## 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 12-94          |
| Petitioners,                    | ) | (Variance - Water) |
|                                 | ) |                    |
| v.                              | ) |                    |
|                                 | ) |                    |
| ILLINOIS ENVIRONMENTAL          | ) |                    |
| PROTECTION AGENCY,              | ) |                    |
|                                 | ) |                    |
| Respondent.                     | - |                    |

#### **NOTICE OF FILING**

To:

| 10.                                      | ·   |
|--|---|
| John Therriault, Assistant Clerk         | Stephanie Diers and                       |
| Bradley P. Halloran, Hearing Officer     | Sara G. Terranova,                        |
| Illinois Pollution Control Board         | Assistant Counsel                         |
| 100 West Randolph, Suite 11-500          | Office of Chief Legal Counsel             |
| Chicago, IL 60601                        | Illinois Environmental Protection Agency  |
| ·  | 1021 N. Grand Avenue East, P.O. Box 19274 |
| John J. Kim, Interim Director            | Springfield, IL 62794-9274                |
| Illinois Environmental Protection Agency |   |
| 1021 N. Grand Avenue East P.O. Box 19274 |   |
| Springfield, IL 62794-9274               |   |

Please take notice that on April 3, 2012, we filed electronically with the Office of the Clerk of the Illinois Pollution Control Board the attached **Petitioners' Response to Hearing Officer Order**, a copy of which is served upon you.

CITGO PETROLEUM CORPORATION and PDV MIDWES' REFINING, L.L.C.

D-...

One of Its Attorneys

Jeffrey C. Fort SNR Denton US LLP 233 S. Wacker Drive, Suite 7800 Chicago, IL 60606-6404

## BEFORE THE POLLUTION CONTROL BOARD OF THE STATE OF ILLINOIS

| CITGO PETROLEUM CORPORATION and PDV MIDWEST REFINING, L.L.C., | )<br>)                              |
|---|-------------------------------------|
| Petitioners,  | ) PCB 12-94<br>) (Variance - Water) |
| v.  | )                                   |
| ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,                     | )                                   |
| Respondent.   | )                                   |

#### PETITIONERS' RESPONSE TO HEARING OFFICER ORDER

In response to the Hearing Officer Order dated March 5, 2012, the Petitioners', through their counsel, SNR Denton US LLP, state as follows:

#### Question:

1. The petitioners request a variance extension from Sections 302.208(g) and 302.407 (35 Ill. Adm. Code 302.208(g), 302.407) for Total Dissolved Solids (TDS). Petition (Pet.) at 4. However, as the petitioners (Pet. at 3) and the Agency (Rec. at 6) note, the Board has eliminated the water quality standard for TDS in general use waters. See Triennial Review of Sulfate and Total Dissolved Solids Water Quality Standards, R07-9 (Sept. 4, 2008). Please confirm whether the reference to Section 302.208(g) in the proposed variance extension language should be removed. See 35 Ill. Adm. Code 104.204(a).

#### Response:

Correct. 35 Ill. Adm. Code Section 302.208(g) is not relevant to this matter and the reference should be removed.

#### Question:

2. CITGO states that it has "collected the data as required by Paragraphs 3, 4, and 5 of the Order in PCB 08-33" and attached the resulting information as Exhibit (Exh.) B to the petition. Pet. at 7. It appears, however, that the data collected pursuant to paragraph 5 of the PCB 08-33 order (monitoring TDS in the effluent of Outfall 001) has not been provided. Please submit the data. See 35 Ill. Adm. Code 104.210(d)(1), (2).

#### Response:

CITGO has collected the data from monitoring TDS in its intake and the effluent of Outfall 001 and has been providing the data to the Agency with and in addition to its Discharge Monitoring Reports under its NPDES permit. Exhibit B contains the intake data, in tabular form. The effluent TDS data (which have been submitted to the Agency) are summarized and submitted in tabular form with this Response as Exhibit I.

#### Question:

3. Please explain whether the addition of 4,000,000 gallons of tankage (Pet. at 10) satisfies any of the compliance plan conditions of the PCB 08-33 order. See 35 III. Adm. Code 104.210(d)(1), (2).

#### Response:

The 4,000,000 gallons of tankage was not intended to be part of the compliance plan under PCB 08-33. This tankage was present at the refinery; it was decided that using this tankage for pre-treatment before the wastewater treatment plant would improve the performance of the waste water plant and enhance consistent nitrification, meeting the requirement imposed by the Board in AS 08-08. Condition (g) of the Order in that proceeding stated: "The Refinery must continue its efforts to control and manage solids from its crude oil supply with respect to its wastewater treatment system." *See* Order in AS 08-08, entered December 18, 2008. This tankage effectively functions as an solids/water separator, and not as a containment device. These tanks are generally operated in a full mode and are a key element of the wastewater treatment system to meet ammonia nitrogen discharge requirements. Because the tanks are operated full to maximize solids separation, there is no capacity for holding additional flow during periods of elevated TDS in the Ship Canal.

#### Question:

4. In PCB 08-33, the Board granted CITGO's motion to incorporate the record of PCB 05-85 into the PCB 08-33 record. See CITGO Petroleum Corporation and PDV Midwest Refining, L.L.C. v. IEPA, PCB 08-33, slip op. at 4 (May 15, 2008). Please address whether all or any part of the PCB 08-33 record should be incorporated into the PCB 12-94 record. See 35 Ill. Adm. Code 104.210(d)(3).

#### **Response:**

We do not believe it necessary to include the record from the prior variance, PCB 08-33, or from PCB 05-85. To the extent there is relevant information from either of these proceedings, it has been incorporated in the Petition here or its Exhibits.

#### Question:

5. The petition refers to CITGO having added "4,000,000 gallons of tankage to enhance solids removal as a pre-treatment measure before the water treatment plan . ." Pet. at 10. The sentence seems incomplete. Please provide the intended language and indicate the year in which the 4,000,000 gallons of tankage was added. See 35 Ill. Adm. Code 104.204(b)(7).

#### **Response:**

There is a typo which causes the confusion. Paragraph 10 should have concluded with "before the water treatment plant." (added language underlined).

#### **Question:**

6. Please explain whether the 4,000,000 gallons of tankage could provide storage capacity to isolate the wet gas scrubber discharge during periods of elevated TDS levels in the receiving stream. See 35 Ill. Adm. Code 104.204(b)(7). For context, James Huff testified as follows in the PCB 05-85 proceeding: "[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 1-55 Bridge." CITGO, PCB 08-33, slip op. at 20.

#### Response:

As noted in response to Question 3, this tankage is used for another purpose - to meet the pre-treatment requirements in the Order in AS 08-08 and support nitrification treatment by the wastewater treatment plant of the Lemont Refinery. The tankage calculated by Mr. Huff was the size needed simply to deal with the "mixture rule" during times of elevated TDS in the Ship Canal upstream of the refinery. It was not intended to provide any removal or treatment of TDS. The upstream concentrations of TDS [and chlorides] is the cause of this variance; without the elevated TDS levels during snow melt run off conditions, the Ship Canal meets the existing TDS standard. Except during periods of snow melt run-off, there is no prohibition on the TDS discharges from the refinery with or without the wet gas scrubber. Dedicating the amount of tankage for an occasional spike in upstream TDS conditions in the Ship Canal is, as the Board has previously found, an arbitrary and unreasonable hardship. (The Refinery further notes that there were no violations of the TDS standard in the Ship Canal during the winter season just concluded on April 1, 2012. This is further justification for the use of a flexible management tool such as a BMP rather than requiring the installation of substantial capital equipment for a transitory event due to upstream conditions).

#### **Question:**

7. In PCB 08-33, CITGO used the "projected discharge loadings" to calculate the incremental increase in TDS water quality, and estimated that the wet gas

scrubber would add 304,000 [sic]<sup>1</sup> pounds per day of TDS to the Lemont Refinery's wastewater discharge. Pet., Exh. A at 8. In the instant petition, CITGO uses "actual discharge loadings" to calculate the incremental increases. Pet. at 11-12. Please provide information on the actual TDS discharge loadings and concentrations. *See* 35 Ill. Adm. Code 104.204(b)(8).

#### Response:

Exhibit J to this Response is an updated Table prepared by Mr. James Huff. It shows the low flow conditions in the Ship Canal both at the Lemont Refinery and at the I-55 Bridge, the mean refinery flow and mass of TDS discharged, and the relative concentrations of TDS at the Refinery discharge, at the edge of the mixing zone and at the I-55 Bridge. This table shows the very minor contribution of the Refinery to the TDS levels in the Ship Canal.

This table also shows that the quantity of TDS now being discharged due to the Wet Gas Scrubber is about half of what was predicted when the initial variance in this matter was submitted: the initial design average projected 215,000 pounds per day increase from the Wet Gas Scrubber while the actual incremental loading from the Wet Gas Scrubber is 94,500 pounds per day. (we acknowledge that in 2008 there was a concern that the incremental TDS loading from the wet gas scrubber could reach a peak of 304,000 pounds per day)

#### Question:

8. In pre-filed testimony for <u>Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and the Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303 and 304, R08-9(C), Mr. Huff stated that "[w]hen de-icing salts cause a spike in the chloride level, the Lemont Refinery loses its mixing zone for chlorides (and sulfates), as the Lower Ship Canal's upstream water quality exceeds the water quality standard for chlorides." Pet., Exh. G at 5; see also id. at 7 ("Section 302.102(b)(9) prohibits mixing zones for constituents where the water quality standard is already violated in the receiving stream."). Please comment on whether Mr. Huff's statement would also apply with respect to TDS and, if so, whether the statement constitutes a reason for the instant variance request. See 35 Ill. Adm. Code104.204(c).</u>

#### Response:

Yes, Mr. Huff's statement would also apply to TDS, and yes, it also constitutes a reason for this variance request.

<sup>&</sup>lt;sup>1</sup> The reference to 304,000 pounds per day cited here iwas the expected daily maximum as the wet gas scrubber was being constructed in 2008. The original daily average quantity was215,000 pounds of TDS. *See* Response to Questions 7 and 10 and Exhibit J.

#### Question:

9. CITGO states that it has "collected influent data relating to chlorides upstream of the Refinery; that data is included in Exhibit C." Pet. at 7. The Agency recommends that, as a compliance plan condition, CITGO "provide chloride data for their effluent to ensure that any future chloride water standard can be met." Rec. at 6. Please comment on CITGO's ability to provide such data from the past and CITGO's position on including such a condition. If CITGO does not oppose such a condition, please consider proposing language for the condition. See 35 Ill. Adm. Code104.204(c).

#### Response:

Chlorides in the effluent have been collected since July, 2011; the data are included in Exhibit K. The Lemont Refinery is willing to report its effluent chloride levels, but notes that the Board has not proposed to adopt such a water quality standard for the Ship Canal. CITGO believes that dischargers to the Sanitary and Ship Canal are likely to be significantly impacted by such a standard for chlorides, unless the Board also adopts a practical compliance tool such as a BMP requirement [which is part of the recommended conditions here]. We would suggest that paragraphs 3 and 4 of the proposed variance conditions add chlorides to TDS as the parameters to be monitored and reported. The language in Paragraphs 3 and 4, with respect to monitoring and reporting, could simply state "TDS and chlorides" where the existing language refers only to TDS sampling and reporting.

#### Question:

10. CITGO represents that the Lemont Refinery's average daily production is 168,626 barrels. Pet. at 8; see also CITGO, PCB 08-33, slip op. at 7 ("Currently, the Lemont Refinery produces 168,626 barrels daily on average"); Pet. at 14 ("design average permitted discharge is 5.79 MGD"). None of the proposed variance conditions would require CITGO to re-evaluate its impact on TDS levels in the receiving stream if CITGO increased production above this average. If CITGO does not oppose such a condition, please consider proposing language for a condition that would require CITGO to reevaluate its impact on the receiving stream in that event. See 35 Ill. Adm. Code 104.204(j).

#### Response:

CITGO would object to such a condition if expressed in the manner as suggested. However, the Lemont Refinery would be amenable to a condition that was based on the quantity of TDS which was projected to be discharged. In the initial variance, an average 215,000 pounds per day of TDS was projected to be added from the installation of the Wet Gas Scrubber. In the 2008 variance, there was a concern that the incremental daily maximum could be even higher. In actual practice, the amount of incremental TDS from the Wet Gas Scrubber averages 94,450 pounds per day. Clearly the projected impact was greater than the actual impact, which is due in part to the efficient operations of the refinery and the wet gas scrubber.

Therefore, Petitioners would be amenable to a condition such as the following:

"11. Petitioners shall assess, on an annual basis, the quantity of TDS incrementally being added due to the Wet Gas Scrubber. If the amount of incremental TDS exceeds, or threatens to exceed, 215,000 pounds as a daily average on an annual basis, then Petitioners shall either reduce its incremental TDS discharge to below 215,000 pounds on a daily average or submit a request for another variance with appropriate conditions."

This condition should provide an appropriate balance between increasing productivity at the Lemont Refinery while not unduly increasing the TDS loading from the level the Board has already approved.

#### Conclusion

The Lemont Refinery respectfully submits this information for the Board's consideration and in response to the Hearing Officer Order dated March 5, 2012 in this proceeding. The Lemont Refinery believes that this information is further support for the Board to grant the Variance as requested herein.

Respectfully submitted,

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

By:

Dated: April 3, 2012

Jeffrey C. Fort SNR Denton US LLP 233 S. Wacker Drive Suite 7800 Chicago, IL 60606-6404

### **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 enclosed **Petitioners' Response to Hearing Officer Order** by First Class Mail, postage prepaid, on April 3, 2012.

# **EXHIBIT I**

CITGO LEMONT REFINERY
EFFLUENT TOTAL DISSOLVED SOLIDS DISCHARGED THROUGH OUTFALL 001, mg/L

|                      | 2007         | _        | 2008         | <b>5</b> ~ | 2009        | Data                 | 2010<br>TDS-Effluent     |
|----------------------|--------------|----------|--------------|------------|-------------|----------------------|--------------------------|
| Date                 | TDS-Effluent | Date     | TDS-Effluent |            | DS-Effluent | Date<br>01/05/10     | 5134                     |
| 04/03/07             | 1670         | 01/01/08 | 3780         | 01/01/09   | 4491        | 01/05/10             | 513 <del>4</del><br>5017 |
| 04/05/07             | 1779         | 01/03/08 | 6210         | 01/06/09   | 4205        |                      | 5308                     |
| 04/10/07             | 1586         | 01/08/08 | 5263         | 01/08/09   | 4415        | 01/12/10<br>01/14/10 | 5807                     |
| 04/12/07             | 1593         | 01/10/08 | 4810         | 01/13/09   | 4889        | 01/19/10             | 5168                     |
| 04/17/07             | 1441         | 01/15/08 | 4898         | 01/15/09   | 5211        |                      | 4853                     |
| 04/19/07             | 1584         | 01/17/08 | 5088         | 01/20/09   | 5595        | 01/21/10             | 4565                     |
| 04/19/07             | 1584         | 01/22/08 | 5431         | 01/22/09   | 5700        | 01/26/10             |                          |
| 04/19/07             | 1584         | 01/24/08 | 5395         | 01/27/09   | 6335        | 01/28/10             | 4223                     |
| 04/24/07             | 2097         | 01/29/08 | 5889         | 01/29/09   | 5353        | 02/02/10             | 4134                     |
| 04/26/07             | 1542         | 01/31/08 | 5349         | 02/03/09   | 6567        | 02/04/10             | 4171                     |
| 05/01/07             | 1523         | 02/05/08 | 5544         | 02/05/09   | 6090        | 02/09/10             | 4637                     |
| 05/03/07             | 1627         | 02/07/08 | 5852         | 02/10/09   | 5790        | 02/11/10             | 4756                     |
| 05/08/07             | 1801         | 02/12/08 | 6025         | 02/12/09   | 5036        | 02/16/10             | 5231                     |
| 05/10/07             | 1879         | 02/14/08 | 5775         | 02/17/09   | 5322        | 02/18/10             | 5441                     |
| 05/15/07             | 2083         | 02/19/08 | 4864         | 02/19/09   | 5287        | 02/23/10             | 5040                     |
| 05/17/07             | 1691         | 02/21/08 | 4578         | 02/24/09   | 5887        | 02/25/10             | 5073                     |
| 05/22/07             | 2345         | 02/26/08 | 4973         | 02/26/09   | 5689        | 03/02/10             | 4080                     |
| 05/24/07             | 2274         | 02/28/08 | 4817         | 03/03/09   | 4632        | 03/04/10             | 4638                     |
| 05/29/07             | 2054         | 03/04/08 | 5508         | 03/05/09   | 4749        | 03/09/10             | 4706                     |
| 05/31/07             | 1978         | 03/06/08 | 4984         | 03/10/09   | 3578        | 03/11/10             | 4596                     |
| 06/05/07             | 1751         | 03/11/08 | 4872         | 03/12/09   | 3256        | 03/16/10             | 4014                     |
| 06/07/07             | 1919         | 03/11/08 | 4872         | 03/17/09   | 2919        | 03/18/10             | 3951                     |
| 06/12/07             | 1921         | 03/13/08 | 4569         | 03/19/09   | 3526        | 03/23/10             | 4669                     |
| 06/14/07             | 1939         | 03/18/08 | 4638         | 03/24/09   | 5182        | 03/25/10             | 4694                     |
| 06/19/07             | 1931         | 03/20/08 | 4734         | 03/26/09   | 5653        | 03/30/10             | 5952                     |
| 06/21/07             | 1924         | 03/25/08 | 4888         | 03/31/09   | 5583        | 04/01/10             | 5577                     |
| 06/26/07             | 1694         | 03/27/08 | 5102         | 04/02/09   | 4825        | 04/06/10             | 4369                     |
|                      | 1649         | 04/01/08 | 5117         | 04/07/09   | 4333        | 04/08/10             | 3707                     |
| 06/28/07             |              | 04/03/08 | 5174         | 04/09/09   | 4201        | 04/13/10             | 3883                     |
| 07/02/07             | 1646         | 04/08/08 | 5270         | 04/14/09   | 4827        | 04/15/10             | 4052                     |
| 07/05/07             | 1643         |          | 4826         | 04/16/09   | 4506        | 04/20/10             | 5633                     |
| 07/12/07             | 1374         | 04/10/08 | 3856         | 04/21/09   | 5340        | 04/22/10             | 5886                     |
| 07/13/07             | 1375         | 04/15/08 | 4437         | 04/23/09   | 5271        | 04/27/10             | 5718                     |
| 07/17/07             | 1395         | 04/17/08 |              | 04/28/09   | 5299        | 04/29/10             | 6283                     |
| 07/19/07             | 1392         | 04/22/08 | 5305         | 04/26/09   | 4881        | 05/04/10             | 5457                     |
| 07/24/07             | 1154         | 04/24/08 | 6165         |            | 4925        | 05/06/10             | 5043                     |
| 07/26/07             | 1152         | 04/29/08 | 6160         | 05/05/09   |             | 05/06/10             | 4491                     |
| 07/31/07             | 1358         | 05/01/08 | 7248         | 05/07/09   | 5246        |                      | 4222                     |
| 08/02/07             | 1439         | 05/06/08 | 5849         | 05/12/09   | 5663        | 05/13/10             |                          |
| 08/07/07             | 1331         | 05/08/08 | 5722         | 05/14/09   | 5031        | 05/18/10             | 4383                     |
| 08/09/07             | 1354         | 05/13/08 | 5052         | 05/19/09   | 4030        | 05/20/10             | 5029                     |
| 08/14/07             | 1354         | 05/15/08 | 4510         | 05/21/09   | 4138        | 05/25/10             | 4558                     |
| 08/16/07             | 1401         | 05/20/08 | 4921         | 05/26/09   | 5554        | 05/27/10             | 4503                     |
| 08/21/07             | 1324         | 05/22/08 | 5214         | 05/28/09   | 4332        | 06/01/10             | 5305                     |
| 08/23/07             | 1228         | 05/27/08 | 5394         | 06/02/09   | 3292        | 06/03/10             | 4344                     |
| 08/28/07             | 760          | 05/29/08 | 5812         | 06/04/09   | 4594        | 06/08/10             | 4931                     |
| 08/30/07             | 912          | 06/03/08 | 5593         | 06/09/09   | 6137        | 06/10/10             | 5450                     |
| 09/04/07             | 1057         | 06/05/08 | 5232         | 06/11/09   | 5680        | 06/15/10             | 6577                     |
| 09/06/07             | 1242         | 06/10/08 | 4492         | 06/16/09   | 4756        | 06/17/10             | 6309                     |
| 09/11/07             | 1345         | 06/12/08 | 4056         | 06/18/09   | 3685        | 06/22/10             | 4532                     |
| 09/13/07             | 1509         | 06/17/08 | 3989         | 06/23/09   | 3474        | 06/24/10             | 4215                     |
| 09/18/07             | 1668         | 06/19/08 | 4434         | 06/25/09   | 3821        | 06/29/10             | 3589                     |
| 09/20/07             | 1751         | 06/24/08 | 5480         | 06/30/09   | 4358        | 07/01/10             | 4300                     |
| 09/25/07             | 1694         | 06/26/08 | 5297         | 07/02/09   | 4658        | 07/06/10             | 4888                     |
| 09/29/07             | 1647         | 07/01/08 | 5674         | 07/07/09   | 4986        | 07/08/10             | 3210                     |
| 10/02/07             | 1763         | 07/03/08 | 5574         | 07/09/09   | 5234        | 07/13/10             | 182                      |
| 10/04/07             | 1902         | 07/08/08 | 5806         | 07/14/09   | 4757        | 07/15/10             | 178                      |
| 10/09/07             | 1973         | 07/10/08 | 6135         | 07/16/09   | 4734        | 07/20/10             | 410                      |
| 10/09/07             | 1831         | 07/15/08 | 4736         | 07/21/09   | 4758        | 07/22/10             | 438                      |
| 10/11/07             | 1881         | 07/17/08 | 5290         | 07/23/09   | 5204        | 07/27/10             | 406                      |
| 10/18/07             | 1867         | 07/22/08 | 4941         | 07/28/09   | 5031        | 07/29/10             | 359                      |
| 10/10/0/             |              | 07/24/08 | 5005         | 07/20/09   | 5193        | 08/03/10             | 325                      |
| 10/00/07             |              |          |              |            |             |                      | 0202                     |
| 10/23/07<br>10/25/07 | 2875<br>4006 | 07/29/08 | 5164         | 08/05/09   | 5282        | 08/05/10             | 3056                     |

CITGO LEMONT REFINERY
EFFLUENT TOTAL DISSOLVED SOLIDS DISCHARGED THROUGH OUTFALL 001, mg/L

| 11/01/07         5058         08/05/08         2221         08/11/09         5536         08/12/10         3           11/06/07         4782         08/07/08         1894         08/13/09         5734         08/17/10         4           11/08/07         5248         08/12/08         1610         08/18/09         4968         08/19/10         4           11/08/07         5248         08/14/08         1554         08/20/09         5386         08/24/10         3           11/13/07         5476         08/19/08         1618         08/25/09         4943         08/26/10         4           11/15/07         5516         08/21/08         1669         08/27/09         5189         08/31/10         5           11/20/07         6007         08/25/08         1455         09/01/09         3662         09/02/10         4           11/27/07         5565         08/28/08         3331         09/03/09         3957         09/04/10         4           11/27/07         5445         09/02/08         5422         09/08/09         5000         09/07/10         4           12/01/07         5266         09/04/08         5407         09/10/09         5336         09/09/1   |          | 2007 |          | 2008 |          | 2009    |          | 2010 |
|--|----------|------|----------|------|----------|---------|----------|------|
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| 12/13/07 6142 09/23/08 3802 09/29/09 5981 09/28/10 2 12/18/07 5930 09/25/08 4178 10/01/09 6301 09/30/10 1 12/18/07 5930 09/25/08 5542 10/06/09 5707 12/25/07 6027 10/02/08 5987 10/08/09 5368 12/27/07 6340 10/04/08 5542 10/13/09 6200 10/07/08 5987 10/15/09 5559 10/09/08 5353 10/20/09 5244 10/14/08 5775 10/22/09 5561 10/16/08 5826 10/27/09 2959 10/23/08 6397 11/03/09 3247 10/28/08 5100 11/05/09 3869 10/23/08 6397 11/03/09 3804 10/28/08 5100 11/05/09 3869 10/30/08 6070 11/10/09 5627 11/4/08 6773 11/12/09 5709 11/6/08 6098 11/17/09 5771 11/11/08 6131 11/19/09 5771 11/11/08 6098 11/26/09 6061 11/13/08 6066 11/26/09 5629 11/18/08 60557 12/01/09 6484 11/24/08 7035 12/01/09 6484 11/24/08 7035 12/01/09 6484 11/24/08 7035 12/01/09 5679 11/24/08 6307 12/03/09 5679 11/24/08 6307 12/03/09 5679 11/24/08 5314 12/17/09 5694 11/24/08 5374 12/20/09 5705 12/21/08 5314 12/17/09 6594 12/21/08 5314 12/17/09 6594 12/21/08 5314 12/17/09 6594 12/21/08 5314 12/21/09 5615 12/21/08 5314 12/21/09 5615 12/21/08 5314 12/21/09 5615 12/21/08 5361 12/22/09 5705   |          |      |          |      | 09/24/09 | 5337    | 09/23/10 | 2051 |
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| 10/14/08 5775 10/22/09 5561 10/16/08 5826 10/27/09 2959 10/21/08 6610 10/29/09 3247 10/23/08 6397 11/03/09 3869 10/28/08 5100 11/05/09 3869 10/30/08 6070 11/10/09 5627 11/4/08 6773 11/12/09 5709 11/6/08 6098 11/17/09 6061 11/7/08 6131 11/19/09 5771 11/11/08 6098 11/24/09 6405 11/13/08 6066 11/26/09 5629 11/13/08 6066 11/26/09 5629 11/18/08 6557 12/01/09 6484 11/20/08 7035 12/01/09 6484 11/20/08 7035 12/01/09 5864 11/24/08 6307 12/03/09 5864 11/24/08 6307 12/03/09 5679 11/25/08 6039 12/15/09 5679 11/25/08 6039 12/15/09 5637 12/2/08 5314 12/17/09 6594 12/2/08 5374 12/20/09 5705 12/9/08 5386 12/22/09 5615 12/11/08 5149 12/29/09 4102 12/16/08 5454 12/30/09 4131  |          |      |          |      |          |         |          |      |
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| 11/24/08 6307 12/03/09 5864 11/20/08 7035 12/08/09 5420 11/24/08 6307 12/10/09 5679 11/25/08 6039 12/15/09 5637 12/2/08 5314 12/17/09 6594 12/4/08 5374 12/20/09 5705 12/9/08 5386 12/22/09 5615 12/11/08 5149 12/29/09 4102 12/16/08 5454 12/30/09 4131 12/18/08 5351 12/18/08 5351 12/23/08 6282 12/25/08 6108   |          |      |          |      |          | -       |          |      |
| 11/20/08 7035 12/08/09 5420 11/24/08 6307 12/10/09 5679 11/25/08 6039 12/15/09 5637 12/2/08 5314 12/17/09 6594 12/4/08 5374 12/20/09 5705 12/9/08 5386 12/22/09 5615 12/11/08 5149 12/29/09 4102 12/16/08 5454 12/30/09 4131 12/18/08 5351 12/23/08 6282 12/25/08 6108   |          |      |          |      |          |         |          |      |
| 11/24/08 6307 12/10/09 5679 11/25/08 6039 12/15/09 5637 12/2/08 5314 12/17/09 6594 12/4/08 5374 12/20/09 5705 12/9/08 5386 12/22/09 5615 12/11/08 5149 12/29/09 4102 12/16/08 5454 12/30/09 4131 12/18/08 5351 12/23/08 6282 12/25/08 6108   |          |      |          |      |          |         |          |      |
| 11/25/08 6039 12/15/09 5637 12/2/08 5314 12/17/09 6594 12/4/08 5374 12/20/09 5705 12/9/08 5386 12/22/09 5615 12/11/08 5149 12/29/09 4102 12/16/08 5454 12/30/09 4131 12/18/08 5351 12/23/08 6282 12/25/08 6108   |          |      |          |      |          |         |          |      |
| 12/2/08 5314 12/17/09 6594 12/4/08 5374 12/20/09 5705 12/9/08 5386 12/22/09 5615 12/11/08 5149 12/29/09 4102 12/16/08 5454 12/30/09 4131 12/18/08 5351 12/23/08 6282 12/25/08 6108   |          |      |          |      |          |         |          |      |
| 12/4/08 5374 12/20/09 5705 12/9/08 5386 12/22/09 5615 12/11/08 5149 12/29/09 4102 12/16/08 5454 12/30/09 4131 12/18/08 5351 12/23/08 6282 12/25/08 6108  |          |      |          |      |          |         |          |      |
| 12/9/08     5386     12/22/09     5615       12/11/08     5149     12/29/09     4102       12/16/08     5454     12/30/09     4131       12/18/08     5351       12/23/08     6282       12/25/08     6108   |          |      |          |      |          |         |          |      |
| 12/11/08 5149 12/29/09 4102<br>12/16/08 5454 12/30/09 4131<br>12/18/08 5351<br>12/23/08 6282<br>12/25/08 6108  |          |      |          |      |          |         |          |      |
| 12/16/08 5454 12/30/09 4131<br>12/18/08 5351<br>12/23/08 6282<br>12/25/08 6108   |          |      |          |      |          |         |          |      |
| 12/18/08 5351<br>12/23/08 6282<br>12/25/08 6108  |          |      |          |      |          |         |          |      |
| 12/23/08 6282<br>12/25/08 6108   |          |      |          |      | 12.00.00 | . , 5 , |          |      |
| 12/25/08 6108  |          |      |          |      |          |         |          |      |
|  |          |      |          |      |          |         |          |      |
|  |          |      |          |      |          |         |          |      |
| verage 2644 5068 5050 4  |          | 2044 |          | Enco |          | 5050    |          | 4370 |

4829

# **EXHIBIT J**

### Electronic Filing - Received, Clerk's Office, 04/03/2012

## CITGO'S IMPACT ON THE CHICAGO SANITARY & SHIP CANAL TDS AND SULFATE

|                                  |                 | Mixing Zone |
|----------------------------------|-----------------|-------------|
| 7Q10 flow in Ship Canal          | 850 mgd a/      |             |
| 7Q10 at I-55 bridge              | 970 mgd         |             |
| Mean TDS in effluent             | 4,829 mg/L b/   |             |
| Mean SO4 in effluent             | 3,442 mg/L c/   |             |
| Mean Refinery Flow, 2008-2010    | 4.98 MGD        |             |
| lbs TDS discharged               | 200,550 lbs/day |             |
| lbs of SO4 discharged            | 142,957 lbs/day |             |
| Increase in Ship Canal conc, TDS | 28 mg/L         | 113         |
| Increase in Ship Canal conc. SO4 | 20 mg/L         | 81          |
| Increase at I-55 Bridge, TDS     | 25 mg/L         |             |
| Increase at I-55 Bridge, SO4     | 18 mg/L         |             |

a/ From H&H Feb 2008 Environmental Assessment & Effluent Limit Derivation Report (NH3)

Wet Gas Scrubber design called for 215,000 pounds per day TDS **incremental increase.** 2007 annual Average Flow was 4.81 MGD

TDS pre-Wet Gas Scrubber in Refinery outfall averaged 2,644 mg/L or 106,065 pounds per day TDS post-Wet Gas Scrubber in Refinery outfall averaged 4,829 mg/L or 200,515 pounds per day So Wet Gas Scrubber incremental loading has been on the order of **94,450** pounds per day, versus **215,000** pounds per day estimated in Variance Petition

b/ Effluent data 2008 thur 2010

c/ Effluent data 1/2009 to 9/2010

# **EXHIBIT K**

### CITGO PETROLUEM CORPORATION CHLORIDE AND TDS DATA PLANT OUTFALL

|          | The state of the s |
|----------|--|
| Date     | Chloride, mg/L   |
| 07/25/11 | 130  |
| 08/01/11 | 540  |
| 08/08/11 | 640  |
| 08/17/11 | 680  |
| 08/22/11 | 660  |
| 08/29/11 | 580  |
| 09/06/11 | 630  |
| 09/12/11 | 610  |
| 09/19/11 | 650  |
| 09/26/11 | 680  |
| 10/03/11 | 750  |
| 01/09/12 | 690  |
| 01/16/12 | 870  |
| 01/23/12 | 950  |
| 01/30/12 | 910  |
| 02/06/12 | 1,000  |
| 02/13/12 | 1,000  |
| 02/20/12 | 960  |
| 02/27/12 | 950  |