ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 432

[FRL–7631–2]

RIN 2040–AD56

Effluent Limitations Guidelines and New Source Performance Standards for the Meat and Poultry Products Point Source Category

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: Today's final rule revises Clean Water Act effluent limitations guidelines and new source performance standards for meat producing facilities. These revisions apply to existing as well as new slaughtering facilities (''first processors''), to facilities that further process meat to produce products like sausages (''further processors'') and to independent rendering facilities that convert inedible by-products to items like pet food (''renderers''). The rule establishes, for the first time, effluent limitations guidelines and new source performance standards for existing and new poultry first and further processors. Today's guidelines and standards establish limitations on wastewater discharges of specified pollutants for meat and poultry products facilities that discharge directly to U.S. waters. There are no current regulations for facilities that discharge indirectly, and EPA has not adopted regulations for those facilities. Today's rule applies to wastewater discharges from existing meat and poultry facilities above specified production thresholds. Today's new source standards apply to new meat facilities above the production thresholds and to all new poultry facilities irrespective of their production level. EPA is not revising the current effluent limitations guidelines or new source performance standards for meat first or further processors below the production threshold.

This final rule will benefit the Nation's receiving waters by reducing discharges of conventional pollutants, ammonia, and nitrogen. EPA estimates that compliance with this regulation will reduce discharges of nitrogen up to 27 million pounds per year, ammonia by 3 million pounds per year, and conventional pollutants by 4 million pounds per year.

DATES: This regulation shall become effective October 8, 2004. The Director of the Federal Register approves the incorporation by reference on October 8, 2004, of certain publications listed in this rule in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. For judicial review purposes, this final rule is promulgated as of 1:00 p.m. (Eastern time) on September 22, 2004, as provided in 40 CFR 23.2.

ADDRESSES: The docket for today's final rule is available for public inspection at the Water Docket in the EPA Docket Center, (EPA/DC) EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: For additional technical information contact Samantha Lewis at (202) 566–1058. For additional economic information contact James Covington at (202) 566–1034.

SUPPLEMENTARY INFORMATION:

General Information

A. What Entities Are Potentially Regulated by This Final Rule?

Entities potentially regulated by this action include:

Category	Examples of regulated entities	Primary SIC and NAICS codes
Industry	Facilities engaged in first processing, further processing, or rendering of meat and poultry products, which may include the following sectors:.	
	Meat Packing Plants	2011 (SIC) 31161 (NAICS)
	Animal (except Poultry) Slaughtering	311611 (NAICS)
	Meat Processed from Carcasses	311612 (NAICS)
	Sausages and Other Prepared Meat Products	2013 (SIC) 311612 (NAICS)
	Poultry Slaughtering and Processing	2015 (SIC) 311615 (NAICS)
	Meat & Meat Product Wholesalers	422470 (NAICS)
	Poultry Processing	311615 (NAICS)
	Rendering and Meat By-Product Processing	311613 (NAICS)
	Support Activities for Animal Production	11521 (NAICS)
	Prepared Feed and Feed Ingredients for Animals and Fowls, Except Dogs and Cats	2048 (SIC) 311119 (NAICS)
	Dog and Cat Food Manufacturing	311111 (NAICS)
	Other Animal Food Manufacturing	311119 (NAICS)
	All Other Miscellaneous Food Manufacturing	311999 (NAICS)
	Animal and Marine Fats and Oils	2077 (SIC) 311613 (NAICS)
	Livestock Services, Except Veterinary.	0751 (SIC) 311611 (NAICS)

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your facility is regulated by this action, you should carefully examine the applicability criteria listed at 40 CFR parts 432.1, 432.10, 432.20, 432.30, 432.40, 432.50, 432.60, 432.70, 432.80, 432.90, 432.100, 432.110, and 432.120 of today's rule. If you have questions regarding the applicability of this action to a particular entity, consult the person listed for technical information in the preceding **FOR FURTHER INFORMATION CONTACT** section.

B. How Can I Get Copies of This Document and Other Related Information?

1. Docket

EPA has established an official public docket for this action under Docket ID

No. OW–2002–0014. The official public docket consists of the documents specifically referenced in this action, any public comments received, and other information related to this action. Although a part of the official docket, the public docket does not include information claimed as Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. The official public docket is the collection of materials that is available for public viewing at the Water Docket in the EPA Docket Center, (EPA/DC) EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Water Docket is (202) 566–2426. Every user is entitled to copy 266 pages per day before incurring a charge. The Docket may charge 15 cents a page for each page over the page limit plus an administrative fee of $25.00.

2. Electronic Access

You may access this **Federal Register** document electronically through the EPA Internet under the ''**Federal Register**'' listings at *http://www.epa.gov/fedrgstr/.*

An electronic version of the public docket is available through EPA's electronic public docket and comment system, EPA Dockets. You may use EPA Dockets at *http://www.epa.gov/edocket/* to view public comments, access the index listing of the contents of the official public docket, and to access those documents in the public docket that are available electronically. Once in the system, select ''search,'' then key in the appropriate docket identification number: OW–2002–0014.

Certain types of information will not be placed in the EPA Dockets. Information claimed as CBI and other information whose disclosure is restricted by statute, which is not included in the official public docket, will not be available for public viewing in EPA's electronic public docket. EPA's policy is that copyrighted material will not be placed in EPA's electronic public docket but will be available only in printed, paper form in the official public docket. To the extent feasible, publicly available docket materials will be made available in EPA's electronic public docket. When a document is selected from the index list in EPA Dockets, the system will identify whether the document is available for viewing in EPA's electronic public docket. Although not all docket materials may be available electronically, you may still access any of the publicly available docket materials through the docket facility identified in section B.1.

C. What Other Information Is Available To Support This Final Rule?

The two major documents supporting the final regulations are the following:

- ''Technical Development Document for the Final Effluent Limitations Guidelines and Standards for the Meat and Poultry Products Point Source Category'' [EPA–821–R–04–011] referred to in the preamble as the Technical Development Document (TDD): This document presents the technical information that formed the basis for EPA's decisions in today's final rule. The TDD describes, among other things, the data collection activities, the wastewater treatment technology options considered by the Agency as the basis for effluent limitations guidelines and standards, the pollutants found in Meat and Poultry Products (MPP) wastewaters, and the estimation of pollutant removals associated with certain pollutant control options.
- ''Economic and Environmental Benefits Analysis of the Final Meat and Poultry Products Rule'' [EPA–821–R–04–010] referred to as the Economic and Environmental Benefits Analysis (EEBA). This document presents the methodology employed to assess economic impacts, environmental impacts, and environmental benefits of the final rule and the results of the analyses.

Major supporting documents are available in hard copy from the National Service Center for Environmental Publications (NSCEP), U.S. EPA/NSCEP, P.O. Box 42419, Cincinnati, Ohio, USA 45242–2419, (800) 490–9198, *www.epa.gov/ncepihom.* You can obtain electronic copies of this preamble and rule as well as major supporting documents at EPA Dockets at *www.epa.gov/edocket* and at *www.epa.gov/guide/mpp.*

D. What Process Governs Judicial Review for Today's Final Rule?

In accordance with 40 CFR part 23.2, today's rule is considered promulgated for the purposes of judicial review as of 1:00 p.m. Eastern Daylight Time, September 22, 2004. Under Section 509(b)(1) of the Clean Water Act (CWA), judicial review of today's effluent limitations guidelines and new source performance standards may be obtained by filing a petition in the United States Circuit Court of Appeals for review within 120 days from the date of promulgation of these guidelines and standards. Under Section 509(b)(2) of the CWA, the requirements of this regulation may not be challenged later in civil or criminal proceedings brought to enforce these requirements.

E. What Are the Compliance Dates for Today's Final Rule?

Each National Pollutant Discharge Elimination System (NPDES) permit must include all technology-based effluent limitations promulgated by EPA. Consequently, all reissued permits for existing direct dischargers must require compliance with today's limitations. Direct dischargers that are new sources must comply with applicable new source performance standards (NSPS) on the date the new sources begin discharging. For purposes of the revised NSPS being promulgated today, a source is a new source if it commences construction after October 8, 2004.

Today's rule does not revise the new source performance standards for wastewater discharges from small meat products facilities (*i.e.,* those new meat facilities whose production is below the subcategory-specific production threshold) in Subparts A–I. Therefore, the respective new source dates for small facilities in Subparts A–I are not affected by today's final rule.

F. How Does EPA Protect Confidential Business Information (CBI)?

Certain information and data in the record supporting the final rule have been claimed as CBI and, therefore, EPA has not included these materials in the record that is available to the public in the Water Docket. Further, the Agency has withheld from disclosure some data not claimed as CBI because release of this information could indirectly reveal information claimed to be confidential. To support the rulemaking while preserving confidentiality claims, EPA is presenting in the public record certain information in aggregated form, masking facility identities, or using other strategies.

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J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
K. Congressional Review Act

I. Definitions, Acronyms, and Abbreviations Used in This Document

Act—The Clean Water Act
Agency—U.S. Environmental Protection Agency
AP—Alkylphenol polyethoxylate
APE—Alkylphenol ethoxylate
ASM—Annual Survey of Manufacturers, Census Bureau
AWQC—Ambient Water Quality Criteria
BAT—Best available technology economically achievable, as defined by section 304(b)(2)(B) of the Act
BCT—Best conventional pollutant control technology, as defined by section 304(b)(4) of the Act
BOD, BOD_5—Biochemical oxygen demand
BMP—Best management practices, as defined by section 304(e) of the Act
BPJ—Best professional judgment
BPT—Best practicable control technology currently available, as defined by section 304(b)(1) of the Act
CAA—Clean Air Act (42 U.S.C. 7401 *et seq.*, as amended)
CAFO—Concentrated animal feeding operation
CAPDET—Computer Assisted Procedure for Design and Evaluation of Wastewater Treatment Systems
CBI—Confidential business information
CBOD—Carbonaceous biochemical oxygen demand
CE—Cost-effectiveness (ratio of compliance costs to the pounds of pollutants removed)
CFR—Code of Federal Regulations
CFU—Colony-forming unit
COD—Chemical oxygen demand
Conventional Pollutants—Constituents of wastewater as determined by section 304(a)(4) of the Act and the regulations there under 40 CFR 401.16, including pollutants classified as biochemical oxygen demand, suspended solids, oil and grease, fecal coliform, and pH
CWA—Clean Water Act (33 U.S.C. 1251 *et seq.*, as amended)
DAF—Dissolved air flotation
DCN—Document control number
Direct Discharger—An industrial discharger that introduces wastewater to a water of the United States with or without treatment by the discharger
DMR—Discharge Monitoring Report
DO—Dissolved oxygen
EBT—Earnings before tax
EEBA—Economic and Environmental Benefits Analysis of the Final Meat and Poultry Products Rule (EPA–821–R–04–010)
Effluent Limitation—A maximum amount, per unit of time, production, volume or other unit, of each specific constituent of the effluent from an existing point source that is subject to limitation. Effluent limitations may be expressed as a mass loading or as a concentration (*e.g.*, milligrams of pollutant per liter discharged).
ELG—Effluent limitations and guidelines
ELWK—Equivalent live weight killed
End-of-Pipe Treatment—Refers to those processes that treat a plant waste stream for pollutant removal prior to discharge
ER—Estrogen receptor
FDF—Fundamentally different factor
FR—Federal Register
FSIS—Food Safety Inspection Service
FTE—Full-time equivalents (related to the number of employees)
HACCP—Hazard Analysis and Critical Control Point
HAP—Hazardous air pollutant
HEM—Hexane extractable material
Indirect Discharger—An industrial discharger that introduces wastewater into a publicly owned treatment works
kg—Kilogram
kkg—1,000 kilograms
lbs/yr—Pounds per year
LTA—Long-term average concentration
LWK—Live weight killed
mg/L—Milligrams per liter
mL—Milliliter
MPN—Most probable number
MPP—Meat and Poultry Products point source category

NAICS—North American Industry Classification System
NAWQA—National Water Quality Assessment, a U. S. Geological Survey program
NCEPI—EPA's National Center for Environmental Publications
NODA—Notice of Data Availability (August 13, 2003; 68 FR 48472)
Nonconventional Pollutants—Pollutants that have not been designated as either conventional pollutants or priority pollutants
NPDES—National Pollutant Discharge Elimination System, a Federal program by which industry dischargers, including municipalities, obtain permits to discharge pollutants to the nation's water, under section 402 of the Act
NPV—Net present value
NSPS—New Source Performance Standards
NTTAA—National Technology Transfer and Advancement Act
NWPCAM—The National Water Pollution Control Assessment Model
O&G—Oil and grease
O&M—Operation and maintenance
OMB—Office of Management and Budget
P—Phosphorus
PCS—Permit Compliance System
PE—Pound-equivalents (the units used to weight toxic pollutants)
POTW—Publicly owned treatment works
ppm—parts per million
Priority Pollutants—The 126 pollutants listed at 40 CFR part 423, appendix A
PSES—Pretreatment standards for existing sources of indirect discharges, under section 307(b) of the Act
PSNS—Pretreatment standards for new sources of indirect discharges, under sections 307(b) and (c) of the Act
PV—Present value
RCRA—Resource Conservation and Recovery Act
RFA—Regulatory Flexibility Act
SBA—U.S. Small Business Administration
SBREFA—Small Business Regulatory Enforcement Fairness Act
SER—Small entity representative
SIC—Standard Industrial Classification, a numerical categorization scheme used by the U.S. Department of Commerce to denote segments of industry
SIU—Significant Industrial User as defined in the General Pretreatment Regulations (40 CFR part 403)
SOP—Standard operating procedure
TDD—Technical Development Document for the Final Effluent Limitations Guidelines and Standards for the Meat and Poultry Products Point Source Category (EPA–821–R–04–011)
TKN—Total Kjeldahl nitrogen
TMDL—Total maximum daily load
TRI—Toxic Release Inventory
TSE—Transmissible spongiform encephalopathy
TSS—Total suspended solids
UMRA—Unfunded Mandates Reform Act
U.S.C.—United States Code
USDA—United States Department of Agriculture
WQI—Water Quality Index
WQS—Water quality standards

II. Under What Legal Authority Is This Final Rule Issued?

The U.S. Environmental Protection Agency is promulgating these regulations under the authority of Sections 301, 304, 306, 307, 308, 402, and 501 of the Clean Water Act, 33 U.S.C. 1311, 1314, 1316, 1318, 1342, and 1361.

III. What Is the Legislative Background of This Rule?

A. Clean Water Act

Congress adopted the Clean Water Act (CWA) to ''restore and maintain the chemical, physical, and biological integrity of the Nation's waters'' (Section 101(a), 33 U.S.C. 1251(a)). To achieve this goal, the CWA prohibits the discharge of pollutants into navigable waters except in compliance with the statute. The Clean Water Act confronts the problem of water pollution on a number of different fronts. Its primary reliance, however, is on restricting the types and amounts of pollutants discharged from various industrial, commercial, and public sources of wastewater.

Congress recognized that regulating only those sources that discharge effluents directly into the Nation's waters would not be sufficient to achieve the CWA's goals. Congress was also concerned about pollutants from facilities that discharge wastewater through sewers flowing to publicly-owned treatment works (POTWs). Consequently, the CWA requires EPA to promulgate nationally applicable pretreatment standards for those pollutants in wastewater from indirect dischargers which pass through, interfere with, or are otherwise incompatible with POTW operations (Section 307(b) and (c), 33 U.S.C. 1317(b) and (c)). Generally, pretreatment standards are designed to ensure that wastewater from direct and indirect industrial dischargers are subject to similar levels of treatment. In addition, POTWs are required to develop and enforce local pretreatment limits applicable to their industrial indirect dischargers to satisfy local requirements (*see* 40 CFR part 403.5).

1. Effluent Limitations Guidelines and Standards

Direct dischargers must comply with effluent limitations in National Pollutant Discharge Elimination System (NPDES) permits; indirect dischargers must comply with pretreatment standards. Effluent limitations guidelines and standards are established by regulation for categories of industrial dischargers and are based on the degree of control that can be achieved using various levels of pollution control technology.

Best Practicable Control Technology Currently Available (BPT)—Section 304(b)(1) of the CWA

In the regulations, EPA defines BPT effluent limitations for conventional, toxic, and non-conventional pollutants. Section 304(a)(4) designates the following as conventional pollutants: biochemical oxygen demand (BOD_5), total suspended solids (TSS), fecal coliform, pH, and any additional pollutants defined by the Administrator as conventional. The Administrator designated oil and grease (O&G) as an additional conventional pollutant on July 30, 1979 (*see* 44 FR 44501). EPA has identified 65 pollutants and classes of pollutants as toxic pollutants, of which 126 specific substances have been designated priority toxic pollutants (*see* Appendix A to 40 CFR part 403, reprinted after 40 CFR part 423.17). EPA considers all other pollutants to be non-conventional.

In specifying BPT, EPA looks at a number of factors. EPA first considers the total cost of applying the control technology in relation to the effluent reduction benefits. The Agency also considers the age of the equipment and facilities, the processes used and any required process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and such other factors as the EPA Administrator deems appropriate (CWA 304(b)(1)(B)). Traditionally, EPA establishes BPT effluent limitations based on the average of the best performances of facilities of various ages, sizes, processes or other common characteristics within the industry. Where current performance is uniformly inadequate to meet effluent controls, BPT may reflect higher levels of control than currently in place in an industrial category if the Agency determines the technology can be practically applied.

Best Conventional Pollutant Control Technology (BCT)—Section 304(b)(4) of the CWA

The 1977 amendments to the CWA required EPA to identify effluent reduction levels for conventional pollutants associated with BCT for discharges from existing industrial point sources. In addition to the other factors specified in Section 304(b)(4)(B), the CWA requires that EPA establish BCT limitations after considering a two-part ''cost-reasonableness'' test. EPA explained its methodology for developing BCT limitations in July 1986 (see 51 FR 24974).

Best Available Technology Economically Achievable (BAT)—Section 304(b)(2) of the CWA

In general, BAT effluent limitations guidelines represent the best available economically achievable reduction in discharges of toxic and non-conventional pollutants by plants in the industrial subcategory or category. The factors considered in assessing BAT include the cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the process employed, potential process changes, and non-water quality environmental impacts, including energy requirements. The Agency retains considerable discretion in assigning the weight to be accorded these factors. BAT limitations may be based on effluent reductions attainable through changes in a facility's processes and operations. Where existing performance is uniformly inadequate, BAT may reflect a higher level of performance than is currently being achieved within a particular subcategory based on technology transferred from a different subcategory or category. BAT may be based upon process changes or internal controls, even when these technologies are not common industry practice.

New Source Performance Standards (NSPS)—Section 306 of the CWA

NSPS reflect effluent reductions that are achievable based on the best available demonstrated control technology. New sources can install the best and most efficient production processes and wastewater treatment technologies. As a result, NSPS should represent the most stringent controls attainable through the application of the best available demonstrated control technology for all pollutants—conventional, non-conventional, and priority pollutants. In establishing NSPS, EPA must consider the cost of achieving the effluent reduction, any non-water quality environmental impacts, and energy requirements.

Pretreatment Standards for Existing Sources (PSES)—Section 307(b) of the CWA

PSES are designed to prevent the discharge of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of publicly-owned treatment works (POTWs), including POTW sludge disposal methods. Pretreatment standards for existing sources are technology-based and are like BAT effluent limitations guidelines.

You can find the General Pretreatment Regulations, which set forth the framework for the implementation of national pretreatment standards, at 40 CFR part 403.

Pretreatment Standards for New Sources (PSNS)—Section 307(c) of the CWA

Like PSES, PSNS are designed to prevent the discharges of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of POTWs. PSNS are to be issued at the same time as New Source Performance Standards. New indirect dischargers have the opportunity to incorporate into their plants the best available demonstrated control technologies. The Agency considers the same factors in promulgating PSNS as it considers in promulgating New Source Performance Standards.

2. Effluent Guidelines Planning Process—Section 304(m) Requirements

Section 304(m) of the CWA requires EPA every two years to publish a plan for reviewing and revising existing effluent limitations guidelines and standards and for promulgating new effluent guidelines. On January 2, 1990, EPA published an Effluent Guidelines Plan (see 55 FR 80) in which the Agency established schedules for developing new and revised effluent guidelines for several industry categories. Natural Resources Defense Council, Inc., and Public Citizen, Inc., challenged the Effluent Guidelines Plan in a suit filed in the U.S. District Court for the District of Columbia, (*NRDC et al* v. *Reilly*, Civ. No. 89–2980). On January 31, 1992, the Court entered a consent decree which, among other things, establishes schedules for EPA to propose and take final action on effluent limitations guidelines and standards for several point source categories. The amended consent decree requires EPA to take final action on the Meat and Poultry Products effluent guidelines by February 26, 2004.

At the time EPA selected the Meat and Poultry Products (MPP) point source category for review, pathogens, nutrients, and oxygen-depleting substances were contributing 25 to 35 percent to reported water quality problems in impaired rivers and streams. EPA selected the meat and poultry products category, along with concentrated animal feeding operations and aquatic animal production, as sources of nutrients needing additional control. EPA also selected the MPP industry for review to analyze changes that have occurred in this industry in the United States since the development of the current regulations.

B. Existing Clean Water Act Requirements Applicable to Meat and Poultry Processors

EPA issued effluent limitations guidelines and new source performance standards for meat slaughterhouses and packinghouses (40 CFR part 432 subcategories A through D) in February 1974 and for meat further processing facilities (subcategories E through I) in January 1975. EPA later revised or withdrew some of the BPT and BAT limitations due to litigation. The Agency also issued effluent limitations guidelines and new source performance standards for independent renderers (subcategory J) in January 1975, then promulgated revised BAT and NSPS limitations in October 1977. EPA proposed regulations for the poultry industry in April 1975, but never finalized them.

IV. How Was This Final Rule Developed?

A. February 2002 Proposed Rule

On February 25, 2002, EPA published a proposed rule entitled, ''Effluent Limitations Guidelines and New Source Performance Standards for the Meat and Poultry Products Point Source Category'' (*see* 67 FR 8582). At that time, EPA proposed to revise the effluent limitations guidelines and standards for wastewater discharges from meat processing and independent rendering facilities and proposed new guidelines for poultry slaughtering and processing facilities.

EPA identified six groups (12 subcategories) of facilities categorized by animal and processing type (*i.e.*, meat or poultry; first processor (slaughterer), further processor, or renderer). EPA grouped several existing subcategories together (A–D, F–I) because of similarities in processes and products. This proposed subcategorization scheme allowed EPA to assess more accurately various

technology options in terms of compliance costs, pollutant reductions, benefits, and economic impacts.

EPA proposed limitations and standards for two new subcategories (K and L) for poultry slaughterers and further processors. EPA proposed to add limitations for chemical oxygen demand (COD), ammonia (as nitrogen), total nitrogen, and total phosphorus. EPA proposed revised limitations and standards in nine of the ten existing subcategories, choosing not to propose to revise limitations for ''small'' facilities in subcategories A–D or for the smallest meat further processors (subcategory E). EPA also proposed lowering the production threshold for independent renderers so that facilities rendering 10 million pounds per year or more would be subject to the guidelines. EPA did not propose national pretreatment standards for indirect dischargers (see 67 FR 8633; February 25, 2002) in any subcategory.

B. August 2003 Notice of Data Availability

On August 13, 2003, EPA published a Notice of Data Availability (NODA) at 68 FR 48472. In the NODA, EPA discussed major issues raised in comments on the proposed rule; identified revisions EPA considered making to the technical and economic methodologies used to estimate compliance costs, pollutant loadings, and economic and environmental impacts; presented the results of these suggested methodology changes and incorporation of new (or revised) data; and summarized EPA's thinking on how these results could affect the final decisions. EPA asked for comments on the revised methodologies and data.

C. Public Comments

This preamble includes a general summary of public comments in the discussions of the various issues addressed here. EPA has prepared a ''Comment Response Document'' that includes responses to comments submitted for the proposed rule and the notice of data availability. All of the comments, including supporting documents submitted on today's action, are available for public review in the administrative record for this final rule, filed under docket number OW–2002–0014.

The proposed regulations were published in the **Federal Register** on February 25, 2002 (67 FR 8582), and the comment period closed on June 25, 2002. EPA received approximately 50 comments on the proposed rule. EPA received comments from a multitude of sources, including facility owners and operators, environmental groups, State agencies, publicly owned water treatment plants, representatives of various trade associations, and private citizens.

The comment period for the Notice of Data Availability was from August 13 through October 14, 2003 (68 FR 48472). EPA received approximately 40 comments on the Notice.

D. Public Outreach

In support of both the proposed rule and today's final rule, EPA has conducted outreach activities. During the development of the proposed regulations for meat and poultry products, EPA met with members of the stakeholder community through meetings, sampling trips, and site visits to collect information on waste management practices at meat and poultry product operations.

After the proposed rule was published, EPA conducted two public outreach meetings on the proposed regulations and continued to meet with representatives of stakeholder groups, including representatives of various industry trade associations. EPA used several additional means to provide outreach to stakeholders, such as managing websites that post information related to these regulations. EPA provided supporting documents for the proposed rule on these sites. These documents included the ''Technical Development Document,'' ''Economic Analysis,'' and ''Environmental Assessment'' of the proposed regulations. These are available at www.epa.gov/guide/mpp/.

V. How Is the Final Rule Different From the Proposed Rule and the Approaches Discussed in the NODA?

Since the proposed rule was published, EPA has incorporated a significant amount of additional technical and economic data into the database used for developing the effluent limitations guidelines and new source performance standards. In addition, EPA has modified certain assumptions used in its cost and pollutant loadings models. The NODA discussed in detail these new data (*see* 68 FR 48479; August 13, 2003). This section summarizes the major changes EPA has made for the final rule.

A. Definitions

1. How Has the Definition of a ''Small'' Poultry First Processor Changed?

A small poultry first processor (Subcategory K) is a facility that slaughters 100 million pounds or less of poultry per year, measured as live weight killed. For the proposed rule, EPA had defined a small facility as slaughtering 10 million pounds or less per year, live weight killed.

EPA examined the effect of increasing the threshold for small poultry slaughter facilities (Subcategory K) from the proposed 10 million pounds per year. In its analysis, EPA considered two types of competition: Competition between poultry facilities for poultry market share, and competition with meat facilities as a substitute for poultry.

Based on the most reliable studies performed to date, significant economies of scale exist in poultry slaughter. Extrapolating from Ollinger *et al.* (2000, DCN 25088), a 50 million pounds per year (lbs/yr) poultry plant has about a 3 percent cost advantage over a 10 million lbs/yr plant. This cost advantage increases with production: A 150 million lbs/yr plant has perhaps a 15 percent cost advantage over the 10 million lbs/yr plant. Economies of scale in meat slaughter plants are not as significant: a 150 million lbs/yr meat slaughter plant might have a 5 percent cost advantage over a 10 million lbs/yr plant (extrapolated from MacDonald *et al.*, 2000, DCN 328–001).

In both sectors, compliance costs per pound of production are larger for the smaller plants. In the poultry sector, costs per pound for slaughtering plants with less than 50 million lbs/yr of production are projected to be 20 times larger than those for plants above that threshold. This exacerbates the competitive disadvantage under which the smaller poultry plants already operate. In the meat sector, the compliance cost per pound differential, while still substantial, is much smaller.

In addition, EPA estimates that compliance costs per pound of poultry are about 40 percent larger than compliance costs per pound of meat. Consumers consider meat and poultry to be substitutes; if the price of poultry increases relative to that of meat, consumers will increase purchases of meat and decrease purchases of poultry. These changes are not large, but are statistically significant.

In summary, EPA determined that (1) poultry facilities will be somewhat disadvantaged by the rule relative to meat facilities if the poultry slaughter facility production threshold stays at 10 million pounds/year (as proposed) or even at 50 million pounds/year, and (2) within the poultry sector, smaller slaughter facilities (at 10 million or 50 million pounds/year) will be disadvantaged by the rule relative to large slaughter facilities. Therefore, EPA chose to increase the small production threshold for small poultry slaughter

plants from 10 million lbs/yr to 100 million lbs/yr for the final rule. This reduces the estimated number of non-small facilities in subcategory K from 118 to 99. See Section 2.2.2 of the EEBA for discussion on the selection of the production threshold for Subcategory K for the final rule.

2. How Has the Definition of Subcategory E Facilities Been Clarified?

The current § 432.51 (Subpart E) regulations define ''small processor'' as ''an operation that produces up to 2,730 kg (6,000 lb) per day of any type or combination of finished product.'' Because using the words ''up to 6,000 lb per day'' may lead to questions on whether facilities that produce 6,000 pounds per day are covered by Subcategory E or Subcategories F–I, EPA is changing the language to be consistent with the production threshold language in other subcategories of the final rule. Therefore, in today's final rule, it states that Subcategory (Subpart) E facilities are those that produce no more than 6,000 pounds per day of finished product.

B. Pollutants

1. How Have the Regulated Pollutants Changed?

In the proposed rule, EPA proposed limitations for ammonia (as nitrogen), biochemical oxygen demand (BOD_5), chemical oxygen demand (COD), fecal coliforms, oil and grease (as hexane-extractable material), pH, total nitrogen, total phosphorus, and total suspended solids (TSS). In the final rule, EPA decided not to include limits for COD or total phosphorus.

In 2002, EPA proposed to add COD to the BPT limitations for non-small meat facilities in Subcategories A–D, F–I, and J to better reflect the current BPT treatment technology (67 FR 8630; February 25, 2002). EPA did not propose to establish COD limitations for the poultry subcategories. As discussed in the NODA (68 FR 48484; August 13, 2003), commenters stated that COD is not as accurate an indicator of a biological treatment system performance as BOD and carbonaceous BOD (CBOD), because biological treatment systems are not necessarily designed to remove nonbiodegradable chemical oxygen-demanding components. In addition, one commenter stated that COD removal would be financially burdensome. In today's final rule, EPA has taken these comments into account and has not established a COD limitation. This is because the current regulations for Subcategories A–D, F–I, and J already include limitations for BOD. EPA has determined that with the addition of limitations for ammonia (as nitrogen) where they did not exist previously and new limitations for total nitrogen, regulation of these parameters for these subcategories effectively controls these pollutant discharges of concern.

EPA has decided not to regulate total phosphorus in today's final rule for any subcategory. In a change from the proposed rule, EPA did not set limitations or standards for total phosphorus because it did not select a technology option for the final rule that controls phosphorus (*i.e.*, Option 2.5 + P or Option 4). In general, Option 2.5 + P and Option 4 were either not economically achievable, not cost-effective for phosphorus removal, or not available or demonstrated technology for a subcategory. The decision to not select a technology option that controls phosphorus is subcategory-specific and the reasons are explained in detail in Section VII.

2. How Has Reporting of Fecal Coliforms Changed?

EPA proposed a maximum of 400 MPN (most probable number) per 100 ml at any time of fecal coliforms for the BPT limitations and NSPS for Subparts K and L (poultry subcategories). These proposed limitations/standards were the same as the current BPT in place for Subparts A–J, which EPA did not propose to change. Based on analyses conducted for the proposed rule, EPA tentatively determined that poultry facilities could achieve this level.

Commenters requested that EPA allow monitoring of fecal coliforms to be reported in units of colony forming units (CFU) per 100 milliliters (mL) in addition to MPN per 100 mL specified in the existing regulations. Results from either technique can be considered comparable, as long as the analyzed volume is equivalent. Therefore, EPA revised the limitations and standards to allow results to be reported in either MPN units or CFU units per 100 mL. See Section V.C.1 of the NODA for additional information (68 FR 48484, August 13, 2003).

Finally, today's final rule will correct 40 CFR 432 for Subparts A through J to delete the monthly average limitations/standards for fecal coliforms and pH leaving only daily maximum limitations and standards. Because the values are currently the same for the daily maximum limitations/standards and the monthly average limitations/standards, EPA does not expect that any facility will need to change its operations with the elimination of the monthly average limitations/standards currently codified in the CFR for fecal coliforms and pH. As discussed in the NODA (68 FR 48499; August 13, 2003), 40 CFR 432 currently specifies both monthly average limitations/standards and daily maximum limitations (at the same limitations) for fecal coliforms and pH, while the text of the final rules published in the **Federal Register** (39 FR 7900; February 28, 1974 and 40 FR 906; January 3, 1975) included only daily maximum limitations and standards for those parameters. For today's final rule the subparts regulating the discharge of fecal coliforms include the following daily maximum limitation/standard: a maximum at any time of 400 MPN (or CFU)/100 mL. For the subparts regulating pH, the daily maximum limitation/standard is: within the range of 6.0 to 9.0.

C. Costs and Economic Impacts

1. How Has the Methodology Changed for Calculating the Costs To Upgrade Facilities as a Result of This Rule?

EPA proposed to establish effluent limitations based on the performance of biological wastewater treatment designed and operated to achieve a specified degree of denitrification (*i.e.*, reduced total nitrogen). To estimate the costs of the proposed rule, EPA used a model facility approach, applied frequency factors to obtain national estimates, and applied an existing computer model (Computer Assisted Procedure For Design And Evaluation Of Wastewater Treatment Systems (CAPDET)) used for determining capital and operating and maintenance costs for various wastewater treatment unit operations. Based on public comments on the proposed costing approach and the incorporation of new data following proposal, EPA revised its approach for developing national estimates of compliance costs for the MPP industry, as presented in the NODA. For the costs presented in the NODA, EPA developed its own computer model specific to the MPP industry using a more facility-specific approach for the surveyed facilities and applying survey weights to obtain national estimates. See Section III of the NODA for more detailed information (68 FR 48479; August 13, 2003).

Since the NODA was published, EPA has made some additional changes to the cost model. Based on comment, EPA has further modified the cost models and reviewed the assessment of current treatment-in-place (see DCN 300–004, Section 10 of the TDD, and Record Section 28 of the rulemaking docket). The changes in the cost models include revising the values of the constants used

in the model, accounting for the use of lime as an alkalinity source, including costs for a holding/polishing pond with seven day retention, and limiting the nitrate recycle rate to a maximum of five times the influent flow when costing facilities for Option 2.5 technology and higher. See Section VIII of today's preamble for a discussion of the cost estimates for the final rule.

2. How Has the Methodology for Closure Analysis Changed?

For the proposed rule, EPA projected facility-level economic impacts using a probability model derived from Census data because detailed survey financial information was not available at that time. As discussed in the NODA, fewer than 40 percent of direct discharging facilities provided facility-level financial data in the detailed survey. Industry stated that many companies in the MPP industry do not maintain financial records at the facility level, which is how EPA typically evaluates economic impacts. Instead they maintain their financial records at, for example, the company level, division level or product line level. As a result, EPA could not directly scale up its facility-level closure analysis to produce a national projection of closures. Therefore, EPA used two approaches to deal with the lack of facility-level financial data. First, EPA adjusted the weights of facilities that did provide financial data to account for facilities that did not provide that data. Second, EPA performed a subsidiary company-level analysis to supplement the primary facility-level analysis.

For the final rule, EPA used a combination of the probability model approach developed for the proposed rule, and the closure model based on detailed survey data. EPA used this combination of modeling approaches because in Subcategories F–I, Subcategory J, and Subcategory L, too few direct discharging facilities submitted detailed surveys to estimate costs and project national economic impacts adequately. In these subcategories EPA used data from direct discharge screener survey facilities to estimate compliance costs and used the probability distribution model to project economic impacts. In Subcategories A–D and Subcategory K, EPA used the closure model approach based on detailed survey data to project impacts. Finally, based on comments to the NODA, EPA projects a facility will close if the present value (PV) of future compliance costs exceeds the forecast PV of net income under two of the three forecasting methods described in Section IX. For the NODA, EPA projected closure when the costs exceeded the forecast PV of net income under three of the five forecasting methods. EPA has also analyzed closures using a more conservative assumption that a facility closes if the PV or future compliance cost exceeds the forecast PV of net income under one of three forecasting methods. See Section VI.A of the NODA (68 FR 48487; August 13, 2003) and Section IX of today's preamble for more detailed information.

D. Loadings

1. How Has the Methodology Changed for Calculating the Pollutant Loadings Generated by Regulated Facilities?

As discussed in the NODA (68 FR 48482; August 13, 2003), EPA revised the proposed model facility group approach in order to develop pollutant loadings and load reductions that are consistent with the revised costing methodology, which is based on a facility-level analysis. EPA developed the baseline loadings presented in this final rule using facility-specific effluent data submitted with the detailed surveys or obtained from Discharge Monitoring Reports (DMRs) from the Permit Compliance System (PCS), a computerized data base of DMR reported effluent values. For facilities without monitoring information for some pollutants, EPA used a default data set. Default baseline concentrations were developed using data from surveyed or sampled facilities that use the same type of pretreatment technology/treatment technology and that had similar operations. See Section VIII of today's preamble and Section 11 of the Technical Development Document for more detailed information on estimating pollutant loads and reductions.

Because the final long-term averages on which the limits are based were developed fairly late in the rulemaking process due to the receipt of late submissions of data from industry, some of which was requested by EPA, to clarify issues raised by commenters after the NODA, EPA estimated facility-by-facility pollutant load reductions for each of the technology options by using the target effluent concentrations developed prior to the development of the final long-term averages (LTAs) used for calculating limitations and standards. The final LTAs used for developing limitations are either less stringent or the same as the target effluent concentrations used for developing pollutant load reductions and compliance cost estimates. Although the target effluent concentrations and the final rule LTAs are not identical, EPA considers its estimates of pollutant load reductions and costs for today's final rule to be generally representative of the load reductions and costs that will be realized based on the limitations and standards that the Agency is promulgating today. EPA calculated pollutant load reductions as the difference between the baseline pollutant load and option-specific pollutant load.

2. How Have the Target Effluent Concentrations Used for Calculating Loadings Changed?

The target effluent concentrations used to estimate pollutant load reductions and compliance costs for the final rule have not changed from those EPA used in the NODA (see 68 FR 48482; August 13, 2003 for non-small facilities in Subcategories A–D and K and see Section 10 of the TDD for Subcategories F–J and L non-small and small facilities). As noted in the previous section, the final LTAs are not identical to the target effluent concentrations, but EPA considers the target effluent concentrations still generally representative.

E. Environmental Assessment

1. How Has the Methodology Changed for Modeling Water Quality?

In the proposed rule, EPA used the National Water Pollution Control Assessment Model (NWPCAM) version 1.1 to estimate environmental impacts to surface water quality resulting from implementation of the proposed rule. Ecological effects such as habitat degradation were noted but not quantified to avoid double-counting benefits derived using NWPCAM version 1.1. Habitat degradation can result from increased suspended particulate matter and total suspended solids were already accounted for in NWPCAM. In response to comments that NWPCAM did not incorporate nutrients, EPA used an updated version of NWPCAM which simulates concentrations of nitrogen and phosphorus to more fully estimate the water quality change and the associated monetized benefits associated with the provisions in today's rule. Commenters also had concerns about the missing sources of loadings in the model, especially nonpoint and point sources that were not captured in NWPCAM version 1.1. For the final rule, EPA used NWPCAM version 2.1, which models water quality using a stream reach network with greater resolution and

incorporates additional point and nonpoint source loadings.

2. How Has the Methodology Changed for Determining Recreational Benefits?

The benefits analysis for the proposed rule used two methods to estimate a household's willingness to pay for improvements in water quality: (1) A water quality ladder and (2) a continuous water quality index (WQI). In the final rule, a continuous water quality index was used to estimate a household's willingness to pay for improvements in water quality. The ''continuous'' method was suggested by Mitchell and Carson (1993) as a means to attribute benefits to marginal water quality improvement whether or not it happened to be of sufficient magnitude to result in reclassification to a higher use class. The benefits analysis of the proposed MPP regulation presented both methods in order to contrast their results. The ''continuous'' method of monetizing water quality benefits from WQI changes used in the analysis of the proposed rule was further revised in the benefit assessment for the final effluent limitation guidelines for concentrated animal feeding operations (CAFOs), as explained in the NODA (68 FR 48492; August 13, 2003). This revision included the application of a benefit transfer function developed from the results of the Mitchell and Carson survey. EPA believes the water quality index and the Mitchell-Carson valuation function may help address some concerns associated with the NWPCAM monetization of benefits at proposal. The benefits methodology for the final rule is discussed in more detail in Section X.

3. How Has the Methodology Changed for Determining Toxicity Assessment?

In the proposed rule, EPA did not undertake a toxicity assessment. As noted in the NODA (68 FR 48493; August 13, 2003), EPA performed an exploratory analysis employing stream dilution modeling techniques, which do not take into account fate processes other than complete immediate mixing, to assess the potential impacts of releases of ten pollutants (ammonia, barium, chromium, copper, manganese, molybdenum, nickel, titanium, vanadium, and zinc) from the 53 detailed survey MPP facilities for which sufficient data were available to model. Based on the results of this assessment, EPA's assessment did not identify meaningful health or aquatic life benefits associated with the selected BPT or BAT options. EPA thus did not conduct further analyses of these types of impacts.

F. Treatment Options

1. What Changes Were Made to the Costed Treatment Option for Each Subcategory?

Table V.F–1 summarizes the treatment options for each of the meat and poultry product subcategories that formed the basis for the proposed limitations and standards as well as those that are the basis of this final rule. See Section VII of today's preamble for the identification of the technology basis for each option and a discussion of how the options were selected for the final rule. In a change from proposal, as discussed in the NODA (68 FR 48499; August 13, 2003), EPA is not pursuing Option 3 as a technology basis for the final rule. This is because the only MPP facility (a poultry slaughtering facility) to identify Option 3 technology on their survey was not able to provide EPA with supporting data (*i.e.*, nitrate/nitrite, total Kjeldahl nitrogen (TKN), or total nitrogen effluent concentrations). Therefore, EPA did not have a facility to use as the basis for establishing long-term average concentrations for Option 3. The only facilities determined to have complete denitrification also used chemicals to remove phosphorus. EPA classified these facilities as Option 4.

TABLE V.F–1.—SUMMARY OF TECHNOLOGY OPTIONS BY SUBCATEGORY AND SIZE

Subcategory	Size threshold for final rule	Facility type	Proposed rule	Final rule
A–D: Meat First Processors.	Non-small (>50 million lbs/yr).	Existing	BPT: Option 2 BAT: Option 3	BPT: Nitrification (Option 2/2.5) for ammonia (as nitrogen), no revision for conventionals. BAT: Option 2.5 for total nitrogen.
		New	Option 3	NSPS = BPT for ammonia (as nitrogen). NSPS = BAT for total nitrogen. No revision for conventionals.
	Small (≤50 million lbs/yr).	Existing/New	No revision	No revision.
E: Smallest Meat Further Processors.	Small (≤1,560,000 lbs/yr).	Existing/New	No revision	No revision.
F–I: Meat Further Processors.	Non-small (>50 million lbs/yr).	Existing	BPT: Option 2 BAT: Option 3	BPT: no revision. BAT: Option 2.5 for total nitrogen, no revision for ammonia (as nitrogen).
		New	Option 3	NSPS = BAT (Option 2.5) for total nitrogen. NSPS = Nitrification (Option 2/2.5) for ammonia (as nitrogen). No revision for conventionals.
	Small (>1,560,000 but ≤50 million lbs/yr).	Existing/New	No revision	No revision.
J: Independent Renderers.	(>10 million lbs/yr)	Existing	Option 2	BPT: no revision. BAT: Option 2.5 for total nitrogen, no revision for ammonia (as nitrogen).
		New	Option 2	NSPS = BAT for total nitrogen. No revision for ammonia (as nitrogen) and conventionals.
K: Poultry First Processors.	Non-small (>100 million lbs/yr).	Existing	Option 3	BPT: Nitrification (Option 2/2.5) for ammonia (as nitrogen) and conventionals. BAT: Option 2.5 for total nitrogen, BAT= BPT for ammonia (as nitrogen).

TABLE V.F–1.—SUMMARY OF TECHNOLOGY OPTIONS BY SUBCATEGORY AND SIZE—Continued

Subcategory	Size threshold for final rule	Facility type	Proposed rule	Final rule
		New	Option 3	NSPS = BPT for ammonia (as nitrogen) and conventionals, NSPS = BAT for total nitrogen.
	Small (≤100 million lbs/yr).	Existing	Option 1	No regulation.
		New	Option 1	Nitrification (Option 2/2.5) for ammonia (as nitrogen), Option 2 for conventionals.
L: Poultry Further Processors.	Non-small (>7 million pounds/yr).	Existing	Option 3	BPT: Nitrification (Option 2/2.5) for ammonia (as nitrogen) and Option 2 for conventionals. BAT: Option 2.5 for total nitrogen, BAT= BPT for ammonia (as nitrogen).
		New	Option 3	NSPS = BPT for ammonia (as nitrogen) and conventionals, NSPS = BAT for total nitrogen.
	Small (≤7 million pounds/yr).	Existing	Option 1	No regulation.
		New	Option 1	Nitrification (Option 2/2.5) for ammonia (as nitrogen), Option 2 for conventionals.

G. Limitations

1. Are the Limitations Production-Based or Concentration-Based?

The current limitations that are not being changed by this rule will continue to be production-based. New limits and ammonia limits for certain MPP subcategories that have changed due to today's rule are concentration-based (*e.g.*, in milligrams per liter). See Section XII for a discussion on how the rule will be implemented.

EPA received several comments from industry about the need to use more water to properly implement USDA's Hazard Analysis and Critical Control Point (HACCP) program. USDA initiated the HACCP program to increase food safety and decrease the risk of food-borne illness while allowing facilities more flexibility in processing procedures. One aspect of this HACCP rule requires meat and poultry products facilities to develop and implement standard operating procedures (SOPs) for sanitation. Based on comments, EPA concluded that many facilities implementing the sanitation SOPs had increased their use of water to clean processing equipment and surfaces. EPA does not want to discourage good sanitation SOPs and compliance with HACCP by setting production-based limitations which might result in restricted water use during periods of increased production. Therefore, for all new or revised limitations/standards in today's final rule, EPA is using a concentration basis. Concerns over dilution are outweighed by the need for food safety. In addition, the NPDES regulations prohibit dilution, and permit writers who are concerned about dilution may convert the concentration-based limitations to mass-based limitations using a reasonable measure of facility-specific flow based on the time period after HACCP was implemented at the facility.

2. What Changes Did EPA Make to the Methodology for Calculating Long-Term Averages (LTAs) and the Limitations and Standards Promulgated Today?

Based on comments about its data selection and the amount of data used, EPA has reviewed data from additional sampling episodes and facility self-monitoring data in developing the final limitations and standards in today's rule. (In this section, a reference to limitations also includes new source performance standards.) EPA also reevaluated the appropriateness of the data it relied on in evaluating the different treatment options at the time of the proposal and for the NODA. As a consequence, EPA has retained some data sets used for the proposal and/or NODA and excluded others from the calculations. EPA also has re-evaluated the technology determinations associated with the data sets based on comments and discussions with facilities. As a consequence, EPA has moved some data sets from one option to another. The discussion below provides further explanation of these changes and how these changed the analyses used for EPA's final technology determinations and the calculation of the final limitations.

For the final rule, EPA used the average effluent concentrations presented in the NODA to evaluate the costs and pollutant removals associated with Options 1 through 4 of the final rule. The results of this assessment are explained in detail at Section VII of the preamble.

After the close of the NODA comment period, based on comments and data concerning the Option 2.0 and 2.5 technologies—the technology bases that were ultimately selected for the final rule for the limitations and standards for both the meat and poultry subcategories—EPA revised the target effluent concentrations to develop the final LTAs. This resulted from EPA's reassessment of its earlier selection of model facilities and a recalculation of the long-term average concentration based on a reconsideration of the performance of these facilities. The revised LTAs were higher than the NODA average effluent concentrations.

Because EPA relied for its reassessment on some of the data that were submitted after the close of the NODA comment period, EPA was not able to fully reflect the revised LTAs in its analyses of costs, removals, economic impact, cost-reasonableness and cost-effectiveness of the technology options selected for the final limitations and standards for Option 2 and Option 2.5. However, EPA did perform a supplemental analysis using a revised LTA for nitrogen that was close to the LTAs upon which the final limitations are based. In addition to using this revised LTA for total nitrogen in the supplemental analysis of costs for both the poultry and meat subcategories, EPA also used other information that was received in late comments including treatment-in-place classifications, additional costs for methanol, and longer storage duration for emergency holding ponds. EPA is presenting the results of this supplemental analysis in the TDD (costs and removals) and the

EEBA (economic impacts, cost-reasonableness, and cost-effectiveness). Based on this analysis, EPA estimates that the total annualized pre-tax compliance costs of the rule could be $52 million (a decrease from the $58.2 million estimate in EPA's primary analysis) and the removals of total nitrogen could be 20.6 million pounds per year (a decrease from the 27 million pounds per year estimate in the primary analysis). EPA has concluded that the results of the supplemental analysis would not change EPA's selection of the technology bases for BPT, BAT, and NSPS, or its determination that the final rule is economically achievable, cost-reasonable, and nutrient cost-effective.

As noted above, EPA did not use the NODA average effluent concentrations for calculating the final effluent limitations and standards. Rather, EPA based the final LTA concentrations on further consideration of the performance of facilities using the model BPT and BAT technologies and additional data and information provided in comments on the NODA.

In particular, regarding the total nitrogen LTA, commenters were concerned about EPA's intention to transfer the poultry total nitrogen LTA for use in the development of the limitations and standards for meat facilities. Commenters demonstrated that the average influent nitrogen concentrations (*i.e.*, TKN) at meat facilities are almost two times higher than the average influent nitrogen concentration at poultry facilities which may affect their ability to consistently achieve the same effluent concentrations using the BAT technology. For the final rule, EPA thus selected the model poultry facility with an influent nitrogen concentration that was closest to the average influent nitrogen concentration at meat facilities. This led to a total nitrogen LTA for meat facilities that was about 20% less stringent than the total nitrogen LTA for poultry facilities. Further, based on comments concerning the excess detention times in the anoxic basins of the two partial denitrification facilities that were used to set the limitations (EPA used one of the facilities to calculate the LTAs for meat facilities and both were used for poultry facilities), EPA reassessed its estimates of the variability among denitrification rates at BAT facilities and determined that an additional factor to reflect lower denitrification rates at some facilities was appropriate for calculating the final nitrogen limitations. This factor was related to the consideration of several variables, including anoxic basin size, BOD/TKN ratio, and influent total nitrogen variability (see DCN 300–017).

In regard to the ammonia (as nitrogen) and conventional pollutant LTAs, based on comments regarding the use of all data EPA collected, EPA reevaluated its full effluent database (*i.e.*, including data from facilities that only provided data reported as summarized monthly averages). As a result of this reevaluation, EPA further revised its selection of model facilities for use in developing the ammonia (as nitrogen) and conventional pollutant LTAs for the rule. (See DCNs 300–011, 300–012, and 300–013.) In addition, comments were received that seasonal changes in performance or wastes to be treated with respect to the biological nitrification portion of the process would affect the ability to meet ammonia limits. Following evaluation of the ammonia data, including the effects of seasonal variability, EPA calculated the final limitations using the most representative facility's data and applied a seasonality adjustment factor to the final limitations. All of these revisions were designed to ensure that facilities operating the selected technology would be able to achieve all of the limitations and standards of the final rule in all seasons of the year. See Section 14 of the TDD for the final rule for discussion of the data sets used to develop the final limitations and standards for these subcategories and pollutants.

Although EPA recalculated effluent limitations using the new LTAs identified above, EPA determined that it was not necessary to make further revisions to its cost and removal assessments beyond the supplemental analyses discussed above. EPA recalculated the LTAs in order to ensure that the effluent limitations guidelines being promulgated today reflect the best and most current information available to EPA regarding the performance of the BPT and BAT facilities. Because these effluent limitations guidelines become the basis for enforceable permit limitations, EPA concluded that this refinement is justified. EPA's estimates of costs and removals, however, have a different function. Unlike the limitations, they are not binding. Rather, EPA uses this information as a basis for evaluating which BPT and BAT candidate technologies under consideration best meet the statutory requirements. EPA has determined that the analyses based on the NODA average effluent concentration, along with the supplemental analysis, remain generally applicable to the technology options considered and use of the final LTAs in calculating the costs and removals would not have changed EPA's conclusions about the technology on which it should base the final limitations. The new LTAs are not significantly different from the LTAs used as the basis for EPA's supplemental analysis, and EPA has concluded that the final revisions to the LTAs would not change the cost and removal estimates in a material way. In other words, when considering the refined versions of the LTAs developed for purposes of calculating the limitations in light of the analyses it conducted, EPA continues to conclude that the chosen technology bases meet the CWA requirements for BPT, BAT, and NSPS. For these reasons, EPA believes it is appropriate not to recalculate the costs and removal estimates to reflect the new LTAs being used to calculate the final limitations and standards. To do so would not have materially changed the results.

In conjunction with its review of its statistical models, EPA performed an engineering review to verify that the limitations are reasonable based upon the design and expected operation of the control technologies and the facility process conditions. As part of the engineering review, EPA examined the range of performance from facilities with Option 2.5 technology as indicated by the facility effluent for those facilities whose data were used to calculate the limitations and those that were not used as a basis for the limitations. Some facility data sets demonstrated the best available technology and achieved the expected performance level. Other facility data sets reflected inadequate performance, either in the manner the facility operates the technology or because of design differences in the technology. For these facilities, EPA has evaluated the impact of the costs to the industry for facility upgrades to its design, operating, and maintenance conditions to meet the limitations (see Section VIII.B for discussion of compliance cost methodology).

As discussed in the NODA and in more detail in Section VII.B of today's final rule, EPA did not identify any non-small meat first processing facilities (Subcategories A–D) that meet EPA's criteria for selection as operating as a BAT Option 2.5 facility. Therefore, in developing limitations associated with Option 2.5 for meat first processing facilities, EPA transferred the long-term average concentration for total nitrogen from a well-operated Option 2.5 poultry first processing facility and, as discussed above, included an additional factor to adjust the final total nitrogen limitations to account for variable denitrification rates and ensure

achievability. EPA included costs (such as costs for lagoon bypass, additional carbon source, or two-stage denitrification) for the meat first processing facilities to achieve the Option 2.5 LTA for total nitrogen.

Because commenters stated that two-stage denitrification should not be part of EPA's definition of Option 2.5 technology, EPA reviewed the costs for the five non-small meat first processors (Subcategories A–D) in EPA's database that EPA had costed for two-stage denitrification in the preliminary cost analysis due to their high influent TKN (*i.e.*, greater than 200 mg/L) levels. EPA then developed alternate costs for these facilities in the supplemental analysis, including costs for additional pretreatment using DAF and alum addition (to reduce the TKN load to the biological nutrient removal system) followed by single-stage denitrification. On a site-specific basis, these costs were both lower and higher than the costs EPA estimated for its original analysis, but were still within the range that EPA considers economically achievable. These alternate cost estimates do not result in any additional economic impacts (*i.e.*, closures). Details of the supplemental analyses are provided in Section 10 of the TDD and in the EEBA.

3. How Has the Monitoring Frequency Changed?

In developing the proposed maximum monthly limitations and standards, EPA had assumed a monitoring frequency of thirty samples per month (*i.e.*, daily monitoring) which had been the assumption for the previously promulgated limitations. In the proposal (67 FR 8632), EPA solicited comment on whether small poultry facilities should have monthly limitations/standards based upon 20 days, rather than 30 days, because they would be unlikely to operate on weekends. In response, EPA received comments that stated that monitoring every day during the month was too frequent for all facilities; one commenter requested sampling once per week. An analysis of existing permits for MPP facilities showed that the monitoring frequency ranged from daily to weekly to monthly. EPA agrees with the commenters and has reduced the assumed monitoring frequency to weekly (approximately four times a month) for any new limitations and standards promulgated in this rulemaking. EPA incorporated this assumed monitoring frequency into the monitoring costs and determination of the limitations for the final rule. This rule does not establish minimum monitoring frequencies. The decision regarding the actual frequency at which facilities must monitor for compliance with today's limitations and standards is left to the permit writer. See 40 CFR 122.44(1) and 122.48.

VI. Applicability

A. To Whom Does This Rule Apply?

This regulation applies to meat facilities and poultry and small game facilities (referred to as ''poultry facilities'' for convenience) that discharge their wastewater directly into waters of the U.S. (*e.g.*, stream, lake, ocean) and are required to obtain an NPDES permit. Facilities that send their wastewater to a publicly owned treatment works (POTW) are not subject to this final rule; they remain subject to 40 CFR 403 and their local limits (see sections VI.G and XII.A.2).

Facilities above certain production thresholds (see Table VI.H–1 for subcategory-specific production thresholds) who are involved in any of the following activities are subject to this rule:

- Slaughtering (first processing) meat or poultry or both
- Further processing meat or poultry or both
- Rendering meat or poultry or both.

Operations or processes for which EPA has not promulgated effluent limitations guidelines and standards are subject to technology-based limitations determined on a case-by-case basis under 40 CFR 125.3.

B. What Is a First Processor?

A first processor is a facility that slaughters live animals and produces whole or cut-up carcasses. First processing operations can include the assembly and holding of animals for slaughter, killing, bleeding, removal of hide or hair or feathers, evisceration and variety meat (organ) harvest, carcass washing, trimming, carcass chilling and refrigeration, and cleanup. For the purposes of this rule, a facility is still a first processor if it performs other operations in addition to slaughtering such as further processing or rendering and is only subject to the limitations for first processors.

First processors include facilities classified as simple slaughterhouses (40 CFR 432 Subpart A), complex slaughterhouses (Subpart B), low-processing packinghouses (Subpart C), and high-processing packinghouses (Subpart D), in addition to the newly created Subpart K for poultry first processors.

C. What Is a Further Processor?

A further processor is a facility that performs operations which utilize whole carcasses or cut-up meat or poultry products for the production of fresh or frozen products. Further processing operations may include the following types of processing: Cutting and deboning, cooking, seasoning, smoking, canning, grinding, chopping, dicing, forming, breading, breaking, trimming, skinning, tenderizing, marinating, curing, pickling, extruding and/or linking. A facility is still a further processor if it performs other operations in addition to further processing such as rendering (but not slaughtering) and is only subject to the limitations for further processors.

Meat further processors include facilities classified as small processors (40 CFR part 432 Subpart E), meat cutters (Subpart F), sausage and luncheon meats processors (Subpart G), ham processors (Subpart H), and canned meats processors (Subpart I), in addition to the newly created Subpart L for poultry further processors.

D. What Is An Independent Renderer?

A renderer processes slaughtering by-products (*e.g.*, animal fat, bone, blood, hair, feathers, dead animals) from either poultry or meat into usable products. An independent renderer is subject to 40 CFR part 432 Subpart J and is a facility that performs rendering operations at a production rate greater than 10 million pounds per year and does not do any first or further processing.

E. What Is Included as Meat? What Is Included as Poultry?

For today's rule, ''meat'' includes cattle, calves, hogs, sheep, lambs, horses, and all other animal species except poultry, other birds, rabbits, and other small game.

''Poultry'' includes chickens, turkeys, ducks, other birds, rabbits, and other small game.

F. What if a Facility Processes Both Meat and Poultry? How Is it Categorized?

Facilities that discharge wastewater from both meat and poultry processing operations will have to comply with limitations and standards for two subcategories. Permit writers would use the ''building block approach'' based on production or wastewater discharge flow to apply the two sets of limitations into one final effluent limitation in the facility's permit. See Section XII of today's preamble for a discussion on how the rule will be implemented.

G. Are Indirect Dischargers Covered by This Final Rule?

EPA is not establishing pretreatment standards for existing or new sources in today's final rule. Indirect dischargers (*i.e.*, facilities that discharge their MPP process wastewater to a publicly owned treatment works) remain subject to the General Pretreatment Standards (40 CFR 403) and local limitations.

The current part 432 regulations do not include pretreatment standards (beyond a cross-reference to the General Pretreatment Standards) and EPA did not propose to add them. However, as discussed in the NODA (68 FR 48477; August 13, 2003), following the publication of the proposal, EPA continued to gather additional data to determine whether or not national categorical pretreatment standards were necessary for the MPP industry. In addition, EPA received comments on the proposal and NODA regarding the necessity of pretreatment standards for the MPP industry. Most commenters supported EPA's proposed decision to not promulgate pretreatment standards for new and existing indirect dischargers.

Based on the data gathered through the EPA Regional offices and the comments EPA received on this subject, EPA determined that there was not sufficient evidence of pass through or interference from MPP facilities to warrant establishing national pretreatment standards for these facilities. For further discussion and to review the data gathered, see DCN 115–077 in the docket for today's notice.

In today's final rule, EPA has removed the current cross-reference to the General Pretreatment Standards (40 CFR part 403) under PSES and PSNS for all subcategories. EPA found that this cross-reference was potentially confusing and duplicative. All process wastewater discharges to publicly owned treatment works (regardless of point source category) are subject to part 403 regardless of whether it is specified in the codified regulatory text or not.

H. What Changes Have Been Made to the Regulations for Meat Products?

Today's action revises Part 432 in a number of respects discussed elsewhere in today's **Federal Register** Notice. These revisions include promulgation of effluent limitations guidelines and standards for poultry processors, which are presented in two new subparts (subparts K and L), and the promulgation of limitations and standards for ammonia and nitrogen for certain pre-existing subcategories. EPA has also adopted a new applicability statement for Part 432 to account for the new poultry subcategories and has consolidated into a General Definitions section definitions that in the past had been repeated for each subcategory. The new General Definitions section, codified at § 432.2, contains some new definitions, some revised definitions, and some previously codified definitions that remain unchanged. EPA has also removed as unnecessary provisions in Part 432 that require indirect dischargers to comply with 40 CFR Part 403, because those requirements speak for themselves.

For the convenience of the reader, today's rule presents Part 432 in its entirety. This presentation includes reprinting portions of Part 432 for which EPA is making no substantive changes today. Those portions of the existing MPP effluent limitations guidelines and standards that are not substantively amended by this action are not subject to judicial review; nor is their effective date affected by today's action.

Table VI.H–1 explains the changes and additions made to the earlier regulation for meat slaughterhouses, packinghouses, and further processors. The earlier regulation did not have production thresholds distinguishing between small and non-small categories, and it did not have Subcategories K and L for poultry slaughterers and further processors.

TABLE VI.H–1.—SUMMARY OF CHANGES BY SUBCATEGORY AND SIZE

Subcategory	Size	Description	Changes made by this rule
A–D: Meat First Processors.	Small	Slaughters ≤ 50 million lb/yr live weight killed (LWK) of meat.	No revision.
	Non-small	Slaughters > 50 million lb/yr LWK of meat	Set BPT limit for ammonia. No revision for BPT/BCT for conventional pollutants. Set BAT limits for nitrogen. Set BAT limits for ammonia = BPT. Revise NSPS for ammonia = BPT. Set NSPS for total nitrogen = BAT. No revision for NSPS for conventional pollutants.
E: Meat Small Further Processors.		Produces ≤ 6,000 lb/day of meat finished product	No revision.
F–I: Meat Further Processors.	Small	Produces > 6,000 lb/d but ≤ 50 million lb/yr of meat finished product.	No revision.
	Non-small	Produces > 50 million lb/yr of meat finished product.	No revision for BPT/BCT. Set BAT limits for nitrogen. No revision to BAT limits for ammonia except for Subcategory G. Set NSPS for total nitrogen = BAT. Set NSPS for ammonia. No revision to NSPS for conventional pollutants.
J: Independent Renderers.		Renders > 10 million lb/yr of raw material (meat and/or poultry).	Lower production rate in definition from 75,000 pounds per day to 10 million pounds per year. No revision for BPT/BCT. Set BAT limits for nitrogen. No revision to BAT limits for ammonia. Set NSPS for total nitrogen = BAT. No revision to NSPS for conventional pollutants or ammonia.
K: Poultry First Processors.	Small	Slaughters ≤ 100 million lb/yr LWK of poultry	No national limitations, except for new sources. Set NSPS for BOD_5, TSS, O&G (as HEM), pH, ammonia & fecal coliforms.

TABLE VI.H–1.—SUMMARY OF CHANGES BY SUBCATEGORY AND SIZE—Continued

Subcategory	Size	Description	Changes made by this rule
	Non-small	Slaughters > 100 million lb/yr LWK of poultry	Set BPT/BCT/NSPS limits for BOD_5, TSS, O&G (as HEM), pH, ammonia & fecal coliforms. Set BAT and NSPS limits for total nitrogen. Set BAT limits for ammonia = BPT.
L: Poultry Further Processors.	Small	Produces ≤ 7 million lb/yr of poultry finished product.	No national limitations, except for new sources. Set NSPS for BOD_5, TSS, O&G (as HEM), pH, ammonia & fecal coliforms.
	Non-small	Produces > 7 million lb/yr of poultry finished product.	Set BPT/BCT/NSPS limits for BOD_5, TSS, O&G (as HEM), pH, ammonia & fecal coliforms. Set BAT and NSPS limits for total nitrogen. Set BAT limits for ammonia = BPT.

I. What Wastewaters Are Covered?

This rule covers wastewater generated by the following meat and poultry product operations: first processing, further processing, and rendering. Examples of this type of wastewater include water from carcass washing, bird washing before and after evisceration, water used in scalding in the process of feather removal, chilling, cleaning and sanitizing of equipment and facilities, and other process area cleanup, including washing out trucks and animal holding areas. Stormwater that is associated with these activities is also included.

This rule does not include non-process wastewater such as non-contact cooling water, sanitary wastewater, and stormwater that is not associated with industrial activity.

J. Which Pollutants Have Limitations and Standards Established by This Rule?

EPA is establishing limitations and standards for 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), pH, oil and grease (as hexane extractable material), fecal coliforms, ammonia (as nitrogen), and total nitrogen. However, for some subcategories EPA will not be revising current limitations for all or some pollutants (*e.g.*, conventional pollutants) and will therefore only be establishing limitations and standards for some of these pollutants (*e.g.*, total nitrogen).

EPA has decided not to regulate total residual chlorine in today's final rule, even though EPA evaluated it for regulation for the MPP industry. When there is residual chlorine (*i.e.*, chlorine is not used up to inactivate bacteria), this chlorine can react with organic compounds such as humic materials (*i.e.*, forms of organic carbon created by decaying organic matter) and form other chlorinated organic compounds such as trihalomethanes (*e.g.*, bromoform, chloroform, bromodichloromethane, dibromochloromethane). Trihalomethanes are a potential human health concern in drinking water. However, treatment processes that meat and poultry products facilities use to remove biochemical oxygen demand and other parameters also reduce the concentrations of organic compounds in the discharged wastewater and, therefore, lessen, to some extent, the potential for the formation of trihalomethanes.

Disinfection via chlorination is part of the BAT technology basis for the final limitations and standards for today's final rule. Therefore, EPA used chlorination to estimate compliance costs for disinfection in the cost model; however, this regulation does not require the use of a specific technology-based process for disinfection. Thus, facilities may use disinfection technologies other than chlorination to comply with this final rule. Other effective methods exist besides chlorinating with free chlorine (*e.g.*, use of chloramines, ozone, ultraviolet radiation) that may not form the same level or type of by-products. In addition, the environmental effects of disinfection by-products depend on the characteristics and uses of the receiving water. These considerations persuade EPA that disinfection by-products from MPP facilities are best controlled through individual NPDES permit limits on a facility-by-facility basis.

In fact, for non-small facilities that responded to EPA's detailed survey, 63 percent of facilities in Subcategories A-D (meat first processors) and 48 percent of facilities in Subcategory K (poultry first processors) already have limits in their NPDES permits for total residual chlorine. An additional 5 percent of meat first processors and 12 percent of poultry first processors have monitoring requirements for total residual chlorine without corresponding limits. Therefore, EPA concluded that the current system is working well in addressing any residual chlorine issues. When a chlorinated discharge enters U.S. waters that are high in organic carbon content, then it is a local water quality issue best addressed through a tailored, individual NPDES permit.

See Section V.B for discussion of pollutants that EPA proposed for regulation but did not regulate in the final rule (*i.e.*, COD and total phosphorus).

K. Does This Regulation Impose Monitoring Requirements ?

EPA is not promulgating any monitoring requirements in this regulation. While EPA based its limitations, statistical analysis, and corresponding cost estimates for today's rule on monitoring once per week, no such frequency is being required today. Rather, actual monitoring requirements for individual facilities are specified in the NPDES permits issued by the States (or other authorized permitting authority).

VII. What Is the Basis of the Final Regulation?

This section describes, by subcategory, the options considered and selected for today's final rule. EPA provides a discussion, as applicable, for the regulatory levels that EPA considered for regulation (*i.e.*, BPT, BCT, BAT, and NSPS) for each of the subcategories of the MPP industry. See summary in Table VII.A–1. For a detailed discussion of all technology options considered in the development of today's final rule, see the proposal (see 67 FR 8582; February 25, 2002, the NODA (see 68 FR 48500; August 13, 2003) or Section 9 of the TDD for today's final rule.

EPA has also determined that each technology it selected as the basis for the final limitations has effluent reductions commensurate with compliance costs and is economically achievable for the applicable subcategory. EPA considered the age, size, processes, and other engineering factors pertinent to facilities in the scope of the final regulation for the

purpose of evaluating the technology options. None of these factors, except size, provides a basis for selecting different technologies from those EPA selected for today's rule. As discussed in the proposal (67 FR 8582; February 25, 2002) and below, EPA is not promulgating or revising national effluent limitations for small facilities in specific subcategories. (See Section 5 of the TDD for the final rule for further discussion of EPA's analyses of these factors.)

The new source performance standards (NSPS) EPA is establishing today represent the greatest degree of effluent reduction achievable through best available demonstrated control technology. The new source technology basis is equivalent to the technology basis upon which EPA is setting BAT. In selecting its technology basis for today's NSPS, EPA considered all of the factors specified in CWA section 306, including the cost of achieving effluent reductions. EPA has thoroughly reviewed the costs of such technologies and has concluded that such costs do not present a barrier to entry (see the Economic and Environmental Benefits Analysis in the rulemaking record). The Agency also considered energy requirements and other non-water quality environmental impacts for the new source technology basis and found no basis for any different standards from those selected for NSPS. Therefore, EPA concluded that the NSPS technology basis chosen constitutes the best available demonstrated control technology. For a discussion on the compliance date for new sources, see Section XII of today's final rule.

EPA decided not to establish BPT, BCT, or BAT limitations for small facilities in Subcategories K and L (poultry first and further processing, respectively) or to revise current limitations and standards for small facilities in Subcategories A-I (see Table VI.H–1). EPA is establishing new source performance standards for new small facilities in Subcategories K and L. EPA's bases for not promulgating revised limitations or standards for small facilities are explained in the following sections. Finally, EPA decided not to establish pretreatment standards for all existing and new indirect dischargers (PSES and PSNS) for the reasons discussed in the NODA (68 FR 48477; August 13, 2003) and in Section VI.G of today's rule.

A. What Options Did EPA Consider for the Final Rule?

As discussed in the NODA (68 FR 48500; August 13, 2003), comments on the proposal requested that EPA consider modifications to the preferred options selected as the basis for the proposed limitations and standards for certain subcategories. As a result of additional data and comments, EPA reconsidered the technology options for BPT, BCT, BAT, and NSPS that EPA evaluated for the proposed rule. In the NODA, EPA presented two additional options for further consideration and comment. These additional options include primary and secondary biological treatment and disinfection, nitrification, partial denitrification, and, for one option, chemical phosphorus removal. EPA refers to these options as ''Option 2.5'' and ''Option 2.5+P.'' EPA also stated in the NODA that it was considering not revising limitations and standards for certain facilities.

For the final rule, EPA considered the full range of options (Option 1 through Option 4) for all non-small facilities (*i.e.*, facilities above the proposed subcategory-specific threshold) as well as options under which EPA would not promulgate national effluent limitations guidelines and standards for those facilities or would not revise those limitations and standards currently in place. Table VII.A–1 describes these options. For small facilities, EPA considered Option 1, Option 2, or no regulation/no revision. All technology-based options EPA considered for the final rule included some pretreatment of the wastewaters prior to biological treatment (including combinations of screening, dissolved air flotation, equalization, and chemical addition) followed by primary and secondary biological treatment and disinfection. In Table VII.A–1, EPA uses the terms ''partial'' and ''more complete'' to describe the varying degrees of nitrification and denitrification and to convey the increasing stringency of the options. Because 100 percent nitrification or denitrification is not possible, EPA chose the term ''more complete'' instead of ''complete'' to describe the more stringent technology options.

For the NODA, EPA evaluated the effectiveness of in-place denitrification technology at meat and poultry facilities. For facilities for which EPA had data, EPA identified the facilities' denitrification treatment systems and the partial denitrification levels they achieved (*e.g.*, long-term average nitrate + nitrite or total nitrogen effluent concentrations). One commenter stated that it believed that the target LTAs used to calculate costs for Option 2.5 were based upon facilities that had high nitrogen removals, regardless of the control technologies used at those facilities (*e.g.*, facilities were using two-stage denitrification equipment) and that EPA failed to clearly define partial denitrification. Following its consideration of comments received on the NODA, EPA has better defined its criteria for selecting facilities that are achieving the level of denitrification that represents Option 2.5 control (*i.e.*, partial denitrification). EPA has used long-term data with individual measurements (*i.e.*, not summarized monthly average data) for total nitrogen (or both TKN and nitrate+nitrite) from facilities employing BAT partial denitrification to determine the Option 2.5 limitation for total nitrogen. For the development of the LTA for total nitrogen, EPA considered facilities to be operating as BAT partial denitrification (Option 2.5) technology if they met all four of the following criteria:

- EPA has long-term effluent data for total nitrogen (or both TKN and nitrate+nitrite) for the facility for the period which they were operating their treatment system as Option 2.5.
- Facility had the biological treatment components of Option 2.5 technology in place and had a minimum BOD:TKN ratio of 3 at the influent to biological nutrient removal;
- Facility was achieving effluent total nitrogen concentrations below 60 mg/L; and
- Facility's current total nitrogen effluent concentration can be achieved by EPA's Option 2.5 cost model (*i.e.*, when running the cost model starting at the facility's actual influent TKN concentration, facility's actual total nitrogen effluent concentration can be achieved using single-stage denitrification and a maximum nitrate recycle rate of 5).

EPA chose 60 mg/L based on the documented total nitrogen removal of the denitrification processes that is used in EPA's cost model (Modified Ludzack-Ettinger process) which can achieve an average nitrogen removal of 70 percent. When applying 70 percent removal of total nitrogen to the average total nitrogen influent concentration (193 mg/L) at meat survey facilities, the resulting concentration is approximately 60 mg/L.

EPA developed the fourth criteria to ensure that it did not select facilities as BAT that use components of Option 2.5 technology but operate them in a way that is inadequate to achieve a degree of nitrification or approaches the performance and costs of EPA's Option 2.5 cost model. For example, based on comments from industry, EPA's Option 2.5 cost model (based on single stage denitrification) allows for a maximum nitrate recycle rate of 5 to achieve the Option 2.5 LTAs. Some facilities may

actually use a higher recycle rate when operating their system. When estimating compliance costs for such facilities, EPA's costing methodology requires the use of the Option 2.5 LTAs with a two-stage denitrification system (similar to the equipment used in the Option 4 cost model). For additional details regarding EPA's cost models or BAT facility selection for development of limitations, see Sections 10 and 14, respectively, of the TDD for the final rule.

TABLE VII.A–1.—OPTIONS CONSIDERED

Option	Description [1]
1	Biological Treatment + Partial Nitrification + Disinfection
2	Biological Treatment + More Complete Nitrification + Disinfection
2.5	Biological Treatment + Nitrification + Partial Denitrification + Disinfection
2.5 + P	Biological Treatment + Nitrification + Partial Denitrification + Chemical Phosphorus Removal + Disinfection
4	Biological Treatment + Nitrification + More Complete Denitrification + Chemical Phosphorus Removal + Disinfection

[1] **Note:** All Options are preceded by pretreatment steps.

B. What Is the Basis for EPA's Selected Technology Options for Subcategories A–D (Meat First Processors)?

In 2002, EPA proposed revised national regulations for facilities in Subcategories A–D that exceed a production threshold of 50 million pounds (live weight killed) per year. EPA proposed this threshold to reduce potential economic impacts to small facilities by allowing for different limitations for small and non-small facilities (*i.e.*, less stringent limitations for small facilities). EPA did not receive adverse comment on the production threshold and is retaining the proposed production threshold for the final rule. Therefore, this section discusses small facilities and non-small facilities separately. Costs presented in this section are presented in 1999 year dollars which is the base year of the survey; however, EPA provides updated estimates in 2003 year dollars in Section VIII.B.

1. Meat First Processors That Slaughter Less Than or Equal to 50 Million Pounds Per Year (Small)

EPA is not revising limitations or standards for small facilities in Subcategories A–D. Such facilities will continue to be subject to the current limitations in Meat and Poultry Products effluent limitations guidelines (part 432), as applicable. The current regulations include production-based limitations for these facilities for BOD, TSS, oil & grease, pH, and fecal coliforms for existing sources and standards for these same pollutants plus the addition of standards for ammonia (as nitrogen) for new sources. The following sections discuss EPA's decision to retain the current BPT, BCT, and BAT limitations and NSPS for small direct discharge facilities in Subcategories A–D.

a. BPT/BCT/BAT

EPA proposed not to revise the current BPT, BCT, or BAT limitations for existing small direct dischargers in Subcategories A–D (meat first processors). For the final rule, for these facilities, EPA evaluated the cost of achieving pollutant reductions and the economic achievability of compliance with best practicable control technology (BPT) limitations based on the Option 1 technology and the level of the pollutant reductions resulting from compliance with such limitations. Option 1 includes biological treatment, partial nitrification, and disinfection.

EPA estimated that the cost of achieving the effluent reductions for these facilities at Option 1 would be $198 per pound of pollutant removed (1999$).[1] EPA has promulgated effluent limitations guidelines in the past with costs per pound of pollutant removed as high as $37 per pound (1999$) although generally ELGs have had much lower costs per pound. Therefore, EPA evaluated the cost of the treatment technology options to small facilities using $37 per pound removed as guidance for assessing BPT cost-reasonableness.

Consequently, following this approach, EPA has determined the total costs of effluent reductions using the Option 1 technology are not reasonable in relation to the effluent reduction benefits for the following reasons. First, although EPA estimates that implementation of the Option 1 technology would result in zero closures, EPA estimates the cost of effluent reductions using Option 1 technology is $198 per pound removed. Moreover, Option 1 does not remove any additional nutrients and consequently is not ''nutrient cost-effective'' (see Section VII.B.2.c for detailed discussion on nutrient cost-effectiveness). For the reasons discussed in this section, EPA has concluded that for existing small direct dischargers in the Subcategories A–D, Option 1 is not the best practicable control technology, best conventional pollutant control technology, or best available technology economically achievable. Because the other options being considered would require more equipment and therefore more costs than Option 1, EPA assumed they would not be considered cost-reasonable. Therefore, EPA has determined that it should not promulgate revisions to the current BPT, BCT, or BAT limitations for existing small direct dischargers. These facilities will continue to be subject to the applicable portions of sections 432.10—432.40.

b. New Source Performance Standards (NSPS)

When establishing NSPS based on best available demonstrated technology, the Agency considers how the cost of complying with any more stringent effluent limitations will affect new facilities trying to enter the industry. EPA employs a barrier to entry analysis that evaluates the barrier posed to new entrants by the cost of complying with the regulation. (For further discussion, see Section IX.G.) While, as explained previously, the cost of effluent reductions for existing small A-D facilities may not be cost reasonable, it is not necessarily the case that the costs for new facilities are as great. Generally, it is less costly for a new facility to incorporate waste treatment technologies during construction than to retrofit existing facilities.

EPA's barrier to entry analysis compares estimated average incremental capital costs a facility or company incurs to meet the effluent guidelines to average total assets of existing facilities or companies. EPA considered establishing new source performance standards for small facilities in Subcategories A-D based on Option 1 technology. EPA evaluated the barrier to entry based on a ratio of costs for Option 1 to assets of existing facilities. The Agency estimates a cost to assets ratio of 16.7%, which the Agency concludes will present a barrier to entry to new facilities. Because the costs for other options would be greater than for Option 1, these would pose an even greater barrier to entry. For these reasons, EPA is not revising the NSPS limitations for new small direct dischargers in these subcategories. New facilities would continue to be subject to

[1] In estimating the pounds of pollutants removed by implementing Option 1 technology for these facilities, EPA used the sum of BOD_5 and ammonia (as nitrogen) removed. EPA did not include removals of other pollutants, including COD, in this analysis because, for example, BOD and COD address many of the same pollutants and including both could result in double counting.

the current NSPS limitations in sections 432.15, 432.25, 432.35, and 432.45.

2. Meat First Processors That Slaughter More Than 50 Million Pounds Per Year (Non-Small)

a. Pollutants

For non-small facilities in Subcategories A–D, EPA is revising limitations and standards for some pollutants and is establishing total nitrogen limitations and standards for the first time. EPA is not revising the current limitations (BPT/BCT) or new source performance standards (NSPS) for conventional pollutants for these facilities. The current regulations include production-based limitations and standards for these facilities for BOD, TSS, oil & grease, pH, and fecal coliforms. EPA is revising BPT to include limitations for ammonia (as nitrogen), establishing a BAT limitation for ammonia (as nitrogen) equivalent to the BPT limitation, revising the NSPS for ammonia to be equivalent to the BPT limitation, and establishing BAT and NSPS limitations for total nitrogen. As discussed in Section V.G, the revised and new limitations and standards are concentration-based. The following sections discuss the technology bases EPA selected for the final rule for the non-small direct discharge facilities in Subcategories A–D.

b. Best Practicable Control Technology Currently Available (BPT)

In 1974, EPA established BPT for the meat subcategories A-D based on biological treatment (*e.g.*, aerobic and anaerobic treatment) to control five conventional pollutants or pollutant parameters (BOD_5, TSS, oil & grease, fecal coliforms, and pH). The BPT limitations did not include limits for ammonia (as nitrogen) because nitrification was not a widely used technology, and therefore, not the BPT technology at the time. However, EPA notes that the BPT technology that was the basis for the 1974 limitations provided some incidental ammonia removal through nitrification during extended aeration, which resulted in some reduction in ammonia (as nitrogen). EPA did attempt to establish ammonia limitations under BAT based on a technology other than nitrification (which was more advanced than the 1974 BPT technology). Those limitations were the subject of judicial challenge and were remanded to EPA for further consideration (*American Meat Institute* v. *Environmental Protection Agency,* 526 F.2d 442 (7th Cir. 1975)). In 2002, EPA proposed new BPT limitations for ammonia (as nitrogen) based on Option 2 for non-small facilities in Subcategories A–D (facilities with production rates greater than 50 million pounds live weight killed (LWK) per year). As shown in Table VII.A–1, Option 2 consists of biological treatment followed by more complete nitrification than Option 1 to further reduce ammonia levels and disinfection.

EPA is establishing BPT limitations for ammonia (as nitrogen) for non-small direct dischargers in Subcategories A–D based on the proposed technology option (Option 2) with the inclusion of Option 2.5 facilities as part of evaluating seasonal effects on nitrification. A large degree of nitrification must occur in order to achieve sufficient partial denitrification to meet the nitrogen limitations, thus, the limitations for ammonia are based on data from facilities of both option types. EPA has concluded that ''more complete'' nitrification is now a widely available pollution control technology that should be the basis for the BPT ammonia limitation. For this guideline, EPA did not propose revising BPT limitations for the conventional pollutants. (See Section VII.B.2.c on BCT for additional information on why EPA is not revising current limits for conventional pollutants for facilities in these subcategories.)

EPA has concluded that biological nitrification treatment technology represents the best practicable control technology currently available for control of ammonia (as nitrogen) while providing incidental removals of additional conventional pollutants, particularly BOD_5 and TSS, and is the basis for the BPT limitations for these facilities for the following reasons.

First, this technology is available and readily applicable to all non-small facilities in Subcategories A–D. Approximately 97 percent of the non-small direct discharging facilities in these subcategories currently use the Option 2 technology or better. Although most facilities have the components of Option 2 technology in place (*e.g.*, nitrification basin/aerobic reactor), some facilities are not achieving the Option 2 long-term average (LTA) concentration for ammonia or the additional removals of the conventional pollutants identified in the following paragraph. EPA attributes this to their failure to operate or maintain the Option 2 technology adequately. Consequently, when estimating the costs of compliance with Option 2 for purposes of evaluating its reasonableness and for estimating economic impacts, EPA included costs for treatment optimization that a number of facilities would need in order to achieve the Option 2 LTAs. For example, EPA included costs for increased aeration, detention time (capacity), chemical addition, sludge handling, process controls, and additional in-process sampling and analytical testing. (See Sections 10 and 11 of the final Technical Development Document for additional discussion of the cost and loading methodologies.)

Second, the cost of compliance with these limitations relative to the effluent reduction benefits is not disproportionate. Based on our economic analysis (see Section IX), EPA concludes that compliance with BPT limitations based on Option 2 technology should not result in closures of any existing non-small direct dischargers in these subcategories. Moreover, adopting this level of control will reduce the quantity of ammonia (as nitrogen) and other pollutants currently being discharged into the environment.

For meat first processor facilities that produce more than 50 million pounds LWK per year, EPA estimates an annual compliance cost for Option 2 of $7.29 million (pre-tax, 1999$). It also estimates 3.8 million pounds of BOD_5 and ammonia (as nitrogen) removed from current discharges into the Nation's waters (for $2.55/pound-pollutant removed (1999$)). In estimating the pounds of pollutant removed by implementing Option 2 technology for these facilities, EPA used the sum of BOD_5 and ammonia (as nitrogen) removed. EPA tried to avoid ''double-counting'' pollutant reductions that would occur if, for example, EPA summed removals of COD and BOD. As previously explained, EPA has evaluated BPT costs and removals using, as guidance, $37/lb-removed in 1999 dollars as a point of comparison. EPA has, therefore, determined the total cost of effluent reductions due to the Option 2 technology ($2.55 per pound removed) are reasonable in view of the effluent reduction benefits.

EPA found that 32% of the non-small facilities in these subcategories use Option 2.5 (which includes partial denitrification). Although Option 2.5 technology is demonstrated, it is not as widely available as Option 2. Moreover, the pollutant loadings reductions for ammonia (as nitrogen) for Option 2.5 are the same as the reduction estimated for Option 2 but cost $9 million more every year. Therefore, EPA did not select it as the basis of BPT limitations.

EPA did not select Option 2.5+P or Option 4 as the basis for BPT limitations, as they do not achieve additional pollutant reductions at a cost EPA considers reasonable. For example, Option 2.5+P does not achieve

additional removals of ammonia (as nitrogen) but would cost an additional $36 million annually. Option 4 would remove an additional 59,000 pounds of ammonia (as nitrogen) at an additional cost of $45 million annually. Moreover, EPA notes that Option 2.5+P represents control technology not closely related to the technology basis for the earlier BPT regulations. Chemical phosphorus removal is not closely connected to the nitrification and disinfection technology that was the basis of the 1974 BPT limitations for Subcategories A–D. The Agency did not select other options considered for BPT because they were not readily available and/or produced an unfavorable total BPT cost and removal comparison. Detailed discussions explaining why EPA rejected setting BPT limitations based on these other technology options are contained in the proposal and the NODA (see 67 FR 8637; February 25, 2002 and 68 FR 48499; August 13, 2003). EPA has no information that justifies changing these conclusions.

Although EPA is not changing the technology basis from that proposed, the Agency is promulgating BPT limitations for non-small facilities in Subcategories A–D that are slightly different than proposed. First, where EPA is promulgating BPT limitations for pollutants like ammonia (as nitrogen) for which EPA had not previously set BPT limits for these subcategories, the final limitations are based on revised and additional data reflecting the types of changes described in the NODA (see 68 FR 48495). In addition, for the reasons discussed in Section V.G, where EPA is adopting new or revised BPT limitations, EPA has expressed them in concentration-based form while the unchanged limitations will continue to be expressed as production-based limits. (See Section 15 of the TDD for guidance on how both types of limits can be implemented together into permits.)

c. Best Conventional Pollutant Control Technology (BCT)

For both the proposed and final rules, in deciding whether to adopt more stringent limitations for BCT than BPT, EPA considered technologies that might achieve greater removals of conventional pollutants than those adopted for BPT. It also looked at whether those technologies are cost-reasonable under the standards established by the CWA. EPA generally refers to the decision criteria as the ''BCT cost test.''

As discussed in Section VII.B.2.a, EPA is not revising the current BPT effluent limitations for conventional parameters (*i.e.*, pH, BOD_5, TSS, O&G, and fecal coliforms) for non-small meat first processors (Subcategories A–D). Therefore, when considering a technology that would achieve greater removals of conventional pollutants than adopted for BPT, EPA compared the removals achievable through implementation of the Option 2 technology (which EPA considered as the possible technology basis for BCT) to current BPT limitations. EPA estimates that Option 2 removes about an additional 610,000 pounds per year of BOD_5 and 970,000 pounds per year of TSS compared to pollutant reductions by facilities meeting or exceeding current BPT limitations. There are no additional removals of O&G or fecal coliforms.

EPA evaluated Option 2 under the BCT cost test and it failed (see EPA's Economic and Environmental Benefits Analysis for details on the Agency's analysis). EPA did not evaluate technology options, such as Option 2+F (Option 2 plus the addition of a filter), because they are more costly and would not remove significantly more conventional pollutants than Option 2. Therefore, if Option 2 did not pass, these options would not pass the BCT cost test. The Agency did not identify any technologies that pass the BCT cost test and achieve greater removals of conventional pollutants than the current BPT technology. Thus, EPA is not revising the BCT limitations for these facilities. Non-small facilities in Subcategories A–D will continue to be regulated by the current BCT limitations (which are equivalent to the current BPT limitations) in sections 432.17, 432.27, 432.37, and 432.47.

d. Best Available Technology Economically Achievable (BAT)

EPA proposed to establish the BAT level of regulatory control for non-small facilities in Subcategories A–D based on Option 3 (*i.e.*, biological treatment, more complete nitrification, more complete denitrification and disinfection). As discussed in the NODA, after review and evaluation of the revised and new data, EPA has reconsidered its assessment of Option 3 as BAT technology. EPA determined that Option 3 did not meet all the statutory criteria for BAT. Therefore, the Agency refocused its evaluation for the technology basis for BAT on Option 2.5, Option 2.5+P and Option 4 for nutrient removal. (See Section VII.A of today's preamble for a description of the technology options.) For the final rule, EPA is basing the BAT limitations for non-small facilities in Subcategories A–D on Option 2.5 technology and is promulgating a limitation for total nitrogen on this basis. EPA is, however, setting a limitation for ammonia (as nitrogen) that is equal to BPT.

The following section describes EPA's rationale for selecting Option 2.5 technology and rejecting Option 2.5+P and Option 4 for the basis of the total nitrogen limitation and for selecting to set BAT equal to BPT (based on Option 2) for ammonia (as nitrogen). Both the proposal and the NODA contain detailed discussions explaining why EPA rejected setting BAT limitations based on other more stringent technology options (see 67 FR 8629; February 25, 2002 and 68 FR 48499; August 13, 2003). The record for today's final rule provides no basis for EPA to change these conclusions.

EPA selected Option 2.5 technology as the basis of BAT for non-small facilities in Subcategories A–D for the following reasons. First, Option 2.5 technology has been demonstrated as available, as 32 percent of the non-small facilities in Subcategories A–D use the components of Option 2.5 technology (*e.g.*, facility has in place a denitrification basin, nitrification basin, and disinfection) or more advanced technology. EPA has, however, determined that facilities in Subcategories A–D with the components of Option 2.5 technology in place are not operating their systems optimally based on review of the BOD:TKN ratios (68 FR 48500; August 13, 2003). EPA concluded that for effective denitrification to occur, facilities must be achieving a minimum BOD:TKN ratio of 3. In addition, these facilities are not currently achieving at least a 60 mg/L total nitrogen concentration in the effluent. (EPA is using 60 mg/L as a minimum standard for facilities it considered in developing the BAT long-term average limitation for total nitrogen. See Section VII.A for discussion of BAT facility selection criteria.) EPA did have data from poultry first processing facilities with Option 2.5 technology that met all BAT selection criteria, indicating that the poultry facility's treatment systems were well operated. For this reason, when estimating costs and pollutant reductions and in developing limitations associated with Option 2.5, EPA used the long-term average (LTA) concentration for total nitrogen from well-operated Option 2.5 poultry first processing facilities (see Section 14 of the TDD for the final rule). EPA included costs (such as costs for lagoon bypass, additional carbon source, or two-stage denitrification) for the meat first processing facilities to achieve the poultry Option 2.5 LTA for total nitrogen.

Second, Option 2.5 is economically achievable. EPA estimates the pre-tax annualized compliance costs (in 1999 dollars) for Option 2.5 to be $16.7 million. Using the facility and company closure methodologies described in Section IX.A, EPA estimates that no facilities or companies will close. EPA performed an alternate analysis by estimating closures using more conservative assumptions (*i.e.*, EPA predicted a closure would occur if the facility failed under 1 of 3 forecast methodologies, rather than under at least 2 out of 3). Under EPA's more conservative alternate analysis, the Agency estimates that there could be two closures among subcategory A–D facilities. Because not all facilities are covered by the closure analysis, it may understate the number of facility closures nationally.

As discussed in the NODA (68 FR 48489; August 13, 2003), EPA tried to determine whether there are additional companies that own direct discharging MPP facilities. The Agency identified, based on the screener survey results, three additional companies across all subcategories that may own direct discharging MPP facilities. Therefore, the company-level analysis may underestimate the number of company closures nationally, but to a lesser degree than the facility-level analysis.

EPA also considered the cost-effectiveness of nutrient removal as one aspect of its evaluation of BAT options for this industry as whole. As discussed in the proposed rule and the NODA, EPA has established a benchmark for nitrogen removal of $4 per pound, based on studies of nitrogen removal by POTWs with biological nutrient removal, and a benchmark for phosphorus removal of $10 per pound, based on studies of agricultural best management practices that reduce phosphorus discharges. EPA used these benchmarks for nutrients in connection with the effluent guidelines for concentrated animal feeding operations (CAFOs).

For Option 2.5 for subcategories A–D, EPA estimates 15.4 million pounds removed per year of total nitrogen and nutrient cost-effectiveness of $1.08 per pound of total nitrogen removed. Because Option 2.5 does not include phosphorus removal, EPA did not calculate nutrient cost-effectiveness for phosphorus for Option 2.5. EPA concludes that Option 2.5 is nutrient cost-effective for total nitrogen.

EPA considered Option 2.5+P as the basis of BAT, but rejected it for the following reasons. First, no facilities in EPA's database for Subcategories A–D use Option 2.5+P technology. However, facilities may use individual components of the technology. Some facilities in the subcategories use Option 2.5 technology (for nitrogen removal) and Option 2+P or Option 4 (for phosphorus removal). Second, EPA estimated the pre-tax annualized cost of Option 2.5+P to be $42.9 million. EPA now believes these costs may be underestimated. Based on information provided in comments on the NODA and further analysis, EPA concludes that the average annual cost of increased alum addition and the resulting increased sludge generation and disposal may range from $108,000 to $378,000 more per facility than previously estimated for this subcategory (see DCN 300–015). Option 2.5+P removes an estimated 4.5 million pounds per year of total phosphorus and achieves the same level of nitrogen and conventional pollutant reduction as Option 2.5. Although the cost per pound of phosphorus removed using the estimated cost of $42.9 million is $9.49 per pound, EPA believes that the actual cost per pound would be greater than $10 because of the additional costs noted above. Although EPA has selected options where the nutrient cost-effectiveness is greater then the reference values (*i.e.*, $4/lb nitrogen removed and $10/lb phosphorus removed) for an individual subcategory or segment, EPA has not done so in cases where selecting such an option would raise the nutrient cost-effectiveness of the rule, as a whole, over these values. With a phosphorus cost-effectiveness over $10/lb for non-small facilities in Subcategory A–D, the phosphorus cost-effectiveness for the rule, as a whole, would be greater than $10/lb total phosphorus removed. Therefore, considering the lack of availability of the technology and the unfavorable nutrient cost-effectiveness for phosphorus, EPA rejected Option 2.5+P as the basis of BAT limitations.

EPA considered Option 4 (which includes more complete denitrification and chemical phosphorus removal) as the basis of BAT but did not select it due to the high increase in cost compared to Option 2.5 and the poor incremental nutrient cost-effectiveness (*i.e.*, the high cost to remove additional nutrients compared to Option 2.5+P).

EPA estimates that there are no direct discharge facilities in these subcategories currently operating Option 4 technology. EPA estimates the pre-tax annualized compliance costs for Option 4 to be $52.0 million (1999$), which is $9.1 million more than Option 2.5+P and $35.3 million more than Option 2.5. EPA estimates that Option 4 removes 18.5 million pounds per year of nitrogen (3.1 million more pounds per year than Option 2.5 or Option 2.5+P) and 5.0 million pounds per year of phosphorus (approximately 500,000 more pounds per year than Option 2.5+P). EPA estimates no facility or company closures for Option 4. Finally, EPA estimates the incremental nitrogen cost-effectiveness (as compared to Option 2.5) to be $11.56 per pound of total nitrogen removed and the incremental phosphorus cost-effectiveness (as compared to Option 2.5+P) to be $20.09 per pound of total phosphorus removed. The incremental nutrient cost-effectiveness of Option 4 is above the benchmark values; therefore, EPA does not consider Option 4 to be cost-effective.

EPA is establishing BAT limitations for ammonia (as nitrogen) that are equivalent to the limitations it is promulgating today under BPT for subcategories A–D. EPA considered setting more stringent limitations for ammonia (as nitrogen) under BAT; however, the selected BAT technology option (Option 2.5) does not remove any additional quantity of ammonia (as nitrogen), particularly when considering the seasonal effects using data from Option 2 and Option 2.5 facilities. Although Option 4 does remove some additional pounds of ammonia (as nitrogen) as compared to Option 2, EPA did not select Option 4 for BAT for the reasons discussed earlier in this section.

e. New Source Performance Standards (NSPS)

As previously discussed, when establishing NSPS, EPA considers whether increased compliance costs related to the effluent guidelines regulation might create a barrier for a new facility to enter the industry and whether there are any new source standards currently in place for the subcategory. The barrier to entry analysis compares the estimated average increase in facility or company capital costs to meet the effluent guidelines to the average total assets of existing facilities or companies. EPA does not have data on the assets of new entrants because, in general, we cannot identify them before they are established. Therefore, EPA uses data on the assets of existing facilities. The extent to which potential new entrants have total assets that are similar to those of existing industry participants provides a proxy for potential barriers to entry that new facility compliance costs may represent.

EPA performed an analysis to evaluate the effect of the rule on the costs to new entrants into the meat and poultry products industry by calculating

the ratio of average capital costs to average total assets as a measure of the potential for barriers to entry that the MPP rule could create for these facilities. If the barrier to entry ratio is large, then there is a possibility that the rule will discourage entry into the meat and poultry products market.

EPA has estimated the ratio of costs to assets for facilities for Options 2.5, 2.5+P and Option 4. The ratios are 1.6% for Option 2.5, 2.6% for Option 2.5+P, 3.3% for Option 4. The estimates for Option 2.5+P and Option 4, however, do not reflect EPA's additional evaluation of the costs for chemical phosphorus based on comments EPA received (see DCN 300–015). From this additional evaluation, EPA concludes that the average annualized costs may be $108,000 to $378,000 per facility more for chemical phosphorus removal than those used in EPA's barrier to entry analysis, as discussed here. EPA is concerned that, with these additional costs, the ratio may rise to a level that the Agency would consider to be a barrier to entry for Option 2.5+P and Option 4.

EPA has decided to revise the standards for new sources for ammonia (as nitrogen) for facilities in subcategories A–D to be equivalent to the BPT limitations being established today and to establish standards for total nitrogen equivalent to the BAT limitations being established today based on Option 2.5. These standards do not present a barrier to entry. Although there are existing NSPS for these facilities, they do not include standards for total nitrogen.

C. What Is the Basis for EPA's Selected Technology Options for Subcategory E (Meat Small Further Processors)?

Subcategory E includes the smallest meat further processing facilities (*i.e.*, meat further processing facilities that produce 6,000 pounds or fewer per day). In 2002, EPA proposed not to revise the regulations for existing or new direct dischargers in Subcategory E. EPA did not propose to revise the existing limitations applicable to smaller MPP facilities (including all facilities in Subcategory E) to the proposal because EPA determined that ''small'' MPP facilities discharge a very small proportion of the total industry discharge and that improved treatment would produce only a limited amount of loadings removal (67 FR 8582; February 25, 2002). EPA did not receive comment or additional information to persuade EPA to revise the existing effluent limitations guidelines and standards for this subcategory. Therefore, the current part 432 regulations continue to apply to those facilities (§ 432.50).

D. What Is the Basis for EPA's Selected Technology Options for Subcategories F–I (Meat Further Processing)?

In order to allow for different limitations for small and non-small meat further processing facilities, EPA's 2002 proposal called for a production threshold of 50 million pounds (finished product) for facilities in Subcategories F–I. EPA is retaining that production threshold for the final rule. Therefore, EPA addresses small facilities and non-small facilities separately. Note the meat processors that process 6,000 or fewer pounds per day (1.56 million pounds per year) are not included in Subcategories F–I, but are covered under Subcategory E (see Section VII.C). Costs presented in this section are presented in 1999 year dollars which is the base year of the survey; however, EPA provides updated estimates in 2003 year dollars in Section VIII.B.

1. Meat Further Processors That Process More Than 6,000 Pounds Per Day but Less Than or Equal to 50 Million Pounds Per Year (Small)

EPA is not revising limitations or standards for small facilities in Subcategories F–I except to correct an error in the BAT ammonia limitation. Meat further processing facilities that produce greater than 6,000 pounds per day but less than or equal to 50 million pounds per year of finished product will continue to be subject to the current limitations in the Meat and Poultry Products effluent limitations guidelines (part 432), as applicable. The following sections discuss EPA's decision to retain the current BPT, BCT, and BAT limitations and NSPS for small direct discharge facilities in Subcategories F–I.

a. BPT/BCT/BAT

EPA proposed not to revise the BPT, BCT or BAT limitations for existing small meat further processors in Subcategories F–I. In part 432, small facilities in Subcategories F–I currently have BPT limitations for the five conventional pollutants and BAT limitations for ammonia. EPA did not propose to revise BPT limitations for conventional pollutants for small facilities in these subcategories. EPA evaluated the cost of additional technology (*e.g.*, filtration) under the BCT cost test and it failed. Therefore, EPA is not revising the conventional pollutant limitations under BCT for small facilities in Subcategories F–I.

For the final rule, EPA considered revising the ammonia (as nitrogen) limitations under BAT. EPA evaluated the cost of achieving pollutant reductions and the economic achievability of compliance with limitations based on Option 1 and Option 2 technology. Option 1 includes biological treatment, partial nitrification, and disinfection, and Option 2 accomplishes more complete nitrification (*i.e.*, ammonia removal) than Option 1 technology. When evaluating BAT technology, EPA must determine whether the technology is available and economically achievable. EPA must also determine whether the identified technology is best. EPA typically evaluates a technology's cost-effectiveness as a factor in its decision. When considering cost-effectiveness (except for nutrients), EPA typically evaluates additional pollutant reductions in toxic pound-equivalents. EPA estimates that the annualized cost of Option 1 and Option 2 are about $1.10 and $1.11 million (pre-tax, 1999 dollars), respectively, which represents approximately 9.4% of net income (as shown in Table IX.B–5). Using the closure methodology described in Section IX, there is a very small probability that there could be one facility closure out of sixteen facilities under either option: the probability of closure is 1.49% and 1.51%, respectively. EPA estimates that Option 1 achieves a reduction of 5 toxic pound-equivalents per year, and Option 2 achieves a reduction of 15.2 toxic pound-equivalents per year, resulting in a toxic cost-effectiveness of $129,000 per toxic pound-equivalent (in 1981 dollars) for Option 1 and $42,900 per toxic pound equivalent ($1981) for Option 2. Historically, EPA has evaluated BAT technology using a toxic cost-effectiveness value of $200/toxic pound-equivalents (in 1981 dollars). Therefore, EPA has determined that Options 1 and 2 are not cost-effective and are not economically achievable best available technology.

For existing small direct dischargers in the Subcategories F–I, the Agency found neither Option 1 nor Option 2 is the best practicable control technology, best conventional pollutant control technology, or best available technology economically achievable. Therefore, EPA is not revising BPT, BCT, or BAT limitations for existing small meat further processors. These facilities will remain subject to sections 432.60–432.90, as applicable.

b. New Source Performance Standards (NSPS)

In 2002, EPA proposed not to revise the current new source performance standards for small facilities in Subcategories F–I (meat further processors). For the final rule, EPA has concluded that the data on these facilities is insufficient to determine if Option 1 or Option 2 technology would present a barrier to entry. In addition, the analysis of barrier to entry data for these subcategories was complicated by the fact that some facilities performing operations fitting within the scope of Subcategories F–I also perform operations that are regulated under Subcategory L (poultry further processors). (See Section IX for discussion of ''mixed processors.'') EPA notes that its analysis of Options 1 and 2 as candidate BAT technologies for ammonia removal in these subcategories showed insignificant additional removals at extremely high cost (several orders of magnitude above its cost-effectiveness benchmark). While new facilities may be able to install technology at lower cost than existing facilities, it is unlikely that the costs would be low enough for the cost-effectiveness to approach a reasonable value. Finally, EPA also considered whether or not there were any new source performance standards currently in place when deciding whether to revise new source performance standards. There are current new source performance standards for these facilities which appear to be adequate. Therefore, EPA is not revising NSPS for new small meat further processors. New sources are subject to the current NSPS limitations in sections 432.65, 432.75, 432.85, and 432.95.

2. Meat Further Processors That Process More Than 50 Million Pounds Per Year (Non-Small)

a. Pollutants

For non-small facilities in Subcategories F–I, EPA is establishing limitations for total nitrogen for existing sources, correcting an error in the BAT limitation for ammonia, and establishing nitrogen and ammonia (as nitrogen) standards for new sources. EPA is not revising the current limitations (BPT/BCT) or new source performance standards (NSPS) for conventional pollutants and is not revising the current BAT limitations for ammonia (as nitrogen). The current regulations include production-based limitations and standards for these facilities for BOD, TSS, oil & grease, pH, and fecal coliforms for existing and new sources and a concentration-based limitation for ammonia (as nitrogen) for existing sources. As discussed in Section V.G, the new limitations and standards are concentration-based. The following sections discuss the technology bases EPA selected for the final rule for the non-small direct discharge facilities in Subcategories F–I.

b. Best Practicable Control Technology Currently Available (BPT)

EPA established BPT for the meat further processors (Subcategories F–I) in 1975, based on biological treatment (*e.g.*, aerobic and anaerobic treatment) to control five conventional pollutants or pollutant parameters (BOD_5, TSS, oil & grease, fecal coliforms, and pH). The current limitations for ammonia (as nitrogen) for non-small meat further processors are contained in BAT and not BPT (see Section VII.D.2.d for discussion of BAT options for ammonia removal). Therefore, this section does not discuss BPT limitations for ammonia (as nitrogen). In February 2002, EPA proposed new BPT limitations for chemical oxygen demand (COD) based on Option 2 in an effort to better reflect current BPT treatment technology for non-small meat further processing facilities (67 FR 8630; February 25, 2002). See Section V.B for discussion on why EPA is not establishing BPT limitations for COD in today's final rule.

EPA did not propose revising BPT limitations for conventional pollutants. (See Section VII.D.2.c on BCT for additional information on why EPA is not revising current limits for conventional pollutants for facilities in these subcategories.) Therefore, EPA is not revising the conventional pollutant limitations for non-small meat further processing facilities (Subcategories F–I) in today's final rule and such facilities will remain subject to the BPT limitations in sections 432.62, 432.72, 432.82, and 432.92.

c. Best Conventional Pollutant Control Technology (BCT)

When deciding whether to adopt more stringent limitations for BCT than BPT, EPA considers technologies that might achieve greater removals of conventional pollutants than those adopted for BPT.

EPA is not promulgating new BPT effluent limitations for conventional parameters (*i.e.*, pH, BOD_5, TSS, O&G, and fecal coliforms) for non-small meat further processors (Subcategories F–I). When considering a technology that would achieve greater removals of conventional pollutants than adopted for BPT, EPA compared the removals achievable through implementation of the Option 2 technology (which EPA considered as the possible technology basis for BCT) to current BPT limitations. EPA estimates that Option 2 removes approximately 21,700 pounds more per year of BOD_5 compared to conventional pollutant reductions by facilities meeting or exceeding current BPT limitations. There are no additional removals of TSS, O&G, or fecal coliforms.

EPA evaluated Option 2 under the BCT cost test and it failed (see EPA's Economic and Environmental Benefits Analysis for details on the Agency's analysis). EPA did not evaluate other technology options, such as Option 2 + F (Option 2 plus the addition of a filter), because they are more costly and do not remove significantly more conventional pollutants than Option 2. If Option 2 did not pass, these more expensive options would not pass the BCT cost test. The Agency did not identify any technologies that pass the BCT cost test and achieve greater removals of conventional pollutants than the current BPT technology. Thus, EPA is not revising the BCT limitations for these facilities. Non-small meat further processing facilities in Subcategories F–I will remain subject to the current BCT limitations (which are equivalent to the current BPT limitations for conventional pollutants) in sections 432.67, 432.77, 432.87, and 432.97.

d. Best Available Technology Economically Achievable (BAT)

EPA proposed to establish the BAT level of regulatory control for non-small meat further processors (Subcategories F–I) based on Option 3 (*i.e.*, biological treatment, more complete denitrification, more complete nitrification, and disinfection). As discussed in the NODA, after review and evaluation of the revised and new data, EPA has reconsidered its assessment of Option 3 as BAT technology. EPA determined that Option 3 did not meet all the statutory criteria for BAT. The Agency refocused its evaluation for the technology basis for BAT on Option 2.5, Option 2.5+P, or Option 4 for nutrient removal (see Section VII.A of today's preamble for a description of the technology options). For the final rule, EPA is basing the BAT limitations for total nitrogen for these facilities on Option 2.5 technology and is promulgating a limitation for total nitrogen on this basis. EPA is not revising the current BAT limitation for ammonia (as nitrogen) except to correct a typographical error in the daily maximum limitation.

EPA evaluated whether revising the current BAT limitation for ammonia (as nitrogen) based on Option 2, Option 2.5, Option 2.5+P, or Option 4 treatment technologies could be supported. When evaluating revision of BAT for non-conventional pollutants that are not nutrients, EPA considers not only whether the technology option is available and economically achievable, but also whether it is best. EPA typically evaluates a technology's cost-effectiveness as a factor in its decision. When considering cost-effectiveness (except for nutrients), EPA typically looks at the costs of the additional pollutant reductions (in toxic pound-equivalents).

EPA has estimated the annualized cost of each technology option under review. The approximate annualized cost of the technology options ranged from $266,000 for Option 2 to $798,000 for Option 4 (pre-tax, 1999 dollars). Using the closure methodology described in Section IX, EPA projects that there would be a slight probability (0.5%) that at most one facility would close under any of the technology options. However, the average toxic cost-effectiveness numbers range from $8,000 per toxic pound-equivalent ($1981) for Option 2 to $18,400 per toxic pound-equivalent ($1981) for Option 4. These high values are due to the very minimal incremental reduction in toxic pound-equivalents: 19.4 toxic pound-equivalents/year for Options 2, 2.5, or 2.5+P and 25.3 toxic pound-equivalents/year for Option 4. EPA typically uses $200 per toxic pound-equivalents (in 1981 dollars) as an indication of cost-effectiveness for toxic pollutants. Therefore, EPA has determined that Options 2, 2.5, 2.5+P, and 4 are a not cost-effective basis for revising current ammonia (as nitrogen) limitations for non-small facilities in these subcategories when compared with those currently being achieved.

The following section describes EPA's rationale for selecting Option 2.5 technology and rejecting Option 2.5+P and Option 4 as the basis of BAT limitations for nutrients. EPA did not consider Option 2 for control of nutrients as it is not designed to reduce total nitrogen or total phosphorus. Both the proposal and the NODA contain detailed discussions explaining why EPA rejected setting BAT limitations based on other technology options (*see* 67 FR 8629; February 2002 and 68 FR 48499; August 13, 2003). The record for today's final rule provides no basis for EPA to change these conclusions.

EPA selected Option 2.5 technology as the basis of BAT control for total nitrogen for non-small meat further processing facilities (Subcategories F–I) because it is demonstrated as available and is economically achievable. First, although no facilities in these subcategories use Option 2.5 technology, this technology has been demonstrated as available in all other subcategories of the MPP industry. EPA notes that it did not have any detailed survey respondents that are within the scope of Subcategories F–I and that based on its screener questionnaire database, EPA estimates only 4 non-small facilities in these subcategories. Based upon information collected from facilities in this subcategory who received screener surveys, all of the facilities are estimated to be currently achieving the LTA of Option 2.5 for total nitrogen.

Second, Option 2.5 is economically achievable. EPA estimates the pre-tax annualized compliance costs (in 1999 dollars) for Option 2.5 to be $329,000. These costs are conservative and may be overstated as they include costs for the components of Option 2.5 technology even at facilities where the effluent concentrations are below the LTA for Option 2.5. EPA chose to possibly overestimate costs in this subcategory because of the uncertainty regarding the numbers of facilities in these subcategories and lack of detailed information on their operations. This is due to the small number of screener survey respondents and the fact that EPA does not have any detailed survey respondents from these subcategories. In addition, EPA's finding of economic achievability in this rule is based on the estimated costs of implementing the components of the model technology, not on achieving the resulting limitations. Using the facility and company closure methodologies described in Section IX.A, EPA estimates a 0.2% probability of facility-level closure (*i.e.*, at most one facility closure).

EPA also considered the cost-effectiveness of nutrient removal when evaluating BAT options for this industry segment. However, as previously noted, all non-small meat further processing facilities (Subcategories F–I) in EPA's database are already achieving the Option 2.5 LTAs. Therefore, EPA estimates zero additional pounds removed per year of total nitrogen and could not calculate a nutrient cost-effectiveness for nitrogen.

Furthermore, there is the possibility that facilities in subcategories A–D that perform further processing may be at a competitive disadvantage if facilities in subcategories F–I do not have equivalent limits. In addition, EPA does not want to encourage companies to split their operations in order to be subject to lower limits.

EPA considered Option 2.5+P as the basis of BAT, but rejected it for the following reasons. First, no non-small meat further processing facilities in EPA's database use Option 2.5+P technology. Second, Option 2.5+P costs an additional $30,000 annually for no additional pollutant reductions when compared to Option 2.5, because all of the facilities in EPA's database were achieving LTAs for phosphorus much lower than the LTA for 2.5+P. Therefore, this technology does not appear to be cost-effective.

EPA considered Option 4 as the basis of BAT but did not select it due to the lack of availability of the technology option, the high increase in cost compared to Option 2.5, and the poor incremental nutrient cost-effectiveness (*i.e.*, the high cost to remove additional nutrients compared to Option 2.5+P).

EPA estimates that there are no facilities in subcategories F–I currently operating Option 4 technology. In addition, EPA estimates the pre-tax annualized compliance costs for Option 4 to be $798,000 (1999$), which is $469,000 more than Option 2.5. EPA estimates that Option 4 removes approximately 80,000 pounds per year of nitrogen and zero pounds per year of phosphorus. Using the facility and company closure methodologies described in Section IX.A, EPA estimates a 0.5% probability of facility-level closure (*i.e.*, at most one facility closure). Finally, EPA estimates the average nutrient cost-effectiveness for nitrogen to be $10.02 per pound of total nitrogen removed, while the incremental nitrogen cost-effectiveness relative to Option 2.5 is $5.89 per pound. Both of the figures are above the $4 per pound benchmark for nitrogen removal. Therefore, EPA does not consider Option 4 to be cost-effective.

e. New Source Performance Standards (NSPS)

In 2002, EPA proposed to revise the current new source performance standards for non-small facilities in Subcategories F–I (meat further processors) based on Option 3 technology. EPA estimates only four non-small direct discharge meat further processing facilities, and therefore, has insufficient data on these facilities to determine if Options 2.5, 2.5+P, or 4 would present a barrier to entry. When deciding whether to promulgate revised new source performance standards, EPA also considers whether or not there are any new source performance standards currently in place. As discussed in Section VII.D.2.d, EPA is revising

existing source BAT limitations for non-small meat further processors based on Option 2.5 technology for total nitrogen and is not revising BAT limitations for ammonia (as nitrogen) (except to correct an error). Although there currently are new source performance standards for these facilities, they do not include limitations for total nitrogen or ammonia (as nitrogen). Therefore, for non-small meat further processors, EPA is setting NSPS for total nitrogen equivalent to the BAT limitations based on Option 2.5 and for ammonia (as nitrogen) based on Option 2 (because Option 2.5 does not provide any additional ammonia removal). EPA is not revising the current NSPS for conventional pollutants.

E. What Is the Basis for EPA's Selected Technology Options for Subcategory J (Independent Rendering)?

Currently section 432.101(b) defines a renderer subject to the guidelines limitations as ''an independent or off-site rendering operation * * * which manufactures at rates greater than 75,000 pounds of raw material per day [or 19.5 million pounds per year based on 260 work days].'' In 2002, EPA proposed to lower the production threshold to 10 million pounds per year based on a review of the available data at that time (*i.e.*, screener survey data). EPA selected the threshold to design model facilities for use in estimating costs, pollutant loadings, non-water quality impacts, and economic impacts for the proposed rule. EPA is promulgating this production threshold of 10 million pounds per year. There were no comments opposing this change in the threshold. Facilities that manufacture at rates less than or equal to 10 million pounds per year will remain out of the scope of Part 432, while facilities above the threshold will be covered by today's final regulation. EPA has not identified any additional direct discharging rendering facilities producing at rates between 10 million and 19.5 million pounds per year in its database.

1. Pollutants

For facilities in Subcategory J, EPA is establishing limitations and standards for total nitrogen for existing and new sources. EPA is not revising the current limitations (BPT/BCT) or new source performance standards (NSPS) for conventional pollutants and is not revising the current BAT limitations or NSPS for ammonia (as nitrogen). The current regulations include production-based limitations and standards for these facilities for BOD_5, TSS, oil & grease (O&G), pH, fecal coliforms and ammonia (as nitrogen). As discussed in Section V.G, the new limitations and standards are concentration-based. The following sections discuss the technology bases EPA selected for the final rule for the direct discharge facilities in Subcategory J.

2. Best Practicable Control Technology Currently Available (BPT)

EPA established BPT for Subcategory J (Renderers) in 1975, based on biological treatment (*e.g.*, aerobic and anaerobic treatment) to control five conventional pollutants or pollutant parameters (BOD_5, TSS, oil & grease, fecal coliforms, and pH). The current limitations for ammonia (as nitrogen) for non-small meat further processors are contained in BAT and not BPT (see Section VII.E.4 for discussion of BAT options for ammonia removal). Therefore, this section does not discuss BPT limitations for ammonia (as nitrogen). In February 2002, EPA proposed new BPT limitations for chemical oxygen demand (COD) based on Option 2 in an effort to better reflect current BPT treatment technology for renderers (67 FR 8630; February 25, 2002). See Section V.B for discussion on why EPA is not establishing BPT limitations for COD in today's final rule.

EPA did not propose revising BPT limitations for conventional pollutants. (See Section VII.E.3 on BCT for additional information on why EPA is not revising current limits for conventional pollutants for facilities in this subcategory.) Therefore, EPA is not revising the conventional pollutant limitations for independent rendering facilities (Subcategory J) in today's final rule and such facilities will remain subject to the BPT limitations in section 432.102.

3. Best Conventional Pollutant Control Technology (BCT)

In deciding whether to adopt more stringent limitations for BCT than BPT for facilities in subcategory J, EPA considered technologies that might achieve greater removals of conventional pollutants than those adopted for BPT. EPA also looked at whether those technologies are cost-reasonable under the standards established by the CWA. EPA generally refers to the decision criteria as the ''BCT cost test.''

As discussed in Section VII.E.1, EPA is not promulgating new BPT effluent limitations for conventional parameters (*i.e.*, pH, BOD_5, TSS, O&G, and fecal coliforms) for independent rendering facilities (Subcategory J). Therefore, when considering a technology that would achieve greater removals of conventional pollutants than adopted for BPT, EPA compared the removals achievable through implementation of the Option 2 technology (which EPA considered as the possible technology basis for BCT) to current BPT limitations. EPA estimates that Option 2 removes approximately 34,000 pounds more per year of BOD_5 compared to conventional pollutant reductions by facilities meeting or exceeding current BPT limitations. There are no additional removals of TSS, O&G, or fecal coliforms.

EPA evaluated Option 2 under the BCT cost test and it failed (see the Economic and Environmental Benefits Analysis for details on EPA's analysis). For the final rule, EPA did not evaluate other technology options, such as Option 2 + F (Option 2 plus the addition of a filter), because they are more costly and do not remove significantly more conventional pollutants than Option 2. Therefore, if Option 2 did not pass, these more expensive options would not pass the BCT cost test. The Agency did not identify any technologies that pass the BCT cost test and achieve greater removals of conventional pollutants than the current BPT technology. Thus, EPA is not revising the BCT limitations for these facilities. Independent rendering facilities in Subcategory J will remain subject to the current BCT limitations (which are equivalent to the current BPT limitations for conventional pollutants) in section 432.107.

4. Best Available Technology Economically Achievable (BAT)

EPA proposed to establish the BAT level of regulatory control for independent renderers (Subcategory J) based on Option 2 and took comment on other options in the NODA. For the final rule, EPA is basing the BAT limitations for these facilities on Option 2.5 technology and is promulgating a limitation for total nitrogen on this basis. EPA is not revising the current BAT limitation for ammonia (as nitrogen).

EPA evaluated whether revising the current BAT limitation for ammonia (as nitrogen) based on Option 2, Option 2.5, Option 2.5+P, or Option 4 treatment technologies could be supported. When evaluating revision of BAT for non-conventional pollutants that are not nutrients, EPA not only considers whether the technology option is available and economically achievable, but also whether it is best. EPA typically evaluates a technology's cost-effectiveness as a factor in its decision. When considering cost-effectiveness (except for nutrients), EPA typically

evaluates the additional pollutant reductions (in toxic pound-equivalents).

EPA has estimated the annualized cost of each technology option under review. The approximate annualized cost of the technology options ranged from $628,000 for Option 2 to $10.2 million for Option 4 (pre-tax, 1999 dollars). Using the closure methodology described in Section IX, there is a slight probability (no more than 3.3%) that there could be one facility closure under Options 2, 2.5, and 2.5+P and one closure under Option 4. However, the average toxic cost-effectiveness numbers range from $4,100 per toxic pound-equivalent ($1981) for Option 2 to $29,000 per toxic pound-equivalent ($1981) for Option 4. These high values are due to the very minimal incremental reduction in toxic pound-equivalents (*i.e.*, 90 toxic pound-equivalents/year for Option 2, 2.5, or 2.5+P and 205 toxic pound-equivalents/year for Option 4) and the high incremental cost. EPA typically uses $200 per toxic pound-equivalents (in 1981 dollars) as an indication of cost-effectiveness for toxic pollutants. Therefore, EPA has determined that Options 2, 2.5, 2.5+P, and 4 are a not cost-effective basis for revising current ammonia (as nitrogen) limitations for independent renderers in Subcategory J when compared with those currently being achieved.

The following section describes EPA's rationale for selecting Option 2.5 technology and rejecting Option 2.5+P and Option 4 as the basis of BAT limitations for nutrients. EPA did not consider Option 2 for control of nutrients as it is not designed to reduce total nitrogen or total phosphorus. Both the proposal and the NODA contain detailed discussions explaining why EPA rejected setting BAT limitations based on other technology (*see* 67 FR 8629; February 25, 2002 and 68 FR 48499; August 13, 2003). The record for today's final rule provides no basis for EPA to change these conclusions. EPA did not propose Option 3 for facilities in Subcategory J based on concerns over the economic impact and nitrogen cost-effectiveness estimated for the proposed rule. However, as discussed in the NODA (68 FR 48476; August 13, 2003), EPA has incorporated a significant amount of information into its analyses since proposal. This includes surveys from independent rendering facilities and comments from a trade association representing independent rendering facilities. In light of that data and information, EPA now finds a technology option that includes some denitrification (Option 2.5) is economically achievable and nutrient cost-effective for total nitrogen for independent rendering facilities.

EPA selected Option 2.5 technology as the basis of BAT limitations for total nitrogen for total nitrogen for independent rendering facilities because it is demonstrated as available and is economically achievable. First, Option 2.5 technology has been demonstrated as available in Subcategory J as 38 percent of facilities in EPA's database use components of Option 2.5 technology (or more advanced technology).

Second, Option 2.5 is economically achievable. EPA estimates the pre-tax annualized compliance costs (in 1999 dollars) for Option 2.5 to be $2.8 million. Using the facility and company closure methodologies described in Section IX.A, EPA estimates a 1.3% probability of facility-level closure (*i.e.*, at most one facility closure).

EPA also considered the cost-effectiveness of nutrient removal when evaluating BAT options for this industry segment. For Option 2.5, EPA estimates 1.5 million pounds removed per year of total nitrogen and the nutrient cost-effectiveness to be $1.92 per pound of total nitrogen removed. Because Option 2.5 does not include phosphorus removal, EPA did not calculate nutrient cost-effectiveness for phosphorus for Option 2.5. EPA concludes that Option 2.5 is nutrient cost-effective for total nitrogen.

EPA considered Option 2.5+P as the basis of BAT, but rejected it for the following reasons. Option 2.5+P costs $7.4 million annually for 1.5 million pounds of total nitrogen reduction per year (*i.e.*, the same reduction of total nitrogen as Option 2.5) and 590,000 pounds of total phosphorus reduction per year. Therefore, the average nitrogen cost-effectiveness for Option 2.5+P is $5.06 per pound of total nitrogen removed and the average phosphorus cost-effectiveness is $12.59 per pound of total phosphorus removed. The nutrient cost-effectiveness values for nitrogen and phosphorus exceed the benchmarks that EPA uses; therefore, EPA did not select Option 2.5+P.

EPA considered Option 4 as the basis of BAT but did not select it due to the lack of availability of the technology option, the high increase in cost compared to Option 2.5, and the poor incremental nutrient cost-effectiveness (*i.e.*, the high cost to remove additional nutrients compared to Option 2.5+P).

Based on its database, EPA estimates that there are no facilities in subcategory J currently operating Option 4 technology. In addition, EPA estimates the pre-tax annualized compliance costs for Option 4 to be $10.2 million (1999$), which is $7.4 million more than Option 2.5. EPA estimates that Option 4 removes approximately 1.7 million pounds per year of total nitrogen (200,000 more than Option 2.5) and 620,000 pounds per year of total phosphorus (30,000 more than Option 2.5+P). Using the facility and company closure methodologies described in Section IX.A, EPA estimates a 4.8% probability of facility-level closure (*i.e.*, 1 facility closure). Finally, EPA estimates the incremental nutrient cost-effectiveness to be $40 per pound of total nitrogen removed (compared to Option 2.5) and $85 per pound of total phosphorus removed (compared to Option 2.5+P). The nutrient cost-effectiveness of Option 4 is well above the $4 per pound total nitrogen removed and $10 per pound total phosphorus removed benchmarks and therefore, EPA does not consider Option 4 to be cost-effective.

5. New Source Performance Standards (NSPS)

In 2002, EPA proposed to revise the current new source performance standards for independent rendering facilities in Subcategory J based on Option 2 technology. As discussed in the NODA, with the development of Option 2.5, EPA reconsidered technology basis for all subcategories (68 FR 48500; August 13, 2003). EPA has selected Option 2.5 technology as the basis for BAT limitations (see Section VII.E.4); therefore, EPA did not consider Option 2 technology (a less stringent technology) as the basis for NSPS for the final rule. EPA has estimated the ratio of costs to assets for Options 2.5, 2.5+P and Option 4. The ratios are 0.3% for Option 2.5, 0.4% for Option 2.5+P, and 0.5% for Option 4. The estimates for Option 2.5+P and Option 4, however, do not reflect EPA's additional evaluation of the costs for chemical phosphorus based on comments EPA received (see DCN 300–015). EPA performed an analysis using increased quantities of alum for chemical phosphorus removal for the detailed survey respondents (*i.e.*, non-small meat and poultry slaughterers). From this additional evaluation, EPA concludes that the average costs for meat and poultry slaughterers may be between 4 and 26 percent more per facility for chemical phosphorus removal (including increased sludge disposal) than those used in EPA's barrier to entry analysis, as discussed here. EPA is concerned that, with similar additional costs, the ratio for independent renderers may rise to a level that the Agency would consider to

be a barrier to entry for Option 2.5+P and Option 4.

Although this subcategory does have current NSPS, they do not include limitations for total nitrogen. Therefore, EPA is establishing NSPS for total nitrogen based on Option 2.5 technology. EPA is not revising NSPS for ammonia (as nitrogen) or for the conventional pollutants.

F. What Is the Basis for EPA's Selected Technology Options for Subcategory K (Poultry First Processing)?

In 2002, EPA proposed a production threshold of 10 million pounds (live weight killed) per year for facilities in Subcategory K. EPA proposed this threshold to allow for different limitations for small and non-small poultry first processing facilities. As discussed in Section V.A, EPA has raised the production threshold for the final rule from 10 to 100 million pounds per year. Therefore, this section discusses small and non-small facilities separately. Costs presented in this section are presented in 1999 year dollars which is the base year of the survey; however, EPA provides updated estimates in 2003 year dollars in Section VIII.B.

1. Poultry First Processors That Slaughter Less Than or Equal to 100 Million Pounds Per Year (Small)

For the final rule, small poultry first processing facilities include facilities with production rates less than or equal to 100 million pounds per year (live weight killed). EPA is not establishing limitations for any existing small poultry first processing facilities in Subcategory K. However, EPA is establishing new source performance standards for new facilities. The following sections discuss EPA's decision not to establish BPT, BCT, or BAT limitations and to establish NSPS for small direct discharge facilities in Subcategory K.

a. BPT/BCT/BAT

In 2002, EPA proposed new BPT/BCT/BAT for the small poultry first processors based on Option 1. EPA has also evaluated Option 2 for small facilities in this subcategory. Based on comments on the proposal and the incorporation of data from the detailed surveys, EPA is not establishing BPT/BCT/BAT limitations for small facilities in Subcategory K (poultry first processors) for this final rule for the following reasons.

First, even though Option 1 and Option 2 are available technologies (*i.e.*, partial and more complete nitrification, respectively) readily applicable to all small facilities in Subcategory K, the cost of compliance with these limitations in relation to the effluent reduction benefits is disproportionate. For poultry first processor facilities with production rates less than or equal to 100 million pounds of live weight killed (LWK) per year EPA estimates it will cost $1,487 per pound of pollutant removed (1999$) for Option 1 and $501 per pound (1999$) for Option 2. These values significantly exceed the $37 per pound removed benchmark that EPA is using, as guidance, to assess BPT cost reasonableness.

Consequently, EPA has determined the total cost of effluent reductions using the Option 1 technology and the Option 2 technology are not reasonable in relation to the effluent reduction benefits. The Agency tried to avoid ''double-counting'' pollutant reductions that would occur if, for example, EPA summed removals of COD and BOD. Therefore, EPA used the sum of BOD_5 and ammonia (as nitrogen) removed to estimate the pounds of pollutant removed under the technology options for these facilities. As noted previously, EPA estimates this cost as $1,487 per pound removed for Option 1 and $501 per pound removed for Option 2. Second, EPA found that compliance with limitations based on Option 1 or Option 2 technology will result in at least 36 closures for the existing small direct dischargers for which facility-level financial data exists. As discussed in Section IX, EPA only had sufficient financial data for 9 out of an estimated 37 small facilities in this subcategory. Therefore, there may be more closures than EPA is able to project.

Existing small direct discharge facilities in Subcategory K will remain subject to permit limits based on the best professional judgment of the permit writer.

b. New Source Performance Standards (NSPS)

For the 2002 proposal, EPA proposed new NSPS based on Option 1. In the NODA (68 FR 48500; August 13, 2003), EPA gave notice that it was considering the modified options (*i.e.*, Option 2.5, Option 2.5+P, and no revision/no regulation) in addition to the proposed options (*i.e.*, Option 1 and Option 2) for small slaughtering facilities. Based on comments received on the proposal and the completion of the review and incorporation of data from the detailed surveys, EPA is establishing NSPS standards for small facilities in Subcategory K based on Option 2. There are no current new source performance standards for small poultry first processors and 75 percent of small facilities in EPA's database currently use Option 2 technology (or more advanced technology); therefore, Option 2 is demonstrated technology for this segment of facilities. However, EPA determined that the ratio of capital costs to total assets for the facilities in this subcategory to be 13% for both Option 1 and Option 2 technology levels. While 13 percent of average total assets is a significant level, EPA has concluded that the limited amount of data for these facilities limited the analysis and the actual ratio of capital costs to total assets for new facilities may be much lower. For example, the analysis includes one facility whose ratio is greater than 30%, while another facility has a ratio of approximately 4%. Thus, since the barrier to entry test results are identical for Options 1 and 2, and 75% of existing facilities use Option 2 technology, EPA selected the more stringent Option 2 as the level of control for new sources for ammonia (as nitrogen) and the five conventional pollutants.

2. Poultry First Processing Facilities That Slaughter More Than 100 Million Pounds Per Year (Non-Small)

a. Pollutants

For non-small facilities in Subcategory K, EPA is, for the first time, establishing limitations and standards for BOD_5, TSS, O&G (as HEM), pH, fecal coliforms, ammonia (as nitrogen), and total nitrogen for existing and new sources. As discussed in Section V.G, the new limitations and standards are concentration-based. The following sections discuss the technology bases EPA selected for the final rule for the direct discharge non-small facilities in Subcategory K.

b. Best Practicable Control Technology Currently Available (BPT)

In 2002, EPA proposed new BPT for the non-small poultry first processors (Subcategory K) based on Option 3 to control five conventional pollutants or pollutant parameters (BOD_5, TSS, O&G (as HEM), fecal coliforms, and pH) and also control ammonia (as nitrogen), total nitrogen, and total phosphorus. As discussed in the NODA, after review and evaluation of the revised and new data, EPA has reconsidered its assessment of Option 3 technology.

EPA is establishing BPT limitations for BOD_5, TSS, O&G (as HEM), fecal coliforms, pH, and ammonia (as nitrogen) for non-small direct dischargers in Subcategory K based on technology Option 2. (See Section 8 of the TDD for today's final rule for

additional details on the Option 2 technology).

The Agency concluded that the Option 2 treatment technology represents the best practicable control technology currently available and is the basis for the BPT limitations for these facilities for the following reasons.

First, this technology is available technology and is readily applicable to all non-small facilities in Subcategory K. More than 92 percent of the non-small direct discharging facilities in these subcategories are using Option 2 technology, or more advanced technology, today. Although most facilities have the components of Option 2 technology in place (*e.g.*, nitrification basin/aerobic reactor), some facilities are not achieving the projected Option 2 long-term average concentrations (LTAs). EPA attributes this to their failure to operate or maintain the Option 2 technology adequately. (See Sections 10 and 11 of the final rule TDD for additional discussion of the cost and loading methodologies.) Consequently, when estimating the costs of compliance with Option 2, EPA included costs for treatment optimization for a number of facilities to achieve the Option 2 LTA. For example, EPA included costs for increased aeration, chemical addition, sludge handling, process controls, in-process sampling, analytical testing, and capacity.

Second, the cost of compliance with these limitations in relation to the effluent reduction benefits is not disproportionate. EPA projects that compliance with BPT limitations based on Option 2 technology will not result in closures of existing non-small direct dischargers in these subcategories. Moreover, adopting this level of control will create a significant reduction in pollutants discharged into the environment. For poultry first processor facilities with production rates greater than 100 million pounds LWK per year using Option 2, EPA estimates an annual compliance cost of $17.7 million (pre-tax, 1999$) and removal of 980,000 pounds of BOD_5 and ammonia (as nitrogen) from current discharges into the Nation's waters at a cost of $18.18 per pound of pollutant removed (1999$). This cost per pound of pollutant removed is below the $37 per pound benchmark that EPA is using, as guidance, to evaluate cost-reasonableness.

EPA considered Option 2.5 (which also includes partial denitrification) as the basis for BPT limitations. However, Option 2.5 does not remove any additional pounds of conventional pollutants or ammonia (as nitrogen) and costs $9.4 million more annually than Option 2. In addition, EPA found that 45 percent of non-small facilities in Subcategory K in EPA's database are using the components of Option 2.5 technology (*e.g.*, facility has in place a denitrification basin, nitrification basin and disinfection) or more advanced technology. Because Option 2.5 costs more, does not remove additional pollutants, and is not as widely available as Option 2 technology, EPA did not select it as the basis of BPT limitations.

Furthermore, EPA did not select Option 2.5+P or Option 4 as the basis for BPT limitations, as they do not achieve adequate additional pollutant reductions as compared to their additional compliance costs. Specifically, Option 2.5+P does not achieve any additional removals of conventional pollutants or ammonia (as nitrogen) as compared to Option 2, but it would cost an additional $45.7 million (in 1999 dollars) annually. Option 4 would remove an additional 170,000 pounds of ammonia (as nitrogen) for an additional $91.4 million (in 1999 dollars) annually. Other options the Agency considered for BPT were not selected due to lack of availability and/or poor BPT cost and removal comparison. Both the proposal and the NODA contain detailed discussions explaining why EPA rejected setting BPT limitations based on other technology (*see* 67 FR 8629; February 25, 2002 and 68 FR 48499; August 13, 2003). The record for today's final rule provides no basis for EPA to change these conclusions.

c. Best Conventional Pollutant Control Technology (BCT)

In deciding whether to adopt more stringent limitations for BCT than BPT for Subcategory K, EPA considered whether technologies other than those adopted for BPT will achieve greater removal of conventional pollutants and whether the costs of those technologies are reasonable under the standards established by the CWA. EPA generally refers to the decision criteria as the ''BCT cost test.'' EPA is promulgating BCT effluent limitations for conventional parameters (*e.g.*, pH, TSS, O&G (as HEM)) equivalent to BPT for this subcategory because the Agency did not identify technologies that can achieve greater removals of conventional pollutants that also pass the BCT cost test. EPA evaluated adding a filter to the BPT technology (*i.e.*, Option 2 + F) in order to get further conventional pollutant reductions. However, this technology option failed the BCT cost test. (For a more detailed description of the BCT cost test and details on EPA's analysis, see the Economic and Environmental Benefits Analysis in the rulemaking record.)

d. Best Available Technology Economically Achievable (BAT)

EPA proposed to establish the BAT level of regulatory control for non-small facilities in Subcategory K based on Option 3 (*i.e.*, biological treatment, more complete nitrification, more complete denitrification and disinfection). As discussed in the NODA, after review and evaluation of the revised and new data, EPA has reconsidered its assessment of Option 3 as BAT technology. EPA determined that Option 3 did not meet all the statutory criteria for BAT. The Agency refocused its evaluation for the technology basis for BAT on Option 2.5, Option 2.5+P or Option 4 for nutrient removal (see Section VII.A of today's preamble for a description of the technology options). For the final rule, EPA bases the BAT limitations for these facilities on Option 2.5 technology and is promulgating a limitation for total nitrogen on this basis. However, EPA is setting a limitation for ammonia (as nitrogen) that is equal to BPT, because using Option 2.5 technology or higher does not result in any additional ammonia removal than the technology used to establish BPT (Option 2).

The following section describes EPA's rationale for selecting Option 2.5 technology and rejecting Option 2.5+P and Option 4. The proposal and the NODA (see 67 FR 8629 and 68 FR 48499) contain detailed explanations why EPA rejected setting BAT limitations based on other technology options, and the record for today's final rule provides does not support EPA changing these conclusions.

EPA has determined that Option 2.5 technology is available in Subcategory K, as 45 percent of the non-small facilities in this subcategory in EPA's database use the components of Option 2.5 (or more advanced technology) and is economically achievable. EPA estimates the compliance costs for Option 2.5 to be $31.8 million (in 1999 dollars). Using the facility and company closure methodologies described in Section IX.A, EPA believes that no facilities or companies will close. For a sensitivity analysis, EPA also estimated closures using a less stringent decision rule (closure under one of three forecast methodologies rather than at least two of three). Using the alternate analysis, EPA estimates no facilities will close under Option 2.5.

EPA also considered nutrient removal cost-effectiveness when evaluating BAT options for this industry. For Option

2.5, EPA estimates 9.4 million pounds removed per year of total nitrogen and a nutrient cost-effectiveness of $3.40 per pound of total nitrogen removed. Because Option 2.5 does not include phosphorus removal, EPA did not calculate nutrient cost-effectiveness for phosphorus for Option 2.5. EPA concludes that Option 2.5 is nutrient cost-effective for total nitrogen.

EPA considered Option 2.5+P as the basis of BAT, but rejected it. Fourteen percent of non-small facilities in Subcategory K in EPA's database use Option 2.5+P technology (or more advanced technology). EPA estimates the pre-tax annualized cost of Option 2.5+P is $63.4 million (1999$), which is $31.6 million more than Option 2.5. EPA estimates no facility closures and one company closure for Option 2.5+P **Note:** Facilities that are owned by the company that is projected to close did not provide facility-level financial information; therefore, those facilities are not part of the facility-level analysis). Option 2.5+P removes 4.1 million pounds per year of total phosphorus and achieves the same level of nitrogen and conventional pollutant reduction as Option 2.5. Therefore, EPA estimates the average nutrient cost-effectiveness to be $6.77 per pound total nitrogen removed and $15.28 per pound total phosphorus removed. These values exceed the benchmark that EPA is using, as guidance, for cost-effectiveness. Therefore, EPA did not select Option 2.5+P due to the poor cost-effectiveness for nutrients.

EPA also considered, but did not select, Option 4 as the basis of BAT limitations due to the high increase in cost as compared to Option 2.5, the poor incremental nutrient cost-effectiveness (*i.e.*, the high cost to remove additional nutrients as compared to Option 2.5+P), and high number of closures.

EPA estimates that almost 3 percent of direct discharge non-small facilities in this subcategory currently operate Option 4 technology (or more advanced technology). EPA estimates the pre-tax annualized compliance costs for Option 4 to be $109.1 million (1999$), which is $45.7 million more than Option 2.5+P and $77.3 million more than Option 2.5. EPA also estimates that Option 4 removes 20.9 million pounds per year of nitrogen (11.5 million more than Option 2.5 or Option 2.5+P) and 4.7 million pounds per year of phosphorus (about 520,000 pounds per year more than Option 2.5+P). However, EPA projects 22 facility closures and one company closure under Option 4 and estimates the average nutrient cost-effectiveness to be $5.22 per pound total nitrogen removed and $23.35 per pound total phosphorus removed (see Section IX for nutrient cost-effectiveness result for all options by subcategory). The incremental nutrient cost-effectiveness is $6.71 per pound of nitrogen removed (relative to Option 2.5) and $87.17 per pound of phosphorus removed (relative to Option 2.5+P). Option 4 exceeds the $4 per pound removed benchmark value for nitrogen and the $10 per pound removed benchmark value for phosphorus. Therefore, EPA finds that Option 4 is not cost-effective for total nitrogen or phosphorus removal and is not economically achievable technology.

EPA is establishing BAT limitations for ammonia (as nitrogen) that are equivalent to the limitations it is promulgating today under BPT for facilities in Subcategory K. EPA considered setting more stringent limitations for ammonia (as nitrogen) under BAT; however, the selected BAT technology option (Option 2.5) does not remove any additional quantity of ammonia (as nitrogen). Although Option 4 does remove some additional pounds of ammonia (as nitrogen) as compared to Option 2, EPA did not select Option 4 for BAT for the reasons discussed earlier in this section.

e. New Source Performance Standards (NSPS)

EPA considers the barrier to entry into the industry for a new facility that results from the compliance costs of the regulation and whether or not there are new source standards in place for the facilities. For this rule, EPA used the ratio of average capital costs to average total assets to measure the potential for barrier to entry due to the MPP rule. EPA estimated the ratio of costs to assets for Option 2.5, 2.5+P, and Option 4: they range from 4.0% for Option 2.5 to 4.2% for Option 2.5+P to 12.3% for Option 4. The estimates for Option 2.5+P and Option 4, however, do not reflect EPA's additional evaluation of the costs for chemical phosphorus based on comments EPA received (see DCN 300–015). From this additional evaluation, EPA concludes that for non-small poultry first processors costs may be $25,000 to $106,000 more per facility for chemical phosphorus removal (including costs for additional sludge disposal) than those used in EPA's barrier to entry analysis, as discussed here. EPA is concerned that, with these additional costs, the ratio may rise to a level that the Agency would consider to be a barrier to entry for Option 2.5+P and Option 4. Therefore, EPA is setting standards for new sources equivalent to the BAT limitations established by today's final rule (*i.e.*, based on Option 2.5 technology) for total nitrogen and equivalent to BPT (*i.e.*, based on Option 2 technology) for ammonia (as nitrogen) and the five conventional pollutants.

G. What Is the Basis for EPA's Selected Technology Options for Subcategory L (Poultry Further Processing)?

In 2002, EPA proposed a production threshold of 7 million pounds (finished product) per year for facilities in Subcategory L. EPA proposed this threshold to allow for different limitations for small and non-small poultry further processing facilities. EPA is retaining the proposed threshold for the final rule. Therefore, this section discusses small and non-small facilities separately. Costs presented in this section are presented in 1999 year dollars which is the base year of the survey; however, EPA provides updated estimates in 2003 year dollars in Section VIII.B.

1. Poultry Further Processing Facilities That Produce Less Than or Equal to 7 Million Pounds Per Year (Small)

For the final rule, small poultry first processing facilities include facilities with production rates less than or equal to 7 million pounds (finished product) per year. EPA is not establishing limitations for any existing small poultry further processing facilities in Subcategory L. However, EPA is establishing new source performance standards for new facilities. The following sections discuss EPA's decision not to establish BPT, BCT, or BAT limitations and to establish NSPS for small direct discharge facilities in Subcategory L.

a. BPT/BCT/BAT

In 2002, EPA proposed new BPT/BCT/BAT for the small poultry further processors based on Option 1. EPA has also evaluated Option 2 for small facilities in this subcategory. Based on incorporation of data from the detailed surveys, EPA is not establishing BPT/BCT/BAT limitations for small facilities in Subcategory K (poultry first processors) for this final rule for the following reasons.

First, even though Option 1 and Option 2 are available technologies (*i.e.*, partial and more complete nitrification, respectively) readily applicable to all small facilities in Subcategory L, the cost of compliance with these limitations in relation to the effluent reduction benefits is disproportionate. For poultry further processor facilities with production rates less than or equal to 7 million pounds of live weight killed (LWK) per year EPA estimates it will cost approximately $74 per pound of

pollutant removed (1999$) for Option 1 or Option 2, which exceeds the $37 per pound removed benchmark that EPA is using, as guidance, to evaluate BPT cost-reasonableness.

Consequently, EPA has determined the total cost of effluent reductions using the Option 1 or Option 2 technology is not reasonable in relation to the effluent reduction benefits. Second, due to lack of facility-level financial data, EPA could not estimate closures that would result with BPT limitations based on Option 1 or Option 2 technology. In addition, the analysis of financial data for small facilities in Subcategory L was complicated by the fact that some facilities performing operations fitting within the scope of Subcategory L also perform operations that are regulated under Subcategories F–I (meat further processors). (See Section IX for discussion of ''mixed processors.'') Existing small direct discharge facilities in Subcategory L will remain subject to permit limits based on the best professional judgment of the permit writer.

b. New Source Performance Standards (NSPS)

In 2002, EPA proposed new NSPS for small poultry further processors (Subcategory L) based on Option 1. In the NODA (68 FR 48500; August 13, 2003), EPA gave notice that it was considering the modified options (*i.e.*, Option 2.5, Option 2.5+P, and no revision/no regulation) in addition to the proposed options (*i.e.*, Option 1 and Option 2) for these facilities. After considering comments and the data from the detailed surveys, EPA is establishing NSPS standards for small poultry further processing facilities based on Option 2. EPA determined that all existing small poultry further processors in EPA's database currently use the components of Option 2 technology, although, as noted above, they would incur additional costs to meet the Option 2 LTAs. In addition, EPA determined that there is no barrier to entry for either Option 1 or Option 2 as the ratio of capital costs to total assets for the facilities in this subcategory is 0.4% for both Option 1 and Option 2 technology levels. Finally, there are no current new source performance standards in place for small facilities in Subcategory L. Since the barrier to entry test results are identical for Options 1 and 2, and all existing facilities have the components in place for Option 2 technology, EPA selected the more stringent Option 2 as the level of control for new sources for ammonia (as nitrogen) and the five conventional pollutants.

2. Poultry Further Processing Facilities That Produce More Than 7 Million Pounds Per Year (Non-Small)

a. Pollutants

For non-small facilities in Subcategory L, EPA is, for the first time, establishing limitations and standards for BOD_5, TSS, O&G (as HEM), pH, fecal coliforms, ammonia (as nitrogen), and total nitrogen for existing and new sources. As discussed in Section V.G, the new limitations and standards are concentration-based. The following sections discuss the technology bases EPA selected for the final rule for the direct discharge non-small facilities in Subcategory L (poultry further processors).

b. Best Practicable Control Technology Currently Available (BPT)

In 2002, EPA based its proposal for new BPT for the poultry further processors (Subcategory L) on Option 3 to control five conventional pollutants or pollutant parameters (BOD_5, TSS, O&G (as HEM), fecal coliforms, and pH) and also control ammonia (as nitrogen), total nitrogen, and total phosphorus. As discussed in the NODA, after review and evaluation of the revised and new data, EPA has reconsidered its assessment of Option 3 technology.

EPA has today decided to establish BPT limitations for BOD_5, TSS, O&G (as HEM), fecal coliforms, pH, and ammonia (as nitrogen) for non-small direct dischargers in Subcategory L based on technology Option 2. (See Section 8 of the TDD for today's final rule for additional details on the Option 2 technology).

The Agency concluded that the Option 2 treatment technology is the best practicable control technology currently available, and it should be the basis for the BPT limitations for these facilities. First, this technology is available and readily applicable to all non-small facilities in Subcategory L. EPA estimates that all non-small direct discharge facilities in this subcategory currently operate Option 2 technology (or more advanced technology).

Second, the cost of compliance with these limitations in relation to the effluent reduction benefits is not disproportionate. For poultry further processing facilities with production rates greater than 7 million pounds finished product per year, EPA estimates an annual compliance cost under Option 2 of $557,000 (pre-tax, 1999$) and 18,600 pounds of BOD_5 and ammonia (as nitrogen) removed from current discharges at a cost of $29.88 (1999$) per pound of pollutant removed. In estimating the pounds of pollutant removed based on Option 2 technology for these facilities, EPA used the sum of BOD_5 and ammonia (as nitrogen) removed. The cost per pound removed approaches but is still below the $37 per pound value that EPA uses as guidance in evaluating BPT cost-reasonableness.

EPA considered Option 2.5 (which also includes partial denitrification) as the basis for BPT limitations. However, Option 2.5 does not remove any additional pounds of conventional pollutants or ammonia (as nitrogen) compared to Option 2 but costs almost $426,000 more annually. In addition, EPA found that Option 2.5 technology is not as widely available as Option 2 technology. That is, 37 percent of non-small poultry further processors in EPA's database use Option 2.5 (or more advanced) technology, while 100 percent use Option 2 (or more advanced) technology. Thus, EPA did not select Option 2.5 as the basis of BPT limitations.

Furthermore, EPA did not select either Option 2.5+P or Option 4 as the basis for BPT limitations because they do not achieve adequate pollutant reductions relative to additional compliance costs. Specifically, Option 2.5+P does not achieve any additional removals of conventional pollutants or ammonia (as nitrogen) but would cost $918,000 more each year than Option 2. Option 4 would remove an insignificant amount of ammonia (as nitrogen) for an additional $2.7 million annually. EPA did not select other options it considered for BPT due to lack of availability and poor BPT cost and removal comparison. The 2002 proposal and the NODA (see 66 FR 457 and 68 FR 48499) contain detailed explanations of why EPA rejected BPT limitations based on other BPT technology options. The information in the record for today's final rule does not support EPA's changing these conclusions.

c. Best Conventional Pollutant Control Technology (BCT)

In deciding whether to adopt more stringent limitations for BCT than BPT, EPA considered whether there are technologies other than those adopted for BPT that achieve greater removals of conventional pollutants and whether those technologies are cost-reasonable under CWA standards. EPA generally refers to the decision criteria as the ''BCT cost test.'' EPA is promulgating effluent limitations for conventional parameters (*e.g.*, pH, TSS, O&G (as HEM)) equivalent to BPT for Subcategory L because it identified no technologies achieving greater removals of conventional pollutants that also pass

the BCT cost test. EPA considered adding a filter to the BPT technology (*i.e.*, Option 2 + F) to get further conventional pollutant reductions; however, this technology option failed the BCT cost test. For a more detailed description of the BCT cost test and details on EPA's analysis, see the Economic and Environmental Benefits Analysis in the rulemaking record.

d. Best Available Technology Economically Achievable (BAT)

EPA proposed to establish the BAT level of regulatory control for non-small facilities in Subcategory L based on Option 3 (*i.e.*, biological treatment, more complete denitrification, more complete nitrification, and disinfection). As discussed in the NODA, after review and evaluation of the revised and new data, EPA has reconsidered its assessment of Option 3 as BAT technology. EPA determined that Option 3 did not meet all the statutory criteria for BAT. The Agency refocused its evaluation for the technology basis for BAT on Option 2.5, Option 2.5+P, or Option 4 for nutrient removal (see Section VII.A of today's preamble for a description of the technology options). For the final rule, EPA bases the BAT limitations for these facilities on Option 2.5 technology and is promulgating a limitation for total nitrogen on this basis. EPA is, however, setting a limitation for ammonia (as nitrogen) that is equal to BPT.

The following section describes EPA's rationale for selecting Option 2.5 technology and rejecting Option 2.5+P and Option 4. The proposal and the NODA (see 67 FR 8629 and 68 FR 48499) contain detailed explanations why EPA rejected setting BAT limitations based on other technology options, and the record for today's final rule does not support EPA changing these conclusions.

EPA selected Option 2.5 technology as the basis of BAT for non-small facilities in Subcategory L for two reasons. First, Option 2.5 technology has been demonstrated as available in Subcategory L. EPA estimates that 37 percent of non-small direct discharge facilities in this subcategory in EPA's database currently operate at or above the Option 2.5 technology level. Second, Option 2.5 is economically achievable. EPA estimates the compliance costs (pre-tax, 1999$) for Option 2.5 to be $983,000 per year. Using the closure methodology described in Section IX, there is a slight probability (0.9%) that there could be one facility closure under Option 2.5.

EPA also considered nutrient removal cost-effectiveness when evaluating BAT options for this industry. For Option 2.5, EPA estimates 146,000 pounds removed per year of total nitrogen and a nutrient cost-effectiveness of $6.71 per pound total nitrogen removed. Option 2.5 does not include phosphorus removal; therefore, EPA did not calculate nutrient cost-effectiveness for phosphorus for Option 2.5. For the subcategory, Option 2.5 exceeds the $4/lb removed value EPA uses as guidance for nitrogen cost-effectiveness. However, facilities in Subcategory L perform operations similar to the facilities covered in other subcategories being regulated for nitrogen. Due to the competitiveness among these facilities and its economic achievability, EPA is including nitrogen limitations in the final rule for this subcategory. EPA also notes that Option 2.5 also results in a substantial increase in removals of conventional pollutants relative to Option 2—in excess of 136,000 pounds of BOD.

EPA considered Option 2.5+P as the basis of BAT but rejected it. EPA estimates that 9 percent of the non-small poultry further processors use Option 2.5 (or more advanced) technology with phosphorus removal. The pre-tax annualized cost of Option 2.5+P is $1.5 million (1999$) and the probability of a facility-level closure is less than 1.4% (*i.e.*, at most one facility closure). Option 2.5+P removes 25,000 pounds per year of total phosphorus and achieves the same level of nitrogen and conventional pollutant reduction as Option 2.5. Therefore, EPA estimates the average nutrient cost-effectiveness to be $58.98 per pound of total phosphorus removed. Therefore, EPA did not select Option 2.5+P due to the poor cost-effectiveness for phosphorus.

EPA also considered Option 4 as the basis of BAT but did not select it due to the high increase in cost compared to Option 2.5 and the poor nutrient cost-effectiveness (*i.e.*, the high cost to remove additional nutrients compared to Option 2.5+P).

Nine percent of non-small direct discharge facilities in this subcategory operate Option 4 technology (or more advanced technology). Therefore, EPA considers the technology to be available. EPA estimates the pre-tax annualized compliance costs for Option 4 to be $3.3 million (1999$), which is $1.8 million more than Option 2.5+P and $2.3 million more than Option 2.5. Option 4 removes 354,000 pounds per year of nitrogen (208,000 more than Options 2.5 or 2.5+P) and 27,000 pounds per year of phosphorus (approximately 2,000 more pounds per year than Option 2.5+P). There is a 3% probability of a facility-level closure for Option 4 (*i.e.*, at most one facility closure) and a ratio of 16.8% when comparing annualized compliance costs to net income. EPA considers this cost to revenue ratio high and an indication that Option 4 is not economically achievable for non-small facilities in Subcategory L. Finally, the incremental nutrient cost-effectiveness for nitrogen (as compared to Option 2.5) is $11 per pound total nitrogen removed and for phosphorus (as compared to Option 2.5+P) is $902 per pound total phosphorus removed. Therefore, EPA finds that Option 4 is not nutrient cost-effective for total nitrogen or total phosphorus removal and is not economically achievable.

EPA is establishing BAT limitations for ammonia (as nitrogen) that are equivalent to the limitations it is promulgating today under BPT. EPA considered setting more stringent limitations for ammonia (as nitrogen) under BAT; however, the selected BAT technology option (Option 2.5) does not remove any additional quantity of ammonia (as nitrogen). Although Option 4 does remove some additional pounds of ammonia (as nitrogen) as compared to Option 2, EPA did not select Option 4 for BAT for the reasons discussed earlier in this section.

e. New Source Performance Standards (NSPS)

For this rule, EPA used the ratio of average capital costs to average total assets to measure the potential barrier to entry due to the MPP rule. However, several non-small facilities in Subcategory L also perform operations that fall under the scope of Subcategories F-I. This complicates the analysis of the barrier to entry data. EPA estimated the ratio of costs to assets for Option 2.5, Option 2.5+P, and Option 4 for non-small poultry further processing facilities (Subcategory L). The ratios range from 0.1% for Option 2.5 and Option 2.5+P to 0.6% for Option 4. The estimates for Option 2.5+P and Option 4, however, do not reflect EPA's additional evaluation of the costs for chemical phosphorus based on comments EPA received (see DCN 300–015). EPA performed an analysis using increased quantities of alum for chemical phosphorus removal for the detailed survey respondents (*i.e.*, non-small meat and poultry slaughterers). From this additional evaluation, EPA concludes that costs for poultry slaughterers may be between 2 percent and 43% more per facility for chemical phosphorus removal (including increased sludge disposal) than those used in EPA's barrier to entry analysis, as discussed here. EPA is concerned that, with similar additional costs, the

ratio for further processors may rise to a level that the Agency would consider to be a barrier to entry for Option 2.5+P and Option 4. Based on these results, EPA has decided to establish standards for new sources equivalent to the BAT limitations based on Option 2.5 technology for total nitrogen and equivalent to BPT (based on Option 2) for ammonia (as nitrogen) and the five conventional pollutants.

VIII. How Did EPA Estimate the Pollutant Loadings and Compliance Costs for the Final Rule?

A. Pollutant Reductions

1. How Did EPA Estimate Pollutant Loadings and Reductions for the Final Rule?

As discussed in Section V, in response to comments on the proposal EPA revised the method to estimate compliance costs. The revised assessment of pollutant loading reductions was developed at the facility-level similar to the revised analysis of costs.

EPA developed target effluent concentrations for each treatment option for 11 pollutants of concern. These 11 pollutants of concern are comprised of the eight pollutants that EPA proposed for regulation (ammonia (as N), 5-day biochemical oxygen demand (BOD5), chemical oxygen demand (COD), fecal coliforms, oil and grease (as hexane extractable material), total nitrogen, total phosphorus, and total suspended solids (TSS)), with the addition of 3 other pollutants (carbonaceous biological oxygen demand (CBOD), nitrate+nitrite as nitrogen, and total Kjeldahl nitrogen (TKN)) that EPA also considered for regulation after the proposal. For a discussion on pollutants selected for regulation in today's final rule see Section V.B.

To estimate the baseline pollutant loadings, EPA first established baseline pollutant concentrations for the selected 11 pollutants of concern for each facility for which EPA had estimated costs. Facility baseline concentrations are the estimated pollutant concentrations in the MPP wastewaters that a facility is currently discharging.

For each facility, EPA made extensive efforts to obtain analytical effluent wastewater concentration data representative of the treatment system in place at the facility. Data sources EPA used to establish the baseline pollutant concentration for a specific facility included the following: Data provided in the detailed survey; corrections to a ''fact sheet'' sent to each facility that summarized information about the facility's effluent concentrations, wastewater flows, and wastewater treatment operations; data provided by the facility through telephone communications; sampling episode data; site visit data; discharge monitoring report (DMR) data from the EPA Permit Compliance System (PCS), EPA Regional Office, or State regulatory agency; and effluent data provided in the facility's NPDES permit application.

When effluent data were available, EPA used the annual average concentrations reported for 1999 because 1999 was the base year of the MPP detailed survey. EPA also used concentrations reported for years after 1999, but only when data from 1999 were unavailable and only if facility operations or treatment performance had not significantly changed since 1999. In instances where data from more than one source were available for a particular facility, EPA used the data that represented and encompassed the largest span of time. For example, if both detailed survey data and sampling episode data were available for a facility, EPA used average concentration from the detailed survey data instead of the sampling episode data. In this example the detailed survey data represented the average pollutant concentration over a year while the sampling episode data represented the average concentration over a period of 3 or 5 days.

When EPA could not obtain effluent data for a pollutant or pollutants from any of the above data sources, EPA derived default concentrations. In particular, EPA derived default concentrations for certain pollutants if data on an associated pollutant parameter were available. For example, based on the available data from the sampling episodes and detailed survey data, EPA found a strong relationship between BOD and CBOD concentrations in MPP wastewaters. Therefore, when a facility did not have data on effluent CBOD concentrations, but did have effluent BOD data, EPA estimated the CBOD concentration based on the BOD data (more detailed information on the calculations and formulas development are available in Section 19.6.1, DCN 100–784 of the rulemaking record).

Considerable effort was made to either obtain analytical effluent concentration data or to calculate pollutant concentrations based on another pollutant where EPA's data demonstrated a correlation. For example, EPA calculated baseline concentrations for total nitrogen (based on TKN and nitrate+nitrite values) for many facilities. However, when analytical effluent data for a particular pollutant was unavailable and could not be calculated, then EPA used a default value for the facility. EPA calculated default concentrations for BOD_5, COD, fecal coliforms, ammonia as nitrogen, oil and grease (HEM), and TSS. For each regulatory subcategory, EPA averaged all the available analytical data for a particular pollutant from all the facilities matching the subcategory and EPA used this average as the default value. Previously, default concentrations were also developed for nitrate+nitrite as nitrogen concentrations. However, by using default nitrate+nitrite values it was observed that inconsistencies between the influent and effluent total nitrogen concentrations occurred at certain facilities. For example, facilities with only nitrification treatment would appear to have significant denitrification based on the use of default nitrate+nitrate concentrations. Therefore, EPA revised the calculation of nitrate+nitrite concentrations for facilities with only nitrification treatment based on a total nitrogen balance between the influent and effluent wastewater concentrations. For facilities with partial denitrification treatment, the calculated average total nitrogen percent removal at facilities with partial denitrification treatment was applied to the influent value to calculate the effluent concentration. More detailed information is available in the Technical Development Document.

Because of the general lack of data for the pollutants of concern and the similarity in wastewater characteristics for stand-alone meat and poultry further processors (Subcategories F-I and L, respectively), EPA combined the baseline data from these two facility types. The result was one set of default baseline concentrations that applied to all further processors, regardless of whether the facility was a meat or poultry further processor. EPA has found that the wastewater characteristics at further processors are more likely to be dependent on the processing operation (*e.g.*, breading, frying) than on the type of meat.

For independent rendering facilities (Subcategory J), in addition to the available analytical data from the sources described previously in this section, EPA used data provided by the MPP Industry Coalition for three independent rendering facilities, and data provided by the National Renderers Association for two independent rendering facilities in the development of default concentrations for Subcategory J facilities.

After EPA determined pollutant concentrations for each facility, EPA

compared and adjusted the facility baseline concentrations for each facility using the permit limits required at the facility. When permit limit data were available for a facility (from a copy of the facility's NPDES permit or from PCS), EPA lowered the concentration equal to the facility's permit limit value if EPA's calculated average baseline effluent concentration was greater than the limit specified in the permit. When available, EPA used monthly average limits contained in the permit. EPA used maximum daily limits when monthly average limits were not available. When permits included seasonal limits, EPA calculated an average concentration for the permit using all seasonal limits. For example, if the permit BOD limit was 20 mg/L for 6 months and 10 mg/L for 6 months, EPA used the average value of 15 mg/L for the permit limit. In this example, if the facility's average effluent BOD was 21 mg/L, EPA would adjust the facility's baseline BOD concentration to the average permit limit of 15 mg/L.

After EPA established baseline pollutant concentrations for each facility, EPA calculated baseline pollutant loadings (in pounds per year, or million colony-forming units per year) based on the facility's baseline concentration and wastewater flow. EPA then estimated national baseline pollutant loadings by multiplying each facility's baseline pollutant loading by the corresponding survey weight assigned to the facility.

In order to estimate pollutant reductions after the implementation of the final limitations and standards for the MPP industry, EPA estimated technology option loadings. Technology option loadings are defined as the estimated pollutant loadings in MPP wastewaters after implementation of the selected technology option; they are also referred to as post-compliance or treated pollutant loadings. To estimate the technology option loadings for each technology option that EPA considered, EPA derived post-compliance pollutant concentrations for each facility for which EPA had developed baseline pollutant loadings.

EPA determined post-compliance concentrations for each facility by comparing the facility's baseline concentration with the technology option target effluent concentration. When the technology option target effluent concentration was lower than the facility's baseline concentration, EPA used the technology option target effluent concentration to represent the facility's effluent pollutant concentration after implementation of the final limitations and standards.

EPA then calculated technology option loadings for each facility using the facility's post-compliance pollutant concentrations and wastewater flow. EPA estimated national technology option loadings by multiplying each facility's technology option loading estimates by the corresponding survey weight assigned to the facility. Finally, for each technology option EPA calculated the national pollutant reductions as the difference between the national baseline pollutant loads and the national technology option pollutant loads.

2. What Are the Pollutant Reductions Associated With This Rule?

Tables VIII.A–1 and VIII.A–2 show the estimated pollutant reductions for each treatment option. The conventional pollutant loadings (*i.e.*, 5-day biological oxygen demand, total suspended solids, and oil & grease (as HEM)) removed for Options 2, 2+P, 2.5, and 2.5+P are the within each subcategory because the additional components above Option 2 technology (*i.e.*, denitrification or phosphorus removal) are not designed to remove conventional pollutants. Therefore, in EPA analysis of pollutant reductions Options 2+P, 2.5 and 2.5+P represent additional removals of nutrients, not conventional pollutants, compared to Option 2. In practice, the addition of chemicals (*e.g.*, alum) to remove phosphorus would cause incidental reductions of total nitrogen, BOD_5, and TSS. Option 4 provides additional removals of both nutrients and conventional pollutants relative to other options. For information see the Technical Development Document in the rulemaking docket.

TABLE VIII.A–1.—REMOVAL OF SPECIFIED POLLUTANTS BY SUBCATEGORY AND OPTION [1]—NON-SMALL FACILITIES

Subcategory	Pollutant	Removals (pounds per year)			
		Option 2	Option 2.5	Opt. 2.5+P	Option 4
A through D (non-small)	5-Day Biochemical Oxygen Demand	609,665	609,665	609,665	640,054
	Total Suspended Solids	967,092	967,092	967,092	1,116,025
	Chemical Oxygen Demand	0	0	0	0
	Carbonaceous Biochem. Oxygen Demand.	511,342	511,342	511,342	511,342
	Ammonia as Nitrogen	2,250,306	2,250,306	2,250,306	2,309,928
	Total Nitrogen	0	15,400,791	15,400,791	18,456,984
	Total Phosphorus	0	0	4,519,867	4,972,188
	Nitrate/Nitrite	0	13,574,558	13,574,558	16,374,921
	Total Kjeldahl Nitrogen	2,212,522	2,212,522	2,212,522	2,228,721
	Oil & Grease (HEM)	0	0	0	0
F through I (non-small)	5-Day Biochemical Oxygen Demand	21,703	21,703	21,703	24,467
	Total Suspended Solids	0	0	0	0
	Chemical Oxygen Demand	42,213	42,213	42,213	42,213
	Carbonaceous Biochem. Oxygen Demand.	18,395	18,395	18,395	18,395
	Ammonia as Nitrogen	10,575	10,575	10,575	13,804
	Total Nitrogen	0	0	0	79,677
	Total Phosphorus	0	0	0	0
	Nitrate/Nitrite	0	0	0	0
	Total Kjeldahl Nitrogen	12,945	12,945	12,945	15,677
	Oil & Grease (HEM)	0	0	0	0
J	5-Day Biochemical Oxygen Demand	34,176	34,176	34,176	36,734
	Total Suspended Solids	0	0	0	19,871
	Chemical Oxygen Demand	0	0	0	0
	Carbonaceous Biochem. Oxygen Demand.	28,570	28,570	28,570	28,570

TABLE VIII.A–1.—REMOVAL OF SPECIFIED POLLUTANTS BY SUBCATEGORY AND OPTION [1]—NON-SMALL FACILITIES—Continued

Subcategory	Pollutant	Removals (pounds per year)			
		Option 2	Option 2.5	Opt. 2.5+P	Option 4
	Ammonia as Nitrogen	48,965	48,965	48,965	56,388
	Total Nitrogen	0	1,469,407	1,469,407	1,652,506
	Total Phosphorus	0	0	590,434	622,583
	Nitrate/Nitrite	0	1,465,011	1,465,011	1,644,216
	Total Kjeldahl Nitrogen	51,819	51,819	51,819	54,788
	Oil & Grease (HEM)	0	0	0	0
K (non-small)	5-Day Biochemical Oxygen Demand	643,830	643,830	643,830	868,841
	Total Suspended Solids	1,309,553	1,309,553	1,309,553	2,573,666
	Chemical Oxygen Demand	6,513,778	6,513,778	6,513,778	11,244,275
	Carbonaceous Biochem. Oxygen Demand.	725,207	725,207	725,207	725,207
	Ammonia as Nitrogen	331,973	331,973	331,973	502,103
	Total Nitrogen	0	9,367,808	9,367,808	20,883,771
	Total Phosphorus	0	0	4,147,385	4,671,571
	Nitrate/Nitrite [2]	0	10,112,961	10,112,961	20,103,140
	Total Kjeldahl Nitrogen	223,255	223,255	223,255	800,944
	Oil & Grease (HEM)	313,477	313,477	313,477	329,373
L (non-small)	5-Day Biochemical Oxygen Demand	9,143	9,143	9,143	18,672
	Total Suspended Solids	135	135	135	3,923
	Chemical Oxygen Demand	43,609	43,609	43,609	59,123
	Carbonaceous Biochem. Oxygen Demand.	13,889	13,889	13,889	13,889
	Ammonia as Nitrogen	9,492	9,492	9,492	16,123
	Total Nitrogen	0	146,364	146,364	354,355
	Total Phosphorus	0	0	25,012	27,000
	Nitrate/Nitrite [2]	0	153,476	153,476	335,921
	Total Kjeldahl Nitrogen	5,685	5,685	5,685	19,039
	Oil & Grease (HEM)	0	0	0	0

[1] Incremental to baseline of current performance. Current performance based on summarized 1999 DMR data provided in response to detailed surveys. Pollutant loading for various treatment options based on sampling data, survey information, and DMR data. (See Section 11 of the Technical Development Document for a detailed discussion of loadings methodology).

[2] EPA recognizes that total nitrogen should be more than nitrate/nitrite as nitrogen because total nitrogen is the sum of nitrate/nitrite as nitrogen and total Kjeldahl nitrogen. However, the target effluent concentrations were taken from different sets of facilities (*i.e.*, those that provided total nitrogen data and those that provided nitrate/nitrite as nitrogen data). EPA is regulating total nitrogen, not nitrate/nitrite nitrogen for the final rule.

TABLE VIII.A–2.—REMOVAL OF SPECIFIED POLLUTANTS BY SUBCATEGORY AND OPTION [1]—SMALL FACILITIES

Subcategory	Pollutant	Removals (pounds per year)	
		Option 1	Option 2
A through D (small)	5-Day Biochemical Oxygen Demand	CBI	Not estimated
	Total Suspended Solids	CBI	Not estimated
	Chemical Oxygen Demand	0	Not estimated
	Carbonaceous Biochemical Oxygen Demand	CBI	Not estimated
	Ammonia as Nitrogen	0	Not estimated
	Total Nitrogen	0	Not estimated
	Total Phosphorus	0	Not estimated
	Nitrate/Nitrite	0	Not estimated
	Total Kjeldahl Nitrogen	0	Not estimated
	Oil & Grease (HEM)	0	Not estimated
F through I (small)	5-Day Biochemical Oxygen Demand	45,264	45,264
	Total Suspended Solids	52,452	52,452
	Chemical Oxygen Demand	0	0
	Carbonaceous Biochemical Oxygen Demand	40,586	40,586
	Ammonia as Nitrogen	2,732	8,297
	Total Nitrogen	0	0
	Total Phosphorus	0	0
	Nitrate/Nitrite	0	0
	Total Kjeldahl Nitrogen	12,423	16,616
	Oil & Grease (HEM)	0	0
K (small)	5-Day Biochemical Oxygen Demand	CBI	CBI
	Total Suspended Solids	CBI	CBI
	Chemical Oxygen Demand	CBI	CBI
	Carbonaceous Biochemical Oxygen Demand	CBI	CBI
	Ammonia as Nitrogen	0	CBI
	Total Nitrogen	0	0
	Total Phosphorus	0	0

TABLE VIII.A–2.—REMOVAL OF SPECIFIED POLLUTANTS BY SUBCATEGORY AND OPTION [1]—SMALL FACILITIES—Continued

Subcategory	Pollutant	Removals (pounds per year)	
		Option 1	Option 2
L (small)	Nitrate/Nitrite	0	0
	Total Kjeldahl Nitrogen	0	CBI
	Oil & Grease (HEM)	0	0
	5-Day Biochemical Oxygen Demand	3	3
	Total Suspended Solids	0	0
	Chemical Oxygen Demand	0	0
	Carbonaceous Biochemical Oxygen Demand	11	11
	Ammonia as Nitrogen	179	179
	Total Nitrogen	0	0
	Total Phosphorus	0	0
	Nitrate/Nitrite	0	0
	Total Kjeldahl Nitrogen	139	139
	Oil & Grease (HEM)	0	0

[1] Incremental to baseline of current performance. Current performance based on summarized 1999 DMR data provided in response to detailed surveys. Pollutant loading for various treatment options based on sampling data, survey information, and DMR data. (See Section 11 of the Technical Development Document for a detailed discussion of loadings methodology).

CBI = Confidential business information is not disclosed due to the limited number of facilities estimated to be in the subcategory.

B. Compliance Costs

1. How Did EPA Estimate the Compliance Costs of the Final Rule?

EPA developed cost models to estimate the costs required to modify an existing nitrifying wastewater treatment system to achieve long-term average (LTA) concentrations (*i.e.*, target effluent concentrations) of the technology options considered for the final rule. EPA developed five cost models: the Option 2 cost model, Option 2+P cost model, Option 2.5 cost models, Option 2.5+P cost model, and Option 4 cost model. EPA used Option 2 cost model with Option 1 LTA concentrations to estimate Option 1 costs for small facilities.

The primary cost model inputs required for each MPP facility are treatment in place, wastewater treatment plant flow, and influent and effluent pollutant concentrations for select parameters. EPA obtained data inputs for each facility from a variety of sources, including the MPP detailed survey, sampling episode reports, site visit reports, and discharge monitoring reports. In the absence of influent concentrations for a facility, EPA used default concentrations. See discussion on development of default baseline concentrations in Section VIII.A.1. The cost models have the ability to cost several alternate treatment systems for the technology options. After reviewing the current influent and effluent concentrations and treatment in place at a facility, EPA selected and calculated costs for a particular treatment system to achieve the Option LTA concentrations.

Based on the input parameters, the model calculates the design parameters (*e.g.*, volume of tanks) of the equipment required to achieve the Option LTA concentrations. The calculated design parameters are used in the cost equations in the model to estimate the cost of the equipment. The summation of the capital costs is annualized and added to the total operation and maintenance (O&M) costs to provide the overall incremental compliance cost of the rule. EPA developed the capital and O&M cost equations from the information obtained from vendors, survey, cost models, and industry comments.

The cost model estimates capital costs for the following treatment components: anoxic tanks, aeration tanks, pumps, mixers, an aeration system, methanol, polymer and alum feed systems, mix tanks, a filtration system, a sludge dewatering system, a holding pond, a lagoon bypass cost, and miscellaneous cost. The O&M costs include costs for maintenance, labor, energy, alkalinity, alum, methanol, polymer, sludge disposal, sampling and analytical, performance improvement, and methane revenue loss due to lagoon bypass. For information see the Technical Development Document in the rulemaking record.

2. What Are the National Costs Associated With the Final Rule?

This section presents EPA's estimate of the total annual costs to the meat and poultry products industry as a result of today's rule. All costs presented in this section are reported in pre-tax 2003 dollars (unless otherwise indicated).

EPA estimates the total pre-tax annualized costs of the final rule at $58.2 million for the selected option (see Table VIII.B–1). Capital costs account for $234 million under the selected regulatory option. Estimated costs per facility are consistently highest for Subcategories A–D ($0.6 million), and lowest for Subcategories F–I ($91,000). Table VIII.B–1 presents compliance costs by subcategory and treatment option for non-small facilities.

The table shows both pre-tax and -tax and post-tax costs. Pre-tax annualized costs are the most complete estimates of annualized control costs and reflect the overall cost to society. EPA presents pre-tax costs also for its Executive Order 12866 analysis (Section XIII.A) and cost-effectiveness analysis (Section IX.H). EPA uses post-tax costs to assess financial impacts under the regulation because they net out tax savings and more accurately reflect the costs that businesses will incur.

TABLE VIII.B–1.—TOTAL AND AVERAGE COMPLIANCE COSTS FOR NON-SMALL FACILITIES BY SUBCATEGORY AND OPTION

Option	Total costs (1000's, 2003 dollars)			Average facility costs (1000's, 2003 dollars)		
	Capital	Post-tax annualized	Pre-tax annualized	Capital	Post-tax annualized	Pre-tax annualized
Subcategory A–D						
Option 2	$27,165	$5,179	$8,051	$937	$179	$278
Option 2.5	75,061	12,395	18,435	2,588	427	636
Option 2.5+P	97,662	30,794	47,412	3,368	1,062	1,635
Option 4	121,753	37,382	57,451	4,198	1,289	1,981
Subcategory F–I [1]						
Option 2	1,106	294	294	276	73	73
Option 2.5	1,124	363	363	281	91	91
Option 2.5+P	1,216	396	396	304	99	99
Option 4	2,350	882	882	588	220	220
Subcategory J [1]						
Option 2	1,429	695	695	75	37	37
Option 2.5	7,755	3,123	3,123	408	164	164
Option 2.5+P	9,978	8,212	8,212	525	432	432
Option 4	12,827	11,237	11,237	675	591	591
Subcategory K						
Option 2	70,650	15,026	19,598	736	157	204
Option 2.5	147,592	28,067	35,151	1,537	292	366
Option 2.5+P	177,432	53,370	70,027	1,848	556	729
Option 4	366,069	93,408	1,205,090	3,813	973	1,255
Subcategory L [1 2]						
Option 2	1,495	615	615	149	62	62
Option 2.5	2,615	1,086	1,086	262	109	109
Option 2.5+P	4,207	1,630	1,630	421	163	163
Option 4	8,641	3,612	3,612	864	361	361
Totals						
Option 2	101,845	21,808	29,253	645	138	185
Option 2.5	234,147	45,033	58,157	1,482	285	368
Option 2.5+P	290,495	94,403	127,677	1,839	597	808
Option 4	511,639	146,521	193,691	3,238	927	1,226

[1] For non-small facilities in Subcategories F–I, J, and L, post-tax annualized costs are equal to pre-tax annualized costs because the analysis is based on model facilities, and EPA assumed a tax shield of $0 to avoid underestimating impacts.

[2] Subcategory includes partial costs for 7 mixed processor facilities with non-small levels of production in Subcategory L and small levels of production in Subcategory F–I; on average, 61 percent of their production falls into Subcategory L. Compliance costs for mixed processor facilities are distributed between subcategories and tables based on their percentage of production in each.

Table VIII.B–1 shows only that percentage of costs for mixed processors that is attributable to non-small levels of production of further processed poultry (Subcategory L). Because EPA chose not to set new effluent limitations and guidelines for small facilities under the final rule, the costs that small facilities would have incurred under the considered (but not selected) options are shown separately in Table VIII.B–2.

Table VIII.B–2 presents estimated total and average compliance costs for small facilities under the various options considered. Table VIII.B–2 includes costs for mixed processors that are attributable to small levels of production of further processed meat (Subcategories F–I) and poultry (Subcategory L). Thus costs for mixed processors are split between different tables and/or subcategories within tables as appropriate.

TABLE VIII.B–2.—TOTAL AND AVERAGE COMPLIANCE COSTS FOR SMALL FACILITIES BY SUBCATEGORY AND OPTION

Option	Total costs (1000's, 2003 dollars)			Average costs (1000's, 2003 dollars)		
	Capital	Post-tax annualized [1]	Pre-tax annualized	Capital	Post-tax annualized [1]	Pre-tax annualized
Subcategory A–D [2]						
Option 1	$2,000–4,000	$1,000–2,500	$1,000–2,500	$150–175	$80–120	$80–120
Option 2 [3]	NA	NA	NA	NA	NA	NA

TABLE VIII.B–2.—TOTAL AND AVERAGE COMPLIANCE COSTS FOR SMALL FACILITIES BY SUBCATEGORY AND OPTION—Continued

Option	Total costs (1000's, 2003 dollars)			Average costs (1000's, 2003 dollars)		
	Capital	Post-tax annualized [1]	Pre-tax annualized	Capital	Post-tax annualized [1]	Pre-tax annualized
Subcategory F–I [4]						
Option 1	2,550	1,224	1,224	121	58	58
Option 2	2,550	1,233	1,233	121	59	59
Subcategory K [2]						
Option 1	7,500–10,000	2,500–5,000	2,500–5,000	200–400	75–100	75–100
Option 2	7,500–10,000	2,500–5,000	2,500–5,000	200–400	75–100	75–100
Subcategory L [5]						
Option 1	19	15	15	6	5	5
Option 2	19	15	15	6	5	5

[1] For small facilities, post-tax annualized costs are equal to pre-tax annualized costs because (1) the facility is an S corporation or LLC (Subcategories A–D and K), so taxes are paid on the income of the owning partners or (2) the analysis is based on model facilities (Subcategories F–I and L), and EPA assumed a tax shield of $0 to avoid underestimating impacts.

[2] Estimated costs are presented as a range to prevent the disclosure of confidential business information.

[3] Option 2 was not costed for small facilities in this subcategory, because EPA did not propose further regulations.

[4] Subcategory includes a share of costs for 7 mixed processor facilities with small levels of production in Subcategory F–I and non-small levels of production in Subcategory L. This subcategory also includes 3 mixed processor facilities with small levels of production in Subcategory F–I and small levels of production in Subcategory L. Compliance costs for mixed processor facilities are distributed between subcategories based on their percentage of production in each.

[5] Subcategory includes a share of costs for 3 mixed processor facilities with small levels of production in Subcategory L and small levels of production in Subcategory F–I. Compliance costs for mixed processor facilities are distributed between subcategories based on their percentage of production in each.

IX. What Are the Economic Impacts Associated With This Rule?

This section presents EPA's estimate of the economic impacts that would be incurred by both existing and new meat and poultry products facilities as a result of today's rule. This section also presents EPA's cost-effectiveness and cost-reasonableness analysis. All costs presented in this section are reported in pre-tax 2003 dollars (unless otherwise indicated).

At the time of the proposal, EPA did not have detailed survey financial data to use as a basis for an economic impact assessment. EPA therefore developed economic impact methodologies based on publicly available information for the proposed rule. These methodologies are described in detail in the proposal (67 FR 8614; February 25, 2002) and in the accompanying Economic Analysis for the proposed rule. EPA's analysis for the proposed rule also describes the methodology it anticipated using to evaluate economic impacts based on the detailed survey data. EPA described further refinements to those methodologies in its NODA (68 FR 48487; August 13, 2003). However, as EPA analyzed the results of the detailed survey data, it became clear that few direct discharging further processors or renderers (Subcategories E–I, Subcategory J, and Subcategory L) had received a detailed survey. Based on the screener survey data, EPA has concluded that there are a few direct discharging facilities in these subcategories (see EPA's proposal at 67 FR 8591 for more information on the screener survey).

For the final rule, EPA projects economic impacts to direct discharging slaughtering facilities (Subcategories A–D and Subcategory K) using detailed survey data and the associated methodologies described in supporting documents for the proposed rule and in the Agency's NODA. EPA projects economic impacts to direct discharging facilities that perform further processing and rendering (Subcategories F–I, Subcategory J, and Subcategory L) using the methodology described in the preamble to the proposed rule, publicly available information, and screener survey data. EPA did not revise its estimates of economic impacts for Subcategory E (Small Processors) developed for the proposed rule because EPA did not propose further regulation of this subcategory (see Section VII for discussion on the regulation of facilities in Subcategory E).

Section A of this section reviews the different methodologies EPA developed to evaluate economic impacts on MPP facilities from expected incremental pollution control costs that will be incurred under the final rule. More information on these methodologies is also provided in the NODA, the Economic Analysis for the proposed rule, and the Economic and Environmental Benefits Analysis for the final rule. Section B presents EPA's estimate of the number of facility closures for each subcategory under the regulation; Sections C and D present EPA's analysis of the projected effects at the company level and market level. Sections E and F show EPA's estimate of the final regulation's effects on foreign trade and communities, respectively. Section G covers EPA's estimate of the economic impacts to new meat and poultry products facilities from complying with today's rule, measured in terms of business barriers to entry. Section H present EPA's cost-reasonableness and cost-effectiveness analyses.

EPA has been examining the causative agents of transmissible spongiform encephalopathies (TSEs) as they relate to such matters as surface treatments and waste disposal. Given the early stages of this examination and ongoing work by other agencies, EPA acknowledges that it cannot presently account for the projected costs associated with the regulatory demand that may be placed on meat processing facilities in the future to deal with transmissible spongiform encephalopathies. These cost will depend on future decisions by the relevant federal agencies and are not

available for inclusion in today's rule. Based on what EPA now knows, however, the rule is economically achievable.

A. What Methods Were Used To Determine the Costs and Economic Impacts?

EPA examined impacts at several levels: facility, company, market, and national. Several facets of various analyses were modified in response to comments on the proposed rule and the NODA. These changes are identified in the following sections.

1. What Method Was Used To Assess Business Closures?

The facility-level analysis examines whether an otherwise profitable site closes in response to the additional costs of increased pollution control. EPA calculates direct impacts, such as closures and losses in employment and revenue based on the survey data for the facilities projected to close as a result of the regulation. EPA developed two methods of evaluating facility closure. EPA bases the first method, as described in the following section (''Facility-Analysis Method for Sites with Detailed Questionnaire Data''), on detailed questionnaire data and uses this approach to estimate closures for Subcategories A–D and Subcategory K facilities. As previously noted, the detailed questionnaires returned to EPA do not fully represent Subcategories E–I, Subcategory J, and Subcategory L facilities. Therefore, for these facilities EPA used a combination of screener survey data and public data to estimate closures among these facilities (see the discussion in the section titled ''Facility-Analysis Method for Sites without Detailed Questionnaire Data'').

a. Facility-Analysis Method for Subcategories With Sufficient Detailed Questionnaire Data

EPA's closure analysis is a discounted cash flow analysis that compares the costs incurred during a 16-year period from 2005 to 2020 to the earnings accumulated during that same period. This analysis discounts both costs and earnings with the facility-specific discount rate reported in the detailed questionnaire. This takes into account the time value of money and places both time series on a comparable basis. To be considered a closure under the final rule, a facility has to show both (1) positive long-term earnings without the regulation and (2) negative long-term earnings as a result of the regulation in the majority of the forecasts. While the analysis may be described simply, EPA does address many complexities within the model, including what to consider as earnings, which costs to consider, and the number and type of forecasting methods used.

Earnings. EPA uses net income as the basis for earnings where it is calculated from detailed questionnaire data as revenues minus operating costs; selling, general, and administrative expenses; depreciation; interest; and taxes.

Forecasting Methods. EPA uses a 16-year time period to forecast facility future income. For the proposal, EPA stated it would use the survey period, 1997 to 1999, as the baseline for projecting facility and company net income for use in the closure model. Commenters felt that it was not appropriate to use this period as the baseline because unusual supply and demand conditions resulted in unusually large margins for meat companies, and therefore, atypically profitable years. EPA concurs with this assessment. To address these concerns EPA developed a forecasting model that uses historical data on the periodic cycles of the relevant markets to generate an index. As discussed in the NODA, EPA uses this index to forecast net income for MPP facilities, accounting for cyclical effects on profits.

In the meat packer and processing sectors, EPA uses time series data from U.S. Department of Agriculture's Economic Research Service (USDA/ERS) to develop a forecast of the annual farm-to-wholesale price margin. To forecast this margin in the poultry sector, EPA developed a new time series by subtracting the USDA/ERS broiler wholesale production cost time series from its broiler wholesale price time series. These time series data, which span from 1970 to 2002 for beef and pork, and from 1990 to 2002 for poultry, are expressed in constant 1999 prices and are deseasonalized.

For this analysis, EPA identified ''normal'' or ''average'' margin cycles for each animal type over the 1970 to 2002 period, which were then econometrically tested to ensure statistical validity. EPA uses these cycles to forecast the wholesale margin for the 2005 to 2020 time period. Complete details of EPA's methodology to measure and forecast the wholesale margin cycles are provided in the docket (see Section 21.2, DCN 125–502).

EPA forecasts facility earnings for use in the closure model by first developing indices using the historical and projected wholesale margin time series and then applies these indices to survey net income data. EPA projects net income to vary directly with the farm-to-wholesale price spread: as the spread narrows, net income declines. As noted in public comments received by EPA, the 1997 to 1999 survey period was at or near the peak of a cycle, and as a result net income could be expected to decline as industry moved toward the cycle trough. Therefore, EPA selected cycle high points (largest annual margin) for the base period of its indices. Accordingly, both the margin and facility net income will, in general, decline as the forecast moves further from the baseline year.

Weight of Evidence to Determine Closure. To account for uncertainty in both the forecast future facility net income, and the appropriate start point of the forecast, EPA selected three methods for projecting future facility net income. One forecast method uses a simple average of 1997, 1998, and 1999 net income projected over the 16-year project life. Based on comments that these were unusually profitable years, EPA developed alternate forecasts where future net income is projected to vary directly with a forecast of the farm-to-wholesale price margin. Thus, the alternate forecasts can be defined by a combination of start points: the net income start point (*i.e.*, the year from which facility net income is taken from the survey), and the initial value for the price margin. The second forecast starts with both 1999 net income and the 1999 margin value as the start point of the business cycle forecast. The third forecast takes the simple average of 1997, 1998, and 1999 to use as the net income start point, then, to capture the peak of the business cycle, selects the largest margin value in the 1995 to 2001 time frame as the start point of the business cycle forecast. EPA used the preponderance of evidence under different forecasting methods to determine if a facility is projected to close. That is, EPA projects a facility will close if the present value (PV) of future compliance costs exceeds the forecast PV of net income under two of the three forecasting methods.

Alternate Analysis. As an alternate analysis, EPA projects closures if the PV of future compliance costs exceeds the forecast PV of net income under one of the three forecasting methods. EPA believes this constitutes a more conservative approach to estimating potential closures. The alternative analysis focuses on subcategories A–D and K only. The results of this analysis do not indicate that there would be a substantial change in the number of estimated facility closures: EPA estimates that there could be two closures among subcategory A–D facilities and no change for subcategory K facilities. See the rulemaking record for additional details.

Baseline Industry Conditions. The focus of EPA's analysis is to evaluate financial impacts that result from complying with the final regulation. However, there are two situations where EPA cannot perform this analysis: if (1) The company does not assign costs and revenues that reflect the site's true financial health (*e.g.*, the facility is a cost center or a captive site), or (2) the site is already in financial trouble. Under the first condition, EPA does not have sufficient information to evaluate impacts at the site level as a result of the rule. In the second case, the facility is unprofitable prior to the regulation, and the company may decide to close the site even in the absence of the rule. The projected closure of a site that is unprofitable prior to a regulatory action is not attributed to the regulation. This second case is referred to as a baseline closure.

In the first situation, EPA is not able to analyze facility-level closure impacts when the company does not record sufficient information at the site level for the closure analysis to be performed. In the case of the MPP industry, many companies do not maintain financial records at the facility level. Instead they maintain their financial records at, for example, the company level, division level or product line level. EPA's detailed survey provides facility-level financial data for less than 40 percent of direct discharging facilities. EPA also collected company-level financial data in the detailed survey. Therefore, EPA performed a closure analysis at the company level as a supplement to the facility-level analysis, to compensate for the relatively low percentage of detailed surveys with facility-level data.

Adjustment of Facility Weights to Account for Nonresponse. Detailed survey data was not available for use at the time of the proposed rulemaking. For proposal, EPA used screener survey data combined with model facilities derived from Census data to perform the facility-level closure analysis. EPA did use detailed survey data to perform the facility-level closure analysis, as presented in the NODA. However, as previously noted, EPA did not receive facility-level financial data from a significant portion of respondents in response to the Agency's detailed survey. In particular, 10 facilities (18 weighted) in Subcategory A–D (both small and non-small) and 27 facilities (97 weighted) in Subcategory K facilities (both small and non-small) did not provide sufficient financial information for use in EPA's closure analysis. This was generally because the companies do not maintain the type of information about each facility that EPA requested. Instead, the information is consolidated at the company level. Therefore, EPA conducted its facility-level closure analysis on the 10 facilities (28 weighted) in Subcategory A–D (both small and non-small) and 9 facilities (45 weighted) in Subcategory K (both small and non-small) that provided sufficient data about each facility. As discussed in the NODA, analysis of economic impacts to the facilities that did not provide financial data were subsumed under the company-level closure analysis.

EPA received public comments on the NODA recommending that the Agency account for all surveyed facilities in its facility closure analysis, even if no financial information on a facility was obtained through the detailed survey. To address these public comments for the final rule, EPA accounted for missing data as follows.

For its facility closure analysis and small business sales test in Subcategories A–D and Subcategory K, EPA incorporated additional adjustments to the survey weights to account for the facilities without the financial information, but that had otherwise responded to the questionnaire. EPA believes that its approach is simpler and more robust than the approach proposed in the public comments and consistent with accepted survey statistical practice. By adjusting in this manner, EPA is assuming that the facilities that provided facility-level information are similar to those that did not. EPA has no information to suggest that this is not the case.

Commenters suggested that EPA account for incomplete facility-level data using available financial data combined with production data to estimate a distribution for the facility's net income in 1997, 1998, and 1999, thereby allowing the Agency to forecast this net income distribution over the 16-year project life. After careful review, EPA decided not to adopt this distribution approach for the following reasons. First, EPA believes that a distribution approach does not maintain the characteristics of facility-level financial conditions as compared to an approach that uses adjustment of facility weights. A distribution approach also relies on too many statistical assumptions to make such an approach workable. Second, EPA believes that forecasting a distribution results in greater uncertainty about future net income per pound. The resulting broad range of outcomes would make meaningful comparisons of costs and incomes streams difficult. The distributional approach suggested by commenters has merit and could add value if all survey data were initially reported on a per pound basis along product, facility, and distributional lines. Third, the recommended distribution approach proposed that EPA pool observations of net income per pound from both poultry and meat slaughter facilities, which have very different economic and financial characteristics. Finally, EPA's preliminary assessment indicates that its estimate of facility closures using either approach would not be significantly changed. More detailed information is available in EPA's comment response document and in the rulemaking record.

Table IX.A–1 lists the number of facilities by subcategory and production size, as well as the numbers of facilities that did and did not provide financial information for the closure analysis (see the TDD and the rulemaking docket for further details on survey stratification and facility counts).

TABLE IX.A–1.—FACILITY COUNTS

Subcategory	Production size	Facility counts			"Economic analysis" adjustment factor (N/n_1)
		Eligible (N)	With data (n_1)	Without data (n_2)	
A–D	non-small	31	13	18	2.38
	small	15	15	0	1.00
K	non-small	105	36	69	2.92
	small	36	9	27	4.15

The final weight w_{hi} for a facility i in stratum h can be written as follows:

$W_{h,i}$ = (base weight)$_{h,i}$ × (economic analysis adjustment factor)$_h$

$W_{h,i}$ = (base weight)$_{h,i}$ × $(N/n_1)_h$

(See the Economic Analysis for the proposed rule). In other words, there are 31 non-small direct dischargers in subcategories A–D, of which 13 provided facility-level financial data; 18 facilities did not. The 13 non-small facilities would have their detailed survey weight multiplied by 2.38 ($^{31}/_{13}$= 2.38) to account for the 18 that did not provide facility-level data, and so forth for the remaining subcategories and size classes.

b. Facility-Analysis Method for Subcategories Without Sufficient Detailed Questionnaire Data

Facilities in Subcategories E–I, J, and L are not well represented in the detailed questionnaire data. EPA uses screener survey data to estimate compliance costs, then uses size and process information to match the screener survey facilities with model facilities to project economic impacts using the methodology from the proposed rule.

EPA's economic model facilities are based on the U.S. Census Bureau's 1997 Economic Census of the four NAICS codes for meat and poultry product industries (NAICS 311611: Animal (Except Poultry) Slaughtering, 311612: Meat Processed From Carcasses, 311613: Rendering and Meat Byproduct Processing, and 311615: Poultry Processing). EPA uses Census revenue and cost information at both the employment class (that is, disaggregated into size groupings based on annual production) and the industry level. At the employment class level, EPA uses the Census' value of total shipments (a proxy for total revenues), payroll and material costs data. EPA uses industry level data on benefits, depreciation, rent, and purchased services and attributes it to the employment class level using certain assumptions (*e.g.*, employment benefits are proportionate to payroll, refuse removal costs are proportionate to material costs). EPA divides each component of facility income by the number of establishments in the employment class to calculate the average for that class. EPA then estimates model facility earnings before taxes (EBT) in each class as the average value of shipments minus payroll, material costs, benefits, depreciation, rent, and purchased services. Because revenues, payroll and cost of materials are the most significant components of EBT, the relative error introduced by attributing industry level data to the employment class level should be small.

EPA uses data from Census' Annual Survey of Manufacturers (ASM), 1997 Economic Census, and the Internal Revenue Service code combined with additional assumptions to estimate model facility net income from EBT. EPA assumes model facility EBT is equal to business entity taxable income as the basis for calculating tax payments; EPA then applies 1999 Federal and an average of State corporate tax rates to EBT. EPA estimates industry level interest payments using a combination of ASM data on past investment by industry, Census data on relative investment in buildings and equipment, and assumptions about investment behavior (*e.g.*, all investment in each year was funded through bank loans, the interest rate on those loans was equal to the nominal prime rate for that year plus 1 percent). EPA attributes interest payments to each employment class based on the percentage of industry investment accounted for by that employment class in the 1997 Census. EPA estimates net income as EBT less estimated tax and interest payments for each model facility. EPA inflates all model income measures from the Census year, 1997, to the baseline year, 1999, using the implicit price deflator for the meat and poultry products industry.

The resultant model facility represents a distribution of facility incomes around the mean. EPA estimates this distribution of income around the model facility mean by obtaining from Census a special tabulation of the variances and covariances for value of shipments, material costs, and payroll in each employment class. EPA assumes that the distribution of each variable is normal. Given the relatively large number of observations within each employment class, EPA believes this assumption is reasonable. Because EPA calculates model facility EBT as a linear function of the means of its components, the variance of EBT for each employment class can be derived as a linear function of the variances and covariances of the components using well established formulae. Because the actual income measures differed from the approximate income measure (EBT) on which variance is estimated, EPA adjusts the variance of each income measure using standard rules concerning the expected value of mean and variance.

In order to perform the economic impact analysis, EPA matches its economic model facilities to the engineering model facilities used to estimate costs. All red meat (or meat) facilities that perform animal slaughter, whether alone or in combination with other processes, are assigned economic model facilities from NAICS 311611 (Animal (Except Poultry) Processing). EPA assigns meat facilities that perform further processing processes but no slaughtering activities to economic model facilities from NAICS 311612 (Meat Processed From Carcasses), as are facilities that process a mix of both meat and poultry (approximately 70 percent of their production is meat). EPA assigns facilities that process poultry, with or without slaughter, to economic model facilities from NAICS 311615 (Poultry Processing). EPA assigns facilities that only perform rendering operations as NAICS 311613 (Rendering and Meat Byproduct Processing). EPA then matches the model economic facilities to the model engineering facilities by size. EPA uses production from each engineering model, combined with representative meat product prices for 1999, to estimate model facility revenues. EPA assigns the engineering model to an economic model that most closely matched its estimated revenues.

For facilities in Subcategories E–I, J, and L, EPA chose the ratio of cost/net income as its preferred (central) measure of economic achievability (the results for all of the ratios are presented in the Economic and Environmental Benefits Analysis for the final rule). EPA also estimates the probability that a facility may close because incremental compliance cost exceeds net income. EPA estimates these probabilities using the variance and covariance information provided by the Census Bureau to derive the variance of net income. The probability that annualized compliance costs are greater than net income provides a rough estimate of the probability of that facility closing.

EPA notes that the use of average ratios could mask considerable variability in economic impacts. This is a shortcoming of the use of model facilities. EPA has attempted to ameliorate this shortcoming to a practicable extent by using multiple model facilities within each subcategory. EPA also estimates probabilities of closure from the distribution of income around each model facility's mean income to account for the variability in economic impacts that would not otherwise be reflected in an analysis based on model facilities.

2. What Methods Were Used for Company Analysis?

EPA uses three methods to examine impacts on companies: closure,

Altman's Z′, and a financial ratio analysis. As with the facility analysis, this approach depends on whether the subcategory is adequately represented in the detailed questionnaire data. Because a substantial portion of the industry does not maintain financial records at the facility level, EPA developed a company-level closure analysis approach. The Altman's Z′ analysis is described in the Economic Analysis for the proposed rule (Section 3.1.3.2). EPA uses its financial ratio analysis to account for the segment of the industry not represented in the detailed questionnaire.

a. Company-Analysis Method for Subcategories With Sufficient Detailed Survey Data

Estimation of company costs. EPA compiled a list of all other meat processing facilities owned by each of those corporate parents from a review of the 52 non-small direct discharging facilities in Subcategories A–D and Subcategory K that received a detailed survey. In cases where information is not represented in the detailed survey database, EPA relies on the screener survey and the PCS database to estimate the number of direct discharging facilities owned by these corporate parents. EPA estimates that the 25 corporate parents of those 52 non-small direct dischargers owned about 323 MPP facilities in 1999. Of the 323 facilities owned by these corporate parents, approximately 117 were direct dischargers. Of these 117 direct dischargers, 52 received detailed surveys, and 65 required analyses based on non-survey data. Indirect discharging facilities are not expected to incur costs under this regulation.

To estimate compliance costs attributable to the 65 non-surveyed facilities, EPA applies mean compliance costs by animal type (meat or poultry) to each non-surveyed facility. EPA examines alternative means of allocating compliance costs to these facilities, such as matching costs from detailed survey facilities based on animal type and processes performed. Because EPA is unable to determine with a high degree of confidence the processes performed and level of production at non-surveyed facilities, the Agency assigns the average costs of non-small facilities in Subcategories A–D and K to the non-surveyed facilities (according to meat type). This results in more conservative (*i.e.*, higher) cost estimates. See DCN 328–002 for additional information on the estimation of non-surveyed direct discharge facilities.

Closure analysis. The company-level closure analysis is identical to the facility-level closure analysis with company earnings and costs replacing facility earnings and costs in the discounted cash flow calculations. If a company is projected to close, company output and employment are considered lost. EPA does not attempt to scale up the projected company closures to correspond to a national estimate because the Agency lacks data on which to base sample weights for the 25 companies. Thus, the company-level analysis reflects closures only among the 25 companies analyzed. EPA made an effort to determine whether there are additional companies that own direct discharging MPP facilities and found three additional companies based on the screener survey results that may own direct discharging MPP facilities. Therefore, the company-level analysis could somewhat underestimate the number of company closures nationally. See Section IX.B for results of the company closure analyses.

Altman's Z′. To examine firm-level impacts in Subcategories A–D and Subcategory K, EPA uses an Altman Z′-score analysis. Such an analysis is based on a statistical technique called multiple discriminant analysis to predict company bankruptcy based on a weighted combination of financial ratios. The Altman Z′-score is a widely-used tool used to predict firm ''financial distress'' or bankruptcy. It takes into account a company's total assets, total liabilities and earnings, which are influenced by total compliance capital costs and other costs incurred by a company as a result of complying with the final regulation.

This approach places firms into three levels of financial health: financial distress is unlikely, financial distress is indeterminate, and financial distress is likely. EPA considers firms that move from an indeterminate or unlikely distress prediction to a likely distress prediction to be at risk of bankruptcy or other serious financial disruption. The actual effects of financial distress are inherently unpredictable and a firm may avoid legal bankruptcy by taking other measures such as laying off employees, closing facilities, or selling assets. These firms still may incur very significant impacts even if they do not file for bankruptcy.

EPA uses the Altman Z′-score to assess the baseline financial condition of MPP firms and the incremental impacts of the rule on their financial health. This analysis includes the same 25 companies analyzed for company closure analysis.

b. Company-Analysis Method for Subcategories Without Sufficient Detailed Survey Data

For subcategories without sufficient detailed survey data, EPA could not perform an Altman's Z′ analysis (Subcategories F–I, J, and L). For the purpose of analyzing facilities in these subcategories, EPA assumes the facility and company are identical for this group. EPA combines Census data (via the model facilities developed for the closure analysis) with Dun & Bradstreet financial ratio data. For each model facility, EPA divides net income by the median value for return on assets reported by Dun & Bradstreet for the relevant industry to estimate the model facility's total assets. Given the model facility's net income and total assets, EPA calculates the post-regulatory return on assets as: (net income − posttax annualized costs)/(total assets + capital costs) and compares this to the current median return on assets as an additional measure of the impacts of the rule.

3. What Method Was Used for Impacts on Price and Output?

EPA developed a market model to examine the impacts of the proposal on the price and output of beef, pork, chicken, and turkey. The market analysis for each product depends not only on the compliance costs for that product but also on the impact of costs on the prices of the other three meat and poultry products because as prices for one product rise, consumers will purchase less of that product and more of the other three products. EPA assumes a perfectly competitive structure for the meat and poultry products market model after performing an extensive literature search. EPA developed standard domestic supply, domestic demand, import supply, and export demand equations for each meat and poultry product. EPA specifies domestic demand for each meat and poultry product as a function of the price of the other three meat and poultry products in addition to its own price. EPA uses USDA data to determine baseline market prices and quantities. EPA selected key model parameters (*e.g.*, price elasticities) from existing published sources following an extensive data search. For each meat and poultry product market to be in equilibrium, U.S. domestic demand plus foreign demand (exports) must equal U.S. domestic supply plus foreign sales (imports) at its current market price.

Compliance costs shift the supply curve for each meat and poultry product by the pre-tax annualized compliance

costs per pound of carcass weight for each of the four animal types. The most appropriate measure of the shift in supply is the cost per pound of total industry production because (1) the majority of facilities incur no costs and (2) the competition from facilities that do not incur costs will discourage affected facilities from increasing price by their full cost per pound increase due to today's rule.

Given the supply shift for each product, EPA solves for the post-regulatory set of meat prices that result in equilibrium in all four markets. This solution provides estimates of post-regulatory impacts. Finally, EPA's analysis substitutes the post-regulatory prices back into the individual component equations to estimate post-regulatory domestic supply, domestic demand, import supply, and export demand for each meat and poultry product. Changes in prices and these quantities for each meat and poultry product measure the market-level impacts of the final rule.

B. How Many Closures Are Projected as a Result of the Final Rule?

1. How Many Non-Small Facilities/Companies in Subcategories A–D and Subcategory K Might Close?

A facility (or company) forecast to have a negative net present value (NPV) of net income under at least 2 of 3 methods (described in Section IX.A) prior to regulatory costs are called ''baseline closures.'' Among non-small facilities in Subcategories A–D there are 5 baseline closures; in Subcategory K there are 30 baseline closures. The economic impact of the rule on ''baseline closures'' cannot be assessed using the closure model. Under the alternate analysis in which a negative NPV forecast by only one method is sufficient to project a closure, the number of baseline closures in each subcategory is unchanged.

For the facility-level closure analysis, EPA projects there are no closures in Subcategories A–D under any options. For Subcategory K, EPA projects that 22 of the 105 facilities will close under Option 4; no facility closures are projected under other treatment options. Thus, EPA projects that there are no closures in either subcategory under the selected Option 2.5. In the alternate analysis, EPA projects 2 facility closures for all options in Subcategory A–D, and 22 closures under Option 4 in Subcategory K. Table IX.B–1 presents the facility closure impacts for all options that were considered.

TABLE IX.B–1—SUMMARY OF PROJECTED NON-SMALL FACILITY CLOSURE IMPACTS BY SUBCATEGORY AND OPTION

Option	Baseline conditions and projected incremental closure impacts [1]		
	Number of facilities	Total revenues ($000)	Employees
Subcategories A–D			
Total Facilities Analyzed	31	$17,492,882	49,630
Baseline Closures	5	2,000,000–4,000,000	14,000–17,500
Option 2 Closures	0	0	0
Option 2.5 Closures	0	0	0
Option 2.5+P Closures	0	0	0
Option 4 Closures	0	0	0
Subcategory K			
Total Facilities Analyzed	105	$13,022,059	107,096
Baseline Closures	30	4,326,777	41,038
Option 2 Closures	0	0	0
Option 2.5 Closures	0	0	0
Option 2.5+P Closures	0	0	0
Option 4 Closures	22	800,000–1,000,000	12,500–15,000

[1] Some revenue and employment impacts are presented as a range to prevent the disclosure of confidential business information.

In the supplemental company-level closure analysis shown in Table IX.B–2, EPA projects that one poultry company will close under Option 2.5+P and Option 4. This company employs between 2,500 and 5,000 workers. Note that the apparent discrepancy between the facility-level and company-level analysis for poultry Option 2.5+P is explained by the fact that the poultry company that is projected to close did not provide facility-level financial information; therefore, the facilities owned by this company were not included in the facility-level analysis. Under the alternate analysis, the same poultry company (under the same options) is projected to close, as well as one meat company under all treatment options, and one mixed meat (*i.e.*, company owns both poultry and meat facilities) company under Options 2.5, 2.5+P, and Option 4.

TABLE IX.B–2.—SUMMARY OF PROJECTED COMPANY CLOSURE IMPACTS BY SUBCATEGORY AND OPTION

Option	Baseline conditions and projected incremental closure impacts [1]		
	Number of companies	Total revenues ($millions)	Employees
Meat (own facilities in Subcategories A–I)			
Total Companies Analyzed	9	$29,949	80,755
Baseline Closures	1	250–500	1,000–4,000
Option 2 Closures	0	0	0
Option 2.5 Closures	0	0	0
Option 2.5+P Closures	0	0	0
Option 4 Closures	0	0	0
Poultry (own facilities in Subcategories K and L)			
Total Companies Analyzed	12	$15,441	135,850
Baseline Closures	5	3,384	31,042
Option 2 Closures	0	0	0
Option 2.5 Closures	0	0	0
Option 2.5+P Closures	1	100–150	2,500–5,000
Option 4 Closures	1	100–150	2,500–5,000
Mixed (own facilities in both meat and poultry subcategories)			
Total Companies Analyzed	4	$89,439	184,834
Baseline Closures	0	N/A	N/A
Option 2 Closures	0	0	0
Option 2.5 Closures	0	0	0
Option 2.5+P Closures	0	0	0
Option 4 Closures	0	0	0

[1] Some revenue and employment impacts are presented as a range to prevent the disclosure of confidential business information.

Company-level results are unweighted because the survey sampling frame was stratified on the basis of facility-level data, and this stratification could not be translated to the company level. Therefore, the facility-level and company-level results are not additive. Because of the large number of facilities that were unable to submit financial data in their survey, EPA performed a subsidiary company-level analysis to provide a consistency check on the primary facility-level analysis. EPA estimates that the 25 companies in the company-level analysis own at least 118 of the 136 in-scope facilities that EPA project will be subject to regulation in Subcategories A–D and K. Note however that the company-level and facility-level analyses are fairly consistent in that both show no closures in the meat subcategories under any option, and both show impacts in the poultry subcategories under Option 4. It is not surprising that the impacts appear higher under this option for the facility-level analysis, because the company-level analysis will not capture situations where one or more facilities owned by a company close but the company as a whole remains in business. The only inconsistency is for poultry Option 2.5, which shows one company-level, but no facility-level, impact. This is because the particular facilities owned by the closing company did not have detailed survey data and thus were not included in the facility-level analysis.

2. How Many Small Facilities in Subcategories A–D and Subcategory K Might Close?

EPA is not promulgating any additional regulations for small facilities in these subcategories, so there are no rule-related closures. However, EPA analyzed potential closures under the options (Options 1 and 2) that EPA considered for small facilities in these subcategories.

Among small facilities in Subcategories A–D and Subcategory K, there are no baseline closures. Under the alternate analysis, in which a negative NPV under only one method is sufficient to project a closure, EPA also estimates there are no baseline closures in either subcategory.

In the facility-level closure analysis, EPA projects there are no facility closures for Subcategories A–D under either the primary or alternate analysis. The results of the closure analysis for Subcategory K cannot be presented due to CBI reasons. However, EPA found a substantial percentage of small facilities are projected to close under both options in this subcategory. Table IX.B–3 presents these results.

TABLE IX.B–3.—SUMMARY OF PROJECTED SMALL FACILITY CLOSURE IMPACTS BY SUBCATEGORY AND OPTION

Option	Baseline conditions and projected incremental closure impacts [1]		
	Number of facilities	Total revenues ($thousands)	Employees
Subcategories A–D			
Total Facilities Analyzed	15	$150,000–200,000	500–750

TABLE IX.B–3.—SUMMARY OF PROJECTED SMALL FACILITY CLOSURE IMPACTS BY SUBCATEGORY AND OPTION—Continued

Option	Baseline conditions and projected incremental closure impacts [1]		
	Number of facilities	Total revenues ($thousands)	Employees
Baseline Closures	0	0	0
Option 1 Closures	0	0	0
Option 2 Closures [2]	NA	NA	NA
Subcategory K			
Total Facilities Analyzed	36	250,000–500,000	2,000–4,000
Baseline Closures	0	0	0
Option 1 Closures	([3])	([3])	([3])
Option 2 Closures	([3])	([3])	([3])

[1] Revenue and employment data are presented as a range to prevent the disclosure of confidential business information.
[2] Option 2 was not costed for small facilities in this subcategory, because EPA did not propose further regulations.
[3] CBI.

3. How Many Non-Small Facilities in Subcategories F–I, J, and L Might Close?

Table IX.B–4 presents the closure analysis for non-small facilities in Subcategories F–I, Subcategory J, and Subcategory L based on the model facility methodology used to analyze screener survey facilities. Under Option 2.5, EPA estimates that facilities in Subcategories F–I will incur compliance costs that are 1.2 percent of net income; facilities in these subcategories are expected to have about a 0.2 percent probability of closure due to the rule. EPA projects that facilities in Subcategory J will incur compliance costs of 6.7 percent of net income under Option 2.5. Probability of closure due to the rule is 1.3 percent for these facilities under the selected option. In Subcategory L, EPA expects that facilities will incur compliance costs of 5.1 percent of net income under the selected option, with the probability of closure due to the rule for these facilities about 0.9 percent.

TABLE IX.B–4.—SUMMARY OF PROJECTED NON-SMALL FACILITY CLOSURE IMPACTS BY SUBCATEGORY AND OPTION SCREENER SURVEY FACILITY ANALYSIS

Option	Average annualized costs as percent of net income [1] (%)	Probability of closure due to rule [1] (%)	Number of facilities [2]	Total revenues ($000) [2]	Employees [2]
Subcategories F–I					
Facilities Analyzed	NA	NA	4	$448,654	1,506
Option 2	1.0	0.17	0.01	754	3
Option 2.5	1.2	0.21	0.01	930	3
Option 2.5+P	1.3	0.23	0.01	1,014	3
Option 4	3.0	0.50	0.02	2,260	8
Subcategory J					
Facilities Analyzed	NA	NA	19	274,270	1,123
Option 2	1.5	0.29	0.06	809	3
Option 2.5	6.7	1.29	0.25	3,687	16
Option 2.5+P	17.1	3.31	0.63	9,986	45
Option 4	24.2	4.47	0.91	13,591	58
Subcategory L [3]					
Facilities Analyzed	NA	NA	10	223,663	974
Option 2	2.8	0.51	0.05	1,135	5
Option 2.5	5.1	0.91	0.09	1,941	8
Option 2.5+P	7.7	1.36	0.14	2,937	12
Option 4	16.8	3.03	0.30	6,689	29

[1] Presented as a weighted average of results over all model facilities in the subcategory.
[2] Calculated as the probability of closure for each individual model facility multiplied by the number of facilities, revenues and employment represented by that model facility. The results are then summed over all model facilities in the subcategory.
[3] Includes costs and impacts on the portion of production that falls under non-small processor Subcategory L guidelines for 7 mixed processors, assuming no costs for that portion of their output that falls under small processor Subcategories F–I guidelines. Costs and impacts if guidelines for both types of production are promulgated are covered in Section IX.B.5 below.

Table IX.B–4 shows that fractions of facilities are projected to close under each option. This result is attributable to the methodology used to estimate the probability of closure due to the rule. EPA estimates the probability of closure using a continuous distribution function. EPA then calculates the number of closures by multiplying the probability of closure by the number of facilities represented by that model facility. Because relatively few facilities are in each subcategory, and because the probabilities of closure are relatively small, the projected number of closures in each subcategory is less than one. However, to report zero projected closures is not accurate since the probability of closure, while small, is greater than zero.

4. How Many Small Facilities in Subcategories F–I and Subcategory L Might Close?

Table IX.B–5 presents the closure analysis for small facilities in Subcategories F–I and Subcategory L. EPA is not regulating small facilities in these subcategories, but EPA projects that small facilities in Subcategories F–I would incur compliance costs that are 9.4 percent of net income, resulting in a probability of closure due to the rule of 1.5 percent if they were regulated based on Option 1 or 2. In Subcategory L, facilities would incur costs that compose less than 1 percent of net income, resulting in a probability of closure due to the rule of 0.15 percent if they were regulated.

TABLE IX.B–5.—SUMMARY OF PROJECTED SMALL FACILITY CLOSURE IMPACTS BY SUBCATEGORY AND OPTION SCREENER SURVEY FACILITY ANALYSIS

Option	Average annualized costs as percent of net income [1] (%)	Probability of closure due to rule [1] (%)	Number of facilities [2]	Total revenues ($000) [2]	Employees [2]
Subcategories F–I [3]					
Facilities Analyzed	NA	NA	21	$369,692	1,316
Option 1	9.4	1.49	0.31	2,632	11
Option 2	9.4	1.51	0.31	2,633	11
Subcategory L [4]					
Facilities Analyzed	NA	NA	3	22,712	97
Option 1	0.9	0.15	0	33	0
Option 2	1.0	0.15	0	33	0

[1] Presented as a weighted average of results over all model facilities in the subcategory.
[2] Calculated as the probability of closure for each individual model facility multiplied by the number of facilities, revenues and employment represented by that model facility. The results are then summed over all model facilities in the subcategory.
[3] Includes costs and impacts on the portion of production that falls under small processor Subcategories F–I guidelines for 7 mixed processors, assuming no costs for that portion of their output that falls under non-small processor Subcategory L guidelines, and for 3 mixed processors, assuming no costs for that portion of their output that falls under small processor Subcategory L guidelines. Costs and impacts if guidelines for both types of production are promulgated are covered in Section IX.B.5 below.
[4] Includes costs and impacts on the portion of production that falls under small processor Subcategory L guidelines for 3 mixed processors, assuming no costs for that portion of their output that falls under small processor Subcategories F–I guidelines. Costs and impacts if guidelines for both types of production are promulgated are covered in Section IX.B.5 below.

5. How Many Mixed Processors Might Close?

For mixed processors, EPA presents the results of the closure model as a matrix. This is because a mixed processing facility might be subject to two different regulatory options depending on the type of meat, type of production processes, and quantity of production in different parts of the plant. Table IX.B–6 presents the average annualized costs as a percent of net income and the probability of closure due to the rule for 7 facilities that are both non-small poultry further processors (and are therefore subject to Subcategory L guidelines and limitations on that portion of their output) and small meat further processors (Subcategories F–I). Each possible combination of options under Subcategory L (rows) and Subcategory F–I (columns) are shown. Under the combination of Option 2.5 selected for non-small poultry further processing, and no option selected for small meat further processing, these facilities are expected to incur compliance costs of 6.2 percent of net income. These costs result in 1.1 percent probability of closure due to the rule. To present results concisely, the table does not show the number of projected closures, revenue and employment losses among the three mixed processor facilities. However, all information necessary to make those calculations is provided in the tables, and the complete results are included in the rulemaking record.

TABLE IX.B–6.—SUMMARY OF PROJECTED NON-SMALL MIXED PROCESSOR FACILITY CLOSURE IMPACTS SCREENER SURVEY FACILITY ANALYSIS

Options for non-small facilities in subcategory L [1]	Variable	Options for small facilities in subcategories F–I [1]		
		None (%)	Option 1 (%)	Option 2 (%)
None	Average Annualized Costs as Percent of Net Income	NA	1.5	1.5
	Probability of Closure Due to Rule	NA	0.3	0.3

TABLE IX.B–6.—SUMMARY OF PROJECTED NON-SMALL MIXED PROCESSOR FACILITY CLOSURE IMPACTS SCREENER SURVEY FACILITY ANALYSIS—Continued

Options for non-small facilities in subcategory L [1]	Variable	Options for small facilities in subcategories F–I [1]		
		None (%)	Option 1 (%)	Option 2 (%)
Option 2	Average Annualized Costs as Percent of Net Income	3.1	4.5	4.5
	Probability of Closure Due to Rule	0.5	0.8	0.3
Option 2.5	Average Annualized Costs as Percent of Net Income	6.2	7.6	7.6
	Probability of Closure Due to Rule	1.1	1.3	1.3
Option 2.5+P	Average Annualized Costs as Percent of Net Income	9.1	10.5	10.5
	Probability of Closure Due to Rule	1.6	1.8	1.8
Option 4	Average Annualized Costs as Percent of Net Income	18.8	20.3	20.3
	Probability of Closure Due to Rule	3.3	3.5	3.5

[1] This group contains 7 facilities, with revenues of $132 million and 484 employees. On average, 39% of production is subject to guidelines and limitations for small processors in Subcategories F–I, and 61% of production is subject to non-small Subcategory L guidelines and limitations.

EPA identified three mixed processors as small further processors in both the poultry (Subcategory L) and meat (Subcategories F–I) sectors. EPA chose not to establish or revise limits for small processors of either animal type. Therefore, no impacts are projected for these facilities. Table IX.B–7 presents the results of the impact analysis under all possible combinations of regulatory options to which these facilities might have been subject. To present results concisely, the table does not show the number of projected closures, revenue and employment losses among the three mixed processor facilities. However, all information necessary to make those calculations is provided in the tables, and the complete results are included in the rulemaking record.

TABLE IX.B–7.—SUMMARY OF PROJECTED SMALL MIXED PROCESSOR FACILITY CLOSURE IMPACTS SCREENER SURVEY FACILITY ANALYSIS

Options for small facilities in subcategory L [1]	Variable	Options for small facilities in subcategories F–I [1]		
		None (%)	Option 1 (%)	Option 2 (%)
None	Average Annualized Costs as Percent of Net Income	NA	4.4	4.5
	Probability of Closure Due to Rule	NA	0.7	0.7
Option 1	Average Annualized Costs as Percent of Net Income	1.0	5.4	5.4
	Probability of Closure Due to Rule	0.2	0.8	0.8
Option 2	Average Annualized Costs as Percent of Net Income	1.0	5.4	5.4
	Probability of Closure Due to Rule	0.2	0.8	0.9

[1] This group contains 3 facilities, with revenues of $22.7 million and 97 employees. On average, 18% of production is subject to guidelines and limitations for small processors in Subcategories F–I, and 82% of production is subject to small Subcategory L guidelines and limitations.

C. What Company-Level Impacts, Other Than Closure, Are Projected Due to the Final Rule?

EPA also examined the impacts of the rule on affected firms' balance sheets using financial ratio techniques as well as impacts on facilities' income (*i.e.*, the closure analysis). As noted previously, the availability of detailed survey data affected the company-level financial ratio analysis as well as the closure analysis.

1. How Might Companies With Facilities in Subcategories A–D and K Be Impacted?

EPA uses the same method for estimating firm level compliance costs for the Altman Z′ analysis as it did for the company-level closure analysis (see Section IX.A.2).

For companies that own non-small facilities in Subcategories A–D and Subcategory K, the Altman Z′ analysis shows that 7 meat companies and 8 poultry companies are considered financially healthy in the baseline. One meat company, 4 poultry companies, and 3 mixed meat companies have Altman Z′ scores in the indeterminate range for financial health; one meat company and one mixed meat company are considered financially stressed. Under Option 4, the Altman Z′ score for one poultry company changed from the financially healthy to the indeterminate range (represented by the +1 and −1 on Table IX.C–1).

TABLE IX.C–1.—PROJECTED IMPACTS ON NON-SMALL COMPANY ALTMAN Z′ SCORE BY ANIMAL TYPE AND OPTION

Option	Number of companies with baseline Altman Z′ score in specified range and incremental changes in score		
	Financially healthy	Indeterminate	Bankruptcy likely
Meat (own facilities in Subcategories A–I)			
Baseline	7	1	1
Option 2	0	0	0
Option 2.5	0	0	0
Option 2.5+P	0	0	0
Option 4	0	0	0
Poultry (own facilities in Subcategories K and L)			
Baseline	8	4	0
Option 2	0	0	0
Option 2.5	0	0	0
Option 2.5+P	0	0	0
Option 4	−1	+1	0
Mixed (own facilities in both meat and poultry subcategories)			
Baseline	0	3	1
Option 2	0	0	0
Option 2.5	0	0	0
Option 2.5+P	0	0	0
Option 4	0	0	0

Note: A change from one state *e.g.*, financially healthy) to another state *e.g.*, indeterminate) is indicated by "−1" and "+1". The numbers in the "baseline" rows represent all companies analyzed, while those in the "option" rows represent only changes from the baseline.

A small number of companies that own small facilities in Subcategories A–D and Subcategory K provided sufficient financial data to analyze using the Altman Z′-score. These companies were determined to be financially healthy in the baseline, and did not incur financial distress under any of the potential regulatory options examined.

2. How Might Companies With Facilities in Subcategories F–I, J, and L Be Impacted?

EPA assesses impacts to the balance sheet of companies in Subcategories F–I, Subcategory J, and Subcategory L by estimating the effects of incremental compliance costs to median return on assets. Table IX.C–2 presents the results of this analysis for non-small companies. Table IX.C–3 shows the results for small companies.

For non-small companies in Subcategories F–I, the analysis shows that the return on assets for the selected option would decrease from 5.50 percent to 5.42 percent. In Subcategory J, the analysis shows that the return on assets would decrease from 2.0 percent to 1.86 percent; in Subcategory L, it would decrease from 4.43 percent to 4.16 percent. For small companies there are no effects, but Table IX.C–3 shows impacts under the non-selected options.

TABLE IX.C–2.—SUMMARY OF PROJECTED IMPACTS TO RETURN ON ASSETS RATIO BY SUBCATEGORY AND OPTION NON-SMALL PROCESSOR COMPANIES

Option	Median return on assets (percent)	Change in return on assets (percent)
Subcategories F–I (4 companies)[1]		
Pre-reg rate	5.50	NA
Post-reg rate		
Option 2	5.43	0.07
Option 2.5	5.42	0.08
Option 2.5+P	5.41	0.09
Option 4	5.31	0.19
Subcategory J (19 companies)[1]		
Pre-reg rate	2.00	NA
Post-reg rate		
Option 2	1.97	0.03
Option 2.5	1.86	0.14
Option 2.5+P	1.65	0.35
Option 4	1.51	0.49

TABLE IX.C–2.—SUMMARY OF PROJECTED IMPACTS TO RETURN ON ASSETS RATIO BY SUBCATEGORY AND OPTION NON-SMALL PROCESSOR COMPANIES—Continued

Option	Median return on assets (percent)	Change in return on assets (percent)
Subcategory L (10 companies)[1 2]		
Pre-reg rate	4.43	NA
Post-reg rate		
Option 2	4.29	0.14
Option 2.5	4.16	0.27
Option 2.5+P	4.02	0.41
Option 4	3.58	0.85

[1] For the purpose of this analysis, EPA assumes the companies are identical to the facilities.
[2] Includes costs and impacts on the portion of production that falls under non-small processor Subcategory L guidelines for 7 mixed processors, assuming no costs for that portion of their output that falls under small processor Subcategories F–I guidelines.

TABLE IX.C–3.—SUMMARY OF PROJECTED IMPACTS TO RETURN ON ASSETS RATIO BY SUBCATEGORY AND OPTION, SMALL PROCESSOR COMPANIES

Option	Median return on assets (percent)	Percent change in return on assets
Subcategories F–I (21 companies)[1 2]		
Pre-reg rate	5.50	NA
Post-reg rate		
Option 1	4.94	0.56
Option 2	4.94	0.56
Subcategory L (3 Companies)[1 3]		
Pre-reg rate	5.50	NA
Post-reg rate		
Option 1	5.44	0.06
Option 2	5.44	0.06

[1] For the purpose of this analysis, EPA assumes the companies are identical to the facilities.
[2] Includes costs and impacts on the portion of production that falls under small processor Subcategories F–I guidelines for 7 mixed processors, assuming no costs for that portion of their output that falls under non-small processor Subcategory L guidelines, and for 3 mixed processors, assuming no costs for that portion of their output that falls under small processor Subcategory L guidelines.
[3] Includes costs and impacts on the portion of production that falls under small processor Subcategory L guidelines for 3 mixed processors, assuming no costs for that portion of their output that falls under small processor Subcategories F–I guidelines.

D. What Market Level Impacts Are Projected?

The market model analysis shows that the decrease in supply will be smallest for pork under the selected option, where the costs per pound of total production are estimated at approximately $0.00014 and largest for chicken with costs per pound of total production of about $0.00079. The maximum projected price increase is less than 0.05 percent of baseline price for all products under Option 2.5. Table IX.D–1 shows the projected impacts for beef, pork, chicken, and turkey. Because market impacts are global, the analysis assumes that the same option is selected for all subcategories.

EPA's assessment projects that domestic production of meat and poultry products, and therefore industry employment, would decrease by less than 0.02 percent under Option 2.5. In general, impacts to domestic consumption of meat products are somewhat smaller than impacts to domestic supply due to partially offsetting increases in meat imports.

TABLE IX.D–1.—PROJECTED IMPACTS ON MEAT PRODUCT MARKETS

Option	Price ($/lb.)	Domestic supply (lbs. × 1 mil.)	Domestic demand (lbs. × 1 mil.)	Quantity imported (lbs. × 1 mil.)	Quantity exported (lbs. × 1 mil.)	Compliance costs per pound
Beef						
Baseline	$1.1105	26,386.0	26,843.0	2,874.0	2,417.0	
Option 2	1.1106	26,383.2	26,841.3	2,874.7	2,416.6	$0.00025
Option 2.5	1.1108	26,380.3	26,839.6	2,875.4	2,416.1	0.00050
Option 2.5+P	1.1110	26,375.3	26,836.6	2,876.6	2,415.3	0.00095
Option 4	1.1111	26,373.3	26,835.5	2,877.2	2,415.0	0.00113
Pork						
Baseline	1.0038	19,278.0	18,827.0	827.0	1,278.0	
Option 2	1.0038	19,278.0	18,827.1	827.0	1,277.9	0.00003
Option 2.5	1.0039	19,277.5	18,826.7	827.1	1,277.8	0.00014

TABLE IX.D–1.—PROJECTED IMPACTS ON MEAT PRODUCT MARKETS—Continued

Option	Price ($/lb.)	Domestic supply (lbs. × 1 mil.)	Domestic demand (lbs. × 1 mil.)	Quantity imported (lbs. × 1 mil.)	Quantity exported (lbs. × 1 mil.)	Compliance costs per pound
Option 2.5+P	1.0040	19,276.0	18,825.7	827.3	1,277.5	0.00040
Option 4	1.0041	19,275.4	18,825.3	827.3	1,277.4	0.00051
Chicken						
Baseline	0.5807	29,741.0	24,826.0	5.0	4,920.0	.....
Option 2	0.5808	29,737.8	24,824.2	5.0	4,918.7	0.00044
Option 2.5	0.5809	29,735.4	24,822.8	5.0	4,917.6	0.00079
Option 2.5+P	0.5812	29,729.7	24,819.6	5.0	4,915.1	0.00159
Option 4	0.5815	29,721.6	24,814.7	5.0	4,911.9	0.00270
Turkey						
Baseline	0.6898	5,297.0	4,919.3	1.3	379.0	.....
Option 2	0.6898	5,296.8	4,919.1	1.3	379.0	0.00018
Option 2.5	0.6899	5,296.7	4,919.0	1.3	379.0	0.00030
Option 2.5+P	0.6899	5,296.5	4,918.8	1.3	378.9	0.00047
Option 4	0.6900	5,295.9	4,918.3	1.3	378.9	0.00092

E. What Are the Potential Impacts on Foreign Trade?

Despite its position as one of the largest agricultural producers in the world, historically the U.S. has not been a major player in world markets for meat products. In fact, until recently, the U.S. was a net importer of these products. The presence of a large domestic market for meat has limited U.S. reliance on developing export markets for its products. As the U.S. has taken steps to expand export markets for meat, one major obstacle has been that it remains a relatively high cost producer of these products compared to other net exporters, such as New Zealand, Australia, Brazil, and other Latin American countries, as well as other more established and government-subsidized exporting countries, including Canada and the countries in the European Union. Increasingly, however, continued efficiency gains and low-cost feed are making the U.S. more competitive in world markets for meat.

In contrast, U.S. poultry products account for a significant share of world trade, and exports account for a sizable and growing share of annual U.S. production. However, the U.S. position in the world poultry market has been subject to increasing competition from countries such as Brazil. Because of those, EPA reviewed potential impacts to U.S. poultry exports in more detail. One factor suggests that the impacts of the rule to U.S. poultry exports may be smaller than projected using the market model, at least for poultry products.

The U.S. primarily exports dark poultry meat, which is considered inferior by U.S. consumers, while the U.S. domestic market is dominated by sales of white poultry meat. However, dark meat and white meat are joint products of the poultry industry—one cannot be produced without simultaneously producing the other. Because the market for dark meat, whether domestic or foreign, is secondary to U.S. producers, the marginal cost of producing dark meat, and therefore its price, are relatively low.

This is because chickens are bred, raised, slaughtered, and processed primarily for their white meat. Given that the chicken has already been processed for its white meat, the marginal cost of producing dark meat is relatively low—the incremental cost of processing the dark meat given that the white meat has been processed. This is consistent with trade data: it has been estimated that U.S. production costs per pound of broiler meat exceeds those of Brazil by almost 50 percent. However, while the U.S. export price for both boneless breast meat and whole broilers substantially exceeds the Brazilian export price, the U.S. export price for chicken leg quarters is less than the Brazilian export price.

For the same reason, there should be relatively little increase in the marginal cost of processing dark meat due to the effluent guideline and therefore little increase in its price. The impact on the marginal cost of producing dark meat given that white meat is already produced (and wastewater treatment already purchased for its processing) would be relatively small. Therefore, the increase in the marginal cost of producing dark meat should be smaller than the increase in the marginal cost of producing white meat. The increase in price necessary to earn an adequate rate of return can be smaller for exports than for domestic sales, and therefore the decrease in exports of dark meat should be smaller than projected by the market model, which is based on the change in the overall domestic price. See the Economic and Environmental Benefits Analysis for more details.

As part of its market analysis, EPA evaluated the potential for changes in traded volumes, such as increases in imports and decreases in exports. The results of this analysis are presented in Table IX.E–1.

EPA includes a sensitivity analysis of trade impacts in Table IX.E–1. Under the standard analysis, the compliance costs per pound used to project decrease in supply is calculated as a weighted average of compliance costs per pound of production for direct dischargers and compliance costs per pound for indirect dischargers (which are zero), where the weights are the relative share of total production. The sensitivity analysis assumes the decrease in supply is based on the average compliance costs per pound of production to direct dischargers only. The standard assumption is more appropriate because the competition of indirect dischargers with zero compliance costs will discourage direct dischargers from raising their price in response to their increased costs. The sensitivity analysis provides a conservative upper bound on impacts.

Under the sensitivity analysis, compliance costs per pound are 2.0 (chicken) to 6.3 (turkey) times larger than under the standard analysis. The largest impact under the sensitivity analysis is observed in the beef market, where exports are projected to decrease by 0.11 percent per year, and overall domestic production is projected to

decrease by 0.06 percent per year. Under the more realistic standard analysis, the largest decrease in exports occurs in the chicken market (0.05 percent per year) with an overall decrease in domestic production of 0.02 percent per year.

TABLE IX.E–1.—PROJECTED IMPACTS ON FOREIGN TRADE IN MEAT AND POULTRY PRODUCTS UNDER THE SELECTED OPTION

Option	Price ($/lb.)	Domestic supply (lbs. x 1 mil.)	Domestic demand (lbs. x 1 mil.)	Quantity imported (lbs. x 1 mil.)	Quantity exported (lbs. x 1 mil.)	Compliance costs per pound
Beef						
Baseline	$1.1105	26,386.0	26,843.0	2,874.0	2,417.0	.....
Option 2.5 [1]	1.1108	26,380.3	26,839.6	2,875.4	2,416.3	$0.00050
Sensitivity Analysis [2]	1.1113	26,369.1	26,832.6	2,878.0	2,414.4	0.00147
Pork						
Baseline	1.0038	19,278.0	18,827.0	827.0	1,278.0	.....
Option 2.5 [1]	1.0039	19,277.5	18,826.7	827.1	1,277.8	0.00014
Sensitivity Analysis [2]	1.0040	19,276.8	18,826.6	827.3	1,277.5	0.00034
Chicken						
Baseline	0.5807	29,741.0	24,826.0	5.0	4,920.0	.....
Option 2.5 [1]	0.5809	29,735.4	24,822.8	5.0	4,917.6	0.00079
Sensitivity Analysis [2]	0.5812	29,730.0	24,819.9	5.0	4,915.1	0.00156
Turkey						
Baseline	0.6898	5,297.0	4,919.3	1.3	379.0	.....
Option 2.5 [1]	0.6899	5,296.7	4,919.0	1.3	379.0	0.00030
Sensitivity Analysis [2]	0.6903	5,294.9	4,917.5	1.3	378.7	0.00189

[1] Compliance costs per pound (shift in supply curve) are equal to the weighted average of compliance costs per pound of production for direct dischargers and compliance costs per pound for indirect dischargers (which are zero), where the weights are the relative share of total production.

[2] Compliance costs per pound (shift in supply curve) are equal to the average compliance costs per pound of production to direct dischargers.

F. What Are the Potential Impacts on Communities?

The communities where the meat and poultry products facilities are located may be affected by the final regulation if facilities cut back operations; local employment and income may fall, sending ripple effects throughout the local community. Under the options selected for this rule, EPA projects that no facilities will close, hence EPA concludes that there are no community impacts under the regulation. Under the alternative analysis, there are two closures among subcategory A–D facilities and no change for subcategory K facilities. However, as noted previously, not all surveyed facilities provided facility-level financial data, and EPA therefore adjusted survey weights to account for nonresponse. In essence, survey nonresponse decreases the sample size for this analysis, which increases the variance of the collected data. Because of this, EPA has a somewhat lower level of confidence in these results than it would if all survey recipients had been able to provide facility-level financial data. The facility closure analysis and the company closure analysis show impacts under Option 2.5+P and Option 4 in Subcategory K. The results of this analysis can be found in the rulemaking record. Even under EPA's more conservative alternative analysis where two subcategory A–D facilities are projected to close, at most a handful of communities would be impacted. EPA cannot project how great these impacts would be as it cannot identify the communities where the impacts might occur. In general, the smaller the community, the greater the impact and the larger the community, the smaller the impact.

G. What Are the Projected Barriers to Entry for New Sources?

When establishing NSPS, EPA considers the barrier that compliance costs due to the effluent guidelines regulation may pose to entry into the industry for a new facility. In general, it is less costly to incorporate waste water treatment technologies as a facility is built than it is to retrofit existing facilities. Therefore, where the rule is economically achievable for existing facilities, it will also be economically achievable for new facilities that can meet the same guidelines at lower cost. Similarly, even where the cost of compliance with a given technology is not economically achievable for an existing source, such technology may be less costly for new sources and thus have economically sustainable costs. It is possible, on the other hand, that to the extent the up-front costs of building a new facility are significantly increased as a result of the rule, prospective builders may face difficulties in raising additional capital. This could present a barrier to entry. Therefore, as part of its analysis of new source standards, EPA evaluates barriers to entry. EPA compares estimated average incremental facility or company capital costs incurred to meet the effluent guidelines to average total assets of existing facilities to ensure that additional capital requirements are relatively small.

Tables IX.G–1 and IX.G–2, provide the results of the non-small facility-level and company-level analysis. Average capital costs of $1.9 million per facility under the selected Option 2.5 comprise 1.6 percent of average facility assets in Subcategories A–D. In Subcategory K, average capital costs of $1.1 million per facility are 4.0 percent of average facility assets under the selected option. The company-level ratio of capital costs to total assets under Option 2.5 is 2.6 percent for meat companies, and 1.6 percent for poultry companies. For

companies that own both meat and poultry facilities, the analysis projects that capital costs will comprise about 0.1 percent of company total assets under the selected option. Based on the results of this analysis, EPA concludes that today's rule should not present barriers to entry for new businesses. See Section VII for a more detailed discussion by subcategory of NSPS and barriers to entry.

TABLE IX.G–1.—SUMMARY OF NON-SMALL FACILITY-LEVEL RATIO OF CAPITAL COSTS TO ASSETS (BARRIER TO ENTRY) [1]

Subcategory	Option 2 (%)	Option 2.5 %	Option 2.5+P (%)	Option 4 (%)
A–D	0.6	1.6	2.6	3.3
K	2.1	4.0	4.2	12.3

[1] Percentages are based on those facilities for which EPA had asset data and compliance costs.

TABLE IX.G–2.—SUMMARY OF NON-SMALL COMPANY-LEVEL RATIO OF CAPITAL COSTS TO ASSETS (BARRIER TO ENTRY) [1]

Subcategory	Option 2 (%)	Option 2.5 (%)	Option 2.5+P (%)	Option 4 (%)
Meat	0.8	2.6	3.5	4.4
Poultry	1.0	1.6	2.1	4.6
Mixed Meat	0.1	0.1	0.2	0.3

[1] Percentages are based on those facilities for which EPA had asset data and compliance costs.

Table IX.G–3 provides the small facility-level ratios. In Subcategories A–D, average capital costs comprise between 15 and 20 percent of average facility assets for the non-selected Option 1. Average capital costs are 12.9 percent of average facility assets in Subcategory K for both options, including Option2 which was selected as the basis for the new NSPS.

TABLE IX.G–3.—SUMMARY OF SMALL FACILITY-LEVEL RATIO OF CAPITAL COSTS TO ASSETS (BARRIER TO ENTRY) [1]

Subcategory	Option 1 (%)	Option 2 (%)
A–D [2]	15—20	NA

TABLE IX.G–3.—SUMMARY OF SMALL FACILITY-LEVEL RATIO OF CAPITAL COSTS TO ASSETS (BARRIER TO ENTRY) [1]—Continued

Subcategory	Option 1 (%)	Option 2 (%)
K	12.9	12.9

[1] Percentages are based on those facilities for which EPA had asset data and compliance costs.

[2] Ratio of capital costs to total assets presented as a range to prevent the disclosure of confidential business information.

EPA also compared projected capital costs with estimated total assets for the model facilities used to analyze impacts in Subcategories F–I, J, and L. EPA estimated model facility total assets from model facility income (based on Census data) combined with the median return on assets for the appropriate NAICS code as reported in Dun and Bradstreet (see Proposal EA, Chapter 3 for more details). Thus, the analysis presented below incorporates a greater degree of uncertainty than the results based on detailed survey data for Subcategories A–D and K.

Tables IX.G–4 and IX.G–5 present the results of this analysis to non-small and small facilities respectively. These tables only include facilities with production that is classified solely in the indicated subcategories; the results for mixed processors, with production that is classified in more than one subcategory, are presented in Table IX.G–6 below. In general, the model facility analysis suggests that capital costs are not expected to exceed 2 percent of facility assets.

TABLE IX.G–4.—SUMMARY OF NON-SMALL FACILITY-LEVEL RATIO OF CAPITAL COSTS TO ASSETS (BARRIER TO ENTRY) SCREENER SURVEY FACILITY ANALYSIS

Subcategory	Option 2 (%)	Option 2.5 (%)	Option 2.5+P (%)	Option 4 (%)
F–I	0.2	0.2	0.2	0.4
J	0.1	0.3	0.4	0.5
L [1]	0.1	0.1	0.1	0.6

[1] Results do not include mixed processor facilities.

TABLE IX.G–5.—SUMMARY OF SMALL FACILITY-LEVEL RATIO OF CAPITAL COSTS TO ASSETS (BARRIER TO ENTRY) SCREENER SURVEY FACILITY ANALYSIS

Subcategory	Option 1	Option 2
F–I [1]	1.7%	1.7%

[1] Results do not include mixed processor facilities.

TABLE IX.G–6.—SUMMARY OF MIXED PROCESSOR FACILITY RATIO OF CAPITAL COSTS TO ASSETS (BARRIER TO ENTRY) SCREENER SURVEY FACILITY ANALYSIS

Subcategory combination and option	Ratio of capital costs to assets
Non-small L (Option 2.5), Small F–I (Option 2)	1.1%
Small L (Option 2), Small F–I (Option 2)	0.4%

The results for mixed processors include capital costs for both subcategories in which they operate, even though NSPS was not set for small facilities in Subcategories F–I. Comparing capital costs for only a percentage of production (*i.e.*, small or non-small levels of production in Subcategory L) with a facility's total assets for all production could result in a misleadingly small ratio of capital costs to total assets. Even with this more costly estimate, the ratio of capital costs to total assets does not exceed 1.1 percent for mixed processors.

H. What Do the Cost-Reasonableness and Cost-Effectiveness Analyses Show?

1. For Non-Small Facilities, What Is the Cost-Reasonableness for Removing Pollutants?

EPA based the analysis of Option 2 on the sum of BOD_5 and ammonia (as nitrogen) removals. For Option 2.5, EPA used the sum of BOD_5 and total nitrogen removals, and for Options 2.5+P and 4, EPA used the sum of BOD_5, total nitrogen, and total phosphorus removed. EPA used these sets of pollutant removals to characterize the different intentions of each treatment option. For example, Option 2 is designed to include nitrification to reduce ammonia, while Option 2.5 includes denitrification to reduce TN; Options 2.5+P and 4 also include phosphorus treatment. The average BPT cost and removal comparison of pollutant removals under the selected Option 2 ranges from $2.55 per pound in Subcategories A–D to $29.88 per pound in Subcategory L. Table IX.H–1 presents the results of this analysis for all subcategories and options.

TABLE IX.H–1.—BPT COST & REMOVAL COMPARISON FOR NON-SMALL FACILITIES

Option	Pretax annualized costs (1999$)	Total pounds removed [1]	Average BPT cost & removal comparison (1999$/pound)	Incremental BPT cost & removal comparison (1999$/pound)
Subcategories A–D				
Option 2	$7,287,580	2,859,971	2.55	NA
Option 2.5	16,685,857	16,010,456	1.04	NA
Option 2.5+P	42,914,027	20,530,322	2.09	5.80
Option 4	52,001,157	24,069,226	2.16	2.57
Subcategories F–I				
Option 2	265,976	32,278	8.24	NA
Option 2.5	328,936	21,703	15.16	NA
Option 2.5+P	358,850	21,703	16.53	DOM [3]
Option 4	798,129	104,144	7.66	7.40
Subcategory J				
Option 2	628,890	83,141	7.56	NA
Option 2.5	2,826,384	1,503,583	1.88	NA
Option 2.5+P	7,433,377	2,094,017	3.55	7.80
Option 4	10,171,264	2,311,822	4.40	12.57
Subcategory K				
Option 2	17,738,550	975,803	18.18	NA
Option 2.5	31,816,725	10,011,639	3.18	NA
Option 2.5+P	63,384,016	14,159,024	4.48	7.61
Option 4	109,077,448	26,424,183	4.13	3.73
Subcategory L [2]				
Option 2	556,890	18,635	29.88	NA
Option 2.5	982,661	155,507	6.32	NA
Option 2.5+P	1,475,209	180,519	8.17	19.69
Option 4	3,269,380	400,027	8.17	8.17

[1] Total pounds removed equals the: sum of BOD_5 and ammonia (as nitrogen) for Option 2; sum of BOD_5 and total nitrogen for Option 2.5; and sum of BOD_5, total nitrogen, and total phosphorus for Options 2.5+P and 4.

[2] Includes costs and removals for mixed processors attributable to non-small production in Subcategory L.

DOM [3]: Option is dominated because it has higher cost and lower or equivalent removals.

NA: The incremental cost reasonableness from Option 2 to Option 2.5 cannot be calculated because the pollutants used as the basis for the analysis differs under the two options; the incremental cost reasonableness from Option 2.5 to Option 2.5+P can be calculated because total phosphorus removals are zero under Option 2.5.

2. For Non-Small Facilities, What Is the Cost Effectiveness for Removing Nitrogen and Phosphorus?

Tables IX.H–2 and IX.H–3 in this section provide both the incremental and average nutrient cost-effectiveness values. For nitrogen, EPA used a cost-effectiveness benchmark established by its Chesapeake Bay Program to assess the costs to wastewater treatment plants to implement system retrofits to achieve biological nutrient removal. This nitrogen benchmark estimate is approximately $4 per pound of nitrogen removed.

For phosphorus, EPA assumed a cost-effectiveness benchmark of roughly $10 per pound based on a review of values reported in the agricultural research of the costs to remove phosphorus using various nonpoint source controls and management practices. For more information about the development of these benchmarks, see Appendix E of the Economic Analysis of the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations'' [EPA–821–R–03–002].

Table IX.H–2 displays the results for the nitrogen cost-effectiveness and, therefore, includes only options specifically designed to remove total nitrogen (*i.e.*, Option 2.5 and Option 4). Option 2.5+P is also omitted from Table IX.H–2 because it provides no additional total nitrogen removals relative to Option 2.5. Similarly, Table IX.H–3 displays the results for the phosphorus cost-effectiveness and, therefore, only includes those options with a chemical phosphorus treatment step (*i.e.*, Option 2.5+P and Option 4).

Average cost-effectiveness (cost per pound of nitrogen removed) ranges from $1.08 in Subcategories A–D to $6.71 in Subcategory L under the selected option. Because Option 2 removes no total nitrogen, the incremental cost-effectiveness for Option 2.5 is identical to the average cost-effectiveness. In Subcategories A–D, Subcategory J, and Subcategory K the average cost per pound of total nitrogen removed is below the $4 per pound benchmark.

The average cost-effectiveness (cost per pound of phosphorus removed) ranges from greater than $10 to $58.98 under Option 2.5+P. Again, incremental cost-effectiveness is identical to the average cost-effectiveness for this option because no total phosphorus is removed under any lower options.

EPA notes that the nutrient cost-effectiveness numbers presented on Table IX.H–2 represent upper bounds because they assign all the costs for an option to either total nitrogen or total phosphorus removal even though the options also remove other pollutants. EPA used this approach to provide a conservative estimate of cost-effectiveness and because it does not have a good basis to divide up removal costs among pollutants. EPA received no public comments on this approach in its analysis supporting the proposed rulemaking and NODA.

TABLE IX.H–2.—NUTRIENT COST-EFFECTIVENESS FOR NON-SMALL FACILITIES: TOTAL NITROGEN

Option	Pretax annualized costs (1999$)	Total pounds removed [1]	Average nutrient CE for TN (1999$/pound)	Incremental nutrient CE for TN (1999$/pound)
Subcategories A–D				
Option 2.5	$16,685,857	15,400,791	1.08	1.08
Option 4	52,001,157	18,456,984	2.82	11.56
Subcategory F–I				
Option 2.5	328,936	0	Undefined [2]	DOM [2]
Option 4	798,129	79,677	10.02	10.02
Subcategory J				
Option 2.5	2,826,384	1,469,407	1.92	1.92
Option 4	10,171,264	1,652,506	6.16	40.11
Subcategory K				
Option 2.5	31,816,725	9,367,808	3.40	3.40
Option 4	109,077,448	20,883,771	5.22	6.71
Subcategory L [1]				
Option 2.5	982,661	146,364	6.71	6.71
Option 4	3,269,380	354,355	9.23	10.99

[1] Includes costs and removals for mixed processors attributable to non-small production in Subcategory L.

DOM [2]: Option is dominated because it has higher cost and lower or equivalent removals. ''Undefined'' since removals are estimated to be zero.

TABLE IX.H–3.—NUTRIENT COST-EFFECTIVENESS FOR NON-SMALL FACILITIES: TOTAL PHOSPHORUS

Option	Pretax annualized costs (1999$)	Total pounds removed	Average nutrient CE for TP (1999$/pound)	Incremental nutrient CE for TP (1999$/pound)
Subcategories A–D [1]				
Option 2.5+P	>$42,914,027	4,519,867	>10.00	>10.00
Option 4	52,001,157	4,972,188	10.46	20.09
Subcategory J				
Option 2.5+P	7,433,377	590,434	12.59	12.59
Option 4	10,171,264	622,583	16.34	85.16
Subcategory K				
Option 2.5+P	63,384,016	4,147,385	15.28	15.28
Option 4	109,077,448	4,671,571	23.35	87.17
Subcategory L [2]				
Option 2.5+P	1,475,209	25,012	58.98	58.98
Option 4	3,269,380	27,000	121.09	902.36

[1] Based on comments and further analysis, EPA concludes that the cost of increased alum addition and the resulting increased sludge generation and disposal, may be between $108,000 to $378,000 more per facility for Option 2.5+P than those used in EPA's analysis (see the rulemaking record)

[2] Includes costs and removals for mixed processors attributable to non-small production in Subcategory L. DOM: Option is dominated because it has higher cost and lower or equivalent removals.

3. For Non-Small Facilities, What Is the Cost Effectiveness for Removing Toxic Pollutants

Table IX.H–4 presents the cost-effectiveness of removing toxic pollutants from the wastewater streams of non-small direct dischargers. Pollutant removals included in the analysis are ammonia (as nitrogen) and nitrate/nitrite. Under the selected option, average cost-effectiveness in 1981 dollars ranges from about $2,000 per pound equivalent in Subcategories A–D to $21,300 per pound equivalent in Subcategory L.

TABLE IX.H–4.—TOXIC COST-EFFECTIVENESS FOR NON-SMALL FACILITIES

Option	Pretax annualized costs (1999$)	Total pounds removed [1]	Average cost-effectiveness ($1981/pounds equivalent)	Incremental cost-effectiveness ($1981/pounds equivalent)
Subcategories A–D				
Option 2	$7,287,580	2,250,306	1,032	1,032
Option 2.5	16,685,857	15,824,864	1,963	6,515
Option 2.5+P	42,914,027	15,824,864	5,048	DOM
Option 4	52,001,157	18,684,849	5,787	72,875
Subcategories F–I				
Option 2	265,976	10,575	8,018	8,018
Option 2.5	328,936	10,575	9,917	DOM
Option 2.5+P	358,850	10,575	10,818	DOM
Option 4	798,129	13,804	18,434	52,550
Subcategory J				
Option 2	628,890	48,965	4,095	4,095
Option 2.5	2,826,384	1,513,977	9,139	14,115
Option 2.5+P	7,433,377	1,513,977	24,035	DOM
Option 4	10,171,264	1,700,605	28,929	173,529
Subcategory K				
Option 2	17,738,550	331,973	17,035	17,035
Option 2.5	31,816,725	10,444,933	15,037	13,100
Option 2.5+P	63,384,016	10,444,933	29,955	DOM
Option 4	109,077,448	20,605,243	29,391	48,431

TABLE IX.H–4.—TOXIC COST-EFFECTIVENESS FOR NON-SMALL FACILITIES—Continued

Option	Pretax annualized costs (1999$)	Total pounds removed [1]	Average cost-effectiveness ($1981/pounds equivalent)	Incremental cost-effectiveness ($1981/pounds equivalent)
Subcategory L [1]				
Option 2	556,890	9,492	18,704	18,704
Option 2.5	982,661	162,968	21,324	26,105
Option 2.5+P	1,475,209	162,968	32,012	DOM
Option 4	3,269,380	352,044	37,897	56,902

[1] Includes costs and removals for mixed processors attributable to non-small production in Subcategory L.
DOM: Option is dominated because it has higher cost and/or lower removals.

4. For Small Facilities, What Is the Cost-Reasonableness for Removing Pollutants?

BPT costs per pound removed are significantly higher for small facilities than for non-small facilities. In Subcategory F–I, for example, average cost per pound removed is $24 under Option 2 for small processors compared to $12 per pound for large processors under the same option (Table IX.H–1). In the other subcategories, these figures are even larger: BPT cost per pound approaches $200 in Subcategory A–D, exceeds $1,400 per pound in Subcategory K, and approaches $4,000 per pound in Subcategory L. Table IX.H–5 presents the results of this analysis for all subcategories and options.

TABLE IX.H–5.—BPT COST & REMOVAL COMPARISON FOR SMALL FACILITIES

Option	Pretax annualized costs (1999$)	Total pounds removed [1]	Average BPT cost & removal comparison (1999$/pound)	Incremental BPT cost & removal comparison (1999$/pound)
Subcategories A–D				
Baseline	$0	0	NA	NA
Option 1	CBI	CBI	198	198
Option 2	NA	NA	NA	NA
Subcategories F–I [2]				
Baseline	0	0	NA	NA
Option 1	1,108,033	47,997	23	23
Option 2	1,116,096	53,562	21	1
Subcategory K				
Baseline	0	0	NA	NA
Option 1	CBI	CBI	1,487	DOM
Option 2	CBI	CBI	501	501
Subcategory L [2]				
Baseline	0	0	NA	NA
Option 1	13,258	183	73	73
Option 2	13,476	183	74	DOM

[1] Total pounds removed equals the sum of BOD_5 and ammonia (as nitrogen).
[2] Includes costs and removals attributable to small levels of production in subcategory by mixed processors.
DOM: Option is dominated because it has higher cost and/or lower removals.

X. Water Quality Analysis and Environmental Benefits

A. Summary of the Environmental Benefits

This section presents EPA's estimates of the environmental and human health benefits, including pollutant reductions, that will occur from this rule. Table X.A–1 shows the annualized benefits EPA projects will result from the effluent limitations and guidelines (ELG) requirements for today's rule. The total monetized benefits associated with the ELG requirements are estimated to approximate $2.6 million with a range of approximately zero to $10 million annually. These values represent those benefits which EPA is able to quantify and determine an economic value. Evidence from the nutrient criteria analysis (see Section X.C.3.d) suggests that nutrient loads from MPP facilities are significant, relative to background loads. However, the significance of MPP load reductions may not be fully captured by monetized benefit, due to the fact that the water quality index used in benefits analysis does not acknowledge current information about the contribution of nutrients to water quality, as represented by recent 304(a) recommended ecoregional water quality criteria for nutrients (see DCN 316–511). As discussed later in this section, EPA has also identified additional environmental benefits that will result

from this rule but is unable to attribute a specific economic value to these additional nonmonetized or nonquantified benefits.

EPA's detailed assessment of the environmental benefits that will be gained by this rule, as well as the benefits estimates for other regulatory options considered during this rulemaking, is presented in the Economic and Environmental Benefits Analysis (DCN 320–001).

TABLE X.A–1.—ANNUALIZED BENEFITS OF ELG REQUIREMENTS FOR MEAT AND POULTRY PRODUCT FACILITIES (2003$)

Types of benefits	Total for all MPPs
Recreational and non-use benefits from improved water quality in freshwater rivers, streams, and lakes	$2.6 million.
Reduced loadings of pathogens; oil and grease [1]	Non-monetized.
Reduced public water treatment costs	Negligible.
Reduced aquatic life and human health toxicity	Negligible.
Reduced eutrophication (calculated as reduced exceedences of nutrient criteria) [1]	Non-monetized.
Total Monetized Benefits	$2.6 million.

[1] May be partially captured in the monitized recreational and non-use benefits.

B. What Pollutants Are in MPP Wastewater, and How Do They Affect Human Health and the Environment?

1. What Pollutants Are Present in the MPP Wastewater?

The primary pollutants associated with MPP wastes are nutrients (particularly nitrogen and phosphorus), organic matter, solids, and pathogens. EPA identified 30 pollutants of concern for the meat processing segment of the industry and 27 pollutants of concern for the poultry processing segment of the industry (*see* Section VB). This list includes ammonia (as nitrogen), carbonaceous BOD_5 (CBOD), chemical oxygen demand (COD), nitrate+nitrite (as nitrogen), oil & grease, pH, temperature, total nitrogen and total phosphorus (as PO_4). The following sections discuss the main constituents in meat and poultry processing industry waste streams and information from the National Water Quality Inventory: 2000 Report (hereinafter the ''2000 Inventory''). Prepared every two years under § 305(b) of the Clean Water Act, the 2000 Inventory summarizes State reports of the impairment of their water bodies and their suspected sources.

a. Nutrients

The 2000 Inventory lists nutrients as the leading stressor of impaired lakes, ponds, and reservoirs. Nutrients are also the fifth leading stressor for impaired rivers and streams, among the top 10 stressors of impaired estuaries, and the second leading stressor reported for the Great Lakes.

Nitrogen occurs in several forms, including ammonia and nitrate. These forms of nitrogen may produce adverse environmental impacts when available in excess quantitiest. Ammonia is of environmental concern because it is toxic to aquatic life and exerts a direct oxygen demand on the receiving water as it biodegrades, thereby reducing dissolved oxygen levels and the ability of a water body to support aquatic life. Excessive amounts of ammonia can lead to eutrophication, or nutrient over-enrichment, of surface waters. The most documented impact of nutrient pollution is eutrophication and its attendant overgrowth of plants, including algal blooms, in surface waters. When blooms die and decay oxygen levels are depressed and contribute further to eutrophication.

Like nitrogen, phosphorus is a nutrient that may lead to eutrophication and associated adverse impacts, *e.g.* fish kills, reduced biodiversity, objectionable tastes and odors, increased drinking water treatment costs, and growth of toxic organisms. At concentrations greater than 1.0 milligram per liter, phosphorus may interfere with the coagulation process in drinking water treatment plants thus reducing treatment efficiency. Phosphorus is of particular concern in fresh waters, where plant growth is typically limited by phosphorus levels. Under high pollutant loads of phosphorus, however, fresh water may become nitrogen-limited. Then, because there is an abundance of phosphorus available for plant growth, nitrogen becomes the limiting factor for plants.

b. Organic Matter

BOD_5 and COD are important measures of the organic content of an effluent. The 2000 Inventory indicates that low dissolved oxygen (DO) levels caused by organic enrichment (oxygen-depleting substances) are the third leading stressor in impaired estuaries. They are the fourth greatest stressor in impaired rivers and streams, and the fifth leading stressor in impaired lakes, ponds, and reservoirs. Severe reductions in dissolved oxygen levels may lead to fish kills. Even moderate decreases in oxygen levels may adversely affect water bodies through decreases in biodiversity characterized by the loss of fish and other aquatic animal populations, and a dominance of species that can tolerate low levels of dissolved oxygen.

c. Solids

The 2000 Inventory indicates that dissolved solids are the fourth leading stressor in impaired lakes, ponds, and reservoirs. Excessive solids increase cloudiness of surface waters, physically damage aquatic plants and animals, and provide a protected environment for pathogens. Also, increased cloudiness reduces light penetration through the water column and limits the growth of desirable aquatic plants that are critical habitat for fish, shellfish, and other aquatic organisms. Solids that settle out as bottom deposits may alter or destroy habitat for fish and organisms that live at the bottom of the water.

d. Oil and Grease

Oil and grease may have toxic effects on aquatic organisms (*i.e.,* fish, crustacea, larvae and eggs, gastropods, bivalves, invertebrates, and flora). The marine larvae and benthic invertebrates appear to be the most intolerant of oil and grease, particularly the water-soluble compounds, at concentrations ranging from 0.1 ppm to 25 ppm and 1 ppm to 6,100 ppm, respectively. The oil and grease designation includes many organic compounds with varying physical, chemical, and toxicological properties, and EPA has not established a numerical criterion applicable to all types of oil and grease. Therefore, water quality standards and some permit limits are described as requiring ''no visible sheen.'' For this assessment, EPA does not model the effects of oil and grease on the environment.

e. Pathogens

Pathogens are defined as disease-causing microorganisms. A subset of

microorganisms, including species of bacteria, viruses, and parasites, may cause sickness and disease in humans. The 2000 Inventory indicates that pathogens (specifically bacteria) are the leading stressor in impaired rivers and streams and the fourth leading stressor in impaired estuaries. Pathogens are known to impact a variety of water uses including recreation, drinking water sources, and aquatic life and fisheries (Docket No. W–01–06, Record No. 10024—Pathogen TMDL report). Bacteria (*e.g.*, fecal coliforms, E. coli, and fecal streptococcus) are introduced into natural waters by municipal and industrial wastewater discharges, combined sewer overflows, and urban and rural runoff. High loading rates are most commonly associated with untreated or poorly treated human sewage or animal waste.

There are numerous reports associating E. coli 0157-caused illness with consumption of contaminated beef (Valcour *et al.*, 2002; Michino *et al.*, 1999; Tuttle *et al.*, 1999), wild game (Gagliardi *et al.*, 1999) or under-processed fruit juice (Kudva *et al.*, 1998). Additional cases of illness have been caused by drinking water contaminated with the pathogen (Novello, 1999; Bruce-Grey Owen Sound Health Unit, 2000; Jackson *et al.*, 1998). In most, if not all, these reports, animal feces, bovine in particular, were the probable vehicle for transmitting E. coli 0157:H7 to other animals, food, and into the environment. Epidemiological investigations have demonstrated that cattle, especially young animals, are a principal reservoir of E. coli 0157:H7 (Wang *et al.*, 1996).

f. Other Potential Contaminants

Surfactants have been identified as an emerging issue related to water quality from waste effluent. Alkylphenol polyethoxylates (AP) are nonionic industrial surfactants used globally in detergents, paints, herbicides, and cosmetics. All categories and subcategories of the MPP industry addressed in this final rule conduct relatively thorough sanitation processes, involving large amounts of chemical cleansers. These agents contain alkylphenol ethoxylate (APE) surfactants. Alkylphenols such as octylphenol, nonylphenol, and nonylphenol diethoxylate are commonly found in sewage treatment plant effluents and receiving waters as microbial breakdown products of these surfactants. These degradation products have been shown to be estrogenic (inadvertently mimic the biological activity of the female hormone estrogen) in *in vitro* fish, avian, and mammalian assays, with their molecular action mediated through the estrogen receptor (ER) (White *et al.*, 1994). Findings of AP estrogenicity *in vitro* have been substantiated by reports of inhibited testicular growth after AP exposure of rats (Sharpe *et al.*, 1995) and fish (Jobling *et al.*, 1996) *in vivo*. The potential range of impacts of estrogen receptor binding chemicals include altered protein expression on the cellular level, changes in hormone levels in the ova and testis, expression of secondary sex characteristics and altered reproductive capability of individuals, which may lead to skewed genders within a population which ultimately may impact the long-term efficacy of the population. While these chemicals are relatively weak ER binders they may be of concern due to their hydrophobicity (*i.e.*, repel water) and potential to bioaccumulate (Schmeider *et al.*, 2000). Tighter discharge limits and effluent treatment processes to reduce the concentration of AP and its degradation products have been shown to reduce the estrogenic activity of the watercourses into which the effluents are discharge (Sheehan *et al.*, 2002).

Growth promoters (*e.g.*, trenbolone acetate—a synthetic anabolic steroid used to promote growth in cattle) are extensively used in the United States. These steroids, and more importantly their metabolites (*e.g.*, 17-beta-trenbolone from trenbolone acetate), have been shown to be comparatively stable in animal waste, suggesting the potential for exposure to aquatic animals via direct discharge, runoff, or both. Reproductive alterations have been reported in fish living in waters receiving cattle feedlot effluent (Jegou *et al.*, 2001) and in *in vitro* androgenic activity displayed by feedlot effluent samples (Gray *et al.*, 2001). Little is known of the toxicity of these promoters and metabolites. However, recent studies on one such chemical, 17-beta-trenbolone, indicate the potential for androgenic activity in *in vitro* and *in vivo* assays and induction of developmental abnormalities (Wilson *et al.*, 2002). Furthermore, studies on 17-beta-trenbolone observed androgenic activity in the fathead minnow as evidenced by secondary sex characteristics in females (production of dorsal nuptial tubercles, structures normally present only on the heads of males), and altered reproductive physiology of the male (Ankley *et al.*, 2003). The presence of these chemicals in the environment and their potential toxicity are the subject of further study.

2. How May Water Quality Be Impaired by MPP Wastewater?

EPA identified 10 articles documenting environmental impacts due to meat and poultry processing facilities. Documented impacts include 4 stream reaches with nutrient loadings, 2 sites with contaminated well water, 1 site with contaminated ground water, and 1 lake threatened by nutrient loadings. Additional information may be found in the Economic and Environmental Benefits Analysis (DCN 320–001) in the rulemaking docket.

EPA has made significant progress in implementing Clean Water Act programs and in reducing water pollution. Despite such progress, however, many water quality problems persist throughout the country. Sources of information on these problems include reports from States to EPA, documented in the 2000 Inventory, and the U.S. Geological Survey's National Water Quality Assessment (NAWQA) Program.

The 2000 Inventory data identify the leading pollutants impairing surface water quality in the United States to include nutrients, pathogens, sediment/siltation, and oxygen-depleting substances. These pollutants originate from many different sources, including the animal production industry.

Over 40 percent of our assessed waters amounting to over 20,000 individual river reaches, lakes, and estuaries still do not meet the applicable water quality standards. These impaired waters include approximately 300,000 miles of rivers and shorelines and approximately 5 million acres of lakes. A majority of the U.S. population (218 million) live within 10 miles of the impaired waters.

Under section 303(d) of the 1972 Clean Water Act, states, territories, and authorized tribes are required to assess and develop lists of waters that do not meet water quality standards. The law requires that these jurisdictions establish priority rankings for waters and develop total maximum daily loads (TMDLs) for these waters. A TMDL specifies the maximum amount of a single pollutant that a waterbody can receive and still attain its applicable standard. The calculation of the TMDL must include a margin of safety to ensure that the waterbody can be used for the purposes the jurisdiction has designated. The calculation must also account for seasonal variation in water quality.

MPP facilities primarily discharge pollutants to rivers and streams. EPA has found that 66 of the 112 waterbodies receiving discharges from in scope meat

and poultry facilities are listed as impaired, meaning that these meat and poultry processing facilities may be subject to requirements to reduce their discharges of the impairing pollutants, if appropriate. Of those 66 waterbodies, 19 have proposed or promulgated TMDLs, 11 of which are for nutrients. Eight waterbodies are scheduled for TMDLs, and of those, 5 are impaired for nutrients. The remaining 39 impaired waterbodies have either no information on the timing of TMDLs that EPA could find or the TMDLs are not scheduled. Of those 39 waterbodies, 18 are impairments are due to nutrients.

C. How Will Water Quality and Human Health Be Improved by This Rule?

1. What Reductions in Pollutant Discharges Will Result From This Rule?

The pollutant load reductions due to today's requirements were estimated based on the additional wastewater treatment needed by facilities to achieve the limits specified by this rule. See Section VIII.A for discussion on EPA's pollutant loading reduction. These estimates were used in the water quality models and other environmental benefits assessment models to estimate the human health and environmental benefits accruing from this rule.

EPA estimated the reduction of nitrogen and the metals barium, chromium, copper, manganese, molybdenum, nickel, titanium, vanadium, and zinc for the final rule. Fecal coliform was used as a surrogate measure to estimate pathogen reductions that would be achieved by this rule. EPA expects that other pathogens (*e.g.*, E. coli) will also be reduced to a similar degree due to disinfection requirements. Table X.C–1 presents the pollutant reductions expected to result from this rule.

TABLE X.C–1.—POLLUTANT REDUCTIONS: COMBINED TOTAL FOR ALL MPP FACILITIES

[Includes baseline closures facilities]

Parameter	Baseline pollutant loading (pre-regulation)	Post-regulation pollutant loading	Pollutant reduction
Nitrogen (million lb)	48.4	20.0	28.5
Pathogens (10^{19} cfu)	1,340.2	249.0	1,091.2
Sediment (million lb)	8.5	6.1	2.4

2. What Was the Approach for Determining the Benefits of This Rule?

EPA modeled the water quality improvements expected to result from the new requirements being promulgated today and estimated the environmental and human health benefits of the pollutant reductions. The benefits described in this section are primarily associated with direct improvements in surface water quality.

For this rule, EPA conducted five benefit studies to estimate the impacts of reductions in pollutant discharges from MPP facilities. The first study used the National Water Pollution Control Assessment Model (NWPCAM) that estimates pollutant discharge to rivers, streams, and, to a lesser extent, lakes in the U.S. in order to estimate the value society places on improvements in surface water quality associated with today's rule. As noted in Section X.C.3.a, EPA is using a newer version of the NWPCAM than was used for the proposal that enables us to model nutrient loadings. The second study evaluated reduced public water treatment costs. The second study differs from the other four by providing a change in costs. The third study assessed the potential impacts of ten pollutants on aquatic life or human health by comparing the modeled instream pollutant concentrations under baseline treatment levels to EPA's published guidance for aquatic life criteria or human health criteria. The fourth study assessed reductions of nutrient criteria exceedances under today's technology options. In the fifth study ORD compared the background concentrations of nitrogen with the facility-generated loads.

For the benefits analyses, EPA translates, where possible, pollutant reductions and other environmental improvements on human health and the ecosystem to monetary values. In some cases, EPA could identify some improvements that will result from this rule, but could not estimate the monetary value of the improvement or quantify the amount of improvement expected. Nevertheless, these environmental improvements most likely result in improved ecological conditions. The following discussion details these non-monetized and non-quantified benefits. Given the limitations to assigning monetary values to some of the improvements, the monetized benefit values described here and in the Economic and Environmental Benefits Analysis should be considered as a subset of the total benefits of this rule. For example, the economic valuation EPA used for this rule assigns monetary values for the improvements due to reductions of certain important pollutants from MPP facilities (*e.g.*, nitrogen). It does not include values for improvements expected from reductions of other pollutants of potential importance, such as oil and grease.

3. Benefits From Improved Surface Water Quality

Economic benefits of the MPP rule can be broadly defined according to categories of goods and services provided by improved water quality. The first category includes benefits that pertain to the use (direct or indirect) of the affected resources. The direct use benefits can be further categorized according to whether or not affected goods and services are traded in the market. For this rule, EPA has not identified any goods that are traded. The non-traded or non-market ''use'' benefits assessed in this final rule include recreational activities and drinking water (treatment). The second category includes benefits that are independent of any current or anticipated use of the affected resource; these are known as ''nonuse'' or ''passive use'' values. Nonuse benefits reflect human values associated with existence and bequest motives associated with preservation and/or quality of environmental resources. Although the public may not use a resource directly, they may nevertheless be affected by changes in the status or quality of that resource.

The economic value of benefits is estimated using a range of valuation methods, with the specific approach being dependent on the type of benefit category, data availability, and other suitable factors. Recreational use benefits can be valued using primary (original) or secondary research involving revealed preference methods (*e.g.*, random utility models). Estimating nonuse benefits is more challenging because these values cannot be observed in markets or inferred from revealed or observed behavior. Researchers

therefore rely on stated preference methods to derive nonuse values, whereby individuals are asked to ''state'' their preference or value for particular (and often hypothetical) resource conditions outlined in survey questions. For this final rule, time and resource constraints preclude the use of primary research for deriving use or nonuse benefit values. EPA therefore does not conduct primary research to support the benefits analysis and instead relies on benefit transfer of values from existing studies to monetize benefits. EPA's Guidelines for Preparing Economic Analyses (EPA 240–R–00–003) recommends consideration of benefits transfer under these conditions. The following sections outline the methods and results of the benefits analysis

a. Freshwater Recreational Benefits

EPA used the NWPCAM to estimate the national economic benefits to surface water quality that will result from implementation of today's requirements. EPA used the NWPCAM to simulate the results of reductions in pollutant loadings from meat and poultry product facilities on water quality in the Nation's surface waters. MPP loads data for nitrogen, phosphorus, pathogen indicators, BOD_5, DO, and TSS were used as inputs to the NWPCAM for this analysis. EPA modeled a sample set of 65 facilities. EPA estimates that the final rule will improve overall use of approximately 631 stream miles for the sample set. Most of the improvements came from within a use designation (*e.g.*, boatable waters moved closer to becoming fishable waters). The MPP loadings were used as inputs to the NWPCAM to estimate in-stream pollutant concentrations on a detailed spatial scale and to produce estimates for changes in concentrations resulting from this rule. EPA used the NWPCAM modeling output (improved water quality) to monetize improvements to water quality, and as inputs for other benefits analyses used to support this rule.

EPA used a water quality valuation technique to estimate the monetary value of the recreation and nonuse benefits associated with the changes in water quality. This method uses a composite measure of water quality calculated from six parameters (called the ''water quality index'' approach) and further assigns monetary values along a continuum of water quality improvements. The monetary value assigned to the benefits captures what the public is willing to pay for these improvements to water quality. The benefits of improved surface water quality resulting from reduced pollutant discharges from the 65 non-small direct discharge facilities are estimated to be $841,000 annually (2003$).

Raking post-stratification was used to extrapolate these results from the 65 non-small direct discharge facilities to the universe of 169 regulated facilities. The basic concept of the raking method is that facility sample weights derived from the size of the plant and type of production may not be the most appropriate for extrapolating benefits to non-sample plants. Other factors influence the occurrence and size of benefits so their omission can lead to a conditional bias in the extrapolated results. The raking process proceeds by categorizing all of the facilities that will be affected by the regulation by their receiving waters and local population. The goal of the post-stratification weighting process is to ensure that the revised sample weights generate the same marginal percentages for the receiving waters and local population categorization as found in the affected population. For information see the Economic and Environmental Benefits Analysis in the rulemaking docket.

The revised weights are applied to sample facilities to generate a national total. However, the NWPCAM calculates changes in water quality by river reach rather than facility. Using network analysis tools, EPA identified the MPP model facilities upstream from each affected reach. Up to six facilities may have contributed to the changes in any particular reach. For most reaches, there was only one model facility upstream so only that weight was used. Otherwise, the average raking weight for all of the facilities upstream of the reach was applied to aggregate the benefits estimated for reaches affected by the model facilities to an estimate for all of the facilities within the scope of the rule. Based on the NWPCAM analysis using the water quality index approach, EPA estimates the benefits of improved surface water quality resulting from reduced pollutant discharges from MPP facilities to be $2.6 million annually (2003$).

Water quality predictions generated by the NWPCAM, as well as by other models, contain prediction errors. As a consequence, there is some degree of uncertainty associated with calculated values of benefits. Monte Carlo analysis is used to characterize the uncertainty and compute error bounds around calculated benefit values (see EEBA, DCN 320–001). The range of benefits estimated by uncertainty analysis is approximately zero to $10 million per year (2003$), based on 10 percent lower and 90 percent upper bound values respectively. The broad range in values is not uncommon for large scale (*i.e.*, national-level) water quality models and is expected given the relatively small number of facilities affected by the rule and the choice of the 10th and 90th percentiles as uncertainty bounds.

b. Reduced Public Water Treatment Costs

Total suspended solids (TSS) entering surface waters from MPP facilities may hinder effective drinking water treatment by interfering with coagulation, filtration, and disinfection processes. EPA used the NWPCAM to predict how pollutant reductions from MPP facilities would affect the concentration of TSS in the source waters of public water supply systems. To measure the value of reductions in TSS concentrations, EPA estimated the extent to which lower TSS concentrations reduce operation and maintenance (O&M) costs related to conventional treatment techniques. EPA estimates reduced drinking water treatment costs will be negligible from reduced discharges of pollutants due to today's rule (see DCN 316–511 for details about the reduced drinking water treatment costs).

c. Toxicity Assessment

EPA used a stream dilution modeling technique to assess the aquatic life and human health toxicity impacts of releases of ten pollutants (ammonia, barium, chromium, copper, manganese, molybdenum, nickel, titanium, vanadium, and zinc). The stream dilution modeling techniques assume complete immediate mixing of effluents and receiving water flows and do not take into account fate processes other than complete immediate mixing. These simplified stream dilution techniques have been used in other effluent guidelines (*e.g.*, Iron and Steel, Metal Products and Machinery, and Transportation Equipment Cleaning). EPA based this analysis on 53 MPP facilities that responded to detailed surveys and directly discharge wastewaters to streams.

EPA projected possible impacts on aquatic life by comparing the modeled instream pollutant concentrations under baseline treatment levels to EPA's published aquatic life criteria guidance [2]

[2] In performing this analysis, EPA uses guidance documents published by EPA that recommend numeric human health and aquatic life water quality criteria for numerous pollutants. States often use these guidance documents when adopting criteria as part of their water quality standards. The simplified stream dilution techniques are used for screening priority pollutants. Therefore, EPA uses

or, for pollutants for which there are no water quality criteria, to toxic effect levels (*i.e.*, lowest reported or estimated concentration that is toxic to aquatic life).

EPA projects impacts to human health by (1) comparing estimated instream pollutant concentrations to health-based toxic effect values or criteria, and (2) estimating the potential noncarcinogenic hazards from eating contaminated fish or drinking contaminated water. EPA evaluated systemic hazards for the general population for drinking water, and evaluated systemic hazards for sport and subsistence fishers and their families from eating contaminated fish. However, EPA did not look at carcinogenic risks because none of these 10 pollutants discharged by MPP facilities and considered in this analysis are known carcinogens.

EPA projects that modeled instream pollutant concentrations of copper, at current discharge levels, will slightly exceed chronic aquatic life criteria or toxic effects levels in one of the 53 receiving streams. The model did not predict any exceedances of acute aquatic life criteria or toxic effect levels. EPA also projects that manganese will marginally exceed human health criterion or toxic effect levels in one of the receiving streams. At current discharge levels, no systemic toxic effects are projected for fishers and their families from eating fish they catch from any of the receiving streams. Because EPA did not identify damages resulting from the MPP discharges for the 10 pollutants identified at the beginning of this section, EPA projects no meaningful health or aquatic life benefits as a result of the selected BPT or BAT options. (see DCN 316–518 for details about the toxicity assessment).

d. Nutrient Criteria Assessment

EPA's recommended section 304(a) ecoregional water quality criteria for nutrients were developed with the aim of reducing and preventing cultural eutrophication (*i.e.*, over enrichment of nutrient levels associated with human activities) on a national scale. The criteria were empirically derived to represent conditions of surface waters that are minimally impacted by human activities and protective of aquatic life and recreational uses. The nutrient criteria are numerical values for both causative (phosphorus and nitrogen) and response (chlorophyll a and turbidity) variables associated with the prevention and assessment of eutrophic conditions. The problem of cultural eutrophication is national in scope, but specific levels of overenrichment leading to these problems vary from one region of the country to another because of factors such as geographical variations in geology, vegetation, climate, and soil types. EPA has, therefore, developed its recommended nutrient criteria on an ecoregional basis.

For this analysis, EPA estimates nutrient concentrations one kilometer downstream from facilities assuming (1) no background concentrations of nitrogen, (2) 7Q10 and mean flow conditions, and (3) exponential decay of nitrogen within the one kilometer stretch. EPA then compares estimated concentrations with 304(a) criteria or reference conditions. Given the assumptions, this analysis is not designed to predict actual concentrations, but instead evaluate, at a screening level, the relative impacts of MPP facilities and treatment controls required under this rule. In the absence of all other sources of nitrogen and assuming 7Q10 flow, the results of this analysis show that, prior to the rule, loads from 45 MPP facilities (out of 63), are projected as being capable of creating instream nitrogen concentrations that exceed 304(a) nitrogen criteria representing the upper 25th percentile reference conditions of ''least impacted'' streams in respective subecoregions. The 25th percentile was chosen by EPA to represent reference conditions; the natural least impacted conditions, or what is considered the most attainable condition. The number of exceedances drops to 41 facilities when estimated instream nitrogen concentrations are compared to the 50th (*i.e.*, median) percentile reference conditions. It is possible, in reality, that many of these streams will exceed the 25th and 50th percentile reference conditions, even in the absence of MPP facility loads, but these results are provided to demonstrate the potential for MPP loads to affect nutrient water quality. The complete analysis is available in the EEBA.

When loads from the MPP facilities are reduced in accordance with the requirements under this rule, a total of six of the 45 25th percentile exceedances are projected to be eliminated. Correspondingly, a total of four out of the 41 50th percentile exceedances are projected to be eliminated. When mean flow (versus 7Q10) is assumed, eight out of 16 projected 25th percentile exceedances are estimated to be eliminated, and seven out of 14 projected 50th percentile exceedances are estimated to be eliminated. In reality, these exceedances may not in fact be eliminated due to the assumptions outlined above for this analysis, but these results demonstrate the potential capacity of this rule to affect water quality related to nutrient loads.

Similar analyses have been conducted by EPA's Office of Research and Development (DCN 317–001). Using land cover data, ORD estimated non-point source (NPS) loads for watersheds containing MPP facilities. NPS loads and recommended loads based on EPA's 304(a) nutrient criteria guidance were compared to MPP loads. The results identified several MPPs where NPS loads were substantially lower than MPP loads and BAT Option 2.5 could significantly improve water quality. Other plants were identified that currently exceed established EPA nutrient criteria levels, and implementing BAT Option 2.5 would decrease nutrient loads.

XI. What Are the Other (Non-Water Quality) Environmental Impacts and Benefits?

Under Sections 304(b) and 306 of the Clean Water Act, EPA may consider non-water quality environmental impacts (including energy requirements) when developing effluent limitations guidelines and standards. Accordingly, EPA has considered the potential impact of today's final regulation on air emissions, energy consumption, and solid waste generation.

While it is difficult to calculate environmental impacts across all media and energy use, EPA has determined that the benefits from complying with these limitations and standards justify the multi-media impacts identified in this section (see Section X for a discussion on the environmental benefits associated with this regulation). Because today's rule only affects non-small facilities who directly discharge their wastewaters, impacts from those facilities are the only ones discussed here. For impacts associated with treatment options that were not selected for the final regulation and other information on non-water quality impacts, see Section 12 of the ''Technical Development Document for the Final Effluent Limitations Guidelines and Standards for the Meat and Poultry Products Point Source Category.''

the national criteria values in lieu of more site-specific values. We do not use this as a comprehensive analysis, but rather as a trigger to identify potential impacts on aquatic life and human health. A more site-specific analysis could be undertaken if the simplified stream dilution technique projected in-stream exceedances of national aquatic life and human health criteria.

A. Air Emissions

EPA has determined that wastewater treatment processes recommended in this rule will not generate significant air emissions above the current emissions, either directly from the facility or indirectly from the facilities that provide energy to MPP facilities. Possible non-odorous gases that may be emitted from these processes include nitrogen and carbon dioxide. Nitrogen gas will be formed during the denitrification process, and will escape to the atmosphere. Since nitrogen comprises over 78% of the Earth's atmosphere and is not considered a greenhouse gas, its generation is not considered to pose an environmental impact. Carbon dioxide will be released when BOD is oxidized by oxygen-containing compounds. However, the BOD being treated will generally not increase, and therefore there will generally be no incremental increase in carbon dioxide over current treatment levels. Carbon dioxide will be incrementally increased only for facilities requiring additional BOD for denitrification, which constitutes approximately 20% of the MPP facilities.

Odors are the only significant air pollution problem associated with the treatment of MPP wastewaters and generally are associated with anaerobic conditions. Thus, flow equalization basins, dissolved air flotation (DAF) units, and anaerobic lagoons are possible sources of malodors. Potential odorous substances associated with MPP wastewater include ammonia, hydrogen sulfide, and organic compounds. Ammonia in MPP wastewaters is typically due to breakdown of more complex substances, and can be released under certain circumstances. However, aerobic nitrifying conditions will favor keeping ammonia in solution as it is converted to nitrate, meaning that odors will generally be suppressed. In addition, maintenance of pH around neutral conditions will disfavor stripping ammonia, leaving it in the wastewater to be oxidized or assimilated. Furthermore, denitrification processes will favor additional conversion of ammonia. Thus, any incremental ammonia generation will be minimal.

Hydrogen sulfide can be formed under anaerobic and anoxic conditions such as in the denitrification reactors. Hydrogen sulfide generation requires the presence of sulfate in the wastewater, which is typically low in MPP wastes. (In most cases the source of sulfates in MPP wastewater is the source water supply.) In addition, the formation of sulfide is less favored than the reduction of nitrate to nitrogen, meaning that under most circumstances, sulfide will not be formed to a greater degree than is currently the case, especially if the facility is well-managed. Review of the MPP detailed surveys shows that only 20% of the MPP facilities that currently do not denitrify or treat their wastewater anaerobically have the potential for increased hydrogen sulfide generation.

Volatile odorous organic compounds can be generated in anaerobic lagoons. However, most facilities currently have such lagoons in place, meaning that incremental additional generation of such substances will be minimal. If specific facilities have odor difficulties, then covers over the lagoons can be used to capture odorous substances that are then subsequently destroyed by some oxidation or combustion process. Some facilities capture anaerobically generated methane for fuel; if that gas stream must be scrubbed before use, the waste will be recycled to the wastewater treatment plant, resulting in no net environmental impact. Such oxidation and combustion processes will potentially result in additional carbon dioxide generation; however, that generation constitutes minimal incremental generation, since the organic substances involved would have gone through oxidation naturally. Typically, odorous organic compounds are well-destroyed in aerobic systems. Overall, the incremental odor problems associated with this regulation are small. Odor problems usually are significant only when the sulfur content of MPP wastewaters is high, especially when treatment facilities are not well managed. Generally, MPP wastewater treatment facilities using anaerobic processes for treating wastewater with a low sulfur concentration have few odor problems. At such facilities, maintaining a naturally occurring layer of floating solids in anaerobic contact basins and lagoons generally minimizes odors. Thus, the technology options should not increase emissions of odorous compounds from well-managed MPP wastewater treatment facilities. EPA visited several MPP facilities, and none had odor control problems.

If a facility uses nitrification to meet the ammonia limitations, then any ammonia odors will be minimal because the process keeps the ammonia in solution as it is converted to nitrate. However, using anaerobic treatment for initial BOD reduction before aerobic treatment will increase emissions of methane and volatile organic compounds, but the increases should be negligible given today's extensive use of lagoons and other anaerobic processes in MPP wastewater treatment. In addition, covering anaerobic lagoons and flaring the gas captured can reduce these emissions. If the volume of captured gas is sufficient, it can be used as a fuel to produce process heat or electricity. EPA observed a couple of facilities capturing gas for use as fuel during its site visits.

B. Energy Consumption

EPA estimates that compliance with this rule will create a small increase in nationwide energy consumption for all subcategories, except Subcategory J, which is projected to have decreased energy requirements. This estimated decrease for Subcategory J is because the facilities will all have decreased aeration requirements due to BOD removal during anoxic processes (before the aeration tank); because the BOD is removed beforehand, less aeration is needed for BOD removal in the aeration process. Although other subcategories may also decrease their aeration requirements, that decrease may be offset by requirements associated with ensuring there is enough BOD to achieve the desired nitrate reduction. For non-small direct discharging facilities nationwide, EPA estimates a 7.3 percent increase in annual energy consumption for wastewater treatment (about 17.7 million kilowatt-hours per year). Table XI.B–1 presents the estimates of energy use EPA expects as a result of this regulation, organized by subcategory.

By comparison, electric power generation facilities generated 3.123 billion megawatt-hours of electric power in the United States in 1997 (Energy Information Administration, Electric Power Annual 1998 Volume 1, Table A1). Additional energy requirements for EPA's selected options are acceptable (*i.e.*, significantly less than 0.001 percent of national requirements).

TABLE XI.B–1.—INCREMENTAL ENERGY USE FOR NON-SMALL DIRECT DISCHARGING MPP FACILITIES

40 CFR 432 subcategory[a]	Baseline energy use for MPP WWTP (KWH/yr)	Incremental energy use for MPP WWTP (KWH/yr) [% Increase]
A, B, C, D	62,381,835	8,100,573 [11.5]
F, G, H, I	1,711,465	51,931 [2.9]
J	10,440,620	−611,232 [−6.2]
K	162,511,445	9,891,034 [5.7]
L	6,470,812	346,789 [5.1]

[a] Facilities in Subcategory E are not affected by today's rule, therefore, there is no net incremental energy use.

These are national estimates. Individual facilities may decrease their energy consumption if they use the anaerobic lagoon effluent as the source of organic carbon necessary for denitrification. BOD reduction that occurs during denitrification reduces the oxygen transfer requirements and associated electricity needed for aerobic BOD reduction after the anaerobic treatment. For other facilities, energy use may increase due to additional pumping requirements.

C. Solid Waste Generation

The most significant non-water quality impact for this rule is the generation of solid wastes from MPP wastewater treatment. EPA estimates that compliance with the final rule will slightly increase the amount of wastewater treatment sludge generated for meat first and further processors and decrease the amount for renderers and poultry first and further processors. For non-small direct discharging facilities nationwide, EPA estimates a 2.3 percent reduction in total annual sludge produced (or about 3,200 tons). The reduction in sludge generation for renderers and poultry processes is due to the increased use of anoxic processes, which inherently tend to generate less sludge than aerobic processes, while not having increased sludge generation from TSS removal. Table XI.C–1 presents the amount of wastewater treatment sludge expected to be generated at non-small direct discharging facilities as a result of this regulation. Actual sludge generation at individual facilities will vary from the percentages shown in the table. Depending on the current treatment process, a facility's sludge generation may increase even though the total amount for the subcategory decreases.

TABLE XI.B–1. INCREMENTAL SLUDGE GENERATION FOR NON-SMALL DIRECT DISCHARGING MPP FACILITIES

40 CFR 432 subcategory[a]	Baseline Sludge Generation for MPP WWTP (tons/yr)	Incremental Sludge Generation for MPP WWTP (tons/yr) [% Increase]
A, B, C, D	25,503	675 [2.6]
F, G, H, I	1,586	0.64 [0.04]
J	6,514	−568 [−9.5]
K	96,846	−3,203 [−3.4]
L	7,606	−126 [−1.7]

[a] Facilities in Subcategory E are not affected by today's rule, therefore, there is no net incremental sludge generation.

The estimates of sludge production in Table XI.B–1 are based on the concentrations of BOD entering the biological part of the treatment system after pretreatment (*e.g.*, DAF or anaerobic lagoon), and include sludge generation by facilities that may require a supplemental carbon source for denitrification. In a denitrification/nitrification process, the denitrification portion of the process removes a significant portion of BOD in the wastewater, thereby reducing the amount of BOD available for removal during the aerobic portion of the treatment process. The sludge yield coefficient for the denitrification process is lower than the coefficient for the aerobic process, therefore the amount of sludge generated per BOD unit will be lower for the denitrification part than the nitrification part. The majority of MPP facilities perform nitrification; converting a nitrification treatment system to one that includes denitrification reduces the amount of sludge generated.

EPA also expects that more emphasis on pollution prevention (*e.g.*, by increased segregation of waste materials that can be used for producing rendered products from wastewater flows) could further reduce sludge generation,

although the Agency did not calculate these potential reductions as they are not attributable to the rule. Examples of such pollution prevention practices include using alternatives to fluming to remove viscera from processing areas and ''dry cleaning'' facilities as the initial step in the daily cleaning of equipment and facilities. If contact with water is prevented, fats and proteins (that would otherwise dissolve and pass through screening and dissolved air flotation) do not become sources of BOD and ammonia and, consequently, sources of sludge.

XII. How Will This Rule Be Implemented?

This section helps permit writers and MPP facilities implement this regulation. This section also discusses the relationship of upset and bypass provisions, variances, and modifications to the final limitations and standards. For additional implementation information, see Section 15 of the Technical Development Document for today's final rule.

A. Implementation of the Limitations and Standards for Direct Dischargers

Effluent limitations and new source performance standards act as important mechanisms to control the discharges of pollutants to waters of the United States. These limitations and standards are applied to individual facilities through NPDES permits issued by the EPA or authorized States under Section 402 of the Act.

In specific cases, the NPDES permitting authority may elect to establish technology-based permit limits for pollutants not covered by this regulation. In addition, where State water quality standards or other provisions of State or Federal law require limits on pollutants not covered by this regulation (or require more stringent limits or standards on covered pollutants in order to attain and maintain water quality standards), the permitting authority must apply those limitations or standards. See CWA Section 301(b)(1)(C).

1. What Are the Compliance Dates for Existing and New Sources?

New and reissued NPDES permits to direct dischargers must include these effluent limitations, and the permits must require immediate compliance with such limitations. If the permitting authority wishes to provide a compliance schedule, it must do so through an enforcement mechanism.

New sources must comply with the new source standards (NSPS) of this rule when they commence discharging MPP process wastewater. Because the final rule was not promulgated within 120 days of the proposed rule, the Agency considers a discharger to be a new source if its construction commences after October 8, 2004.

There are meat product facilities that were new sources subject to the earlier NSPS provisions because they commenced construction after promulgation of the earlier NSPS. The CWA provides for a protection period for such facilities from any more stringent standards. The protection period is generally 10 years from the completion of construction. See section 306(d) of the CWA, 33 U.S.C. 1316(d) and 40 CFR 122.29(d). Thus, any source that commenced construction after promulgation of the earlier NSPS and before promulgation of today's NSPS will not be subject to any more stringent BAT limitations in today's rule until the protection period identified in 40 CFR 122.29(d) expires.

2. Who Does Part 432 Apply To?

In Section VI of this preamble and Section 2 of the TDD, EPA provides detailed information on the applicability of this rule. The revised 40 CFR part 432 will apply to all existing and new meat first processing (slaughtering) and further processing facilities; existing and new independent rendering facilities over a certain production threshold (10 million pounds/year); existing poultry first processing (slaughtering) and further processing facilities over a certain production threshold (100 million pounds LWK/year and 7 million pounds/year of finished product, respectively); and all new poultry first processing and further processing facilities. EPA notes that in some cases the limitations and standards for small MPP facilities may be different (*e.g.*, less stringent and/or production-based) than for non-small MPP facilities in the same subpart.

3. How Will This Rule Be Implemented for Facilities That Perform Multiple Operations?

The applicability of subparts A–D and subpart K are defined not only to include wastewater discharges from first processing operations, but also from further processing and rendering operations at the same facility. For example, a facility that has wastewater discharges from meat slaughtering and meat further processing would fall within subparts A–D (whether it was subpart A, B, C, or D would depend on the specific slaughtering operations), but would not be covered by any of subparts E–I.

Facilities that discharge wastewater from both meat and poultry processing operations, however, will have to comply with limitations and standards from two subcategories. Permit writers would use the ''building block approach'' based on production or wastewater discharge flow to combine the two sets of limitations into one final effluent limitation in the facility's permit. For example, if an existing facility discharges wastewater from meat slaughtering operations commingled with wastewater discharges from poultry further processing operations, the permit writer must calculate a single effluent limit for the permit that is a weighted combination of the limitations for subparts A–D and subpart L with the weights based on relative production or wastewater discharge for the two types of operations. In cases where one part of the wastewater comes from operations with no limitations, (*e.g.*, small poultry), the permit writer must first establish best professional judgement (BPJ) limitations for this portion of the wastewater, and then combine these with any applicable national limitations using the building block approach.

4. How Can a Facility Get a Waiver for Pollutants That Are Not Present?

In May 2000, EPA promulgated a regulation streamlining the NPDES regulations (''Amendments to Streamline the National Pollutant Discharge Elimination System Program Regulations: Round Two'' (see 65 FR 30886; May 15, 2000)) which includes a monitoring waiver for direct dischargers subject to effluent guidelines. Direct discharge facilities may choose not to sample a guideline-limited pollutant if that discharger ''has demonstrated through sampling and other technical factors that the pollutant is not present in the discharge or is present only at background levels from intake water and without any increase in the pollutant due to activities of the discharger'' (see 65 FR 30908; 40 CFR 122.44). EPA noted in the preamble to the final NPDES streamlining rule that the Agency is granting a waiver from monitoring requirements but not a waiver from the limit. In addition, the provision does not waive monitoring for any pollutants for which there are limits based on water quality standards. The waiver for direct dischargers lasts for the term of the NPDES permit and is not available during the term of the first permit issued to a discharger. Any request for this waiver must be submitted with the application for a reissued permit or a request for modification of a reissued permit. When

their permit writer authorizes it, direct discharge facilities covered by any effluent guidelines (including today's rule) may use the monitoring waiver contained in the NPDES streamlining final rule.

5. Compliance With Limitations and Standards

The same basic procedures apply to the calculation of all effluent limitations guidelines and standards for this industry, regardless of whether the technology is BPT, BCT, BAT, or NSPS. For simplicity, the following discussion refers only to effluent limitations guidelines; however, the discussion also applies to new source standards.

a. Definitions

The limitations for pollutants for each option, as presented in today's notice, are expressed as maximum daily discharge limitations and maximum monthly average discharge limitations. Definitions provided in 40 CFR 122.2 state that the ''maximum daily discharge limitation'' is the ''highest allowable 'daily discharge' '' and the ''maximum average for monthly discharge limitation'' is the ''highest allowable average of 'daily discharges' over a calendar month, calculated as the sum of all 'daily discharges' measured during a calendar month divided by the number of 'daily discharges' measured during that month.'' Daily discharge is defined as the ''discharge of a pollutant'' measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling.''

b. Percentile Basis for Limits, Not Compliance

EPA promulgates limitations that facilities are capable of complying with at all times by properly operating and maintaining their processes and treatment technologies. EPA established these limitations on the basis of percentiles estimated using data from facilities with well-operated and controlled processes and treatment systems. However, because EPA uses a percentile basis, the issue of exceedences (*i.e.*, values that exceed the limitations) or excursions is often raised in public comments on limitations. For example, comments often suggest that EPA include a provision that allows a facility to be considered in compliance with permit limitations if its discharge exceeds the specified monthly average limitations one month out of 20 and the daily average limitations one day out of 100. As explained in Section 14 of the TDD, these limitations were never intended to have the rigid probabilistic interpretation implied by such comments. The following discussion provides a brief overview of EPA's position on this issue.

EPA expects that all facilities subject to the limitations will design and operate their treatment systems to achieve the long-term average performance level on a consistent basis because facilities using well-designed and operated treatment systems have demonstrated that this can be done. Facilities that are designed and operated to achieve the long-term average effluent levels used in developing the limitations should be capable of compliance with the limitations at all times, because the limitations incorporate an allowance for variability in effluent levels about the long-term average. The allowance for variability is based on control of treatment variability demonstrated in normal operations.

EPA recognizes that, as a result of modifications to 40 CFR Part 432, some dischargers may need to improve treatment systems, process controls, and/or treatment system operations in order to consistently meet the new and/or revised effluent limitations and standards. As noted previously, however, given the fact that the promulgated limitations reflect an allowance for variability and the demonstrated ability of facilities to achieve the LTA, the limitations are achievable.

c. Requirements of Laboratory Analysis

The permittee is responsible for communicating the requirements of the analysis to the laboratory, including the sensitivity required to meet the regulatory limits associated with each analyte of interest. In turn, the laboratory is responsible for employing the appropriate set of method options and a calibration range in which the concentration of the lowest non-zero standard represents a sample concentration no higher than the regulatory limit for each analyte. (See *Sierra Club* v. *Union Oil*, 813 F.2d 1480, page 1492 (9th Cir. 1987).)

d. Monitoring

In developing the limitations and standards for today's rule, EPA assumed a weekly monitoring frequency (approximately four times a month). (The assumed daily monitoring frequency remains the same for the unchanged limitations and standards.) EPA incorporated this assumed monitoring frequency into the monitoring costs and determination of the limitations for the final rule. However, actual monitoring requirements for individual facilities are specified in the NPDES permits issued by the States (or other authorized permitting authority). EPA has concluded that facilities properly operating and maintaining the treatment technology, used as the basis of today's limitations, will comply with the monthly average limitation/standard when they sample at the assumed weekly monitoring frequency, although compliance is required regardless of the number of samples analyzed and averaged in a month. EPA would, however, discourage the practice of allowing the number of monitoring samples to vary arbitrarily merely to allow a facility to achieve a desired average concentration, i.e., a value below the limit. EPA expects that enforcement authorities would prefer, or even require, monitoring samples at some regular, pre-determined frequency. If a facility has difficulty complying with the standards on an ongoing basis, then the facility should improve its equipment, operations, and/or maintenance.

B. Upset and Bypass Provisions

A ''bypass'' is an intentional diversion of the streams from any portion of a treatment facility. An ''upset'' is an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations beyond the reasonable control of the permittee. You can find EPA's regulations concerning bypasses and upsets for direct dischargers at 40 CFR 122.41(m) and (n) and for indirect dischargers at 40 CFR 403.16 and 403.17.

C. Variances and Modifications

While the CWA requires application of effluent limitations established pursuant to section 301 to all direct dischargers, the statute also provides for the modification of these national requirements in a limited number of circumstances. Moreover, the Agency established administrative mechanisms to provide an opportunity for relief from the application of the national effluent limitations guidelines for categories of existing sources for toxic, conventional, and nonconventional pollutants.

1. Fundamentally Different Factors Variances

EPA will develop effluent limitations or standards different from the otherwise applicable requirements if an individual discharging facility is fundamentally different with regard to the factors the Agency used to establish the limitations or standards. Such a modification is known as a

''fundamentally different factors'' (FDF) variance.

Early on, EPA by regulation provided for the FDF modifications for direct dischargers from the best practicable control technology effluent limitations (BPT), best available technology economically achievable limitations for toxic and nonconventional pollutants, and BPT limitations for conventional pollutants. For indirect dischargers, EPA provided for modifications from pretreatment standards. FDF variances for toxic pollutants were challenged judicially and ultimately affirmed by the Supreme Court (*Chemical Manufacturers Assn* v. *NRDC*, 479 U.S. 116 (1985)).

Subsequently, in the Water Quality Act of 1987, Congress added a new section 301(n) explicitly authorizing modifications of the otherwise applicable BAT effluent limitations or categorical pretreatment standards for existing sources if a facility is fundamentally different with regard to the factors EPA used to establish the effluent limitations or pretreatment standards. Section 301(n) also defined the conditions under which EPA may establish alternate requirements. Under Section 301(n), an application for a FDF variance must be based solely on (1) information submitted during rulemaking raising the factors that are fundamentally different or (2) information the applicant did not have an opportunity to submit. The alternate limitation or standard must be no less stringent than justified by the difference and must not result in markedly more adverse non-water quality environmental impacts than the national limitation or standard would create.

EPA regulations (40 CFR part 125 Subpart D), authorizing the Regional Administrators to establish alternate limitations and standards, further detail the criteria used to evaluate FDF variance requests for direct dischargers. Thus, 40 CFR 125.31(d) identifies six factors (for example, volume of process wastewater or age and size of a discharger's facility) that may be considered in determining if a facility is fundamentally different. The Agency must determine whether, on the basis of one or more of these factors, the facility is fundamentally different from facilities and factors used by EPA to develop the nationally applicable effluent guidelines. The regulation also lists four other factors (for example, infeasibility of installation within the time allowed or a discharger's ability to pay) that may not be a basis for an FDF variance. In addition, under 40 CFR 125.31(b)(3), a request for limitations less stringent than the national limitation may be approved only where compliance with the national limitations would result in either (a) a removal cost wholly out of proportion to the removal cost considered during development of the national limitations or (b) a non-water quality environmental impact (including energy requirements) fundamentally worse than the impact considered during development of the national limits. The conditions for approval of and factors considered for a request to modify applicable pretreatment standards are the same as those for direct dischargers.

The legislative history of Section 301(n) underscores the necessity for the FDF variance applicant to establish eligibility for the variance. EPA's regulations at 40 CFR 125.32(b)(1) explicitly impose this burden upon the applicant. The applicant must show that the factors controlled by the applicant's permit which the applicant claims to be fundamentally different are, in fact, fundamentally different from those factors EPA used to establish the guidelines. The pretreatment regulations incorporate a similar requirement at 40 CFR 403.13(h)(9).

Facilities must submit all FDF variance applications to the appropriate Director (defined at 40 CFR 122.2) no later than 180 days from the date the limitations or standards are established or revised (see CWA section 301(n)(2) and 40 CFR 122.21(m)(1)(i)(B)(2)). EPA regulations clarify that effluent limitations guidelines are ''established'' or ''revised'' on the date those effluent limitations guidelines are published in the **Federal Register** (see 40 CFR 122.21(m)(1)(i)(B)(2)). Therefore, all facilities requesting FDF variances from the effluent limitations guidelines in today's final rule must submit FDF variance applications to their Director (as defined at 40 CFR 122.2) no later than March 7, 2005.

An FDF variance is not available to a new source subject to New Source Performance Standards.

2. Water Quality Variances

So long as the discharge does not violate any water quality-based effluent limitations, Section 301(g) of the CWA authorizes a variance from best available technology economically achievable (BAT) effluent guidelines for certain non-conventional pollutants due to local environmental factors. These pollutants include ammonia, chlorine, color, iron, and phenols (as measured by the colorimetric 4-aminoantipyrine (4AAP) method). Dischargers subject to new or revised BAT limitations promulgated today for those pollutants may be eligible for a section 301(g) variance. Please note that section 301(g)(4)(c) requires that section 301(g) variance applications pertaining to the new or revised limits in this rule be filed not later than June 6, 2005. Existing section 301(g) variances for limitations not being revised today are not affected by today's action.

3. Permit Modifications

Even after the permitting authority has issued a final permit to a direct discharger, the permit may still be modified under certain conditions. (When a permit modification is under consideration, however, all other permit conditions remain in effect.) A permit modification may be triggered by several circumstances, including a regulatory inspection or information submitted by the permittee which reveals the need for modification. Any interested person may request a permit modification. There are two classifications of modifications: Major and minor. From a procedural standpoint, they differ primarily with respect to public notice. Major modifications require public notice, while minor modifications do not. Virtually any modification that results in less stringent conditions is treated as a major modification, with provisions for public notice and comment. Conditions that would necessitate a major modification of a permit are described at 40 CFR 122.62. Minor modifications are generally non-substantive changes. The conditions for minor modification are described at 40 CFR 122.63.

XIII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 [58 FR 51,735 (October 4, 1993)], the Agency must determine whether the regulatory action is ''significant'' and therefore subject to OMB review and the requirements of the Executive Order. The 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 the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is a ''significant regulatory action.'' As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

B. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* All facilities within the scope of the final regulations are direct dischargers that, regardless of whether or not they are currently regulated by effluent guidelines, must follow the compliance monitoring and reporting requirements of the National Pollutant Discharge Elimination System (NPDES). Therefore, there is no information collection associated with this rulemaking.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 *et seq.*, generally requires an agency to prepare 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 the purposes of assessing the impacts of today's rule on small entities, small entity is defined as (1) a small business that is small according to RFA default definitions for small business (based on Small Business Administration (SBA) size standards); (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.

EPA expects this final rule to regulate up to 33 small businesses that own MPP facilities. All small business-owned facilities that EPA found to be affected by the rule are in Subcategories F–I, Subcategory J, and Subcategory L. Thus, the economic impact analysis for these facilities is based on screener survey data (see Section IX). The scope of the final rule does not include any small governmental jurisdictions or not-for-profit organizations.

Only facilities that exceed the subcategory-specific production thresholds are subject to this rule. EPA projected no small business-owned facility closures for the final rule. However, EPA cannot state that the probability of closure as a result of the rule is zero for those facilities, although it is small (see Table IX.B–4). In addition, of the 33 potentially small entities, 2 entities are estimated to incur annualized post-tax compliance costs greater than three percent of revenues; 5 are estimated to incur compliance costs composing more than one but less than three percent of revenues; 24 small entities are estimated to incur compliance costs of less than one percent of revenues. The scope of the final rule does not include any small governmental jurisdictions or not-for-profit organizations.

Although this final rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the impact of this rule on small entities. The final rule will include subcategory-specific production thresholds that will allow smaller production facilities to retain their existing limitations or to remain without national effluent limitations. In addition, EPA is not promulgating pretreatment standards. In total, EPA is excluding more than 6,400 of the estimated 6,600 MPP facilities.

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.

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, 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 to State, local, and Tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA 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 EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it 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 development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that this rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and Tribal governments, in the aggregate, or the private sector in any one year. The total annual cost of this rule is estimated to be no more than $60 million. Thus, today's rule is not subject to the requirements of sections 202 and 205 of the UMRA. The facilities which are affected by today's rule are direct dischargers engaged in the slaughtering

or processing of meat and poultry and the rendering of by-products resulting from these activities. These facilities are subject to today's requirements through the issuance or renewal of an NPDES permit either from the Federal EPA or authorized State governments. These facilities should already have NPDES permits as the Clean Water Act requires a permit be held by any point source discharger before that facility may discharge wastewater pollutants into surface waters. Therefore, today's rule requires these permits to be revised to comply with revised Federal standards, but should not require a new permit program be implemented. In addition, EPA did not propose and is not promulgating pretreatment standards for indirect dischargers in this point source category, therefore, there would be no impact on States or local governments to oversee a pretreatment program. Thus, today's rule is not subject to the requirements of sections 202 and 205 of the UMRA.

EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments. First, no governments are directly regulated by this rulemaking. Second, as discussed above, these regulated facilities should already have NPDES permits as the Clean Water Act requires a permit be held by any point source discharger before that facility may discharge wastewater pollutants into surface waters. Therefore, today's rule requires these permits to be revised to comply with revised Federal standards, but should not require a new permit program be implemented.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.''

This final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. EPA estimates that, when promulgated, these revised effluent guidelines and standards will be incorporated into NPDES permits with minimal costs to authorized States. Further, the revised regulations would not alter the basic State-Federal scheme established in the Clean Water Act under which EPA authorizes States to carry out the NPDES permitting program. The final rule maintains the existing relationship between the national government and the States in the administration of the NPDES program; and it preserves the existing distribution of power and responsibilities among various levels of government. Thus, Executive Order 13132 does not apply to this rule.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175, entitled ''Consultation and Coordination With Indian Tribal Governments'' (65 FR 67249, November 6, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.'' ''Policies that have tribal implications'' are defined in the Executive Order to include regulations that have ''substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between Federal government and Indian tribes.''

This final rule does not have tribal implications. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or the distribution of power and responsibilities between the Federal government and Indian tribes as specified in Executive Order 13175. The MPP effluent limitations guidelines and standards will be implemented through permits issued under the NPDES program. No tribal governments are currently authorized pursuant to section 402(b) of the CWA to implement the NPDES program. In addition, EPA's analyses show that no facility subject to this rule is owned by tribal governments and thus this rule does not affect Tribes in any way in the foreseeable future. Thus, Executive Order 13175 does not apply to this rule.

G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks

Executive Order 13045: ''Protection of Children from Environmental Health Risks and Safety Risks'' (62 FR 19885, April 23, 1997) applies to any rule that (1) is determined to be ''economically significant'' as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

Today's rule is not subject to Executive Order 13045 because it is not economically significant under Executive Order 12866. Further, this regulation does not concern an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

This rule is not a ''significant energy action'' as defined in Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355 (May 22, 2001)) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. As discussed in Section XI, EPA estimates that compliance with this rule will create a small increase in nationwide energy consumption for MPP facilities. For non-small direct discharging facilities nationwide, EPA estimates an approximate increase of 17.7 million kilowatt-hours per year for wastewater treatment. By comparison, electric power generation facilities generated 3,123 billion kilowatt hours of electric power in the United States in 1997 (Energy Information Administration, Electric Power Annual 1998 Volume 1, Table A1). Additional energy requirements for EPA's selected options are acceptable (*i.e.*, significantly less than 0.001 percent of national requirements), and not significant under the terms of Executive Order 13211.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law No. 104–113, section 12(d), (15 U.S.C. 272 note), directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical

standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through the OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This rulemaking involves technical standards. Today's rule requires certain facilities that produce meat or poultry products to monitor for fecal coliform, BOD_5, TSS, oil & grease (as HEM), ammonia and total nitrogen (sum of nitrate/nitrite and total Kjeldahl nitrogen (TKN)). As discussed in the proposed rule, EPA performed a search to identify potentially voluntary consensus standards that could be used to measure the parameters in today's guideline. EPA's search revealed that consensus standards for these parameters exist and are already specified in the tables at 40 CFR 136.3. In addition, EPA proposed to add another method (Method 300.0) for measuring nitrate/nitrite and solicited public comment. EPA did not receive any comments on this aspect of the proposed rulemaking and is therefore adding Method 300.0 to measure nitrate/nitrite for the final rule.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 requires that, to the greatest extent practicable and permitted by law, each Federal agency must make achieving environmental justice part of its mission. Executive Order 12898 states that each Federal agency must conduct its programs, policies, and activities that substantially affect human health or the environment in a manner that ensures such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under such programs, policies, and activities because of their race, color, or national origin.

Today's final rule would require non-small MPP facilities to meet specified technology-based limitations and standards to control the discharge of conventional pollutants, ammonia, and nitrogen. EPA has determined that this rulemaking will not have a disproportionate effect on minority or low income communities because the technology-based effluent limitations guidelines are uniformly applied nationally irrespective of geographic location. The final regulation will reduce the negative effects of meat and poultry products industry waste in our nation's waters to benefit all of society, including minority and low-income communities. The cost impacts of the rule should likewise not disproportionately affect low-income communities given the relatively low economic impacts of the rule.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule may not take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2). This rule will be effective 30 days from the date of publication.

List of Subjects in 40 CFR Part 432

Environmental protection, incorporation by reference, meat and meat products, poultry and poultry products, waste treatment and disposal, water pollution control.

Dated: February 26, 2004.

Michael O. Leavitt,

Administrator.

■ For the reasons set forth in this preamble, 40 CFR part 432 is revised as follows:

PART 432—MEAT AND POULTRY PRODUCTS POINT SOURCE CATEGORY

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Authority: 33 U.S.C. 1311, 1314, 1316, 1317, 1318, 1342 and 1361.

§ 432.1 General Applicability.

As defined more specifically in subparts A through L of this part, this part applies to discharges of process wastewater to waters of the U.S. from facilities engaged in the slaughtering, dressing and packing of meat and poultry products for human consumption and/or animal food and feeds. Meat and poultry products for human consumption include meat and poultry from cattle, hogs, sheep, chickens, turkeys, ducks and other fowl as well as sausages, luncheon meats and cured, smoked or canned or other prepared meat and poultry products from purchased carcasses and other materials. Meat and poultry products for animal food and feeds include animal oils, meat meal and facilities that render grease and tallow from animal fat, bones and meat scraps. Manufacturing activities which may be subject to this part are generally reported under the following industrial classification codes:

Standard industrial classification [1]	North American industrial classification system [2]
SIC 0751	NAICS 311611.
SIC 2011	NAICS 311612.
SIC 2013	NAICS 311615.
SIC 2015	NAICS 311613.
SIC 2047	NAICS 311111.
SIC 2048	NAICS 311119.
SIC 2077	NAICS 311999.

[1] Source: 1987 SIC Manual
[2] Source: 1997 NAICS Manual

§ 432.2 General definitions.

As used in this part:

(a) The general definitions and abbreviations in 40 CFR part 401 shall apply.

(b) *ELWK (equivalent live weight killed)* means the total weight of animals

slaughtered at locations other than the slaughterhouse or packinghouse that processes the animals hides, blood, viscera or other renderable materials.

(c) *Fecal coliform* means the bacterial count, as determined by approved methods of analysis for Parameter 1 in Table 1A in 40 CFR 136.3.

(d) *Finished product* means the final fresh or frozen products resulting from the further processing as defined below of either whole or cut-up meat or poultry carcasses.

(e) *Further processing* means operations that utilize whole carcasses or cut-up meat or poultry products for the production of fresh or frozen products, and may include the following types of processing: Cutting and deboning, cooking, seasoning, smoking, canning, grinding, chopping, dicing, forming, breading, breaking, trimming, skinning, tenderizing, marinating, curing, pickling, extruding and/or linking.

(f) *LWK (live weight killed)* means the total weight of animals slaughtered.

(g) *Meat* means products derived from the slaughter and processing of cattle, calves, hogs, sheep and any meat that is not listed under the definition of poultry below.

(h) *Packinghouse* means a plant that both slaughters animals and subsequently processes carcasses into cured, smoked, canned or other prepared meat products.

(i) *Poultry* means products derived from the slaughter and processing of broilers, other young chickens, mature chickens, hens, turkeys, capons, geese, ducks, small game fowl such as quail or pheasants, and small game such as rabbits.

(j) *Raw material* means the basic input materials to a renderer composed of animal and poultry trimmings, bones, blood, meat scraps, dead animals, feathers and related usable by-products.

(k) *Slaughterhouse* means a facility that slaughters animals and has as its main product fresh meat as whole, half or quarter carcasses or small meat cuts.

(l) The approved methods of analysis for the following six parameters are found in Table 1B in 40 CFR 136.3. The nitrate/nitrite part of total nitrogen may also be measured by EPA Method 300.0 (incorporated by reference, see § 432.5).

(1) *Ammonia (as N)* means ammonia measured as nitrogen.

(2) *BOD_5* means 5-day biochemical oxygen demand.

(3) *O&G* means total recoverable oil and grease.

(4) *O&G (as HEM)* means total recoverable oil and grease measured as n-hexane extractable material.

(5) *Total Nitrogen* means the total of nitrate/nitrite and total Kjeldahl nitrogen.

(6) *TSS* means total suspended solids.

§ 432.3 General limitation or standard for pH.

Any discharge subject to BPT, BCT, or NSPS limitations or standards in this part must remain within the pH range of 6 to 9.

§ 432.5 Incorporation by reference.

(a) The material listed in this section is incorporated by reference in the corresponding sections in this part, as noted. The Director of the Federal Register approves the incorporation by reference of this material in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. This material is incorporated as it exists on the date of the approval, and notice of any change in this material will be published in the **Federal Register**. The material is available for purchase at the address in paragraph (b) of this section and is available for inspection at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC, or at the EPA Docket Center, 1301 Constitution Ave., NW., EPA West Room B–102, Washington, DC.

(b) The following material is available for purchase from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161. The toll-free telephone number is (800) 553–6847.

(1) ''Method 300.0 Determination of Inorganic Anions by Ion Chromatography'' (Revision 2.1) found in ''Methods for the Determination of Inorganic Substances in Environmental Samples,'' EPA 600-R–93/100 (order number PB94–120821), August 1993, IBR approved for § 432.2(l).

(2) [Reserved]

Subpart A—Simple Slaughterhouses

§ 432.10 Applicability.

This part applies to discharges of process wastewater resulting from the production of meat carcasses, in whole or in part, by simple slaughterhouses. Process wastewater includes water from animal holding areas at these facilities.

§ 432.11 Special definitions.

For the purpose of this subpart: *Simple slaughterhouse* means a slaughterhouse that provides only minimal, if any, processing of the by-products of meat slaughtering. A simple slaughterhouse would include usually no more than two by-product processing operations such as rendering, paunch and viscera handling, or processing of blood, hide or hair.

§ 432.12 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT:

(a) Facilities that slaughter no more than 50 million pounds per year (in units of LWK) must achieve the following limitations:

(1) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg. [1]
BOD_5	0.24	0.12
Fecal Coliform	([2])	([3])
O&G [4]	0.12	0.06
TSS	0.40	0.20

[1] Pounds per 1000 lbs (or g/kg) LWK.

[2] Maximum of 400 most probable number (MPN) or colony forming units (CFU) per 100 mL at any time.

[3] No maximum monthly average limitation.

[4] May be measured as hexane extractable material (HEM).

(2) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the processing (defleshing, washing and curing) of hides derived from animals slaughtered at locations off-site, the following limitations apply:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg. [1]
BOD_5	0.04	0.02
TSS	0.08	0.04

[1] Pounds per 1000 lbs (or g/kg) ELWK.

(3) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the following limitations apply:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg. [1]
BOD_5	0.04	0.02
TSS	0.08	0.04

[1] Pounds per 1000 lbs (or g/kg) ELWK.

(4) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the following limitations apply:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg. [1]
BOD_5	0.06	0.03
TSS	0.12	0.06

[1] Pounds per 1000 lbs (or g/kg) ELWK.

(5) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the following limitations apply:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily[1]	Maximum monthly avg.[1]
BOD_5	0.02	0.01
TSS	0.04	0.02

[1] Pounds per 1000 lbs (or g/kg) ELWK.

(b) Facilities that slaughter more than 50 million pounds per year (in units of LWK) must achieve the following limitations:

(1) All facilities must achieve the following effluent limitation for ammonia (as N):

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0

[1] mg/L (ppm).

(2) In the case of process wastewater associated with the slaughtering of animals on-site, the limitations for BOD_5, fecal coliform, O&G, and TSS specified in paragraph (a)(1) of this section apply.

(3) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with the processing (defleshing, washing and curing) of hides derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in paragraph (a)(2) of this section also apply.

(4) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in paragraph (a)(3) of this section apply.

(5) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in paragraph (a)(4) of this section apply.

(6) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in paragraph (a)(5) of this section apply.

§ 432.13 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart that slaughters more than 50 million pounds per year (in units of LWK) must achieve the following effluent limitations representing the application of BAT:

EFFLUENT LIMITATIONS

[BAT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
Total Nitrogen	194	134

[1] mg/L (ppm).

§ 432.14 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.15 New source performance standards (NSPS).

Except as provided in paragraph (c) of this section, any source that is a new source subject to this subpart must achieve the following performance standards:

(a) Facilities that slaughter no more than 50 million pounds per year (in units of LWK) must achieve the following performance standards:

(1) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site, the standards for BOD_5, fecal coliform, O&G, and TSS are the same as the corresponding limitations specified in § 432.12(a)(1); and standards for ammonia (as N) are as follows:

PERFORMANCE STANDARDS

[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	0.34	0.17

[1] Pounds per 1000 lbs (or g/kg) LWK.

(2) In addition to the standards specified in paragraph (a)(1) of this section, in the case of process wastewater associated with processing of blood derived from animals slaughtered at locations off-site, the standards for BOD_5 and TSS specified in § 432.12(a)(3) and the following standards for ammonia (as N) apply:

PERFORMANCE STANDARDS

[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	0.06	0.03

[1] Pounds per 1000 lbs (or g/kg) ELWK.

(3) In addition to the standards specified in paragraph (a)(1) of this section, in the case of process wastewater associated with wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the standards for BOD_5 and TSS specified in § 432.12(a)(4) and the following standards for ammonia (as N) apply:

PERFORMANCE STANDARDS

[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	0.10	0.05

[1] Pounds per 1000 lbs (or g/kg) ELWK.

(4) In addition to the standards specified in paragraph (a)(1) of this section, in the case of case of process

wastewater associated with dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the standards for BOD_5 and TSS specified in § 432.12(a)(5) and the following standards for ammonia (as N) apply:

PERFORMANCE STANDARDS
[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	0.04	0.02

[1] Pounds per 1000 lbs (or g/kg) ELWK.

(b) Facilities that slaughter more than 50 million pounds per year (in units of LWK) must achieve the following performance standards.

(1) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site, the standards for BOD_5, fecal coliform, O&G, and TSS are the same as the limitations specified in § 432.12(a)(1) and the standards for ammonia (as N) and total nitrogen are as follows:

PERFORMANCE STANDARDS
[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
Total Nitrogen	194	134

[1] mg/L (ppm).

(2) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with processing of blood derived from animals slaughtered at locations off-site, the standards for BOD_5 and TSS specified in § 432.12(a)(3) apply.

(3) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the standards for BOD_5 and TSS specified in § 432.12(a)(4) apply.

(4) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the standards for BOD_5 and TSS specified in § 432.12(a)(5) apply.

(c) Any source that was a new source subject to the standards specified in § 432.15 of title 40 of the Code of Federal Regulations, revised as of July 1, 2003, must continue to achieve the standards specified in this section until the expiration of the applicable time period specified in 40 CFR 122.29(d)(1) after which it must achieve the effluent limitations specified in §§ 432.12 and 432.13.

§ 432.16 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.17 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, TSS, O&G, and fecal coliform are the same as the corresponding limitation specified in § 432.12.

Subpart B—Complex Slaughterhouses

§ 432.20 Applicability.

This part applies to discharges of process wastewater associated with the production of meat carcasses, in whole or in part, by complex slaughterhouses. Process wastewater includes water from animal holding areas at these facilities.

§ 432.21 Special definitions.

For the purpose of this subpart: *Complex slaughterhouse* means a slaughterhouse that provides extensive processing of the by-products of meat slaughtering. A complex slaughterhouse would usually include at least three processing operations such as rendering, paunch and viscera handling, or processing of blood, hide or hair.

§ 432.22 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT:

(a) Facilities that slaughter no more than 50 million pounds per year (in units of LWK) must achieve the following effluent limitations:

(1) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site:

EFFLUENT LIMITATIONS
[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
BOD_5	0.42	0.21
Fecal Coliform	([2])	([3])
O&G [4]	0.16	0.08
TSS	0.50	0.25

[1] Pounds per 1000 lbs (or g/kg) LWK.
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.
[4] May be measured as hexane extractable material (HEM).

(2) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the processing (defleshing, washing and curing) of hides derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in § 432.12(a)(2) apply.

(3) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in § 432.12(a)(3) apply.

(4) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in § 432.12(a)(4) apply.

(5) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in § 432.12(a)(5) apply.

(b) Facilities that slaughter more than 50 million pounds per year (in units of LWK) must achieve the following limitations:

(1) All facilities must achieve the following effluent limitation for ammonia (as N):

EFFLUENT LIMITATIONS
[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0

[1] mg/L (ppm).

(2) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site, the limitations for BOD_5, fecal coliform, O&G, and TSS are the same as the limitations specified in paragraph (a)(1) of this section.

(3) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with the processing (defleshing, washing and curing) of hides derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in paragraph (a)(2) of this section apply.

(4) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in paragraph (a)(3) of this section apply.

(5) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in paragraph (a)(4) of this section apply.

(6) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in paragraph (a)(5) of this section apply.

§ 432.23 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart that slaughters more than 50 million pounds per year (in units of LWK) must achieve the following effluent limitations representing the application of BAT: Limitations for ammonia (as N) and total nitrogen are the same as specified in § 432.13.

§ 432.24 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.25 New source performance standards (NSPS).

Except as provided in paragraph (c) of this section, any source that is a new source subject to this subpart must achieve the following performance standards:

(a) Facilities that slaughter no more than 50 million pounds per year (in units of LWK) must achieve the following performance standards:

(1) In the case of process wastewater associated with slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site, the standards for BOD_5, fecal coliform, O&G, and TSS are the same as the limitations specified in § 432.22(a)(1), and the standards for ammonia (as N) are as follows:

PERFORMANCE STANDARDS
[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	0.48	0.24

[1] Pounds per 1000 lbs (or g/kg) LWK.

(2) In addition to the standard specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the supplemental limitations for BOD_5 and TSS specified in § 432.12(a)(3) and the standards for ammonia (as N) specified in § 432.15(a)(2) apply.

(3) In addition to the standard specified in paragraph (a)(1) of this section, in the case of associated with the wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the supplemental limitations for BOD_5 and TSS specified in § 432.12(a)(4) and the standards for ammonia (as N) specified in § 432.15(a)(3) apply.

(4) In addition to the standard specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in § 432.12(a)(5) and the standards for ammonia (as N) specified in § 432.15(a)(4) apply.

(b) Facilities that slaughter more than 50 million pounds per year (in units of LWK) must achieve the following performance standards:

(1) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site, the standards for BOD_5, fecal coliform, O&G, and TSS are the same as the corresponding limitations specified in § 432.22(a)(1) and the standards for ammonia (as N) and total nitrogen are the same as the limitations specified in § 432.15(b)(1).

(2) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the standards for BOD_5 and TSS specified in § 432.12(a)(3) apply.

(3) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with the wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the standards for BOD_5 and TSS specified in § 432.12(a)(4) apply.

(4) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with the dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the standards for BOD_5 and TSS specified in § 432.12(a)(5) apply.

(c) Any source that was a new source subject to the standards specified in § 432.25 of title 40 of the Code of Federal Regulations, revised as of July 1, 2003, must continue to achieve the standards specified in this section until the expiration of the applicable time period specified in 40 CFR 122.29(d)(1) after which it must achieve the effluent limitations specified in §§ 432.22 and 432.23.

§ 432.26 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.27 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, fecal coliform, TSS, and O&G are the same as the corresponding limitation specified in § 432.22.

Subpart C—Low-processing Packinghouses

§ 432.30 Applicability.

This part applies to discharges of process wastewater resulting from the production of meat carcasses, in whole or in part, by low-processing packinghouses. Process wastewater includes water from animal holding areas at these facilities.

§ 432.31 Special definitions.

For the purpose of this subpart: *Low-processing packinghouse* means a packinghouse that processes no more, and usually fewer than, the total number of animals slaughtered at that plant.

§ 432.32 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT:

(a) Facilities that slaughter no more than 50 million pounds per year (in units of LWK) must achieve the following limitations:

(1) In the case of process wastewater associated with slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
BOD_5	0.34	0.17
Fecal Coliform	([2])	([3])
O&G [4]	0.16	0.08
TSS	0.48	0.24

[1] Pounds per 1000 lbs (or g/kg) LWK.
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.
[4] May be measured as hexane extractable material (HEM).

(2) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the processing (defleshing, washing and curing) of hides derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in § 432.12(a)(2) apply.

(3) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in § 432.12(a)(3) apply.

(4) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in § 432.12(a)(4) apply.

(5) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in § 432.12(a)(5) apply.

(b) Facilities that slaughter more than 50 million pounds per year (in units of LWK) must achieve the following limitations:

(1) All facilities must achieve the following effluent limitation for ammonia (as N):

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0

[1] mg/L (ppm).

(2) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site, the limitations for BOD_5, fecal coliform, O&G, and TSS are the same as the corresponding limitations specified in paragraph (a)(1) of this section.

(3) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with the processing (defleshing, washing and curing) of hides derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in paragraph (a)(2) of this section apply.

(4) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in paragraph (a)(3) of this section apply.

(5) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with the wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in paragraph (a)(4) of this section apply.

(6) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with the dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in paragraph (a)(5) of this section apply.

§ 432.33 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart that slaughters more than 50 million pounds per year (in units of LWK) must achieve the following effluent limitations representing the application of BAT: the limitations for ammonia (as N) and total nitrogen are the same as specified in § 432.13.

§ 432.34 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.35 New source performance standards (NSPS).

Except as provided in paragraph (c) of this section, any source that is a new source subject to this subpart must achieve the following performance standards:

(a) Facilities that slaughter no more than 50 million pounds per year (in units of LWK) must achieve the following performance standards:

(1) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site, the standards for BOD_5, fecal coliform, TSS, and O&G are the same as the limitations specified in § 432.32(a)(1) and the standards for ammonia (as N) are as follows:

PERFORMANCE STANDARDS

[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	0.48	0.24

[1] Pounds per 1000 lbs (or g/kg) LWK.

(2) In addition to the standards specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in § 432.12(a)(3) and the standards for ammonia (as N) specified in § 432.15(a)(2) apply.

(3) In addition to the standards specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in § 432.12(a)(4) and the standards for ammonia (as N) specified in

§ 432.15(a)(3) apply in addition to the standards specified in paragraph (a)(1) of this section.

(4) In addition to the standards specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in § 432.12(a)(5) and the standards for ammonia (as N) specified in § 432.15(a)(4) apply.

(b) Facilities that slaughter more than 50 million pounds per year (in units of LWK) must achieve the following performance standards:

(1) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site, the standards for BOD_5, fecal coliform, TSS, and O&G are the same as the corresponding limitations specified in § 432.32(a)(1) and the standards for ammonia (as N) and total nitrogen are the same as the limitations specified in § 432.15(b)(1).

(2) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the standards for BOD_5 and TSS specified in § 432.12(a)(3) apply.

(3) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with the wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the standards for BOD_5 and TSS specified in § 432.12(a)(4) apply.

(4) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with the dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the standards for BOD_5 and TSS specified in § 432.12(a)(5) apply.

(c) Any source that was a new source subject to the standards specified in § 432.35 of title 40 of the Code of Federal Regulations, revised as of July 1, 2003, must continue to achieve the standards specified in this section until the expiration of the applicable time period specified in 40 CFR 122.29(d)(1) after which it must achieve the effluent limitations specified in §§ 432.32 and 432.33.

§ 432.36 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.37 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, fecal coliform, TSS, and O&G are the same as the corresponding limitation specified in § 432.32.

Subpart D—High-Processing Packinghouse

§ 432.40 Applicability.

This part applies to discharges of process wastewater resulting from the production of meat carcasses, in whole or in part, by high-processing packinghouses. Process wastewater includes water from animal holding areas at these facilities.

§ 432.41 Special definitions.

For the purpose of this subpart: *High-processing packinghouse* means a packinghouse which processes both animals slaughtered at the site and additional carcasses from outside sources.

§ 432.42 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT:

(a) Facilities that slaughter no more than 50 million pounds per year (in units of LWK) must achieve the following limitations:

(1) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg. [1]
BOD_5 [2]	0.48	0.24
Fecal Coliform	([3])	([4])
O&G [5]	0.26	0.13
TSS [2]	0.62	0.31

[1] Pounds per 1000 lbs (or g/kg) LWK.

[2] The values for BOD_5 and TSS are for average plants, *i.e.*, plants where the ratio of avg. wt. of processed meat products/avg. LWK is 0.55. Adjustments can be made for high-processing packinghouses operating at other such ratios according to the following equations: lbs BOD_5/1000 lbs LWK = 0.21 + 0.23 (v—0.4) and lbs TSS/1000 lbs LWK = 0.28 + 0.3 (v—0.4), where v equals the following ratio: lbs processed meat products/lbs LWK.

[3] Maximum of 400 MPN or CFU per 100 mL at any time.

[4] No maximum monthly average limitation.

[5] May be measured as hexane extractable material (HEM).

(2) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the processing (defleshing, washing and curing) of hides derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in § 432.12(a)(2) apply.

(3) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in § 432.12(a)(3) apply.

(4) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in § 432.12(a)(4) apply.

(5) In addition to the limitations specified in paragraph (a)(1) of this section, in the case of process wastewater associated with dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in § 432.12(a)(5) apply.

(b) Facilities that slaughter more than 50 million pounds per year (in units of LWK) must achieve the following limitations:

(1) All facilities must achieve the following effluent limitations for ammonia (as N):

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg. [1]
Ammonia (as N)	8.0	4.0

[1] mg/L (ppm).

(2) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site,

the limitations for BOD_5, fecal coliform, TSS, and O&G are the same as the limitations specified in paragraph (a)(1) of this section.

(3) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with the processing (defleshing, washing and curing) of hides derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in paragraph (a)(2) of this section apply.

(4) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in paragraph (a)(3) of this section apply.

(5) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in paragraph (a)(4) of this section apply.

(6) In addition to the limitations specified in paragraphs (b)(1) and (2) of this section, in the case of process wastewater associated with the dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in paragraph (a)(5) of this section apply.

§ 432.43 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart that slaughters more than 50 million pounds per year (in units of LWK) must achieve the following effluent limitations representing the application of BAT: Limitations for ammonia (as N) and total nitrogen are the same as specified in § 432.13.

§ 432.44 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.45 New source performance standards (NSPS).

Except as provided in paragraph (c) of this section, any source that is a new source subject to this subpart must achieve the following performance standards:

(a) Facilities that slaughter no more than 50 million pounds per year (in units of LWK) must achieve the following performance standards:

(1) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site, the standards for BOD_5, fecal coliform, TSS, and O&G are the same as the limitations specified in § 432.42(a)(1); and standards for ammonia (as N) are as follows:

PERFORMANCE STANDARDS
[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg. [1]
Ammonia (as N)	0.80	0.40

[1] Pounds per 1000 lbs (or g/kg) LWK.

(2) In addition to the standards specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the limitations for BOD_5 and TSS specified in § 432.12(a)(3) and the standards for ammonia (as N) specified in § 432.15(a)(2) apply.

(3) In addition to the standards specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in § 432.12(a)(4) and the standards for ammonia (as N) specified in § 432.15(a)(3) apply.

(4) In addition to the standards specified in paragraph (a)(1) of this section, in the case of process wastewater associated with the dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the limitations for BOD_5 and TSS specified in § 432.12(a)(5) and the standards for ammonia (as N) specified in § 432.15(a)(4) apply:

(b) Facilities that slaughter more than 50 million pounds per year (in units of LWK) must achieve the following performance standards:

(1) In the case of process wastewater associated with the slaughtering of animals on-site or the processing of the carcasses of animals slaughtered on-site, the standards for BOD_5, fecal coliform, TSS, and O&G are the same as the limitations specified in § 432.42(a)(1); and standards for ammonia (as N) and total nitrogen are the same as the limitations specified in § 432.15(b)(1).

(2) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with the processing of blood derived from animals slaughtered at locations off-site, the standards for BOD_5 and TSS specified in § 432.12(a)(3) apply.

(3) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with the wet or low-temperature rendering of material derived from animals slaughtered at locations off-site and dead animals, the standards for BOD_5 and TSS specified in § 432.12(a)(4) apply in addition to the standards specified in paragraph (b)(1) of this section.

(4) In addition to the standards specified in paragraph (b)(1) of this section, in the case of process wastewater associated with the dry rendering of material derived from animals slaughtered at locations off-site and dead animals, the standards for BOD_5 and TSS specified in § 432.12(a)(5) apply.

(c) Any source that was a new source subject to the standards specified in § 432.45 of title 40 of the Code of Federal Regulations, revised as of July 1, 2003, must continue to achieve the standards specified in this section until the expiration of the applicable time period specified in 40 CFR 122.29(d)(1) after which it must achieve the effluent limitations specified in §§ 432.42 and 432.43.

§ 432.46 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.47 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, fecal coliform, TSS, and O&G are the same as the corresponding limitation specified in § 432.42.

Subpart E—Small Processors

§ 432.50 Applicability.

This part applies to discharges of process wastewater resulting from the production of finished meat products such as fresh meat cuts, smoked products, canned products, hams, sausages, luncheon meats, or similar products by a small processor.

§ 432.51 Special definitions.

For the purpose of this subpart:

(a) *Finished product* means the final product, such as fresh meat cuts, hams, bacon or other smoked meats, sausage,

luncheon meats, stew, canned meats or related products.

(b) *Small processor* means an operation that produces no more than 6000 lbs (2730 kg) per day of any type or combination of finished products.

§ 432.52 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily[1]	Maximum monthly avg.[1]
BOD_5	2.0	1.0
Fecal Coliform	([2])	([2])
O&G[3]	1.0	0.5
TSS	2.4	1.2

[1] Pounds per 1000 lbs (or g/kg) of finished product.
[2] No limitation.
[3] May be measured as hexane extractable material (HEM).

§ 432.54 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.55 New source performance standards (NSPS).

Any source that is a new source subject to this subpart must achieve the following performance standards:

PERFORMANCE STANDARDS

(NSPS)

Regulated parameter	Maximum daily[1]	Maximum monthly avg.[1]
BOD_5	1.0	0.5
Fecal Coliform	([2])	([2])
O&G[3]	0.5	0.25
TSS	1.2	0.6

[1] Pounds per 1000 lbs (or g/kg) of finished product.
[2] No limitation.
[3] May be measured as hexane extractable material (HEM).

§ 432.56 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.57 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, TSS and O&G are the same as the corresponding standard specified in § 432.55.

Subpart F—Meat Cutters

§ 432.60 Applicability.

This part applies to discharges of process wastewater resulting from the production of fresh meat cuts, such as steaks, roasts, chops, etc. by a meat cutter.

§ 432.61 Special definitions.

For the purpose of this subpart:

(a) *Finished product* means the final product, such as fresh meat cuts including, but not limited to, steaks, roasts, chops, or boneless meats.

(b) *Meat cutter* means an operation which cuts or otherwise produces fresh meat cuts and related finished products from larger pieces of meat (carcasses or not carcasses), at rates greater than 6000 lbs (2730 kg) per day.

§ 432.62 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily[1]	Maximum monthly avg.[1]
BOD_5	0.036	0.018
Fecal Coliform	([2])	([3])
O&G[4]	0.012	0.006
TSS	0.044	0.022

[1] Pounds per 1000 lbs (or g/kg) of finished product.
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.
[4] May be measured as hexane extractable material (HEM).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the limitations for BOD_5, fecal coliform, O&G, and TSS specified in paragraph (a) of this section.

§ 432.63 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BAT:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BAT]

Regulated parameter	Maximum daily[1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0

[1] mg/L (ppm).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BAT]

Regulated parameter	Maximum daily[1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
Total Nitrogen	194	134

[1] mg/L (ppm).

§ 432.64 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.65 New source performance standards (NSPS).

Except as provided in paragraph (c) of this section, any source that is a new source subject to this subpart must achieve the following performance standards:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the limitations for BOD_5, fecal coliform, O&G, and TSS specified in § 432.62(a).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the limitations for BOD_5, fecal coliform, O&G, and TSS specified in § 432.62(b) and the limitations for ammonia (as N) and total nitrogen specified in § 432.63(b).

(c) Any source that was a new source subject to the standards specified in § 432.65 of title 40 of the Code of Federal Regulations, revised as of July 1, 2003, must continue to achieve the standards specified in this section until the expiration of the applicable time period specified in 40 CFR 122.29(d)(1) after which it must achieve the effluent limitations specified in §§ 432.62 and 432.63.

§ 432.66 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.67 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, fecal coliform, O&G, and TSS are the same as the corresponding limitation specified in § 432.62.

Subpart G—Sausage and Luncheon Meats Processors

§ 432.70 Applicability.

This part applies to discharges of process wastewater resulting from the production of fresh meat cuts, sausage, bologna and other luncheon meats by a sausage and luncheon meat processor.

§ 432.71 Special definitions.

For the purpose of this subpart:

(a) *Finished product* means the final product as fresh meat cuts, which includes steaks, roasts, chops or boneless meat, bacon or other smoked meats (except hams) such as sausage, bologna or other luncheon meats, or related products (except canned meats).

(b) *Sausage and luncheon meat processor* means an operation which cuts fresh meats, grinds, mixes, seasons, smokes or otherwise produces finished products such as sausage, bologna and luncheon meats at rates greater than 6000 lbs (2730 kg) per day.

§ 432.72 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
BOD_5	0.56	0.28
Fecal Coliform	([2])	([3])
O&G [4]	0.20	0.10
TSS	0.68	0.34

[1] Pounds per 1000 lbs (or g/kg) of finished product.
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.
[4] May be measured as hexane extractable material (HEM).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the limitations for BOD_5, fecal coliform, O&G, and TSS specified in paragraph (a) of this section.

§ 432.73 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided by 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BAT:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BAT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0

[1] mg/L (ppm).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BAT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
Total Nitrogen	194	134

[1] mg/L (ppm).

§ 432.74 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.75 New source performance standards (NSPS).

Except as provided in paragraph (c) of this section, any source that is a new source subject to this subpart must achieve the following performance standards:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the standards for BOD_5, fecal coliform, O&G, and TSS specified in § 432.72(a).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the limitations for BOD_5, fecal coliform, O&G, and TSS specified in § 432.72(b) and the limitations for ammonia (as N) and total nitrogen specified in § 432.73(b).

(c) Any source that was a new source subject to the standards specified in § 432.75 of title 40 of the Code of Federal Regulations, revised as of July 1, 2003, must continue to achieve the standards specified in this section until the expiration of the applicable time period specified in 40 CFR 122.29(d)(1) after which it must achieve the effluent limitations specified in §§ 432.72 and 432.73.

§ 432.76 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.77 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, fecal coliform, O&G, and TSS are the same as the corresponding limitation specified in § 432.72.

Subpart H—Ham Processors

§ 432.80 Applicability.

This part applies to discharges of process wastewater resulting from the production of hams, alone or in combination with other finished products, by a ham processor.

§ 432.81 Special definitions.

For the purpose of this subpart:

(a) *Finished products* means the final product as fresh meat cuts, which includes steaks, roasts, chops or boneless meat, smoked or cured hams, bacon or other smoked meats, sausage, bologna or other luncheon meats (except canned meats).

(b) *Ham processor* means an operation producing hams, alone or in combination with other finished products, at rates greater than 6000 lbs (2730 kg) per day.

§ 432.82 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
BOD_5	0.62	0.31
Fecal Coliform	([2])	([3])
O&G [4]	0.22	0.11
TSS	0.74	0.37

[1] Pounds per 1000 lbs (or g/kg) of finished product.
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.
[4] May be measured as hexane extractable material (HEM).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the limitations for BOD_5, fecal coliform, O&G, and TSS specified in paragraph (a) of this section.

§ 432.83 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided by 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BAT:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BAT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0

[1] mg/L (ppm).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BAT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
Total Nitrogen	194	134

[1] mg/L (ppm).

§ 432.84 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.85 New source performance standards (NSPS).

Except as provided in paragraph (c) of this section, any source that is a new source subject to this subpart must achieve the following performance standards:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the standards for BOD_5, fecal coliform, O&G, and TSS specified in § 432.82(a).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the limitations for BOD_5, fecal coliform, O&G, and TSS specified in § 432.82(b) and the limitations for ammonia (as N) and total nitrogen specified in § 432.83(b).

(c) Any source that was a new source subject to the standards specified in § 432.85 of title 40 of the Code of Federal Regulations, revised as of July 1, 2003, must continue to achieve the standards specified in this section until the expiration of the applicable time period specified in 40 CFR 122.29(d)(1) after which it must achieve the effluent limitations specified in §§ 432.82 and 432.83.

§ 432.86 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.87 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, fecal coliform, O&G, and TSS are the same as the corresponding limitations specified in § 432.82.

Subpart I—Canned Meats Processors

§ 432.90 Applicability.

This part applies to discharges of process wastewater resulting from the production of canned meats, alone or in combination with any other finished products, by a canned meats processor.

§ 432.91 Special definitions.

For the purpose of this subpart:

(a) *Canned meats processor* means an operation which prepares and cans meats (stew, sandwich spreads, or similar products), alone or in combination with other finished products, at rates greater than 6000 lbs (2730 kg) per day.

(b) *Finished products* means the final product, such as fresh meat cuts which includes steaks, roasts, chops or boneless meat, smoked or cured hams, bacon or other smoked meats, sausage, bologna or other luncheon meats, stews, sandwich spreads or other canned meats.

§ 432.92 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
BOD_5	0.74	0.37
Fecal Coliform	([2])	([3])
O&G [4]	0.26	0.13
TSS	0.90	0.45

[1] Pounds per 1000 lbs (or g/kg) of finished product.
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.
[4] May be measured as hexane extractable material (HEM).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the limitations for BOD_5, fecal coliform, O&G, and TSS specified in paragraph (a) of this section.

§ 432.93 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided by 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BAT:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BAT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0

[1] mg/L (ppm).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the following effluent limitations:

EFFLUENT LIMITATIONS

[BAT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
Total Nitrogen ...	194	134

[1] mg/L (ppm).

§ 432.94 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.95 New source performance standards (NSPS).

Except as provided in paragraph (c) of this section, any source that is a new source subject to this subpart must achieve the following performance standards:

(a) Facilities that generate no more than 50 million pounds per year of finished products must achieve the standards for BOD_5, fecal coliform, O&G, and TSS specified in § 432.92(a).

(b) Facilities that generate more than 50 million pounds per year of finished products must achieve the limitations for BOD_5, fecal coliform, O&G, and TSS specified in § 432.92(b) and the limitations for ammonia (as N) and total nitrogen specified in § 432.93(b).

(c) Any source that was a new source subject to the standards specified in § 432.95 of title 40 of the Code of Federal Regulations, revised as of July 1, 2003, must continue to achieve the standards specified in this section until the expiration of the applicable time period specified in 40 CFR 122.29(d)(1) after which it must achieve the effluent limitations specified in §§ 432.92 and 432.93.

§ 432.96 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.97 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, fecal coliform, O&G, and TSS are the same as the corresponding limitation specified in § 432.92.

Subpart J—Renderers

§ 432.100 Applicability.

This part applies to discharges of process wastewater resulting from the production of meat meal, dried animal by-product residues (tankage), animal oils, grease and tallow, and in some cases hide curing, by a renderer.

§ 432.101 Special definitions.

For the purpose of this subpart:

(a) *Raw material (RM)* means the basic input materials to a renderer composed of animal and poultry trimmings, bones, meat scraps, dead animals, feathers and related usable by-products.

(b) *Renderer* means an independent or off-site rendering operation, which is conducted separate from a slaughterhouse, packinghouse or poultry dressing or processing operation, uses raw material at rates greater than 10 million pounds per year, produces meat meal, tankage, animal fats or oils, grease, and tallow, and may cure cattle hides, but excludes marine oils, fish meal, and fish oils.

(c) *Tankage* means dried animal by-product residues used in feedstuffs.

(d) *Tallow* means a product made from beef cattle or sheep fat that has a melting point of 40°C or greater.

§ 432.102 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
BOD_5	0.34	0.17
Fecal Coliform ..	([2])	([3])
O&G [4]	0.20	0.10
TSS	0.42	0.21

[1] Pounds per 1000 lbs (or g/kg) of raw material (RM).

[2] Maximum of 400 MPN or CFU per 100 mL at any time.

[3] No maximum monthly average limitation.

[4] May be measured as hexane extractable material (HEM).

(b) The limitations for BOD_5 and TSS specified in paragraph (a) of this section were derived for a renderer which does not cure cattle hide. If a renderer does cure cattle hide, the following formulas should be used to calculate BOD_5 and TSS limitations for process wastewater associated with cattle hide curing that apply in addition to the limitation specified in paragraph (a) of this section:

lbs BOD_5/1000 lbs RM = 17.6 × (no. of hides)/lbs RM

kg BOD_5/kkg RM = 8 × (no. of hides)/kg RM

lbs TSS/1000 lbs RM = 24.2 × (no. of hides)/lbs RM

kg TSS/kkg RM = 11 × (no. of hides)/kg RM

§ 432.103 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided by 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BAT:

EFFLUENT LIMITATIONS

[BAT]

Regulated parameter	Maximum daily	Maximum monthly avg.
Ammonia (as N) [1]	0.14	0.07
Total Nitrogen [2]	194	134

[1] Pounds per 1000 lbs (g/kg) of raw material (RM).

[2] mg/L (ppm).

§ 432.104 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.105 New source performance standards (NSPS).

(a) Except as provided in paragraph (c) of this section, any source that is a new source subject to this subpart must achieve the following performance standards:

PERFORMANCE STANDARDS

[NSPS]

Regulated parameter	Maximum daily	Maximum monthly avg.
Ammonia (as N) [1]	0.14	0.07
BOD_5 [1]	0.18	0.09
Fecal coliform ...	([2])	([3])
O&G [1] [4]	0.10	0.05
Total Nitrogen [5]	194	134
TSS [1]	0.22	0.11

[1] Pounds per 1000 lbs (or g/kg) of raw material (RM).

[2] Maximum of 400 MPN or CFU per 100 mL at any time.

[3] No maximum monthly average limitation.

[4] May be measured as hexane extractable material (HEM).
[5] mg/L (ppm).

(b) The standards for BOD_5 and TSS specified in paragraph (a) of this section were derived for a renderer that does not cure cattle hide as part of the plant operations. If a renderer does cure hide, the same empirical formulas specified in § 432.107(b) should be used to calculate BOD_5 and TSS limitations for process wastewater associated with cattle hide curing that apply in addition to the standards specified in paragraph (a) of this section.

(c) Any source that was a new source subject to the standards specified in § 432.105 of title 40 of the Code of Federal Regulations, revised as of July 1, 2003, must continue to achieve the standards specified in this section until the expiration of the applicable time period specified in 40 CFR 122.29(d)(1) after which it must achieve the effluent limitations specified in §§ 432.103 and 432.107.

§ 432.106 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.107 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, fecal coliform, O&G, and TSS are the same as the corresponding limitation specified in § 432.105(a).

(b) The limitations for BOD_5 and TSS specified in paragraph (a) of this section were derived for a renderer which does not cure cattle hide. If a renderer does cure hide, the following formulas should be used to calculate BOD_5 and TSS limitations for process wastewater associated with cattle hide curing, in addition to the limitation specified in paragraph (a) of this section:

lbs BOD_5/1000 lbs RM = 7.9 × (no. of hides)/lbs RM

kg BOD_5/kkg RM = 3.6 × (no. of hides)/kg RM

lbs TSS/1000 lbs RM = 13.6 × (no. of hides)/lbs RM

kg TSS/kkg RM = 6.2 × (no. of hides)/kg RM

Subpart K—Poultry First Processing

§ 432.110 Applicability.

This part applies to discharges of process wastewater resulting from the slaughtering of poultry, further processing of poultry and rendering of material derived from slaughtered poultry. Process wastewater includes water from animal holding areas at these facilities.

§ 432.111 Special definitions.

For the purpose of this subpart: *Poultry first processing* means slaughtering of poultry and producing whole, halved, quarter or smaller meat cuts.

§ 432.112 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart that slaughters more than 100 million pounds per year (in units of LWK) must achieve the following effluent limitations representing the application of BPT:

EFFLUENT LIMITATIONS
[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
BOD_5	26	16
Fecal Coliform	([2])	([3])
O&G (as HEM)	14	8.0
TSS	30	20

[1] mg/L (ppm).
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.

§ 432.113 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart that slaughters more than 100 million pounds per year (in units of LWK) must achieve the following effluent limitations representing the application of BAT:

EFFLUENT LIMITATIONS
[BAT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
Total Nitrogen	147	103

[1] mg/L (ppm).

§ 432.114 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.115 New source performance standards (NSPS).

Any source that is a new source subject to this subpart must achieve the following performance standards:

(a) Facilities that slaughter no more than 100 million pounds per year (in units of LWK) must achieve the following performance standards:

PERFORMANCE STANDARDS
[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
BOD_5	26	16
Fecal Coliform	([2])	([3])
O&G (as HEM)	14	8.0
TSS	30	20

[1] mg/L (ppm).
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.

(b) Facilities that slaughter more than 100 million pounds per year (in units of LWK) must achieve the following performance standards:

PERFORMANCE STANDARDS
[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
BOD_5	26	16
Fecal Coliform	([2])	([3])
O&G (as HEM)	14	8.0
TSS	30	20
Total Nitrogen	147	103

[1] mg/L (ppm).
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.

§ 432.116 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.117 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, TSS, O&G (as HEM), and fecal coliform are the same as the corresponding limitation specified in § 432.112.

Subpart L—Poultry Further Processing

§ 432.120 Applicability.

This part applies to discharges of process wastewater resulting from further processing of poultry.

§ 432.121 Special definitions. [Reserved]

§ 432.122 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart that further processes more than 7 million pounds per year (in units of finished product) must achieve the following effluent limitations representing the application of BPT:

EFFLUENT LIMITATIONS

[BPT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
BOD_5	26	16
Fecal Coliform	([2])	([3])
O&G (as HEM)	14	8.0
TSS	30	20

[1] mg/L (ppm).
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.

§ 432.123 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart that further processes more than 7 million pounds per year (in units of finished product) must achieve the following effluent limitations representing the application of BAT:

EFFLUENT LIMITATIONS

[BAT]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
Total Nitrogen	147	103

[1] mg/L (ppm).

§ 432.124 Pretreatment standards for existing sources (PSES). [Reserved]

§ 432.125 New source performance standards (NSPS).

Any source that is a new source subject to this subpart must achieve the following performance standards:

(a) Facilities that further process no more than 7 million pounds per year (in units of finished product) must achieve the following performance standards:

PERFORMANCE STANDARDS

[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
BOD_5	26	16
Fecal Coliform	([2])	([3])
O&G (as HEM)	14	8.0
TSS	30	20

[1] mg/L (ppm).
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.

(b) Facilities that further process more than 7 million pounds per year (in units of finished product) must achieve the following performance standards:

EFFLUENT LIMITATIONS

[NSPS]

Regulated parameter	Maximum daily [1]	Maximum monthly avg.[1]
Ammonia (as N)	8.0	4.0
BOD_5	26	16
Fecal Coliform	([2])	([3])
O&G (as HEM)	14	8.0
TSS	30	20
Total Nitrogen	147	103

[1] mg/L (ppm).
[2] Maximum of 400 MPN or CFU per 100 mL at any time.
[3] No maximum monthly average limitation.

§ 432.126 Pretreatment standards for new sources (PSNS). [Reserved]

§ 432.127 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT: Limitations for BOD_5, TSS, O&G (as HEM), and fecal coliform are the same as the corresponding limitation specified in § 432.122.

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