BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

IN THE MATTER OF:	)	
	)	
	)	
REVISIONS TO WATER QUALITY	)	
STANDARDS FOR TOTAL DISSOLVED	)	R06-24
SOLIDS IN THE LOWER DES PLAINES RIVER	)	(Site Specific Rule - Water)
EXXONMOBIL OIL CORPORATION	)	
PROPOSED 35 ILL. ADM. CODE 303.445	)	

NOTICE OF FILING

To:

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Please take notice that on May 31, 2006, we filed with the Office of the Clerk of the Illinois Pollution Control Board via electronic mail the **TESTIMONY OF JAMES E. HUFF** and the **TESTIMONY OF STACEY K. FORD,** a copy of which is served upon you.

Please also note that Exhibits 1 through 8 submitted in support of ExxonMobil Oil Corporation's Petition for a Site Specific Rule Change will not be resubmitted. Exhibits 6A, 6B, 6C, 9, 10 and revised Exhibit 5 will be submitted in support of the above-mentioned testimony.

EXXONMOBIL OIL CORPORATION

By: _____
One of Its Attorneys

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TESTIMONY OF JAMES E. HUFF

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

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

My work experience includes two years with Mobil Oil as an Advanced Environmental Engineer during the construction and start-up of the Joliet Refinery. My responsibilities at the Joliet Refinery included the construction oversight and start-up of the wastewater treatment facilities, technical support for the wastewater treatment including training, sampling, discharge

monitoring reports, and National Pollutant Discharge Elimination System ("NPDES") permit preparation. From this experience, I am familiar with refinery operations and the associated wastewater treatment, as well as the Des Plaines River.

After leaving Mobil in the fall of 1973, I was employed for three years at IIT Research Institute in the Chemical Engineering Department, working on advanced wastewater treatment projects including catalytic oxidation of cyanide in petroleum wastewaters. I also assisted in preparing the Economic Impact/Cost-Benefit Analysis on a proposed total dissolved solids ("TDS") rule change in Illinois. I then spent four years with the Armak Company, now called Akzo Nobel Chemicals. I was the Corporate Manager of Environmental Affairs responsible for regulatory compliance and engineering design of environmental systems at nine manufacturing facilities in the United States and Canada including fatty amines plants in McCook and Morris, Illinois.

For the last 26 years at Huff & Huff, Inc., I have been involved in over 30 environmental impact studies associated with the impact of wastewater discharges on receiving streams throughout the United States. Some of these studies have involved TDS, sulfates, and chlorides. Surveys I have been involved with in Illinois have included the following streams:

Chicago Sanitary and Ship Canal
Des Plaines River
Casey Fork Creek
Aux Sable Creek
Flint Creek
Mill Creek
Thorn Creek
Kent Creek
Fox River
Mississippi River
Deer Run Creek
Salt Fork of the Saline River
Cedar Creek

Tyler Creek
Kiswaukee River
Beaver Creek

These stream surveys have included various combinations of water quality sampling, fish, macroinvertebrate, mussels, and sediment quality, along with antidegradation analyses on the more recent surveys. I also have completed mixing zone studies on the large streams listed above, including for the ExxonMobil Joliet Refinery ("Joliet Refinery").

I have worked with the Joliet Refinery for the past 17 years on various wastewater issues including two adjusted standards relating to ammonia, a mixing zone study, a thermal plume analysis, and review of the draft NPDES permits.

I have been retained by the Joliet Refinery to assist in the evaluation of alternatives for the wastewater stream generated by the new FCC wet gas scrubber, identifying water quality impacts, assisting with the construction permit application and NPDES permit modification application, and providing technical support on the request for an amendment to existing regulations. A copy of my resume is presented in Exhibit 9.

Presented herein is a description of the areas I have investigated that are related to this request for an amendment to existing regulations, which incorporate questions raised by the Illinois Pollution Control Board (the "Board") in the same areas.

APPLICABLE REGULATIONS

The requested amendment is for TDS in the Des Plaines River. The wet gas scrubber discharge will contain significant sodium sulfate, which is the source of the TDS subject to this request for an amendment to existing regulations. From the refinery outfall to the I-55 Bridge (1,600 feet), the Des Plaines River is classified as a *Secondary Contact* waterway with a TDS

water quality standard of 1,500 mg/L. From the 1-55 downstream, the Des Plaines River is classified as *General Use* with a TDS water quality standard of 1,000 mg/L.

There are no water quality standards on sodium. The sulfate *General Use* Water Quality Standard is 500 mg/L. There is no *Secondary Contact* water quality standard for sulfate. The proposed discharge will not cause or contribute to a sulfate water quality exceedance, and therefore an amendment for the sulfate component is not requested.

EXISTING WATER QUALITY DATA

Exhibit 6 entitled "Predicted Water Quality Impacts on the Des Plaines River from the Proposed Wet Gas Scrubber from the ExxonMobil Joliet Refinery," dated December 2005 was attached to the Petition. This report included the available water quality through late 2005.

The Joliet Refinery has collected TDS and sulfate data on the Des Plaines River weekly, between February 28, 2005 to April 25, 2006. Exhibit 6A presents these data along with existing effluent data. The maximum TDS upstream and downstream for last winter were both 900 mg/L, and both occurred on January 10, 2006. The maximum sulfate upstream was reported at 130 mg/L. Downstream, a sulfate of 490 mg/L was reported on May 3, 2005. The next highest sulfate result was 120 mg/L, more consistent with the upstream result. The TDS associated with the 490 mg/L sulfate was only 720 mg/L, suggesting that this single sulfate result is an outlier. The mean downstream TDS and sulfate from the most recent refinery data (Exhibit 6A) is 630 mg/L and 92 mg/L, respectively.

In addition, more recent TDS data on the Chicago Sanitary & Ship Canal collected at Lemont by the MWRDGC is presented in Exhibit 6B. Historically, there has been a high degree of correlation between the TDS level in the Chicago Sanitary & Ship Canal and the Des Plaines

River. The MWRDGC data from January 21, 2003 to November 21,2005 reported a maximum TDS of 1,094 mg/L at Lemont, and a mean value of 585 mg/L. The maximum TDS occurred on the day that the chlorides also were at a maximum 470 mg/L.

Exhibit 6 contained available TDS and sulfate data collected by the MWRDGC, the Illinois Environmental Protection Agency ("Illinois EPA" or the "Agency"), and by the Joliet Refinery. On the *Secondary Contact* portion of the Des Plaines River, the 1,500 mg/L TDS limit has not been exceeded over the past five years. At the 1-55 Bridge, where the General Use begins, the 1,000 mg/L TDS standard was exceeded on three consecutive dates in 2001, as listed below:

1/25/2001	-	1,194 mg/L
2/1/2001	-	1,075 mg/L
2/8/2001	-	1,139 mg/L

The three events occurred over three consecutive sampling events, implying that the TDS excursion was persistent for longer than 15 days. Limited TDS monitoring since 2001 has not recorded a TDS level above 1,000 mg/L at the 1-55 Bridge. From Table 1 of Exhibit 6, the last documented time a TDS level above 1,500 mg/L was recorded in the *Secondary Contact* water was January 4, 2001, at Lockport on the Chicago Sanitary & Ship Canal. From the more recent TDS data collected by the Illinois EPA, the MWRDGC, and by the Joliet Refinery on the Des Plaines River, TDS levels above 1,000 mg/L continue to occur infrequently during winter thaws. However, the peak TDS levels appear to be lower over the past five years, attributed to better deicing practices adopted by highway departments.

Water quality monitoring for sulfate on the Des Plaines River consistently has been below 500 mg/L, both upstream of and at the 1-55 Bridge.

A review of all of the TDS data (Exhibits 6, 6A and 6B) reveals that all of the elevated TDS readings occur in the winter, and are attributable to snowmelt runoff carrying salt runoff from highway deicing activities. Assuming during snowmelt the streams are at their harmonic mean flow, the flow at the 1-55 Bridge would be 3,690 cfs.[1] This is a conservative flow estimate. At 1,000 mg/L TDS, this translates into 20,000,000 pounds per day of TDS passing beneath the 1-55 Bridge. The combined increase in the average TDS loading from the Lemont Refinery and the ExxonMobil Joliet Refinery to the river will be 348,000 pounds per day, or 18 mg/L, or 1.8 percent of the total loading under this scenario.

According to Standard Methods, the precision of the TDS test method with a known sample TDS concentration of 293 mg/L when tested in 77 samples yielded a standard deviation of 21.20 mg/L. In essence, the contribution from the two refineries will be less than the precision of this test when the River exceeds 1,000 mg/L.

TOXICITY/FUTURE POSSIBLE CHANGES IN WATER QUALITY

Water quality standards historically have been developed based on toxicity. As TDS is composed of a variety of anions and cations, there are no "toxicity" values that can be applied to the generic TDS parameter. Sulfates and chlorides make up the majority of the anions, and these compounds typically are regulated. In Illinois for General Use waters, TDS, sulfates, and chlorides all are regulated.

Several years ago, the Illinois EPA began a detailed review of these water quality standards that by early 2004 led the Agency to hold a stakeholders' meeting. A subsequent stakeholders' meeting was held in March 2006, where the Illinois EPA indicated that approval from U.S. EPA had been secured and that a proposed rule change would be forthcoming to the

[1] Harmonic Mean Flows for Illinois Streams, ISWS, 1991.

Board. The essence of the proposal will include an elimination of a TDS General Use Water Quality Standard and amending the sulfate water quality standard based on the stream's hardness and chlorides. For the Des Plaines River, the sulfate water quality limit would be on the order of 1,800 mg/L, if the changes are adopted. I understand the Agency is prepared to provide more details on its efforts over the past several years and on the anticipated proposed changes and timeline. If the Board ultimately should adopt the Agency's proposal, as currently drafted, ExxonMobil no longer would need the requested relief downstream of the 1-55 Bridge.

The Agency's efforts are relevant to the Joliet Refinery's request, as it goes to the environmental impact the proposed discharge will have; that is, sodium sulfate, at the proposed levels discharged, will not impact the aquatic community in the Des Plaines River. There will be no adverse effect on aquatic life due to the projected TDS and sulfate levels. There has been a great deal of new information relating to TDS toxicity over the last several years. (See Exhibit 7A and B). I understand the Agency will provide additional information in support of the appropriateness of revising the TDS standard in the Lower Des Plaines River Segment. (See also Exhibit 8 indicating that by maintaining a standard for chloride, as the Agency is presently considering, the danger of dissolved solids toxicity is addressed, thus making any TDS standard unnecessary.)

PROJECTED EFFLUENT CONTRIBUTION

The projected effluent contribution was described in my report, Exhibit 6 and updated in the attached copy (Exhibit 6A) will average 133,000 pounds per day of TDS (and 89,000 pounds per day sulfate).

PROJECTED WATER QUALITY IMPACTS

The projected incremental increase in both TDS and sulfates to the Des Plaines River ~~from both~~ refineries were described in Exhibit 6. This analysis was done based on the 7-day, 10-year low flow rates in the streams, and relied on the 1997 mixing zone study completed by Huff & Huff, Inc. for the Joliet Refinery. (This mixing zone study was provided to the Board as part of the Joliet Refinery's Ammonia Adjusted Standard request, R97-28.) The effluent design has not changed since that study, and remains valid with the added flow of 179,000 gallons per day from the Wet Gas Scrubber. The Joliet Refinery has three outfalls that combine before entering the Des Plaines River. The combined outfall will have a projected TDS concentration of 2,610 mg/L and sulfate concentration of 1,050 mg/L. The mixing zone study determined there is a 21:1 dilution within the mixing zone, so at the edge of the mixing zone, there will be an increase in TDS of 91 mg/L and sulfates of 46 mg/L. The resulting mean TDS and sulfate at the edge of the mixing zone will be 817 mg/L and 152 mg/L, respectively.

At low flow conditions, the combined contributions from the Wet Gas Scrubber at the Lemont Refinery and the Joliet ExxonMobil Refinery will increase the sulfate level in the Des Plaines River at the I-55 Bridge by 29 mg/L and the TDS by 43 mg/L. The resulting TDS and sulfate levels in the River, after mixing, will be 748 mg/L and 124 mg/L, respectively. Thus, under low flow conditions the current water quality standards will be achieved after the addition of the discharges from the two wet gas scrubbers. The only time the existing TDS water quality

standard will be exceeded is when highway deicing salt is entering the Chicago waterway system.

Exhibit 6 included recent TDS data on the Des Plaines River, DuPage River, Kankakee River, and the Illinois River at Marseilles. The merger of the Kankakee River and Des Plaines River is the beginning of the Illinois River. The DuPage River enters the Des Plaines River before the beginning of the Illinois River. Using a mass balance approach, assuming all streams are at low flow conditions and all streams are at the maximum TDS concentrations (a very conservative scenario), the TDS concentration at the beginning of the Illinois River will not exceed 1,000 mg/L TDS from the increase in TDS from both refineries. Exhibit 6C presents this material balance calculation for TDS. Therefore, relief is requested from the point of ExxonMobil's outfall to the confluence of the Des Plaines River with the Kankakee River. As the primary cause of the elevated TDS levels is highway deicing salt, the relief requested is limited to the period November 1 to April 30th each year. There are no other discharges in this stretch of the Des Plaines River that are regulated for TDS, and therefore there will be no other dischargers impacted by the proposed request.

ALTERNATIVES

Huff & Huff, Inc. considered several alternatives for this 179,000 gallons per day stream. Deep well disposal initially was evaluated along with direct discharge. The Agency determined that the injection of this waste stream would constitute a Class I underground injection well in Illinois. (See Exhibit 13 in the Matter PCB 05-85.) Class I wells require injection beneath a cap rock that will prevent migration upwards into higher aquifers. Northeastern Illinois does not

have a cap rock above the Mount Simon formation used for disposal wells throughout the Midwest, and therefore this alternative was not viable.[2]

Treatment alternatives were described in the Site-Specific Rulemaking Petition, and these technologies are addressed in the testimony of Stacey K. Ford.

CONCLUSION

The Petition goes into some detail on the federal approvability of this request. I can answer questions on those issues, but believe that the Petition speaks for itself. Moreover, the correspondence between Illinois EPA and U.S. EPA on this very site-specific request is direct evidence on this topic.

Further, while I also could testify further on the Agency's investigations into appropriate revisions to the water quality standard for TDS, I have not included details on those issues, as the Agency is intending to address them.

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[2] See Evaluation of Underground Injection of Industrial Waste in Illinois, by R. Brown, and A. Visocky, ISGS, 1989.

Exxon Mobil
Des Plaines River Sampling Project

Date Sampled	River Water Intake			COMBINED EFFLUENT, 001,002, and 003			DOWNSTREAM RIVER WATER		
	Temperature (deg F)	Sulfate (mg/L)	Total Dissolved Solids(mg/L)	Temperature (deg F)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Temperature (deg F)	Sulfate (mg/L)	Total Dissolved Solids(mg/L)
2/28/2005					250	1,800		95	800
3/9/2005					370	2,500		99	840
3/11/2005					320	2,300		95	900
3/1512005					300	2,100		92	900
3/22/2005					190	1,600		98	860
3/25/2005					230	1,600		100	890
4/1/2005					250	1,800		95	770
4/5/2005					160	1,700		69	750
4/12/2005					270	1,600		100	760
4/28/2005					210	1,800		76	730
5/3/2005					920	1,900		490	720
5/10/2005					140	1,000		96	760
5/19/2005					300	1,400		120	610
5/24/2005					250	1,500		65	610
5/31/2005					200	1,500	75.2	67	630
6/7/2005					240	1,500	87.8	96	700
6/14/2005					280	1,500	78.8	67	510
6/21/2005					180	1,300	78.8	77	540
6/28/2005					270	1,200	86.0	91	520
7/5/2005	86.0	100	520		290	1,300	86.0	100	520
7/12/2005	78.8	61	520		180	1,100	78.8	62	510
7/1912005	84.2	68	490		270	1,300	84.2	69	480
8/2/2005	89.6	62	410		130	730	89.6	62	410
8/1012005	86.0	57	420		170	1,200	87.8	56	440
8/17/2005	82.4	47	440		140	1,000	86.0	47	430
8/23/2005	78.8	57	390		170	960	78.8	53	400
8/31/2005	82.4	91	400		220	1,100	89.6	94	400
9/13/2005	82.4	46	350		200	990	82.4	48	340
9/20/2005	77.0	72	360		220	1,200	77.0	54	300
9/28/2005	77.0	55	370		200	1,300	77.0	51	360
10/4/2005	73.4	52	300		180	1,100	71.6	48	290
10/11/2005	66.2	54	380		150	850	68.0	57	380
10/19/2005	71.6	43	450		150	1,200	69.8	40	470
10/28/2005	62.6	59	490		160	1,200	64.4	62	500
11/1/2005	60.8	88	440		270	1,000	62.6	88	460
11/9/2005	62.6	100	470		170	870	62.6	98	480
11/17/2005	50.0	88	530		140	740	50.0	89	530
11/21/2005	53.6	78	560		150	890	55.4	81	570
11/30/2005	46.4	130	540		150	630	48.2	110	480
12/6/2005	46.4	98	600		290	1,300	48.2	89	590
12/13/2005	50.0	35	620		260	1,300	53.6	90	620
12/20/2005	46.4	100	840		370	1,600	46.4	100	870
12/28/2005	50.0	96	780		290	1,400	50.0	100	790
1/4/2006	51.8	110	880		340	1,700	51.8	100	880
111012006	51.8	100	900		340	1,700	51.8	100	900
1/19/2006	46.4	120	740	64.4	180	1,500	50.0	110	740
1/24/2006	44.6	91	680	64.4	160	1,500	48.2	92	720
1/31/2006	46.4	110	850	66.2	160	1,600	48.2	100	840
2/7/2006	46.4	86	770	69.8	230	1,500	46.4	100	780
2/14/2006	46.4	100	770	64.4	290	1,600	48.2	110	800
2/21/2006	44.6	110	740	62.6	310	1,500	44.6	120	840
2/28/2006	46.4	100	790	62.6	270	1,600	48.2	95	760
3/9/2006	53.6	98	700	71.6	180	1,000	59.0	95	720
3/1312006	55.4	74	760	62.6	110	680	57.2	89	700
3/22/2006	46.4	82	640	64.4	260	1,600	46.4	84	700
4/13/2006	62.6	100	660	64.4	400	1,600	64.4	110	650
4/18/2006	57.2	94	490	68.0	290	1,100	59.0	93	520
4/25/2006	60.8	120	550	64.4	270	1,200	62.6	100	550
Average		**83**	**579**		**242**	**1366**		**92**	**630**
Maximum					**920**	**2500**		**490**	**900**

EXHIBIT 6A

WATER QUALITY DATA
CHICAGO SANITARY AND SHIP CANAL
Stephan Street, Lemont

Date	Chloride, mg/L	TDS, mg/L
1/21/2003	128	648
2118/2003	249	752
3/17/2003	382	952
4/21/2003	229	756
5/1912003	157	602
6/16/2003	133	468
7/21/2003	94	404
8/18/2003	86	510
9/1512003	91	438
10/20/2003	93	356
11/17/2003	143	600
12/15/2003	136	546
01/20/04	253	794
02/17/04	470	1,094
03/15/04	309	754
04/19/04	216	758
05/17/04	126	508
06/21/04	126	516
07/19/04	102	492
08/16/04	73	386
09/20/04	84	384
10/18/04	106	450
11/15/04	116	530
12/20/04	165	428
01/18/05	268	736
02/22/05	283	818
03/21/05	307	822
04/18/05	205	728
05/16/05	149	572
06/20/05	116	518
07118/05	94	436
08115/05	87	428
09/19/05	83	422
10/17/05	89	422
11/21/05	119	438
Average	**168**	**585**
Maximum	**470**	**1,094**

Source: MWRDGC Water Quality Monitoring

PROJECTED TDS AT START OF ILLINOIS RIVER
EXXONMOBIL AND CITGO WET GAS SCRUBBERS

Assumptions:
1) All streams at the 10-yr, 7-day low flow
2) All streams at the maximum TDS since 1999 based on the State's Water Quality Network Data
3) Des Plaines at I-55 Bridge is at 1,070 mg/L TDS before Wet Gas Scubber
4) Contribution of Just theWet Gas Scrubber to Refinery Effluent is 1,185 mg/L TDS

River	Flow, cfs	TDS, mg/L	Flow x TDS
Des Plaines	1503	1070	1,608,210
DuPage	95	964	91,580
Kankakee	484	423	204,732
Exxon Mobil	20.84	1185	24,695
Citgo			
Sum	2102.84		1,929,217
Citgo's Contribution a/		19	
Predicted Maximum TDS in Illinois River		**936**	

a/ Based on pounds discharged by Citgo and 2,102.84 cfs, the incremental increase is 19 mg/L

EXHIBIT 6C

JAMES E. HUFF, P.E.

Education:

1966-1970	Purdue University, West Lafayette, Indiana B.S. in Chemical Engineering
1970-1971	Purdue University, West Lafayette, Indiana M.S.E. in Environmental Engineering
1974-1976	University of Chicago Graduate School of Business. Part time
Honors:	Omega Chi Epsilon (Chem. Engr. Honorary) President's Academic Award Graduated with Distinction Fellowship from the Federal Water Quality Admin.
Thesis:	"Destabilizing Soluble Oil Emulsions Using Polymers with Activated Carbon," Major Professor, Dr. James E. Etzel

Experience:

Since 1980, Mr. Huff has been vice president of Huff & Huff, Inc. responsible for projects pertaining to wastewater treatment, design and operation, water quality studies, hazardous waste management, groundwater and soil remediation, and compliance assessments. A significant portion of his time has been devoted to assisting clients on day-to-day environmental issues; from permitting, training, to setting up programs for compliance and ISO 14000.

Mr. Huff has designed industrial wastewater treatment plants ranging in size from less than one thousand gallons per day to eight million gallons per day. These designs have applied to various industrial sources, such as, foundries, plating, printed circuit boards, organic chemical, pharmaceutical manufacturers, and meat packing. Examples of industrial wastewater designs are listed below:

- SBRs for BOD_5/COD reduction at pharmaceutical plant
- Site stream SBR for nitrification on meat packing three-stage lagoon
- Breakpoint chlorination for ammonia removal at chemical plant and also a meat packer
- Land application, with winter lagoon at chemical plant
- Copper removal from printed circuit board facility using sodium borohydride
- Integrated settling basin sludge drying beds at foundry

Mr. Huff has also directed fourteen municipal wastewater treatment design projects. Examples of municipal design projects are listed below:

- Conversion of chlorine to sodium hypochlorite disinfection
- Conversion of wet weather storage facilities to store-treat basins, with effluent disinfection filter press for digested sludge dewater
- Sludge storage pad with enclosure
- Bar screen
- Grit, washer replacement
- Tertiary filter rehabilitation

EXHIBIT **9**

- Secondary/Tertiary high flow bypass with chlorine contact tank and flow measurement and blending
- Anaerobic digester supernatant treatment for ammonia removal using SBR
- In-stream high purity oxygen injection into effluent and receiving stream for increasing stream D.O.
- Numerous force main and lift station designs

Mr. Huff has also designed cluster wastewater treatment systems with subsurface discharge for seven residential developers/country clubs, and a temple. These systems are typically 10,000 gallons per day, utilizing two sequential batch reactors (SBR), computer controlled, followed by a large leach field. These unique systems are permitted under the IDPH under a unique experimental use permit provision.

Mr. Huff has also conducted several CSO studies including Nine Minimum Controls, O&M Plans, and Water Quality Impact Studies. Two novel in-stream aeration systems, using high-purity oxygen on a shallow Illinois stream, were designed and installed, and a system designed by Mr. Huff for ammonia removal from anaerobic digesters received on engineering excellence award in 1999.

In the area of Water Quality Analysis, Mr. Huff has completed a variety of projects, including both biological and chemical assessments. Mr. Huff has directed studies for two of the Quad Cities to assess the environmental impact of water treatment plant discharges on the Mississippi River. These studies included evaluating various locations along the Mississippi for the presence of mussel beds, the potential presence of endangered species, primarily the Lampsilis higginsi, and whether the areas were important for fish spawning. The scope-of-work for the mussel surveys developed by Mr. Huff were reviewed and approved by U.S. Fish & Wildlife, IDOC, IEPA, and the Illinois Natural History Survey. Approvals for both of the outfalls were secured. On the Fox River, Mr. Huff was project manager for a group of municipal dischargers on a project to collect and analyze weekly water quality samples along the river, its tributaries, and outfalls at over 30 locations to establish a better database on un-ionized ammonia levels. Mr. Huff has directed fish and benthic surveys for industrial, storm water, and municipal wastewater discharges located on the following waterways: Cedar Creek, Deep Run, Flint Creek, Thorn Creek, North Kent Creek, Tyler Creek, Kiswaukee River, Chicago Sanitary & Ship Canal, and Casey Fork Creek, and has completed antidegradation studies as part of many of these studies. Thermal studies, mixing zone studies, and multi-part diffuser designs have been completed for a variety of clients.

Mr. Huff in 2004 was retained by the Northeastern Illinois Planning Commission as the lead consultant to review FPA requests for consistency with the Commission's Water Quality Management Plan. To date, Mr. Huff has completed over 20 FPA requests, including the Facilities Plan associated with these. Antidegradation and nutrients have been two major issues on many of these applications.

In the hazardous waste field, over sixty industrial plants have relied on Mr. Huffs expertise for complying with the regulations. Mr. Huff has provided the required RCRA and DOT training, prepared inspection plans, contingency plans, training plans, and waste minimization plans. Mr. Huff directs H&H's underground storage tank (UST) closure and remediation projects for a variety of clients. Both petroleum and solvent tank releases have required regulatory reporting and remediation. Tank systems have varied in size from single units to 50 USTs.

Remediation designs, many associated with underground storage tank releases, are a major portion of Mr. Huffs activities. He has designed and implemented landfarming, soil vapor extraction, air sparging, ground water pump and treat systems utilizing batch biological reactors, activated carbon, air strippers, and in situ enhanced bioremediation. Mr. Huff has completed treatability studies at a Federal Superfund site for cyanide and thiocyanate destruction in ground water, including operation of a 4,000 gpd pilot reactor at the site and has completed a Feasibility Study (FS) for a major chlorinated solvent release at a State Superfund site. The selected remedy for this state site was the first in Ohio that recognized intrinsic

bioremediation as part of the remedy, and Mr. Huff is currently the Project Manager implementing the selected remedy. Mr. Huff has directed over fifteen hazardous waste closures of TSD facilities, ranging fiom drum storage areas to the complete clean-up of a 27-acre abandoned manufacturing facility. This abandoned manufacturing site included plating solutions, cyanide bearing sludges, oils, and over 20,000 gallons of virgin chemicals requiring placement. Mr. Huff has also been the project manager on the site investigation at three former manufactured gas plants, and he has completed the risk assessment and a remedial design that includes taking the coal tar to a hot-mix asphalt plant for one of these gas plant sites. This site received one of the first comprehensive No Further Remediation letters fiom the IEPA, and was the recipient of the top Honor Award for Engineering Excellence in 2000.

Compliance assessment is a significant part of Mr. Huffs work. Over 100 environmental audits of manufacturing firms have been conducted by Mr. Huff over the last fifteen years. These audits have included potential acquisitions as well as on-going industrial operations. Mr. Huff has also been involved in siting and permitting of new industrial facilities, including a mining operation and peak energy plants.

From 1987 through 1990, Mr. Huff was a part-time faculty member, teaching the senior level environmental courses in the Civil Engineering Department at IIT-West in Wheaton, Illinois.

From 1976 to 1980, Mr. Huff was Manager of Environmental Affairs for the Armak Company (now Akzo Nobel Chemicals), a diversified industrial chemical manufacturer. At Armak, Mr. Huff was responsible for all environmental activities at eight plants located throughout the United States and Canada. Technical work included extensive biological and chemical treatability studies as well as designing new facilities, including two wastewater pretreatment facilities, a land application system, and an incinerator system.

Previously, Mr. Huff was an Associate Environmental Engineer in the Chemical Engineering Section at IIT Research Institute (IITRI). Much of this work involved advanced wastewater treatment development, including applying a combination of ozone/UV treatment of cyanide, PCB's, RDX, HMX, and TNT and the use of catalytic oxidation of cyanide using powdered activated (carbon impregnated with copper in refinery activated sludge units. At Mobil Oil's Joliet Refinery Mr. Huff was employed as an Advanced Environmental Engineer during the construction and start-up of the largest grassroots refinery ever constructed. Mr. Huff was responsible for wastewater training, permitting start-up, and technical support as well as for water supply, solid waste, and noise abatement issues at the refinery fiom 1971 to 1973.

Membership

Illinois Association of Wastewater Agencies
Consulting Engineers Council of Illinois
Environmental Committee 1999 – Present
Chairman-June 2000-Present
Water Environment Federation Member
Illinois Water Environment Federation
National Water Well Association
Certified Class 2 and Class K Sewage Treatment Works Operator in Illinois

Licenses: Registered Professional Engineer, Illinois and New Jersey

Papers:

"Ozone-U.V. Treatment of TNT Wastewater," E.G. Fochtman and J.E. Huff, International Ozone Institute Conference, Montreal, May 1975.

"Characterization of Sensory Properties" Qualitative, Threshold, and Supra-Threshold," J.E. Huff and A. Dravnieks, American Water Works Assoc. Seminar, Minneapolis, MN, June 1975.

"Optimizing Wet Scrubber Systems for Odor Control in the Rendering Industry," R.H. Snow, J.E. Huff, and W. Boehme, Purdue Air Quality Conference, Lafayette, IN, November 1975.

"Control of Rendering Plant Odors by Wet Scrubbers: Results of Plant Tests," R.H. Snow, J.E. Huff, and W. Boehme, APCA Conference Boston, MA, June 1975.

"Asbestos Manufacturing Waste Disposal and Utilization," P. Ase, J.E. Huff, L.L. Huff, C.F. Harwood, and D. Oestreich, Mineral Waste Utilization Symposium, Chicago, IL, April, 1976.

"Alternative Cyanide Standards in Illinois, a Cost-Benefit Analysis," L.L. Huff and J.E. Huff, 31st Annual Purdue Industrial Waste Conference, Lafayette, IN, May 1976.

"Cyanide Removal from Refinery Wastewaters Using Powdered Activated Carbon," J.E. Huff, J.M. Bigger, and E.G. Fochtman, American Chemical Society Annual Conference, New Orleans, LA, March 1977. Published in Carbon Adsorption Handbook, P.N. Cheremisinoff and F. Ellerbusch, Eds., Ann Arbor Science Publishers, Inc., 1978.

"Industrial Discharge and/or Pretreatment of Fats, Oils and Grease," J.E. Huff and E.F. Harp, Eighth Engineering Foundation Conference on Environmental Engineering, Pacific Grove, CA, February, 1978.

"A Review of Cyanide of Refinery Wastewaters," R.G. Kunz, J.E. Huff, and J.P. Casey, Third Annual Conference of Treatment and Disposal of Industrial Wastewater and Residues, Houston, TX, April 1978. Published as: "Refinery Cyanides: A Regulatory Dilemma," Hydrocarbon Processing, pp 98-102, January, 1978.

"Treatment of High Strength Fatty Amines Wastewater - A Case History," J.E. Huff and C.M. Muchmore, 52nd Conference - Water Pollution Control Federation, Houston, TX, October 1979. Published JWPCF, Vol. 54, No. 1, pp 94-102, January, 1982.

"An Overview of Environmental Regulations," E.F. Harp and J.E. Huff, Soap & Detergent Association Annual Meeting, Boca Raton, FL, January 1980.

"A Proposal to Repeal the Illinois Pollution Control Board's Construction Permit Water Regulations," J.H. Russell and J.E. Huff, Chicago Bar Record, Vol. 62, No. 3, pp 122-136, Nov.-Dec., 1980.

"Disinfection of Wastewater Effluents in Illinois-A Cost-Benefit Analysis," L.L. Huff and J.E. Huff, Illinois Water Pollution Control Association 2nd Annual Conference, Kankakee, IL, May 20, 1981.

"Measurement of Water Pollution Benefits - Do We Have the Option?" L.L. Huff, J.E. Huff, and N.B. Herlevson, IL Water Pollution Control Assn 3rd Annual Conference, Naperville, IL, May 1983.

"Evaluation of Alternative Methods of Supplementing Oxygen in a Shallow Illinois Stream," J.E. Huff and J.P. Browning, IL Water Pollution Control Assn 6th Annual Meeting, Naperville, IL, May 7, 1985.

"Environmental Audit for Wastewater Compliance," J.E. Huff, Federation of Environmental Technologists Environmental '86 Seminar, Milwaukee, WI, March 5, 1986.

"Technical and Economic Feasibility of a Central Recovery Facility for Electroplating Wastes in Cook County, IL," J.E. Huff and L.L. Huff, 1986 Governor's Conference on Science and Technology in Illinois, Rosemont, IL, Sept. 3, 1986.

"Hazardous Waste Closure Procedure," J.E. Huff, Federation of Environmental Technologists Seminar, Rockford, IL, Dec. 17, 1986.

"Training & Contingency Plan Requirements Under the Hazardous Waste/Right-To-Know/OSHA Regulations," J.E. Huff, Federation of Environmental Technologists Environment '88, Milwaukee, WI, March 9, 1988.

"Biomonitoring/Bioassay," J.E. Huff, Federation of Environmental Technologists Seminar, Harvey, IL, December 11, 1989.

"Storm Water Discharges," J.E. Huff, Federation of Environmental Technologists Environment '90 Seminar, Milwaukee, WI, March 7, 1990.

"Cleanup Standards-Past, Present and Future," J.E. Huff and D.O'Neill, Chicago Bar Association's Environmental Law Seminar "Underground Tanks: Down and Dirty," Chicago, IL, June 8, 1993.

"Engineering Aspects of Individual Wastewater System Design," J.E. Huff, 22nd Annual Northern Illinois Onsite Wastewater Contractors Workshop, St. Charles, IL, February 27, 1995.

"Illinois Site Remediation Program," J.E. Huff, Institutional Lenders Environmental Focus Group, Chicago, IL, March 14, 1997

"Cleaning Up Contaminated Property in Illinois," J.W. Watson and J.E. Huff, Midwest Environmental Corporate Counsel Association, September 18, 1997.

"Total Maximum Daily Loadings (TMDL) and Ammonia Conditions in the Fox River Waterway," J. E. Huff and S. D. LaDieu, Illinois Water '98 Conference, Urbana, IL, Nov. 16, 1998.

"The Illinois Ammonia Water Quality Standards: Effluent Implications & Strategies for Compliance," L.R. Cunningham & J. E. Huff, Illinois Water '98 Conference, Urbana, IL, Nov. 16, 1998.

"Beneficial Reuse of Coal Tar Impacted Material in Recycled Asphalt-LaGrange Illinois Case Study," J.E. Huff, Midwest Energy Association's Environmental Management Conference, Denver, CO, October 5,2000 and at the Site Remediation Technologies & Environmental Management Practices in the Utility Industry, Orlando, FL, December 4-7,2000.

"Impact of a High Sulfate and TDS Industrial Discharge on Municipal Wastewater Treatment," J.L. Daugherty, J.E. Huff, S.D. LaDieu, and D. March, WEFTEC 2000, Anaheim, CA, October 17,2000.

"Remediation of MGP Source Material Below the Water Table & On-Site Water Treatment," J.E. Huff, M. Matuck, and L.M. Paulson, Midwest Energy Association Environmental Management Conference, Itasca, IL, October 28,2002.

"Phase II Storm Water Regulations – Compliance Strategies For The Gas Transmission/Distribution Industry," J.E. Huff, American Gas Association 2003 Operations Conference, Orlando, Florida, April 28,2003.

"Endocrine Disruptors or Better Living Through Chemistry" Illinois Association of Wastewater Agencies Fall Meeting, Bloomington, IL, November 14,2003.

BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

IN THE MATTER OF:	)	
	)	
	)	
REVISIONS TO WATER QUALITY	)	
STANDARDS FOR TOTAL DISSOLVED	)	R06-24
SOLIDS IN THE LOWER DES PLAINES RIVER	)	(Site Specific Rule - Water)
EXXONMOBIL OIL CORPORATION	)	
PROPOSED 35 ILL. ADM. CODE 303.445	)	

TESTIMONY OF STACEY K. FORD

I. BACKGROUND

My name is Stacey K. Ford. I have been employed by ExxonMobil for the past 15 years. I have worked at the Joliet Refinery since December 2001. At the Joliet Refinery, I have held the position of Environmental Group Leader and currently I serve as the New Source Review Consent Decree Coordinator. I received a Bachelor of Science in Environmental Engineering in 1991 from Cornell University and was awarded a Masters of Science in Management from Boston University in 1996.

Prior to my time at the Joliet Refinery, I served as the ExxonMobil Advisor to American Petroleum Institute and American Chemistry Council environmental committees. My experience additionally includes engineering and environmental positions at the Coryton Refinery (Essex, England) and the Torrance Refinery (Torrance, California) and various Petroleum Distribution and Fuels Marketing facilities. Additionally, I have served as a facilities engineer for Mobil Research and Development Corporation.

II. GENERAL REFINERY INFORMATION

The Joliet Refinery is located in Channahon Township on a 1,300-acre tract of land in unincorporated Will County, Illinois. The site is adjacent to Interstate 55 at the Arsenal Road exit, approximately 50 miles southwest of Chicago. To the immediate north of the refinery is the Des Plaines River, while east and south is the former Joliet Army Arsenal, which is currently being redeveloped as an industrial complex and the Midewin National Tallgrass Prairie.

The Joliet Refinery employs more than 500 full-time ExxonMobil employees to manage, provide engineering for, and operate and maintain the plant. The refinery operates 24 hours a day every day. Approximately 100 additional ExxonMobil employees who provide regional support services are located at the refinery. Approximately 150 full-time contractor employees provide a variety of maintenance functions at the refinery on a continual basis. Construction projects and intensive maintenance periods called turnarounds can swell the contractor workforce by thousands during the year.

The refinery was built by ExxonMobil and began operating in 1972. It was one of the last grass-roots refineries built in the United States. The refinery has a crude oil processing capability of approximately 240,000 barrels per day, or nearly 10.1 million gallons a day. The single-train, high-conversion refinery produces approximately 9 million gallons a day of gasoline and diesel fuel. Other products include: liquefied petroleum gas (''LPG''), propylene, asphalt, sulfur and petroleum coke.

The refinery draws from and discharges to the Des Plaines River, approximately 1,000 feet northeast of the I-55 Bridge. The refinery takes approximately 10.2 million gallons of water daily from the River, and 2 million gallons per day from wells, and discharges approximately 12.3 million gallons to the River. [On average, stormwater quantities more than offset the

amount of water evaporated in the refinery.] The wastewater effluent contains dissolved solids derived from compounds present in crude oil that are removed from the crude by various refinery operations, as well as concentrating the total dissolved solids (''TDS'') present in the intake water from the River from the evaporation cooling.

III. DESCRIPTION OF REFINERY EFFORTS TO REDUCE EMISSIONS

The purpose of my testimony is to describe the current efforts by ExxonMobil to reduce air and water emissions from the Joliet Refinery. In December 2005, ExxonMobil entered into a Consent Decree with the United States Environmental Protection Agency (''U.S. EPA'') and the States of Illinois, Louisiana, and Montana to resolve certain alleged regulatory violations at ExxonMobil refineries. As part of this Consent Decree, ExxonMobil has agreed to install pollution control equipment at the Joliet Refinery to reduce emissions of sulfur dioxide by over 95% or over 24,000 tons per year and nitrogen oxides by approximately 50% or over 1,800 tons per year. (A copy of the December 2005 Consent Decree is submitted as Exhibit 1.)

ExxonMobil has a challenging schedule in order to ensure start-up is completed by December 2008, and the consent decree schedule is met. The project is currently in the detailed design stage. In order to ensure project completion, construction must begin by July 2007. Prior to construction, the refinery must have a renewed National Pollutant Discharge Elimination System (''NPDES'') permit and a construction permit for the project. Both are dependant on the Board approving the Petition for a Site Specific Rule.

The Joliet Refinery currently operates under a NPDES permit (No. IL 0002861) issued by the Illinois Environmental Protection Agency (the ''Illinois EPA'' or the ''Agency''). The permit was modified on September 12,2001 and does not include effluent limits on TDS. The permit is submitted as Exhibit 4.

The Joliet Refinery wastewater treatment plant includes physical, chemical, and biological treatment units used to perform primary, secondary, and tertiary treatment prior to water discharge to the Des Plaines River. The original wastewater treatment plant, which began operation in 1972, includes two pre-separator flumes for oil removal, two API separators for oil and total suspended solids ("TSS") removal, two dissolved air floatation units for further oil and TSS removal, two activated sludge units, followed by a final effluent polishing basin and aeration. A revised wastewater treatment basin schematic is submitted as Exhibit 5.

The refinery has made numerous improvements to its wastewater treatment plant since its initial start-up. These improvements include the addition of a large equalization basin with aggressive biological treatment, larger blowers on the activated sludge units, new internals in the secondary clarifiers, and upstream process changes able to reduce the pollutant loadings on the treatment system. Additionally, the refinery has implemented a "No Oil to Sewer" program plantwide.

As described in our petition for a site-specific rule change and briefly below, to meet the emission requirements of the consent decree, ExxonMobil will be installing a wet gas scrubber ("WGS") in the Fluidized Catalytic Cracking ("FCC") unit as well as other equipment in the Joliet Refinery. In addition, and to mitigate the amount of sulfates and dissolved solids to be discharged, the Joliet Refinery will be using an added technology: Catalytic SO_2 Additive Technology ("DESOX). The DESOX control complements the WGS and reduces SO_2 emissions by transferring sulfur to a stable form able to be recovered as elemental sulfur. A summary description of these technologies is submitted as Exhibit **3.** The WGS will create additional sulfate and TDS in the Joliet Refinery treated wastewater.

The WGS technology begins with the flue gas stream after the DESOX process. The sulfur dioxide ultimately is converted to sodium sulfate salts in the WGS that are discharged in a purge stream. This purge stream will be cooled, the catalyst solids removed and discharged upstream of the refinery Outfall 001 in the waste stream treatment system. Three alternative treatment processes for the catalyst fines and ammonia are under consideration by the refinery. None of these options will change the TDS or sulfates discharged, which are the subjects of this site-specific rule request. The exit temperature will be limited to 90°F either by the specifications for the WGS purge system or the equivalent BTU's will be removed elsewhere in the refinery. The particular design of the WGS is a proprietary technology and design for ExxonMobil. This WGS technology allows refineries to reliably meet stringent FCC emission requirements with well-proven technology.

The WGS technology has the following advantages:

- Can avoid costly CO boiler upgrades with allowable scrubber pressure drops as low as zero inches of water;
- Maximizes cat cracker availability -- scrubber run lengths match longest FCC up-time in the industry;
- Extremely high reliability [99.9%+] with over 200 years of operating experience;
- Meets or exceeds toughest particulate and SOx emission regulations;
- Produces environmentally benign wastewater safe for direct discharge;
- Collected catalyst suitable for direct low-cost disposal; and
- Smallest commercially-proven FCC unit scrubber as it needs only 113 to 112 the area of competitive systems.

Dry scrubbing technology was considered instead of the WGS, but was not selected due to the following disadvantages:

- Dry scrubbing process cannot accomplish the desired SO_2 removal to comply with the Consent Decree; and
- Dry scrubbing processes cannot meet the run time consistent with an FCC unit.

While the DESOX technology complements the WGS and reduces the TDS loading to the sewer system, it is inadequate by itself to achieve the requirements of the Consent Decree.

ExxonMobil has completed or plans further improvements to the existing wastewater treatment system or in the upstream portion of the refinery to reduce pollutant loadings. These improvements include the installation of a Purge Treatment Unit as part of the WGS project, sour water stripper pH optimization able to reduce ammonia loading on the wastewater treatment plant, installation of alternate piping to reroute FCC and Reformer feed tank water draws from the wastewater treatment plant to the light slop system, increased flow monitoring in the wastewater treatment plant, and installation of new internals in the dissolved air floatation unit.

IV. ALTERNATIVES INVESTIGATED

U.S. EPA has promulgated categorical limits on various industries, including the petroleum refining industry. The Joliet Refinery's wastewater treatment plant effluent parameters meet or are well below all federal effluent guidelines and standards for the appropriate petroleum refinery point source subcategory (40 C.F.R. 419, Subpart B - Cracking Subcategory). The flow rate used to derive the Best Available Technology (''BAT'') effluent values for a refinery the size and configuration is 5,200 gallons per minute (gpm), while the refinery's actual current flow rate is 2,200 gpm, with a maximum hydraulic flow rate of 3,400 gpm. The refinery's wastewater treatment system goes beyond BAT requirements.

The approach being pursued by ExxonMobil minimizes the overall environmental impact and costs associated with the Consent Decree. Moreover, applying the existing TDS water quality standards in this situation is neither technically feasible nor economically reasonable. The Consent Decree, to which the Illinois EPA is a party, substantially reduces emissions of sulfur dioxide, nitrogen oxides and particulate matter. ExxonMobil agreed to these reductions and will be investing over $180 million at the refinery, most of which costs are for the WGS, which generates the TDS and sulfates identified above, and treatment for thermal, TSS and ammonia removal. These investments are projected to reduce SO_2 emissions by over 24,000 tons/year, and NOx emissions by over 1,800 tons/year.

Petitioner has investigated methods of avoiding releasing the wastewater from the FCC to the existing wastewater treatment system, including deep well disposal and removal technologies as discussed in the testimony of James E. Huff. None of these alternatives are technically feasible. Technologies for removing sodium sulfate from a dilute aqueous stream are limited. Electrodialysis never has been applied in the chemical or refinery industries on the scale required at the refinery. Biological sulfate reduction theoretically is possible, but this will not reduce the overall TDS concentration merely by replacing the sulfate ions with carbonate ions. The concentration of sodium sulfate is too high for reverse osmosis concentration, as the osmotic pressure of the solution is too high.

The sole technology potentially available is evaporation/crystallization, an energy-intensive approach that will result in increased carbon dioxide emissions to the atmosphere. Due to the lack of space available at the refinery, construction of a crystallizer/evaporator would require removal of existing tankage, site preparation activities, as well as the construction of a crystallizer unit sufficient to remove about 200 gpm of water, and handling of potentially 90 tons

per day of a dry sodium sulfate by-product (sulfate salt). Whether this by-product would be of sufficient purity to have any market value, and whether demand for the large amount of sulfate salt exists, has not been determined. The salt would possibly end up as a waste stream that required disposal. The equipment required for the evaporation/crystallization unit would include a sulfuric acid storage tank [6,000 gallon capacity], metering pumps, a pH adjustment tank, a degasification tower, a 200 gpm crystallizer feed pump, a 24,000 gallon crystallizer feed surge tank, a crystallizer system, consisting of a tower, pumps, drums [10 ft diameter and 40 ft tall], a preheat exchanger, a condenser and various surge tanks, driers, and instrumentation controls and valves. The evaporation/crystallization technology also would be paired with pretreatment. The estimated cost of this size of the evaporation/crystallization system, including oxidation and solids removal, is $36 million to $56 million.

Operating costs, including depreciation, are estimated to exceed $1 million per year, with 40% of this amount representing energy costs. The above cost estimate assumes the refinery has sufficient steam capacity, and that a new boiler would not be required. If it was determined that sufficient steam capacity did not exist, the refinery would need to increase boiler capacity or install another boiler, potentially increasing capital cost by $3 million to $4 million for the project. Moreover, Petitioner is not aware of a situation where the salt from the purge stream of refinery WGS has been precipitated to produce a solid salt. Most applications of WGS utilizing circulating caustic soda solution for absorption and removal of SO_2 in the refining industry have been allowed to discharge the purge stream with their other wastewater. Therefore, assessments of precipitation performance reliability impacted by corrosion and fouling are uncertain. Further investigation would be warranted before such an approach was pursued.

Short-term episodic storage is neither technically feasible nor economically reasonable. The refinery has a relatively small footprint. All of the areas near the wastewater treatment plant already are fully occupied by existing tankage, and that tankage is expected to be fully utilized in the future, particularly in light of the energy needs of the region. The refinery would need to remove one or two currently utilized tankage limiting flexibility of operations and replace with a new 200,000 barrel storage tank, pumps, secondary containment, and associated piping. The cost estimate for this option is $13,200,000.

Requiring Petitioner to install wastewater treatment for the scrubber TDS discharges into the wastewater system is not economically reasonable. Petitioner is not the cause of any water quality standard exceedance for TDS. Petitioner is investing substantial monies in the refinery to substantially reduce air emissions and to substantially reduce the overall environmental releases from the Joliet Refinery. The wastewater discharge involved is relatively modest and would not pose an adverse threat to the receiving stream.

V. CONCLUSION

Prior to filing its petition for an amendment to the current TDS regulations, ExxonMobil discussed these issues at some length with the Illinois EPA. Based on those discussions, the regulatory language proposed in the Petition appeared to address those issues. That language is submitted as Exhibit 10. Additionally, there have been discussions between Illinois EPA and U.S. EPA to confirm whether the approach proposed here is federally approvable which we understand the Agency will address in its testimony for this proceeding. (See also Exhibit 2.)

ExxonMobil will invest over $180 million on installation of pollution control equipment at the Joliet Refinery in order to reduce its environmental impact. ExxonMobil will expend approximately $40 million to remove the catalyst fines and to meet the TSS limitations and as

part of its wastewater control efforts. These improvements will allow the refinery to meet TSS standards but not the limitations for TDS. There is no environmental benefit to reducing the TDS discharge for the WGS. Moreover, applying the existing TDS standards in this situation is neither technically feasible nor economically reasonable. Therefore, ExxonMobil requests relief from the water quality standard for TDS as stated in the Petition and supporting exhibits.

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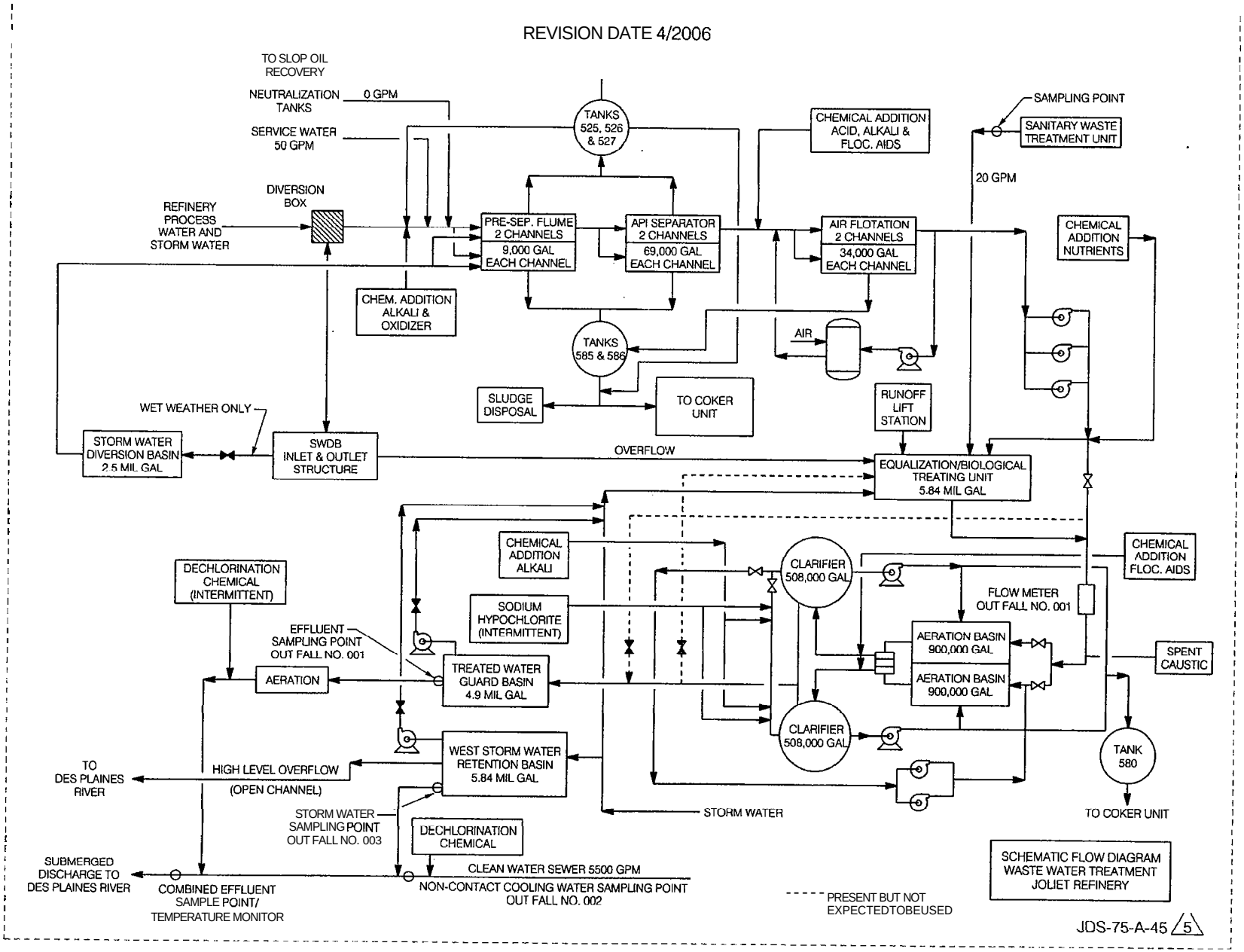
REVISED
EXHIBIT 5



PROPOSED RULE/AMENDMENT LANGUAGE

Based on the suggestions we have received from the Illinois EPA, Petitioner proposes that the following section be adopted by the Board:

303.xxx Seasonal Total Dissolved Solids Water Quality Standard for the Lower Des Plaines River.

The TDS water quality standard for Secondary Contact and Indigenous Aquatic Life Use water does not apply to the waters of the state, from the dates November 1 through April 30, that are located from the point of discharge of the ExxonMobil discharge point located at Interstate 55 and Arsenal Road into the Des Plaines River, said point being located in Will County, T34N, R9E, S15, Latitude: 41°25" North, Longitude: 88°, 11', 20" West to the Interstate 55 bridge. TDS levels in such waters must meet a water quality standard for TDS (STORET Number 70300) of 1,686 mg/L.

The TDS water quality standard for General Use water does not apply to the Des Plaines River, from the dates November 1 through April 30, from the Interstate 55 bridge to the confluence of the Des Plaines River with the Kankakee River. TDS levels in such waters must meet a water quality standard for TDS (STORET Number 70300) of 1,686 mg/L.

CERTIFICATE OF SERVICE

The undersigned, an attorney, certify that I have served upon the individuals named on the attached Notice of Filing true and correct copies of the **TESTIMONY OF JAMES E. HUFF** and the **TESTIMONY OF STACEY K. FORD,** via electronic mail and First Class Mail, postage prepaid on May 31,2006.