Executive Summary

This report assesses the water quality related benefits that would be expected from adoption by the U.S. Environmental Protection Agency (EPA) of final effluent limitations, guidelines and pretreatment standards for the Centralized Waste Treatment (CWT) Point Source Category. EPA estimates that under baseline conditions 205 CWT facilities discharge approximately 8.6 million lbs/year of metal and organic pollutants. The final rule, in EPA's assessment, will reduce this pollutant loading by 50%, to 4.3 million lbs/year (see Table ES-1).

Summary of Non-Scaled Environmental Effects

(a) Ambient Water Quality Effects

EPA analyzed the environmental effects associated with discharges from 113 of the 205 CWT facilities. The analysis compared modeled instream pollutant levels to Ambient Water Quality Criteria (AWQC). This review found estimates that current discharge loadings contribute to in-stream concentrations in excess of AWQCs in 252 cases at 43 receiving water locations. The final rule would reduce the number of in-stream concentrations exceeding AWQCs to 156 at 38 receiving water locations.

(b) Human Health Effects

EPA estimates that CWT loadings from the 113 CWT facilities are responsible for 0.18 cancer cases per year. The final rule would reduce this to 0.14 cases per year. In addition, the rule reduces lead exposure and related health effects for an estimated 101,000 persons. EPA estimates the final rule will reduce lead uptake enough to prevent the IQ loss of 60 points in children of recreational and subsistent anglers. EPA also estimates that the IQs of 0.2 angler children would not drop below 70.

(c) POTW Effects

EPA estimates that six of the 69 Publically Owned Treatment Works (POTWs) considered for this assessment experience inhibition problems due to CWT wastes. The final rule would decrease this number by two. The final rule will also improve biosolids quality of 3,900 metric tons.

(d) Basis of Conclusions

The report bases its conclusion about these benefits on site-specific analyses of current conditions and the expected changes from compliance with the final CWT Best Available Technology (BAT) economically achievable effluent limitations and Pretreatment Standards for Existing Sources (PSES). The final regulations limits the discharges of pollutants into navigable waters of the United States and the introduction of pollutants into POTWs from existing sources and from new sources in three CWT subcategories. These categories are Metal-Bearing Waste Treatment and Recovery Operations (metals), Used/Waste Oil Treatment and Recovery Operations (oils), and Organic Waste Treatment (organics). Many CWT facilities treat or recover wastes in more than one category.[1]

Table ES-1. Summary of Non-Scaled Environmental Effects of 113 CWT Facilities [a]

	Current	Final Rule	Summary of Benefits of Final Rule
Loadings (million lbs/yr) [b, c]	8.6	4.3	50% reduction
Number of In-Stream Concentrations for Pollutants that Exceed AWQC	252 at 43 streams	156 at 38 streams	5 streams become "contaminant free" [e]
Additional Cancer Cases/yr [d]	0.18	0.14	0.04 cases reduced each year
Population potentially at risk to lead exposure [d]	101,000	101,000	Annual benefits are: C Reduction of 1.5 cases of hypertension C Protection of 60 IQ points C Prevention of lowering of 0.2 children's IQs below 70
Population potentially exposed to other non-cancer health risks [d]	1,880	none	Health effects to exposed population are completely reduced
POTWs experiencing inhibition	6 of 69	4 of 69	Potential inhibition eliminated at 2 POTWs
Improved Biosolid Quality	0 metric tons	3,900 metric tons	3,900 metric tons improved

a. Modeled results which are not scaled represent 12 direct and 101 indirect CWT waste water dischargers.
b. 104 pollutants (see Table 4-1); Loadings are representative of metals and organic pollutants evaluated; conventional pollutants are not included in the analysis.
c. Loadings are scaled to represent all 205 facilities. Loadings account for POTW removals.
d. Through consumption of contaminated fish tissue.
e. "Contaminant free" from CWT discharges; however potential contamination from other point source discharges and non-point sources is still possible.

[1] Many CWT facilities treat wastes from multiple subcategories. Therefore, EPA aggregated loadings from each subcategory to estimate the combined environmental effects of the final rule.

Final Treatment Options

EPA selected the treatment technologies which form the basis for the final rule from a larger set of technology options based on several criteria, including efficiency of pollutant removal and the economic achievability of these removals. Chapter 9 of the technical development document discusses the technology basis of each of the selected technologies for each of the final subcategories. Table ES-2 provides a summary of the technology basis for the final rule.

Table ES-2. Technology Basis for Selected Options

Metals Subcategory [a]		Oils Subcategory		Organics Subcategory
BPT / BCT /BAT / PSES / PSNS [b]	NSPS	BPT / BCT/BAT/ PSNS / NSPS	PSES	BPT / BCT / BAT / PSES /PSNS / NSPS
Option 4: Precipitation, liquid solid separation, secondary precipitation and sand filtration (sand filters for directs only).	**Option 3:** Selective metals precipitation, liquid-solid separation, secondary (sulfide) precipitation, liquid-solid tertiary precipitation, clarification.	**Option 9**: Emulsion breaking, gravity separation, secondary gravity separation and dissolved air flotation	**Option 8:** Emulsion breaking, gravity separation, and dissolved air flotation	**Option 4**: Equalization, and biological treatment

a. For facilities in the cyanide subset of the metals subcategory, the technology basis is alkaline chlorination at specific operating conditions.
b. Direct dischargers are covered by BPT / BAT. Indirect dischargers are covered by PSES

Modeling Techniques

EPA employed modeling techniques to assess the potential benefits of the final limitations and standards. First, EPA estimated pollutant concentrations in receiving water bodies for priority and nonconventional pollutants under current (baseline) and final treatment levels. Chapter 12 of the Technical Development Document explains more about these estimates. Second, EPA estimated water quality effects associated

with direct and indirect discharges for the three subcategories of CWT facilities using stream dilution modeling.[2] EPA analyzed the effects from direct and indirect discharge operations separately. EPA had sufficient data to analyze water quality impacts for 113 of the 205 CWT facilities. Third, EPA combined the impacts for each of the subcategories to estimate water quality effects as a result of the rule.

EPA then analyzed benefits in terms of effects on aquatic life, human health, and POTW operations. EPA projected the benefits to aquatic life by comparing the modeled instream pollutant concentrations to EPA aquatic life criteria and toxicity values (acute and chronic ambient water quality criteria). EPA projected human health benefits by comparing estimated instream pollutant concentrations to health-based toxic effect values derived using standard EPA methodology (referred to as human health ambient water quality criteria). In addition, EPA projected potential carcinogenic and noncarcinogenic hazards to the recreational and subsistence angler populations due to the consumption of fish.

The environmental assessment also assesses the potential inhibition of POTW operations and potential sewage biosolids contamination (thereby, limiting its use for land application) based on current and final pretreatment levels. EPA estimated inhibition of POTW operations by comparing modeled POTW influent concentrations to available inhibition levels. EPA assessed the potential contamination of sewage biosolids is estimated by comparing projected pollutant concentrations in sewage biosolids to available EPA sewage biosolids regulatory standards.

Documented Impacts

The Environmental Assessment also summarizes documented environmental impacts on water quality and POTW operations from centralized waste treatment facilities. EPA based the summary data on information obtained from State 304(l) Short Lists and EPA Regional and State Pretreatment Coordinators on the quality of receiving waters and impacts on POTW facilities. Effects included seven cases of impairment to POTW operations due to cyanide, nitrate/nitrite, sodium, zinc, and ammonia, and one case of an effect on the quality of water due to organics. In addition, several states have identified four direct CWT facilities and eight POTWs, which receive discharges from 13 facilities as point sources causing water quality problems.

[2] The model employed was a simple dilution model that does not account for fate processes.