQUEST FOR HEARING

37. CITGO waives its right to a hearing on this Petition. An affidavit in support of this Petition is attached hereto as Exhibit F.

VII. CONCLUSION

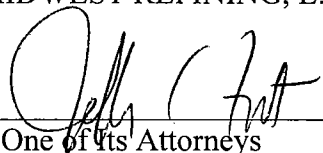
38. The hardship to CITGO of compliance with the schedule contained in the prior variance and the TDS water quality standard is substantial and there is no benefit to the public or the environment by compelling such compliance. Indeed, there does not appear to be any practical compliance alternative at this time. Even if there is an alternative, such would result in

substantial adverse affects on the environment in the form of increased emissions to evaporate the wastewater.

39. In conclusion, CITGO would request that the Board grant CITGO this Variance for a period of 5 years from the date of granting this Variance on the conditions proposed herein.

WHEREFORE, CITGO requests that this Petition for Extension of Variance be granted.

CITGO PETROLEUM CORPORATION and
PDV MIDWEST REFINING, L.L.C.

By: 
One of its Attorneys

Dated: November 13, 2007

Jeffrey C. Fort
Ariel Teshler
Sonnenschein Nath & Rosenthal LLP
7800 Sears Tower
233 South Wacker Drive
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CERTIFICATE OF SERVICE

The undersigned, an attorney, certifies that I have served upon the individuals named on the attached Notice of Filing true and correct copies of the **Petition for Extension of Variance** by First Class Mail, postage prepaid, on November 14, 2007.

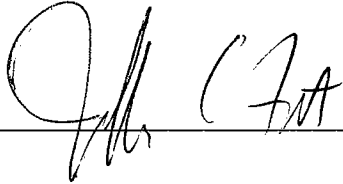


Exhibit A

ILLINOIS POLLUTION CONTROL BOARD

April 21, 2005

CITGO PETROLEUM CORPORATION and)
PDV MIDWEST REFINING, L.L.C.,)

Petitioners,)

v.)

PCB 05-85
(Variance - Water)

ILLINOIS ENVIRONMENTAL)
PROTECTION AGENCY,)

Respondent.)

JEFFREY C. FORT AND LETISSA CARVER REID OF SONNENSCHNEIN, NATH & ROSENTHAL, L.L.P., APPEARED ON BEHALF OF PETITIONERS; and

JAMES A. DAY, DARIN E. LECRONE, AND SCOTT A. TWAIT APPEARED ON BEHALF OF RESPONDENT.

OPINION AND ORDER OF THE BOARD (by A.S. Moore):

For their oil refinery in Lemont, Will County, CITGO Petroleum Corporation (CITGO) and PDV Midwest Refining, L.L.C. (PDVMR) (collectively, petitioners) seek a variance from two of the Board's water quality standards (35 Ill. Adm. Code 302.208(g), 302.407) for Total Dissolved Solids (TDS). The refinery, called the "Lemont Refinery," is operated by CITGO and owned by PDVMR.

The requested variance would last for approximately five years and allow petitioners greater amounts of TDS in their wastewater discharge to the Chicago Sanitary and Ship Canal (S & S Canal), which leads to the Des Plaines River. The higher levels of TDS in petitioners' effluent will come from air pollution control equipment that petitioners must install and use under a Consent Decree with the United States Environmental Protection Agency (USEPA), the State of Illinois, and several other states. The Illinois Environmental Protection Agency (Agency) recommends that the Board grant the requested variance, subject to conditions.

For the reasons set forth in this opinion, the Board finds that petitioners have proven that compliance with the TDS water quality standards at issue would impose an arbitrary or unreasonable hardship on petitioners. In addition, the Board finds that the requested variance is not inconsistent with federal law and may be issued without any significant impact on public health or the environment. The Board therefore grants petitioners the requested variance, subject to the conditions set forth in the order following this opinion. The variance relief begins today and lasts through December 15, 2009.

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BY AMA

In this opinion, the Board first describes the legal framework for variances, followed by the procedural history of this case. The Board then provides background on petitioners' facility, the Consent Decree, the S & S Canal and the Des Plaines River, and the air pollution control equipment to be installed and the expected impacts from the resulting wastewater discharge. Next, the Board sets forth the TDS water quality standards from which petitioners seek relief: the general use water quality standard and the secondary contact water quality standard. The Board then discusses the requested variance, including petitioners' proposed compliance plan and the Agency's recommendation. Lastly, the Board makes its findings on hardship, environmental impact, consistency with federal law, and conditions for the variance.

LEGAL FRAMEWORK

A "variance is a temporary exemption from any specified rule, regulation, requirement or order of the Board." *See* 35 Ill. Adm. Code 104.200(a)(1). Under Title IX of the Environmental Protection Act (Act), 415 ILCS 5/35-38 (2002), the Board is responsible for granting variances when a petitioner demonstrates that immediate compliance with the Board regulation would impose an "arbitrary or unreasonable hardship" on petitioner. *See* 415 ILCS 5/35(a) (2002).

The Board may grant a variance, however, only to the extent consistent with applicable federal law. *See* 415 ILCS 5/35(a) (2002). Further, the Board may issue a variance with or without conditions, and for only up to five years. *See* 415 ILCS 5/36(a) (2002). The Board may extend a variance from year to year if petitioner shows that it has made satisfactory progress toward compliance with the regulations from which it received the variance relief. *See* 415 ILCS 5/36(b) (2002).

Specifically, as it relates to petitioners' request for a TDS water quality variance, the Act provides:

To the extent consistent with applicable provisions of the Federal Water Pollution Control Act . . . and regulations pursuant thereto . . . :

The Board may grant individual variances beyond the limitations prescribed in this Act, whenever it is found, upon presentation of adequate proof, that compliance with any rule or regulation, requirement or order of the Board would impose an arbitrary or unreasonable hardship. 415 ILCS 5/35(a) (2002); *see also* 35 Ill. Adm. Code 104.200, 104.208, 104.238.

In granting a variance the Board may impose such conditions as the policies of this Act may require.

[A]ny variance granted pursuant to the provisions of this Section shall be granted for such period of time, not exceeding five years, as shall be specified by the Board at the time of the grant of such variance, and upon the condition that the person who receives such variance shall make such periodic progress reports as the Board shall specify. 415 ILCS 5/36(a), (b) (2002); *see also* 35 Ill. Adm. Code 104.200, 104.210, 104.242, 104.244.

The Act requires the Agency to provide public notice of a variance petition, including notice by publication in a newspaper of general circulation in the county where petitioner's facility is located. *See* 415 ILCS 5/37(a) (2002); 35 Ill. Adm. Code 104.214. The Board will hold a hearing on the variance petition if petitioner requests a hearing, if the Agency or any other person files a written objection to the variance being granted within 21 days after the newspaper notice, or if the Board, in its discretion, concludes that a hearing would be advisable. *See* 415 ILCS 5/37(a) (2002); 35 Ill. Adm. Code 104.224, 104.234.

The Act requires the Agency to appear at hearings on variance petitions (415 ILCS 5/4(f) (2002)) and to investigate each variance petition and "make a recommendation to the Board as to the disposition of the petition" (415 ILCS 5/37(a) (2002); 35 Ill. Adm. Code 104.216). At hearing, the "burden of proof shall be on the petitioner." 415 ILCS 5/37(a) (2002); *see also* 35 Ill. Adm. Code 104.200(a)(1), 104.238(a). In a variance proceeding then, the burden is on the petitioner to prove that immediate compliance with Board regulations would cause an arbitrary or unreasonable hardship that outweighs public interest in compliance with the regulations. *See Willowbrook Motel v. PCB*, 135 Ill. App. 3d 343, 349-50, 481 N.E.2d 1032, 1036-1037 (1st Dist. 1985).

PROCEDURAL HISTORY

Petitioners filed their petition for variance on November 8, 2004, requesting a hearing. On November 18, 2004, the Board accepted the petition for hearing. On February 7, 2005, the Agency filed its recommendation on the variance petition, which included proof of publication of the variance petition notice on November 26, 2004, in the *Lemont Reporter/Metropolitan*.¹ This initial recommendation of the Agency was that the Board should deny the requested variance.

On February 17, 2005, petitioners filed the prefiled testimony of two witnesses: Claude Harmon and James Huff. Petitioners included 15 exhibits associated with the prefiled testimony. Harmon has been with CITGO as the Environmental Manager of the Lemont Refinery since 1994, and has been in the environmental field for 30 years. *See* Hearing Transcript at 17-18. Huff is a registered Professional Engineer and Vice President of Huff & Huff, Inc., an environmental consulting firm. Over the last 25 years, Huff has been involved in over 30 environmental impact studies associated with wastewater discharge impacts on receiving streams, including surveys of the S & S Canal and the Des Plaines River. Huff has worked with the Lemont Refinery for the past 22 years on various wastewater issues. Huff was retained by petitioners to assist in evaluating alternatives for the wastewater stream to be generated by the new air pollution control equipment, identifying associated water quality impacts, preparing related permit applications, and providing technical support on the variance petition. *See* Hearing Transcript at 29-32; Hearing Exhibit 8.

¹ The Board cites the variance petition as "Pet. at _." The Board cites the Agency's February 7, 2005 recommendation as "Agency Rec. at _."

Hearing Officer Bradley Halloran conducted the hearing on the variance petition in Chicago on February 24, 2005. At hearing, the prefiled testimony of Harmon and Huff was entered into the record as if read, and petitioners' 15 exhibits were offered and admitted into the record, all without objection.² The Agency offered no testimony or exhibits at hearing. Counsel for the Agency stated on the record at the close of hearing that with petitioners' submission of testimony and exhibits, the Agency was prepared to support petitioners' request for variance. Tr. at 47-48.

The parties agreed to file their post-hearing briefs simultaneously. Petitioners filed their opening brief on March 14, 2005. The Agency filed its opening brief on March 15, 2005, in which the Agency recommended that the Board grant petitioners the requested variance. The parties waived their opportunity to file response briefs.³

BACKGROUND

Overview

As noted, PDVMR owns and CITGO operates the Lemont Refinery, which is located at 135th Street and New Avenue in Lemont, Will County. Exh. 4 at 1; Exh. 11 at 1; Tr. at 13. Petitioners entered into a Consent Decree with USEPA and the States of Illinois, Louisiana, New Jersey, and Georgia to resolve alleged air quality violations at three refineries owned or operated by CITGO and related entities. Exh. 1; Exh. 4 at 1; Exh. 6 at 1; Tr. at 7, 20. The Consent Decree was entered on January 26, 2005, in the United States District Court for the Southern District of Texas, Case No. H-04-3883. Exh. 1 at 165; Tr. at 20; Pet. Br. at 2.

According to petitioners, under the Consent Decree, petitioners must reduce air emissions at the Lemont Refinery, a process that will contribute additional levels of TDS to the facility's treated wastewater. Tr. at 24; Exh. 4 at 1; Pet. Br. at 2. Petitioners maintain that, to comply with the Consent Decree, they must construct certain equipment and obtain air and water construction and operating permits from the Agency. Exh. 4 at 1; Exh. 3 (construction permit drawings). Petitioners state that they face significant stipulated penalties if they fail to comply with the Consent Decree schedule. Tr. at 10, 21; Exh. 2 (schedule); Pet. Br. at 4. Harmon testified that petitioners will be undertaking a "major construction project extending approximately 20 months." Tr. at 20-21; *see also* Pet. Br. at 2; Exh. 2.

The Lemont Refinery discharges its treated wastewater to the S & S Canal. Exh. 4 at 2. In December 2004, petitioners submitted to the Agency a construction permit application to install new wastewater treatment equipment—that application is still pending before the Agency. Agency Rec. at 8; Exh. 5 (application for wastewater construction permit); Tr. at 21-22.

² The Board cites the hearing transcript as "Tr. at _" and the hearing exhibits as "Exh. _ at _." The variance petition was admitted as a hearing exhibit, and is cited as either "Pet. at _" or "Exh. 4 at _."

³ The Board cites petitioners' brief as "Pet. Br. at _" and the Agency's brief as "Agency Br. at _."

According to Harmon, the Agency advised petitioners that it cannot issue a wastewater construction permit because of occasional water quality violations for TDS. Tr. at 22; Exh. 4 at 2; Exh. 5; Pet. Br. at 2, Exh. B.

Specifically, Harmon testified that “two critical issues” raised by the Agency “pose challenges for the consent decree schedule.” Tr. at 22; Pet. Br. at 2. First, the Agency will not grant the construction permit without also issuing a modified National Pollutant Discharge Elimination System (NPDES) permit. Second, because there has been an exceedance of the TDS standard in the past “in association with snow melt runoff, carrying road salt and similar compounds into streams,” the Agency could not issue an NPDES permit for this project unless petitioners obtained a variance from the Board. Tr. at 22; Pet. Br. at 2-3. Huff likewise testified that “the Agency position that the addition of this wastewater stream would contribute to the existing TDS violations that periodically occur due to salt runoff from highway deicing activities leads to this variance request.” Tr. at 40.

Petitioners maintain that the variance is needed because, with increased TDS discharge, there is a potential impact both in the S & S Canal and downstream at the Interstate 55 (I-55) Bridge over the Des Plaines River. Exh. 4 at 2; Tr. at 24. Petitioners state that their variance petition was filed soon after the Consent Decree was lodged. Pet. Br. at 3.

The Lemont Refinery

The Lemont Refinery was built during the period 1967 through 1970, and became operational in late fall 1969. Exh. 4 at 2. Approximately 25 different products are made at the Lemont Refinery, including gasolines, turbine fuels, diesel fuels, furnace oils, petroleum coke and various specialty naphthas that can be manufactured into intermediate products such as antifreeze, Dacron, detergent, industrial alcohols, plastics, and synthetic rubber. *Id.* Ninety percent of the Lemont Refinery’s output goes toward making gasolines, diesel fuels, home heating oils, and turbine fuels for use throughout the Midwest. *Id.* Currently, the Lemont Refinery produces 168,626 barrels daily on average and employs approximately 530 people. *Id.*

The Lemont Refinery draws water from the S & S Canal, and discharges into the Canal upstream of the Lockport Lock & Dam. Exh. 4 at 2, 5. According to petitioners, the Refinery takes approximately 4.0 million gallons of water daily from the Canal, and discharges approximately 3.8 million gallons to the Canal—the difference constituting cooling tower evaporation and steam losses. *Id.* at 2-3. The wastewater effluent contains dissolved solids derived from crude oil compounds that are removed at the Refinery, as well as concentrating the TDS present in the Canal intake water from the evaporation cooling. *Id.* at 3.

The Lemont Refinery operates under an NPDES permit (No. IL0001589), which was issued by the Agency and became effective September 1, 1994. Exh. 4 at 3; Exh 12 (existing NPDES permit); Agency Rec. at 8. Petitioners timely submitted a renewal application for the NPDES permit, so the permit continues in full force and effect during the Agency’s review of the renewal application, which is still pending. Exh. 4 at 3; Agency Rec. at 8. The NPDES permit includes Outfall 001 at river mile 296.5 on the S & S Canal (latitude 41°38’58” and longitude 88°03’31”). The current NPDES permit does not have effluent limits on TDS. Exh. 4 at 3. In

August 2004, petitioners submitted to the Agency an application to modify their NPDES permit—that application is also still under review by the Agency. Agency Rec. at 8; Exh. 11 (NPDES permit modification application).

The Lemont Refinery includes a physical/chemical and biological wastewater treatment plant, which performs primary, secondary, and tertiary treatment on the generated wastewater before it is discharged to the S & S Canal. Exh. 4 at 3-4. Besides the discharge that is the subject of this variance petition, no specific projects are currently being developed that would increase the production rate of the amount of TDS discharged. Tr. at 22-23.

S & S Canal and Des Plaines River

Below the Lockport Lock & Dam, the S & S Canal merges with the Des Plaines River, passes through Joliet, and 11 miles downstream of Joliet passes beneath the I-55 Bridge. Exh. 4 at 5; Exh. 6 at 1. Upstream of the I-55 Bridge, the waters are designated as secondary contact waters. Downstream of the I-55 Bridge, the Des Plaines River is a general use water. The general use waters begin 18.5 miles downstream of petitioners' outfall. Tr. at 33; Exh. 4 at 5; Exh. 6 at 1.

According to Huff, from 1998 to 2005, petitioners weekly sampled for TDS in their water intake from the S & S Canal, collected upstream of the Lemont Refinery's wastewater discharge. Tr. at 33-34; Exh. 6 at 3; Exh. 9. From 1998 to 2002, the mean TDS ranged from a low of 541 milligrams per liter (mg/L) in 1998 to a high of 629 mg/L in 2001. Huff testified that the maximum TDS result (and the only exceedence of the 1,500 mg/L secondary contact TDS standard from 1998 to 2005 recorded by petitioners at the water intake) was 1,636 mg/L on March 8, 2002. Tr. at 34; Exh. 6, Table 1; Exh. 9.

The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) also had a weekly sampling program in 2001 and 2002. Tr. at 34; Exh. 6 at 3. The MWRDGC data is contained in Huff's report entitled *Impact of CITGO's Proposed Discharge on Water Quality* (December 2004), which was entered into the record at hearing as Exhibit 6. Tr. at 34. At the first MWRDGC sampling site downstream of the Lemont Refinery, at Lockport, the average TDS for January 2001 through July 2002 was 626 mg/L—petitioners' average since 2001 was 599 mg/L. Exh. 6 at 3, 8-9. At the I-55 Bridge, MWRDGC measured a mean TDS since 2001 of 705 mg/L. *Id.*

Huff testified that at the Lockport Lock & Dam, downstream of the Lemont Refinery outfall, the MWRDGC recorded one TDS exceedence (1,595 mg/L), on January 4, 2001, adding that the Lemont Refinery recorded 1,408 mg/L TDS the next day. Tr. at 34. At the sampling station at Jefferson Street in Joliet, which is the next MWRDGC station downstream from the Lockport Lock & Dam, the MWRDGC recorded one TDS exceedence (1,535 mg/L), on February 24, 2000. *Id.* Further downstream at the Empress casino, one TDS exceedence (1,867 mg/L) was recorded, also on February 24, 2000. *Id.* At the I-55 Bridge, where the general use water quality standard begins, the 1,000 mg/L TDS standard was exceeded on March 16, 2000 (1,902 mg/L), on January 25, 2001 (1,194 mg/L), on February 1, 2001 (1,075 mg/L), and on February 8, 2001 (1,139 mg/L). *Id.* at 34-35. The last three exceedences occurred over three

consecutive sampling events, which Huff testified implies that the "TDS excursion was persistent for at least 15 days." *Id.* at 35.

According to Huff, there is a "strong correlation between the upstream TDS readings and the downstream TDS readings," which "is to be expected as TDS is considered a 'conservative' pollutant; that is, there is little or no reduction due to chemical or biological processes." Tr. at 36. Huff added that "the preponderance of flow at the I-55 Bridge originates from the Chicago area, so there [are] limited dilutional effects until further downstream." *Id.*

Huff testified that a "review of all the TDS data (Exhibits 6 and 9) reveals that all of the elevated TDS readings occur in the winter, and are attributable to snowmelt runoff carrying salt runoff from highway deicing activities." Tr. at 35. Huff's report likewise concluded:

The source of the elevated TDS in the waterway is from highway de-icing runoff. The significant tons of road salt that is applied in the drainage basin causes these TDS exceedances, independent of other activities. Exh. 6 at 5.

Because of deicing and snow melt run-off, petitioners maintain that the TDS violations would occur with or without petitioners' current or future contribution of TDS. Exh. 4 at 6, 8; Tr. at 8.

Wet Gas Scrubber

Under the Consent Decree, petitioners will install a wet gas scrubber, along with substantial support equipment and controls, at the Lemont Refinery. The wet gas scrubber is designed to reduce sulfur dioxide (SO₂) in air emissions from the carbon monoxide boiler on the Fluid Catalytic Converter Unit (FCCU). Exh. 3; Exh. 4 at 5; Exh. 6 at 1; Tr. at 8, 20-21. It is expected that by July 2006, construction of the wet gas scrubber will be complete and the discharge will begin. Exh. 4 at 12.

Huff testified that the wet gas scrubber discharge "will contain significant sodium sulfate, which essentially is the source of the TDS subject to the variance request." Tr. at 33. Specifically, the wet gas scrubber process generates water purge, which contains particulate and SO₂. The purge stream will be removed from the wet gas scrubber to control TDS and Total Suspended Solids levels in the scrubber water. Exh. 6 at 1; Tr. at 33.

Purge water from the wet gas scrubber will then be treated to remove suspended solids and ammonia, and cooled to 90°F. Effluent from the purge treatment unit will contain approximately 94,000 mg/L TDS and will be discharged to the treated water basin of the Lemont Refinery's wastewater treatment system and discharged through Outfall 001, along with the existing process wastewater. Exh. 4 at 5; Exh. 6 at 1-2; Pet. Br., Exh. A at 2. The combined outfall will have a projected TDS level of 8,700 mg/L. Exh. 6 at 4.

The purge treatment unit's effluent is expected to add 274,000 gallons per day average flow to the Lemont Refinery's wastewater discharge, and 215,000 pounds per day of TDS. Exh. 6 at 1; Tr. at 21, 33, 38-39; *see also* Exh. 5, 11. Huff estimated that low-flow stream conditions (7-day, 10-year) in the S & S Canal at the Lemont Refinery would be 1,134 million gallons per

day (MGD), and in the Des Plaines River at the I-55 Bridge would be 1,260 MGD. Tr. at 38-39; Exh. 4 at 5; Exh. 6 at 3-4.

According to Huff's estimate, the incremental increase at low flow in TDS levels from the FCCU effluent would be 23 mg/L in the S & S Canal and 21 mg/L in the Des Plaines River at the I-55 Bridge. Exh. 6 at 4. Using the existing water quality data described above and adding this incremental amount, petitioners project the following TDS concentrations after mixing: 606 mg/L in the S & S Canal and 726 mg/L in the Des Plaines River at the I-55 Bridge. *Id.* Huff added that the maximum TDS reading of 1,902 mg/L in the Des Plaines River is the equivalent of 38,000,000 pounds per day of TDS, and "the Lemont Refinery's contribution would be on the order of 0.6 percent of the total loading." Tr. at 36.

APPLICABLE REGULATIONS

Petitioners seek a variance from TDS water quality standards at 35 Ill. Adm. Code 302.208(g) and 302.407. Part 302 sets forth water quality standards applicable throughout the State as designated in 35 Ill. Adm. Code 303. *See* 35 Ill. Adm. Code 302.101(a).

Subpart B of Part 302, which contains Section 302.208(g), sets forth general use water quality standards that must be met in waters of the State for which there is no specific designation. *See* 35 Ill. Adm. Code 302.101(b); *see also* 35 Ill. Adm. Code 303.201 ("general use waters"). Section 302.208(g) provides a general use water quality standard for TDS of 1,000 mg/L. Petitioners seek variance relief from this standard for the Des Plaines River. Section 302.208(g) reads in relevant part:

Section 302.208 Numeric Standards for Chemical Constituents

- g) Concentrations of the following chemical constituents shall not be exceeded except in waters for which mixing is allowed pursuant to Section 302.102.

| Constituent | Unit | STORET Number | Standard |
|------------------------|------|---------------|----------|
| Total Dissolved Solids | mg/L | 70300 | 1000 |

35 Ill. Adm. Code 302.208(g).

Subpart D of Part 302, which contains Section 302.407, sets forth the secondary contact and indigenous aquatic life water quality standards. *See* 35 Ill. Adm. Code 302.201(d). Section 302.407 provides a TDS standard of 1,500 mg/L. Petitioners seek variance relief from this standard regarding the S & S Canal. The S & S Canal is designated among Illinois' secondary contact and indigenous aquatic life waters, as is the Des Plaines River "from its confluence with the Chicago Sanitary and Shipping Canal to the Interstate 55 bridge." *See* 35 Ill. Adm. Code

303.441(a), (i). The provision from which petitioners seek relief, Section 302.407, reads in pertinent part:

Section 302.407 Chemical Constituents

Concentrations of other chemical constituents shall not exceed the following standards:

| CONSTITUENTS | STORET NUMBER | CONCENTRATION (mg/L) |
|------------------------|---------------|----------------------|
| Total Dissolved Solids | 70300 | 1500 |

35 Ill. Adm. Code 302.407.

THE REQUESTED VARIANCE AND AGENCY RECOMMENDATION

In their petition, petitioners request a five-year variance from the TDS water quality standards of Sections 302.208(g) and 302.407. Pet. at 2, 13. Based on the petition, the Agency originally recommended that the Board deny the requested variance for two primary reasons. First, the Agency believed that petitioners “had not adequately supported [their] contention that a binding consent decree required the installation of air pollution control equipment that prompted the variance petition.” Agency Br. at 2. Second, the Agency maintained that petitioners’ compliance plan set forth in the petition was inadequate. *Id.*

The Agency now believes that petitioners have addressed these two alleged deficiencies. Agency Br. at 1-3. As for the Agency’s former concern regarding the Consent Decree, the Agency states that “[w]ith the introduction of the executed consent decree into the record of this matter, CITGO has now resolved this deficiency.” *Id.* at 2. As for the Agency’s former concern regarding the petition’s compliance plan, the Agency states that petitioners’ Exhibit 7 consists of a “detailed compliance plan,” which is the “product of a series of meetings and negotiations between CITGO representatives and Illinois EPA staff.” *Id.* at 2-3. This “new compliance plan fully resolves the Illinois EPA’s concerns.” Agency Br. at 3; Tr. at 11-12. The Agency therefore now recommends that the Board grant the requested variance. Agency Br. at 1, 3.

Petitioners’ new compliance plan in Exhibit 7 reads as follows:

| DATE | TASK |
|------------------|--|
| October 1, 2006 | Identify a location near the I-55 Bridge for collecting water samples and secure access. |
| November 1, 2006 | Retain a contractor to collect TDS samples in the Des Plaines during snow melt conditions. |

| | |
|-------------------|---|
| December 1, 2006 | CITGO will collect TDS samples, three times per week during the winter months (December 1 to March 30). During the defined sampling period, CITGO will attempt to identify the relationship between TDS levels at the discharge versus TDS levels at the I-55 bridge, with the expectation that this information will assist CITGO in identifying the scope of the period that CITO would need to hold the discharge. |
| April 1, 2008 | End water quality testing. |
| May 1, 2008 | Size the required retention system for the wet gas scrubber bleed for the maximum number of days the TDS level at the I-55 Bridge remains above 1,000 mg/L. |
| June 1, 2008 | Initiate design of the system to hold the FCC wet gas scrubber bleed for the maximum number of days required when the TDS exceeds 1,000 mg/L at the I-55 Bridge. |
| December 1, 2008 | Submit a wastewater construction permit application. |
| March 1, 2009 | Begin construction as needed on retention system for FCC wet gas scrubber bleed stream system. |
| December 1, 2009 | Place FCC wet gas scrubber bleed stream system into operation, as needed. Monitor the Des Plaines River five days per week (excluding weekends and holidays) during the winter months (December 1 to March 30). |
| December 15, 2009 | Achieve final compliance with 35 IAC 302.208(g) and 302.407. |

Exh. 7.

Petitioners state that this "negotiated compliance plan," which was "completed to the satisfaction of IEPA," requires petitioners to collect TDS data from the Des Plaines River at the I-55 Bridge during winter months. Pet. Br. at 3. Huff testified that the proposed TDS data collection is "extensive." Tr. at 40. According to petitioners, this data "will provide information that the Agency might not otherwise have the funding to undertake and could lead to better

understanding of the snowmelt phenomenon and perhaps yield ideas on how to reduce that impact." Tr. at 12.

Harmon testified that after two seasons of TDS testing, the Lemont Refinery "will be able to size the required holding tank or basin for the wet gas scrubber discharge during periods of high salinity." Tr. at 25, 40-41; Pet. Br. at 3. According to Harmon, the retention system project would begin by March 1, 2009, and "would be completed by the winter season beginning December 1, 2009." Tr. at 25, 41; Pet. Br. at 3.

HARDSHIP

In considering a variance request, the Board is required by Section 35(a) of the Act to determine whether the petitioner has presented adequate proof that it would suffer an arbitrary or unreasonable hardship if required to immediately comply with the Board's regulation at issue. *See* 415 ILCS 5/35(a) (2002).

Petitioners state that their variance request is necessitated by the Consent Decree, to which the Agency is a party. Exh. 4 at 9. USEPA lodged the Consent Decree, explains petitioners, to "substantially reduce emissions of [SO₂], nitrogen oxides [NO_x] and Particulate Matter [PM]." *Id.* Petitioners will be investing over \$120 million at the Lemont Refinery, "most of which costs are for the very wet gas scrubber which generates the TDS" at issue in the variance request. *Id.* Petitioners state that they are subject to "substantial penalties" if they do not meet the Consent Decree schedule. Pet. Br. at 4.

The wet gas scrubber will increase the amount of TDS in the Lemont Refinery's treated wastewater. Pet. Br. at 4; Exh. 6 at 1; Tr. at 21, 33, 38-39; *see also* Exh. 5, 11. Petitioners maintain that their contribution of TDS would be "readily within the assimilative capacity of the waterway," and that there is no TDS water quality violation "except in association with snow melt conditions." Exh. 4 at 9.

Petitioners investigated methods to avoid releasing the FCCU wastewater into the existing wastewater treatment system, including a managed release program with the use of a storm water basin for retention; deep well disposal; and installation of evaporation wastewater treatment technology. Petitioners maintain that none of these alternatives is practical. Exh. 4 at 10, 12-13; Pet. Br. at 4. Petitioners also investigated "sewering the discharge . . . to the [MWRDGC]," but the MWRDGC informed petitioners that it "did not have the capacity to handle the discharge." Tr. at 10. The Agency ultimately does not take issue with any of petitioners' conclusions regarding the viability of alternative technologies.

Further regarding the investigated alternatives, Harmon testified that the storm water basin at the Lemont Refinery is used to collect site storm water runoff and drainage from naturally existing waterways. Tr. at 25; Pet. Br. at 4. According to Harmon, because of residential developments near the northwest facility boundary, there has been a marked increase in storm water volume in the site's storm water basin. Tr. at 25; Pet. Br. at 4. Runoff from the developments feeds into naturally existing waterways that terminate within boundaries of the Lemont Refinery and ends up in the site's storm water basin. Tr. at 25; Pet. Br. at 4-5. Harmon

explained that a special condition in an Agency-issued "Groundwater Management Zone Approval Letter" requires that the basin's water level be maintained below 12'9". According to Harmon, it has been difficult to comply with this condition because of the additional volume of storm water runoff from the residential developments. Tr. at 26; Pet. Br. at 5. Under these circumstances, retaining the wet gas scrubber effluent in the storm water basin during periods of snowmelt and deicing is not viable, Harmon testified. Tr. at 26; Pet. Br. at 5. However, strategies to divert the residential runoff before it crosses the Lemont Refinery border are being pursued. Harmon testified that if such a diversion is implemented, the site's storm water basin may be able to retain wet gas scrubber effluent during snowmelt conditions. Tr. at 26.

Deep well disposal of the scrubber effluent, according to petitioners, is also not a viable alternative because it would constitute a Class I injection well, which wells "are not permissible in northeastern Illinois because no cap rock exists over the depth where disposal wells are drilled." Pet. Br. at 5. Huff testified that "Class I wells require injection beneath a cap rock that will prevent migration upwards into higher aquifers" and northeastern Illinois "does not have a cap rock above the Mount Simon formation used for disposal wells throughout the Midwest." Tr. at 39; *see also* Pet. Br. at 5; Exh. 4 at 10; Exh. 13.

Petitioners also state that technologies for removing sodium sulfate from a dilute aqueous stream are limited: electro dialysis has not been applied in the chemical or refinery industries on this scale; biological sulfate reduction will not reduce the overall TDS concentration by simply replacing the sulfate ions with carbonate ions; and reverse osmosis concentration is limited because scaling problems would develop given the high concentration of sodium sulfate. Exh. 4 at 10; Pet. Br. at 5.

Petitioners maintain that the only alternative technology potentially available would be evaporation, which they describe as an energy intensive approach that would result in increased carbon dioxide emissions. Pet. Br. at 5-6.; Exh. 4 at 10-11, Attachment A; Tr. at 40. According to petitioners, this alternative "would result in substantial adverse affects on the environment in the form of increased emissions to evaporate the wastewater." Exh. 4 at 13. Additionally, in 2004 dollars, the capital cost for applying a falling film evaporator with mechanical vapor recompression to this wastewater stream is approximately \$7 million. Operating costs are estimated at \$1 million per year, including depreciation. Exh. 4 at 11; Pet. Br. at 6; Exh. 14 (evaporation costs). Huff testified that over the years, TDS variance "requests consistently have found evaporation technology cost- and energy-prohibitive." Tr. at 40.

Petitioners are unaware of any such massive evaporation project being built or operated, and conclude that requiring it here for the wet gas scrubber discharge would impose on them an arbitrary and unreasonable hardship. This is especially so, according to petitioners, because: installation is not practical, particularly in light of the time schedule required by the Consent Decree; petitioners are not the cause of TDS exceedences; petitioners are investing substantial funds to reduce air emissions; and the TDS discharge at issue is "relatively modest." Exh. 4 at 12; Tr. at 35-36; Pet. Br. at 6.

Huff testified that TDS effluent limits are not proposed as a condition of the variance because "it is clear that the TDS water quality violations are due solely to salt runoff from

highway deicing activities.” Tr. at 43. Huff added that “the Lemont Refinery will have no control over the TDS concentrations, so the only possibility to control the pounds per day discharged is by limiting the discharge rate.” *Id.* at 45. Limiting the discharge rate would require the Refinery to hold treated effluent, and presumably cease all discharge if the Des Plaines River TDS is greater than 1,000 mg/L, according to Huff. *Id.* Huff testified that today there is no storage capacity at the Lemont Refinery to accomplish this:

[T]hese [TDS water quality] violations appear to occur over 15 consecutive days, but less than 22 days. The Lemont Refinery will have to come up with in excess of 4,000,000 gallons of capacity to isolate the wet gas scrubber during these periods of elevated TDS levels at the I-55 Bridge. Currently, this excess capacity does not exist, and the actual number of days that would require holding wet gas scrubber water currently is poorly understood. The requested compliance time frame is for the collection of the necessary data to properly size this holding basin/tankage. *Id.* at 45-46.

ENVIRONMENTAL IMPACT

When deciding to grant or deny a variance petition, the Board is required to balance the petitioner's hardship in complying with Board regulations against the impact that the requested variance will have on the environment. Monsanto Co. v. PCB, 67 Ill. 2d 276, 292, 367 N.E.2d 684, 691 (1977). Petitioner must establish that the hardship it would face from denial of its variance request would outweigh any injury to the public or the environment from granting the relief, and “[o]nly if the hardship outweighs the injury does the evidence rise to the level of an arbitrary or unreasonable hardship.” Marathon Oil. Co. v. EPA, 242 Ill. App. 3d 200, 206, 610 N.E. 2d 789, 793 (5th Dist. 1993).

Petitioners state that there would be no cognizable benefit to the public or the environment in making them comply with the existing TDS water quality standards. Pet. Br. at 7. Huff testified that because TDS is composed of a variety of anions and cations, “there are no ‘toxicity’ values that can be applied to the generic TDS parameter.” Tr. at 36. Petitioners maintain that the Agency has been investigating whether having a TDS water quality standard is necessary, and that the Agency may soon propose eliminating TDS as a water quality parameter. Exh. 4 at 9. According to Huff, the Agency believes at this point that the “technical data supported elimination of the TDS water quality standard.” Tr. at 37; Pet. Br. at 7; Exh. 10.

Petitioners state, and the Agency does not dispute, that neither the S & S Canal nor the downstream Des Plaines River has been listed by the Agency as impaired for TDS. Exh. 4 at 7, 10. Huff testified that “sodium sulfate, at the proposed levels discharged, will not impact the aquatic community in the Chicago Sanitary and Ship Canal or in the Des Plaines River” and that there is “no adverse effect on aquatic life due to TDS and sulfate levels.” Tr. at 37-38. Petitioners maintain that there would be no “significant injury to the public or the environment” from the requested variance. Pet. Br. at 7; Tr. at 37-38.

On the other hand, according to petitioners, their over-\$120 million investment in the Lemont Refinery under the Consent Decree is projected to “reduce SO₂ emissions by 15,300

tons/year, NO_x emissions by 1,100 tons/year, and PM emissions by 80 tons/year.” Exh. 4 at 9; *see also* Exh. 1; Tr. at 20.

CONSISTENCY WITH FEDERAL LAW

Under Section 35 of the Act (415 ILCS 5/35 (2002)), the Board may grant a variance only to the extent that doing so is consistent with applicable provisions of federal law. In its original recommendation, the Agency stated that if petitioners filed with the Board the information shared informally with the Agency, then “granting the requested variance would not be inconsistent with the Clean Water Act or any other federal standard.” Agency Rec. at 7. In its post-hearing brief recommending that the Board grant the requested variance, the Agency states that petitioners, at hearing, “offered all the documents and testimony it had previously discussed informally with the Illinois EPA.” Agency Br. at 2.

BOARD FINDINGS AND CONDITIONS

The Board has balanced the hardship petitioners would face in immediately complying with the TDS water quality standards against the impact that granting the requested variance would have on the public and the environment, all as described in detail above. Based on this record, and considering the conditions to which the variance would be subject, the Board finds that petitioners have established that the hardship they would experience outweighs any injury to the public or the environment from granting the relief. The Board finds that petitioners have presented adequate proof that they would suffer an arbitrary or unreasonable hardship if required to comply immediately with the Board regulations at issue. The Board further finds that the requested variance is not inconsistent with federal law.

As provided in Section 36(a) of the Act (415 ILCS 5/36(a) (2002)), “[i]n granting a variance the Board may impose such conditions as the policies of this Act may require.” With minor clarifying language changes, the Board will impose as conditions on the variance those conditions agreed to by petitioners and the Agency and set forth as petitioners’ compliance plan in Exhibit 7. The Board will impose additional conditions, however, specifically regarding sampling the wastewater effluent for TDS and reporting TDS sampling results. After discussing those new additional conditions, the Board will discuss when the variance terminates.

Effluent

The Board will require petitioners to monitor the effluent of Outfall 001 for TDS as a condition of the variance. *See* Condition 4. The Board finds this condition necessary given that petitioners have agreed to attempt to identify any relationship between TDS levels in the effluent of Outfall 001 and TDS levels in the Des Plaines River at the I-55 Bridge. *See* Condition 5. This data may also help to verify that the incremental TDS impacts from the Lemont Refinery will be as petitioners estimated. Further, the information may aid petitioners in identifying the time period that may be needed to hold the FCCU wet gas scrubber bleed. *See* Condition 5.

The Board will require this TDS effluent sampling twice per week, which is consistent with petitioners’ current NPDES permit sampling protocol for other parameters. *See* Exh. 12.

Also, to be in accordance with the agreed-upon winter time frame for TDS sampling in the Des Plaines River at the I-55 Bridge, the Board will require the TDS effluent sampling only during the winter months, *i.e.*, December through March. *See* Condition 3.

Reporting

Section 36(b) of the Act provides that if the Board grants a variance, the Board must do so "upon the condition that the person who receives such variance shall make such periodic progress reports as the Board shall specify." 415 ILCS 5/36(b) (2002). Accordingly, as a condition of the variance, the Board will require petitioners to submit their in-stream and effluent TDS sampling results to the Agency on a monthly basis. *See* Conditions 3 and 4.

Duration

The record appears to contain conflicting statements on the duration of variance relief that petitioners seek. The petition itself, filed in November 2004, requests a "Variance for a period of 5 years from the date of granting this Variance on the conditions proposed herein." Pet. at 13. The subsequently-filed compliance plan, however, requires petitioners to "[a]chieve final compliance with 35 IAC 302.208(g) and 302.407" by December 15, 2009. Exh. 7. As the Board is today, April 21, 2005, granting the variance, the difference in duration would be roughly four months. Those four months could be significant because they are winter months, *i.e.*, the deicing and snow-melt runoff season.

For several reasons, the Board uses the earlier date (*i.e.*, December 15, 2009) for expiration of the variance relief. First, the compliance plan was prepared *after* the petition. Second, at hearing, the parties agreed on the record to the conditions set forth in the compliance plan. Third, petitioners do not repeat in their post-hearing brief a request for a "5-year variance." Fourth, the compliance plan provides not merely a time frame, but a date-certain, December 15, 2009.

Most importantly, under the compliance plan agreed to by petitioners and the Agency, petitioners have committed to begin operating, as necessary, the FCCU wet gas scrubber bleed retention system on December 1, 2009. As proposed, if the Des Plaines River is experiencing TDS exceedences at the I-55 Bridge, the retention system would hold the FCCU wet gas scrubber bleed, *i.e.*, the effluent expected to elevate TDS levels in Outfall 001. In other words, once the retention system is operational, the primary reason proffered by petitioners for needing the variance is eliminated. As Huff testified: "The requested compliance time frame is for the collection of the necessary data to properly size this holding basin/tankage." Tr. at 45-46. Moreover, under the compliance plan, petitioners have committed to be in compliance by December 15, 2009, with the TDS water quality standards from which they seek relief. It is unclear on this record why then, after that date, petitioners would be entitled to relief from those very standards.

The Board notes that, as provided in the compliance plan, the Board is requiring petitioners to monitor TDS in the Des Plaines River during the 2009 and 2010 winter season. This will therefore include sampling *after* the variance relief from the TDS water quality

standards has expired. This is simply a condition of the variance relief, and is in no way inconsistent with petitioners avoiding being subject to the general rules from April 21, 2005 through December 15, 2009.

If the Board's decision on the expiration of the variance relief does not effectuate the intent of the parties, or if any condition imposed by the Board is objectionable, petitioners may decline to execute the certificate of acceptance set forth below, and either or both parties may file a motion to reconsider. *See* 35 Ill. Adm. Code 101.520, 101.902, 104.240, 104.248.

CONCLUSION

The Board finds that if this petition for a variance from the TDS general use and secondary contact water quality standards (35 Ill. Adm. Code 302.208(g) and 302.407) is not granted, petitioners will incur an arbitrary or unreasonable hardship. The Board finds that issuance of the variance is not inconsistent with federal law and will not significantly impact public health or the environment. Therefore, the Board grants the requested variance to petitioners, subject to the conditions set forth in this order. The variance relief begins today and runs through December 15, 2009.

This opinion constitutes the Board's findings of fact and conclusions of law.

ORDER

The Board grants CITGO and PDVMR a variance from the TDS water quality standards of 35 Ill. Adm. Code 302.208(g) and 302.407, subject to the following conditions:

1. The duration of the variance relief from the identified TDS water quality standards is from April 21, 2005 through December 15, 2009.
2. This variance applies only to petitioners' Lemont Refinery at 135th Street and New Avenue in Lemont, Will County, regarding elevated TDS levels in the effluent of Outfall 001 due to operation of the wet gas scrubber under the Consent Decree entered January 26, 2005, in the United States District Court for the Southern District of Texas, Case No. H-04-3883.
3. By October 1, 2006, petitioners must identify a location near the I-55 Bridge for collecting water samples from the Des Plaines River and secure access for the sampling. By November 1, 2006, petitioners must retain a contractor to collect TDS samples at that location. From December 1, 2006 through March 30, 2008, petitioners must collect TDS samples from the Des Plaines River three times per week during the winter months (December 1 to March 30). Petitioners must submit the TDS sample results monthly to the Agency.
4. From December 1, 2006 through March 30, 2008, the effluent of Outfall 001 must be monitored for TDS two times per week during the winter months (December 1

to March 30). Petitioners must submit the TDS sample results monthly to the Agency.

5. Petitioners must diligently attempt to identify any relationship between TDS levels in the effluent of Outfall 001 and TDS levels in the Des Plaines River at the I-55 Bridge. Petitioners must use any resulting relevant information to identify the time period that may be needed to hold the FCCU wet gas scrubber bleed.
6. By May 1, 2008, petitioners must begin to size the system needed to retain the FCCU wet gas scrubber bleed for the maximum number of days that the TDS level in the Des Plaines River at the I-55 Bridge exceeds 1,000 mg/L.
7. By June 1, 2008, petitioners must begin to design the system needed to retain the FCCU wet gas scrubber bleed for the maximum number of days that the TDS level in the Des Plaines River at the I-55 Bridge exceeds 1,000 mg/L.
8. By December 1, 2008, petitioners must submit to the Agency a wastewater construction permit application for the FCCU wet gas scrubber bleed retention system.
9. By March 1, 2009, petitioners must begin construction as needed on the FCCU wet gas scrubber bleed retention system.
10. By December 1, 2009, petitioners must operate the FCCU wet gas scrubber bleed retention system as needed. From December 1, 2009 through March 30, 2010, petitioners must collect TDS samples from the Des Plaines River at the I-55 Bridge five days per week (excluding weekends and holidays). Petitioners must submit the TDS sample results monthly to the Agency.

IT IS SO ORDERED.

If petitioners choose to accept this variance, they must, within 45 days after the date of this opinion and order, file with the Board and serve on the Agency a certificate of acceptance and agreement to be bound by all the terms and conditions of the granted variance. "A variance and its conditions are not binding upon the petitioner until the executed certificate is filed with the Board and served on the Agency. Failure to timely file the executed certificate with the Board and serve the Agency renders the variance void." 35 Ill. Adm. Code 104.240. The form of the certificate follows:

CERTIFICATE OF ACCEPTANCE

I (We), _____, having read the opinion and order of the Illinois Pollution Control Board in docket PCB 05-85, dated April 21, 2005, understand and accept the opinion and order, realizing that this acceptance renders all terms and conditions of the variance set forth in that order binding and enforceable.

Petitioner CITGO PETROLEUM CORPORATION

Petitioner PDV MIDWEST REFINING, L.L.C.

By: _____
Authorized Agent

By: _____
Authorized Agent

Title: _____

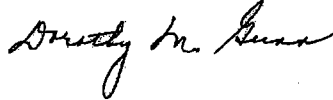
Title: _____

Date: _____

Date: _____

Section 41(a) of the Environmental Protection Act provides that final Board orders may be appealed directly to the Illinois Appellate Court within 35 days after the Board serves the order. 415 ILCS 5/41(a) (2002); see also 35 Ill. Adm. Code 101.300(d)(2), 101.906, 102.706. Illinois Supreme Court Rule 335 establishes filing requirements that apply when the Illinois Appellate Court, by statute, directly reviews administrative orders. 172 Ill. 2d R. 335. The Board's procedural rules provide that motions for the Board to reconsider or modify its final orders may be filed with the Board within 35 days after the order is received. 35 Ill. Adm. Code 101.520; see also 35 Ill. Adm. Code 101.902, 102.700, 102.702.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on April 21, 2005, by a vote of 5-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board

Exhibit B

10/25/07 Reviewed by:
BMP/REQ/CWH
Original copy filed



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-3397

JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026
217/782-0610

ROD R. BLAGOJEVICH, GOVERNOR DOUGLAS P. SCOTT, DIRECTOR

JUN 22 2007

CITGO Petroleum Corporation
135th and New Avenue
Lemont, Illinois 60439

Re: CITGO Petroleum Corporation
CITGO Petroleum Corporation - Lemont Refinery
NPDES Permit No. IL0001589
Modification of NPDES Permit (After Public Notice)

Gentlemen:

The Illinois Environmental Protection Agency has reviewed the request for modification of the above-referenced NPDES Permit and issued a public notice based on that request. The final decision of the Agency is to modify the Permit as follows:

Internal outfall A01 has been added for the discharge of scrubber wastewater. This outfall will be regulated for temperature and hexavalent chromium. Outfall A01 will be subject to the general use temperature limitations, while outfall 001 will be regulated by the secondary contact temperature limitations. Special Conditions 17 and 19 have been changed and Special Condition 20 has been added.

Enclosed is a copy of the modified Permit. You have the right to appeal this modification to the Illinois Pollution Control Board within a 35 day period following the modification date shown on the first page of the permit.

Should you have any question or comments regarding the above, please contact Darin LeCrone of my staff.

Sincerely,

Alan Keller, P.E.
Manager, Permit Section
Division of Water Pollution Control

SAK:DBL:05121401.bah

Attachment: Modified Permit

cc: Records Unit
Compliance Assurance Section
Des Plaines Region
NIPC
US EPA

RECEIVED

JUN 25 2007

NPDES Permit No. IL0001589

Illinois Environmental Protection Agency

Division of Water Pollution Control

1021 North Grand Avenue East

Post Office Box 19276

Springfield, Illinois 62794-9276

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Modified (NPDES) Permit

Expiration Date: July 31, 2011

Issue Date: July 28, 2006

Effective Date: August 1, 2006

Modification Date: June 22, 2007

Name and Address of Permittee:

CITGO Petroleum Corporation
135th and New Avenue
Lemont, Illinois 60439

Facility Name and Address:

CITGO Petroleum Corporation - Lemont Refinery
135th and New Avenue
Lemont, Illinois 60439
(Will County)

Discharge Number and Name:

- 001 Treated Refinery Wastewater
- A01 FCCU Wet Gas Scrubber Wastewater
- 002 Stormwater Basin Overflow
- 003 Stormwater
- 004 Stormwater
- 005 Stormwater
- 006 Stormwater
- 007 Intake Screen Backwash
- 008 Stormwater

Receiving Waters:

- Chicago Sanitary and Ship Canal
- Illinois and Michigan Canal
- Illinois and Michigan Canal
- Illinois and Michigan Canal
- Illinois and Michigan Canal
- Illinois and Michigan Canal
- Chicago Sanitary and Ship Canal
- Illinois and Michigan Canal

In compliance with the provisions of the Illinois Environmental Protection Act, Title 35 of Ill. Adm. Code, Subtitle C and/or Subtitle D, Chapter 1, and the Clean Water Act (CWA), the above-named permittee is hereby authorized to discharge at the above location to the above-named receiving stream in accordance with the standard conditions and attachments herein.

Permittee is not authorized to discharge after the above expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit the proper application as required by the Illinois Environmental Protection Agency (IEPA) not later than 180 days prior to the expiration date.



Alan Keller, P.E.
Manager, Permit Section
Division of Water Pollution Control

SAK:DEL:05121401.bah

NPDES Permit No. IL0001589

Effluent Limitations and Monitoring

1. From the modification date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall(s): 001 - Treated Refinery Wastewater: 5.79 MGD DAF

| PARAMETER | LOAD LIMITS lbs/day DAF (DMF) | | CONCENTRATION LIMITS mg/l | | SAMPLE FREQUENCY | SAMPLE TYPE |
|--|----------------------------------|------------------|--|------------------|---------------------|---------------------------|
| | 30 DAY AVERAGE | DAILY MAXIMUM | 30 DAY AVERAGE | DAILY MAXIMUM | | |
| Contributory Waste Streams: | | | | | | |
| 1) Process Wastewater | | | 5) Hydrostatic Test Water | | | |
| 2) Cooling Tower Blowdown | | | 6) Chemical Cleaning | | | |
| 3) Non-Process Wastewater, Stormwater, Utility Water, Boiler Blowdown | | | 7) Seneca, Chicago Carbon, BOC Process Water | | | |
| 4) Sanitary Waste Water | | | 8) Scrubber Wastewater | | | |
| Flow (MGD) | See Special Condition 1 | | | | Daily | Continuous |
| pH | See Special Condition 2 | | | | 2/Week | Grab |
| BOD ₅ | 1008.80 | 2472.32 | | | 2/Week | Composite |
| CBOD ₅ | | | 20 | 40 | 2/Week | Composite |
| Oil and Grease | 536.40 | 1005.75 | 15 | 20 | 2/Week | Mathematical Composite |
| Total Suspended Solids | 1475.10 | 2313.23 | 25 | 50 | 2/Week | Composite |
| Phenols | 10.28 | 42.37 | 0.3 | 0.4 | 2/Week | Composite |
| Ammonia as N | 1005.75 | 2212.65 | 9.4 | 26.0 | 2/Week | Composite |
| COD | 12873.60 | 24808.50 | | | 2/Week | Composite |
| Chromium (Total) | 11.99 | 34.51 | | 1.0 | 2/Week | Composite |
| Chromium (Hexavalent)* | 0.99 | 2.20 | 0.1 | 0.3 | 1/Month | Grab |
| Sulfide | 9.72 | 21.79 | | | 2/Week | Composite |
| Cyanide | 5.04 | 14.41 | 0.1 | 0.2 | 2/Week | Composite |
| Fluoride | 756.60 | 2161.70 | 15 | 28.6 | 2/Week | Composite |
| Sulfate | | | | Monitor Only | 2/Week | Composite |
| Total Dissolved Solids | | | | Monitor Only | 2/Week | Composite |
| Temperature | See Special Condition 17 | | | | Continuous | Measure |
| Total Residual Chlorine | See Special Condition 19 | | | 0.05 | 1/Day | Grab |

* See Special Condition 20

NPDES Permit No. IL0001589

Effluent Limitations and Monitoring

1. From the modification date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall(s): A01 - FCCU Wet Gas Scrubber Wastewater: 0.375 MGD

| PARAMETER | LOAD LIMITS lbs/day DAF (DMF) | | CONCENTRATION LIMITS mg/l | | SAMPLE FREQUENCY | SAMPLE TYPE |
|-------------------------|----------------------------------|------------------|------------------------------|------------------|-----------------------------|----------------|
| | 30 DAY AVERAGE | DAILY MAXIMUM | 30 DAY AVERAGE | DAILY MAXIMUM | | |
| Flow (MGD) | | | | | Estimate When Monitoring | |
| Temperature* | | | | | Continuous | Measure |
| Chromium (Hexavalent)** | | | 0.1 | 0.3 | 1/Month | Grab |

*See Special Condition 17

** See Special Condition 20

NPDES Permit No. IL0001589

Effluent Limitations and Monitoring

1. From the modification date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall(s): 002 - Stormwater Basin Overflow: Intermittent

| PARAMETER | LOAD LIMITS lbs/day DAF (DMF) | | CONCENTRATION LIMITS mg/l | | SAMPLE FREQUENCY | SAMPLE TYPE |
|---------------------------------------|----------------------------------|------------------|---------------------------------|------------------|-----------------------------|----------------|
| | 30 DAY AVERAGE | DAILY MAXIMUM | 30 DAY AVERAGE | DAILY MAXIMUM | | |
| Contributory Waste Streams: | | | | | | |
| 1) Refinery Stormwater | | 7) | Biomass | | | |
| 2) Treated Process Water (Fire Water) | | 8) | Off Site Stormwater Runoff | | | |
| 3) Utility Water | | 9) | Exxon Mobil Terminal Stormwater | | | |
| 4) Boiler Blowdown | | 10) | Chicago Carbon Stormwater | | | |
| 5) Tank Farm Stormwater | | 11) | Kinder Morgan Stormwater | | | |
| 6) Hydrostatic Test Water | | 12) | BOC Stormwater | | | |
| | | 13) | Seneca Stormwater | | | |
| Flow (MGD) | See Special Condition 1 | | | | Estimate When Monitoring | |
| pH | See Special Condition 2 | | | | 1/Day | Grab |
| BOD ₅ | | | 20 | 40 | 1/Day | Grab |
| Total Suspended Solids | | | 25 | 50 | 1/Day | Grab |
| Oil and Grease | | | 15 | 30 | 1/Day | Grab |
| Phenols | | | 0.3 | 0.6 | 1/Day | Grab |
| Chromium (Total) | | | | 1.0 | 1/Day | Grab |
| Chromium (Hexavalent) | | | 0.1 | 0.3 | 1/Day | Grab |
| Cyanide | | | 0.1 | 0.2 | 1/Day | Grab |
| Fluoride | | | 15 | 28.6 | 1/Day | Grab |
| Ammonia as N | | | 9.4 | 26.0 | 1/Day | Grab |
| COD | | | | Monitor | 1/Day | Grab |
| Sulfide | | | | Monitor | 1/Day | Grab |

NPDES Permit No. IL0001589

Effluent Limitations and Monitoring

1. From the modification date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall(s): 007 - Intake Screen Backwash: 0.027 MGD DAF

| PARAMETER | LOAD LIMITS lbs/day DAF (DMF) | | CONCENTRATION LIMITS mg/l | | SAMPLE FREQUENCY | SAMPLE TYPE |
|-------------------------|----------------------------------|------------------|------------------------------|------------------|---------------------|----------------|
| | 30 DAY AVERAGE | DAILY MAXIMUM | 30 DAY AVERAGE | DAILY MAXIMUM | | |
| Flow (MGD) | See Special Condition 1 | | | | 1/Week | Estimate |
| Total Residual Chlorine | | | | 0.05 | 1/Week* | Grab |

*Sample frequency shall be 1/Week when chlorinating.

Outfalls: 003, 004, 005, 006, and 008 - Stormwater Runoff: Intermittent

See Special Condition 10

NPDES Permit No. IL0001589

Special Conditions

SPECIAL CONDITION 1. Flow (in Million Gallons per Day) shall be reported as a monthly average and a daily maximum on the DMR form.

SPECIAL CONDITION 2. The pH shall be in the range 6.0 to 9.0. The monthly minimum and monthly maximum values shall be reported on the DMR form.

SPECIAL CONDITION 3. Samples taken in compliance with the effluent monitoring requirements shall be taken at a point representative of the discharge, but prior to entry into the receiving stream.

SPECIAL CONDITION 4. If an applicable effluent standard or limitation is promulgated under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the NPDES Permit, the Agency shall revise or modify the permit in accordance with the more stringent standard or prohibition and shall so notify the permittee.

SPECIAL CONDITION 5. This permit may be modified to include different final effluent limitations or requirements which are consistent with applicable laws, regulations, or judicial orders. The Agency will public notice the permit modification.

SPECIAL CONDITION 6. Mathematical composites for oil, fats and greases shall consist of a series of grab samples collected over any 24-hour consecutive period. Each sample shall be analyzed separately and the arithmetic mean of all grab samples collected during a 24-hour period shall constitute a mathematical composite. No single grab sample shall exceed a concentration of 75 mg/l.

SPECIAL CONDITION 7. For the purpose of this permit discharges from outfalls 003, 004, 005, 006, and 008 are limited to stormwater, free from process and other wastewater discharges.

SPECIAL CONDITION 8. Stormwater discharges identified as outfalls 003, 004, 005, 006, and 008 may be rerouted to the facility's WWTP and discharged via outfall 001, subject to the limitations of this permit. If these stormwater discharges are routed to the WWTP then they shall no longer be subject to the requirements of Special Condition 10, but instead shall meet the requirements of Special Condition 9.

SPECIAL CONDITION 9. (Outfalls 001 and 002) The Agency has determined that the effluent limitations in this permit constitute BAT/BCT for storm water which is treated in the existing treatment facilities for purposes of this permit reissuance, and no pollution prevention plan will be required for such storm water. In addition to the chemical specific monitoring required elsewhere in this permit, the permittee shall conduct an annual inspection of the facility site to identify areas contributing to a storm water discharge associated with industrial activity, and determine whether any facility modifications have occurred which result in previously-treated storm water discharges no longer receiving treatment. If any such discharges are identified the permittee shall request a modification of this permit within 30 days after the inspection. Records of the annual inspection shall be retained by the permittee for the term of this permit and be made available to the Agency on request.

SPECIAL CONDITION 10.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

- A. A storm water pollution prevention plan shall be developed by the permittee for the storm water associated with industrial activity at this facility. The plan shall identify potential sources of pollution which may be expected to affect the quality of storm water discharges associated with the industrial activity at the facility. In addition, the plan shall describe and ensure the implementation of practices which are to be used to reduce the pollutants in storm water discharges associated with industrial activity at the facility and to assure compliance with the terms and conditions of this permit.
- B. The plan shall be completed within 180 days of the effective date of this permit. Plans shall provide for compliance with the terms of the plan within 365 days of the effective date of this permit. The owner or operator of the facility shall make a copy of the plan available to the Agency at any reasonable time upon request. [Note: If the plan has already been developed and implemented it shall be maintained in accordance with all requirements of this special condition.]
- C. The permittee may be notified by the Agency at any time that the plan does not meet the requirements of this condition. After such notification, the permittee shall make changes to the plan and shall submit a written certification that the requested changes have been made. Unless otherwise provided, the permittee shall have 30 days after such notification to make the changes.

NPDES Permit No. IL0001589

Special Conditions

- D. The discharger shall amend the plan whenever there is a change in construction, operation, or maintenance which may affect the discharge of significant quantities of pollutants to the waters of the State or if a facility inspection required by paragraph G of this condition indicates that an amendment is needed. The plan should also be amended if the discharger is in violation of any conditions of this permit, or has not achieved the general objective of controlling pollutants in storm water discharges. Amendments to the plan shall be made within the shortest reasonable period of time, and shall be provided to the Agency for review upon request.
- E. The plan shall provide a description of potential sources which may be expected to add significant quantities of pollutants to storm water discharges, or which may result in non-storm water discharges from storm water outfalls at the facility. The plan shall include, at a minimum, the following items:
1. A topographic map extending one-quarter mile beyond the property boundaries of the facility, showing: the facility, surface water bodies, wells (including injection wells), seepage pits, infiltration ponds, and the discharge points where the facility's storm water discharges to a municipal storm drain system or other water body. The requirements of this paragraph may be included on the site map if appropriate.
 2. A site map showing:
 - I. The storm water conveyance and discharge structures;
 - II. An outline of the storm water drainage areas for each storm water discharge point;
 - III. Paved areas and buildings;
 - IV. Areas used for outdoor manufacturing, storage, or disposal of significant materials, including activities that generate significant quantities of dust or particulates.
 - V. Location of existing storm water structural control measures (dikes, coverings, detention facilities, etc.);
 - VI. Surface water locations and/or municipal storm drain locations
 - VII. Areas of existing and potential soil erosion;
 - VIII. Vehicle service areas;
 - IX. Material loading, unloading, and access areas.
 3. A narrative description of the following:
 - I. The nature of the industrial activities conducted at the site, including a description of significant materials that are treated, stored or disposed of in a manner to allow exposure to storm water;
 - II. Materials, equipment, and vehicle management practices employed to minimize contact of significant materials with storm water discharges;
 - III. Existing structural and non-structural control measures to reduce pollutants in storm water discharges;
 - IV. Industrial storm water discharge treatment facilities;
 - V. Methods of onsite storage and disposal of significant materials;
 4. A list of the types of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities.
 5. An estimate of the size of the facility in acres or square feet, and the percent of the facility that has impervious areas such as pavement or buildings.

NPDES Permit No. IL0001589

Special Conditions

6. A summary of existing sampling data describing pollutants in storm water discharges.
- F. The plan shall describe the storm water management controls which will be implemented by the facility. The appropriate controls shall reflect identified existing and potential sources of pollutants at the facility. The description of the storm water management controls shall include:
1. Storm Water Pollution Prevention Personnel - Identification by job titles of the individuals who are responsible for developing, implementing, and revising the plan.
 2. Preventive Maintenance - Procedures for inspection and maintenance of storm water conveyance system devices such as oil/water separators, catch basins, etc., and inspection and testing of plant equipment and systems that could fail and result in discharges of pollutants to storm water.
 3. Good Housekeeping - Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm water conveyance system.
 4. Spill Prevention and Response - Identification of areas where significant materials can spill into or otherwise enter the storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, spill clean up equipment and procedures should be identified, as appropriate. Internal notification procedures for spills of significant materials should be established.
 5. Storm Water Management Practices - Storm water management practices are practices other than those which control the source of pollutants. They include measures such as installing oil and grit separators, diverting storm water into retention basins, etc. Based on assessment of the potential of various sources to contribute pollutants, measures to remove pollutants from storm water discharge shall be implemented. In developing the plan, the following management practices shall be considered:
 - I. Containment - Storage within berms or other secondary containment devices to prevent leaks and spills from entering storm water runoff;
 - ii. Oil & Grease Separation - Oil/water separators, booms, skimmers or other methods to minimize oil contaminated storm water discharges;
 - iii. Debris & Sediment Control - Screens, booms, sediment ponds or other methods to reduce debris and sediment in storm water discharges;
 - iv. Waste Chemical Disposal - Waste chemicals such as antifreeze, degreasers and used oils shall be recycled or disposed of in an approved manner and in a way which prevents them from entering storm water discharges.
 - V. Storm Water Diversion - Storm water diversion away from materials manufacturing, storage and other areas of potential storm water contamination;
 - VI. Covered Storage or Manufacturing Areas - Covered fueling operations, materials manufacturing and storage areas to prevent contact with storm water.
 6. Sediment and Erosion Prevention - The plan shall identify areas which due to topography, activities, or other factors, have a high potential for significant soil erosion and describe measures to limit erosion.
 7. Employee Training - Employee training programs shall inform personnel at all levels of responsibility of the components and goals of the storm water pollution control plan. Training should address topics such as spill response, good housekeeping and material management practices. The plan shall identify periodic dates for such training.
 8. Inspection Procedures - Qualified plant personnel shall be identified to inspect designated equipment and plant areas. A tracking or follow-up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded.

NPDES Permit No. IL0001589

Special Conditions

- G. The permittee shall conduct an annual facility inspection to verify that all elements of the plan, including the site map, potential pollutant sources, and structural and non-structural controls to reduce pollutants in industrial storm water discharges are accurate. Observations that require a response and the appropriate response to the observation shall be retained as part of the plan. Records documenting significant observations made during the site inspection shall be submitted to the Agency in accordance with the reporting requirements of this permit.
- H. This plan should briefly describe the appropriate elements of other program requirements, including Spill Prevention Control and Countermeasures (SPCC) plans required under Section 311 of the CWA and the regulations promulgated thereunder, and Best Management Programs under 40 CFR 125.100.
- I. The plan is considered a report that shall be available to the public under Section 308(b) of the CWA. The permittee may claim portions of the plan as confidential business information, including any portion describing facility security measures.
- J. The plan shall include the signature and title of the person responsible for preparation of the plan and include the date of initial preparation and each amendment thereto.

Construction Authorization

- K. Authorization is hereby granted to construct treatment works and related equipment that may be required by the Storm Water Pollution Prevention Plan developed pursuant to this permit.

This Authorization is issued subject to the following condition(s).

- 1. If any statement or representation is found to be incorrect, this authorization may be revoked and the permittee there upon waives all rights thereunder.
- 2. The issuance of this authorization (a) does not release the permittee from any liability for damage to persons or property caused by or resulting from the installation, maintenance or operation of the proposed facilities; (b) does not take into consideration the structural stability of any units or part of this project; and (c) does not release the permittee from compliance with other applicable statutes of the State of Illinois, or other applicable local law, regulations or ordinances.
- 3. Plans and specifications of all treatment equipment being included as part of the stormwater management practice shall be included in the SWPPP.
- 4. Construction activities which result from treatment equipment installation, including clearing, grading and excavation activities which result in the disturbance of one acre or more of land area, are not covered by this authorization. The permittee shall contact the IEPA regarding the required permit(s).

REPORTING

- L. The facility shall submit an annual inspection report to the Illinois Environmental Protection Agency. The report shall include results of the annual facility inspection which is required by Part G of the Storm Water Pollution Prevention Plan of this permit. The report shall also include documentation of any event (spill, treatment unit malfunction, etc.) Which would require an inspection, results of the inspection, and any subsequent corrective maintenance activity. The report shall be completed and signed by the authorized facility employee(s) who conducted the inspection(s).
- M. The first report shall contain information gathered during the one year time period beginning with the effective date of coverage under this permit and shall be submitted no later than 60 days after this one year period has expired. Each subsequent report shall contain the previous year's information and shall be submitted no later than one year after the previous year's report was due.

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Special Conditions

N. Annual inspection reports shall be mailed to the following address:

Illinois Environmental Protection Agency
Bureau of Water
Compliance Assurance Section
Annual Inspection Report
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

O. If the facility performs inspections more frequently than required by this permit, the results shall be included as additional information in the annual report.

SPECIAL CONDITION 11. The Permittee shall record monitoring results on Discharge Monitoring Report (DMR) Forms using one such form for each outfall each month.

In the event that an outfall does not discharge during a monthly reporting period, the DMR Form shall be submitted with no discharge indicated.

The Permittee may choose to submit electronic DMRs (eDMRs) instead of mailing paper DMRs to the IEPA. More information, including registration information for the eDMR program, can be obtained on the IEPA website, <http://www.epa.state.il.us/water/edmr/index.html>.

The completed Discharge Monitoring Report forms shall be submitted to IEPA no later than the 15th day of the following month, unless otherwise specified by the permitting authority.

Permittees not using eDMRs shall mail Discharge Monitoring Reports with an original signature to the IEPA at the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Attention: Compliance Assurance Section, Mail Code # 19

SPECIAL CONDITION 12. For the purpose of this permit, discharges from outfall 002 are limited to overflow from the stormwater retention basin, free from additional process or other discharges.

SPECIAL CONDITION 13. The permittee shall monitor the nitrogen concentration of its oil feed stocks and report the concentrations to the Agency on an annual basis. Reports shall be submitted no later than 60 days after the end of the calendar year.

SPECIAL CONDITION 14. The permittee may use the upset provision as an affirmative defense provided all the requirements of 40 CFR 122.41(n) are met.

SPECIAL CONDITION 15. Discharge from this facility shall be in accordance with 35 Ill. Adm. Code Section 304.213 for ammonia nitrogen. This section requires that the discharge meet BAT limitations pursuant to 40 CFR 419.23, as well as ammonia nitrogen concentration limits of 9.4 mg/l as a monthly average and 26.0 mg/l as a daily maximum.

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Special Conditions

SPECIAL CONDITION 16. Storm Water Credit for Outfall 001:

An additional stormwater credit for the following parameters shall be calculated based on 100% of the stormwater flow as defined below.

| <u>Parameter</u> | <u>Pounds per 1000 gallons of stormwater</u> | |
|------------------------|--|----------------|
| | <u>Average</u> | <u>Maximum</u> |
| BOD | 0.22 | 0.40 |
| Total Suspended Solids | 0.18 | 0.28 |
| COD | 1.5 | 3.0 |
| Oil and Grease | 0.067 | 0.13 |
| Phenol | 0.0014 | 0.0029 |
| Cr (tot) | 0.0018 | 0.0050 |
| Cr (+6) | 0.00023 | 0.00052 |

Dry Weather Flow – The average flow from the waste water treatment facility for the last three consecutive zero precipitation days. Previously collected storm water shall not be included.

Stormwater Flows – The stormwater runoff which is treated in the waste water treatment facility shall be defined as that portion of the flow greater than the dry weather flow.

In computing monthly average permit limits to include stormwater credit, the pound credit calculated above shall be averaged along with process pound limits over the 30 day period. Explanatory calculations and flow data shall be submitted together with discharge monitoring reports.

The stormwater credit does not authorize the permittee to exceed the concentration limits contained in effluent Limitations and Monitoring, Page 2.

SPECIAL CONDITION 17.

a) The discharge from outfall A01 shall be subject to the following limitations:

During the months of April through November, the discharge shall not exceed 90° F, except that one percent of the hours in any 12 month period may exceed 90° F but shall never exceed 93° F at any time.

The monthly average and monthly maximum value shall be reported on the DMR. The permittee shall also report the total number hours the temperature exceeds 90° F.

b) The waters receiving the discharge from outfall 001 are designated as Secondary Contact and Indigenous Aquatic Life Waters by Section 302.408, Illinois Administrative Code, Title 35, Chapter 1, Subtitle C, as amended. These waters shall meet the following standard:

Temperatures shall not exceed 93° F more than 5% of the time, or 100° F at any time at the edge of the mixing zone which is defined by Rule 302.102 of the above regulations.

The monthly maximum value shall be reported on the DMR form. In lieu of monitoring at the edge of the mixing zone, the permittee may demonstrate compliance with this paragraph by monitoring at outfall 001.

SPECIAL CONDITION 18. The permittee was granted a variance from the water quality standard for Total Dissolved Solids (TDS) for the discharge at outfall 001 in accordance with Illinois Pollution Control Board Order PCB 05-85. The permittee shall commence its study of downstream TDS concentrations in accordance with the schedule contained in this order. This permit may be modified to include any final limitations or monitoring requirements which may be necessary based on the results of the study, or future Illinois Pollution Control Board actions with result to Total Dissolved Solids water quality standards. This variance expires on December 15, 2009.

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Special Conditions

SPECIAL CONDITION 19:

- a. From the effective date of this permit until such time that the FCCU Scrubber System becomes operational, monitoring for Total Residual Chlorine (TRC) is only required during those times when breakpoint or super chlorination is used for short term ammonia treatment in the treated water basin. Prior to discharging from the treated water basin following chlorine treatment, the permittee shall take a grab sample from the basin to determine compliance with the TRC limit of 0.05 mg/l. The discharge from the basin shall then be sampled once per day using a grab sample, for a period of five days after resuming the discharge. The permittee shall submit an attachment to the DMR explaining the reason for the temporary chlorine treatment, the amount of chlorine used, and length of the temporary cessation of discharge. The maximum concentration recorded shall be reported on the DMR.
- b. The permittee shall notify the Agency in writing 30 days (or as soon as practicable) prior to the start of operation of the FCCU Scrubber Break Point Chlorination System. Upon start up of the break point chlorination system, the discharge from Outfall 001 shall be monitored on a continuous basis for Total Residual Chlorine and subject to a limit of 0.05 mg/l as an instantaneous maximum. The maximum recorded concentration shall be reported on the DMR.
- c. In the event that the continuous monitoring system is not functioning or need routine maintenance, the permittee may substitute a once per day grab sample at Outfall 001 until such time that the continuous analyzer is operational. The permittee shall include an attachment to the DMR explaining the reason and length of the outage.

SPECIAL CONDITION 20: For the purposes of compliance at Outfall 001, samples for hexavalent chromium shall be taken at a point prior to entering the aeration basin. Upon commencement of operation of the FCCU Scrubber System, the discharge from internal Outfall A01 shall also be sampled on a monthly basis for hexavalent chromium. Compliance with hexavalent chromium load limits at outfall 001 shall be determined by multiplying the concentration times the flow for Outfall A01 plus the concentration times the flow prior to entering the treated water basin.

Attachment 01

Standard Conditions

Definitions

Act means the Illinois Environmental Protection Act, 415 ILCS 5 as Amended.

Agency means the Illinois Environmental Protection Agency.

Board means the Illinois Pollution Control Board.

Clean Water Act (formerly referred to as the Federal Water Pollution Control Act) means Pub. L. 92-500, as amended, 33 U.S.C. 1251 et seq.

CWA (National Pollutant Discharge Elimination System) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318 and 405 of the Clean Water Act.

EPA means the United States Environmental Protection Agency.

Daily Discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Maximum Daily Discharge Limitation (daily maximum) means the highest allowable daily discharge.

Average Monthly Discharge Limitation (30 day average) means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Discharge Limitation (7 day average) means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Aliquot means a sample of specified volume used to make up a total composite sample.

Grab Sample means an individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding 15 minutes.

24 Hour Composite Sample means a combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period.

8 Hour Composite Sample means a combination of at least 3 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over an 8-hour period.

Flow Proportional Composite Sample means a combination of sample aliquots of at least 100 milliliters collected at periodic intervals such that either the time interval between each aliquot or the volume of each aliquot is proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot.

(1) **Duty to comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

(2) **Duty to reapply.** If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. If the permittee submits a proper application as required by the Agency no later than 180 days prior to the expiration date, this permit shall continue in full force and effect until the final Agency decision on the application has been made.

(3) **Need to halt or reduce activity not a defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(4) **Duty to mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

(5) **Proper operation and maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up, or auxiliary facilities, or similar systems only when necessary to achieve compliance with the conditions of the permit.

Permit holder. This permit may be modified, revoked and reissued, or terminated by the Agency pursuant to 40 CFR 127.82. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

(7) **Property rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.

(8) **Duty to provide information.** The permittee shall furnish to the Agency within a reasonable time, any information which the Agency may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also furnish to the Agency, upon request, copies of records required to be kept by this permit.

(9) **Inspection and entry.** The permittee shall allow an authorized representative of the Agency, upon the presentation of credentials and other documents as may be required by law, to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor at reasonable times, for the purpose of assuring permit compliance, or as otherwise authorized by the Act, any substances or parameters at any location.

(10) **Monitoring and records.**

(a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(b) The permittee shall retain records of all monitoring information, including all calibration and maintenance records, and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of this permit, measurement, report or application. This period may be extended by request of the Agency at any time.

(c) Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;

(2) The individual(s) who performed the sampling or measurements;

(3) The date(s) analyses were performed;

(4) The individual(s) who performed the analyses;

(5) The analytical techniques or methods used; and

(6) The results of such analyses.

(d) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. Where no test procedure under 40 CFR Part 136 has been approved, the permittee must submit to the Agency a test method for approval. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to ensure accuracy of measurements.

(11) **Signatory requirement.** All applications, reports or information submitted to the Agency shall be signed and certified.

(a) **Application.** All permit applications shall be signed as follows:

(1) For a corporation: by a principal executive officer of at least the level of vice president or a person or position having overall responsibility for environmental matters for the corporation;

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.

(b) **Reports.** All reports required by permits, or other information requested by the Agency shall be signed by a person described in paragraph (a) or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a); and

(2) The authorization specifies either an individual or a position responsible for the overall operation of the facility, from which the discharge originates, such as a plant manager, superintendent or person of equivalent responsibility; and

(3) The written authorization is submitted to the Agency.

Exhibit C

**CITGO WATER INTAKE
2007 CHLORIDE AND TDS RESULTS**

| <u>Date</u> | <u>Chloride, mg/L</u> | <u>Total Dissolved Solids, mg/L</u> |
|-----------------|---------------------------|---|
| 01/01/07 | 174 | 689 |
| 01/05/07 | 156 | 657 |
| 01/08/07 | 113 | 454 |
| 01/12/07 | 133 | 576 |
| 01/19/07 | 239 | 662 |
| 01/22/07 | 203 | 666 |
| 01/26/07 | 384 | 876 |
| 01/29/07 | 286 | 1656 |
| 02/02/07 | 225 | 800 |
| 02/05/07 | 227 | 459 |
| 02/09/07 | 181 | 666 |
| 02/12/07 | 224 | 619 |
| 02/16/07 | 181 | 532 |
| 02/19/07 | 695 | 1181 |
| 02/23/07 | 549 | 1245 |
| 02/26/07 | 600 | 1520 |
| 03/02/07 | 734 | 1487 |
| 03/05/07 | 616 | 1332 |
| 03/09/07 | 395 | 1076 |
| 03/16/07 | 350 | 1131 |
| 03/19/07 | 340 | 1075 |
| 03/23/07 | 281 | 950 |
| 03/23/07 | 281 | 761 |
| 03/26/07 | 415 | |
| Average | 333 | 916 |
| Maximum | 734 | 1656 |

Exhibit D

**Des Plaines River at the I-55 Bridge
Sulfate and TDS Data**

| DOWNSTREAM RIVER WATER | | |
|-------------------------------|-----------------------|-------------------------------------|
| Date Sampled | Sulfate (mg/L) | Total Dissolved Solids(mg/L) |
| 02/28/05 | 95 | 800 |
| 03/09/05 | 99 | 840 |
| 03/11/05 | 95 | 900 |
| 03/15/05 | 92 | 900 |
| 03/22/05 | 98 | 860 |
| 03/25/05 | 100 | 890 |
| 04/01/05 | 95 | 770 |
| 04/05/05 | 69 | 750 |
| 04/12/05 | 100 | 760 |
| 04/28/05 | 76 | 730 |
| 05/03/05 | 490 | 720 |
| 05/10/05 | 96 | 760 |
| 05/19/05 | 120 | 610 |
| 05/24/05 | 65 | 610 |
| 05/31/05 | 67 | 630 |
| 06/07/05 | 96 | 700 |
| 06/14/05 | 67 | 510 |
| 06/21/05 | 77 | 540 |
| 06/28/05 | 91 | 520 |
| 07/05/05 | 100 | 520 |
| 07/12/05 | 62 | 510 |
| 07/19/05 | 69 | 480 |
| 08/02/05 | 62 | 410 |
| 08/10/05 | 56 | 440 |
| 08/17/05 | 47 | 430 |
| 08/23/05 | 53 | 400 |
| 08/31/05 | 94 | 400 |
| 09/13/05 | 48 | 340 |
| 09/20/05 | 54 | 300 |
| 09/28/05 | 51 | 360 |
| 10/04/05 | 48 | 290 |
| 10/11/05 | 57 | 380 |
| 10/19/05 | 40 | 470 |
| 10/28/05 | 62 | 500 |
| 11/01/05 | 88 | 460 |
| 11/09/05 | 98 | 480 |
| 11/17/05 | 89 | 530 |
| 11/21/05 | 81 | 570 |
| 11/30/05 | 110 | 480 |
| 12/06/05 | 89 | 590 |
| 12/13/05 | 90 | 620 |
| 12/20/05 | 100 | 870 |
| 12/28/05 | 100 | 790 |
| 01/04/06 | 100 | 880 |
| 01/10/06 | 100 | 900 |
| 01/19/06 | 110 | 740 |
| 01/24/06 | 92 | 720 |
| 01/31/06 | 100 | 840 |
| 02/07/06 | 100 | 780 |
| 02/14/06 | 110 | 800 |
| 02/21/06 | 120 | 840 |
| 02/28/06 | 95 | 760 |
| 03/09/06 | 95 | 720 |
| 03/13/06 | 89 | 700 |
| 03/22/06 | 84 | 700 |
| 04/13/06 | 110 | 650 |
| 04/18/06 | 93 | 520 |
| 04/25/06 | 100 | 550 |
| Average | 92 | 630 |
| Maximum | 490 | 900 |

Source: PCB R06-24, Exhibit 6A

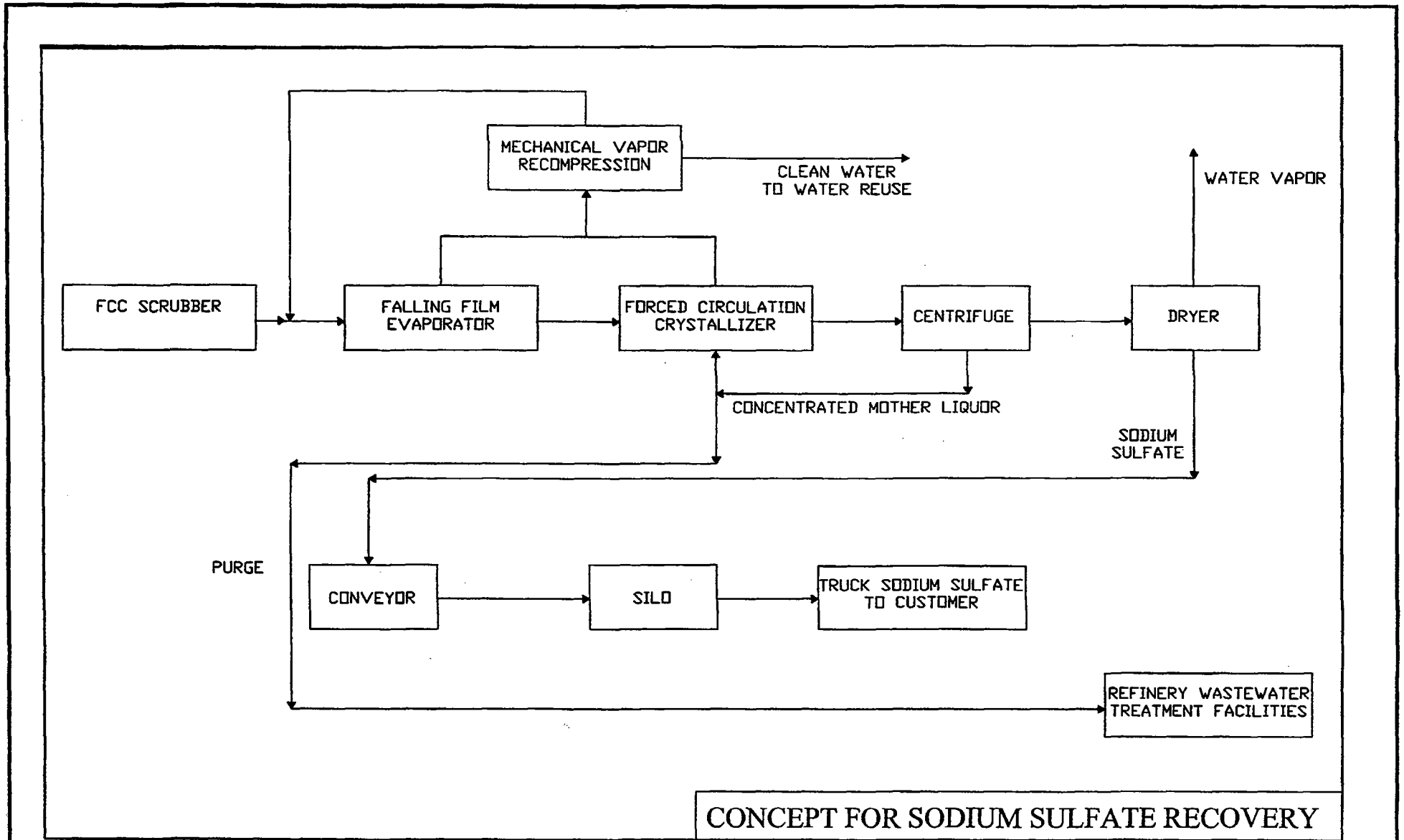
DES PLAINES RIVER TDS SAMPLING
I-55 Bridge

| Date | Total Dissolved Solids, mg/L |
|----------|---------------------------------|
| 11/21/06 | 590 |
| 11/28/06 | 600 |
| 12/04/06 | 620 |
| 12/06/06 | 670 |
| 12/08/06 | 650 |
| 12/11/06 | 700 |
| 12/13/06 | 660 |
| 12/15/06 | 660 |
| 12/18/06 | 700 |
| 12/20/06 | 700 |
| 12/21/06 | 680 |
| 12/26/06 | 520 |
| 12/27/06 | 540 |
| 12/29/06 | 570 |
| 01/02/07 | 600 |
| 01/03/07 | 580 |
| 01/05/07 | 440 |
| 01/08/07 | 420 |
| 01/10/07 | 520 |
| 01/12/07 | 500 |
| 01/15/07 | 690 |
| 01/17/07 | 620 |
| 01/19/07 | 740 |
| 01/22/07 | 750 |
| 01/24/07 | 720 |
| 01/26/07 | 710 |
| 01/29/07 | 940 |
| 01/31/07 | 960 |
| 02/02/07 | 860 |
| 02/05/07 | 740 |
| 02/07/07 | 800 |
| 02/09/07 | 770 |
| 02/12/07 | 770 |
| 02/14/07 | 710 |
| 02/16/07 | 730 |
| 02/20/07 | 700 |

DES PLAINES RIVER TDS SAMPLING
I-55 Bridge

| Date | Total Dissolved Solids, mg/L |
|----------------|---------------------------------|
| 02/21/07 | 1000 |
| 02/23/07 | 1100 |
| 02/26/07 | 1200 |
| 02/28/07 | 1300 |
| 03/02/07 | 1200 |
| 03/05/07 | 1100 |
| 03/07/07 | 1100 |
| 03/09/07 | 980 |
| 03/12/07 | 1000 |
| 03/14/07 | 1000 |
| 03/16/07 | 870 |
| 03/19/07 | 790 |
| 03/22/07 | 790 |
| 03/26/07 | 700 |
| 03/28/07 | 720 |
| 03/29/07 | 690 |
| 03/30/07 | 740 |
| Average | 762 |
| Maximum | 1300 |

Exhibit E



CONCEPTUAL PROCESS FLOW DIAGRAM
FOR EVAPORATION ALTERNATIVE

Exhibit F

STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)

BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

IN THE MATTER OF:)
)
CITGO PETROLEUM CORPORATION and)
PDV MIDWEST REFINING, L.L.C.,)
) PCB _____
Petitioners,) (Variance - Water)
 v.)
)
ILLINOIS ENVIRONMENTAL)
PROTECTION AGENCY,)
)
Respondent.)

Affidavit of Brigitte Postel

I, Brigitte Postel, being first duly sworn upon oath, depose and state as follows:

1. I have been employed by CITGO Petroleum Corporation ("CITGO") for the past three (3) years. I have worked at the Lemont Refinery since October, 2003. At Lemont Refinery, I have held the position of Environmental Engineer, Water Coordinator. I received a Bachelor of Science in Chemistry from the University of Illinois, Champaign-Urbana and a Masters of Science in Environmental Engineering from Lamar University, Beaumont Texas.
2. I have read the Petition for Extension of Variance dated November 13, 2007, and based upon my personal knowledge and belief, the facts stated therein are true and correct.

FURTHER AFFIANT SAYETH NOT.

Brigitte Postel
Brigitte Postel

Subscribed and sworn to me
before this 14th day of
November, 2007

Rose Miglio
Notary Public

