FINANCIAL IMPACT STATEMENT

PLEASE ANSWER ALL QUESTIONS COMPLETELY

DEPARTMENT: Arkansas Department of Environmental Quality
DIVISIONS: Water Division
PERSON COMPLETING THIS STATEMENT: Jamie Ewing, Attorney Specialist
TELEPHONE NO.: 501-682-0892 FAX NO.: 501-682-0891 EMAIL: ewing@adeq.state.ar.us

To comply with Act 1104 of 1995, please complete the following Financial Impact Statement and file two copies with the questionnaire and proposed rules.

SHORT TITLE OF THIS RULE: Regulation No. 2, Water Quality Standards

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1. Does this proposed, amended, or repealed rule or regulation have a financial impact?
   Yes X No _____

This proposed rule will most likely have both negative and positive financial impacts.

These proposed water quality standards revisions will have several positive economic effects from continued protection of the waters of the State of Arkansas, benefiting industry, tourism, recreational and domestic water supply usages. These proposed water quality standards revisions may also have a negative economic effect on the permitted facilities, based on revisions in the minerals and nutrient regulations.

Economic Earnings from Clean Water

In general, these proposed water quality standards revisions will have a positive economic effect from continued protection of waters of the State of Arkansas, benefiting industry, tourism, recreational and domestic water supply usages. Arkansas has over 699,293 acres of surface water, with some 11,900 miles of streams and rivers and more than 500,000 acres of lakes. Over 800 billion liters of high quality ground water are contained in aquifers capable of yielding over 2,000 liters per minute. As per the 2010 Integrated Water Quality Monitoring and Assessment Report (305(b)), over 60% of Arkansas's assessed surface waters are fully supporting their designated uses.

Fishing and Aquaculture Benefits

Arkansas is renowned for fishing and aquaculture. Specifically, Arkansas ranks second in the U.S. in catfish production, and leads the nation in baitfish, goldfish, sport-fish, largemouth bass, hybrid striped bass, and Chinese carp production. Aquaculture has a total economic impact of over $1.1 billion in Arkansas, primarily in the Delta region.

According to USFWS, warmwater fish stocked for recreational fishing, such as smallmouth bass, striped bass and walleye, have a tremendous economic impact. Recreational fishing is a major tourist attraction for Arkansas contributing $446 million to the State's economy annually through direct expenditures. In 2001, 782,000 people (residents and non-residents) over the age of 16 fished a total of more than 13,000 days. They spent almost $184 million on trip-related expenses, and almost $208 million on equipment.

USFWS estimates that the number of people fishing for trout in Arkansas multiplied by the number of days per year that each person fished ("angler days") is over 1.5 million, which represents 39% of the total estimate for trout fishing in all US waterbodies stocked with trout from national fish hatcheries (USFWS 2005).

USFWS estimated statewide economic benefits from trout fishing in Arkansas during 2004 to be approximately $62.9 million in retail sales, $112.7 million in industrial output, and $28.3 million in job income. Trout fishing in Arkansas generated approximately $3.8 million in sales and motor fuel taxes, $1.4 million in state income tax, and $2.9 million in federal income tax during 2004 (USFWS 2005).

Thus, aquaculture and fishing, which benefit directly from water quality, provide $1.456 billion in direct and indirect benefits to the State of Arkansas.

Hunting Benefits

The most recent year for which data exists regarding the economic impact of hunting is 2001. In that year, Arkansas had 430,694 registered hunters with an economic impact for all hunting-related activities of $905,815,861 based on direct, indirect, and induced effects. The impact of deer hunting during that period was $383,007,221 and the economic impact of migratory waterfowl and upland bird hunting was $270,286,245. A significant portion of the deer and migratory waterfowl industry benefits from and is dependent upon well managed water resources. A conservative estimate of the benefit derived from high quality water for those two hunting components would be 50 percent, resulting in a direct benefit of approximately $327 million in total benefit from hunting.

Eco-Tourism Benefits

Eco-tourism in Arkansas is calculated as the combination of watchable wildlife recreation (particularly bird watching) and general tourism less special attractions, hunting, fishing, and historic tourism. For 2001, the most recent year for which data is available, 841,000 people participated in watchable wildlife activities. The total economic benefit of wildlife-watching in Arkansas in 2001 was almost $456 million, most of which was for retail sales.

The Arkansas tourism industry experienced a year of record growth in 2004, with travel expenditures increasing from $3.9 billion to $4.3 billion (7.9%) and visitors increasing from 19.7 million to almost 21 million. These estimates are calculated using the Travel Industry Association of America (TIA) 2001 Impact of Travel on Arkansas Counties as a reference. During 2004, visitors to Arkansas totaled 20.7 million person-trips. Visitors spent an average of $205.60 per trip, resulting in $4.3 billion in total travel expenditures, $238 million in state taxes and $89 million in local taxes. The Arkansas travel industry employed 59,287 persons and paid $940 million in wages and salaries. A conservative estimate of the economic benefit derived from well-managed water resources to eco-tourism would be half of all eco-tourism, or 13 percent of the total, for an economic benefit of more than $553 million plus half of bird-watching, $237 million, for a total impact of $790 million. The perception of clean water is central to the advertising campaign of Arkansas as the "Natural State."

Water-Critical Industry Benefits

The principal industries in Arkansas are manufacturing, agriculture, forestry, business services, and tourism accounted (in 2004) for over $12 million dollars of state revenue. These industries are dependent upon, and thus benefit from, high quality water resources. However, a conservative estimate of the benefit of implementing the CWA, and thus achieving high quality water, can be made by subtracting fishing from the Agriculture, Forest, and Fishing category, and considering a marginal value of 10 percent for high quality water. The benefit to industries in Arkansas from implementing the CWA was estimated to be $1,049 million.

Summary of Benefits

The cumulative benefits of implementing CWA programs in Arkansas for FY 2005 were estimated to be more than $3.7 billion. These benefits are estimates made with assumptions; however, these assumptions were conservative (that is, likely underestimated) and based upon the most recent data available. In

addition, these estimates do not consider other critical benefits that were not available for this cost benefit analysis.

Economic Savings from Clean Water
Additionally utility users will not sustain negative effects by increased costs for drinking water if water quality standards are upheld and designated uses are maintained.

Water Treatment Costs
Water treatment costs directly impact citizens because the higher the cost of water treatment due to water quality issues the higher the cost is to the municipal user. One such issue requiring additional treatment is taste and odor (T&O). Taste currently has no national primary drinking water regulations; however, USEPA has set a Secondary Maximum Contaminant Level (SMCL) for odor. Although there are not always direct discharges of the constituents that cause T&O issues to lakes and streams, exceedances of other water quality standards (due to point sources and non-point sources) create conditions which cause bacteria and/or algae to thrive and create T&O issues indirectly.

As an example, in a 2008 study by Black and Veatch for Beaver Water District, options for T&O control were investigated and costs were analyzed. Costs for treatment of T & O control ranged from $37.7 million to $83.8 million resulting in wholesale rate increases of $0.27 to $0.61 per 1000 gallons respectively.

If the cost is only applied to residential customers, the wholesale rate impact could be as high as $0.42 per 1000 gallons. With an average household usage of 6,000 gallons per month, the average bill would increase from about $21 per month to about $23.5 per month, which is about $30 per year.

Other water quality issues may require additional treatment using coagulants, disinfectants, pH adjusters, etc. As an example, a 1997 study titled Costs of Water Treatment due to diminished water quality: a case study in Texas, found that when regional raw water contamination is present, the chemical cost of water treatment is increased by $95 per million gallons from a base of $75.

Potential Economic Costs due to Revisions
Negative impacts could include stricter monitoring requirements or limits for minerals. Entities with minerals discharge may incur increased cost of monitoring Cl, SO_4, and TDS. Estimated cost for analysis for these parameters is $20.00 per parameter per sample.

In order to meet stricter permit limits for minerals, permittees may implement additional treatment. Reverse osmosis (RO) treatment is capable of removing chlorides, sulfates, and TDS. Capital costs of installing a three stage RO treatment system handling an average of 1,500 gpm of water for a municipal wastewater facility have been estimated as follows:
Capital cost $6,500,000
Annual operating cost $4,400,000

Entities with stricter monitoring requirements for nutrients may incur increased cost of monitoring TN and TP. Estimated cost for analysis for these parameters is $28.00 per sample for TP and $82.00 per sample for TN.

Failure to meet any permit limits may result in a formal enforcement action including the assessment of civil penalties.

2. If you believe that the development of a financial impact statement is so speculative as to be cost prohibited, please explain.

Numerous factors influence costs to each individual point source discharger. These factors include, but are not limited to: type of discharge; chemicals, processes, and mechanics used during production; characteristics of receiving waterbody; age and size of facility; economic viability of surrounding region. Additionally, EPA does not consider cost for aquatic life criteria during development or when applying to an NPDES permit.

3. If the purpose of this rule or regulation is to implement a federal rule or regulation, please give the incremental cost for implementing the regulation. Please indicate if the cost provided is the cost of the program.

Pursuant to the Federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. §1251 et seq., Arkansas has been delegated the authority to establish and administer water quality standard. The Clean Water Act ("CWA") requires states to review their water quality standards on a triennial basis and to amend those standards as necessary. The manpower and associated resources required to implement this proposed rule is funded through the Environmental Protection Agency through the delegated CWA program. Thus, implementation of the federal rule is anticipated and there are no additional costs at this time.

4. What is the total estimated cost by fiscal year to any party subject to the proposed, amended, or repealed rule or regulation? Identify the party subject to the proposed regulation, and explain how they are affected.

Current Fiscal Year **Next Fiscal Year**

Please see the answer to #2, above. Total costs are too speculative to estimate at this time.

5. What is the total estimated cost by fiscal year to the agency to implement this regulation?

Current Fiscal Year **Next Fiscal Year**

Please see the answer to #3, above. There are no additional costs to the agency to implement this rule.