

More information is available on the effects of chlorine from aquatic exposures. However, there is no evidence that suggests that emissions of chlorine from industrial sources in the air contribute significantly to aquatic concentrations of chlorine.

One study reported a significant decrease in phytoplankton activity following exposure to 0.1 ppm chlorine in cooling tower water. Additional laboratory studies showed that continuous exposure to 0.002 milligram per liter (mg/L) total residual chlorine (TRC) resulted in depressed algal biomass in naturally-derived microcosms.

When exposed continuously for 96 hours to 0.05 mg/L TRC, the Eurasian water milfoil showed a significant reduction in shoot and dry weights, shoot length, and chlorophyll content.

Aquatic invertebrates are very sensitive to chlorine and reaction products of chlorine, with early life stages showing the most sensitivity. For example, free chlorine, monochloramine, and dichloroamine have been shown to reduce the rate of oyster larvae survival. Many studies have been performed, and the results are highly variable depending on the chlorine species, the lifestage of the invertebrate, and other factors such as salinity. The most sensitive aquatic species appears to be molluscan larvae, with LC₅₀ concentrations of 0.005 mg/L. Sublethal effects have also been studied, including reduced growth, reduced motility, and reproductive failure.

The effects on fish also vary depending on the life stage and fish species, and environmental factors, such as the pH, temperature, and type of chlorine species. Larval stages are more susceptible to effects, and freshwater species are more sensitive than marine species. Free chlorine is generally more toxic than residual chlorine; where the form of chlorine is dependent on the pH of the water. Sublethal effects such as avoidance, reduction of diversity in chlorinated effluents, reduction or elimination of spawning, abnormal larvae, reduced oxygen consumption, and gill damage have been noted. Many LC₅₀ values were reported, ranging from 0.08 mg/L after 24 hours of exposure to TRC to 2.4 mg/L after 0.5 hours of exposure to TRC.

Acute and chronic exposures to predicted chlorine and HCl concentrations around the sources are not expected to result in adverse toxicity effects. These pollutants are not persistent in the environment. The chlorine and HCl emitted should not significantly contribute to aquatic chlorine concentrations, and are not

likely to accumulate in the soil. Chlorine rapidly converts to HCl in the atmosphere, and chlorine and HCl are not believed to result in biomagnification or bioaccumulation in the environment. Therefore, we do not believe there will be adverse ecological effects due to chlorine and HCl emissions from non-mercury cell chlorine production plants.

IV. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993) the Agency must determine whether the regulatory action is "significant" and, therefore, subject to Office of Management and Budget (OMB) review and the requirements of the Executive Order. The Executive Order defines "significant regulatory action" as one that is likely to result in a rule that may:

- (1) Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or Tribal governments or communities;
- (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

It has been determined that this final action is not a "significant regulatory action" under the terms of Executive Order 12866 and is, therefore, not subject to OMB review.

B. Paperwork Reduction Act

Since there is no rule associated with this final action, there are no information collection requirements.

C. Regulatory Flexibility Act

The RFA generally requires that an agency conduct a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administrations' regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This final action deletes the subcategory of sources that do not utilize mercury cells to produce chlorine and caustic. We conclude that no further control or regulation is necessary.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under section 202 of the UMRA, the EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures by State, local, and Tribal governments, in aggregate, or to the private sector, of \$100 million or more in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires us to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows us to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if we publish with the final rule an explanation as to why that alternative was not adopted.

Before we establish any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, we must have developed under section 203 of the UMRA, a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the