

ORIGINAL

ILLINOIS POLLUTION CONTROL BOARD

February 24, 2005

IN THE MATTER OF:	)	
	)	
	)	
CITGO PETROLEUM CORPORATION and	)	
PDV MIDWEST REFINING, L.L.C.,	)	
	)	
Petitioners,	)	
	)	
vs.	)	PCB 05-85
	)	
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY,	)	
	)	
Respondent	)	

Report of proceedings had at the Illinois

Pollution Control Board Hearing, held at 100 West

Randolph Street, Chicago, Illinois, on the 24th day of

February, A.D., 2005, commencing at the hour of

9:00 a.m.

1 APPEARANCES:

2 Mr. Bradley P. Halloran  
 Mr. Anand Rao  
 3 Ms. Alisa Liu, P.E.  
 (Illinois Pollution Control Board)  
 4 100 West Randolph Street  
 Suite 11-500  
 5 Chicago, Illinois 60601  
 (312) 814-8917  
 6  
 Mr. Jeffrey C. Fort  
 7 Ms. Letissa Carver Reid  
 (Sonnenschein, Nath & Rosenthal, LLP)  
 8 233 South Wacker Drive  
 Suite 8000  
 9 Chicago, Illinois 60606  
 (312) 876-2380  
 10  
 Mr. James A. Day  
 11 Mr. Darin E. LeCrone  
 Mr. Scott A. Twait  
 12 (Illinois Environmental Protection Agency)  
 1021 North Grand Avenue East  
 13 Springfield, Illinois 62794  
 (217) 782-0610

14 ALSO PRESENT: Ms. Brigitte Postel  
 15 Mr. James E. Huff, P.E.  
 Mr. Claude W. Harmon  
 16 Ms. Stacy Ford

17  
 18  
 19  
 20  
 21  
 22  
 23  
 24

I N D E X

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

WITNESS

PAGE

MR. CLAUDE W. HARMON

Examination by Ms. Carver Reid ..... 17

MR. JAMES E. HUFF, P.E.

Examination by Ms. Carver Reid ..... 27

E X H I B I T S

PETITIONERS' EXHIBIT

PAGE

No. 1 through 15 ..... 18

1 MR. HALLORAN: We're on the record.

2 Good morning, everybody. My name is Bradley  
3 Halloran. I'm a hearing officer with the  
4 Illinois Pollution Control Board, also  
5 assigned to this matter. It's entitled --  
6 It's PCB 05-85, CITGO Petroleum Corporation  
7 and PDV Midwest Refining, L.L.C., are the  
8 petitioners, vs. The Illinois Environmental  
9 Protection Agency, the respondent.

10 Today is February 24th, 2005.

11 It's approximately 9:05. I don't see any  
12 members of the public here that are not  
13 affiliated with the parties, so we'll move  
14 on. I do want to introduce Ms. Alisa Liu and  
15 Anand Rao from my technical unit.

16 MS. FORD: I'm not affiliated with a  
17 party.

18 MR. HALLORAN: And you're from Exxon?

19 MS. FORD: Mobil.

20 MR. HALLORAN: Mobil. But you're a  
21 member -- Okay. Fine. And your name?

22 MS. FORD: Stacy Ford.

23 MR. HALLORAN: F-O-R-D?

24 Ms. FORD: F-O-R-D.

1 MR. HALLORAN: Do you wish to make any  
2 kind of public comment or statement?

3 MS. FORD: No.

4 MR. HALLORAN: Thank you. We're going  
5 to run this hearing pursuant to Section 104,  
6 Subpart B, and Section 101, Subpart F, of the  
7 Board's procedural provisions. I also want  
8 to note for the record that this hearing was  
9 properly noticed. This hearing is intended  
10 to develop a record for the Pollution Control  
11 Board. I will not be making the ultimate  
12 decision in this case. I'm here to rule on  
13 any evidentiary matters and make sure the  
14 hearing goes without a hitch.

15 With that said -- But I do want to  
16 note that this hearing has been changed from  
17 Room 11-512. We are now in Room 5-85, and  
18 it's been properly noticed all through the  
19 hallway. And I apologize we had to change  
20 rooms; I didn't realize this many people were  
21 going to show. This is beyond my  
22 expectations from the parties. But in any  
23 event, here we are. I apologize for the  
24 tight quarters.

1 But with that said, would the  
2 parties like to introduce themselves?  
3 Ms. Carver Reid?

4 MS. CARVER REID: Letissa Carver Reid  
5 and Jeffrey Fort of the law firm  
6 Sonnenschein, Nath & Rosenthal, 8000 Sears  
7 Tower, Chicago 60606, on behalf of the  
8 petitioners, CITGO Petroleum Corp. and PDV  
9 Midwest Refining, L.L.C.

10 MR. HALLORAN: Thank you. Mr. Day?

11 MR. DAY: James Day. I'm from the  
12 Illinois Environmental Protection Agency,  
13 division of legal counsel, representing the  
14 Illinois Environmental Protection Agency. We  
15 have here, also on behalf of the Agency,  
16 Mr. Darin LeCrone and Mr. Scott Twait.

17 MR. HALLORAN: Thank you very much.  
18 We'll just proceed as a normal hearing in  
19 this matter. Mr. Fort has suggested he wants  
20 to do an opening, and, Mr. Day, you have the  
21 opportunity as well.

22 Mr. Fort?

23 MR. FORT: Thank you, Mr. Hearing  
24 Officer. CITGO -- Or the petitioners, CITGO

1 and PDV Midwest, appreciate the opportunity  
2 to be before the Board and the Agency and  
3 working with both agencies on this project.

4 The variance that we are seeking  
5 is part of a significant project by CITGO for  
6 environmental improvement. As the record  
7 shows, CITGO has entered into a consent  
8 agreement with U.S. EPA in four states,  
9 including Illinois. The Lemont Refinery is  
10 among three of the refineries covered by this  
11 consent decree.

12 The consent decree calls for  
13 significant emission reductions from these  
14 sources owned and/or operated by CITGO and  
15 related entities. A major part of the  
16 substantial reduction in sulfur dioxide and  
17 nitrous oxide emissions required in that  
18 consent decree will come at the Lemont  
19 Refinery. So this project, overall project,  
20 has a significant environmental benefit to  
21 the people of the State of Illinois, and  
22 CITGO is firmly committed to meeting its  
23 obligations under that consent decree.

24 This variance deals with total

1 dissolved solids in the wastewater and is  
2 required only because of additions of total  
3 dissolved solids to the Chicago Ship Canal  
4 and Illinois River that arise completely  
5 separate from and independent of the present  
6 or future discharges of TDS by the CITGO  
7 Lemont Refinery.

8 CITGO has included a substantial  
9 amount of equipment in its design and  
10 adjusted its design to minimize the  
11 environmental effects of its wastewater  
12 discharges from the wet gas scrubber, which  
13 is the principal air emission reduction  
14 technology being employed under the consent  
15 decree. CITGO has been able to modify the  
16 design and to achieve compliance with all  
17 other wastewater parameters except for total  
18 dissolved solids. And the TDS issue is not  
19 caused by CITGO or the consent decree, but by  
20 the snowmelt from road deicing activities.

21 As the Board knows, the test for  
22 variance relief is whether or not the burden  
23 on the petitioner outweighs the adverse  
24 effect on the public. Here we believe the



1 record will show that there is no adverse  
2 effect on the public as a result of grant of  
3 this variance, yet there would be a  
4 substantial burden on the petitioner if this  
5 variance is not granted.

6 There is no adverse effect from  
7 the sulfate or TDS levels that are projected  
8 to result from the wet gas scrubber. IEPA,  
9 in fact, is evaluating doing a water quality  
10 rule change in light of these findings, which  
11 we've included as Exhibit 10 to our evidence  
12 here.

13 The relative effect of the TDS  
14 discharge here is within the sampling  
15 sensitivity of the instrumentation to sample  
16 for TDS. We can do a mass balance  
17 calculation, and we know that due to  
18 snowmelt, there had been elevated levels of  
19 TDS in the Illinois River. One cannot model  
20 and verify it just because of the variability  
21 in the sampling instruments. And Jim Huff's  
22 testimony will address that further.

23 Most importantly, there's no  
24 practical alternative to avoid the TDS and

1 the discharge from the wet gas scrubber. We  
2 approached IEPA about doing a deep well  
3 injection, and that was rejected. CITGO  
4 investigated sewerage the discharge either to  
5 the MSD, who told us they did not have the  
6 capacity to handle the discharge, and the  
7 existing wastewater treatment plant at the  
8 refinery also does not have the capability of  
9 handling this discharge from the wet gas  
10 scrubber.

11 Existing tankage at the refinery  
12 is not adequate nor available during the  
13 runoff conditions, the very time that there  
14 may be an issue in the Illinois River; and  
15 that is, in part, due to upgrading of runoff  
16 patterns in residential developments. Again,  
17 Jim Huff's testimony and Exhibit 5 are going  
18 to go to those factors.

19 CITGO is under a very tight  
20 compliance schedule for the Lemont Refinery  
21 and subject to stipulated penalties by  
22 U.S. EPA in Illinois under the consent decree  
23 if we do not make that schedule, and the  
24 schedule is included as Exhibit 2. Time is

1           lacking to do a refiling of the variance  
2           petition with all the details requested even  
3           though most of those details have been  
4           discussed with the air division and the water  
5           permitting division of Illinois EPA before we  
6           filed this variance.

7                       We requested a hearing in order to  
8           expedite the Board ruling on this request and  
9           to stay on schedule under the consent decree.  
10          And we do appreciate the Agency and the Board  
11          working on this tight schedule with us.  
12          We've worked closely with IEPA and believe  
13          they will issue a favorable recommendation  
14          based upon the additional information and  
15          additions provided in this record with  
16          respect to this variance petition.

17                      All the information that has been  
18          provided informally to the Agency is included  
19          in our exhibits and testimony today, and I  
20          would particularly call your attention to  
21          Exhibits 2 through 6. We had several  
22          discussions with the Agency about the  
23          conditions for this variance. The language  
24          in Exhibit 7 was modified from that presented

1 in a petition to address the Agency comments.

2 The Board questions anticipated  
3 many of the facts that we were going to  
4 present. We revised our presentation to be  
5 responsive to the specific questions raised  
6 by the Board and to the questions raised by  
7 the Agency's recommendation. And that comes  
8 in the testimony of Mr. Harmon and Mr. Huff.

9 The revised compliance plan  
10 focuses on a continued monitoring and  
11 fine-tuning of the extent of TDS issues in  
12 the Illinois River. This provides data that  
13 is not otherwise routinely collected by IEPA  
14 and we believe will enhance the understanding  
15 of the snowmelt conditions. We believe this  
16 will provide information that the Agency  
17 might not otherwise have the funding to  
18 undertake and could lead to better  
19 understanding of the snowmelt phenomenon and  
20 perhaps yield ideas on how to reduce that  
21 impact.

22 During this time, CITGO will be  
23 evaluating ways to restrict its discharge  
24 during those events. We project being in

1 compliance, through whatever method becomes  
2 necessary, within the five-year period of  
3 this variance.

4 To answer a couple of the  
5 questions of the Board, the relief is just  
6 for TDS, total dissolved solids, not for  
7 sulfates. The refinery address is 135th  
8 Street and New Avenue in Lemont. Before the  
9 site-specific rule change was adopted, the  
10 refinery, then owned by Unical (phonetic),  
11 underwent a series of variances relating to  
12 ammonia nitrogen. Those variances led to and  
13 were resolved by the site-specific effluent  
14 standard at 35 Illinois Administrative  
15 Code 304.213 for ammonia nitrogen, which were  
16 adopted in rule-making proceedings, R84-13,  
17 R93-8, and R98-14.

18 Last of all, we would ask the  
19 Agency to confirm that they support the  
20 variance and the conditions being presented  
21 today based on this record.

22 MR. HALLORAN: Thank you, Mr. Fort.

23 Mr. Day?

24 MR. DAY: I would like to take this

1 opportunity to clarify some of the procedural  
2 history and how that relates to the Agency's  
3 current position with respect to the  
4 petition. At this point, at the opening of  
5 the hearing, I am unable to grant Mr. Fort's  
6 request that the Agency state its support for  
7 the petition.

8 As required by the Illinois  
9 Environmental Protection Act and the rules  
10 promulgated thereunder, our agency did  
11 complete a review of this petition, and we  
12 found two marked defects that prevented us  
13 from recommending that the petition be  
14 granted. The first of those, which of course  
15 was noted in our recommendation for denial,  
16 was that the consent order relied upon for  
17 the justifications for seeking this variance  
18 did not appear to be final or entered by a  
19 court as the petition stood as filed.

20 Secondly, the compliance plan  
21 included in the petition was lacking. That  
22 compliance plan appeared at pages 11 and 12  
23 of the original petition.

24 Based on those two issues, as

1 Mr. Fort described, we've been in  
2 communication with the applicant, the  
3 petitioner, for many weeks now; and we have  
4 had the opportunity to negotiate and review  
5 all of the evidence and testimony which is  
6 expected to be provided today.

7 Assuming that those exhibits meet  
8 with our expectations and the testimony  
9 follows what we've been led to expect, it is  
10 a safe presumption that at the close of  
11 today's hearing, our agency will be in  
12 support of this petition.

13 MR. HALLORAN: Okay. Thank you.

14 And with that said, I do want to  
15 add that our technical unit has been  
16 feverishly wading through the prefiled  
17 testimony that was filed on February 17th,  
18 and it may be necessary during the  
19 posthearing briefing that they may have  
20 additional questions regarding the prefiled  
21 testimony or the testimony that's about to  
22 take place today. So I just want to let  
23 everybody know that.

24 With that said, Ms. Carver Reid,

1 do you want to address the prefiled  
2 testimony?

3 MS. CARVER REID: Actually, we'd like  
4 to enter the prefiled testimony of Mr. Claude  
5 Harmon and Mr. James Huff, have it  
6 transcribed into the record as if read here  
7 today, so that we can be expeditious in this  
8 matter and avoid delay by reading the actual  
9 testimony that's already been filed into the  
10 record.

11 MR. HALLORAN: And you'll give the  
12 court reporter a copy of that?

13 MS. CARVER REID: Yes.

14 MR. HALLORAN: Mr. Day, do you have  
15 any objection to that?

16 MR. DAY: No, I don't.

17 MR. HALLORAN: Sure. That will be  
18 done. We'll give the prefiled testimony to  
19 the court reporter, and she can transcribe it  
20 into the record as if read.

21 MS. CARVER REID: Actually, I'd like  
22 to swear in the witnesses and just have them  
23 verify the content of the testimony.

24 MR. HALLORAN: Sure.



1 MS. CARVER REID: Our first witness is  
2 going to be Mr. Claude Harmon.

3 (Witness sworn.)

4 WHEREUPON:

5 CLAUDE W. HARMON

6 called as a witness herein, having been first duly  
7 sworn, was examined and testified as follows:

8 EXAMINATION

9 BY MS. CARVER REID:

10 Q. Mr. Harmon, will you state your name  
11 and spell your last name for the record?

12 A. My name is Claude Harmon, H-A-R-M-O-N.

13 Q. By whom are you currently employed?

14 A. CITGO Petroleum Corporation.

15 Q. Will you please state your business  
16 address?

17 A. 135th Street and New Avenue, Lemont,  
18 Illinois.

19 Q. And the zip code?

20 A. 60439.

21 Q. Mr. Harmon, what is your current title  
22 at CITGO?

23 A. I'm the environmental manager at the  
24 Lemont Refinery.

1 Q. And how long have you been in that  
2 position?

3 A. Since '94.

4 Q. Was your testimony prefiled in this  
5 matter on February 17th, 2005?

6 A. Yes.

7 Q. Is this that same prefiled testimony?

8 A. Yes.

9 Q. Do you verify that your prefiled  
10 testimony is true and correct?

11 A. Yes.

12 Q. Exhibits marked 1 through 15 were  
13 filed in support of your prefiled testimony. Do you  
14 verify that the contents of Exhibit 1 through 15 is  
15 true and correct?

16 A. Yes.

17 MS. CARVER REID: At this time we  
18 request that the prefiled testimony of Claude  
19 Harmon be transcribed into the record as if  
20 read.

21 MR. HALLORAN: Any objection, Mr. Day?

22 MR. DAY: No.

23 MR. HALLORAN: So be it.

24

## 1 TESTIMONY OF CLAUDE HARMON

2 My name is Claude Harmon. My current position  
3 is Environmental Manager for the Lemont Refinery. I  
4 have had this responsibility since August 1994. I  
5 have been in the environmental field for 30 years  
6 including 16 years with the Illinois Central  
7 Railroad, two years with Morton International and  
8 12 years at the Lemont Refinery, which was first  
9 owned by UNO-VEN when I began and is now operated by  
10 CITGO. I received a Bachelor of Science degree in  
11 Environmental Biology from Eastern Illinois  
12 University. I am affiliated with various  
13 environmental committees. I am a member of the  
14 National Petroleum Refiners Association. I am a  
15 member of the Illinois Association of Environmental  
16 Professionals. I am also a Certified Hazardous  
17 Materials Manager with the National Registry of  
18 Environmental Professionals.

19 The purpose of my testimony is to describe the  
20 current efforts by CITGO and the Lemont Refinery to  
21 reduce the Lemont Refinery's air and water  
22 emissions. The Illinois Pollution Control Board  
23 (the "Board") already is aware of the Lemont  
24 Refinery's efforts to achieve the ammonia nitrogen

1 standard through regulatory proceedings (R84-13,  
2 R93-8 and R98-14), which led to the current  
3 site-specific limitation for ammonia nitrogen for  
4 the Lemont Refinery at 35 IAC 304.213. Last fall,  
5 CITGO and PDV Midwest Refining, L.L.C. (collectively  
6 referred to as "CITGO") completed negotiations with  
7 U.S. EPA and the environmental authorities for  
8 Illinois, Georgia, Louisiana, and New Jersey to  
9 substantially reduce emissions of SO2 and NOx, by  
10 23,000 and 7,000 tons respectively, from three  
11 refineries including the Lemont Refinery and two  
12 asphalt plants. For the Lemont Refinery, the  
13 estimated SO2 and NOx emission reductions are 15,000  
14 and 1,100 tons respectively. That agreement was  
15 embodied in a consent decree that was approved on  
16 January 26, 2005; a copy of that signed consent  
17 decree is submitted as Exhibit 1.

18 The consent decree includes an ambitious  
19 construction and compliance schedule for the Lemont  
20 Refinery. To achieve the necessary reductions, the  
21 Lemont Refinery must install a wet gas scrubber in  
22 the Fluidized Catalytic Cracking Unit ("FCCU"), as  
23 well as substantial support equipment and controls.  
24 This requires a major construction project extending

1 approximately 20 months. Exhibit 2 is a copy of the  
2 compliance schedule for the Lemont Refinery to  
3 comply with the consent decree. Stipulated  
4 penalties and other sanctions may be imposed if  
5 CITGO does not meet the consent decree schedule.

6 As described in our variance petition, to meet  
7 the emission requirements of the consent decree, we  
8 are installing the wet gas scrubber in the FCCU, as  
9 well as other equipment at the Lemont Refinery.  
10 (See Exhibit 3 (construction permit drawings  
11 depicting the new equipment to be installed and a  
12 description of the same.)) The result is to  
13 increase the amount of total dissolved solids  
14 ("TDS") in the Lemont Refinery treated wastewater.  
15 Exhibit 4 is a copy of the Variance Petition filed  
16 in this matter on November 8, 2004, which contains  
17 further information.

18 One of the critical path items is to obtain a  
19 construction permit from the water division of  
20 Illinois Environmental Protection Agency ("IEPA").  
21 Exhibit 5 is a copy of the application for that  
22 construction permit. On December 3, 2004, we  
23 submitted that construction permit application,  
24 consistent with the overall construction schedule.

1 In preliminary conversations with the water division  
2 of IEPA, we learned of two critical issues that pose  
3 challenges for the consent decree schedule. First,  
4 IEPA will not grant the construction permit without  
5 also issuing a modified National Pollutant Discharge  
6 Elimination System ("NPDES") permit. Second,  
7 because there has been an exceedance of the TDS  
8 standard in the past, in association with snowmelt  
9 runoff, carrying road salt and similar compounds  
10 into the streams, IEPA could not issue a NPDES  
11 permit for this project unless CITGO obtained a  
12 variance from the Board. Hence, the variance  
13 petition was filed soon after the consent decree was  
14 announced publicly.

15 The Board has before it that variance petition.  
16 I will not repeat what we already have presented in  
17 this record. But I will respond to some of the  
18 questions propounded by the Board, as well as  
19 confirm certain information that we presented to  
20 IEPA since we began this petition process.

#### 21 DESCRIPTION OF ACTIVITY

22 (Responses to Board Questions 4a, 4b)

23 No specific projects are being developed that  
24 would increase the production rate, hence there is

1 no impact on the amount of TDS and sulfates  
2 discharged.

3 The chemical used in the wet gas scrubbing  
4 process was described as "Caustic" in the  
5 construction permit application submitted to IEPA in  
6 December 2004 (Exhibit 5). "Caustic" references a  
7 Sodium Hydroxide solution.

8 PROJECTED WATER QUALITY IMPACTS

9 (Responses to Board Questions 6a, 6b, 6c, 6d)

10 TDS tests for the wastewater treatment plant  
11 ("WWTP") discharge are run on a weekly basis. Below  
12 are monthly averages for year 2004:

13	Yr 2004	TDS (ppm)
14	January	2493
	February	2644
15	March	2183
	April	2244
16	May	1977
	June	1474
17	July	1680
	August	1504
18	September	1699
	October	2003
19	November	1948
	December	1597

20  
21 Sulfate is not a parameter that is routinely  
22 tested for the WWTP discharge.

23 The proposed design flow rate was described in  
24 the construction permit application submitted to

1 IEPA in December 2004 (Exhibit 5). The expected  
2 concentrations of both TDS and sulfates in the purge  
3 water from the wet gas scrubber were described in  
4 the construction permit application submitted to  
5 IEPA in December 2004 (Exhibit 5). Projected  
6 increases in both TDS and sulfates in the discharge  
7 after the wet gas scrubber begins operation are  
8 described in James Huff's December 2004 report  
9 "Impact of CITGO's Proposed Discharge on Water  
10 Quality" (Exhibit 6.)

#### 11 DETAILED COMPLIANCE PLAN

12 (Responses to Board Questions 9a, 9b)

13 The proposed wet gas scrubber will impact the  
14 TDS and sulfate levels in the refinery's effluent  
15 once the unit becomes operational. The expected  
16 concentrations of both TDS and sulfates in the  
17 discharge are described in James Huff's December  
18 2004 report "Impact of CITGO's Proposed Discharge on  
19 Water Quality" (Exhibit 6) and the construction  
20 permit application submitted to IEPA in December  
21 2004 (Exhibit 5).

22 The negotiated compliance plan, completed to  
23 the satisfaction of IEPA, has been submitted to the  
24 Board as Exhibit 7. The proposed TDS compliance



1 plan requires that extensive TDS data be taken from  
2 the Des Plaines River at the I-55 Bridge during the  
3 winter months. Following two seasons of stream  
4 testing, the Lemont Refinery will be able to size  
5 the required holding tank or basin for the wet gas  
6 scrubber discharge during periods of high salinity.  
7 The project for the retention system would commence  
8 by March 1, 2009. The project would be completed by  
9 the winter season beginning December 1, 2009.

10 OTHER ENVIRONMENTAL IMPACT

11 (Response to Board Question 10f)

12 Currently, the only option for a managed  
13 release program would entail using the storm water  
14 basin ("SWB") for retention. The SWB is used to  
15 collect site storm water runoff and drainage from  
16 naturally existing waterways. Over the last few  
17 years, a pronounced increase in storm water volume  
18 has occurred due to residential developments near  
19 the northwest facility boundary. The runoff from  
20 these developments feeds into the naturally existing  
21 waterways that terminate within the Lemont  
22 Refinery's boundaries and ultimately end up in the  
23 SWB. Due to a special condition in the Groundwater  
24 Management Zone Approval Letter, issued by the

1 Bureau of Water Permit section, the SWB water level  
2 must be managed below 12'9" due to the groundwater  
3 gradient. Because of the existing difficulties  
4 associated with managing the water level below 12'9"  
5 with the additional burden created by the increased  
6 storm water runoff volume from residential  
7 developments, to try to retain the wet gas scrubber  
8 effluent during periods of snowmelt and deicing  
9 would not be a viable option at this time. However,  
10 strategies to divert the residential runoff prior to  
11 crossing the Lemont Refinery boundaries are being  
12 pursued. If a diversion project is implemented,  
13 retention of the wet gas scrubber effluent (due to  
14 snowmelt conditions) in the SWB may be feasible.

15 MS. CARVER REID: We have a second  
16 witness that I'd also like to verify, do the  
17 same and verify his testimony as well.

18 MR. HALLORAN: Okay. Do you want to  
19 do that now? Or I thought we'd take care of  
20 Mr. Harmon first and then -- Let's take care  
21 of Mr. Harmon first.

22 Do you have any direct, such as it  
23 is, of Mr. Harmon?

24 MS. CARVER REID: No, I don't.

1 MR. HALLORAN: Mr. Day?

2 MR. DAY: No questions for Mr. Harmon.

3 MR. HALLORAN: I'm going to turn it  
4 over to the technical unit, Mr. Rao or  
5 Ms. Liu.

6 MR. FORT: If I could just make a  
7 point here, it may be that some of the  
8 questions that are directed at Mr. Harmon,  
9 Mr. Huff is going to be also -- or maybe even  
10 in a better position to answer, because they  
11 worked together on this project.

12 MR. HALLORAN: Let's swear him in.

13 (Witness sworn.)

14 WHEREUPON:

15 JAMES E. HUFF, P.E.,  
16 called as a witness herein, having been first duly  
17 sworn, was examined and testified as follows:

18 EXAMINATION

19 BY MS. CARVER REID:

20 Q. Mr. Huff, will you please state your  
21 name and spell your last name for the record?

22 A. James E. Huff, H-U-F-F.

23 Q. By whom are you currently employed?

24 A. The consulting firm Huff & Huff, Inc.

1 Q. Will you please state the business  
2 address for Huff & Huff, Inc.?

3 A. 512 West Burlington Avenue, LaGrange,  
4 Illinois 60525.

5 Q. And can you tell us when Huff & Huff,  
6 Inc., was founded?

7 A. 1979.

8 Q. Mr. Huff, was your prefiled testimony  
9 filed in this matter on February 17th, 2005?

10 A. My understanding, yes.

11 Q. Is this a copy of that same prefiled  
12 testimony?

13 A. Yes, it is.

14 Q. Do you verify that your prefiled  
15 testimony is true and correct?

16 A. Yes.

17 Q. As you are aware, Exhibits 1 through  
18 15 were filed in support of your prefiled testimony.  
19 Do you verify that the contents of Exhibits 1  
20 through 15 is true and correct?

21 A. To the best of my knowledge, yes.

22 MS. CARVER REID: At this time we  
23 request that the prefiled testimony of  
24 James E. Huff be transcribed into the record

1 as if read.

2 MR. HALLORAN: Mr. Day, any objection?

3 MR. DAY: No.

4 TESTIMONY OF JAMES E. HUFF

5 My name is James E. Huff. I am Vice President  
6 and part owner of Huff & Huff, Inc., an  
7 environmental consulting firm founded in 1979. I  
8 received a Bachelor of Science in Chemical  
9 Engineering in 1970 from Purdue University and was  
10 awarded a Masters of Science in Engineering from the  
11 Environmental Engineering Department at Purdue  
12 University in 1971. I am a registered Professional  
13 Engineer in Illinois as well as in New Jersey.

14 I currently serve on the Board of Directors for  
15 the American Council of Engineering Companies-IL and  
16 served three years as Chair of the Illinois  
17 Environmental Protection Agency Liaison Committee  
18 for the same organization. I also serve on the  
19 Illinois Statewide Nutrient Science Committee, which  
20 is charged with proposing state nutrient standards,  
21 and am the lead consultant for the Northeastern  
22 Illinois Planning Commission ("NIPC") for evaluating  
23 Facility Planning Amendment requests for consistency  
24 with NIPC's Water Quality Management Plan.

1           My work experience includes two years with  
2 Mobil Oil as an Advanced Environmental Engineer  
3 during the construction and start-up of the Joliet  
4 Refinery. My responsibilities at the Joliet  
5 Refinery included the construction oversight and  
6 start-up of the wastewater treatment facilities,  
7 technical support for the wastewater treatment  
8 including sampling, discharge monitoring reports,  
9 and National Pollutant Discharge Elimination System  
10 ("NPDES") permit preparation. From this experience,  
11 I am familiar with refinery operations and the  
12 associated wastewater treatment, as well as the  
13 Des Plaines River.

14          After leaving Mobil in the fall of 1973, I was  
15 employed for three years at IIT Research Institute  
16 in the Chemical Engineering Department, working on  
17 advanced wastewater treatment projects including  
18 catalytic oxidation of cyanide in petroleum  
19 wastewaters. I also assisted in preparing the  
20 Economic Impact/Cost-Benefit Analysis on a proposed  
21 total dissolved solids ("TDS") rule change in  
22 Illinois. I then spent four years with Armak  
23 Company, now called Akzo Nobel Chemicals. I was the  
24 Corporate Manager of Environmental Affairs

1 responsible for regulatory compliance and  
2 engineering design of environmental systems at nine  
3 manufacturing facilities in the United States and  
4 Canada including fatty amines plants in McCook and  
5 Morris, Illinois.

6 For the last 25 years at Huff & Huff, Inc., I  
7 have been involved in over 30 environmental impact  
8 studies associated with the impact of wastewater  
9 discharges on receiving streams throughout the  
10 United States. Some of these studies have involved  
11 TDS, sulfates, and chlorides. Surveys I have been  
12 involved with in Illinois have included the  
13 following streams: Chicago Sanitary and Ship Canal,  
14 Des Plaines River, Casey Fork Creek, Aux Sable  
15 Creek, Flint Creek, Mill Creek, Thorn Creek, Kent  
16 Creek, Fox River, Mississippi River, Deer Run Creek,  
17 Salt Fork of the Saline River, Cedar Creek, Tyler  
18 Creek, Kishwaukee River. These stream surveys have  
19 included water quality, fish, macroinvertebrate,  
20 mussels and sediment quality. I also have completed  
21 mixing zone studies on the large streams listed  
22 above.

23 I have worked with the Lemont Refinery for the  
24 past 22 years on various wastewater issues including

1 two adjusted standards relating to ammonia, a mixing  
2 zone study, collection of macroinvertebrates in the  
3 Ship Canal, modeling of ammonia from the Lemont  
4 Refinery all the way down the Illinois River,  
5 preparation of a Storm Water Pollution Prevention  
6 Plan for the Lemont Refinery, and preparation of  
7 environmental training modules for a variety of  
8 subjects.

9 I have been retained by CITGO Petroleum  
10 Corporation's Lemont Refinery to assist in the  
11 evaluation of alternatives for the wastewater stream  
12 generated by the new FCC wet gas scrubber,  
13 identifying water quality impacts, preparing the  
14 construction permit and NPDES permit modification  
15 applications, and providing technical support on the  
16 variance petition. A copy of my resume is presented  
17 in Exhibit 8.

18 Presented herein is a description of the areas  
19 I have investigated that are related to the variance  
20 petition, which incorporates questions raised by the  
21 Illinois Pollution Control Board (the "Board") and  
22 Illinois Environmental Protection Agency ("IEPA" or  
23 the "Agency") in these same areas.

24



## APPLICABLE REGULATIONS

1                   The requested variance is for TDS in the  
2  
3   Chicago Sanitary and Ship Canal and the Des Plaines  
4   River. The wet gas scrubber discharge will contain  
5   significant sodium sulfate, which essentially is the  
6   source of the TDS subject to the variance request.  
7   To the I-55 Bridge, the Des Plaines River is  
8   classified as a Secondary Contact waterway with a  
9   TDS water quality standard of 1,500 mg/L. From the  
10   I-55 Bridge downstream, the Des Plaines River is  
11   classified as General Use with a TDS water quality  
12   standard of 1,000 mg/L.

13               There are no water quality standards on sodium.  
14   The sulfate General Use water quality standard is  
15   500 mg/L. There is no Secondary Contact water  
16   quality standard for sulfate. The proposed  
17   discharge will not cause or contribute to a sulfate  
18   water quality exceedance, and therefore a variance  
19   for the sulfate component is not requested.

## EXISTING WATER QUALITY DATA

21               (Responses to Board Questions 7a and 10b; IEPA  
22               Recommendation Comments 15 and 19)

23               The Lemont Refinery has collected TDS samples  
24   from the Chicago Sanitary and Ship Canal weekly from

1 1998 to 2005. Exhibit 9 presents these eight-plus  
2 years of data, collected upstream of the Lemont  
3 Refinery's wastewater discharge. To date, no TDS  
4 water quality exceedances were recorded in 1998,  
5 1999, 2000, 2001, 2003, 2004, and 2005. In 2002,  
6 one exceedance occurred on March 8, 2002 when a TDS  
7 level of 1,636 mg/L was recorded.

8 A previously submitted document entitled  
9 "Impact of CITGO's Proposed Discharge on Water  
10 Quality" (Exhibit 6) contains TDS data collected by  
11 the Metropolitan Water Reclamation District of  
12 Greater Chicago ("MWRDGC") on the same waterway from  
13 2000 to 2002. At the Lockport Lock & Dam,  
14 downstream of the Lemont Refinery outfall, on TDS  
15 exceedance (1,595 mg/L) was documented on January 4,  
16 2001. (The Lemont Refinery recorded 1,408 mg/L on  
17 January 5, 2001.) At the next station, Jefferson  
18 Street in Joliet, one TDS exceedance (1,535 mg/L)  
19 was recorded on February 24, 2000. Further  
20 downstream at the Empress casino, one exceedance  
21 (1,867 mg/L) was recorded also on February 24, 2000.  
22 At the I-55 Bridge, where the General Use water  
23 quality standard begins, the 1,000 mg/L standard was  
24 exceeded on the following dates: 3/16/2000 - 1,902

1 mg/L, 1/25/2001 - 1,194 mg/L, 2/1/2001 - 1,075 mg/L,  
2 2/8/2001 - 1,139 mg/L. The last three occurred over  
3 three consecutive sampling events, implying that the  
4 TDS excursion was persistent for at least 15 days.

5 A review of all the TDS data (Exhibits 6 and 9)  
6 reveals that all of the elevated TDS readings occur  
7 in the winter, and are attributable to snowmelt  
8 runoff carrying salt runoff from highway deicing  
9 activities. The Agency's Recommendation Comment 15  
10 states that no information has been provided between  
11 the discharge and downstream water quality standard  
12 violation. Assuming during snowmelt the streams are  
13 at their harmonic mean flow, the flow at the I-55  
14 Bridge would be 3,690 cfs. This is a conservative  
15 flow estimate. At 1,000 mg/L TDS, this translates  
16 into 20,000,000 pounds per day of TDS passing  
17 beneath the I-55 Bridge. The Lemont Refinery wet  
18 gas scrubber will contribute an average 215,000  
19 pounds per day, or approximately 11 mg/L, or 1  
20 percent of the total loading under this scenario.  
21 According to Standard Methods, the precision of the  
22 TDS test method with a known sample TDS  
23 concentration of 293 mg/L when tested in 77 samples  
24 yielded a standard deviation of 21.20 mg/L. In

1 essence, the contribution from the Lemont Refinery  
2 will be less than the precision of this test when  
3 the Des Plaines River exceeds 1,000 mg/L. Note,  
4 when the 1,902 mg/L TDS was recorded in the  
5 Des Plaines River, this is equivalent to 38,000,000  
6 pounds per day of TDS, and the Lemont Refinery's  
7 contribution would be on the order of 0.6 percent of  
8 the total loading.

9       There is a strong correlation between the  
10 upstream TDS readings and the downstream TDS  
11 readings. This is to be expected as TDS is  
12 considered a "conservative" pollutant; that is,  
13 there is little or no reduction due to chemical or  
14 biological processes. In addition, the  
15 preponderance of flow at the I-55 Bridge originates  
16 from the Chicago Area, so there is limited  
17 dilutional effects until further downstream.

18       TOXICITY/FUTURE POSSIBLE CHANGES IN WATER QUALITY

19       Water quality standards historically have been  
20 developed based on toxicity. As TDS is composed of  
21 a variety of anions and cations, there are no  
22 "toxicity" values that can be applied to the generic  
23 TDS parameter. Sulfates and chlorides make up the  
24 majority of the anions, and these compounds

1 typically are regulated. In Illinois for General  
2 Use waters, TDS, sulfates and chlorides all are  
3 regulated.

4 Several years ago, IEPA began a detailed review  
5 of these water quality standards that by early 2004  
6 led the Agency to hold a stakeholders' meeting. The  
7 Agency, at this point, believed that technical data  
8 supported elimination of the TDS water quality  
9 standard and increasing the sulfate General Use  
10 limit to approximately 1,800 mg/L. Information  
11 provided to the stakeholders by the Agency on this  
12 issue is included in Exhibit 10.

13 U.S. EPA's review of the Agency's work has lead  
14 to additional toxicity testing by the State of  
15 Illinois, which is ongoing and expected to be  
16 completed by September 2005. If the additional  
17 toxicity tests are consistent with the previous  
18 research, the Agency is expected to propose these  
19 changes in water quality standards in the fourth  
20 quarter of 2005.

21 The Agency's efforts are relevant to the Lemont  
22 Refinery's petition, as it goes to the environmental  
23 impact the proposed discharge will have; that is,  
24 sodium sulfate, at the proposed levels discharged,

1 will not impact the aquatic community in the Chicago  
2 Sanitary and Ship Canal or in the Des Plaines River.  
3 There is no adverse effect on aquatic life due to  
4 TDS and sulfate levels.

5 PROJECTED EFFLUENT CONTRIBUTION

6 (Responses to Board Questions 6 and 11

7 The projected effluent contribution was  
8 described in my report, "Impact of CITGO's Proposed  
9 Discharge on Water Quality" (Exhibit 6), and will  
10 average 215,000 pounds per day of TDS. The loadings  
11 were further described in the construction permit  
12 application submitted to IEPA in December 2004  
13 (Exhibit 5), and also in the NPDES permit  
14 modification application submitted to the Agency in  
15 August 2004 (Exhibit 11). Exhibit 12 is a copy of  
16 the existing NPDES permit.

17 PROJECTED WATER QUALITY IMPACTS

18 (Responses to Board Questions 10b, 10c, 10d, 10e)

19 The projected incremental increase in both TDS  
20 and sulfates in the Chicago Sanitary and Ship Canal  
21 and in the Des Plaines River were described in my  
22 December 2004 report "Impact of CITGO's Proposed  
23 Discharge on Water Quality" (Exhibit 6). This  
24 analysis was done based on the 7-day, 10-year low

1 flow rates in the streams, and relied on the 1992  
2 mixing zone study completed by Huff & Huff, Inc.,  
3 for the Lemont Refinery. (This mixing zone study  
4 was provided to the Board as part of the Lemont  
5 Refinery's Ammonia Adjusted Standard request,  
6 R93-8.) The effluent design has not changed since  
7 that study, and remains valid with the added flow of  
8 274,000 gallons per day from the wet gas scrubber.

#### 9 ALTERNATIVES

10 (Responses to IEPA Recommendation Comment 17 and  
11 Board Questions 8 and 10f)

12 Huff & Huff, Inc., considered several  
13 alternatives for this 274,000 gallons per day  
14 stream. Deep well disposal initially was evaluated  
15 along with direct discharge. The Agency determined  
16 that the injection of this waste stream would  
17 constitute a Class I underground injection well in  
18 Illinois. (See Exhibit 13.) Class I wells require  
19 injection beneath a cap rock that will prevent  
20 migration upwards into higher aquifers.  
21 Northeastern Illinois does not have a cap rock above  
22 the Mount Simon formation used for disposal wells  
23 throughout the Midwest, and therefore this  
24 alternative was not viable.

1           Based on the TDS stakeholders' meeting in early  
2   2004, direct discharge appeared to be the logical  
3   alternative to deep well disposal. I had  
4   anticipated that the Agency TDS and sulfate rule  
5   change would have gone to the Board by mid-2004,  
6   which possibly would have made this variance request  
7   unnecessary. This did not happen, and the Agency  
8   position that the addition of this wastewater stream  
9   would contribute to the existing TDS violations that  
10  periodically occur due to salt runoff from highway  
11  deicing activities leads to this variance request.

12           The Board has heard numerous requests over the  
13  years for variances from the TDS water quality  
14  standards and these requests consistently have found  
15  evaporation technology cost- and energy-prohibitive.  
16  The evaporation costs are described in Exhibit 14.  
17  These costs were derived from Rhodia's adjusted  
18  standard request, using scale-up factors.

19                   TDS COMPLIANCE PLAN AND SCHEDULE

20           Exhibit 7 is a proposed TDS compliance  
21  commitment, which includes tasks and schedules. The  
22  plan calls for extensive TDS data collection from  
23  the Des Plaines River at the I-55 Bridge during the  
24  winter months. After two seasons of stream testing,



1 the Lemont Refinery will be in a position to size  
2 the necessary holding tank or basin for the wet gas  
3 scrubber discharge during periods of high salinity.  
4 Physical construction of the holding tank or basin  
5 would begin by March 1, 2009, and construction would  
6 be complete for the winter season beginning  
7 December 1, 2009.

8 RESPONSES TO BOARD QUESTIONS 5, 7b, 10b, 10e, 12

9 5. Clarify whether Best Available Technology  
10 ("BAT") applies only to ammonia.

11 In the testimony of Robert Stein of Aware  
12 (R98-14), Mr. Stein compared the entire wastewater  
13 treatment facilities to the federal BAT  
14 requirements. Mr. Stein concluded: "[o]ur analysis  
15 of the Lemont Refinery wastewater treatment system  
16 indicates that it exceeds the BAT technology for  
17 refinery wastewater treatment as presented in the  
18 1982 U.S. EPA Development Document." The BAT  
19 determination applied to the total wastewater  
20 stream, not just those that applied to ammonia.

21 7b. Have modeling studies been completed to  
22 better define the impact on water quality  
23 violations?

24 As noted earlier, TDS is considered a

1 conservative pollutant, so modeling after mixing  
2 essentially is a mass balance. A mass balance  
3 approach was used to predict the incremental change  
4 and average TDS and sulfate levels with the addition  
5 of the proposed discharge. This was presented in my  
6 December 2004 report, "Impact of CITGO's Proposed  
7 Discharge on Water Quality" (Exhibit 6). The mixing  
8 zone study from 1992 was utilized in this same  
9 report.

10 10b. Please comment on the impact of the  
11 sulfate loading.

12 The sulfate impact is presented in my December  
13 2004 Report "Impact of CITGO's Proposed Discharge on  
14 Water Quality" (Exhibit 6), and will amount to an  
15 average of 142,000 pounds per day.

16 10e. Please indicate if the current and  
17 amended NPDES permits allow for mixing of  
18 Outfall 001.

19 The mixing zone study was part of the record in  
20 the Lemont Refinery's Adjusted Standard request  
21 (R93-8), and was incorporated in R98-14. This  
22 mixing zone study was an integral part of the  
23 ammonia adjusted standard, which was relied upon by  
24 the Agency in the issuance of the NPDES permits.

1 Based on this, the answer is yes, the current and  
2 amended NPDES permits allow for mixing.

3 12. Would you propose interim effluent limits  
4 on TDS and sulfates? Would you propose monitoring?

5 A proposed TDS compliance plan has been  
6 submitted as Exhibit 7. This compliance plan  
7 includes extensive stream monitoring.

8 Interim effluent limits are not proposed.  
9 First, no water quality violations of the sulfate  
10 water quality standard will occur; therefore, there  
11 is no basis for sulfate effluent limits.

12 For TDS, it is clear that the TDS water quality  
13 violations are due solely to salt runoff from  
14 highway deicing activities. The proposed discharge  
15 will not change this fact. Limiting the discharge  
16 from the Lemont Refinery, if possible, would not  
17 change the number of TDS water quality violations in  
18 the Ship Canal or at the I-55 Bridge, as the FCC wet  
19 gas scrubber will be contributing on the order of  
20 1 percent of the total salinity loading during these  
21 excursions.

22 The Agency historically has taken the position  
23 that the occurrence of water quality exceedances  
24 downstream of a discharger of the same pollutant

1 does not necessarily lead to a more restrictive  
2 permit limit or enforcement action. As noted by the  
3 Agency in a letter from Dean J. Studer, Supervisor,  
4 Southern Municipal Unit, Permit Section of IEPA, to  
5 Steven Davis, Galesburg Sanitary District, November  
6 15, 2004: "[t]he intent of the Agency was, and  
7 still is, that a District action must be responsible  
8 for a violation of the water quality standard before  
9 it is considered a permit violation." (See  
10 Exhibit 15.) The Lemont Refinery request also would  
11 seem similar to the Village of Wauconda's recent  
12 NPDES permit, where the Agency, with knowledge of  
13 dissolved oxygen violations downstream, concluded  
14 that lowering the effluent BOD5 limit was not  
15 necessary "since it is believed that this effluent  
16 will not cause or contribute to a violation of water  
17 quality standards." (Response to Comments,  
18 Questions and Concerns regarding the Village of  
19 Wauconda's NPDES Permit, at p. 13.) As further  
20 noted by the Agency, "[t]his informatin is limited;  
21 the extent to which it is representative of normal  
22 stream conditions and its relationship to Wauconda  
23 discharge is unknown." The Agency included  
24 dissolved oxygen monitoring in the NPDES permit for

1   Wauconda to collect additional data, and the Lemont  
2   Refinery's Compliance Plan includes a similar data  
3   gathering period.

4           The Lemont Refinery will have no control over  
5   the TDS concentrations, so the only possibility to  
6   control the pounds per day discharged is by limiting  
7   the discharge rate. This means the Lemont Refinery  
8   essentially would have to hold treated effluent.  
9   Presumably, if the Des Plaines River TDS is greater  
10   than 1,000 mg/L at the I-55 Bridge, the Lemont  
11   Refinery would have to cease all discharge. Today,  
12   there is no storage capacity at the Lemont Refinery  
13   to achieve this concept. As described earlier in my  
14   testimony, these violations appear to occur for over  
15   15 consecutive days, but less than 22 days. The  
16   Lemont Refinery will have to come up with in excess  
17   of 4,000,000 gallons of capacity to isolate the wet  
18   gas scrubber during these periods of elevated TDS  
19   levels at the I-55 Bridge. Currently, this excess  
20   capacity does not exist, and the actual number of  
21   days that would require holding wet gas scrubber  
22   water currently is poorly understood. The requested  
23   compliance time frame is for the collection of the  
24   necessary data to properly size this holding

1 basin/tankage. Providing some interim effluent TDS  
2 limit will provide no benefit to the receiving  
3 water, based on the Agency-generated information  
4 contained in Exhibit 10.

5 MR. HALLORAN: Any cross?

6 MR. DAY: No.

7 MR. HALLORAN: Thank you.

8 Now I'll turn it over to the  
9 technical unit. Mr. Rao or Ms. Liu?

10 MS. LIU: I don't have anything right  
11 now.

12 MR. RAO: Same here.

13 MR. HALLORAN: So these are the only  
14 two witnesses that are here today?

15 MS. CARVER REID: Yes, sir.

16 MR. HALLORAN: Off the record for a  
17 minute.

18 (Discussion off the record.)

19 MR. HALLORAN: We're back on the  
20 record.

21 Mr. Day, it appears that CITGO  
22 has -- petitioners have rested their case in  
23 chief.

24 Is that correct, Ms. Carver Reid?

1 MS. CARVER REID: I have one more  
2 item. I would like to, at this time, enter  
3 what has been marked as Exhibits 1 through  
4 15, in support of the prefiled testimony,  
5 into the record as evidence in this  
6 proceeding today.

7 MR. HALLORAN: Mr. Day, any objection?

8 MR. DAY: No.

9 MR. HALLORAN: The written testimony  
10 itself will be transcribed into the  
11 transcript. The exhibits will not. They  
12 will just be a part of the record. Is that  
13 fair enough?

14 MS. CARVER REID: Yes. Thank you.

15 MR. HALLORAN: Mr. Day, you're on.

16 MR. DAY: With the entry of these  
17 exhibits and the submission of the testimony  
18 of Mr. Harmon and Mr. Huff, the petitioner  
19 has met with the expectations that I  
20 described earlier of our agency. The defects  
21 that we had noted in our initial review of  
22 the testimony have been cured, and our agency  
23 is prepared to support the petitioner at this  
24 point; and we will enter no further testimony

1 here today.

2 MR. HALLORAN: Okay. Thank you,  
3 Mr. Day. You've rested your case in chief?

4 MR. DAY: Yes.

5 MR. HALLORAN: Any rebuttal from the  
6 petitioner?

7 MS. CARVER REID: No.

8 MR. HALLORAN: Any closings from the  
9 petitioner or the respondent?

10 MS. CARVER REID: No.

11 MR. HALLORAN: Okay. We can go off  
12 the record.

13 (Discussion off the record.)

14 BY MR. HALLORAN:

15 Q. We've been off the record talking  
16 about posthearing briefs. And we've agreed that it  
17 appears that the technical unit from the Illinois  
18 Pollution Control Board will have your questions, if  
19 any, submitted to the petitioner on or before  
20 March 3rd.

21 And then we've decided that we're  
22 going to be filing simultaneous posthearing briefs  
23 or responses, such as they are, on or before  
24 March 15th. And there's been an agreement that the



1 parties will overnight their responses or briefs on  
2 March 14th so everybody will have it on March 15th.  
3 Basically the no-mailbox rule will apply.  
4 March 21st, simultaneous replies, if any, are due  
5 then. And I'm going to set public comment; the  
6 close for that is -- public comment is due on or  
7 before March 4th.

8 I think that's about it. But I do  
9 have to make a credibility determination. And based  
10 on my legal expertise, observations, I find that  
11 there are no credibility issues with the witnesses  
12 that have testified here today.

13 Have I forgotten anything?

14 It doesn't look that I have. So  
15 in any event, thanks for coming. And this hearing  
16 is now concluded. Thank you.

17 (Which were all the proceedings  
18 had in the above-entitled cause.)  
19  
20  
21  
22  
23  
24

1 STATE OF ILLINOIS )  
2 COUNTY OF COOK ) SS.  
3

4 Kathy A. O'Donnell, being first duly sworn,  
5 on oath says that she is a Registered Professional  
6 Reporter doing business in the City of Chicago,  
7 County of Cook and the State of Illinois;

8 That she reported in shorthand the  
9 proceedings had at the foregoing Illinois Pollution  
10 Control Board hearing;

11 And that the foregoing is a true and  
12 correct transcript of her shorthand notes so taken  
13 as aforesaid and contains all the proceedings had at  
14 the said Illinois Pollution Control Board hearing.

15 Kathy A. O'Donnell

16 KATHY A. O'DONNELL, RPR  
17

18 CSR No. 084-004466

19 SUBSCRIBED AND SWORN TO

20 before me this 9 day of  
March, A.D., 2005.

21 Kimberly A. Meeks

22 NOTARY PUBLIC  
23

24 OFFICIAL SEAL  
KIMBERLY A. MEEKS  
NOTARY PUBLIC - STATE OF ILLINOIS  
MY COMMISSION EXPIRES: 12/17/07

A			
<p>able 8:15 25:4 about 10:2 11:22 15:21 48:16 49:8 above 31:22 39:21 above-entitled 49:18 According 35:21 achieve 8:16 19:24 20:20 45:13 Act 14:9 action 44:2,7 activities 8:20 35:9 40:11 43:14 ACTIVITY 22:21 actual 16:8 45:20 Actually 16:3,21 add 15:15 added 39:7 addition 36:14 40:8 42:4 additional 11:14 15:20 26:5 37:14,16 45:1 additions 8:2 11:15 address 9:22 12:1 13:7 16:1 17:16 28:2 adequate 10:12 adjusted 8:10 32:1 39:5 40:17 42:20,23 Administrative 13:14 adopted 13:9,16 advanced 30:2,17 adverse 8:23 9:1,6 38:3 Affairs 30:24 affiliated 4:13,16 19:12 aforesaid 50:13 after 22:13 24:7 30:14 40:24 42:1 Again 10:16 agencies 7:3 agency 1:11 2:12 4:9 6:12 6:14,15 7:2 11:10,18,22 12:1,16 13:19 14:6,10 15:11 21:20 29:17 32:22,23 37:6,7,11,18 38:14 39:15 40:4,7 42:24 43:22 44:3,6,12 44:20,23 47:20,22 Agency's 12:7 14:2 35:9 37:13,21 Agency-generated 46:3 ago 37:4 agreed 48:16 agreement 7:8 20:14 48:24 air 8:13 11:4 19:21 Akzo 30:23 Alisa 2:3 4:14 allow 42:17 43:2 along 39:15 already 16:9 19:23 22:16 alternative 9:24 39:24 40:3</p>	<p>alternatives 32:11 39:9 39:13 ambitious 20:18 amended 42:17 43:2 Amendment 29:23 American 29:15 amines 31:4 ammonia 13:12,15 19:24 20:3 32:1,3 39:5 41:10 41:20 42:23 among 7:10 amount 8:9 21:13 23:1 42:14 analysis 30:20 38:24 41:14 Anand 2:2 4:15 and/or 7:14 anions 36:21,24 announced 22:14 answer 13:4 27:10 43:1 anticipated 12:2 40:4 anything 46:10 49:13 apologize 5:19,23 appear 14:18 45:14 APPEARANCES 2:1 appeared 14:22 40:2 appears 46:21 48:17 APPLICABLE 33:1 applicant 15:2 application 21:21,23 23:5 23:24 24:4,20 38:12,14 applications 32:15 applied 36:22 41:19,20 applies 41:10 apply 49:3 appreciate 7:1 11:10 approach 42:3 approached 10:2 Approval 25:24 approved 20:15 approximately 4:11 21:1 35:19 37:10 April 23:15 aquatic 38:1,3 aquifers 39:20 Area 36:16 areas 32:18,23 arise 8:4 Armak 30:22 asphalt 20:12 assigned 4:5 assist 32:10 assisted 30:19 associated 26:4 30:12 31:8 association 19:14,15 22:8 Assuming 15:7 35:12 attention 11:20 attributable 35:7 August 19:4 23:17 38:15 authorities 20:7</p>	<p>Aux 31:14 available 10:12 41:9 Avenue 2:12 13:8 17:17 28:3 average 35:18 38:10 42:4 42:15 averages 23:12 avoid 9:24 16:8 awarded 29:10 aware 19:23 28:17 41:11 A.D 1:22 50:20 a.m 1:24</p> <hr/> <p>B 3:11 5:6 Bachelor 19:10 29:8 back 46:19 balance 9:16 42:2,2 based 11:14 13:21 14:24 36:20 38:24 40:1 43:1 46:3 49:9 Basically 49:3 basin 25:5,14 41:2,4 basin/tankage 46:1 basis 23:11 43:11 BAT 41:10,13,16,18 becomes 13:1 24:15 before 7:2 11:5 13:8 22:15 44:8 48:19,23 49:7 50:19 began 19:9 22:20 37:4 begin 41:5 beginning 25:9 41:6 begins 24:7 34:23 behalf 6:7,15 being 8:14 12:24 13:20 22:23 26:11 50:4 believe 8:24 11:12 12:14 12:15 believed 37:7 44:15 below 23:11 26:2,4 beneath 35:17 39:19 benefit 7:20 46:2 best 28:21 41:9 better 12:18 27:10 41:22 between 35:10 36:9 beyond 5:21 biological 36:14 Biology 19:11 Board 1:1,18 2:3 4:4 5:11 7:2 8:21 11:8,10 12:2,6 13:5 19:22,23 22:12,15 22:18,22 23:9 24:12,24 25:11 29:14 32:21,21 33:21 38:6,18 39:4,11 40:5,12 41:8 48:18 50:10,14 Board's 5:7 BOD5 44:14 both 7:3 24:2,6,16 38:19 boundaries 25:22 26:11</p>	<p>boundary 25:19 Bradley 2:2 4:2 Bridge 25:2 33:7,10 34:22 35:14,17 36:15 40:23 43:18 45:10,19 briefing 15:19 briefs 48:16,22 49:1 Brigitte 2:14 burden 8:22 9:4 26:5 Bureau 26:1 Burlington 28:3 business 17:15 28:1 50:6</p> <hr/> <p>C 2:6 calculation 9:17 call 11:20 called 17:6 27:16 30:23 calls 7:12 40:22 Canada 31:4 Canal 8:3 31:13 32:3 33:3,24 38:2,20 43:18 cap 39:19,21 capability 10:8 capacity 10:6 45:12,17 45:20 care 26:19,20 carrying 22:9 35:8 Carver 2:7 3:6,9 6:3,4,4 15:24 16:3,13,21 17:1,9 18:17 26:15,24 27:19 28:22 46:15,24 47:1,14 48:7,10 case 5:12 46:22 48:3 Casey 31:14 casino 34:20 catalytic 20:22 30:18 cations 36:21 cause 33:17 44:16 49:18 caused 8:19 Caustic 23:4,6 cease 45:11 Cedar 31:17 Central 19:6 certain 22:19 Certified 19:16 cfs 35:14 Chair 29:16 challenges 22:3 change 5:19 9:10 13:9 30:21 40:5 42:3 43:15 43:17 changed 5:16 39:6 changes 36:18 37:19 charged 29:20 chemical 23:3 29:8 30:16 36:13 Chemicals 30:23 Chicago 1:20 2:5,9 6:7 8:3 31:13 33:3,24 34:12 36:16 38:1,20 50:6</p>

<b>chief</b> 46:23 48:3 <b>chlorides</b> 31:11 36:23 37:2 <b>CITGO</b> 1:5 4:6 6:8,24,24 7:5,7,14,22 8:6,8,15,19 10:3,19 12:22 17:14,22 19:10,20 20:5,6 21:5 22:11 32:9 46:21 <b>CITGO's</b> 24:9,18 34:9 38:8,22 42:6,13 <b>City</b> 50:6 <b>clarify</b> 14:1 41:9 <b>Class</b> 39:17,18 <b>classified</b> 33:8,11 <b>Claude</b> 2:15 3:5 16:4 17:2,5,12 18:18 19:1,2 <b>clear</b> 43:12 <b>close</b> 15:10 49:6 <b>closely</b> 11:12 <b>closings</b> 48:8 <b>code</b> 13:15 17:19 <b>collect</b> 25:15 45:1 <b>collected</b> 12:13 33:23 34:2,10 <b>collection</b> 32:2 40:22 45:23 <b>collectively</b> 20:5 <b>come</b> 7:18 45:16 <b>comes</b> 12:7 <b>coming</b> 49:15 <b>commence</b> 25:7 <b>commencing</b> 1:22 <b>comment</b> 5:2 35:9 39:10 42:10 49:5,6 <b>comments</b> 12:1 33:22 44:17 <b>Commission</b> 29:22 <b>commitment</b> 40:21 <b>committed</b> 7:22 <b>Committee</b> 29:17,19 <b>committees</b> 19:13 <b>communication</b> 15:2 <b>community</b> 38:1 <b>Companies-IL</b> 29:15 <b>Company</b> 30:23 <b>compared</b> 41:12 <b>complete</b> 14:11 41:6 <b>completed</b> 20:6 24:22 25:8 31:20 37:16 39:2 41:21 <b>completely</b> 8:4 <b>compliance</b> 8:16 10:20 12:9 13:1 14:20,22 20:19 21:2 24:11,22,24 31:1 40:19,20 43:5,6 45:2,23 <b>comply</b> 21:3 <b>component</b> 33:19 <b>composed</b> 36:20 <b>compounds</b> 22:9 36:24 <b>concentration</b> 35:23	<b>concentrations</b> 24:2,16 45:5 <b>concept</b> 45:13 <b>Concerns</b> 44:18 <b>concluded</b> 41:14 44:13 49:16 <b>condition</b> 25:23 <b>conditions</b> 10:13 11:23 12:15 13:20 26:14 44:22 <b>confirm</b> 13:19 22:19 <b>consecutive</b> 35:3 45:15 <b>consent</b> 7:7,11,12,18,23 8:14,19 10:22 11:9 14:16 20:15,16,18 21:3 21:5,7 22:3,13 <b>conservative</b> 35:14 36:12 42:1 <b>considered</b> 36:12 39:12 41:24 44:9 <b>consistency</b> 29:23 <b>consistent</b> 21:24 37:17 <b>consistently</b> 40:14 <b>constitute</b> 39:17 <b>construction</b> 20:19,24 21:10,19,22,23,24 22:4 23:5,24 24:4,19 30:3,5 32:14 38:11 41:4,5 <b>consultant</b> 29:21 <b>consulting</b> 27:24 29:7 <b>Contact</b> 33:8,15 <b>contain</b> 33:4 <b>contained</b> 46:4 <b>contains</b> 21:16 34:10 50:13 <b>content</b> 16:23 <b>contents</b> 18:14 28:19 <b>continued</b> 12:10 <b>contribute</b> 33:17 35:18 40:9 44:16 <b>contributing</b> 43:19 <b>contribution</b> 36:1,7 38:5 38:7 <b>control</b> 1:1,18 2:3 4:4 5:10 19:22 32:21 45:4,6 48:18 50:10,14 <b>controls</b> 20:23 <b>conversations</b> 22:1 <b>Cook</b> 50:2,7 <b>copy</b> 16:12 20:16 21:1,15 21:21 28:11 32:16 38:15 <b>Corp</b> 6:8 <b>Corporate</b> 30:24 <b>Corporation</b> 1:5 4:6 17:14 <b>Corporation's</b> 32:10 <b>correct</b> 18:10,15 28:15 28:20 46:24 50:12 <b>correlation</b> 36:9 <b>cost</b> 40:15	<b>costs</b> 40:16,17 <b>Council</b> 29:15 <b>counsel</b> 6:13 <b>County</b> 50:2,7 <b>couple</b> 13:4 <b>course</b> 14:14 <b>court</b> 14:19 16:12,19 <b>covered</b> 7:10 <b>Cracking</b> 20:22 <b>created</b> 26:5 <b>credibility</b> 49:9,11 <b>Creek</b> 31:14,15,15,15,15 31:16,16,17,18 <b>critical</b> 21:18 22:2 <b>cross</b> 46:5 <b>crossing</b> 26:11 <b>CSR</b> 50:18 <b>cured</b> 47:22 <b>current</b> 14:3 17:21 19:2 19:20 20:2 42:16 43:1 <b>currently</b> 17:13 25:12 27:23 29:14 45:19,22 <b>cyanide</b> 30:18	<b>denial</b> 14:15 <b>Department</b> 29:11 30:16 <b>depicting</b> 21:11 <b>derived</b> 40:17 <b>Des</b> 25:2 30:13 31:14 33:3,7,10 36:3,5 38:2 38:21 40:23 45:9 <b>describe</b> 19:19 <b>described</b> 15:1 21:6 23:4 23:23 24:3,8,17 38:8,11 38:21 40:16 45:13 47:20 <b>description</b> 21:12 22:21 32:18 <b>design</b> 8:9,10,16 23:23 31:2 39:6 <b>detailed</b> 24:11 37:4 <b>details</b> 11:2,3 <b>determination</b> 41:19 49:9 <b>determined</b> 39:15 <b>develop</b> 5:10 <b>developed</b> 22:23 36:20 <b>Development</b> 41:18 <b>developments</b> 10:16 25:18,20 26:7 <b>deviation</b> 35:24 <b>difficulties</b> 26:3 <b>dilutional</b> 36:17 <b>dioxide</b> 7:16 <b>direct</b> 26:22 39:15 40:2 <b>directed</b> 27:8 <b>Directors</b> 29:14 <b>discharge</b> 9:14 10:1,4,6,9 12:23 22:5 23:11,22 24:6,9,17,18 25:6 30:8 30:9 33:4,17 34:3,9 35:11 37:23 38:9,23 39:15 40:2 41:3 42:5,7 42:13 43:14,15 44:23 45:7,11 <b>discharged</b> 23:2 37:24 45:6 <b>discharger</b> 43:24 <b>discharges</b> 8:6,12 31:9 <b>discussed</b> 11:4 <b>Discussion</b> 46:18 48:13 <b>discussions</b> 11:22 <b>disposal</b> 39:14,22 40:3 <b>dissolved</b> 8:1,3,18 13:6 21:13 30:21 44:13,24 <b>District</b> 34:11 44:5,7 <b>diversion</b> 26:12 <b>divert</b> 26:10 <b>division</b> 6:13 11:4,5 21:19 22:1 <b>document</b> 34:8 41:18 <b>documented</b> 34:15 <b>doing</b> 9:9 10:2 50:6 <b>done</b> 16:18 38:24 <b>down</b> 32:4 <b>downstream</b> 33:10 34:14
--	--	--	--

---

**D**


---

**D 3:1**  
**Dam** 34:13  
**Darin** 2:11 6:16  
**data** 12:12 25:1 33:20  
34:2,10 35:5 37:7 40:22  
45:1,2,24  
**date** 34:3  
**dates** 34:24  
**Davis** 44:5  
**day** 1:20 2:10 6:10,11,11  
6:20 13:23,24 16:14,16  
18:21,22 27:1,2 29:2,3  
35:16,19 36:6 38:10  
39:8,13 42:15 45:6 46:6  
46:21 47:7,8,15,16 48:3  
48:4 50:19  
**days** 35:4 45:15,15,21  
**deals** 7:24  
**Dean** 44:3  
**December** 21:22 23:6,19  
24:1,5,8,17,20 25:9  
38:12,22 41:7 42:6,12  
**decided** 48:21  
**decision** 5:12  
**decree** 7:11,12,18,23 8:15  
8:19 10:22 11:9 20:15  
20:17,18 21:3,5,7 22:3  
22:13  
**deep** 10:2 39:14 40:3  
**Deer** 31:16  
**defects** 14:12 47:20  
**define** 41:22  
**degree** 19:10  
**deicing** 8:20 26:8 35:8  
40:11 43:14  
**delay** 16:8

34:20 35:11 36:10,17 43:24 44:13 <b>drainage</b> 25:15 <b>drawings</b> 21:10 <b>Drive</b> 2:8 <b>due</b> 9:17 10:15 25:18,23 26:2,13 36:13 38:3 40:10 43:13 49:4,6 <b>duly</b> 17:6 27:16 50:4 <b>during</b> 10:12 12:22,24 15:18 25:2,6 26:8 30:3 35:12 40:23 41:3 43:20 45:18 <hr/> <b>E</b> <b>E</b> 2:11,15 3:1,8,11 27:15 27:22 28:24 29:4,5 <b>earlier</b> 41:24 45:13 47:20 <b>early</b> 37:5 40:1 <b>East</b> 2:12 <b>Eastern</b> 19:11 <b>Economic</b> 30:20 <b>effect</b> 8:24 9:2,6,13 38:3 <b>effects</b> 8:11 36:17 <b>effluent</b> 13:13 24:14 26:8 26:13 38:5,7 39:6 43:3 43:8,11 44:14,15 45:8 46:1 <b>efforts</b> 19:20,24 37:21 <b>eight-plus</b> 34:1 <b>either</b> 10:4 <b>elevated</b> 9:18 35:6 45:18 <b>elimination</b> 22:6 30:9 37:8 <b>embodied</b> 20:15 <b>emission</b> 7:13 8:13 20:13 21:7 <b>emissions</b> 7:17 19:22 20:9 <b>employed</b> 8:14 17:13 27:23 30:15 <b>Empress</b> 34:20 <b>end</b> 25:22 <b>energy-prohibitive</b> 40:15 <b>enforcement</b> 44:2 <b>Engineer</b> 29:13 30:2 <b>engineering</b> 29:9,10,11 29:15 30:16 31:2 <b>enhance</b> 12:14 <b>enough</b> 47:13 <b>entail</b> 25:13 <b>enter</b> 16:4 47:2,24 <b>entered</b> 7:7 14:18 <b>entire</b> 41:12 <b>entities</b> 7:15 <b>entitled</b> 4:5 34:8 <b>entry</b> 47:16 <b>environmental</b> 1:10 2:12 4:8 6:12,14 7:6,20 8:11 14:9 17:23 19:3,5,11,13 19:15,18 20:7 21:20 25:10 29:7,11,17 30:2	30:24 31:2,7 32:7,22 37:22 <b>EPA</b> 7:8 10:22 11:5 20:7 41:18 <b>EPA's</b> 37:13 <b>equipment</b> 8:9 20:23 21:9 21:11 <b>equivalent</b> 36:5 <b>essence</b> 36:1 <b>essentially</b> 33:5 42:2 45:8 <b>estimate</b> 35:15 <b>estimated</b> 20:13 <b>evaluated</b> 39:14 <b>evaluating</b> 9:9 12:23 29:22 <b>evaluation</b> 32:11 <b>evaporation</b> 40:15,16 <b>even</b> 11:2 27:9 <b>event</b> 5:23 49:15 <b>events</b> 12:24 35:3 <b>everybody</b> 4:2 15:23 49:2 <b>evidence</b> 9:11 15:5 47:5 <b>evidentiary</b> 5:13 <b>Examination</b> 3:6,9 17:8 27:18 <b>examined</b> 17:7 27:17 <b>exceedance</b> 22:7 33:18 34:6,15,18,20 <b>exceedances</b> 34:4 43:23 <b>exceeded</b> 34:24 <b>exceeds</b> 36:3 41:16 <b>except</b> 8:17 <b>excess</b> 45:16,19 <b>excursion</b> 35:4 <b>excursions</b> 43:21 <b>Exhibit</b> 3:13 9:11 10:17 10:24 11:24 18:14 20:17 21:1,10,15,21 23:6 24:1,5,10,19,21,24 32:17 34:1,10 37:12 38:9,13,15,15,23 39:18 40:16,20 42:7,14 43:6 44:10 46:4 <b>exhibits</b> 11:19,21 15:7 18:12 28:17,19 35:5 47:3,11,17 <b>exist</b> 45:20 <b>existing</b> 10:7,11 25:16,20 26:3 33:20 38:16 40:9 <b>expect</b> 15:9 <b>expectations</b> 5:22 15:8 47:19 <b>expected</b> 15:6 24:1,15 36:11 37:15,18 <b>expedite</b> 11:8 <b>expeditious</b> 16:7 <b>experience</b> 30:1,10 <b>expertise</b> 49:10 <b>extending</b> 20:24 <b>extensive</b> 25:1 40:22 43:7 <b>extent</b> 12:11 44:21	<b>Exxon</b> 4:18 <hr/> <b>F</b> <b>F</b> 5:6 <b>facilities</b> 30:6 31:3 41:13 <b>facility</b> 25:19 29:23 <b>fact</b> 9:9 43:15 <b>factors</b> 10:18 40:18 <b>facts</b> 12:3 <b>fair</b> 47:13 <b>fall</b> 20:4 30:14 <b>familiar</b> 30:11 <b>fatty</b> 31:4 <b>favorable</b> 11:13 <b>FCC</b> 32:12 43:18 <b>FCCU</b> 20:22 21:8 <b>feasible</b> 26:14 <b>February</b> 1:2,22 4:10 15:17 18:5 23:14 28:9 34:19,21 <b>federal</b> 41:13 <b>feeds</b> 25:20 <b>feverishly</b> 15:16 <b>few</b> 25:16 <b>field</b> 19:5 <b>filed</b> 11:6 14:19 15:17 16:9 18:13 21:15 22:13 28:9,18 <b>filing</b> 48:22 <b>final</b> 14:18 <b>find</b> 49:10 <b>findings</b> 9:10 <b>Fine</b> 4:21 <b>fine-tuning</b> 12:11 <b>firm</b> 6:5 27:24 29:7 <b>firmly</b> 7:22 <b>first</b> 14:14 17:1,6 19:8 22:3 26:20,21 27:16 43:9 50:4 <b>fish</b> 31:19 <b>five-year</b> 13:2 <b>Flint</b> 31:15 <b>flow</b> 23:23 35:13,13,15 36:15 39:1,7 <b>Fluidized</b> 20:22 <b>focuses</b> 12:10 <b>following</b> 25:3 31:13 34:24 <b>follows</b> 15:9 17:7 27:17 <b>Ford</b> 2:16 4:16,19,22,22 4:24 5:3 <b>foregoing</b> 50:9,11 <b>forgotten</b> 49:13 <b>Fork</b> 31:14,17 <b>formation</b> 39:22 <b>Fort</b> 2:6 6:5,19,22,23 13:22 15:1 27:6 <b>Fort's</b> 14:5 <b>found</b> 14:12 40:14 <b>founded</b> 28:6 29:7 <b>four</b> 7:8 30:22	<b>fourth</b> 37:19 <b>Fox</b> 31:16 <b>frame</b> 45:23 <b>from</b> 4:15,18 5:16,22 6:11 7:13 8:5,12,20 9:6 9:8 10:1,9 11:24 14:13 19:11 20:10 21:19 22:12 24:3 25:1,15,19 26:6 29:9,10 30:10 32:3 33:9,24,24 34:12 35:8 36:1,16 39:8 40:10,13 40:17,22 42:8 43:13,16 44:3 48:5,8,17 <b>funding</b> 12:17 <b>further</b> 9:22 21:17 34:19 36:17 38:11 44:19 47:24 <b>future</b> 8:6 <b>F-O-R-D</b> 4:23,24 <hr/> <b>G</b> <b>Galesburg</b> 44:5 <b>gallons</b> 39:8,13 45:17 <b>gas</b> 8:12 9:8 10:1,9 20:21 21:8 23:3 24:3,7,13 25:5 26:7,13 32:12 33:4 35:18 39:8 41:2 43:19 45:18,21 <b>gathering</b> 45:3 <b>General</b> 33:11,14 34:22 37:1,9 <b>generated</b> 32:12 <b>generic</b> 36:22 <b>Georgia</b> 20:8 <b>give</b> 16:11,18 <b>go</b> 10:18 48:11 <b>goes</b> 5:14 37:22 <b>going</b> 5:4,21 10:17 12:3 17:2 27:3,9 48:22 49:5 <b>gone</b> 40:5 <b>Good</b> 4:2 <b>gradient</b> 26:3 <b>Grand</b> 2:12 <b>grant</b> 9:2 14:5 22:4 <b>granted</b> 9:5 14:14 <b>greater</b> 34:12 45:9 <b>groundwater</b> 25:23 26:2 <hr/> <b>H</b> <b>H</b> 3:11 <b>Halloran</b> 2:2 4:1,3,18,20 4:23 5:1,4 6:10,17 13:22 15:13 16:11,14 16:17,24 18:21,23 26:18 27:1,3,12 29:2 46:5,7,13,16,19 47:7,9 47:15 48:2,5,8,11,14 <b>hallway</b> 5:19 <b>handle</b> 10:6 <b>handling</b> 10:9 <b>happen</b> 40:7
---	--	--	--

<p><b>Harmon</b> 2:15 3:5 12:8 16:5 17:2,5,10,12,21 18:19 19:1,2 26:20,21 26:23 27:2,8 47:18</p> <p><b>harmonic</b> 35:13</p> <p><b>having</b> 17:6 27:16</p> <p><b>Hazardous</b> 19:16</p> <p><b>heard</b> 40:12</p> <p><b>hearing</b> 1:18 4:3 5:5,8,9 5:14,16 6:18,23 11:7 14:5 15:11 49:15 50:10 50:14</p> <p><b>held</b> 1:18</p> <p><b>hence</b> 22:12,24</p> <p><b>her</b> 50:12</p> <p><b>high</b> 25:6 41:3</p> <p><b>higher</b> 39:20</p> <p><b>highway</b> 35:8 40:10 43:14</p> <p><b>him</b> 27:12</p> <p><b>historically</b> 36:19 43:22</p> <p><b>history</b> 14:2</p> <p><b>hitch</b> 5:14</p> <p><b>hold</b> 37:6 45:8</p> <p><b>holding</b> 25:5 41:2,4 45:21 45:24</p> <p><b>hour</b> 1:22</p> <p><b>Huff</b> 2:15 3:8 12:8 16:5 27:9,15,20,22,24,24 28:2,2,5,5,8,24 29:4,5,6 29:6 31:6,6 39:2,2,12 39:12 47:18</p> <p><b>Huff's</b> 9:21 10:17 24:8,17</p> <p><b>Hydroxide</b> 23:7</p> <p><b>H-A-R-M-O-N</b> 17:12</p> <p><b>H-U-F-F</b> 27:22</p>	<p><b>impacts</b> 23:8 32:13 38:17</p> <p><b>Impact/Cost-Benefit</b> 30:20</p> <p><b>implemented</b> 26:12</p> <p><b>implying</b> 35:3</p> <p><b>importantly</b> 9:23</p> <p><b>imposed</b> 21:4</p> <p><b>improvement</b> 7:6</p> <p><b>Inc</b> 27:24 28:2,6 29:6 31:6 39:2,12</p> <p><b>included</b> 8:8 9:11 10:24 11:18 14:21 30:5 31:12 31:19 37:12 44:23</p> <p><b>includes</b> 20:18 30:1 40:21 43:7 45:2</p> <p><b>including</b> 7:9 19:6 20:11 30:8,17 31:4,24</p> <p><b>incorporated</b> 42:21</p> <p><b>incorporates</b> 32:20</p> <p><b>increase</b> 21:13 22:24 25:17 38:19</p> <p><b>increased</b> 26:5</p> <p><b>increases</b> 24:6</p> <p><b>increasing</b> 37:9</p> <p><b>incremental</b> 38:19 42:3</p> <p><b>independent</b> 8:5</p> <p><b>indicate</b> 42:16</p> <p><b>indicates</b> 41:16</p> <p><b>informally</b> 11:18</p> <p><b>informatin</b> 44:20</p> <p><b>information</b> 11:14,17 12:16 21:17 22:19 35:10 37:10 46:3</p> <p><b>initial</b> 47:21</p> <p><b>initially</b> 39:14</p> <p><b>injection</b> 10:3 39:16,17 39:19</p> <p><b>install</b> 20:21</p> <p><b>installed</b> 21:11</p> <p><b>installing</b> 21:8</p> <p><b>Institute</b> 30:15</p> <p><b>instrumentation</b> 9:15</p> <p><b>instruments</b> 9:21</p> <p><b>integral</b> 42:22</p> <p><b>intended</b> 5:9</p> <p><b>intent</b> 44:6</p> <p><b>interim</b> 43:3,8 46:1</p> <p><b>International</b> 19:7</p> <p><b>introduce</b> 4:14 6:2</p> <p><b>investigated</b> 10:4 32:19</p> <p><b>involved</b> 31:7,10,12</p> <p><b>isolate</b> 45:17</p> <p><b>issuance</b> 42:24</p> <p><b>issue</b> 8:18 10:14 11:13 22:10 37:12</p> <p><b>issued</b> 25:24</p> <p><b>issues</b> 12:11 14:24 22:2 31:24 49:11</p> <p><b>issuing</b> 22:5</p> <p><b>item</b> 47:2</p> <p><b>items</b> 21:18</p>	<p><b>I-55</b> 25:2 33:7,10 34:22 35:13,17 36:15 40:23 43:18 45:10,19</p> <p style="text-align: center;"><b>J</b></p> <p><b>J</b> 44:3</p> <p><b>James</b> 2:10,15 3:8 6:11 16:5 24:8,17 27:15,22 28:24 29:4,5</p> <p><b>January</b> 20:16 23:14 34:15,17</p> <p><b>Jefferson</b> 34:17</p> <p><b>Jeffrey</b> 2:6 6:5</p> <p><b>Jersey</b> 20:8 29:13</p> <p><b>Jim</b> 9:21 10:17</p> <p><b>Joliet</b> 30:3,4 34:18</p> <p><b>July</b> 23:17</p> <p><b>June</b> 23:16</p> <p><b>just</b> 6:18 9:20 13:5 15:22 16:22 27:6 41:20 47:12</p> <p><b>justifications</b> 14:17</p> <p style="text-align: center;"><b>K</b></p> <p><b>Kathy</b> 50:4,17</p> <p><b>Kent</b> 31:15</p> <p><b>kind</b> 5:2</p> <p><b>Kishwaukee</b> 31:18</p> <p><b>know</b> 9:17 15:23</p> <p><b>knowledge</b> 28:21 44:12</p> <p><b>known</b> 35:22</p> <p><b>knows</b> 8:21</p> <p style="text-align: center;"><b>L</b></p> <p><b>lacking</b> 11:1 14:21</p> <p><b>LaGrange</b> 28:3</p> <p><b>language</b> 11:23</p> <p><b>large</b> 31:21</p> <p><b>last</b> 13:18 17:11 20:4 25:16 27:21 31:6 35:2</p> <p><b>law</b> 6:5</p> <p><b>lead</b> 12:18 29:21 37:13 44:1</p> <p><b>leads</b> 40:11</p> <p><b>learned</b> 22:2</p> <p><b>least</b> 35:4</p> <p><b>leaving</b> 30:14</p> <p><b>LeCrone</b> 2:11 6:16</p> <p><b>led</b> 13:12 15:9 20:2 37:6</p> <p><b>legal</b> 6:13 49:10</p> <p><b>Lemont</b> 7:9,18 8:7 10:20 13:8 17:17,24 19:3,8,20 19:21,23 20:4,11,12,19 20:21 21:2,9,14 25:4,21 26:11 31:23 32:3,6,10 33:23 34:2,14,16 35:17 36:1,6 37:21 39:3,4 41:1,15 42:20 43:16 44:10 45:1,4,7,10,12,16</p> <p><b>less</b> 36:2 45:15</p> <p><b>let</b> 15:22</p> <p><b>Letissa</b> 2:7 6:4</p>	<p><b>letter</b> 25:24 44:3</p> <p><b>Let's</b> 26:20 27:12</p> <p><b>level</b> 26:1,4 34:7</p> <p><b>levels</b> 9:7,18 24:14 37:24 38:4 42:4 45:19</p> <p><b>Liaison</b> 29:17</p> <p><b>life</b> 38:3</p> <p><b>light</b> 9:10</p> <p><b>like</b> 6:2 13:24 16:3,21 26:16 47:2</p> <p><b>limit</b> 37:10 44:2,14 46:2</p> <p><b>limitation</b> 20:3</p> <p><b>limited</b> 36:16 44:20</p> <p><b>limiting</b> 43:15 45:6</p> <p><b>limits</b> 43:3,8,11</p> <p><b>listed</b> 31:21</p> <p><b>little</b> 36:13</p> <p><b>Liu</b> 2:3 4:14 27:5 46:9,10</p> <p><b>LLP</b> 2:7</p> <p><b>loading</b> 35:20 36:8 42:11 43:20</p> <p><b>loadings</b> 38:10</p> <p><b>Lock</b> 34:13</p> <p><b>Lockport</b> 34:13</p> <p><b>logical</b> 40:2</p> <p><b>long</b> 18:1</p> <p><b>look</b> 49:14</p> <p><b>Louisiana</b> 20:8</p> <p><b>low</b> 38:24</p> <p><b>lowering</b> 44:14</p> <p><b>L.L.C</b> 1:6 4:7 6:9 20:5</p> <p style="text-align: center;"><b>M</b></p> <p><b>macroinvertebrate</b> 31:19</p> <p><b>macroinvertebrates</b> 32:2</p> <p><b>made</b> 40:6</p> <p><b>major</b> 7:15 20:24</p> <p><b>majority</b> 36:24</p> <p><b>make</b> 5:1,13 10:23 27:6 36:23 49:9</p> <p><b>making</b> 5:11</p> <p><b>managed</b> 25:12 26:2</p> <p><b>Management</b> 25:24 29:24</p> <p><b>manager</b> 17:23 19:3,17 30:24</p> <p><b>managing</b> 26:4</p> <p><b>manufacturing</b> 31:3</p> <p><b>many</b> 5:20 12:3 15:3</p> <p><b>March</b> 23:15 25:8 34:6 41:5 48:20,24 49:2,2,4 49:7</p> <p><b>marked</b> 14:12 18:12 47:3</p> <p><b>mass</b> 9:16 42:2,2</p> <p><b>Masters</b> 29:10</p> <p><b>Materials</b> 19:17</p> <p><b>matter</b> 1:4 4:5 6:19 16:8 18:5 21:16 28:9</p> <p><b>matters</b> 5:13</p> <p><b>may</b> 10:14 15:18,19 21:4 23:16 26:14 27:7</p>
--	--	--	--

<p> <b>maybe</b> 27:9  <b>McCook</b> 31:4  <b>mean</b> 35:13  <b>means</b> 45:7  <b>meet</b> 15:7 21:5,6  <b>meeting</b> 7:22 37:6 40:1  <b>member</b> 4:21 19:13,15  <b>members</b> 4:12  <b>met</b> 47:19  <b>method</b> 13:1 35:22  <b>Methods</b> 35:21  <b>Metropolitan</b> 34:11  <b>mg/L</b> 33:9,12,15 34:7,15  34:16,18,21,23 35:1,1,1  35:2,15,19,23,24 36:3,4  37:10 45:10  <b>Midwest</b> 1:6 4:7 6:9 7:1  20:5 39:23  <b>mid-2004</b> 40:5  <b>might</b> 12:17  <b>migration</b> 39:20  <b>Mill</b> 31:15  <b>minimize</b> 8:10  <b>minute</b> 46:17  <b>Mississippi</b> 31:16  <b>mixing</b> 31:21 32:1 39:2,3  42:1,7,17,19,22 43:2  <b>Mobil</b> 4:19,20 30:2,14  <b>model</b> 9:19  <b>modeling</b> 32:3 41:21 42:1  <b>modification</b> 32:14 38:14  <b>modified</b> 11:24 22:5  <b>modify</b> 8:15  <b>modules</b> 32:7  <b>monitoring</b> 12:10 30:8  43:4,7 44:24  <b>monthly</b> 23:12  <b>months</b> 21:1 25:3 40:24  <b>more</b> 44:1 47:1  <b>morning</b> 4:2  <b>Morris</b> 31:5  <b>Morton</b> 19:7  <b>most</b> 9:23 11:3  <b>Mount</b> 39:22  <b>move</b> 4:13  <b>MSD</b> 10:5  <b>much</b> 6:17  <b>Municipal</b> 44:4  <b>mussels</b> 31:20  <b>must</b> 20:21 26:2 44:7  <b>MWRDGC</b> 34:12 </p> <hr/> <p style="text-align: center;"><b>N</b></p> <hr/> <p> <b>N</b> 3:1  <b>name</b> 4:2,21 17:10,11,12  19:2 27:21,21 29:5  <b>Nath</b> 2:7 6:6  <b>National</b> 19:14,17 22:5  30:9  <b>naturally</b> 25:16,20  <b>near</b> 25:18 </p>	<p> <b>necessarily</b> 44:1  <b>necessary</b> 13:2 15:18  20:20 41:2 44:15 45:24  <b>negotiate</b> 15:4  <b>negotiated</b> 24:22  <b>negotiations</b> 20:6  <b>new</b> 13:8 17:17 20:8  21:11 29:13 32:12  <b>next</b> 34:17  <b>nine</b> 31:2  <b>NIPC</b> 29:22  <b>NIPC's</b> 29:24  <b>nitrogen</b> 13:12,15 19:24  20:3  <b>nitrous</b> 7:17  <b>Nobel</b> 30:23  <b>normal</b> 6:18 44:21  <b>North</b> 2:12  <b>Northeastern</b> 29:21  39:21  <b>northwest</b> 25:19  <b>NOTARY</b> 50:23  <b>note</b> 5:8,16 36:3  <b>noted</b> 14:15 41:24 44:2  44:20 47:21  <b>notes</b> 50:12  <b>noticed</b> 5:9,18  <b>November</b> 21:16 23:19  44:5  <b>NOx</b> 20:9,13  <b>no-mailbox</b> 49:3  <b>NPDES</b> 22:6,10 30:10  32:14 38:13,16 42:17  42:24 43:2 44:12,19,24  <b>number</b> 43:17 45:20  <b>numerous</b> 40:12  <b>nutrient</b> 29:19,20 </p> <hr/> <p style="text-align: center;"><b>O</b></p> <hr/> <p> <b>oath</b> 50:5  <b>objection</b> 16:15 18:21  29:2 47:7  <b>obligations</b> 7:23  <b>observations</b> 49:10  <b>obtain</b> 21:18  <b>obtained</b> 22:11  <b>occur</b> 35:6 40:10 43:10  45:14  <b>occurred</b> 25:18 34:6 35:2  <b>occurrence</b> 43:23  <b>October</b> 23:18  <b>off</b> 46:16,18 48:11,13,15  <b>officer</b> 4:3 6:24  <b>Oil</b> 30:2  <b>Okay</b> 4:21 15:13 26:18  48:2,11  <b>once</b> 24:15  <b>one</b> 9:19 21:18 34:6,18,20  47:1  <b>ongoing</b> 37:15  <b>only</b> 8:2 25:12 41:10 45:5 </p>	<p> 46:13  <b>opening</b> 6:20 14:4  <b>operated</b> 7:14 19:9  <b>operation</b> 24:7  <b>operational</b> 24:15  <b>operations</b> 30:11  <b>opportunity</b> 6:21 7:1  14:1 15:4  <b>option</b> 25:12 26:9  <b>order</b> 11:7 14:16 36:7  43:19  <b>organization</b> 29:18  <b>original</b> 14:23  <b>originates</b> 36:15  <b>other</b> 8:17 21:4,9 25:10  <b>otherwise</b> 12:13,17  <b>outfall</b> 34:14 42:18  <b>outweighs</b> 8:23  <b>over</b> 25:16 27:4 31:7 35:2  40:12 45:4,14 46:8  <b>overall</b> 7:19 21:24  <b>overnight</b> 49:1  <b>oversight</b> 30:5  <b>owned</b> 7:14 13:10 19:9  <b>owner</b> 29:6  <b>oxidation</b> 30:18  <b>oxide</b> 7:17  <b>oxygen</b> 44:13,24  <b>O'Donnell</b> 50:4,17  <b>ojur</b> 41:14 </p> <hr/> <p style="text-align: center;"><b>P</b></p> <hr/> <p> <b>p</b> 2:2 44:19  <b>PAGE</b> 3:3,13  <b>pages</b> 14:22  <b>parameter</b> 23:21 36:23  <b>parameters</b> 8:17  <b>part</b> 7:5,15 10:15 29:6  39:4 42:19,22 47:12  <b>particularly</b> 11:20  <b>parties</b> 4:13 5:22 6:2 49:1  <b>party</b> 4:17  <b>passing</b> 35:16  <b>past</b> 22:8 31:24  <b>path</b> 21:18  <b>patterns</b> 10:16  <b>PCB</b> 1:8 4:6  <b>PDV</b> 1:6 4:7 6:8 7:1 20:5  <b>penalties</b> 10:21 21:4  <b>people</b> 5:20 7:21  <b>per</b> 35:16,19 36:6 38:10  39:8,13 42:15 45:6  <b>percent</b> 35:20 36:7 43:20  <b>perhaps</b> 12:20  <b>period</b> 13:2 45:3  <b>periodically</b> 40:10  <b>periods</b> 25:6 26:8 41:3  45:18  <b>permit</b> 21:10,19,22,23  22:4,6,11 23:5,24 24:4  24:20 26:1 30:10 32:14 </p>	<p> 32:14 38:11,13,16 44:2  44:4,9,12,19,24  <b>permits</b> 42:17,24 43:2  <b>permitting</b> 11:5  <b>persistent</b> 35:4  <b>petition</b> 11:2,16 12:1  14:4,7,11,13,19,21,23  15:12 21:6,15 22:13,15  22:20 32:16,20 37:22  <b>petitioner</b> 8:23 9:4 15:3  47:18,23 48:6,9,19  <b>petitioners</b> 1:7 3:13 4:8  6:8,24 46:22  <b>petroleum</b> 1:5 4:6 6:8  17:14 19:14 30:18 32:9  <b>phenomenon</b> 12:19  <b>phonetic</b> 13:10  <b>Physical</b> 41:4  <b>place</b> 15:22  <b>Plaines</b> 25:2 30:13 31:14  33:3,7,10 36:3,5 38:2  38:21 40:23 45:9  <b>plan</b> 12:9 14:20,22 24:11  24:22 25:1 29:24 32:6  40:19,22 43:5,6 45:2  <b>Planning</b> 29:22,23  <b>plant</b> 10:7 23:10  <b>plants</b> 20:12 31:4  <b>please</b> 17:15 27:20 28:1  42:10,16  <b>point</b> 14:4 27:7 37:7  47:24  <b>pollutant</b> 22:5 30:9 36:12  42:1 43:24  <b>Pollution</b> 1:1,18 2:3 4:4  5:10 19:22 32:5,21  48:18 50:9,14  <b>poorly</b> 45:22  <b>pose</b> 22:2  <b>position</b> 14:3 18:2 19:2  27:10 40:8 41:1 43:22  <b>possibility</b> 45:5  <b>possible</b> 36:18 43:16  <b>possibly</b> 40:6  <b>Postel</b> 2:14  <b>posthearing</b> 15:19 48:16  48:22  <b>pounds</b> 35:16,19 36:6  38:10 42:15 45:6  <b>ppm</b> 23:13  <b>practical</b> 9:24  <b>precision</b> 35:21 36:2  <b>predicted</b> 42:3  <b>prefiled</b> 15:16,20 16:1,4  16:18 18:4,7,9,13,18  28:8,11,14,18,23 47:4  <b>preliminary</b> 22:1  <b>preparation</b> 30:10 32:5,6  <b>prepared</b> 47:23  <b>preparing</b> 30:19 32:13  <b>preponderance</b> 36:15 </p>
--	---	--	--

<p>present 2:14 8:5 12:4  presentation 12:4  presented 11:24 13:20  22:16,19 32:16,18  41:17 42:5,12  presents 34:1  President 29:5  Presumably 45:9  presumption 15:10  prevent 39:19  prevented 14:12  Prevention 32:5  previous 37:17  previously 34:8  principal 8:13  prior 26:10  procedural 5:7 14:1  proceed 6:18  proceeding 47:6  proceedings 1:16 13:16  20:1 49:17 50:9,13  process 22:20 23:4  processes 36:14  production 22:24  Professional 29:12 50:5  Professionals 19:16,18  program 25:13  project 7:3,5,19,19 12:24  20:24 22:11 25:7,8  26:12 27:11  projected 9:7 23:8 24:5  38:5,7,17,19  projects 22:23 30:17  promulgated 14:10  pronounced 25:17  properly 5:9,18 45:24  propose 37:18 43:3,4  proposed 23:23 24:9,13  24:18,24 30:20 33:16  34:9 37:23,24 38:8,22  40:20 42:5,6,13 43:5,8  43:14  proposing 29:20  propounded 22:18  Protection 1:11 2:12 4:9  6:12,14 14:9 21:20  29:17 32:22  provide 12:16 46:2  provided 11:15,18 15:6  35:10 37:11 39:4  provides 12:12  providing 32:15 46:1  provisions 5:7  public 4:12 5:2 8:24 9:2  49:5,6 50:23  publicly 22:14  Purdue 29:9,11  purge 24:2  purpose 19:19  pursuant 5:5  pursued 26:12</p>	<p>P.E 2:3,15 3:8 27:15</p> <hr/> <p><b>Q</b></p> <p>quality 9:9 23:8 24:10,19  29:24 31:19,20 32:13  33:9,11,13,14,16,18,20  34:4,10,23 35:11 36:18  36:19 37:5,8,19 38:9,17  38:23 40:13 41:22 42:7  42:14 43:9,10,12,17,23  44:8,17  quarter 37:20  quarters 5:24  Question 25:11  questions 12:2,5,6 13:5  15:20 22:18,22 23:9  24:12 27:2,8 32:20  33:21 38:6,18 39:11  41:8 44:18 48:18</p> <hr/> <p><b>R</b></p> <p>Railroad 19:7  raised 12:5,6 32:20  Randolph 1:20 2:4  Rao 2:2 4:15 27:4 46:9,12  rate 22:24 23:23 45:7  rates 39:1  read 16:6,20 18:20 29:1  reading 16:8  readings 35:6 36:10,11  realize 5:20  rebuttal 48:5  received 19:10 29:8  receiving 31:9 46:2  recent 44:11  Reclamation 34:11  recommendation 11:13  12:7 14:15 33:22 35:9  39:10  recommending 14:13  record 4:1 5:8,10 7:6 9:1  11:15 13:21 16:6,10,20  17:11 18:19 22:17  27:21 28:24 42:19  46:16,18,20 47:5,12  48:12,13,15  recorded 34:4,7,16,19,21  36:4  reduce 12:20 19:21 20:9  reduction 7:16 8:13  36:13  reductions 7:13 20:13,20  references 23:6  referred 20:6  refiling 11:1  refineries 7:10 20:11  Refiners 19:14  refinery 7:9,19 8:7 10:8  10:11,20 13:7,10 17:24  19:3,8,20 20:4,11,12,20  20:21 21:2,9,14 25:4</p>	<p>26:11 30:4,5,11 31:23  32:4,6,10 33:23 34:14  34:16 35:17 36:1 39:3  41:1,15,17 43:16 44:10  45:4,7,11,12,16  refinery's 19:21,24 24:14  25:22 34:3 36:6 37:22  39:5 42:20 45:2  Refining 1:6 4:7 6:9 20:5  regarding 15:20 44:18  registered 29:12 50:5  Registry 19:17  regulated 37:1,3  REGULATIONS 33:1  regulatory 20:1 31:1  Reid 2:7 3:6,9 6:3,4,4  15:24 16:3,13,21 17:1,9  18:17 26:15,24 27:19  28:22 46:15,24 47:1,14  48:7,10  rejected 10:3  related 7:15 32:19  relates 14:2  relating 13:11 32:1  relationship 44:22  relative 9:13  release 25:13  relevant 37:21  relied 14:16 39:1 42:23  relief 8:22 13:5  remains 39:7  repeat 22:16  replies 49:4  report 1:16 24:8,18 38:8  38:22 42:6,9,13  reported 50:8  reporter 16:12,19 50:6  reports 30:8  representative 44:21  representing 6:13  request 11:8 14:6 18:18  28:23 33:6 39:5 40:6,11  40:18 42:20 44:10  requested 11:2,7 33:2,19  45:22  requests 29:23 40:12,14  require 39:18 45:21  required 7:17 8:2 14:8  25:5  requirements 21:7 41:14  requires 20:24 25:1  research 30:15 37:18  residential 10:16 25:18  26:6,10  resolved 13:13  respect 11:16 14:3  respectively 20:10,14  respond 22:17  respondent 1:13 4:9 48:9  Response 25:11 44:17  responses 22:22 23:9</p>	<p>24:12 33:21 38:6,18  39:10 41:8 48:23 49:1  responsibilities 30:4  responsibility 19:4  responsible 31:1 44:7  responsive 12:5  rested 46:22 48:3  restrict 12:23  restrictive 44:1  result 9:2,8 21:12  resume 32:16  retain 26:7  retained 32:9  retention 25:7,14 26:13  reveals 35:6  review 14:11 15:4 35:5  37:4,13 47:21  revised 12:4,9  Rhodia's 40:17  right 46:10  River 8:4 9:19 10:14  12:12 25:2 30:13 31:14  31:16,16,17,18 32:4  33:4,7,10 36:3,5 38:2  38:21 40:23 45:9  road 8:20 22:9  Robert 41:11  rock 39:19,21  Room 5:17,17  rooms 5:20  Rosenthal 2:7 6:6  routinely 12:13 23:21  RPR 50:17  rule 5:12 9:10 13:9 30:21  40:4 49:3  rules 14:9  rule-making 13:16  ruling 11:8  run 5:5 23:11 31:16  runoff 10:13,15 22:9  25:15,19 26:6,10 35:8,8  40:10 43:13  R84-13 13:16 20:1  R93-8 13:17 20:2 39:6  42:21  R98-14 13:17 20:2 41:12  42:21</p> <hr/> <p><b>S</b></p> <p>S 3:11  Sable 31:14  safe 15:10  Saline 31:17  salinity 25:6 41:3 43:20  salt 22:9 31:17 35:8  40:10 43:13  same 18:7 21:12 26:17  28:11 29:18 32:23  34:12 42:8 43:24 46:12  sample 9:15 35:22  samples 33:23 35:23</p>
--	--	---	---



<p>sampling 9:14,21 30:8 35:3</p> <p>sanctions 21:4</p> <p>Sanitary 31:13 33:3,24 38:2,20 44:5</p> <p>satisfaction 24:23</p> <p>says 50:5</p> <p>scale-up 40:18</p> <p>scenario 35:20</p> <p>schedule 10:20,23,24 11:9,11 20:19 21:2,5,24 22:3 40:19</p> <p>schedules 40:21</p> <p>Science 19:10 29:8,10,19</p> <p>Scott 2:11 6:16</p> <p>scrubber 8:12 9:8 10:1 10:10 20:21 21:8 24:3,7 24:13 25:6 26:7,13 32:12 33:4 35:18 39:8 41:3 43:19 45:18,21</p> <p>scrubbing 23:3</p> <p>Sears 6:6</p> <p>season 25:9 41:6</p> <p>seasons 25:3 40:24</p> <p>second 22:6 26:15</p> <p>Secondary 33:8,15</p> <p>Secondly 14:20</p> <p>section 5:5,6 26:1 44:4</p> <p>sediment 31:20</p> <p>see 4:11 21:10 39:18 44:9</p> <p>seeking 7:4 14:17</p> <p>seem 44:11</p> <p>sensitivity 9:15</p> <p>separate 8:5</p> <p>September 23:18 37:16</p> <p>series 13:11</p> <p>serve 29:14,18</p> <p>served 29:16</p> <p>set 49:5</p> <p>several 11:21 37:4 39:12</p> <p>sewering 10:4</p> <p>Ship 8:3 31:13 32:3 33:3 33:24 38:2,20 43:18</p> <p>shorthand 50:8,12</p> <p>show 5:21 9:1</p> <p>shows 7:7</p> <p>signed 20:16</p> <p>significant 7:5,13,20 33:5</p> <p>similar 22:9 44:11 45:2</p> <p>Simon 39:22</p> <p>simultaneous 48:22 49:4</p> <p>since 18:3 19:4 22:20 39:6 44:15</p> <p>sir 46:15</p> <p>site 25:15</p> <p>site-specific 13:9,13 20:3</p> <p>size 25:4 41:1 45:24</p> <p>snowmelt 8:20 9:18 12:15,19 22:8 26:8,14 35:7,12</p> <p>sodium 23:7 33:5,13</p>	<p>37:24</p> <p>solely 43:13</p> <p>solids 8:1,3,18 13:6 21:13 30:21</p> <p>solution 23:7</p> <p>some 14:1 22:17 27:7 31:10 46:1</p> <p>Sonnenschein 2:7 6:6</p> <p>soon 22:13</p> <p>source 33:6</p> <p>sources 7:14</p> <p>South 2:8</p> <p>Southern 44:4</p> <p>SO2 20:9,13</p> <p>special 25:23</p> <p>specific 12:5 22:23</p> <p>spell 17:11 27:21</p> <p>spent 30:22</p> <p>Springfield 2:13</p> <p>SS 50:1</p> <p>Stacy 2:16 4:22</p> <p>stakeholders 37:6,11 40:1</p> <p>standard 13:14 20:1 22:8 33:9,12,14,16 34:23,23 35:11,21,24 37:9 39:5 40:18 42:20,23 43:10 44:8</p> <p>standards 29:20 32:1 33:13 36:19 37:5,19 40:14 44:17</p> <p>start-up 30:3,6</p> <p>state 7:21 14:6 17:10,15 27:20 28:1 29:20 37:14 50:1,7</p> <p>statement 5:2</p> <p>states 7:8 31:3,10 35:10</p> <p>Statewide 29:19</p> <p>station 34:17</p> <p>stay 11:9</p> <p>Stein 41:11,12,14</p> <p>Steven 44:5</p> <p>still 44:7</p> <p>stipulated 10:21 21:3</p> <p>stood 14:19</p> <p>storage 45:12</p> <p>storm 25:13,15,17 26:6 32:5</p> <p>strategies 26:10</p> <p>stream 25:3 31:18 32:11 39:14,16 40:8,24 41:20 43:7 44:22</p> <p>streams 22:10 31:9,13,21 35:12 39:1</p> <p>Street 1:20 2:4 13:8 17:17 34:18</p> <p>strong 36:9</p> <p>Studer 44:3</p> <p>studies 31:8,10,21 41:21</p> <p>study 32:2 39:2,3,7 42:8 42:19,22</p>	<p>subject 10:21 33:6</p> <p>subjects 32:8</p> <p>submission 47:17</p> <p>submitted 20:17 21:23 23:5,24 24:4,20,23 34:8 38:12,14 43:6 48:19</p> <p>Subpart 5:6,6</p> <p>SUBSCRIBED 50:19</p> <p>substantial 7:16 8:8 9:4 20:23</p> <p>substantially 20:9</p> <p>suggested 6:19</p> <p>Suite 2:4,8</p> <p>sulfate 9:7 23:21 24:14 33:5,14,16,17,19 37:9 37:24 38:4 40:4 42:4,11 42:12 43:9,11</p> <p>sulfates 13:7 23:1 24:2,6 24:16 31:11 36:23 37:2 38:20 43:4</p> <p>sulfur 7:16</p> <p>Supervisor 44:3</p> <p>support 13:19 14:6 15:12 18:13 20:23 28:18 30:7 32:15 47:4,23</p> <p>supported 37:8</p> <p>sure 5:13 16:17,24</p> <p>surveys 31:11,18</p> <p>SWB 25:14,14,23 26:1,14</p> <p>swear 16:22 27:12</p> <p>sworn 17:3,7 27:13,17 50:4,19</p> <p>system 22:6 25:7 30:9 41:15</p> <p>systems 31:2</p>	<p>41:9,16</p> <p>tell 28:5</p> <p>terminate 25:21</p> <p>test 8:21 35:22 36:2</p> <p>tested 23:22 35:23</p> <p>testified 17:7 27:17 49:12</p> <p>testimony 9:22 10:17 11:19 12:8 15:5,8,17,21 15:21 16:2,4,9,18,23 18:4,7,10,13,18 19:1,19 26:17 28:8,12,15,18,23 29:4 41:11 45:14 47:4,9 47:17,22,24</p> <p>testing 25:4 37:14 40:24</p> <p>tests 23:10 37:17</p> <p>Thank 5:4 6:10,17,23 13:22 15:13 46:7 47:14 48:2 49:16</p> <p>thanks 49:15</p> <p>their 35:13 46:22 49:1</p> <p>themselves 6:2</p> <p>thereunder 14:10</p> <p>think 49:8</p> <p>Thorn 31:15</p> <p>though 11:3</p> <p>thought 26:19</p> <p>three 7:10 20:10 29:16 30:15 35:2,3</p> <p>through 3:14 5:18 11:21 13:1 15:16 18:12,14 20:1 28:17,20 47:3</p> <p>throughout 31:9 39:23</p> <p>tight 5:24 10:19 11:11</p> <p>time 10:13,24 12:22 18:17 26:9 28:22 45:23 47:2</p> <p>title 17:21</p> <p>today 4:10 11:19 13:21 15:6,22 16:7 45:11 46:14 47:6 48:1 49:12</p> <p>today's 15:11</p> <p>together 27:11</p> <p>told 10:5</p> <p>tons 20:10,14</p> <p>total 7:24 8:2,17 13:6 21:13 30:21 35:20 36:8 41:19 43:20</p> <p>Tower 6:7</p> <p>toxicity 36:20,22 37:14 37:17</p> <p>TOXICITY/FUTURE 36:18</p> <p>training 32:7</p> <p>transcribe 16:19</p> <p>transcribed 16:6 18:19 28:24 47:10</p> <p>transcript 47:11 50:12</p> <p>translates 35:15</p> <p>treated 21:14 45:8</p> <p>treatment 10:7 23:10 30:6,7,12,17 41:13,15</p>
---	--	--	---

## T

T 3:11

take 13:24 15:22 26:19 26:20

taken 25:1 43:22 50:12

talking 48:15

tank 25:5 41:2,4

tankage 10:11

tasks 40:21

TDS 8:6,18 9:7,13,16,19 9:24 12:11 13:6 21:14 22:7 23:1,10,13 24:2,6 24:14,16,24 25:1 30:21 31:11 33:2,6,9,11,23 34:3,6,10,14,18 35:4,5 35:6,15,16,22,22 36:4,6 36:10,10,11,20,23 37:2 37:8 38:4,10,19 40:1,4 40:9,13,19,20,22 41:24 42:4 43:4,5,12,12,17 45:5,9,18 46:1

technical 4:15 15:15 27:4 30:7 32:15 37:7 46:9 48:17

technology 8:14 40:15

41:17 true 18:10,15 28:15,20 50:11 try 26:7 turn 27:3 46:8 Twait 2:11 6:16 two 14:12,24 19:7 20:11 22:2 25:3 30:1 32:1 40:24 46:14 Tyler 31:17 typically 37:1 tjhe 44:6 tjhis 44:20	verify 9:20 16:23 18:9,14 26:16,17 28:14,19 very 6:17 10:13,19 viable 26:9 39:24 Vice 29:5 Village 44:11,18 violation 35:12 44:8,9,16 violations 40:9 41:23 43:9,13,17 44:13 45:14 volume 25:17 26:6 vs 1:8 4:8	we've 9:11 11:12 15:1,9 48:15,16,21 winter 25:3,9 35:7 40:24 41:6 wish 5:1 witness 3:3 17:1,3,6 26:16 27:13,16 witnesses 16:22 46:14 49:11 work 30:1 37:13 worked 11:12 27:11 31:23 working 7:3 11:11 30:16 written 47:9 WWTP 23:11,22	10c 38:18 10d 38:18 10e 38:18 41:8 42:16 10f 25:11 39:11 10-year 38:24 100 1:18 2:4 101 5:6 1021 2:12 104 5:5 11 14:22 35:19 38:6,15 11-500 2:4 11-512 5:17 12 14:22 19:8 38:15 41:8 43:3 12'9 26:2,4 13 39:18 44:19 135th 13:7 17:17 14 40:16 14th 49:2 142,000 42:15 1474 23:16 15 3:14 18:12,14 28:18 28:20 33:22 35:4,9 44:6 44:10 45:15 47:4 15th 48:24 49:2 15,000 20:13 1504 23:17 1597 23:19 16 19:6 1680 23:17 1699 23:18 17 3:6 39:10 17th 15:17 18:5 28:9 18 3:14 19 33:22 1948 23:19 1970 29:9 1971 29:12 1973 30:14 1977 23:16 1979 28:7 29:7 1982 41:18 1992 39:1 42:8 1994 19:4 1998 34:1,4 1999 34:5
<hr/> U	<hr/> W	<hr/> X	<hr/> Y
ultimate 5:11 ultimately 25:22 unable 14:5 under 7:23 8:14 10:19,22 11:9 35:20 underground 39:17 understanding 12:14,19 28:10 understood 45:22 undertake 12:18 underwent 13:11 Unical 13:10 unit 4:15 15:15 20:22 24:15 27:4 44:4 46:9 48:17 United 31:3,10 University 19:12 29:9,12 unknown 44:23 unless 22:11 unnecessary 40:7 UNO-VEN 19:9 until 36:17 upgrading 10:15 upstream 34:2 36:10 upwards 39:20 Use 33:11,14 34:22 37:2 37:9 used 23:3 25:14 39:22 42:3 using 25:13 40:18 utilized 42:8 U.S 7:8 10:22 20:7 37:13 41:18	wading 15:16 want 4:14 5:7,15 15:14 15:22 16:1 26:18 wants 6:19 waste 39:16 wastewater 8:1,11,17 10:7 21:14 23:10 30:6,7 30:12,17 31:8,24 32:11 34:3 40:8 41:12,15,17 41:19 wastewaters 30:19 water 9:9 11:4 19:21 21:19 22:1 23:8 24:3,9 24:19 25:13,15,17 26:1 26:1,4,6 29:24 31:19 32:5,13 33:9,11,13,14 33:15,18,20 34:4,9,11 34:22 35:11 36:18,19 37:5,8,19 38:9,17,23 40:13 41:22 42:7,14 43:9,10,12,17,23 44:8 44:16 45:22 46:3 waters 37:2 waterway 33:8 34:12 waterways 25:16,21 Wauconda 44:22 45:1 Wauconda's 44:11,19 way 32:4 ways 12:23 weekly 23:11 33:24 weeks 15:3 well 6:21 10:2 20:23 21:9 22:18 26:17 29:13 30:12 39:14,17 40:3 wells 39:18,22 were 5:20 12:3 13:13,15 18:12 24:3 28:18 34:4 38:11,21 40:17 49:17 West 1:18 2:4 28:3 wet 8:12 9:8 10:1,9 20:21 21:8 23:3 24:3,7,13 25:5 26:7,13 32:12 33:4 35:17 39:8 41:2 43:18 45:17,21 we'll 4:13 6:18 16:18 we're 4:1 5:4 46:19 48:21	<hr/> Z	<hr/> 0
<hr/> V	<hr/> W	<hr/> 1	<hr/> 2
valid 39:7 values 36:22 variability 9:20 variance 7:4,24 8:22 9:3 9:5 11:1,6,16,23 13:3 13:20 14:17 21:6,15 22:12,12,15 32:16,19 33:2,6,18 40:6,11 variances 13:11,12 40:13 variety 32:7 36:21 various 19:12 31:24		0.6 36:7 001 42:18 05-85 1:8 4:6 084-004466 50:18	2 10:24 11:21 21:1 2/1/2001 35:1 2/8/2001 35:2 20 21:1 20,000,000 35:16 2000 34:5,13,19,21 2001 34:5,16,17 2002 34:5,6,13 2003 23:18 34:5 2004 21:16,22 23:6,12,13 24:1,5,8,18,21 34:5 37:5 38:12,15,22 40:2 42:6,13 44:6

2005 1:2,22 4:10 18:5 20:16 28:9 34:1,5 37:16 37:20 50:20 2009 25:8,9 41:5,7 21st 49:4 21.20 35:24 215,000 35:18 38:10 217 2:13 2183 23:15 22 31:24 45:15 2244 23:15 23,000 20:10 233 2:8 24 1:2 34:19,21 24th 1:20 4:10 2493 23:14 25 31:6 26 20:16 2644 23:14 27 3:9 274,000 39:8,13 293 35:23	7 7 11:24 24:24 40:20 43:6 7a 33:21 7b 41:8,21 7,000 20:10 7-day 38:24 77 35:23 782-0610 2:13		
3 3 21:10,22 3rd 48:20 3,690 35:14 3/16/2000 34:24 30 19:5 31:7 304.213 13:15 20:4 312 2:5,9 35 13:14 20:4 38,000,000 36:5	8 8 21:16 32:17 34:6 39:11 8000 2:8 6:6 814-8917 2:5 876-2380 2:9		
4 4 21:15 34:15 4a 22:22 4b 22:22 4th 49:7 4,000,000 45:17	9 9 34:1 35:5 9a 24:12 9b 24:12 9:00 1:24 9:05 4:11 94 18:3		
5 5 10:17 21:21 23:6 24:1,5 24:21 34:17 38:13 41:8 41:9 5-85 5:17 500 33:15 512 28:3			
6 6 11:21 24:10,19 34:10 35:5 38:6,9,23 42:7,14 6a 23:9 6b 23:9 6c 23:9 6d 23:9 60439 17:20 60525 28:4 60601 2:5 60606 2:9 6:7 62794 2:13			