

ILLINOIS POLLUTION CONTROL BOARD  
February 1, 2001

MARATHON ASHLAND PETROLEUM, )  
LLC, )  
 )  
Petitioner, )  
 )  
v. ) PCB 01-74  
 ) (Variance - Water)  
ILLINOIS ENVIRONMENTAL )  
PROTECTION AGENCY, )  
 )  
Respondent. )

JOSEPH W. WRIGHT, JR., McBRIDE, BAKER & COLES, APPEARED ON BEHALF OF PETITIONER; and

LISA MORENO, ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, APPEARED ON BEHALF OF RESPONDENT.

OPINION AND ORDER OF THE BOARD (by R.C. Flemal):

This matter is before the Board pursuant to a petition for variance (petition) filed by Marathon Ashland Petroleum LLC (Marathon Ashland), on October 26, 2000. Pursuant to Section 35(a) of the Environmental Protection Act (Act), the Board is charged with the responsibility of granting variances from Board regulations whenever immediate compliance with Board regulations would impose an arbitrary or unreasonable hardship on the petitioner. 415 ILCS 5/35(a) (1998). The Illinois Environmental Protection Agency (Agency) is required to appear in hearings on variance petitions. 415 ILCS 5/4(f) (1998). The Agency is also charged with the responsibility of investigating each variance petition and making a recommendation to the Board as to the disposition of the petition. 415 ILCS 5/37(a) (1998).

Marathon Ashland is seeking a variance for discharges from outfall 001 at its Robinsonville refinery, Crawford County, Illinois. The variance is from three provisions of the Board's water pollution control regulations: 35 Ill. Adm. Code 303.323(b), 302.208(g), and 302.102(b). These provisions relate to total dissolved solids (TDS) and sulfate concentrations, and to allowed mixing. The variance is requested to run until Marathon Ashland is able to construct and operate a replacement discharge point on the Wabash River.

A hearing was held in Springfield, Illinois, on January 9, 2001, before Board Hearing Officer Steven Langhoff. On January 17, 2001, the Agency filed its recommendation in

response to the petition.<sup>1</sup> The Agency recommends that the Board grant the petition subject to certain conditions. Rec. at 1.<sup>2</sup>

In a variance proceeding, the burden is on the petitioner to present proof that immediate compliance with Board regulations would cause an arbitrary or unreasonable hardship, which outweighs public interest in compliance with the regulations. Willowbrook Motel v. IPCB, 135 Ill. App. 3d 343, 349, 350, 481 N.E.2d 1032, 1036, 1037 (1st Dist. 1977). Pursuant to Section 35(a) of the Act, the Board finds that Marathon Ashland has presented adequate proof that immediate compliance with the Board regulations for which relief is being requested would impose such a hardship. For the reasons stated below, the Board grants Marathon Ashland's variance request.

### FACILITY DESCRIPTION

Marathon Ashland operates a petroleum refinery located adjacent to the City of Robinson in Crawford County, Illinois. The Robinson refinery produces 205,000 barrels per day of gasoline, diesel fuel, heating oil, sulfur and other petroleum products. Pet. at 1. It employs 600 people and makes a substantial contribution to the local economy through payroll, purchases of goods and services, and payment of taxes. Pet. at 1.

As part of its operations, the Robinson refinery produces a number of wastewater streams that are treated in an on-site wastewater treatment plant. Rec. at 1. The treated effluent from the plant is discharged into an unnamed tributary of Sugar Creek, which flows into the Wabash River. Rec. at 1. This discharge is authorized by National Pollutant Discharge Elimination System (NPDES) Permit No. IL0004073 as outfall 001. Rec. at 1.

The present petition for variance concerns the waste stream from Marathon Ashland's Fluid Catalytic Cracking Unit (FCCU), and particularly the wastewater from a new wet scrubber that the company is currently installing to further control air emissions of particulates and sulfur from the FCCU. The new scrubber is designed to remove 4,840 tons per year of sulfur dioxide and 540 tons per years of particulate matter. Pet. at 2. The wastewater is produced during the process of wet scrubbing. In that process the FCCU's exhaust gases are brought into contact with 25 tons per day of sodium carbonate and 150 gallons per minute (gpm) of makeup water in a spray tower. Pet. at 2. Gaseous sulfur species become dissolved in the water, which also entrains exhaust particulates. Pet. at 2. The scrubber wastewater stream is further treated to oxidize sulfite (and other reduced sulfur species) to sulfate and is then combined with the wastewater treatment plant effluent and discharged through outfall 001. Pet. Exh. C at 1-2.

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<sup>1</sup> A motion to file the recommendation *instanter* accompanies the Agency's recommendation. That motion is hereby granted.

<sup>2</sup> The Agency's recommendations will be cited as "Rec. at \_\_\_"; the petition will be cited as "Pet. at \_\_\_"; and the hearing transcript will be cited as "Tr. at \_\_\_."

Marathon Ashland contends that the wet scrubbing process will produce an estimated wastewater stream of 33 gpm (after evaporation of the balance of the makeup water) with a TDS concentration of 156,500 mg/L, consisting primarily of sodium sulfate. Pet. at 2. The flow rate of the current discharge from outfall 001 is approximately 2,000 gpm. Under the 7-day-10-year (7Q10) flow conditions for the unnamed tributary to Sugar Creek (1.2 cubic feet per second) the current average discharge results in in-stream concentrations of approximately 1,383 mg/L of TDS and 327 mg/L of sulfate. Rec. at 2. Marathon Ashland predicts that the addition of the wet scrubber wastewater to the discharge from outfall 001 will increase the 7Q10 in-stream concentrations of TDS and sulfate to 3,557 mg/L and 1,748 mg/L, respectively. Pet. at 3.

### APPLICABLE REGULATIONS AND REQUESTED RELIEF

Three separate Board water quality regulations are at issue: 35 Ill. Adm. Code 303.323(b), which is a site-specific rule that establishes TDS and chloride concentrations applicable to Sugar Creek and its unnamed tributary; 35 Ill. Adm. Code 302.208(g), which, among other matters, establishes a sulfate standard applicable in General Use waters; and 35 Ill. Adm. Code 302.102(b), which establishes limits on the allowed in-stream mixing of effluents.

#### TDS and Sulfate

Section 303.323(b) codifies a site-specific regulation adopted by the Board in *In re Marathon Petroleum Company Site Specific, Part 303* (September 13, 1989), R87-2 (amended in *In re Marathon Oil Company Petition for Site-Specific Rule Change, 35 Ill. Adm. Code 303.323* (August 11, 1994), R91-23, as regards chloride only). It allows a concentration of 3,000 mg/L of TDS in the effluent discharged from outfall 001 so long as the concentration of TDS in the receiving stream (unnamed tributary of Sugar Creek) does not exceed 2,000 mg/L of TDS.<sup>3</sup> This limitation is also contained in

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<sup>3</sup> Section 303.323 provides as follows:

- (a) This Section applies only to Sugar Creek and its unnamed tributary from the point at which Marathon Oil Company's outfall 001 discharges into the unnamed tributary to the confluence of Sugar Creek and the Wabash River so long as both of the following conditions are met:
  - (1) Effluent from Marathon Oil Company's outfall 001 does not exceed either 3,000 mg/L total dissolved solids or 1,000 chlorides; and
  - (2) The water in the unnamed tributary does not exceed 2,000 mg/L total dissolved solids or 750 mg/L chlorides.

the Robinson refinery's currently effective NPDES permit. Without management of the new wet scrubber waste stream, the total refinery wastewater discharge would cause the effluent discharged from outfall 001 to exceed 3,000 mg/L of TDS and would raise the concentration of TDS in the unnamed tributary of Sugar Creek to above the applicable water quality standard set in Section 303.323. Rec. at 4.

Section 302.208(g) establishes a generally applicable water quality standard for sulfate of 500 mg/L. As indicated in Marathon Ashland's petition and discussed above, the addition of the wet scrubber waste stream to the existing refinery discharge would cause the effluent discharged from outfall 001 to result in concentrations of sulfate of over three times the applicable standard during 7Q10 flow conditions. Sulfate is not limited in the current NPDES permit, which is based on the wastewater characteristics produced by the Robinson refinery's present operations. Rec. at 5.

Marathon Ashland requests that it be granted variance with respect to both TDS and sulfate. Marathon Ashland agrees to ameliorate the potential impact of the TDS discharges by implementing a managed release program, in which the permissible TDS effluent concentrations are controlled by the ambient flow in the unnamed tributary. Pet. at 14-15. Marathon Ashland further agrees to cap the maximum instream concentrations of TDS and sulfate at 2000 and 1000 mg/L, respectively, and to conduct regular compliance monitoring to assure that these limits are met. Pet. at 5.

The Agency endorses Marathon Ashland's combined monitoring and sampling approach to establish a TDS effluent standard and to assure compliance with the proposed variance standards for TDS and sulfate. Rec. at 13.

#### Mixing Zone

Marathon Ashland is requesting a variance from the mixing zone provisions of the Board's general water quality standards, and in particular from the "zone of passage" requirement of Section 302.102(b)(6) that "mixing must allow for a zone of passage for aquatic life in which water quality standards are met" on the basis that the additional effluent attributable to the wastewater stream from the wet scrubber in the discharge from outfall 001 will result in concentrations of TDS and sulfate above the applicable water standard in the entire unnamed tributary of Sugar Creek. Pet. at 3.

The Agency notes that the present NPDES permit for the Robinson refinery does not allow for mixing for outfall 001. Rec. at 5. However, the Agency is currently drafting a modified permit that will allow mixing. Rec. at 4. Marathon-Ashland is currently operating the Robinson refinery under an NPDES permit issued to its predecessor in interest, Marathon Oil Company, on September 30, 1992. Marathon Oil appealed this permit on several grounds;

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the only issue relevant to this variance was the Agency's denial of a mixing zone in the unnamed tributary of Sugar Creek, on the basis that the tributary had a 7Q10 flow of zero, and Marathon Oil was therefore ineligible for a mixing zone under the Board's regulations. Based on admissions by the Agency at hearing that the tributary actually had a 7Q10 flow of 1.2 cfs, the Board found that Marathon could indeed apply for a mixing zone, and remanded the permit to the Agency for reissuance. Marathon Oil Company v. Illinois EPA (March 31, 1994), PCB 92-166. The reissuance has not yet occurred, and the variance request is intended to cover such time as required for the permit to issue.

### COMPLIANCE PLAN

In order to have the combined wastewater treatment plant and wet scrubber effluent meet applicable Board regulations, Marathon Ashland indicates that it will move the discharge point for outfall 001 from its present location by constructing a 9-mile-long, 20-inch effluent pipeline. Pet. at 3-4. This will allow the direct discharge of the wastewater treatment plant effluent and the new scrubber effluent into the Wabash River. Pet. at 4. Marathon Ashland indicates that the estimated cost of the pipeline is approximately \$10 million. Pet. at 4.

Marathon Ashland has applied for an NPDES permit for the relocated discharge and is presently engaged in engineering and land acquisition; actual construction is estimated to take four to six months from the grant of necessary construction permits. Pet. at 4. An application for an NPDES permit allowing the Wabash River outfall was filed with the Agency on September 2, 1999. Pet. at 4.

Marathon Ashland indicates that it has considered several alternatives to construction of the Wabash River pipeline. Pet. at 4-5. These are:

Alternative 1 Off-site saltwater disposal. The salt water would be stored and then transported by truck to a municipal wastewater treatment facility approximately 150 miles from the refinery. Cost is estimated at \$2 million annually. This alternative was rejected for reasons of cost and safety although it will be used until variance relief is granted or the pipeline is operational.

Alternative 2 Crystallization of salt. The brine would be transported to a facility to be constructed and the salt would be crystallized. This alternative was rejected for reasons of cost and safety and questions of disposal (or sale). The same considerations apply to use of the brine in another industry. No users could be identified.

Alternative 3 Disposal via deep well injection. Disposal of the brine in a deep well at least 10 miles west of Robinson was also considered. This alternative was rejected because of anticipated public and regulatory resistance as well as safety concerns.

Marathon Ashland contends that in its choice of a compliance method it has selected the most environmentally and socially appropriate solution. Pet. at 5. The Agency agrees that construction of the pipeline and associated equipment is preferable to the other alternatives considered. Rec. at 8.

### HARDSHIP

Section 35(a) of the Act requires the Board to determine whether the petitioner has presented adequate proof that it would suffer an arbitrary or unreasonable hardship if required to comply with the Board's regulation at issue. 415 ILCS 5/35(a) (1998). Marathon Ashland contends that an arbitrary or unreasonable hardship will occur if no variance relief is granted because the next best alternative requires the transport the scrubber effluent to a municipal wastewater treatment facility some 150 miles away. Pet. at 4.

Marathon Ashland contends that transporting the effluent offsite would require 9 tankers per day making a 300-mile round trip. Pet. at 4. Marathon Ashland not only observes the high annual cost of transporting the waste, but also observes that Robinson is not located near an interstate highway so a significant portion of the trip would be on two lane rural roads that pass through the cities of Robinson, West Union, and Marshall. Pet. at 4.

The Agency agrees with the facts presented by Marathon Ashland regarding the need for offsite transport and treatment of the effluent. Rec. at 7. The Agency further agrees with Marathon Ashland that denial of the variance request would constitute an arbitrary or unreasonable hardship. Rec. at 8.

### ENVIRONMENTAL CONSIDERATIONS

Marathon Ashland has conducted a study titled *Impact of Proposed Variance on Stream Water Quality and the Environment, Marathon Ashland Petroleum LLC, Robinson, Illinois Refinery*. This document is attached to the petition as Exhibit C and entered into the record at hearing as Petitioner's Exhibit 2. Tr. at 9. Included within the study are modeling results of likely concentrations of TDS and sulfate in the unnamed tributary both with and without the additions of the scrubber's effluent.

The model also predicts the amount of scrubber effluent that can be added to the general effluent discharges so as to keep the stream concentrations of TDS less than 2000 mg/L. Pet. Exh. C at 9 and Table 2. For many months of the year there is sufficient baseflow in the unnamed tributary such that the scrubber effluent can be discharged without exceeding the existing TDS limit. Tr. at 11. However, the existing sulfate limit would be exceeded under the some of the same conditions. Tr. at 11.

The study also reviews prior studies and literature that assess the impact on aquatic toxicity and livestock watering of pertinent TDS and sulfate concentrations. Pet. Exh. C at 10-11; Tr. at 10, 12-13. On this basis Marathon Ashland concludes that the concentrations

requested for the variance caps will have no adverse effect on human, plant or animal life in the effected area. Pet. at 12.

The Agency agrees with Marathon Ashland's assessment that the concentrations of TDS and sulfate requested in the variance petition will not have an adverse impact on the aquatic species present in the unnamed tributary of Sugar Creek. Rec. at 8. The Agency further observes that there should be no effect on livestock watering in the downstream reaches. Rec. at 8.

### CONSISTENCY WITH FEDERAL LAWS

Marathon Ashland and the Agency agree that there are no applicable federal laws or regulations that would preclude the granting of this variance. Pet. at 6; Rec. at 8.

### CONCLUSION

The Board finds that, if the instant variance petition is not granted, Marathon Ashland will incur an arbitrary or unreasonable hardship. For this reason, the Board will grant the requested, subject to the conditions requested by Marathon Ashland and recommended by the Agency.

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

### ORDER

The Board hereby grants petitioner, Marathon Ashland Petroleum LLC, variance from 35 Ill. Adm. Code 302.102(b)(6), 302.208(g) and 303.323(b) for outfall 001 from its Robinson refinery, Crawford County, Illinois to the unnamed tributary to Sugar Creek, subject to the following conditions:

1. Petitioner shall perform compliance sampling of the concentration of TDS and sulfate at the existing downstream compliance point (at the Hog Farm) twice a week until such time as the discharge point for outfall 001 has been moved to the Wabash River.
2. The concentration of TDS, measured in mg/L, in the discharge from outfall 001 may not exceed a value equal to:  $(2000(Fr \text{ \& } Fu) - Cu \text{ } Fu) / Fr$ ;

where:

2000 is the stream standard for TDS in mg/L

Fu is the flow upstream from outfall 001

Fr is the flow from the refinery including the scrubber effluent

Cu is the concentration of TDS upstream from outfall 001.

- 3. The concentration of TDS in the unnamed tributary of Sugar Creek may not exceed 2000 mg/L as measured at the current downstream measuring point (at the Hog Farm).
- 4. The concentration of sulfate in the unnamed tributary of Sugar Creek may not exceed 1000 mg/L as measured at the current downstream measuring point (at the Hog Farm).
- 5. This variance expires on February 1, 2006, or upon the effective date of a modified NPDES permit allowing a direct discharge of outfall 001 to the Wabash River, whichever occurs earlier.

IT IS SO ORDERED.

If petitioner chooses to accept this variance, within 45 days after the date of this opinion and order, petitioner shall execute and forward to:

Lisa Moreno  
 Division of Legal Counsel  
 Illinois Environmental Protection Agency  
 1021 North Grand Avenue  
 P.O. Box 19276  
 Springfield, IL 62794-9276

a certificate of acceptance and agreement to be bound by all the terms and conditions of the granted variance. The 45-day period shall be held in abeyance during any period that this matter is appealed. Failure to execute and forward the certificate within 45 days renders this variance void. The form of the certificate is as follows:

I (We), \_\_\_\_\_, having read the opinion and order of the Illinois Pollution Control Board, in PCB 01-74, dated February 1, 2001, understand and accept the said opinion and order, realizing that such acceptance renders all terms and conditions thereto binding and enforceable.

\_\_\_\_\_  
Petitioner

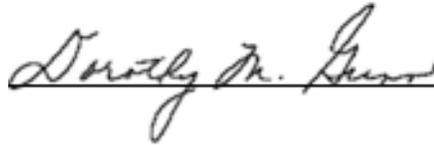
\_\_\_\_\_  
By: Authorized Agent

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

Section 41 of the Environmental Protection Act (415 ILCS 5/41 (1998)) provides for the appeal of final Board orders to the Illinois Appellate Court within 35 days of the date of service of this order. Illinois Supreme Court Rule 335 establishes such filing requirements. See 172 Ill. 2d R. 335; see also 35 Ill. Adm. Code 101.520, Motions for Reconsideration.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above opinion and order was adopted on the 1st day of February 2001 by a vote of 6-0.

A handwritten signature in cursive script, reading "Dorothy M. Gunn", is written over a horizontal line.

Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board