NATURAL RESOURCES DEFENSE COUNCIL

Via Electronic and First-Class Mail

November 4, 2010

Eric Nygaard
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Re: **Comments on Proposed Modification of Clean Water Act Permit for Warren Water Pollution Control Center (OEPA Permit No. 3PE00008*MD)**

Dear Mr. Nygaard:

Please accept these comments submitted on behalf of the Natural Resources Defense Council regarding the Ohio Environmental Protection Agency's ("Ohio EPA") proposed modification of the Clean Water Act National Pollutant Discharge Elimination System ("NPDES") permit for the Warren Water Pollution Control Center (OEPA Permit No. 3PE00008*MD).

We write to raise concerns regarding Ohio EPA's proposal to modify the permit to authorize the collection of up to 100,000 gallons per day of wastewater generated during oil and gas well drilling operations. Although Ohio EPA correctly recognized that discharges of total dissolved solids ("TDS") are a primary concern in these waste streams, there are a large number of contaminants that will likely be present in the oil and gas wastewater whose presence will not necessarily be effectively limited by measures designed to reduce TDS. Such contaminants include both naturally occurring toxic substances (e.g., radioactive materials and arsenic) and chemical additives: surfactants, friction reducing chemicals, biocides, scale inhibitors, polymers, cross linkers, pH control agents, gel breakers, clay control agents and propping agents. Many of these substances are known, probable, or possible carcinogens, exposure to which causes serious human health problems. While information demonstrates that these wastes contain toxic compounds, the true extent of the risks associated with hydraulic fracturing wastewaters is currently unknown as many of the compounds used in fracturing fluids and returned in the wastewaters are not publicly disclosed.

In a recent study, the New York State Department of Environmental Conservation ("NYS DEC") identified 260 chemicals that may be used in Marcellus Shale stimulation process known

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as hydraulic fracturing. *See* NYS DEC, *Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program* 5-46 – 5-61 (Sept. 30, 2009), *available at* http://www.dec.ny.gov/energy/58440.html. The NYS DEC study also lists parameters detected in flowback from Marcellus Shale wells in Pennsylvania and West Virginia, including heavy metals, radioactive elements, TDS, sulfates, and the full complement of "BTEX" volatile organic compounds (benzene, ethyl benzene, toluene, and xylenes). *See id.* at 5-103 – 5-105. In the wells sampled for that study, the median concentration of benzene is nearly 100 times the applicable drinking water standard. *See id.* at 5-106.

The Pennsylvania Department of Environmental Protection ("PA DEP") recently published a list of chemicals used by hydraulic fracturing companies in Pennsylvania for surface and hydraulic fracturing activities. *See* PA DEP, Chemicals Used by Hydraulic Fracturing Companies in Pennsylvania for Surface and Hydraulic Fracturing Activities (June 30, 2010), *available at* http://www.dep.state.pa.us/dep/deputate/minres/oilgas/new_forms/marcellus/Reports/Frac%20list%206-30-2010.pdf. Like NYS DEC, PA DEP found a broad range of contaminants in the wastewater, including ethyl benzene, toluene, and xylenes.

More study is needed – *before* this permit can be issued – of whether these additional chemicals will be present in discharges of oil and gas wastewater from the Warren Water Pollution Control Center, in order to ensure that these discharges authorized by the Permit will comply with applicable Ohio Water Quality Standards at O.A.C. Chapter 3745-1, including but not limited to O.A.C. 3745-1-04 (narrative criteria) and O.A.C. 3745-1-25, as well as protection of existing and designated uses, as is required by O.A.C. 3745-33-05(A)(1). *See also* 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.44(d). In particular, Ohio EPA must ensure that discharges from the Warren Water Pollution Control Center are not "toxic or harmful to human, animal or aquatic life and/or are rapidly lethal in the mixing zone." O.A.C. 3745-1-04(D). As set forth in U.S. EPA's national policy statement, "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants," "[i]n addition to enforcing specific numerical criteria, [U.S.] EPA and the States will use biological techniques and available data on chemical effects to assess toxicity impacts and human health hazards based on the general standard of 'no toxic materials in toxic amounts…. Data requirements may be determined on a case-by-case basis in consultation with the State and the discharger.'" 49 Fed. Reg. 9,016 (Mar. 9, 1984).

In evaluating the City of Warren's application and brine study and preparing the draft permit, Ohio EPA does not appear to have considered the risks to human health and the environment from the broad range of both naturally occurring radioactive and toxic substances and chemical additives that are likely to appear in wastewater from oil and gas drilling operations. Rather, Ohio EPA's review appears to have been limited to TDS, sulfate, chloride, barium, and strontium. Although the draft permit also provides for Whole Effluent Toxicity ("WET") testing once per quarter, this testing only measures toxicity to aquatic life. WET testing by its nature does not measure the potential harmful long-term consequences of allowing carcinogenic and radioactive substances to be discharged into the Mahoning River, both to human health and the ecology of the waterway. Numerous studies have shown that communities exposed to oil and gas drilling wastes have experienced higher incidences of cancer and other serious health effects. *See, e.g.*, Amy Mall, DRILLING DOWN: PROTECTING WESTERN COMMUNITIES FROM THE HEALTH AND ENVIRONMENTAL EFFECTS OF OIL AND

GAS PRODUCTION vi (2007); Anna-Karin Hurtig & Miguel San Sebastian, *Geographical Differences in Cancer Incidence in the Amazon Basin of Ecuador in Relation to Residence near Oil Fields*, 31 INT'L. J. OF EPIDEMIOLOGY 1021, 1025 (2002); Henry Spitz, Kennith Lovins & Christopher Becker, *Evaluation of Residual Soil Contamination From Commercial Oil Well Drilling Activities and Its Impact on the Naturally Occurring Background Radiation Environment*, 6 SOIL & SEDIMENT CONTAMINATION: AN INT'L J. 37, 41-43 (1997). Ohio EPA does not appear to have considered the harmful long-term impacts on human health and the environment from these carcinogenic and radioactive substances that are known to be present in oil and gas wastewater. Ohio EPA should require more specific studies here of the extent to which these substances will be present in the Warren Water Pollution Control Center's wastewater effluent and the likely long-term effects associated with permitting their discharge into the Mahoning River, consistent with the requirement that the agency sure that Ohio Water Quality Standards are complied with. O.A.C. 3745-33-05(A)(1).

In addition, to the extent that specific pollutants that are not currently subject to technology-based effluent limitations ("TBELs") in the draft permit are identified through further studies of the wastewater effluent as constituents of the discharge from the Warren Water Pollution Control Center, the Clean Water Act requires Ohio EPA to impose TBELs based on application of Best Available Technology ("BAT") determined through Best Professional Judgment ("BPJ") pursuant to 33 U.S.C. § 1311 and 40 C.F.R. § 125.3(a), (c)(2), (d).[1]

Thank you for providing us with this opportunity to comment.

Sincerely,

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[1] Clean Water Act Section 301 requires that NPDES permits "shall require application of" Best Available Technology ("BAT") to reduce pollutant discharges to the maximum extent "technologically and economically achievable," including "elimination of discharges of all pollutants" if it is achievable. 33 U.S.C. § 1311(b)(2)(A)(i). TBELs are a necessary minimum requirement for a permit "regardless of a discharge's effect on water quality." *Am. Petroleum Inst. v. EPA*, 661 F.2d 340, 344 (5th Cir. 1981); *see also PUD No. 1 Jefferson County v. Wash. Dep't of Ecology*, 511 U.S. 700, 704 (1994) (state water quality standards are "supplementary" to required individual TBELs) (citing *EPA v. Calif.* ex. rel. *Water Res. Control Bd.*, 426 U.S. 200, 205 n.12 (1976)); *Hooker Chems. & Plastics Corp. v. Train*, 537 F.2d 620, 623 (2d Cir. 1976) (Clean Water Act "predicate[s] pollution control on the application of control technology on the plants themselves rather than on the measurement of water quality."). Federal regulations require state permitting authorities to establish BAT effluent limits in individual NPDES permits on a case-by-case basis, using Best Professional Judgment ("BPJ"), "to the extent that EPA-promulgated effluent limitations are inapplicable." 40 C.F.R. § 125.3(c)(2), (d); *see also* O.R.C. 6111.042 (authorizing the Director to make BPJ determinations in NPDES permits); O.A.C. 3745-33-05(A)(1)(e) (Director shall set "[a]ny more stringent limitations" in NPDES permits "required to comply with any other state or federal law or regulation"); *Northern Cheyenne Tribe v. Montana Dep't of Envtl. Quality*, 234 P.3d 51 (Mont. May 18, 2010).