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Cost-Effectiveness Analysis for the Final Action Regarding Pretreatment Standards for the Industrial Laundries Point Source Category (Revised March 2000)

COST-EFFECTIVENESS ANALYSIS FOR THE FINAL ACTION REGARDING PRETREATMENT STANDARDS FOR THE INDUSTRIAL LAUNDRIES POINT SOURCE CATEGORY (REVISED MARCH 2000)

FINAL REPORT

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FOREWORD

This document delineates the cost-effectiveness analysis of the final action regarding pretreatment standards for the Industrial Laundries Point Source Category. Based on revised analytical data for semivolatile organic compounds for two sampling episodes conducted in 1996 and 1998, EPA revised this document in March 2000. The following sections and appendices have been revised:

- Section 2
  —footnote #2;
  —Table 2-2.

- Section 3
  —Table 3-1.

- Section 4
  —Table 4-1.

- Appendix A

- Appendix B
  —Table B-1 and B-2; reference date of 1999 deleted.

ACKNOWLEDGMENT

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SECTION ONE

INTRODUCTION

This report supports the analysis of options and cutoffs considered as pretreatment standards for the industrial laundries industry. In this document, the total annualized cost of each of two regulatory options are compared to the corresponding effectiveness of that option, at the cutoffs, considered in reducing the discharge of pollutants. EPA evaluates the effectiveness in terms of costs per pound of pollutant removed, weighted by the relative toxicity of the pollutant (toxic weighting factor). The rationale for this measure, referred to as "pounds-equivalent removed," is described later in this document.

Section Two discusses EPA's cost-effectiveness methodology and identifies the pollutants included in the analysis. This section also presents EPA's toxic weighting factors for each pollutant and considers the removal efficiency of each option. Section Three presents the results of the cost-effectiveness analysis. In Section Four, the cost-effectiveness value for the regulatory option and cutoff considered for the pretreatment standards is compared to cost-effectiveness values for other proposed and promulgated rules. Appendix A and B present the pollutant reduction and costs for all cutoffs considered under the two options that EPA considered during its decisionmaking process.

SECTION TWO
BACKGROUND AND METHODOLOGY

Cost-effectiveness (CE) is evaluated as the incremental and average annualized cost of a pollution control option in an industry or industry subcategory per incremental and total pound equivalent of pollutant (i.e., pound of pollutant adjusted for toxicity) removed by that control option. The cost-effectiveness analysis primarily enables EPA to compare the removal efficiencies of regulatory options under consideration for a rule. A secondary use is to compare the cost effectiveness of the proposed option for the pretreatment standards to that of pretreatment standards for other industries.

EPA generally ranks options in order of increasing pound equivalents removed to identify the point at which increased removal of pollutants is no longer cost-effective. EPA typically determines this to be where costs (per pound equivalent removed) increase sharply, that is, where relatively few incremental pounds are removed for steady increases in cost. The accompanying figure (Figure 2-1) shows this point as Point A, where the cost-effectiveness curve becomes nearly vertical. Increases in removals beyond this point come only at relatively high unit costs, which, in many cases, EPA will determine exceed the benefit of the increased removals to society. In this analysis, for reasons discussed below, EPA presents average cost-effectiveness values only.

A number of steps must be undertaken before a cost-effectiveness analysis can be performed. There are five steps that define the analysis or generate data for use in the cost-effectiveness calculation:

- Determine the wastewater pollutants of concern (priority and other pollutants).
- Estimate the relative toxic weights (the adjustments to pounds of pollutants to reflect toxicity) of the pollutants of concern.
- Define the regulatory pollution control options.
- Calculate pollutant removals for each pollution control option.
- Determine the annualized cost of each pollution control option.

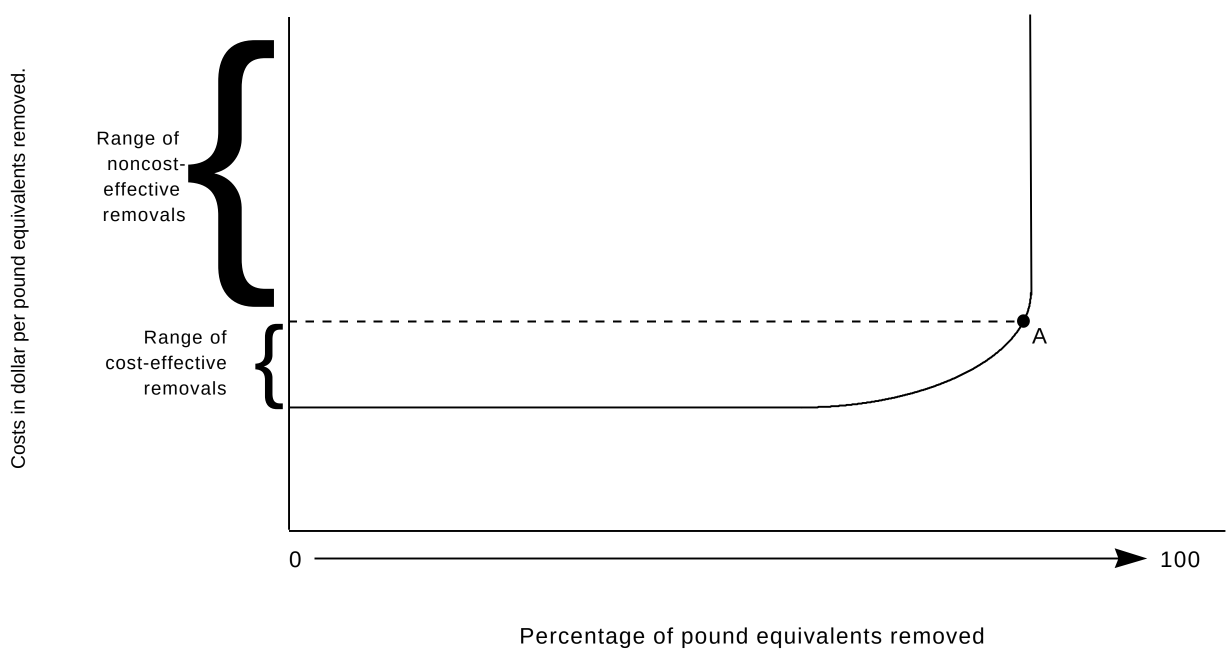

Figure 2-1. Cost effectiveness

All of these factors are used in the calculation of the cost-effectiveness values, which can then be compared for each regulatory option under consideration. The following sections discuss the five preliminary steps and the cost-effectiveness calculation and comparison methodologies.

2.1 POLLUTANTS OF CONCERN

Under the pretreatment standards, a number of priority and other nonconventional pollutants are regulated. Some of the factors considered in selecting pollutants for regulation include toxicity, frequency of occurrence in wastestream effluent, and amount of pollutant in the wastestream. The list of regulated pollutants for each option is presented in Appendix A.

2.2 TOXIC WEIGHTING FACTORS

Cost-effectiveness analyses account for differences in toxicity among the pollutants using toxic weighting factors. These factors are necessary because different pollutants have different potential effects on human and aquatic life. For example, a pound of zinc in an effluent stream has a significantly different effect than a pound of PCBs. Toxic weighting factors for pollutants are derived using ambient water quality criteria and toxicity values. For most industries, toxic weighting factors are derived from chronic freshwater aquatic criteria. In cases where a human health criterion has also been established for the consumption of fish, the sum of both the human and aquatic criteria are used to derive toxic weighting factors. The factors are standardized by relating them to a “benchmark” toxicity value that was based on the toxicity of copper when the methodology was developed.[1] Appendix A presents the toxic weighting factors used for the regulated pollutants in the cost-effectiveness analysis of the industrial laundries industry.

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[1] Although the water quality criterion has been revised (to 12.0 µg/l), all cost-effectiveness analyses for effluent guideline regulations continue to use the "old" criterion of 5.6 µg/l as a benchmark so that cost-effectiveness values can continue to be compared to those for other effluent guidelines. Where copper is present in the effluent, the revised higher criterion for copper results in a toxic weighting factor for copper of 0.467 rather than 1.0.

Examples of the effects of different aquatic and human health criteria on freshwater toxic weighting factors are presented in Table 2-1. As shown in this table, the toxic weighting factor is the sum of two criteria-weighted ratios: the "benchmark/old" copper criterion divided by the human health criterion for the particular pollutant and the "benchmark/old" copper criterion divided by the aquatic chronic criterion. For example, using the values reported in Table 2-1, 11 pounds of the benchmark chemical (copper) pose the same relative hazard in freshwater as one pound of cadmium because cadmium has a freshwater toxic weight 11 times as large as the toxic weight of copper (5.16/0.467=11.05).

Table 2-1

Examples of Toxic Weighting Factors
Based on Copper Freshwater Chronic Criteria

Pollutant	Human Health Criteria (µg/l)	Aquatic Chronic Criteria (µg/l)	Weighting Calculation	Toxic Weighting Factor
Copper[a]	---	12.0	5.6/12.0	0.467
Cadmium	84	1.1	5.6/84 + 5.6/1.1	5.16
Naphthalene	41,026	370	5.6/41,026 + 5.6/370	0.015

[a]Although the water quality criterion for copper has been revised (to 12.0 µg/l), the cost effectiveness analysis used the previous criterion (5.6 µg/l) to facilitate comparisons with cost-effectiveness values for other effluent limitations guidelines. The revised higher criteria for copper results in a toxic weighting factor for copper equal to 0.467 instead of 1.0, which was the result of the previous criterion.

Notes: Human health and aquatic chronic criteria are maximum contamination thresholds. Units for criteria are micrograms of pollutant per liter of water.

Sources: EPA, 1997. *Toxic and Pollutant Weighting Factors for Pretreatment Standards for the Industrial Laundries Point Source Category*. June.

2.3 POLLUTION CONTROL OPTIONS

Pretreatment Standards for Existing Sources (PSES) and Pretreatment Standards for New Sources (PSNS) options would have been issued had EPA promulgated a rule. Because there are no direct discharges in the industrial laundry industry, Best Available Technology (BAT), New Source Performance Standards (NSPS), and Best Practicable Control Technology (BPT) are not considered. This cost-effectiveness analysis was performed for two pollution control options, at each cutoff, for indirect dischargers: CP-IL, chemical precipitation treatment of wastewater from industrial laundry items; and DAF-IL, dissolved air flotation treatment of wastewater from industrial laundry items. A zero-discharge option is not considered within the analysis.

The cutoffs are defined as:

- A cutoff excluding all facilities laundering less than 1 million pounds of incoming laundry (total) and less than 255,000 pounds of shop and/or printer towels per calender year (this cutoff is identical to that proposed). This cutoff is called the 1MM/255K cutoff for the purposes of this EA.

- A cutoff excluding all facilities that launder between 1 and 3 million pounds of incoming laundry (total) and less than 120,000 pounds of shop and/or printer towels per calender year, in addition to those facilities laundering less than 1 million pounds of incoming laundry (total) and less than 255,000 pounds of shop and/or printer towels per calender year. This cutoff is called the 3MM/120K cutoff for the purposes of this EA.

- A cutoff excluding all facilities laundering less than 5 million pounds of incoming laundry (total) and less than 255,000 pounds of shop and/or printer towels per calender year. This cutoff is called the 5MM/255K cutoff for the purposes of this EA.

EPA's selected option and cutoff is CP-IL under the 3MM/120K cutoff.

2.4 POLLUTANT REMOVALS

The pollutant loadings have been calculated for each facility under each regulatory cutoff and option for comparison with baseline loadings. The postregulatory removals under each regulatory cutoff and option are presented in Appendix A.

Pollutant removals are calculated directly as the difference between current and post-treatment discharges. Removals are then weighted using the toxic weighting factors and are reported in pound equivalents (see Appendix A for pound-equivalent removals for all pollutants by pollutant and cutoff). Total removals for each cutoff are then calculated by summing the removals for all pollutants under each cutoff.

One additional step is undertaken to calculate final reductions in pollutant loadings for indirect dischargers because of the ability of POTWs to remove pollutants, measured as POTW removal efficiencies. Appendix A presents the POTW removal efficiencies for 72 pollutants.

POTW removal efficiencies are used as follows. If a facility is discharging 100 pounds of cadmium in its effluent stream to a POTW and the POTW has a removal efficiency for cadmium of 38 percent, then the cadmium discharged to surface waters is only 62 pounds. If the regulation results in a reduction of cadmium in the effluent stream such that total cadmium discharged to the POTW is 50 pounds, then the amount discharged to surface waters is calculated as 50 pounds multiplied by the POTW removal efficiency factor (1 - 0.38 or 0.62 times 50 pounds equals 31 pounds). The cost-effectiveness calculations then reflect the fact that the actual reduction of pollutant discharged to surface water is not 50 pounds (the change in the amount discharged to the POTW), but 31 pounds (the change in the amount actually discharged to surface water). Pollutant removals calculated in this way are presented in Table 2-2.

2.5 ANNUALIZED COSTS OF COMPLIANCE

Under each regulatory cutoff, annualized costs of compliance have been developed.[2] The derivation of these costs is summarized briefly below.

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[2] U.S. EPA, 2000. *Technical Development Document for the Final Action Regarding Pretreatment Standards for the Industrial Laundries Point Source Category (Revised March 2000)*. 821-R-00-006. March, and U.S. EPA, 2000. *Economic Assessment for the Final Action Regarding Pretreatment Standards for the Industrial Laundries Point Source Category (Revised March 2000)*. 821-R-00-004. March.

Table 2-2

Total Pollutant Removals by Option and Cutoff

Option	Pounds Removed	Pounds-Equivalent Removed
CP-IL		
no cutoff	143,410,775	42,917
1MM/255K cutoff	139,765,321	42,155
3MM/120K cutoff	129,736,310	38,483
5MM/255K cutoff	108,573,146	31,403
DAF-IL		
no cutoff	157,363,650	35,245
1MM/255K cutoff	153,652,407	34,542
3MM/120K cutoff	140,768,046	31,577
5MM/255K cutoff	115,088,807	25,774

Source: Tables A-1 through A-8.

EPA derived the pretax costs (including the state and federal governments' share of compliance costs)[3] of purchasing, installing, and operating pollution control equipment. EPA annualized any capital costs at 7 percent[4] over 16 years and added these costs to the annual costs of operating the pollution control equipment. The aggregate annual pretax costs by option are presented in Table 2-3. Appendix B presents the calculations used to arrive at the aggregate annual costs figures presented in Table 2-3.

2.6 CALCULATION OF THE COST-EFFECTIVENESS VALUES

Cost-effectiveness values are calculated separately for each regulatory option. Generally, options first are ranked in ascending order of pounds equivalent of pollutants removed. The incremental cost-effectiveness value for a particular control option is calculated as the ratio of the incremental annual cost to the incremental pounds equivalent removed. Average cost-effectiveness values for each option are calculated as total dollars for the option divided by total pounds equivalent removed by the option. The incremental cost-effectiveness values are viewed in comparison to the baseline (zero costs/zero removals) for the first option and to the preceding regulatory option. Cost-effectiveness values are reported in units of dollars per pounds equivalent of pollutant removed. In this report, EPA presents average cost-effectiveness values, as discussed below.

For the purpose of comparing cost-effectiveness values of options under review to those of other promulgated rules, compliance costs used in the cost-effectiveness analysis (which are in 1993 dollars) are adjusted to 1981 dollars using *Engineering News Record*'s Construction Cost Index (CCI) (see Table 3 for compliance costs in 1981 dollars). This adjustment factor is calculated as follows:

Adjustment factor = (1981 CCI)/(1993 CCI) = 3,535/5,210 = 0.6785

The equation used to calculate incremental cost effectiveness is:

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[3] Every dollar spent on compliance can be applied against a firm's taxable income. Due to various tax mechanisms such as accelerated depreciation, this reduction means that firms face only about 70 percent of compliance costs after taxes.

[4] Source of real cost of capital: Office of Management and Budget (OMB), 1996. "Memorandum to the regulatory working group on economic analysis of federal regulations under Executive Order 12866." Sally Katzen.

Table 2-3

Aggregate Annual Cost by Option and Cutoff

Option	Pretax Annualized Cost ($1993)	Pretax Annualized Cost ($1981)
CP-IL		
no cutoff	$179,038,176	$121,477,403
1MM/255K cutoff	$170,554,625	$115,721,313
3MM/120K cutoff	$130,174,744	$88,323,564
5MM/255K cutoff	$77,651,658	$52,686,650
DAF-IL		
no cutoff	$194,646,184	$132,067,436
1MM/255K cutoff	$186,452,404	$126,507,956
3MM/120K cutoff	$145,061,785	$98,424,421
5MM/255K cutoff	$88,648,588	$60,148,067

Source: see Tables B-1 and B-2.

$$CE_k = \frac{ATC_k - ATC_{k-1}}{PE_k - PE_{k-1}}$$

where:

CE_k=	Cost-effectiveness of Option k
ATC_k=	Total annualized treatment cost under Option k
PE_k=	Pound equivalents removed by Option k

The numerator of the equation, ATC_k minus ATC_{k-1}, is simply the incremental annualized treatment cost in going from Option k-1 (an option that removes fewer pound equivalent pollutants) to Option k (an option that removes more pound equivalent pollutants). The denominator is similarly the incremental removals achieved in going from Option k-1 to k. Thus, cost effectiveness measures the incremental unit cost of pollutant removal of Option k (in pound equivalents) in comparison to Option k-1.

Because the options are ranked in ascending order of pound equivalents of pollutants removed, any option that has higher costs but lower removals than another option immediately can be identified (the cost-effectiveness value for the next option becomes negative). When negative values are computed for Option k, Option k-1 will be noted as "dominated" (having a higher cost and lower removals than Option k). Option k-1 is then removed from the cost-effectiveness calculations, and all cost-effectiveness values within a regulatory grouping are then recalculated without the "dominated" option. This process continues until all "dominated" options are eliminated. The remaining options can then be presented in terms of their incremental cost-effectiveness values and are considered viable options for regulatory consideration.

Average cost-effectiveness values can also be derived by setting ATC_{k-1} to zero and by setting the pollutant loadings (PE_{k-1}) to the current loading. These values can be used, with caution, to compare an option to previously promulgated effluent limitations guidelines. Because the DAF-IL option removes fewer pollutants at a higher cost than the CP-IL option, DAF-IL is dominated. Because DAF-IL is dominated incremental cost-effectiveness is not meaningful. Thus EPA presents, in Section Three, the average cost-effectiveness results for CP-IL and DAF-IL at each cutoff.

SECTION THREE

COST-EFFECTIVENESS RESULTS

In this cost-effectiveness analysis, EPA evaluates two PSES options, assuming only that wastewater from industrial laundry items will be treated (linen supply wastewater would not have required treatment). If untreated, the treated and untreated streams are combined prior to discharge. Table 3-1 presents the cost-effectiveness data and results. As Table 3-1 shows, the average cost-effectiveness value for the CP-IL 3MM/120K option is $2,295/lb-eq. Note that because DAF-IL is dominated, the average cost-effectiveness value of CP-IL under the 3MM/120K cutoff is also the incremental cost-effectiveness value for that option and cutoff.

Table 3-1

Cost-Effectiveness Results by Option and Cutoff

Option	Total Annual		Average Cost Effectiveness ($1981) ($/lb. equiv.)
	Pound Equivalents Removed (lbs.)	Cost ($1981)	
CP-IL			
No cutoff	42,917	$121,477,403	$2,831
1MM/255K	42,155	$115,721,313	$2,745
3MM/120K	38,483	$88,323,564	$2,295
5MM/255K	31,403	$52,686,650	$1,678
DAF-IL			
No cutoff	35,245	$132,067,436	$3,747
1MM/255K	34,542	$126,507,956	$3,662
3MM/120K	31,577	$98,424,421	$3,117
5MM/255K	25,774	$60,148,067	$2,334

SECTION FOUR

COMPARISON OF COST-EFFECTIVENESS VALUES WITH PROMULGATED RULES

As discussed in Section Two, incremental cost-effectiveness is the appropriate measure for comparing one regulatory option to an alternative, less stringent regulatory option for the same rule. Some believe that it may also be used to compare cost-effectiveness across rules when considering how the last increment of stringency in one rule compares to the last increment of stringency in another. For comparing the overall cost-effectiveness of one rule to another, average cost-effectiveness may be a more appropriate measure, but must be considered in context with caution. (Average cost-effectiveness can be thought of as the "increment" between no regulation and the selected option, for any given rule.) In this case, because only two options are considered and one is dominated, the average and incremental values of the selected option under the 3MM/120K cutoff are the same.

Table 4-1 presents the incremental cost-effectiveness value for the regulatory option considered (CP-IL under the 3MM/120K cutoff) and pretreatment standards issued for other industries. The numbers presented here for this rulemaking are pretax costs, whereas many of the numbers presented for other effluent guidelines are after-tax costs—that is, the costs actually faced by the firms, not the total cost of the equipment (which is subsidized by reductions in taxable income). Because of these factors and the fact that EPA could only conduct and average cost effectiveness for this industry, direct comparisons between this rulemaking and others cannot be made easily. The equivalent after-tax cost, however, is approximately 70 percent of pretax costs. As Table 3-1 shows, the cost-effectiveness of the primary regulatory option is $2,295 per pound equivalent removed. Compared to other effluent guidelines, EPA does not consider this rule to be cost-effective.

TABLE 4-1

INDUSTRY COMPARISON OF PSES INCREMENTAL COST-EFFECTIVENESS FOR INDIRECT DISCHARGERS
(Toxic and Nonconventional Pollutants Only; Copper-Based Weights[a]; $ 1981)

Industry		PE Currently Discharged (thousands)	PE Remaining at Selected Option (thousands)	Cost-Effectiveness of Selected Option(s) ($/PE removed)
Aluminum Forming		1,602	18	155
Battery Manufacturing		1,152	5	15
Canmaking		252	5	38
Coal Mining[b]		NA	NA	NA
Coastal Oil and Gas[b]		NA	NA	NA
Coil Coating		2,503	10	10
Copper Forming		34	4	10
Electronics I		75	35	14
Electronics II		260	24	14
Foundries		2,136	18	116
Industrial Laundries		181	142	2,295
Inorganic Chemicals I		3,971	3,004	9
Inorganic Chemicals II		4,760	6	<1
Iron and Steel		5,599	1,404	6
Leather Tanning		16,830	1,899	111
Metal Finishing		11,680	755	10
Nonferrous Metals Forming		189	5	90
Nonferrous Metals Manufacturing I		3,187	19	15
Nonferrous Metals Manufacturing II		38	0.41	12
Offshore Oil and Gas[b]		NA	NA	NA
OCSPSF[c]		5,210	72	34
Pharmaceuticals	A/C	897	614	96
	B/D	90	9	66
Plastics Molding and Forming		NA	NA	NA

TABLE 4-1 (continued)

Industry	PE Currently Discharged (thousands)	PE Remaining at Selected Option (thousands)	Cost-Effectiveness of Selected Option(s) ($/PE removed)
Porcelain Enameling	1,565	96	14
Pulp and Paper[d]	9,539	103	65
Transportation Equipment Cleaning[d]	426	383	185

[a]Although toxic weighing factors for priority pollutants varied across these rules, this table reflects the cost-effectiveness at the time of regulation.

[b]Industry has no known or expected indirect discharges.

[c]Reflects costs and removals of both air and water pollutants.

[d]Proposed.

Appendix A

Supporting Documentation for Cost-Effectiveness Analysis: Pollutant Loadings Analysis

Table A-1

Industry Loads and Removals By Pollutant
CP-IL Option, No Cutoff

Pollutant Code	Analyte	Industry Baseline Load (lbs/yr)	Industry Treated Load (lbs/yr)	Removals (lbs/yr)	POTW Removal Efficiency (%)	Removals After POTW (lbs/yr)	Toxic Weighting Factor	PE Removals
T11	1,1,1-TRICHLOROETHANE	44,354	24,961	19,393	24%	14,739	4.30E-003	63
T37	1,2-DIPHENYLHYDRAZINE	0	0	0	62%	0	1.20E+000	0
N34	2-BUTANONE	37,079	35,068	2,011	18%	1,649	2.20E-005	0
N38	2-METHYLNAPHTHALENE	11,420	3,026	8,394	28%	6,044	1.80E-002	109
N42	2-PROPANONE	139,704	85,958	53,746	85%	8,062	7.60E-006	0
T22	4-CHLORO-3-METHYLPHENOL	10,048	3,544	6,504	63%	2,407	4.30E-003	10
N54	4-METHYL-2-PENTANONE	15,946	15,946	0	18%	0	1.20E-004	0
N58	ALPHA-TERPINEOL	11,666	7,759	3,907	18%	3,204	1.00E-003	3
AL	ALUMINUM	731,628	491,296	240,332	88%	28,840	6.40E-002	1,846
SB	ANTIMONY	27,706	17,615	10,091	72%	2,826	1.90E-001	537
AS	ARSENIC	13,064	13,050	14	40%	8	4.00E+000	34
BA	BARIUM	72,023	50,147	21,876	35%	14,219	2.00E-003	28
N64	BENZOIC ACID	68,837	68,837	0	81%	0	3.30E-004	0
N66	BENZYL ALCOHOL	71,863	52,597	19,265	33%	12,908	5.60E-003	72
BE	BERYLLIUM	39	37	2	61%	1	5.30E+000	4
T66	BIS(2-ETHYLHEXYL) PHTHALATE	143,930	79,273	64,656	60%	25,863	1.10E-001	2,845
BOD	BOD 5-DAY (CARBONACEOUS)	111,166,461	102,558,482	8,607,980	91%	774,718	0.00E+000	0
B	BORON	34,933	33,031	1,902	14%	1,636	1.80E-001	294
T67	BUTYL BENZYL PHTHALATE	39,666	13,169	26,497	86%	3,710	2.30E-002	85
CD	CADMIUM	5,345	3,077	2,268	91%	204	5.20E+000	1,061
COD	CHEMICAL OXYGEN DEMAND (COD)	259,751,769	197,873,919	61,877,850	82%	11,138,013	0.00E+000	0
T7	CHLOROBENZENE	2,487	1,708	779	24%	592	2.90E-003	2
T23	CHLOROFORM	128,187	127,943	244	24%	186	2.10E-003	0
CR	CHROMIUM	15,303	9,375	5,928	91%	534	2.70E-002	14
CO	COBALT	4,940	2,809	2,131	4%	2,046	1.10E-001	225
CU	COPPER	132,972	72,944	60,028	84%	9,604	4.70E-001	4,514
T68	DI-N-BUTYL PHTHALATE	16,435	4,787	11,648	75%	2,912	1.20E-002	35
T69	DI-N-OCTYL PHTHALATE	13,633	10,108	3,524	33%	2,361	2.20E-001	519
T38	ETHYLBENZENE	38,046	12,064	25,982	33%	17,408	1.40E-003	24
N90	HEXANOIC ACID	8,077	8,072	5	33%	4	3.40E-004	0
FE	IRON	1,275,369	531,645	743,724	83%	126,433	5.60E-003	708
T54	ISOPHORONE	47,778	24,228	23,550	62%	8,949	7.30E-004	7
PB	LEAD	73,428	27,292	46,137	92%	3,691	1.80E+000	6,644
N95	M-XYLENE	17,712	14,657	3,056	33%	2,047	1.50E-003	3
MN	MANGANESE	25,269	12,823	12,446	41%	7,343	1.40E-002	103
HG	MERCURY	182	161	22	33%	15	5.00E+002	7,254
T44	METHYLENE CHLORIDE	29,221	11,728	17,493	18%	14,344	4.20E-004	6
MO	MOLYBDENUM	9,542	9,488	54	52%	26	2.00E-001	5
N102	N-DECANE	673,669	347,700	325,970	33%	218,400	4.30E-003	939
N103	N-DOCOSANE	16,653	5,872	10,780	94%	647	8.20E-005	0
N104	N-DODECANE	186,284	128,584	57,700	33%	38,659	4.30E-003	166
N105	N-EICOSANE	146,471	12,320	134,150	33%	89,881	4.30E-003	386
N106	N-HEXACOSANE	16,085	4,279	11,806	94%	708	8.20E-005	0
N107	N-HEXADECANE	88,172	24,316	63,856	33%	42,784	4.30E-003	184
N114	N-OCTACOSANE	10,047	3,877	6,170	94%	370	8.20E-005	0
N115	N-OCTADECANE	71,627	11,910	59,717	33%	40,010	4.30E-003	172
N116	N-TETRACOSANE	22,929	8,936	13,993	94%	840	8.20E-005	0
N117	N-TETRADECANE	112,400	21,622	90,778	33%	60,821	4.30E-003	262
N118	N-TRIACONTANE	15,088	7,456	7,632	94%	458	8.20E-005	0
T55	NAPHTHALENE	41,634	19,075	22,560	18%	18,499	1.50E-002	277
NI	NICKEL	15,287	10,686	4,601	52%	2,208	3.60E-002	80
N119	O+P XYLENE	11,110	9,824	1,286	33%	861	8.50E-003	7
HEM	OIL AND GREASE (AS HEM)	38,519,591	15,314,139	23,205,452	87%	3,016,709	0.00E+000	0
N125	P-CRESOL	0	0	0	72%	0	2.40E-003	0
N126	P-CYMENE	52,508	14,907	37,601	99%	376	4.30E-002	16
N130	PENTAMETHYLBENZENE	0	0	0	91%	0	2.90E-001	0
T65	PHENOL	12,686	12,685	0	95%	0	2.80E-002	0
SE	SELENIUM	403	247	156	34%	103	1.10E+000	113
AG	SILVER	4,535	3,428	1,107	80%	221	4.70E+001	10,406
T85	TETRACHLOROETHENE	42,301	27,571	14,730	33%	9,869	7.40E-002	730
TL	THALLIUM	0	0	0	28%	0	1.40E-001	0
SN	TIN	5,854	2,595	3,259	65%	1,140	3.00E-001	342
TI	TITANIUM	17,716	11,656	6,061	69%	1,879	2.90E-002	54
T86	TOLUENE	66,379	51,536	14,842	33%	9,944	5.60E-003	56
TOC	TOTAL ORGANIC CARBON (TOC)	78,340,477	72,196,038	6,144,439	71%	1,781,887	0.00E+000	0
SHEM	TOTAL PETROLEUM HYDROCARBON	13,109,842	2,377,260	10,732,581	74%	2,790,471	0.00E+000	0
TS	TOTAL SUSPENDED SOLIDS	62,531,426	32,147,990	30,383,436	91%	2,734,509	0.00E+000	0
T30	TRANS-1,2-DICHLOROETHENE	3,358	3,358	0	33%	0	9.30E-005	0
T87	TRICHLOROETHENE	2,971	1,757	1,214	33%	813	6.30E-002	51
V	VANADIUM	2,040	1,822	218	42%	126	6.20E-001	78
Y	YTTRIUM	783	771	11	58%	5	0.00E+000	0
ZN	ZINC	199,400	68,172	131,228	77%	30,182	5.10E-002	1,539
	Totals	**568,575,789**	**425,165,014**	**143,410,775**		**23,130,926**		**42,917**

Source: Development Document.

Table A-2

Industry Loads and Removals By Pollutant
CP-IL Option, 1MM/255K Cutoff

Pollutant Code	Analyte	Industry Baseline Load (lbs/yr)	Industry Treated Load (lbs/yr)	Removals (lbs/yr)	POTW Removal Efficiency (%)	Removals After POTW (lbs/yr)	Toxic Weighting Factor	PE Removals
T11	1,1,1-TRICHLOROETHANE	43,682	24,791	18,890	24%	14,357	4.30E-003	62
T37	1,2-DIPHENYLHYDRAZINE	0	0	0	62%	0	1.20E+000	0
N34	2-BUTANONE	36,490	34,548	1,942	18%	1,592	2.20E-005	0
N38	2-METHYLNAPHTHALENE	11,262	3,006	8,257	28%	5,945	1.80E-002	107
N42	2-PROPANONE	137,556	85,282	52,274	85%	7,841	7.60E-006	0
T22	4-CHLORO-3-METHYLPHENOL	9,930	3,523	6,406	63%	2,370	4.30E-003	10
N54	4-METHYL-2-PENTANONE	15,687	15,687	0	18%	0	1.20E-004	0
N58	ALPHA-TERPINEOL	11,504	7,707	3,798	18%	3,114	1.00E-003	3
AL	ALUMINUM	726,162	487,891	238,270	88%	28,592	6.40E-002	1,830
SB	ANTIMONY	27,540	17,494	10,046	72%	2,813	1.90E-001	534
AS	ARSENIC	12,972	12,958	14	40%	8	4.00E+000	33
BA	BARIUM	71,175	49,799	21,376	35%	13,894	2.00E-003	28
N64	BENZOIC ACID	68,136	68,136	0	81%	0	3.30E-004	0
N66	BENZYL ALCOHOL	70,980	52,268	18,712	33%	12,537	5.60E-003	70
BE	BERYLLIUM	39	37	2	61%	1	5.30E+000	4
T66	BIS(2-ETHYLHEXYL) PHTHALATE	142,454	78,718	63,736	60%	25,494	1.10E-001	2,804
BOD	BOD 5-DAY (CARBONACEOUS)	110,170,372	101,859,551	8,310,821	91%	747,974	0.00E+000	0
B	BORON	34,572	32,796	1,776	14%	1,527	1.80E-001	275
T67	BUTYL BENZYL PHTHALATE	39,223	13,078	26,146	86%	3,660	2.30E-002	84
CD	CADMIUM	5,281	3,056	2,226	91%	200	5.20E+000	1,042
COD	CHEMICAL OXYGEN DEMAND (COD)	256,658,823	196,546,125	60,112,698	82%	10,820,286	0.00E+000	0
T7	CHLOROBENZENE	2,448	1,695	753	24%	572	2.90E-003	2
T23	CHLOROFORM	127,263	127,041	221	24%	168	2.10E-003	0
CR	CHROMIUM	15,133	9,312	5,821	91%	524	2.70E-002	14
CO	COBALT	4,879	2,791	2,089	4%	2,005	1.10E-001	221
CU	COPPER	131,381	72,449	58,932	84%	9,429	4.70E-001	4,432
T68	DI-N-BUTYL PHTHALATE	16,193	4,754	11,440	75%	2,860	1.20E-002	34
T69	DI-N-OCTYL PHTHALATE	13,478	10,038	3,440	33%	2,305	2.20E-001	507
T38	ETHYLBENZENE	37,203	11,985	25,217	33%	16,896	1.40E-003	24
N90	HEXANOIC ACID	8,033	8,027	5	33%	4	3.40E-004	0
FE	IRON	1,263,722	528,021	735,701	83%	125,069	5.60E-003	700
T54	ISOPHORONE	47,075	24,095	22,979	62%	8,732	7.30E-004	6
PB	LEAD	72,288	27,106	45,182	92%	3,615	1.80E+000	6,506
N95	M-XYLENE	17,418	14,553	2,865	33%	1,919	1.50E-003	3
MN	MANGANESE	25,012	12,734	12,279	41%	7,244	1.40E-002	101
HG	MERCURY	181	160	21	33%	14	5.00E+002	7,154
T44	METHYLENE CHLORIDE	28,698	11,651	17,047	18%	13,978	4.20E-004	6
MO	MOLYBDENUM	9,423	9,393	30	52%	15	2.00E-001	3
N102	N-DECANE	663,185	345,248	317,937	33%	213,018	4.30E-003	916
N103	N-DOCOSANE	16,466	5,832	10,635	94%	638	8.20E-005	0
N104	N-DODECANE	183,028	127,690	55,338	33%	37,076	4.30E-003	159
N105	N-EICOSANE	143,083	12,235	130,848	33%	87,668	4.30E-003	377
N106	N-HEXACOSANE	15,821	4,250	11,572	94%	694	8.20E-005	0
N107	N-HEXADECANE	86,604	24,147	62,457	33%	41,846	4.30E-003	180
N114	N-OCTACOSANE	9,903	3,850	6,053	94%	363	8.20E-005	0
N115	N-OCTADECANE	70,187	11,828	58,359	33%	39,100	4.30E-003	168
N116	N-TETRACOSANE	22,677	8,874	13,803	94%	828	8.20E-005	0
N117	N-TETRADECANE	110,160	21,472	88,689	33%	59,421	4.30E-003	256
N118	N-TRIACONTANE	14,928	7,403	7,524	94%	451	8.20E-005	0
T55	NAPHTHALENE	40,915	18,944	21,972	18%	18,017	1.50E-002	270
NI	NICKEL	15,148	10,613	4,535	52%	2,177	3.60E-002	78
N119	O+P XYLENE	10,933	9,746	1,186	33%	795	8.50E-003	7
HEM	OIL AND GREASE (AS HEM)	37,893,390	15,207,566	22,685,824	87%	2,949,157	0.00E+000	0
N125	P-CRESOL	0	0	0	72%	0	2.40E-003	0
N126	P-CYMENE	51,855	14,803	37,052	99%	371	4.30E-002	16
N130	PENTAMETHYLBENZENE	0	0	0	91%	0	2.90E-001	0
T65	PHENOL	12,588	12,587	0	95%	0	2.80E-002	0
SE	SELENIUM	400	246	154	34%	102	1.10E+000	112
AG	SILVER	4,494	3,405	1,089	80%	218	4.70E+001	10,236
T85	TETRACHLOROETHENE	41,317	27,387	13,930	33%	9,333	7.40E-002	691
TL	THALLIUM	0	0	0	28%	0	1.40E-001	0
SN	TIN	5,799	2,578	3,221	65%	1,128	3.00E-001	338
TI	TITANIUM	17,597	11,575	6,022	69%	1,867	2.90E-002	54
T86	TOLUENE	65,145	51,127	14,018	33%	9,392	5.60E-003	53
TOC	TOTAL ORGANIC CARBON (TOC)	77,640,746	71,706,500	5,934,246	71%	1,720,931	0.00E+000	0
SHEM	TOTAL PETROLEUM HYDROCARBON	12,851,536	2,361,108	10,490,428	74%	2,727,511	0.00E+000	0
TS	TOTAL SUSPENDED SOLIDS	61,742,432	31,926,179	29,816,253	91%	2,683,463	0.00E+000	0
T30	TRANS-1,2-DICHLOROETHENE	3,308	3,308	0	33%	0	9.30E-005	0
T87	TRICHLOROETHENE	2,929	1,743	1,186	33%	794	6.30E-002	50
V	VANADIUM	2,024	1,810	214	42%	124	6.20E-001	77
Y	YTTRIUM	777	766	11	58%	5	0.00E+000	0
ZN	ZINC	197,065	67,710	129,355	77%	29,752	5.10E-002	1,517
	Totals	**562,050,106**	**422,284,785**	**139,765,321**		**22,523,797**		**42,155**

Source: Development Document.

Table A-3

Industry Loads and Removals By Pollutant
CP-IL Option, 3MM/120K Cutoff

Pollutant Code	Analyte	Industry Baseline Load (lbs/yr)	Industry Treated Load (lbs/yr)	Removals (lbs/yr)	POTW Removal Efficiency (%)	Removals After POTW (lbs/yr)	Toxic Weighting Factor	PE Removals
T11	1,1,1-TRICHLOROETHANE	40,464	21,771	18,694	24%	14,207	4.30E-003	61
T37	1,2-DIPHENYLHYDRAZINE	0	0	0	62%	0	1.20E+000	0
N34	2-BUTANONE	33,983	32,042	1,942	18%	1,592	2.20E-005	0
N38	2-METHYLNAPHTHALENE	10,198	2,809	7,389	28%	5,320	1.80E-002	96
N42	2-PROPANONE	131,729	79,572	52,157	85%	7,824	7.60E-006	0
T22	4-CHLORO-3-METHYLPHENOL	8,850	3,084	5,766	63%	2,133	4.30E-003	9
N54	4-METHYL-2-PENTANONE	14,651	14,651	0	18%	0	1.20E-004	0
N58	ALPHA-TERPINEOL	10,908	7,153	3,755	18%	3,079	1.00E-003	3
AL	ALUMINUM	669,275	459,847	209,428	88%	25,131	6.40E-002	1,608
SB	ANTIMONY	25,088	16,613	8,475	72%	2,373	1.90E-001	451
AS	ARSENIC	12,470	12,457	14	40%	8	4.00E+000	33
BA	BARIUM	66,280	46,738	19,542	35%	12,702	2.00E-003	25
N64	BENZOIC ACID	63,203	63,203	0	81%	0	3.30E-004	0
N66	BENZYL ALCOHOL	66,640	48,148	18,492	33%	12,390	5.60E-003	69
BE	BERYLLIUM	34	32	2	61%	1	5.30E+000	4
T66	BIS(2-ETHYLHEXYL) PHTHALATE	132,825	75,404	57,420	60%	22,968	1.10E-001	2,526
BOD	BOD 5-DAY (CARBONACEOUS)	104,120,680	95,859,747	8,260,933	91%	743,484	0.00E+000	0
B	BORON	32,242	30,466	1,776	14%	1,527	1.80E-001	275
T67	BUTYL BENZYL PHTHALATE	37,307	12,546	24,761	86%	3,467	2.30E-002	80
CD	CADMIUM	4,886	2,886	2,000	91%	180	5.20E+000	936
COD	CHEMICAL OXYGEN DEMAND (COD)	236,114,575	179,609,548	56,505,027	82%	10,170,905	0.00E+000	0
T7	CHLOROBENZENE	2,334	1,582	753	24%	572	2.90E-003	2
T23	CHLOROFORM	122,751	122,530	221	24%	168	2.10E-003	0
CR	CHROMIUM	14,070	8,606	5,464	91%	492	2.70E-002	13
CO	COBALT	4,594	2,540	2,054	4%	1,972	1.10E-001	217
CU	COPPER	121,275	67,715	53,560	84%	8,570	4.70E-001	4,028
T68	DI-N-BUTYL PHTHALATE	15,102	4,507	10,595	75%	2,649	1.20E-002	32
T69	DI-N-OCTYL PHTHALATE	12,588	9,410	3,178	33%	2,129	2.20E-001	468
T38	ETHYLBENZENE	34,107	10,354	23,753	33%	15,914	1.40E-003	22
N90	HEXANOIC ACID	7,312	7,306	5	33%	4	3.40E-004	0
FE	IRON	1,143,483	495,084	648,399	83%	110,228	5.60E-003	617
T54	ISOPHORONE	43,507	21,043	22,464	62%	8,536	7.30E-004	6
PB	LEAD	66,481	25,349	41,131	92%	3,291	1.80E+000	5,923
N95	M-XYLENE	16,244	13,392	2,853	33%	1,911	1.50E-003	3
MN	MANGANESE	22,988	12,027	10,961	41%	6,467	1.40E-002	91
HG	MERCURY	170	151	19	33%	13	5.00E+002	6,356
T44	METHYLENE CHLORIDE	26,294	10,235	16,059	18%	13,169	4.20E-004	6
MO	MOLYBDENUM	8,980	8,949	30	52%	15	2.00E-001	3
N102	N-DECANE	624,681	332,492	292,189	33%	195,767	4.30E-003	842
N103	N-DOCOSANE	14,748	5,537	9,212	94%	553	8.20E-005	0
N104	N-DODECANE	165,833	112,032	53,801	33%	36,047	4.30E-003	155
N105	N-EICOSANE	128,002	11,687	116,315	33%	77,931	4.30E-003	335
N106	N-HEXACOSANE	14,359	3,996	10,363	94%	622	8.20E-005	0
N107	N-HEXADECANE	78,869	22,975	55,894	33%	37,449	4.30E-003	161
N114	N-OCTACOSANE	8,887	3,577	5,311	94%	319	8.20E-005	0
N115	N-OCTADECANE	62,912	11,169	51,743	33%	34,668	4.30E-003	149
N116	N-TETRACOSANE	20,654	8,464	12,190	94%	731	8.20E-005	0
N117	N-TETRADECANE	99,447	20,406	79,041	33%	52,958	4.30E-003	228
N118	N-TRIACONTANE	13,750	7,045	6,705	94%	402	8.20E-005	0
T55	NAPHTHALENE	38,379	17,820	20,559	18%	16,859	1.50E-002	253
NI	NICKEL	13,973	9,914	4,059	52%	1,948	3.60E-002	70
N119	O+P XYLENE	10,270	9,084	1,186	33%	795	8.50E-003	7
HEM	OIL AND GREASE (AS HEM)	35,269,760	14,441,421	20,828,339	87%	2,707,684	0.00E+000	0
N125	P-CRESOL	0	0	0	72%	0	2.40E-003	0
N126	P-CYMENE	49,931	14,211	35,720	99%	357	4.30E-002	15
N130	PENTAMETHYLBENZENE	0	0	0	91%	0	2.90E-001	0
T65	PHENOL	11,871	11,871	0	95%	0	2.80E-002	0
SE	SELENIUM	352	215	137	34%	91	1.10E+000	100
AG	SILVER	4,250	3,224	1,026	80%	205	4.70E+001	9,643
T85	TETRACHLOROETHENE	37,725	24,074	13,650	33%	9,146	7.40E-002	677
TL	THALLIUM	0	0	0	28%	0	1.40E-001	0
SN	TIN	5,133	2,238	2,895	65%	1,013	3.00E-001	304
TI	TITANIUM	16,066	10,776	5,290	69%	1,640	2.90E-002	48
T86	TOLUENE	61,674	47,706	13,968	33%	9,358	5.60E-003	52
TOC	TOTAL ORGANIC CARBON (TOC)	72,968,740	67,073,873	5,894,867	71%	1,709,511	0.00E+000	0
SHEM	TOTAL PETROLEUM HYDROCARBON	11,766,277	2,195,097	9,571,180	74%	2,488,507	0.00E+000	0
TS	TOTAL SUSPENDED SOLIDS	56,330,170	29,835,581	26,494,589	91%	2,384,513	0.00E+000	0
T30	TRANS-1,2-DICHLOROETHENE	3,146	3,146	0	33%	0	9.30E-005	0
T87	TRICHLOROETHENE	2,820	1,634	1,186	33%	794	6.30E-002	50
V	VANADIUM	1,890	1,684	205	42%	119	6.20E-001	74
Y	YTTRIUM	737	726	11	58%	5	0.00E+000	0
ZN	ZINC	178,466	62,860	115,606	77%	26,589	5.10E-002	1,356
	Totals	**521,262,341**	**391,526,031**	**129,736,310**		**21,001,969**		**38,483**

Source: Development Document.

Table A-4

Industry Loads and Removals By Pollutant
CP-IL Option, 5MM/255K Cutoff

Pollutant Code	Analyte	Industry Baseline Load (lbs/yr)	Industry Treated Load (lbs/yr)	Removals (lbs/yr)	POTW Removal Efficiency (%)	Removals After POTW (lbs/yr)	Toxic Weighting Factor	PE Removals
T11	1,1,1-TRICHLOROETHANE	33,432	15,838	17,593	24%	13,371	4.30E-003	57
T37	1,2-DIPHENYLHYDRAZINE	0	0	0	62%	0	1.20E+000	0
N34	2-BUTANONE	28,704	26,763	1,942	18%	1,592	2.20E-005	0
N38	2-METHYLNAPHTHALENE	8,074	2,277	5,798	28%	4,174	1.80E-002	75
N42	2-PROPANONE	113,260	64,625	48,634	85%	7,295	7.60E-006	0
T22	4-CHLORO-3-METHYLPHENOL	6,888	2,122	4,766	63%	1,764	4.30E-003	8
N54	4-METHYL-2-PENTANONE	12,341	12,341	0	18%	0	1.20E-004	0
N58	ALPHA-TERPINEOL	9,354	5,750	3,604	18%	2,955	1.00E-003	3
AL	ALUMINUM	537,651	379,438	158,214	88%	18,986	6.40E-002	1,215
SB	ANTIMONY	19,694	13,900	5,794	72%	1,622	1.90E-001	308
AS	ARSENIC	10,704	10,691	13	40%	8	4.00E+000	31
BA	BARIUM	54,111	38,159	15,952	35%	10,369	2.00E-003	21
N64	BENZOIC ACID	52,420	52,420	0	81%	0	3.30E-004	0
N66	BENZYL ALCOHOL	56,807	38,730	18,077	33%	12,111	5.60E-003	68
BE	BERYLLIUM	26	24	2	61%	1	5.30E+000	4
T66	BIS(2-ETHYLHEXYL) PHTHALATE	107,755	64,163	43,592	60%	17,437	1.10E-001	1,918
BOD	BOD 5-DAY (CARBONACEOUS)	87,450,551	79,935,733	7,514,818	91%	676,334	0.00E+000	0
B	BORON	26,941	25,173	1,767	14%	1,520	1.80E-001	274
T67	BUTYL BENZYL PHTHALATE	32,124	10,699	21,425	86%	2,999	2.30E-002	69
CD	CADMIUM	4,002	2,393	1,608	91%	145	5.20E+000	753
COD	CHEMICAL OXYGEN DEMAND (COD)	189,588,950	140,233,731	49,355,219	82%	8,883,939	0.00E+000	0
T7	CHLOROBENZENE	2,053	1,320	733	24%	557	2.90E-003	2
T23	CHLOROFORM	105,870	105,654	216	24%	165	2.10E-003	0
CR	CHROMIUM	11,402	6,840	4,562	91%	411	2.70E-002	11
CO	COBALT	3,907	1,970	1,936	4%	1,859	1.10E-001	204
CU	COPPER	97,610	55,004	42,605	84%	6,817	4.70E-001	3,204
T68	DI-N-BUTYL PHTHALATE	12,228	3,762	8,465	75%	2,116	1.20E-002	25
T69	DI-N-OCTYL PHTHALATE	10,317	7,673	2,644	33%	1,771	2.20E-001	390
T38	ETHYLBENZENE	26,947	6,884	20,064	33%	13,443	1.40E-003	19
N90	HEXANOIC ACID	5,762	5,757	5	33%	4	3.40E-004	0
FE	IRON	895,613	404,754	490,858	83%	83,446	5.60E-003	467
T54	ISOPHORONE	36,677	14,969	21,708	62%	8,249	7.30E-004	6
PB	LEAD	53,467	20,616	32,851	92%	2,628	1.80E+000	4,731
N95	M-XYLENE	13,596	10,891	2,706	33%	1,813	1.50E-003	3
MN	MANGANESE	18,489	9,966	8,523	41%	5,028	1.40E-002	70
HG	MERCURY	141	126	15	33%	10	5.00E+002	4,953
T44	METHYLENE CHLORIDE	21,649	7,229	14,420	18%	11,824	4.20E-004	5
MO	MOLYBDENUM	7,642	7,614	28	52%	14	2.00E-001	3
N102	N-DECANE	517,127	285,672	231,455	33%	155,075	4.30E-003	667
N103	N-DOCOSANE	11,271	4,633	6,638	94%	398	8.20E-005	0
N104	N-DODECANE	128,980	81,131	47,849	33%	32,059	4.30E-003	138
N105	N-EICOSANE	99,826	9,894	89,933	33%	60,255	4.30E-003	259
N106	N-HEXACOSANE	11,166	3,280	7,885	94%	473	8.20E-005	0
N107	N-HEXADECANE	62,162	19,295	42,867	33%	28,721	4.30E-003	124
N114	N-OCTACOSANE	6,844	2,858	3,987	94%	239	8.20E-005	0
N115	N-OCTADECANE	48,883	9,244	39,639	33%	26,558	4.30E-003	114
N116	N-TETRACOSANE	16,413	7,146	9,267	94%	556	8.20E-005	0
N117	N-TETRADECANE	77,866	17,101	60,765	33%	40,712	4.30E-003	175
N118	N-TRIACONTANE	11,128	5,916	5,212	94%	313	8.20E-005	0
T55	NAPHTHALENE	31,341	14,635	16,706	18%	13,699	1.50E-002	205
NI	NICKEL	11,300	8,050	3,251	52%	1,560	3.60E-002	56
N119	O+P XYLENE	8,716	7,570	1,146	33%	768	8.50E-003	7
HEM	OIL AND GREASE (AS HEM)	28,563,674	12,089,837	16,473,837	87%	2,141,599	0.00E+000	0
N125	P-CRESOL	0	0	0	72%	0	2.40E-003	0
N126	P-CYMENE	43,735	12,142	31,593	99%	316	4.30E-002	14
N130	PENTAMETHYLBENZENE	0	0	0	91%	0	2.90E-001	0
T65	PHENOL	9,985	9,984	0	95%	0	2.80E-002	0
SE	SELENIUM	264	151	114	34%	75	1.10E+000	82
AG	SILVER	3,591	2,685	906	80%	181	4.70E+001	8,514
T85	TETRACHLOROETHENE	30,356	17,410	12,945	33%	8,673	7.40E-002	642
TL	THALLIUM	0	0	0	28%	0	1.40E-001	0
SN	TIN	3,893	1,552	2,341	65%	819	3.00E-001	246
TI	TITANIUM	12,641	8,672	3,969	69%	1,230	2.90E-002	36
T86	TOLUENE	51,118	38,492	12,626	33%	8,460	5.60E-003	47
TOC	TOTAL ORGANIC CARBON (TOC)	60,704,055	55,307,428	5,396,627	71%	1,565,022	0.00E+000	0
SHEM	TOTAL PETROLEUM HYDROCARBON	9,349,866	1,763,841	7,586,025	74%	1,972,367	0.00E+000	0
TS	TOTAL SUSPENDED SOLIDS	44,708,381	24,186,232	20,522,150	91%	1,846,993	0.00E+000	0
T30	TRANS-1,2-DICHLOROETHENE	2,793	2,793	0	33%	0	9.30E-005	0
T87	TRICHLOROETHENE	2,543	1,375	1,168	33%	783	6.30E-002	49
V	VANADIUM	1,556	1,375	181	42%	105	6.20E-001	65
Y	YTTRIUM	621	612	10	58%	4	0.00E+000	0
ZN	ZINC	141,259	50,361	90,897	77%	20,906	5.10E-002	1,066
	Totals	**424,150,513**	**315,577,367**	**108,573,146**		**17,725,696**		**31,403**

Source: Development Document.

Table A-5

Industry Loads and Removals By Pollutant
DAF-IL Option, No Cutoff

Pollutant Code	Analyte	Industry Baseline Load (lbs/yr)	Industry Treated Load (lbs/yr)	Removals (lbs/yr)	POTW Removal Efficiency (%)	Removals After POTW (lbs/yr)	Toxic Weighting Factor	PE Removals
T11	1,1,1-TRICHLOROETHANE	44,354	2,377	41,976	24%	31,902	4.30E-003	137
T37	1,2-DIPHENYLHYDRAZINE	0	0	0	62%	0	1.20E+000	0
N34	2-BUTANONE	37,079	37,078	0	18%	0	2.20E-005	0
N38	2-METHYLNAPHTHALENE	11,420	9,803	1,618	28%	1,165	1.80E-002	21
N42	2-PROPANONE	139,704	139,280	424	85%	64	7.60E-006	0
T22	4-CHLORO-3-METHYLPHENOL	10,048	9,364	684	63%	253	4.30E-003	1
N54	4-METHYL-2-PENTANONE	15,946	15,786	159	18%	131	1.20E-004	0
N58	ALPHA-TERPINEOL	11,666	11,643	23	18%	19	1.00E-003	0
AL	ALUMINUM	731,628	489,482	242,147	88%	29,058	6.40E-002	1,860
SB	ANTIMONY	27,706	19,540	8,167	72%	2,287	1.90E-001	434
AS	ARSENIC	13,064	13,063	0	40%	0	4.00E+000	1
BA	BARIUM	72,023	43,084	28,939	35%	18,811	2.00E-003	38
N64	BENZOIC ACID	68,837	68,014	823	81%	156	3.30E-004	0
N66	BENZYL ALCOHOL	71,863	71,862	0	33%	0	5.60E-003	0
BE	BERYLLIUM	39	39	0	61%	0	5.30E+000	0
T66	BIS(2-ETHYLHEXYL) PHTHALATE	143,930	85,188	58,741	60%	23,497	1.10E-001	2,585
BOD	BOD 5-DAY (CARBONACEOUS)	111,166,461	105,943,546	5,222,915	91%	470,062	0.00E+000	0
B	BORON	34,933	34,376	557	14%	479	1.80E-001	86
T67	BUTYL BENZYL PHTHALATE	39,666	25,872	13,795	86%	1,931	2.30E-002	44
CD	CADMIUM	5,345	3,607	1,737	91%	156	5.20E+000	813
COD	CHEMICAL OXYGEN DEMAND (COD)	259,751,769	180,887,567	78,864,203	82%	14,195,556	0.00E+000	0
T7	CHLOROBENZENE	2,487	1,616	871	24%	662	2.90E-003	2
T23	CHLOROFORM	128,187	128,182	5	24%	4	2.10E-003	0
CR	CHROMIUM	15,303	11,193	4,110	91%	370	2.70E-002	10
CO	COBALT	4,940	3,704	1,237	4%	1,187	1.10E-001	131
CU	COPPER	132,972	89,894	43,078	84%	6,892	4.70E-001	3,239
T68	DI-N-BUTYL PHTHALATE	16,435	12,065	4,370	75%	1,092	1.20E-002	13
T69	DI-N-OCTYL PHTHALATE	13,633	9,687	3,946	33%	2,644	2.20E-001	582
T38	ETHYLBENZENE	38,046	5,741	32,305	33%	21,645	1.40E-003	30
N90	HEXANOIC ACID	8,077	8,077	0	33%	0	3.40E-004	0
FE	IRON	1,275,369	614,767	660,602	83%	112,302	5.60E-003	629
T54	ISOPHORONE	47,778	47,778	0	62%	0	7.30E-004	0
PB	LEAD	73,428	33,574	39,854	92%	3,188	1.80E+000	5,739
N95	M-XYLENE	17,712	16,512	1,200	33%	804	1.50E-003	1
MN	MANGANESE	25,269	12,989	12,280	41%	7,245	1.40E-002	101
HG	MERCURY	182	155	28	33%	18	5.00E+002	9,239
T44	METHYLENE CHLORIDE	29,221	27,554	1,667	18%	1,367	4.20E-004	1
MO	MOLYBDENUM	9,542	8,803	740	52%	355	2.00E-001	71
N102	N-DECANE	673,669	377,128	296,541	33%	198,683	4.30E-003	854
N103	N-DOCOSANE	16,653	6,818	9,834	94%	590	8.20E-005	0
N104	N-DODECANE	186,284	52,336	133,947	33%	89,745	4.30E-003	386
N105	N-EICOSANE	146,471	14,929	131,541	33%	88,133	4.30E-003	379
N106	N-HEXACOSANE	16,085	4,796	11,289	94%	677	8.20E-005	0
N107	N-HEXADECANE	88,172	27,715	60,457	33%	40,506	4.30E-003	174
N114	N-OCTACOSANE	10,047	3,383	6,664	94%	400	8.20E-005	0
N115	N-OCTADECANE	71,627	15,051	56,576	33%	37,906	4.30E-003	163
N116	N-TETRACOSANE	22,929	9,701	13,228	94%	794	8.20E-005	0
N117	N-TETRADECANE	112,400	24,465	87,934	33%	58,916	4.30E-003	253
N118	N-TRIACONTANE	15,088	7,317	7,771	94%	466	8.20E-005	0
T55	NAPHTHALENE	41,634	20,447	21,188	18%	17,374	1.50E-002	261
NI	NICKEL	15,287	10,763	4,524	52%	2,172	3.60E-002	78
N119	O+P XYLENE	11,110	10,799	311	33%	209	8.50E-003	2
HEM	OIL AND GREASE (AS HEM)	38,519,591	16,035,628	22,483,963	87%	2,922,915	0.00E+000	0
N125	P-CRESOL	0	0	0	72%	0	2.40E-003	0
N126	P-CYMENE	52,508	19,495	33,013	99%	330	4.30E-002	14
N130	PENTAMETHYLBENZENE	0	0	0	91%	0	2.90E-001	0
T65	PHENOL	12,686	12,678	7	95%	0	2.80E-002	0
SE	SELENIUM	403	403	0	34%	0	1.10E+000	0
AG	SILVER	4,535	4,063	472	80%	94	4.70E+001	4,437
T85	TETRACHLOROETHENE	42,301	20,512	21,790	33%	14,599	7.40E-002	1,080
TL	THALLIUM	0	0	0	28%	0	1.40E-001	0
SN	TIN	5,854	4,934	920	65%	322	3.00E-001	97
TI	TITANIUM	17,716	9,132	8,584	69%	2,661	2.90E-002	77
T86	TOLUENE	66,379	46,162	20,217	33%	13,545	5.60E-003	76
TOC	TOTAL ORGANIC CARBON (TOC)	78,340,477	72,858,026	5,482,451	71%	1,589,911	0.00E+000	0
SHEM	TOTAL PETROLEUM HYDROCARBON	13,109,842	2,671,268	10,438,574	74%	2,714,029	0.00E+000	0
TS	TOTAL SUSPENDED SOLIDS	62,531,426	29,879,620	32,651,807	91%	2,938,663	0.00E+000	0
T30	TRANS-1,2-DICHLOROETHENE	3,358	3,358	0	33%	0	9.30E-005	0
T87	TRICHLOROETHENE	2,971	2,971	0	33%	0	6.30E-002	0
V	VANADIUM	2,040	1,790	249	42%	145	6.20E-001	90
Y	YTTRIUM	783	740	42	58%	18	0.00E+000	0
ZN	ZINC	199,400	112,848	86,553	77%	19,907	5.10E-002	1,015
	Totals	**568,575,789**	**411,212,139**	**157,363,650**		**25,689,012**		**35,245**

Source: Development Document.

Table A-6

Industry Loads and Removals By Pollutant
DAF-IL Option, 1MM/255K Cutoff

Pollutant Code	Analyte	Industry Baseline Load (lbs/yr)	Industry Treated Load (lbs/yr)	Removals (lbs/yr)	POTW Removal Efficiency (%)	Removals After POTW (lbs/yr)	Toxic Weighting Factor	PE Removals
T11	1,1,1-TRICHLOROETHANE	43,682	2,372	41,310	24%	31,396	4.30E-003	135
T37	1,2-DIPHENYLHYDRAZINE	0	0	0	62%	0	1.20E+000	0
N34	2-BUTANONE	36,490	36,490	0	18%	0	2.20E-005	0
N38	2-METHYLNAPHTHALENE	11,262	9,731	1,531	28%	1,102	1.80E-002	20
N42	2-PROPANONE	137,556	137,160	396	85%	59	7.60E-006	0
T22	4-CHLORO-3-METHYLPHENOL	9,930	9,309	621	63%	230	4.30E-003	1
N54	4-METHYL-2-PENTANONE	15,687	15,573	114	18%	93	1.20E-004	0
N58	ALPHA-TERPINEOL	11,504	11,482	23	18%	19	1.00E-003	0
AL	ALUMINUM	726,162	486,090	240,072	88%	28,809	6.40E-002	1,844
SB	ANTIMONY	27,540	19,407	8,132	72%	2,277	1.90E-001	433
AS	ARSENIC	12,972	12,972	0	40%	0	4.00E+000	1
BA	BARIUM	71,175	42,786	28,389	35%	18,453	2.00E-003	37
N64	BENZOIC ACID	68,136	67,346	790	81%	150	3.30E-004	0
N66	BENZYL ALCOHOL	70,980	70,980	0	33%	0	5.60E-003	0
BE	BERYLLIUM	39	39	0	61%	0	5.30E+000	0
T66	BIS(2-ETHYLHEXYL) PHTHALATE	142,454	84,589	57,865	60%	23,146	1.10E-001	2,546
BOD	BOD 5-DAY (CARBONACEOUS)	110,170,372	105,209,109	4,961,263	91%	446,514	0.00E+000	0
B	BORON	34,572	34,111	460	14%	396	1.80E-001	71
T67	BUTYL BENZYL PHTHALATE	39,223	25,686	13,537	86%	1,895	2.30E-002	44
CD	CADMIUM	5,281	3,583	1,699	91%	153	5.20E+000	795
COD	CHEMICAL OXYGEN DEMAND (COD)	256,658,823	179,662,938	76,995,885	82%	13,859,259	0.00E+000	0
T7	CHLOROBENZENE	2,448	1,605	843	24%	641	2.90E-003	2
T23	CHLOROFORM	127,263	127,257	5	24%	4	2.10E-003	0
CR	CHROMIUM	15,133	11,119	4,014	91%	361	2.70E-002	10
CO	COBALT	4,879	3,678	1,201	4%	1,153	1.10E-001	127
CU	COPPER	131,381	89,281	42,100	84%	6,736	4.70E-001	3,166
T68	DI-N-BUTYL PHTHALATE	16,193	11,978	4,216	75%	1,054	1.20E-002	13
T69	DI-N-OCTYL PHTHALATE	13,478	9,620	3,858	33%	2,585	2.20E-001	569
T38	ETHYLBENZENE	37,203	5,705	31,498	33%	21,104	1.40E-003	30
N90	HEXANOIC ACID	8,033	8,033	0	33%	0	3.40E-004	0
FE	IRON	1,263,722	610,539	653,182	83%	111,041	5.60E-003	622
T54	ISOPHORONE	47,075	47,075	0	62%	0	7.30E-004	0
PB	LEAD	72,288	33,345	38,943	92%	3,115	1.80E+000	5,608
N95	M-XYLENE	17,418	16,380	1,038	33%	696	1.50E-003	1
MN	MANGANESE	25,012	12,899	12,114	41%	7,147	1.40E-002	100
HG	MERCURY	181	154	27	33%	18	5.00E+002	9,125
T44	METHYLENE CHLORIDE	28,698	27,348	1,349	18%	1,106	4.20E-004	0
MO	MOLYBDENUM	9,423	8,734	690	52%	331	2.00E-001	66
N102	N-DECANE	663,185	374,463	288,722	33%	193,444	4.30E-003	832
N103	N-DOCOSANE	16,466	6,771	9,696	94%	582	8.20E-005	0
N104	N-DODECANE	183,028	52,010	131,018	33%	87,782	4.30E-003	377
N105	N-EICOSANE	143,083	14,825	128,258	33%	85,933	4.30E-003	370
N106	N-HEXACOSANE	15,821	4,763	11,058	94%	664	8.20E-005	0
N107	N-HEXADECANE	86,604	27,522	59,082	33%	39,585	4.30E-003	170
N114	N-OCTACOSANE	9,903	3,360	6,544	94%	393	8.20E-005	0
N115	N-OCTADECANE	70,187	14,946	55,240	33%	37,011	4.30E-003	159
N116	N-TETRACOSANE	22,677	9,633	13,044	94%	783	8.20E-005	0
N117	N-TETRADECANE	110,160	24,295	85,866	33%	57,530	4.30E-003	247
N118	N-TRIACONTANE	14,928	7,266	7,662	94%	460	8.20E-005	0
T55	NAPHTHALENE	40,915	20,306	20,609	18%	16,900	1.50E-002	253
NI	NICKEL	15,148	10,689	4,459	52%	2,140	3.60E-002	77
N119	O+P XYLENE	10,933	10,696	237	33%	159	8.50E-003	1
HEM	OIL AND GREASE (AS HEM)	37,893,390	15,923,719	21,969,671	87%	2,856,057	0.00E+000	0
N125	P-CRESOL	0	0	0	72%	0	2.40E-003	0
N126	P-CYMENE	51,855	19,359	32,496	99%	325	4.30E-002	14
N130	PENTAMETHYLBENZENE	0	0	0	91%	0	2.90E-001	0
T65	PHENOL	12,588	12,580	7	95%	0	2.80E-002	0
SE	SELENIUM	400	400	0	34%	0	1.10E+000	0
AG	SILVER	4,494	4,035	459	80%	92	4.70E+001	4,311
T85	TETRACHLOROETHENE	41,317	20,388	20,929	33%	14,023	7.40E-002	1,038
TL	THALLIUM	0	0	0	28%	0	1.40E-001	0
SN	TIN	5,799	4,903	897	65%	314	3.00E-001	94
TI	TITANIUM	17,597	9,069	8,528	69%	2,644	2.90E-002	77
T86	TOLUENE	65,145	45,834	19,311	33%	12,938	5.60E-003	72
TOC	TOTAL ORGANIC CARBON (TOC)	77,640,746	72,361,602	5,279,144	71%	1,530,952	0.00E+000	0
SHEM	TOTAL PETROLEUM HYDROCARBON	12,851,536	2,653,006	10,198,530	74%	2,651,618	0.00E+000	0
TS	TOTAL SUSPENDED SOLIDS	61,742,432	29,673,939	32,068,493	91%	2,886,164	0.00E+000	0
T30	TRANS-1,2-DICHLOROETHENE	3,308	3,308	0	33%	0	9.30E-005	0
T87	TRICHLOROETHENE	2,929	2,929	0	33%	0	6.30E-002	0
V	VANADIUM	2,024	1,778	245	42%	142	6.20E-001	88
Y	YTTRIUM	777	735	42	58%	18	0.00E+000	0
ZN	ZINC	197,065	112,070	84,995	77%	19,549	5.10E-002	997
	Totals	**562,050,106**	**408,397,699**	**153,652,407**		**25,069,242**		**34,542**

Source: Development Document.

Table A-7

Industry Loads and Removals By Pollutant
DAF-IL Option, 3MM/120K Cutoff

Pollutant Code	Analyte	Industry Baseline Load (lbs/yr)	Industry Treated Load (lbs/yr)	Removals (lbs/yr)	POTW Removal Efficiency (%)	Removals After POTW (lbs/yr)	Toxic Weighting Factor	PE Removals
T11	1,1,1-TRICHLOROETHANE	40,464	2,255	38,210	24%	29,039	4.30E-003	125
T37	1,2-DIPHENYLHYDRAZINE	0	0	0	62%	0	1.20E+000	0
N34	2-BUTANONE	33,983	33,983	0	18%	0	2.20E-005	0
N38	2-METHYLNAPHTHALENE	10,198	8,683	1,515	28%	1,091	1.80E-002	20
N42	2-PROPANONE	131,729	131,334	396	85%	59	7.60E-006	0
T22	4-CHLORO-3-METHYLPHENOL	8,850	8,229	621	63%	230	4.30E-003	1
N54	4-METHYL-2-PENTANONE	14,651	14,537	114	18%	93	1.20E-004	0
N58	ALPHA-TERPINEOL	10,908	10,885	23	18%	19	1.00E-003	0
AL	ALUMINUM	669,275	458,327	210,948	88%	25,314	6.40E-002	1,620
SB	ANTIMONY	25,088	18,264	6,824	72%	1,911	1.90E-001	363
AS	ARSENIC	12,470	12,470	0	40%	0	4.00E+000	1
BA	BARIUM	66,280	40,820	25,460	35%	16,549	2.00E-003	33
N64	BENZOIC ACID	63,203	62,413	790	81%	150	3.30E-004	0
N66	BENZYL ALCOHOL	66,640	66,640	0	33%	0	5.60E-003	0
BE	BERYLLIUM	34	34	0	61%	0	5.30E+000	0
T66	BIS(2-ETHYLHEXYL) PHTHALATE	132,825	80,421	52,404	60%	20,962	1.10E-001	2,306
BOD	BOD 5-DAY (CARBONACEOUS)	104,120,680	99,172,611	4,948,069	91%	445,326	0.00E+000	0
B	BORON	32,242	31,782	460	14%	396	1.80E-001	71
T67	BUTYL BENZYL PHTHALATE	37,307	23,856	13,451	86%	1,883	2.30E-002	43
CD	CADMIUM	4,886	3,342	1,544	91%	139	5.20E+000	723
COD	CHEMICAL OXYGEN DEMAND (COD)	236,114,575	165,442,212	70,672,363	82%	12,721,025	0.00E+000	0
T7	CHLOROBENZENE	2,334	1,493	841	24%	639	2.90E-003	2
T23	CHLOROFORM	122,751	122,746	5	24%	4	2.10E-003	0
CR	CHROMIUM	14,070	10,171	3,898	91%	351	2.70E-002	9
CO	COBALT	4,594	3,397	1,198	4%	1,150	1.10E-001	126
CU	COPPER	121,275	82,192	39,082	84%	6,253	4.70E-001	2,939
T68	DI-N-BUTYL PHTHALATE	15,102	10,939	4,163	75%	1,041	1.20E-002	12
T69	DI-N-OCTYL PHTHALATE	12,588	9,058	3,530	33%	2,365	2.20E-001	520
T38	ETHYLBENZENE	34,107	5,031	29,076	33%	19,481	1.40E-003	27
N90	HEXANOIC ACID	7,312	7,312	0	33%	0	3.40E-004	0
FE	IRON	1,143,483	566,093	577,390	83%	98,156	5.60E-003	550
T54	ISOPHORONE	43,507	43,507	0	62%	0	7.30E-004	0
PB	LEAD	66,481	30,729	35,752	92%	2,860	1.80E+000	5,148
N95	M-XYLENE	16,244	15,206	1,038	33%	696	1.50E-003	1
MN	MANGANESE	22,988	12,167	10,821	41%	6,384	1.40E-002	89
HG	MERCURY	170	146	24	33%	16	5.00E+002	8,002
T44	METHYLENE CHLORIDE	26,294	24,944	1,349	18%	1,106	4.20E-004	0
MO	MOLYBDENUM	8,980	8,290	690	52%	331	2.00E-001	66
N102	N-DECANE	624,681	357,429	267,251	33%	179,058	4.30E-003	770
N103	N-DOCOSANE	14,748	6,345	8,403	94%	504	8.20E-005	0
N104	N-DODECANE	165,833	48,770	117,063	33%	78,432	4.30E-003	337
N105	N-EICOSANE	128,002	13,916	114,086	33%	76,438	4.30E-003	329
N106	N-HEXACOSANE	14,359	4,438	9,921	94%	595	8.20E-005	0
N107	N-HEXADECANE	78,869	25,876	52,992	33%	35,505	4.30E-003	153
N114	N-OCTACOSANE	8,887	3,162	5,726	94%	344	8.20E-005	0
N115	N-OCTADECANE	62,912	13,862	49,051	33%	32,864	4.30E-003	141
N116	N-TETRACOSANE	20,654	9,114	11,540	94%	692	8.20E-005	0
N117	N-TETRADECANE	99,447	22,833	76,614	33%	51,331	4.30E-003	221
N118	N-TRIACONTANE	13,750	6,929	6,821	94%	409	8.20E-005	0
T55	NAPHTHALENE	38,379	18,987	19,392	18%	15,902	1.50E-002	239
NI	NICKEL	13,973	9,979	3,994	52%	1,917	3.60E-002	69
N119	O+P XYLENE	10,270	10,033	237	33%	159	8.50E-003	1
HEM	OIL AND GREASE (AS HEM)	35,269,760	15,052,637	20,217,122	87%	2,628,226	0.00E+000	0
N125	P-CRESOL	0	0	0	72%	0	2.40E-003	0
N126	P-CYMENE	49,931	18,155	31,776	99%	318	4.30E-002	14
N130	PENTAMETHYLBENZENE	0	0	0	91%	0	2.90E-001	0
T65	PHENOL	11,871	11,864	7	95%	0	2.80E-002	0
SE	SELENIUM	352	352	0	34%	0	1.10E+000	0
AG	SILVER	4,250	3,793	457	80%	91	4.70E+001	4,296
T85	TETRACHLOROETHENE	37,725	17,821	19,904	33%	13,335	7.40E-002	987
TL	THALLIUM	0	0	0	28%	0	1.40E-001	0
SN	TIN	5,133	4,255	878	65%	307	3.00E-001	92
TI	TITANIUM	16,066	8,665	7,400	69%	2,294	2.90E-002	67
T86	TOLUENE	61,674	42,501	19,173	33%	12,846	5.60E-003	72
TOC	TOTAL ORGANIC CARBON (TOC)	72,968,740	67,714,343	5,254,397	71%	1,523,775	0.00E+000	0
SHEM	TOTAL PETROLEUM HYDROCARBON	11,766,277	2,446,918	9,319,359	74%	2,423,033	0.00E+000	0
TS	TOTAL SUSPENDED SOLIDS	56,330,170	27,935,334	28,394,836	91%	2,555,535	0.00E+000	0
T30	TRANS-1,2-DICHLOROETHENE	3,146	3,146	0	33%	0	9.30E-005	0
T87	TRICHLOROETHENE	2,820	2,820	0	33%	0	6.30E-002	0
V	VANADIUM	1,890	1,659	231	42%	134	6.20E-001	83
Y	YTTRIUM	737	696	41	58%	17	0.00E+000	0
ZN	ZINC	178,466	101,143	77,323	77%	17,784	5.10E-002	907
	Totals	**521,262,341**	**380,494,295**	**140,768,046**		**23,056,868**		**31,577**

Source: Development Document.

Table A-8

Industry Loads and Removals By Pollutant
DAF-IL Option, 5MM/255K Cutoff

Pollutant Code	Analyte	Industry Baseline Load (lbs/yr)	Industry Treated Load (lbs/yr)	Removals (lbs/yr)	POTW Removal Efficiency (%)	Removals After POTW (lbs/yr)	Toxic Weighting Factor	PE Removals
T11	1,1,1-TRICHLOROETHANE	33,432	1,719	31,712	24%	24,101	4.30E-003	104
T37	1,2-DIPHENYLHYDRAZINE	0	0	0	62%	0	1.20E+000	0
N34	2-BUTANONE	28,704	28,704	0	18%	0	2.20E-005	0
N38	2-METHYLNAPHTHALENE	8,074	6,721	1,354	28%	975	1.80E-002	18
N42	2-PROPANONE	113,260	112,864	395	85%	59	7.60E-006	0
T22	4-CHLORO-3-METHYLPHENOL	6,888	6,290	598	63%	221	4.30E-003	1
N54	4-METHYL-2-PENTANONE	12,341	12,227	114	18%	93	1.20E-004	0
N58	ALPHA-TERPINEOL	9,354	9,331	23	18%	19	1.00E-003	0
AL	ALUMINUM	537,651	378,481	159,170	88%	19,100	6.40E-002	1,222
SB	ANTIMONY	19,694	15,002	4,692	72%	1,314	1.90E-001	250
AS	ARSENIC	10,704	10,704	0	40%	0	4.00E+000	1
BA	BARIUM	54,111	34,436	19,675	35%	12,789	2.00E-003	26
N64	BENZOIC ACID	52,420	51,630	790	81%	150	3.30E-004	0
N66	BENZYL ALCOHOL	56,807	56,807	0	33%	0	5.60E-003	0
BE	BERYLLIUM	26	26	0	61%	0	5.30E+000	0
T66	BIS(2-ETHYLHEXYL) PHTHALATE	107,755	67,470	40,286	60%	16,114	1.10E-001	1,773
BOD	BOD 5-DAY (CARBONACEOUS)	87,450,551	82,919,296	4,531,255	91%	407,813	0.00E+000	0
B	BORON	26,941	26,481	460	14%	396	1.80E-001	71
T67	BUTYL BENZYL PHTHALATE	32,124	19,564	12,560	86%	1,758	2.30E-002	40
CD	CADMIUM	4,002	2,699	1,303	91%	117	5.20E+000	610
COD	CHEMICAL OXYGEN DEMAND (COD)	189,588,950	130,590,755	58,998,195	82%	10,619,675	0.00E+000	0
T7	CHLOROBENZENE	2,053	1,236	817	24%	621	2.90E-003	2
T23	CHLOROFORM	105,870	105,865	5	24%	4	2.10E-003	0
CR	CHROMIUM	11,402	7,964	3,438	91%	309	2.70E-002	8
CO	COBALT	3,907	2,752	1,155	4%	1,109	1.10E-001	122
CU	COPPER	97,610	65,063	32,547	84%	5,207	4.70E-001	2,448
T68	DI-N-BUTYL PHTHALATE	12,228	8,654	3,574	75%	893	1.20E-002	11
T69	DI-N-OCTYL PHTHALATE	10,317	7,451	2,866	33%	1,920	2.20E-001	422
T38	ETHYLBENZENE	26,947	3,533	23,414	33%	15,688	1.40E-003	22
N90	HEXANOIC ACID	5,762	5,762	0	33%	0	3.40E-004	0
FE	IRON	895,613	452,699	442,913	83%	75,295	5.60E-003	422
T54	ISOPHORONE	36,677	36,677	0	62%	0	7.30E-004	0
PB	LEAD	53,467	24,289	29,178	92%	2,334	1.80E+000	4,202
N95	M-XYLENE	13,596	12,597	999	33%	669	1.50E-003	1
MN	MANGANESE	18,489	10,057	8,432	41%	4,975	1.40E-002	70
HG	MERCURY	141	123	18	33%	12	5.00E+002	6,046
T44	METHYLENE CHLORIDE	21,649	20,359	1,290	18%	1,058	4.20E-004	0
MO	MOLYBDENUM	7,642	7,003	639	52%	307	2.00E-001	61
N102	N-DECANE	517,127	302,042	215,085	33%	144,107	4.30E-003	620
N103	N-DOCOSANE	11,271	5,173	6,098	94%	366	8.20E-005	0
N104	N-DODECANE	128,980	39,205	89,775	33%	60,149	4.30E-003	259
N105	N-EICOSANE	99,826	11,384	88,442	33%	59,256	4.30E-003	255
N106	N-HEXACOSANE	11,166	3,576	7,590	94%	455	8.20E-005	0
N107	N-HEXADECANE	62,162	21,226	40,936	33%	27,427	4.30E-003	118
N114	N-OCTACOSANE	6,844	2,597	4,247	94%	255	8.20E-005	0
N115	N-OCTADECANE	48,883	11,063	37,820	33%	25,339	4.30E-003	109
N116	N-TETRACOSANE	16,413	7,574	8,839	94%	530	8.20E-005	0
N117	N-TETRADECANE	77,866	18,716	59,149	33%	39,630	4.30E-003	170
N118	N-TRIACONTANE	11,128	5,843	5,284	94%	317	8.20E-005	0
T55	NAPHTHALENE	31,341	15,414	15,927	18%	13,061	1.50E-002	196
NI	NICKEL	11,300	8,094	3,206	52%	1,539	3.60E-002	55
N119	O+P XYLENE	8,716	8,480	237	33%	158	8.50E-003	1
HEM	OIL AND GREASE (AS HEM)	28,563,674	12,491,092	16,072,582	87%	2,089,436	0.00E+000	0
N125	P-CRESOL	0	0	0	72%	0	2.40E-003	0
N126	P-CYMENE	43,735	14,814	28,922	99%	289	4.30E-002	12
N130	PENTAMETHYLBENZENE	0	0	0	91%	0	2.90E-001	0
T65	PHENOL	9,985	9,977	7	95%	0	2.80E-002	0
SE	SELENIUM	264	264	0	34%	0	1.10E+000	0
AG	SILVER	3,591	3,153	438	80%	88	4.70E+001	4,114
T85	TETRACHLOROETHENE	30,356	12,418	17,937	33%	12,018	7.40E-002	889
TL	THALLIUM	0	0	0	28%	0	1.40E-001	0
SN	TIN	3,893	3,089	805	65%	282	3.00E-001	84
TI	TITANIUM	12,641	7,330	5,312	69%	1,647	2.90E-002	48
T86	TOLUENE	51,118	33,985	17,132	33%	11,479	5.60E-003	64
TOC	TOTAL ORGANIC CARBON (TOC)	60,704,055	55,892,337	4,811,719	71%	1,395,398	0.00E+000	0
SHEM	TOTAL PETROLEUM HYDROCARBON	9,349,866	1,935,173	7,414,694	74%	1,927,820	0.00E+000	0
TS	TOTAL SUSPENDED SOLIDS	44,708,381	22,990,267	21,718,114	91%	1,954,630	0.00E+000	0
T30	TRANS-1,2-DICHLOROETHENE	2,793	2,793	0	33%	0	9.30E-005	0
T87	TRICHLOROETHENE	2,543	2,543	0	33%	0	6.30E-002	0
V	VANADIUM	1,556	1,354	202	42%	117	6.20E-001	73
Y	YTTRIUM	621	584	37	58%	16	0.00E+000	0
ZN	ZINC	141,259	76,854	64,405	77%	14,813	5.10E-002	755
	Totals	**424,150,513**	**309,061,707**	**115,088,807**		**18,995,720**		**25,774**

Source: Development Document.

Appendix B

Supporting Documentation for Cost-Effectiveness Analysis: Cost Analysis

Table B-1

Computation of Annualized Costs for CP-IL in 1993 and 1981 Dollars

Costs	**CP_IL**	**CP_IL**	**CP_IL**	**CP_IL**
	no cutoff	**1MM/255K**	**3MM/120K**	**5MM/255K**
Capital Cost ($1993)	$528,827,868	$507,469,980	$387,491,478	$234,139,808
Annual O&M Cost ($1993)	$123,057,702	$116,835,047	$89,155,808	$52,866,169
Total Annualized Capital Cost ($1993)	$55,980,474	$53,719,578	$41,018,936	$24,785,489
Total Annual Cost ($1993)	$179,038,176	$170,554,625	$130,174,744	$77,651,658
Deflator	0.6785	0.6785	0.6785	0.6785
Total Cost ($1981)	$121,477,403	$115,721,313	$88,323,564	$52,686,650

Source: Capital and O&M Costs: Development Document; Deflator: Engineering News Record Construction Cost Index, March 31, 1997.

Table B-2

Computation of Annualized Costs for DAF-IL in 1993 and 1981 Dollars

Costs	DAF_IL	DAF_IL	DAF_IL	DAF_IL
	no cutoff	**1MM/255K**	**3MM/120K**	**5MM/255K**
Capital Cost ($1993)	$435,352,966	$417,313,882	$313,173,435	$180,570,477
Annual O&M Cost ($1993)	$148,560,743	$142,276,538	$111,909,982	$69,533,822
Total Annualized Capital Cost ($1993)	$46,085,441	$44,175,866	$33,151,803	$19,114,766
Total Annual Cost ($1993)	$194,646,184	$186,452,404	$145,061,785	$88,648,588
Deflator	0.6785	0.6785	0.6785	0.6785
Total Cost ($1981)	$132,067,436	$126,507,956	$98,424,421	$60,148,067

Source: Capital and O&M Costs: Development Document; Deflator: Engineering News Record Construction Cost Index, March 31, 1997.