

NPDES Permit No. IL0078450
Notice No. JAR:11092201.bah

Public Notice Beginning Date: **November 10, 2011**

Public Notice Ending Date: **December 12, 2011**

National Pollutant Discharge Elimination System (NPDES)
Permit Program

Draft Modified NPDES Permit to Discharge into Waters of the State

Public Notice/Fact Sheet Issued By:

Illinois Environmental Protection Agency
Bureau of Water,
Division of Water Pollution Control
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
217/782-0610

Name and Address of Discharger:

Marquis Energy, LLC
11953 Esk Road
Hennepin, Illinois 61327

Name and Address of Facility:

Marquis Energy, LLC
11953 Esk Road
Hennepin, Illinois 61327
(Putnam County)

The Illinois Environmental Protection Agency (IEPA) has made a tentative determination to issue a NPDES permit to discharge into the waters of the state and has prepared a draft permit and associated fact sheet for the above named discharger. The Public Notice period will begin and end on the dates indicated in the heading of this Public Notice/Fact Sheet. The last day comments will be received will be on the Public Notice period ending date unless a commentor demonstrating the need for additional time requests an extension to this comment period and the request is granted by the IEPA. Interested persons are invited to submit written comments on the draft permit to the IEPA at the above address. Commentors shall provide his or her name and address and the nature of the issues proposed to be raised and the evidence proposed to be presented with regards to those issues. Commentors may include a request for public hearing. Persons submitting comments and/or requests for public hearing shall also send a copy of such comments or requests to the permit applicant. The NPDES permit and notice number(s) must appear on each comment page.

The application, engineer's review notes including load limit calculations, Public Notice/Fact Sheet, draft permit, comments received, and other documents are available for inspection and may be copied at the IEPA between 9:30 a.m. and 3:30 p.m. Monday through Friday when scheduled by the interested person.

If written comments or requests indicate a significant degree of public interest in the draft permit, the permitting authority may, at its discretion, hold a public hearing. Public notice will be given 45 days before any public hearing. Response to comments will be provided when the final permit is issued. For further information, please call Jaime Rabins at 217/782-0610.

The applicant is engaged in the production of denatured ethanol via fermentation (SIC 2869). Waste water is generated from water treatment wastes and cooling tower blowdown. No process water is discharged. Plant operation results in an average discharge of 0.36 MGD of multimedia filter backwash, cooling tower blowdown, water softener regeneration wastewater, and reverse osmosis concentrate from outfall 001. The site has been graded to convey stormwater runoff into culverts where it is discharged to a evaporation/percolation pond.

The following modifications are proposed:

1. The discharge from outfall 001 will decrease from 0.36 to 0.34 MGD.
2. Removal of the Total Dissolved Solids (TDS) monitoring requirement as TDS is no longer a regulated parameter.
3. A new suite of water treatment additives which are discussed on page three of the public notice/fact sheet. Biotrol 509 will no longer be used at the facility and therefore Special Condition 10 which addressed its usage will be removed. The remaining Special Conditions were numbered.

Application is made for existing discharge which is located in Putnam County, Illinois. The following information identifies the discharge point, receiving stream and stream classifications:

Outfall	Receiving Stream	Latitude		Longitude		Stream Classification	Biological Stream Characterization
001	Illinois River	41° 16' 35"	North	89° 19' 24"	West	General Use	Not Rated

To assist you further in identifying the location of the discharge please see the attached map.

The stream segment D-16 receiving the discharge from outfall(s) 001 is on the draft 2010 Illinois Integrated Water Quality Report and Section 303(d) List. The receiving water has not been given an integrity rating or been listed as biologically significant in the 2008 Illinois Department of Natural Resources publication *Integrating Multiple Taxa in a Biological Stream Rating System*. The impaired designated uses and pollutants causing impairment are tabulated below:

<u>Designated Uses</u>	<u>Pollutants Causing Impairment</u>
Fish Consumption	Mercury and Polychlorinated biphenyls (PCB's)
Primary Contact Recreation	Fecal Coliform

The discharge(s) from the facility shall be monitored and limited at all times as follows:

Outfall: 001 Multimedia Filter Backwash, Cooling Tower Blowdown, Water Softener Regeneration Wastewater, and Reverse Osmosis Concentrate (DAF = 0.34 MGD)

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		REGULATION	CONCENTRATION LIMITS mg/l		REGULATION
	30 DAY AVERAGE	DAILY MAXIMUM		30 DAY AVERAGE	DAILY MAXIMUM	
Flow (MGD)						
pH						35 IAC 304.125
Temperature						35 IAC 302.102
Total Suspended Solids				15	30	35 IAC 304.124
Total Residual Chlorine					0.05	40 CFR 125.3
Chlorides				Monitor Only		35 IAC 309.146
Iron				Monitor Only		35 IAC 309.146

The following explain the conditions of the proposed permit:

The special conditions clarify the following: Flow, pH, temperature, total residual chlorine, monitoring location, and DMR's.

The subject facility is proposing to install two additional cooling tower cells and an additional reverse osmosis (RO) unit and an additional multi-media filter. The additional cooling tower cells would provide enhanced thermal performance and a more efficient operation of the plant, whereas the additional RO unit and multi-media filter would provide redundancy and allow for maintenance activities to occur without a scheduled plant shutdown. The facility also proposes to install upgraded membranes in the existing RO units to achieve a higher percentage of recovery which would in turn provide higher quality water to the cooling tower, thereby allowing additional cycles through the cooling tower. In addition to these changes, the facility is also proposing to utilize the water treatment services of Nalco and is therefore proposing a new suite of water treatment additives. The automated Nalco 3D TRASAR system will be utilized which would maximize scale, corrosion, and microbiological control without over or under-dosing of additives. Through the installation of the new RO membranes and use of Nalco 3D TRASAR technology the recovery rate of the RO units is expected to increase from 60% to 75%, but plant feed water is increasing from 1039 GPM to 1164 GPM. The incorporation of the proposed changes would result in a net decrease in daily average flow from 0.36 MGD to 0.34 MGD but is expected to result in slight increases in TDS and phosphorus, thereby making these modifications subject to an antidegradation assessment.

Identification and Characterization of the Affected Water Body.

Segment D-16 of the Illinois River is a General Use water with 3,500 cfs of 7Q10 flow existing upstream of facility outfall. This segment of the Illinois River is listed as impaired for primary contact recreation (cause = fecal coliform) and fish consumption (causes = mercury and polychlorinated biphenyls) on the draft 2010 Illinois Integrated Water Quality Report and Section 303(d) List. The receiving water has not been given an integrity rating or been listed as biologically significant in the 2008 Illinois Department of Natural Resources publication *Integrating Multiple Taxa in a Biological Stream Rating System*. The receiving water is not enhanced in regards to the dissolved oxygen water quality standard.

Identification of Proposed Pollutant Load Increases or Potential Impacts on Uses.

The proposed modifications would result in slight increases of dissolved solids and phosphorus due to the increase of plant feedwater and additive usage. Although substances such as chloride, sulfate, and metals are not expected to increase, other dissolved solids such as calcium and magnesium (hardness) would increase and result in a TDS increase from 1533 mg/L to 1650 mg/L. Phosphorus discharge is expected to increase from 3.05 lb/day to 4.34 lb/day due to the slight increase of feedwater and the changing of additive vendors. The new suite of water treatment additives provided by Nalco would not result in any other significant increases in pollutant loading. In fact, specialty biocides such as Biotrol 509 (DBNPA-based) would no longer be in use. The following is a brief summary of the proposed water treatment additives, each of the products are acceptable for use at the proposed application rates.

Nalco 3D Trasar 3DT191: The product is a corrosion and scale inhibitor composed of proprietary ingredients. It would be applied at 38 ppm into the cooling tower, a concentration which is well below toxicity estimates for the product (48 hour *Daphnia magna* LC50 = 938 mg/L). Use of the product would contribute <0.3 lb/day of phosphorus to the effluent.

Nalco 3D Trasar 3DT184: The product is a phosphorus-based corrosion inhibitor. It would be applied at 13 ppm into the cooling tower, a concentration which is well below toxicity estimates for the product (7 day fathead minnow NOEC = 1,250 mg/L). Use of the product would contribute 1.1 lb/day of phosphorus to the effluent.

Nalco 8735: The product is a pH stabilizer composed of sodium hydroxide and potassium hydroxide. It would be applied as needed in the boiler feedwater for pH control, pH limits are required in the permit and would be met upon outfall.

Nalco 7408: The product is a chlorine scavenger composed of sodium bisulfite. It would be applied into the RO feedwater at 23.3 ppm for dechlorination purposes. The product would be non-toxic and would enable TRC limits to be met upon outfall.

Nalco 3DT198: The product is a yellow metal corrosion inhibitor composed of sodium tolyltriazole which would be used during summer months to treat the copper tubing of the chiller. It would be applied at 7 ppm and would be discharged at Outfall 001 at a maximum of 1.8 ppm, which is well below toxicity estimates for the product (96 hour bluegill LC50 = 173 mg/L).

Permaclean PC-87, PC-33, PC-67 and PC-77: The products are membrane cleaners that would be used to optimize performance of the RO system. The wastewater generated during cleaning would be recycled back to the cook water tank and mixed with the water used in the ethanol production process. Product residuals would not be discharged from Outfall 001.

Perma Treat PC-191T: The product is a phosphorus-based scale inhibitor. It would be applied into the RO system at 3.5 ppm and would be discharged at Outfall 001 at a maximum of 12 ppm, which is well below toxicity estimates for the product (21 day *Daphnia magna* LOEC = 50 mg/L).

Fate and Effect of Parameters Proposed for Increased Loading.

Dissolved solids will remain in the water and will move through the downstream continuum. Small amounts will be removed by organisms as these substances are necessary for life. The amount of phosphorus projected to be discharged (4.34 lb/day, which includes source water contributions) does not exceed the level that would require a permit limit under the state effluent standard. Phosphorus will remain in the water column until utilized by aquatic organisms.

No adverse impact to the receiving stream will occur.

Purpose and Social & Economic Benefits of the Proposed Activity.

Implementation of the proposed activities would allow for plant optimization for water and chemical usage while maintaining compliance with NPDES permit limits. The facility currently employs 71 people and provides an economic boost to the community from the customers and suppliers. Optimization of plant production will allow for retention of current employment levels and will allow for continued stimulation of the local economy.

Assessments of Alternatives for Less Increase in Loading or Minimal Environmental Degradation.

There are no practical alternatives to the proposed plans of increasing cooling capacity at the facility. Installing an additional chiller (rather than new cooling tower cells) is not a viable option given that the heat would still need to be rejected at the cooling tower and the cooling tower is currently at maximum heat capacity. Installation of additional cooling tower cells, a new RO unit (and new membranes), and new water treatment additives was determined to be the most effective way of providing enhanced thermal performance and more efficient operation at the facility.

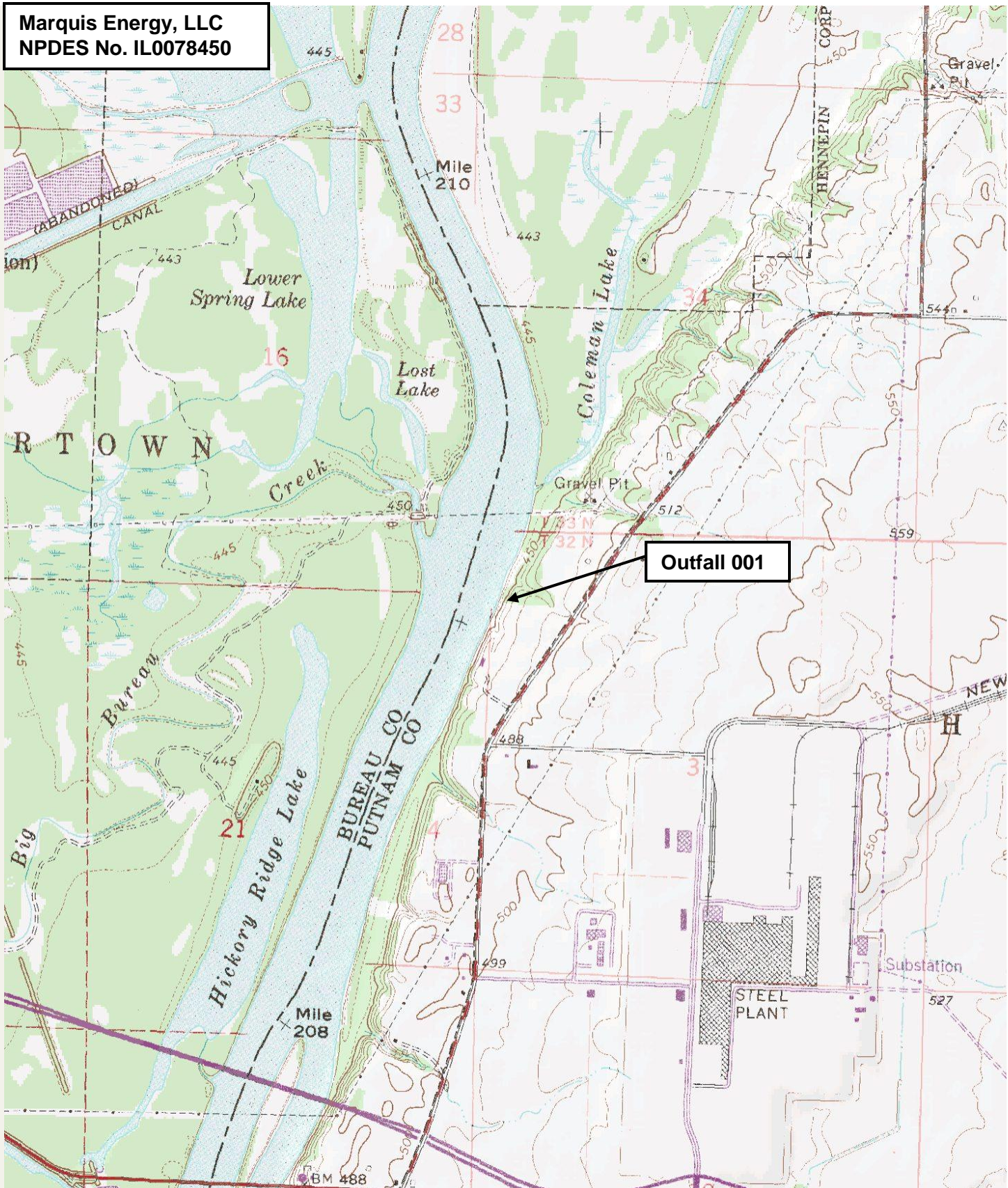
Summary Comments of the Illinois Department of Natural Resources, Regional Planning Commissions, Zoning Boards or Other Entities

The IDNR EcoCAT system was consulted on August 25, 2011. It was determined that a protected INAI site is in the vicinity of the project location thereby requiring further IDNR review. On August 26, 2011, IDNR evaluated this information and concluded that adverse effects are unlikely, consultation was therefore terminated.

Agency Conclusion.

This preliminary assessment was conducted pursuant to the Illinois Pollution Control Board regulation for Antidegradation found at 35 Ill. Adm. Code 302.105 (antidegradation standard) and was based on the information available to the Agency at the time the draft permit was written. We tentatively find that the proposed activity will result in the attainment of water quality standards; that all existing uses of the receiving stream will be maintained; that all technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the proposed activity; and that this activity will benefit the community at large by preserving existing jobs and sustaining the local economy. Comments received during the NPDES permit public notice period will be evaluated before a final decision is made by the Agency.

Marquis Energy, LLC
NPDES No. IL0078450



Outfall 001



NPDES Permit No. IL0078450

Illinois Environmental Protection Agency

Division of Water Pollution Control

1021 North Grand Avenue East

Post Office Box 19276

Springfield, Illinois 62794-9276

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Modified (NPDES) Permit

Expiration Date: December 31, 2013

Issue Date: January 8, 2009

Effective Date: January 8, 2009

Modification Date:

Name and Address of Permittee:

Marquis Energy, LLC
11953 ESK Road
Hennepin, Illinois 61327

Facility Name and Address:

Marquis Energy, LLC
11953 ESK Road
Hennepin, Illinois 61327
(Putnam County)

Discharge Number and Name:

001 Multimedia Filter Backwash, Cooling Tower Blowdown,
Water Softener Regeneration Wastewater, and Reverse
Osmosis Concentrate

Receiving Waters:

Illinois River

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

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

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

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NPDES Permit No. IL0078450

Effluent Limitations and Monitoring

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

Outfall 001 Multimedia Filter Backwash, Cooling Tower Blowdown, Water Softener Regeneration Wastewater and Reverse Osmosis Concentrate (DAF = 0.34 MGD)

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
Flow (MGD)	See Special Condition 1				1/Month	
pH	See Special Condition 2				1/Month	Grab
Temperature	See Special Condition 3				1/Month	Single Reading
Total Suspended Solids			15	30	1/Month	Grab
Total Residual Chlorine	See Special Condition 7			0.05	1/Month	Grab
Chlorides					1/Month	Grab
Iron					1/Month	Grab

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Special Conditions

SPECIAL CONDITION 1. Flow shall be measured in units of Million Gallons per Day (MGD) and reported as a monthly average and a daily maximum value on the monthly Discharge Monitoring Report.

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

SPECIAL CONDITION 3. This facility meets the allowed mixing criteria for thermal discharges pursuant to 35 IAC 302.102. No reasonable potential exists for the discharge to exceed thermal water quality standards. This determination is based on a design average flow of 0.36 MGD and a maximum effluent temperature 90°F. The permittee shall monitor the flow and temperature of the discharge prior to entry into the receiving water body. Monitoring results shall be reported on the monthly Discharge Monitoring Report. This permit may be modified to include formal temperature limitations should the results of the monitoring show that there is a reasonable potential to exceed a thermal water quality standard. Modification of this permit shall follow public notice and opportunity for comment.

SPECIAL CONDITION 4. Samples taken in compliance with the effluent monitoring requirements shall be taken at a point representative of the discharge, but prior to entry into the receiving stream.

SPECIAL CONDITION 5. The Permittee shall record monitoring results on Discharge Monitoring Report (DMR) Forms using one such form for each outfall each month.

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

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

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

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

Illinois Environmental Protection Agency
Division of Water Pollution Control
Attention: Compliance Assurance Section, Mail Code # 19
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

SPECIAL CONDITION 6. For the purpose of this permit, the discharge from outfall 001 is limited to multimedia filter backwash, cooling tower blowdown, water softener regeneration wastewater, and reverse osmosis concentrate, free from process and other wastewater discharges. In the event that the permittee shall require the use of water treatment additives other than those previously approved of, the permittee must request a change in this permit in accordance with the Standard Conditions – Attachment H.

SPECIAL CONDITION 7. All samples for total residual chlorine (TRC) shall be analyzed by an applicable method contained in 40 CFR 136, equivalent in accuracy to low-level amperometric titration. Any analytical variability of the method used shall be considered when determining the accuracy and precision of the results obtained.

SPECIAL CONDITION 8. The use or operation of this facility shall be by or under the supervision of a Certified Class K operator.

SPECIAL CONDITION 9. If an applicable effluent standard or limitation is promulgated under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the NPDES Permit, the Agency shall revise or modify the permit in accordance with the more stringent standard or prohibition and shall so notify the permittee.

SPECIAL CONDITION 10. The Permittee shall monitor the effluent for the following parameters during the month of June each calendar year with the results reported as a daily maximum on the July DMR. This Permit may be modified with public notice to establish effluent limitations if appropriate, based on information obtained through sampling. The sample shall be a 24-hour effluent composite except as otherwise specifically provided below. The parameters to be sampled and the minimum reporting limits to be attained are as follows:

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Special Conditions

<u>STORET CODE</u>	<u>PARAMETER</u>	<u>MINIMUM REPORTING LIMIT</u>
01002	Arsenic	0.05 mg/L
01007	Barium	0.5 mg/L
01027	Cadmium	0.001 mg/L
01032	Chromium (hexavalent) (grab)	0.01 mg/L
01034	Chromium (total)	0.05 mg/L
01042	Copper	0.005 mg/L
00718	Cyanide (grab) (weak acid dissociable)	5.0 ug/L
00720	Cyanide (grab not to exceed 24 hours) (total)	5.0 ug/L
00951	Fluoride	0.1 mg/L
01045	Iron (total)	0.5 mg/L
01046	Iron (Dissolved)	0.5 mg/L
01051	Lead	0.05 mg/L
01055	Manganese	0.5 mg/L
71900	Mercury (grab) (using USEPA Method 1631 or equivalent)	1.0 ng/L *
01067	Nickel	0.005 mg/L
00556	Oil (hexane soluble or equivalent) (Grab Sample only)	5.0 mg/L
32730	Phenols (grab)	0.005 mg/L
01147	Selenium	0.005 mg/L
01077	Silver (total)	0.003 mg/L
01092	Zinc	0.025 mg/L

Unless otherwise indicated, concentrations refer to the total amount of the constituent present in all phases, whether solid, suspended or dissolved, elemental or combined, including all oxidation states.

*1.0 ng/L = 1 part per trillion.