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pro bono publico

VIA ELECTRONIC MAIL

June 3, 2004

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Todd Ambs, Administrator
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Re: Survey of State Citizen Monitoring Programs

Dear Todd:

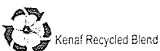
I am writing to offer my assistance to the DNR and its staff in shaping and improving the volunteer citizen monitoring program at the DNR.

We have researched other states that allow the use of citizen monitoring data in making regulatory decisions, primarily for preparing state 303(d) lists or 305(b) reports under the Clean Water Act. I thought this information would be useful to the DNR as it continues to develop the citizen volunteer monitoring protocol.

In short, a number of states have adopted statutes and regulations governing “credible data.” These laws and regulations vary from state to state in their specifics, but they all address the question of what data the state environmental agency may rely on when making regulatory decisions.

States vary widely on whether and how they use citizen-collected water quality data. A number of states do use such data if certain quality assurances are met. In a majority of instances, the data is used to determine impaired waters and in making 305(b) lists for submittal to the EPA.

What follows is a summary of federal regulations and guidance that address citizen water quality monitoring, and how other states have adapted citizen efforts into their monitoring programs to implement the Clean Water Act. I hope that discussion will help the DNR determine how best to leverage its limited resources with help from citizen water quality monitors around the state, while at the same time ensure that the data that is collected meets quality assurance standards needed by the DNR in making regulatory decisions.



Organizations listed for identification purposes only.

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I. FEDERAL REGULATIONS AND GUIDANCE.

Federal regulations help provide a basic framework for water quality data collection by states under the Clean Water Act. I know that you and your staff are already familiar with these requirements, but I restate them here for the sake of a complete discussion.

Federal regulations require states to collect and analyze water quality data to use in setting water quality standards, assessing compliance with NPDES permits, and for other regulatory and informational purposes. 40 C.F.R. § 130.4(a) & (b) (2005). States are also required to submit lists of water quality for limited water bodies to the EPA, and develop these lists by “assembl[ing] and evaluat[ing] *all existing and readily available* water quality-related data and information.” 40 C.F.R. 130.10(d)(1) – (6) (emphasis added). These regulations also require that states have a program to assure the accuracy of the water quality data which they collect, known as quality assurance and quality control procedures (“QA/QC procedures”). 40 C.F.R. § 130.4(b). I know that the DNR already has QA/QC procedures, and already has a Quality Management Plan for evaluating and collecting water quality data.

In recent years, some states have enacted laws and regulations to govern the collection of water quality data. These laws are often called “credible data” laws. Part of what makes these laws necessary is the fact that states sometimes allow, and even encourage, citizen volunteer monitoring projects where citizens with potentially little training conduct water quality testing. *See e.g.*, Wash. Admin. Code § 90.48.570(1)(b) (2004) (providing that the “state needs to assemble and evaluate all... water quality-related data and information from sources...such as...universities and volunteer monitoring groups, if the data meets the state's requirements for data quality.”); Iowa Code § 466.7(4) (2004) (“[t]he department of natural resources shall develop a program that provides support to local volunteer management efforts to the different programs concerned with water quality”). In other cases where states do not have regulations, the use of citizen-collected water quality data for regulatory purposes is governed by agency guidance or memorandums of agreement. *See e.g.*, Kentucky Division of Water, *Agency Guidance for Use of Volunteer Monitoring Data and Reports*, p. 1, available at www.water.ky.gov/NR/rdonlyres/B8F9FC52-D32F-4FBB-9CC0-9C6945CE5A8A/0/volunteer_monitoring_data_final.pdf (last visited May 4, 2005).

The EPA encourages citizen water quality monitoring and is “work[ing] to expand the use of credible volunteer monitoring data at the federal, state, and local level.” EPA Volunteer Monitoring Program website, www.epa.gov/owow/monitoring/volunteer/epasvmp.html (last visited May 6, 2005). The EPA has also put out a guidance document meant to help volunteer monitors ensure that their data is credible. U.S. Environmental Protection Agency, *The Volunteer Monitor's Guide to Quality Assurance Project Plans*, available at www.epa.gov/owow/monitoring/volunteer/qappcovr.htm., 1996.

Some states use EPA guidance on Quality Assurance/Quality Control in addition to their own quality control measures to measure whether volunteer-collected data can be used for regulatory purposes. *See e.g.* Illinois Environmental Protection Agency website, *Guidance for Submittal of Surface Water Data*, www.epa.state.il.us/water/water-quality/guidance.html (last visited May 4, 2005) (stating that data packages “must include a Quality Assurance Project Plan . . . prepared in accordance with the U.S. Environmental Protection Agency’s document EPA QA/R-5, EPA Requirements for Quality

Assurance Project Plans, March 2001.”)

II. INDIVIDUAL STATE CITIZEN WATER QUALITY MONITORING PROGRAMS.

What follows below is a brief survey of citizen water quality monitoring programs in other states. The survey is not intended to be complete, but merely represents what is readily available through legal research tools and the internet. This description of state programs is provided in no particular order.

A. Washington

The state of Washington has determined that “[t]he proper collection and review of credible water quality data is necessary to ensure compliance with the requirements of the federal clean water act.” Wash. Rev. Code § 90.48.570(1)(a) (2004). Further, the state legislature has decided that the “state needs to assemble and evaluate all existing and readily available water quality-related data and information from sources...such as...tribes, universities, and volunteer monitoring groups, if the data meets the state’s requirements for data quality.” *Id.* at § 90.48.570(1)(b). To ensure that water quality data gathered from these sources is credible, the state defines “credible data” as only that data which meets certain statutory requirements for quality assurance. *Id.* at § 90.48.585. The state then uses this “credible data” in developing Total Maximum Daily Loads (“TMDLs”), making decisions regarding the state’s 303(d) list, and in determining whether surface waters are meeting their designated uses. *Id.* at § 90.48.580.

B. Iowa

The Iowa legislature has provided that only “credible data” may be used for developing TMDLs, making decisions regarding the state’s 303(d) list, and in determining whether surface waters are meeting their designated uses. Iowa Code § 455B.194 (2004). Credible data can be collected by qualified volunteers as well as by agency employees. Iowa Code § 455B.193(1). However, the citizen monitoring data must conform to quality assurance procedures and the Iowa Department of Natural Resources (“Iowa DNR”) reviews the submitted data and approves or disapproves it. *Id.* at § 455B.193(2). Specifically,

[a]ll information submitted by a qualified volunteer shall be reviewed and approved or disapproved by the department. The qualified volunteer shall submit a site specific plan with data which includes information used to obtain the data, the sampling and analysis plan, and quality control and quality assurance procedures used in the monitoring process. The qualified volunteer must provide proof to the department that the water monitoring plan was followed. The department shall review all data collected by a qualified volunteer, verify the accuracy of the data collected by a qualified volunteer, and determine that all components of the water monitoring plan were followed.

Id.

In order to become a “qualified volunteer” who can submit data for use by the Iowa DNR, the Iowa DNR must approve a water quality monitoring plan that includes: the names and qualifications of

volunteers, methods, location and frequency of data collection, and record-keeping procedures, among other things. Iowa Admin. Code § 567-61.11(455B) (2005). If all data recording and submittal requirements are met, citizen-collected data will be considered “credible data”. *Id.* at § 61.12(455B) (2005).

C. Arizona

Arizona also collects data from volunteer, watershed council and tribal groups when assessing waters of the state for its 303(d) list. As explained in the Arizona Administrative Register:

The Department begins the 303(d) listing process by collecting all existing and readily available surface water quality data and information from numerous sources, including...tribes, local governments, watershed councils, private and public organizations, volunteer monitoring groups, and private individuals. The data may include chemical, physical, benthic, habitat, or toxicity testing data collected from a variety of sources such as fixed-stations, intensive surveys, or other types of field investigations. Data is considered credible and relevant for assessment and listing purposes if the data submitted meets the minimum quality assurance/quality control requirements outlined in the rule.

Credible Data, 8 Ariz. Admin. Reg. 533 (2002) (codified at Ariz. Admin. Code § R18-11-602).

Arizona has promulgated a list of requirements for citizen-collected data which assures its credibility, and thus makes it usable for regulatory purposes. In part, the monitoring entity must submit a Quality Assurance Plan that includes methods used for sample collection, analysis, and data management, and which shows that field and laboratory personnel are adequately trained and supervised. Ariz. Admin. Code § R18-11-602 (2004). Further, the volunteer monitors must submit a description of the data handling process (chain of custody) from the field to the laboratory and beyond, with the role and responsibility of each person in the process. *Id.* at § R18-11-602(f). There are numerous other requirements related to quality control, data collection and analysis and recordkeeping. *See generally Id.* at § R18-11-602.

D. Missouri

Missouri law instructs the Missouri Department of Natural Resources (“Missouri DNR”) to collect and use “scientifically defensible data” when constructing the state’s 303(d) list. Mo. Code Regs. tit. 10, § 20-7.050(2)(A) (2005). Data is “scientifically defensible” when it is either collected by the DNR or “by any other agencies, organizations, or individuals that are governed by an internal quality assurance program that has been reviewed and approved by the department.” *Id.* at § 20-7.050(2)(A)(1) & (2). Missouri also separates data into four levels of quality assurance, with only data of Level 2 or higher being “used to support additions, deletions, or changes to the proposed 303(d) list, unless the problem can be accurately characterized by Level 1 data.” *Id.* at § 20-7.050(2)(C). The different levels require various monitoring frequencies and parameters (e.g. Level 3 data must be collected at least monthly for three or more years and must include pesticide and heavy metal monitoring). *Id.*

E. Ohio

Ohio law calls for the development of a new surface water quality monitoring program which will allow for the collection of water quality data from “qualified data collectors,” including citizens and citizen groups who meet the requirements of the definition. Ohio Rev. Code Ann. § 6111.53(A) (Anderson 2005). The law requires that data be credible before being used for regulatory purposes.

“Credible data” means scientifically valid chemical, physical, or biological water quality monitoring data concerning surface waters, including qualitative scoring of physical habitat characteristics and the sampling of fish, macroinvertebrates, and water quality, that have been collected by *or submitted to* the director of environmental protection and that comply with the requirements established in rules adopted under *section 6111.51 of the Revised Code*.

Id. at § 6111.50(A) (emphasis added).

Ohio law defines three levels of credible data, with each level mandating certain collection techniques and allowing certain uses for the data. *Id.* at § 6111.51(A)(1). Only “level three” data can be used in determining waterbody use designations, reviewing whether a waterway is meeting its designated use, identifying and listing waters for the 303(d) list, and establishing TMDLs. *Id.* at § 6111.52. Currently, Ohio has draft rules which further define the criteria for the three levels of water quality data. See Ohio Environmental Protection Agency, Draft Rules on Credible Data, *available at* www.epa.state.oh.us/dsw/rules/drafrules.html (last visited May 4, 2005). These rules set out application processes for citizens to become “qualified data collectors” for the three levels of data collection.

F. Montana

Montana also requires that “sufficient credible data” be used in making determinations for what waters are impaired for compiling their 303(d) list. “Sufficient credible data” is defined as “chemical, physical, or biological monitoring data, alone or in combination with narrative information, that supports a finding as to whether a water body is achieving compliance with applicable water quality standards.” Mont. Code. Ann. § 75-5-103(30) (2004).

In order to come up with this list of impaired waters and a list of priorities for TMDL development, the Montana Department of Environmental Quality (“Montana DEQ”) is required to “use all currently available data, including information or data obtained from federal, state, and local agencies, *private entities, or individuals with an interest in water quality protection*. *Id.* at § 75-5-702(2) (emphasis added). The Montana DEQ sent out letters to a number of agencies and organizations requesting water quality measurements, fishery data, and other studies and data. Montana Department of Environmental Quality, Appendix 1, p. A-6, *available at* www.deq.state.mt.us/wqinfo/303_d/Documents/Append-a.doc (last visited May 4, 2005). The DEQ sent letters to the following entities, among others: Montana State University, Plum Creek Timber Co., Montana Nature Conservancy, all Montana tribal governments, and all known local volunteer water quality groups. *Id.* at A-6 & A-7.

The Montana DEQ has developed data quality objectives (DQOs) to make sure that collected data is sufficiently credible. This process of deciding whether data is sufficiently credible focuses on four components: technical soundness of methodology, spatial/temporal coverage, data quality, and data currency. *Id.* at A-11. These DQO's only apply to 303(d) and 305(b) listing, however, and are not intended for use in determining NPDES permit compliance, for enforcement purposes or for actual TMDL development, where additional information may be necessary. *Id.* at A-9.

G. Virginia

The Commonwealth of Virginia actively requests that individuals and groups submit water quality data for use in the Commonwealth's development of its 303(d) and 305(b) lists. Virginia Department of Environmental Quality, *An Invitation to Contribute Water Quality Monitoring Data for the Characterization of the Commonwealth of Virginia's Surface Waters*, available at <http://www.deq.virginia.gov/cmonitor/pdf/dataso06.pdf> (last visited May 4, 2005). The Commonwealth solicits this information from citizen volunteer monitoring groups, universities, local governments, utility companies and businesses. *Id.* The Virginia Department of Environmental Quality ("Virginia DEQ") then reviews the information, which is only acceptable if it was collected under a DEQ-approved Quality Assurance Project Plan, is representative of the water body, and was collected within certain dates. *Id.*

The Virginia DEQ has also signed a letter of agreement with The Alliance for the Chesapeake Bay, the Virginia Department of Conservation and Recreation, the Virginia Division Izaak Walton League of America, and the Virginia Save Our Streams Program in which the Virginia DEQ promises that it will, among other things, "promote the use of citizen data to meet the Commonwealth's water quality data needs." Virginia Department of Environmental Quality, *Virginia Citizen Water Quality Monitoring Program Methods Manual*, Appendix 2 (Letter of Agreement to Implement the Virginia Citizen Water Quality Monitoring Program), p. A2-2 available at www.deq.state.va.us/cmonitor/guidance.html (last visited May 4, 2005). This Letter of Agreement also spells out the possible uses for citizen-collected data. It notes that citizen water quality monitoring data collected under Virginia DEQ-approved quality assurance project plans can be used by the Virginia DEQ in 305(b) and 303(d) reports. *Id.* at A2-4.

In order for citizen-collected data to be used, the volunteers must collect data under a Memorandum of Agreement with the Virginia DEQ. Va. Code Ann. § 62.1-44.19:11 (2004). By statute, no citizen-collected data may be used for enforcement actions. *Id.* The statute governing citizen monitoring is as follows:

The Department of Environmental Quality shall establish a citizen water quality monitoring program to provide technical assistance and may provide grants to support citizen water quality monitoring groups if (i) the monitoring is done pursuant to a memorandum of agreement with the Department, (ii) the project or activity is consistent with the Department of Environmental Quality's water quality monitoring program, (iii) the monitoring is conducted in a manner consistent with the Virginia Citizens Monitoring Methods Manual, and (iv) the location of the water quality monitoring activity is part of the water quality control plan required under § 62.1-44.19:5. The results of

such citizen monitoring shall not be used as evidence in any enforcement action.

Id.

H. Rhode Island

Rhode Island enacted a law designed to support and expand statewide watershed and marine monitoring and to encourage data sharing between state agencies, municipalities and non-profit organizations. R.I. Gen. Laws § 46-23.2-6(1) & (4) (2004). A statewide environmental monitoring collaborative was established in order to organize, coordinate and support the watershed and marine monitoring system of the state. *Id.* at § 46-23.2-3. The law provides that “data standards and protocols [must] be used on a reasonable and consistent basis by monitoring programs that contribute data to the state monitoring system.” *Id.* at § 46-23.2-6(1)(iv).

I. Oregon

Oregon has a Volunteer Monitoring Program, along with a staff Volunteer Monitoring Specialist to provide support and technical assistance in monitoring design, equipment use, data management and analysis. Oregon Department of Environmental Quality, Volunteer Monitoring website, www.deq.state.or.us/lab/wqm/volunteermonitoring.htm (last visited May 4, 2005). The Oregon Department of Environmental Quality (“Oregon DEQ”) uses volunteer monitoring data for 303(d) determinations and for TMDL documentation or development. *Id.* Also, as part of the 2004 data evaluation process, the Oregon DEQ is requesting information on water quality from outside the agency. Oregon DEQ, *Draft Environmental Assessment and Listing Methodology for Oregon’s 2004 303(d) List of Water Quality Limited Waterbodies and Integrated 305(b) Report*, p. 3, available at www.deq.state.or.us/wq/303dlist/Draft2004ListingCriteria_303d.pdf (last visited May 4, 2005). Data submitted to the Oregon DEQ must meet Quality Assurance and Quality Control standards in order to be used in developing the 303(d) or 305(b) lists. *Id.* at 4.

J. New Jersey

New Jersey has developed a four tiered system for collecting and analyzing water quality data. New Jersey Department of Environmental Protection, Division of Watershed Management, Watershed Watch Network of New Jersey, available at www.state.nj.us/dep/watershedmgt/DOCS/volmontiersfinal.pdf (last visited May 4, 2005). Each tier requires certain methods and can be used for certain purposes. *Id.* Tier “D” is the highest quality and can be used for regulatory responses from the N.J. Department of Environmental Protection (“New Jersey DEP”). It requires training for volunteers, a Quality Assurance Plan, and a possible annual audit. *Id.* The tiered approach allows volunteers to choose their level of involvement and to know what they need to do if they want to submit their data to the New Jersey DEP for regulatory use. N.J. DEP, Division of Watershed Management website, www.state.nj.us/dep/watershedmgt/volunteer_monitoring.htm (last visited May 4, 2005).

K. Illinois

Illinois is currently accepting submissions of water quality data for use in making its 305(b) and 303(d) lists. Illinois Environmental Protection Agency website, *Guidance for Submittal of Surface Water Data*, www.epa.state.il.us/water/water-quality/guidance.html (last visited May 4, 2005). To be used, the data must have been developed under a Quality Assurance Project Plan, must contain exact locations where the water was tested, and must conform to other specific rules as well. *Id.*

The Illinois Bureau of Water has also come out with a water monitoring strategy for 2002-2006. Illinois EPA, Bureau of Water, *Water Monitoring Strategy 2002-2006*, available at <http://www.epa.state.il.us/water/water-quality/monitoring-strategy/2002-2006/monitoring-strategy-2002-2006.pdf> (2002). The Bureau notes in its report that one task for the upcoming years will be to “more effectively use the data produced by other monitoring groups [and] place greater reliance on the data collected by other agencies or entities who have demonstrated the ability to collect quality data.” *Id.* at p. 2.

L. Pennsylvania

Pennsylvania allows citizen water quality monitoring data to be used for regulatory purposes in some circumstances. The state’s Department of Environmental Protection (“Pennsylvania DEP”) notes that it is very difficult for citizen monitoring results to be of such a high quality that they can be legally valid in court or enforcement actions. Pennsylvania DEP, *Water Quality Monitoring of Pennsylvania Streams By Citizens Groups; A Primer in Quality Assurance and Quality Control*, p. 10, available at www.dep.state.pa.us/dep/deputate/watermgt/wc/subjects/cvmp/initiatives/Citz_Monitoring.doc (last visited May 4, 2005). However, “[c]itizens groups can sometimes work with state or federal agencies to supplement or enhance their monitoring efforts; however, agency standards must be met to assure data consistency.” *Id.* at p. 9. Some monitoring groups in Pennsylvania do conform to strict chain of custody and field and laboratory methodologies, making their data usable by the Pennsylvania DEP. *Id.* at p. 10.

If groups are interested in sharing their data with the Pennsylvania DEP, they must follow Quality Assurance/Quality Control procedures. The Pennsylvania DEP uses federal EPA guidance on what should be included in a QA/QC plan. *Id.* at p. 20. In part, such a plan should include a project description, sampling procedures, chain of custody for samples, calibration procedures, and internal audits. *Id.*

M. Kentucky

The Kentucky Division of Water has supported citizen water quality monitoring through the Watershed Watch program for a number of years. Kentucky Division of Water, *Agency Guidance for Use of Volunteer Monitoring Data and Reports*, p. 1, available at www.water.ky.gov/NR/rdonlyres/B8F9FC52-D32F-4FBB-9CC0-C6945CE5A8A/0/volunteer_monitoring_data_final.pdf (last visited May 4, 2005). Historically, citizen-gathered data was used as background and educational data, but now Kentucky allows it to be used in making TMDL determinations and other regulatory uses in certain cases. *Id.* at 2. Kentucky came out with agency guidance in 2004 which lists quality control criteria if data is to be used for a regulatory purpose. *Id.* at p. 2-3. The state will

require Quality Assurance Project Plans and certification of training for data collection which is used for certain purposes. *Id.*


III. CONCLUSION

I hope this has been a useful survey of how other states use volunteer water quality monitoring data for regulatory purposes. The over-arching theme is clearly that citizens are required to use some sort of quality assurance project plan that, if complied with, will assure that the data is of sufficient quality to allow the DNR to use it for regulatory purposes.

Please let me know if you or your staff has any questions regarding this letter. I look forward to continuing to work with the DNR on this issue.

Sincerely,

MIDWEST ENVIRONMENTAL ADVOCATES, INC.

A handwritten signature in black ink, appearing to read "Andrew C. Hanson". The signature is written in a cursive style with a large initial "A" and a stylized "H".

Andrew C. Hanson

cc: Kris Stepenuck
Lori Grant