



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

## **Economic Impact Analysis**

### **National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge General Permit**

---

*Industrial Stormwater General Permit*

May 2009  
Publication no. 09-10-041

## Publication and Contact Information

This report is available on the Department of Ecology's website at [www.ecy.wa.gov/biblio/0910041.html](http://www.ecy.wa.gov/biblio/0910041.html)

For more information contact:

Water Quality Program  
P.O. Box 47600  
Olympia, WA 98504-7600

Phone: 360-407-6400

Washington State Department of Ecology - [www.ecy.wa.gov](http://www.ecy.wa.gov)

- Headquarters, Olympia 360-407-6000
- Northwest Regional Office, Bellevue 425-649-7000
- Southwest Regional Office, Olympia 360-407-6300
- Central Regional Office, Yakima 509-575-2490
- Eastern Regional Office, Spokane 509-329-3400

*To ask about the availability of this document in a format for the visually impaired, call the Water Quality Program at 360-407-6400. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.*

**Economic Impact Analysis**  
**National Pollutant Discharge Elimination**  
**System (NPDES) Wastewater Discharge**  
**General Permit**

---

**Industrial Stormwater General Permit**

*Prepared by*

*Sarah Wilson*

Water Quality Program  
Washington State Department of Ecology  
Olympia, Washington

*This page is purposeely left blank*

# Table of Contents

<b>TABLE OF CONTENTS .....</b>	<b>III</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
COSTS TO COMPLY WITH THE NEW PERMIT .....	1
CHANGES TO THE PERMIT .....	2
<b>CHAPTER 1: COMPLIANCE REQUIREMENTS FOR THE INDUSTRIAL STORMWATER GENERAL PERMIT .....</b>	<b>3</b>
PERMIT OVERVIEW .....	3
STORMWATER POLLUTION PREVENTION PLAN (SWPPP) .....	3
SAMPLING AND TESTING .....	3
<i>Additional testing requirements</i> .....	4
VISUAL INSPECTIONS .....	8
CORRECTIVE ACTIONS .....	8
REPORTING AND RECORDKEEPING .....	8
<i>Reporting</i> .....	9
<i>Records retention</i> .....	9
<b>CHAPTER 2: OVERVIEW OF ANALYSIS .....</b>	<b>10</b>
<i>Definition of small and large businesses</i> .....	10
<i>Compliance costs included in the EIA</i> .....	10
<i>Compliance costs excluded from the EIA</i> .....	11
ANALYSIS OF FACILITIES INTENDED TO BE COVERED UNDER THE GENERAL PERMIT .....	12
DATA USED IN ANALYSIS .....	12
<b>CHAPTER 3: ESTIMATED COSTS FOR COMPLYING WITH THE PERMIT .....</b>	<b>14</b>
ESTIMATED COSTS FOR SAMPLING AND MONITORING .....	14
ESTIMATED COSTS FOR LAB ANALYSIS .....	15
ESTIMATED COST FOR VISUAL INSPECTIONS .....	16
ESTIMATED COST FOR RECORD RETENTION .....	16
TOTAL COMPLIANCE COSTS .....	16
CONCLUSION OF ESTIMATED COSTS .....	17
<b>CHAPTER 4: MITIGATION OF DISPROPORTIONATE IMPACTS .....</b>	<b>18</b>
IMPACT OF MITIGATION ON EFFECTIVENESS OF GENERAL PERMIT .....	19
MITIGATION MEASURES IN THE NEW GENERAL PERMIT .....	20
<i>SWPPP submittal requirement</i> .....	20
<i>Sampling</i> .....	20

<i>Total copper and lead analysis</i> .....	20
<i>Quarterly oil and grease sampling</i> .....	20
<i>Consistent attainment</i> .....	21
<i>Time extensions and exemptions for facilities subject to corrective actions</i> .....	21
<i>Corrective actions documented with SWPPP revisions rather than Level 1, 2 and 3 source control reports</i> .....	21
<i>Incorporation of plans in SWPPP</i> .....	21
<i>Training and certification</i> .....	21
<i>Notice of termination</i> .....	22

# Executive Summary

The Industrial Stormwater General Permit is a statewide permit that provides coverage for discharges of stormwater from industrial facilities. The permit specifically regulates discharges of stormwater to surface water bodies.

WAC 173-226-120 requires an economic analysis of any proposed water-quality general permit to serve the following purposes. The analysis must provide:

- A brief description of the compliance requirements of the general permit.
- The estimated costs for complying with the permit, based upon existing data for facilities intended to be covered under the general permit.
- A comparison, to the greatest extent possible, of the cost of compliance for small businesses with the cost of compliance for the largest ten percent of the facilities intended to be covered under the general permit.
- A summary of how the permit provides mitigation to reduce the effect on small businesses (if a disproportionate impact is expected), without compromising the mandated intent of the permit.

A small business is defined as any business entity, including a sole proprietorship, corporation, partnership, or other legal entity, that is owned and operated independently from all other businesses, and that has 50 or fewer employees.

## Costs to comply with the new permit

Depending on the industry sector of the facility, Ecology determined annualized compliance costs might be *\$500 - \$1,300 for small businesses and \$1,000 - \$2,500 for large businesses.*

Ecology used cost-to-sales ratio as the measure of proportionate impact. It is an approximate estimate of the percentage rise in costs caused by the permit. This is likely to be how the permit holder looks at compliance costs.

To calculate the ratio, Ecology divided annualized compliance costs by midrange annual sales. The cost-to-sales ratios fall as sales rise, so larger businesses—which employ more people, but have disproportionately higher sales—incur a lower cost per \$100 of sales. Ecology concluded, based on this result, that *the general permit has a disproportionate impact on small businesses.*

In all the typical cases analyzed, costs to comply are no higher than 0.075 percent of sales, which is only 7.5 cents per \$100 of sales. The numbers presented in this analysis show the typical large business is 7 to 30 times larger than the typical small business. At the same time, while a large business will possibly require more sampling than a small one, it does not need 10 times as much. Therefore, it is difficult to avoid disproportionate costs for smaller businesses, as small businesses will always be disproportionately impacted, relative to large businesses.

Ecology can offer very little mitigation without violating requirements of the state or federal water pollution control laws. However, the new permit does reduce some costs; these pertain mostly to all facilities, not only small businesses.

## Changes to the permit

The new permit removes the requirements for:

- New operations to submit Stormwater Pollution Prevention Plans (SWPPPs) to Ecology during the permit application process.
- Facilities to submit Level 1, 2, or 3 Source Control Reports to Ecology.
- Facilities to perform extensive and specific sampling criteria.
- Facilities to conduct total copper and total lead sampling/analysis if total zinc levels exceeded the limit for two consecutive quarters.
- Facilities to submit a Notice of Termination when they receive a Conditional No Exposure exemption.
- Facilities to conduct oil and grease sampling and lab analysis and replaces it with the requirement for a visual assessment of “oil sheen.”
- Existing facilities (in operation prior to the effective date of the permit) to complete public notice requirements during the permit application process.

The new permit gives:

- Facilities the option to request a modification of coverage to:
  - Get an extension to complete required corrective actions.
  - Receive an exemption from installing additional structural source control and/or treatment BMPs.
- Small businesses three years to ensure the personnel who conduct site inspections are trained and certified– large businesses have two years to comply with this requirement.
- Facilities the ability to incorporate other plans into SWPPPs.
- An exemption for sampling and analysis with the demonstration of “consistent attainment” of benchmarks.



# Chapter 1: Compliance Requirements for the Industrial Stormwater General Permit

## Permit overview

The Industrial Stormwater General Permit regulates stormwater discharges from industrial facilities to surface water bodies.

Ecology requires industrial facilities that conduct activities under specific Standard Industrial Classification (SIC) codes to apply for a permit if they discharge stormwater from their industrial areas to storm drains or directly to surface waters.

Ecology does not require facilities to get a permit if they retain all the stormwater on site (e.g., infiltrate into the ground, or discharge to sanitary sewer). If the facility has no potential to expose stormwater to pollutants, that facility may apply for a Conditional No Exposure Certificate so they are exempt from the general permit.

This statewide permit currently provides coverage for approximately 1,200 industrial facilities that discharge stormwater to waters of the state.

## Stormwater Pollution Prevention Plan (SWPPP)

All permit holders and applicants for coverage under this permit are required to develop a SWPPP for the permitted facility. The SWPPP must contain:

- A site map.
- A detailed assessment of the facility.
- A detailed description of the BMPs necessary to:
  - Provide all known, available and reasonable methods of prevention, control and treatment (AKART).
  - Comply with state water quality standards and applicable federal technology-based treatment requirements under 40 CFR 125.3.
- A sampling plan.

The SWPPP must also have proper selection and use of stormwater management manuals (SWMM).

## Sampling and testing

The general permit requires all facilities that discharge to non-303(d) listed water bodies to sample the stormwater discharge from designated locations at least once per quarter (4 times a year) as outlined in the SWPPP. The designated sampling locations must capture stormwater with the greatest exposure to significant sources of pollution. Each sample must be visually monitored for oil sheen and tested using the following 3 parameters:

1. Turbidity
2. pH
3. Zinc, Total

Facilities must also ensure the analytical methods used to meet the sampling requirements conform to the latest versions of the:

- *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136 or
- *Standard Methods for the Examination of Water and Wastewater* (APHA).

For each stormwater sample taken, facilities must record the following in the site log:

- Sample date, time, and location
- Method of sampling and method of sample preservation
- Name of person who performed the sampling

Facilities must also keep laboratory reports in the site log. All laboratory reports must include the following information:

- Date of analysis
- Parameter name
- CAS number
- Analytical method(s)
- Name of person who performed the analysis
- Method detection limit (MDL)
- Laboratory practical quantitation level (PQL) achieved by the laboratory
- Reporting units
- Sample result
- Quality assurance/quality control data

### **Additional testing requirements**

A variety of industrial groups are required to test for other pollutants that are likely to be present in their discharge. The costs for a representative selection of industrial groups are analyzed in Chapter 3. Table 1 lists the additional required tests for the selected industry. Ecology is also adding a new set of requirements for stormwater from Hazardous Waste Treatment, Storage and Disposal Facilities and Dangerous Waste Recyclers subject to Resource Conservation and Recovery Act (RCRA) Subtitle D.

*Table 1: Industry groups required to conduct additional testing*

<b>Industrial Group</b>	<b>Types of Pollutant</b>
Timber Product Industry and Paper Allied Products	<ul style="list-style-type: none"> <li>• Biological Oxygen Demand (BOD5)</li> <li>• Chemical Oxygen Demand (COD)*</li> <li>• Total Suspended Solids (TSS)*</li> </ul>
Air Transportation	<ul style="list-style-type: none"> <li>• Ammonia*</li> <li>• BOD5*</li> <li>• Nitrate/Nitrate, as Nitrogen</li> </ul>
Chemical and Allied Products, Food and Kindred Products	<ul style="list-style-type: none"> <li>• BOD5*</li> <li>• Nitrate/Nitrate, as Nitrogen*</li> </ul>

Industrial Group	Types of Pollutant
Primary Metals, Metals Mining, Automobile Salvage and Scrap Recycling, Metals Fabricating	<ul style="list-style-type: none"> <li>• Phosphorous, Total</li> <li>• Lead, Total (applies to 10xx, 5015, 5093, in MSGP)</li> <li>• Copper Total (applies to SIC 33xx, 10xx, 5093, in MSGP)</li> <li>• Total Petroleum Hydrocarbons (TPH)</li> </ul>
Hazardous Waste Treatment Storage, and Disposal Facilities and Dangerous Waste Recyclers	<ul style="list-style-type: none"> <li>• COD*</li> <li>• Ammonia, Total*</li> <li>• TSS</li> <li>• Arsenic, Total*</li> <li>• Cadmium, Total*</li> <li>• Cyanide, Total*</li> <li>• Lead, Total *</li> <li>• Magnesium, Total*</li> <li>• Mercury, Total*</li> <li>• Selenium, Total*</li> <li>• Silver, Total*</li> <li>• Total Petroleum Hydrocarbons (TPH)</li> </ul>
<p>* These pollutants are also required to be analyzed in EPAs Multi-Sector General Permit for Stormwater Discharges associated with Industrial Activities and therefore they are not analyzed. If the pollutant is not required by all sectors in the MSGP then, to be conservative, it is analyzed here.</p>	

## Visual inspections

Facilities must now conduct visual inspections of the site each month and document these inspections in the SWPPP. Each inspection shall consist of:

- Observations made at sampling locations and areas where stormwater is discharged.
- Observations for the presence of floating materials, visible sheen, discoloration, etc., in the stormwater discharge.
- Observation for the presence of illicit discharges.
- Verification that the descriptions of potential pollutant source required under this permit are accurate.
- Verification that the site map in the SWPPP reflects current conditions.
- Assessment of all BMPs that have been implemented.

## Corrective actions

Facilities that exceed benchmarks are required to follow the four level corrective action process outlined in the permit. The level of corrective action depends on the number of benchmarks exceeded. Please refer to Special Conditions-8 of the permit for details.

## Reporting and recordkeeping

The general permit sets reporting and recordkeeping requirements for all facilities.

## Reporting

Facilities must use Discharge Monitoring Report (DMR) forms to report the sampling data they collect each reporting period. The reporting periods and subsequent due dates for receipt of DMRs by Ecology are as follows:

*Table 2: Reporting Dates and DMR Due Dates*

Reporting Dates and DMR Due Dates		
Reporting Period	Months	DMR Due Date
1 <sup>st</sup>	January - March	May 15 <sup>th</sup>
2 <sup>nd</sup>	April – June	August 15 <sup>th</sup>
3 <sup>rd</sup>	July – September	November 15 <sup>th</sup>
4 <sup>th</sup>	October - December	February 15 <sup>th</sup>

## Records retention

Facilities must retain the following records on site for a minimum of 5 years:

- A copy of the permit.
- A copy of the permit coverage letter.
- Records of all sampling information.
- Inspection reports.
- Any other documentation of compliance with permit requirements.
- All equipment calibration records.
- All BMP maintenance records.
- All original recordings for continuous sampling instrumentation.
- Copies of all laboratory reports.
- Copies of all reports required by this permit.
- Records of all data used to complete the application for the permit.
- Any records that can substantiate compliance with the permit.

## Chapter 2: Overview of Analysis

This Economic Impact Analysis (EIA) estimates the costs of complying with the general permit. It also compares the costs of complying with the permit for small businesses, to the costs of compliance for large businesses, in order to determine whether the permit disproportionately impacts small businesses.

### Definition of small and large businesses

For the purpose of this study, a small business is an independent entity with 50 or fewer employees organized for the purpose of making a profit. Enterprises owned by larger corporations are excluded, as are not-for-profit and government enterprises. There are both small and large businesses that must comply with this permit.

The following SIC (Standard Industry Codes) Code Groups are required to obtain permit coverage. This activity does not have to be the primary activity for a facility; it only has to be part of a facility's activities.

*Table 3: Impacted Industries SIC Codes*

Impacted Industries SIC Codes					
10xx	12xx	13xx	14xx	20xx	21xx
22xx	23xx	24xx	25xx	26xx	27xx
28xx	29xx	30xx	31xx	32xx	33xx
34xx	35xx	36xx	37xx	38xx	39xx
4221	4222	4225	5015	5093	5191
4953	4952	2869	42xx	44xx	45xx
5171	40xx	41xx	43xx		

### Compliance costs included in the EIA

According to WAC 173-226-120, the EIA must estimate the costs of the following:

- Minimum treatment technology
- Monitoring
- Reporting
- Recordkeeping
- Plan submittal
- Equipment
- Supplies
- Labor
- Administrative costs

The following table is a summary of the permit requirements, and the last column indicates whether Ecology is required to consider the costs associated with each section for the economic analysis.

*Table 4: Compliance costs included in the EIA*

<b>Requirement</b>	<b>Condition Number</b>	<b>Basis of Requirement</b>	<b>Required to be in EIA</b>
Submittal of application for coverage	S2.A	Federal	No
Development of SWPPP	S3	Federal	No
General sampling requirements	S4	Federal (once/year) State (quarterly)	Yes, 3 extra samples
Specific sampling parameters			
Core parameters	S5.A	State	Yes
Industry-specific parameters	S5.B	Federal and State <sup>1</sup>	Yes
Industries with effluent limits	S5.C	Federal	No
Sampling discharges to impaired waters			
Discharges to 303(d)-listed waters	S6	State <sup>2</sup>	No
Discharges to waters with TMDLs	S6	State <sup>2</sup>	No
Inspections	S7	Federal (quarterly) State (monthly)	Yes, 8 extra inspections
Corrective Actions	S8	State <sup>3</sup>	No
Reporting and Recordkeeping			
Reporting DMRs	S9.A	Federal	No
Records Retention	S9.B	Federal (3 years) State (all 5 years)	Yes, 2 extra years
Non-Compliance	S9.D	Federal	No

## **Compliance costs excluded from the EIA**

The cost of complying with permit conditions required by the following laws and rules are not included in the EIA's analysis of compliance costs:

1. State Groundwater Quality Standards (WAC 173-200)
2. State Surface Water Quality Standards (WAC 173-201)
3. State Sediment Management Standards (WAC 173-204)
4. Wastewater Discharge Permit Fees (WAC 173-224)

<sup>1</sup> Some of the specific sampling requirements are in the Federal Multi-Sector General Permit (MSGP) and therefore they will not be analyzed. However, any sampling requirements not in the MSGP will be analyzed.

<sup>2</sup> MSGP largely defers to the appropriate state authority. Sampling requirements in Ecology's permit are primarily a state requirement. However, since the benchmarks are based on the acute water quality criterion in WAC Chapter 173-201A, the economic analysis is not allowed to consider these sampling costs.

<sup>3</sup> MSGP does not require eventual compliance with all benchmarks and therefore the corrective action and adaptive management set in this permit are primarily a state requirement. However, these benchmarks and the adaptive management conditions are necessary to comply with WAC 173-201 (Water Quality Standards) and are therefore exempt from the economic analysis.

5. Federal law and regulations, in particular the Clean Water Act and federal NPDES regulations.

The justification for excluding compliance costs related to these laws and rules is that permit holders cannot be exempt from these laws through the permit process and, therefore, any cost impacts of these laws and regulations cannot be mitigated. Permit holders must comply with existing regulation independent of permit requirements.

Facilities covered under the existing permit are already expected to be in compliance with the majority of the new general permit's requirements. They have already incurred some or all of the costs of complying with the permit. However, even though a certain compliance cost has been incurred in the past, it is still a cost of compliance.

## **Analysis of facilities intended to be covered under the general permit**

The permit involves six different levels of monitoring for different industry sectors. One of these sectors, Hazardous Material Recyclers and TSDs, has at least nine companies in the state and a very different list of tests for monitoring so we analyzed them separately.<sup>4</sup>

The other sectors are large with a wide variety of company types, so we analyzed a representative sector in each of these five groups. The criteria for "representative" are below:

1. The analysis required the use of data sources built on the old Standard Industrial Classification (SIC) system together with sources, which use the new North American Industry Classification System (NAICS). Therefore, there must be a reasonable "mapping" between a given SIC sector and some corresponding NAICS sector(s).
2. The sector must have a mix of large and small businesses in Washington.
3. Within the previous two criteria, the sector should be as highly represented as possible among holders of the stormwater general permit (permit-holders are still classified by SIC).

## **Data used in analysis**

The first step in the calculation is to estimate a range of sales for small and large firms within the given sector. For each sector chosen, sales and employment are taken from the Economic Census 2002 (which uses NAICS). These data are presented in Table 5 below.

These figures yielded an average level of sales per employee in the sector within Washington. Firm size data are then gathered from the County Businesses Patterns (CBP) 2004. The CBP data give numbers of firm in certain size ranges defined by the number of employees (for instance, how many firms in an industry have 1 to 4 employees, or 5 to 9 employees, etc.). These data are also presented in Table 5.

---

<sup>4</sup> The economic data for this subset was drawn from a larger group.

By taking the mid-points of these employee ranges, we can derive a range of typical sizes for both small and the 10 percent of firms that are the largest in the industry. These data are also presented in Table 5.

Multiplying these firm sizes by the sales-per-employee numbers derived in the first step of the calculation described above, we get estimates of average sales by small and large firms in the sector. This data is presented in Table 6.

*Table 5: Sales and Employment Data*

<b>Sales and Employment Data</b>						
<b>Descriptions</b>	<b>1987 SIC</b>	<b>2002 NAICS</b>	<b>2002 Economic Census</b>		<b>County Business Patterns</b>	
			<b>Sales</b>	<b>Paid Employees</b>	<b>Average Employees</b>	
					<b>Small</b>	<b>Large</b>
Refuse Systems	4953	5622, 562920	\$929,778,000	5,837	15.6	221.4
Sawmills and Planning Mills, General	2421	321113, 3219	\$3,165,378,000	14,421	12.7	203.6
Airports, Flying Fields & Airport Terminal Services	4581	4881	\$379,504,000	4,629	15.3	513.9
Prepared Fresh or Frozen Fish and Seafood	2092	311712	\$1,138,017,000	6,580	20.2	300.0
Scrap and Waste Materials, Metals	5093	423930	\$420,058,000	1,508	9.0	100.0
Hazardous Waste: Treatment Storage Disposal	4953	562211, 562112	\$852,193,000	5,184	17.8	124.5

*Table 6: Calculations*

<b>Calculations</b>					
<b>Descriptions</b>	<b>1987 SIC</b>	<b>2002 NAICS</b>	<b>Sales per Employee</b>	<b>Estimated Sales</b>	
				<b>Small</b>	<b>Large</b>
Refuse Systems	4953	5622, 562920	\$159,290	\$2,480,800	\$35,271,443
Sawmills and Planning Mills, General	2421	321113, 3219	\$219,498	\$2,785,934	\$44,683,484
Airports, Flying Fields & Airport Terminal Services	4581	4881	\$81,984	\$1,250,256	\$42,683,484
Prepared Fresh or Frozen Fish and Seafood	2092	311712	\$172,951	\$3,489,539	\$51,885,274
Scrap and Waste Materials, Metals	5093	423930	\$278,553	\$2,518,394	\$27,855,305
Hazardous Waste: Treatment Storage Disposal	4953	562211, 562112	\$164,389	\$2,927,390	\$20,466,441



# Chapter 3: Estimated Costs for Complying with the Permit

Compliance costs are dependent on size of the facility. In this chapter, Ecology estimated ranges of costs for most requirements—a low cost and a high cost. The low cost estimate is for small facilities and the high cost estimate is for large facilities. Some requirements have the same cost for small and large businesses.

Most of the major assumptions used in making the compliance cost estimates are presented in this chapter. In general, we assume that large facilities will have twice as many samples and requirements will take twice as long to complete. In addition, assumptions used in making estimates of capital costs are included. Capital costs are annualized to compare them to services facilities provide annually.

It is necessary to annualize costs because some costs are annual (incurred every year), while other costs are capital costs (incurred once). For example, equipment for pH testing is a one-time capital cost, while monitoring is an annual cost that must be incurred every year.

## Estimated costs for sampling and monitoring

All facilities must sample and monitor their discharges four times a year. Water Quality Program staff provided estimates for the employee time needed to carry out each of the major tasks required by the permit, divided into time of professional or supervisory personnel and time of other employees.

The draft economic analysis of 2005 used labor costs of \$67.37 per hour for professional or supervisory personnel and \$21.56 per hour for employees. These costs included salaries, benefits and overhead. For the present study, the costs are brought up to date by applying a 4.7 percent inflationary factor 2006-2009.<sup>5</sup>

The calculations in Table 7 are based on \$70.52 for professional or supervisory personnel and \$22.57 for employees. For activities associated with monitoring (such as sample collection, record keeping, reporting), large firms are assumed to require twice as much labor as small firms, to reflect greater sampling activity.

---

<sup>5</sup> U.S. Department of Commerce: Bureau of Economic Analysis, Gross National Product: Implicit Price Deflator <http://research.stlouisfed.org/fred2/data/GNPDEF.txt>

Table 7: Labor Costs for Sampling and Monitoring Small and Large Businesses

<b>Labor Costs for Sampling and Monitoring Small and Large Businesses</b>				
	<b>Small Businesses</b>		<b>Large Businesses</b>	
	<b>Prof/Sup</b>	<b>Staff</b>	<b>Prof/Sup</b>	<b>Staff</b>
Sampling	1 – 2 hr	6 – 12 hr	2 – 4 hr	12 – 24 hr
Training	0 – 2 hr	0 hr	0 – 4 hr	0 hr
Recordkeeping	0 hr	2 – 4 hr	0 hr	4 – 8 hr
Total Time	1 – 4 hr	8 – 16 hr	2 – 8 hr	16 – 32 hr
Cost	\$71 - \$282	\$181 - \$361	\$141- \$564	\$361 - \$722
Total Annual Labor Cost	<b>\$251 - \$643</b>		<b>\$502 - \$1,286</b>	

## Estimated costs for lab analysis

The permit also requires samples to be sent to a laboratory for analysis. In 2007, Ecology surveyed the three primary labs used by TSDs regarding their fees for various water quality parameters. These values have been indexed to 2009 dollar values. This provided average fee levels for each of the monitoring parameters required by the stormwater general permit.

It is assumed that small firms will have 1 sample analyzed for each parameter, while large firms will have 2 samples analyzed for each parameter, to reflect the probability that sampling in more than one location would be necessary to capture the impact of a large installation. These lab fees only include the cost for analyzing parameters that are not required in the Federal Multi-Sector General Permit.

Table 8: Annual Laboratory Fees

<b>Annual Laboratory Fees</b>				
<b>Sector</b>	<b>SIC</b>	<b>Testing Group</b>	<b>Small</b>	<b>Large</b>
Refuse Systems	4953	Basic	\$135	\$269
Sawmills and Planning Mills, General	2421	Timber Products etc	\$162	\$323
Airports, Flying Fields, and Airport Terminal Services	4581	Air Transportation	\$99	\$199
Prepared Fresh or Frozen Fish and Seafood	2029	Chemicals and food	\$162	\$323
Scrap and Waste Material	5093	Primary metals etc	\$448	\$895
Hazardous Waste: Treatment, Storage & Disposal	4953	TSDs	\$394	\$787

In 1998 Ecology's Lab Accreditation Program surveyed environmental laboratories to get information on equipment requirements for pH testing. For a sample to be valid, pH testing needs to be done immediately after a sample is drawn. Ecology annualized values for long-term purchase based on a 3 percent real rate of interest and a 5-year period of use.

A suitable pH meter and probe was assumed to cost \$225, with annual replacement parts costs of \$56.<sup>6</sup> For the low cost estimate, facilities were assumed to already own the equipment, leaving only the annual purchase of replacement parts. Large firms were assumed to have twice the replacements parts costs, to reflect increased sampling. There are no lab fees for pH analysis because pH testing is done on site.

<sup>6</sup> Indexed from 1995 values. Some facilities are not subject to pH limits and can therefore use litmus paper rather than having to use a meter. This is a considerable savings, so the inclusion of the meter cost in the analysis is a conservative assumption, tending to make the estimated compliance costs higher than the actual compliance costs.

Table 9: Equipment Costs for pH Testing

Equipment Costs for pH Testing		
	Small	Large
Initial Cost, Annualized	\$0 - \$49	\$0 - \$49
Annual Replacement Cost	\$56 - \$56	\$113 - \$113
Total Annual Cost	\$56 - \$105	\$113 - \$162

## Estimated cost for visual inspections

Facilities are required to visually inspect their site each month and document the inspection in the SWPPP. The Federal MSGP requires only quarterly inspections, so Ecology estimated the cost for the additional 8 inspections. Ecology assumes visual inspection will take a small businesses .5 hours and large businesses 1 hour. Ecology assumes a staff wage of \$22.57 per hour.

Table 10: Inspection Costs for Small and Large Businesses

Inspection Costs for Small and Large Businesses								
Method	Small Businesses				Large Businesses			
	Hours	Frequency	Duration	Annual Cost	Hours	Frequency	Duration	Annual Cost
Visual Inspection	0.5 hr	1/month	8 months <sup>7</sup>	\$90	1 hr	1/month	8 months <sup>7</sup>	\$181

## Estimated cost for record retention

Facilities must retain records on site for a minimum of five years. The cost of complying with this provision is the cost of storing records. This cost is likely very low or close to zero.

## Total compliance costs

This section presents the total costs of compliance for facilities under the Industrial Stormwater General Permit.

<sup>7</sup> Ecology requires inspections for all 12 months, but the Federal MSGP requires inspections 4 times per year, so we have analyzed the additional 8 inspections.

Table 11: Total Compliance Costs for Industrial Stormwater Permit Holders

Total Compliance Costs for Industrial Stormwater Permit Holders					
Sector	SIC	Small		Large	
		Low	High	Low	High
Refuse Systems	4953	\$532	\$973	\$1,065	\$1,898
Sawmills and Planning Mills, General	2421	\$559	\$1,000	\$1,119	\$1,952
Airports, Flying Fields, and Airport Terminal Services	4581	\$496	\$937	\$995	\$1,828
Prepared Fresh or Frozen Fish and Seafood	2092	\$559	\$1,000	\$1,119	\$1,952
Scrap and Waste Material	5093	\$845	\$1,286	\$1,691	\$2,524
Hazardous Waste: Treatment, Storage & Disposal	4953	\$791	\$1,232	\$1,583	\$2,416

## Conclusion of estimated costs

The cost-to-sales ratios fall as sales rise. Ecology concluded, based on this result, that *the general permit has a disproportionate impact on small businesses.*

However, two points are important to keep in mind with regard to this conclusion.

1. At its highest, the permit represents 0.075% of average sales or 7.5 cents per \$100.
2. The underlying factor is that permit compliance costs do not scale up in line with the size of a business. The numbers presented in this analysis show the typical large business is 7 to 30 times larger than the typical small business. At the same time, while a large business will possibly require more sampling than a small one, it does not need 10 times as much. Therefore, it is difficult to avoid disproportionate costs for smaller businesses and still assure compliance with the water quality standards.

Table 12 shows the cost-to-sales ratio for typical state Industrial Stormwater Permit compliance costs as a percentage of midrange annual sales for both small and large businesses for each sector.

Table 12: Cost-to-Sales Ratio for Small and Large Businesses Industrial Stormwater Permit Holders

Cost-to-Sales Ratio for Small and Large Businesses Industrial Stormwater Permit Holders							
Sector	SIC	Midrange Sales		Small		Large	
		Small	Large	Low	High	Low	High
Refuse Systems	4953	\$2,480,800	\$35,271,443	0.021%	0.039%	0.003%	0.005%
Sawmills and Planning Mills, General	2421	\$2,758,934	\$44,683,484	0.020%	0.036%	0.003%	0.004%
Airports, Flying Fields, and Airport Terminal Services	4581	\$1,250,256	\$42,130,674	0.040%	0.075%	0.002%	0.004%
Prepared Fresh or Frozen Fish and Seafood	2092	\$3,489,539	\$51,885,274	0.016%	0.029%	0.002%	0.004%
Scrap and Waste Material	5093	\$2,518,394	\$27,855,305	0.034%	0.051%	0.006%	0.009%
Hazardous Waste: Treatment, Storage & Disposal	4953	\$2,927,390	\$20,466,441	0.027%	0.042%	0.008%	0.012%

# Chapter 4: Mitigation of Disproportionate Impacts

If the compliance cost ratio is higher for small businesses than for large businesses, then small businesses are disproportionately impacted. Ecology concluded in Chapter 3 that this is the case for the reissued NPDES General Permit for Industrial Stormwater.

The general permit rule (WAC 173-226-120) requires that disproportionate economic impacts of general permits on small businesses be reduced, when it is both legal and feasible to do so.

Legality and feasibility are determined by the legal context of existing state and federal regulations, such as the State Water Pollution Control Act (Chapter 90.48 RCW) and the federal Clean Water Act. Cost impacts on small businesses are reduced by modifying the conditions of the permit.

Mitigation involves one or more of the following:

- Establishing differing compliance or reporting requirements or timetables for small businesses.
- Clarifying, consolidating, or simplifying the compliance and reporting requirements under the general permit for small businesses.
- Establishing performance rather than design standards.
- Exempting small businesses from parts of the general permit.

Ecology amended the general permit to mitigate its impacts on small businesses as follows.

The new permit removes the requirements for:

- New operations to submit Stormwater Pollution Prevention Plans (SWPPPs) to Ecology during the permit application process.
- Facilities to submit Level 1, 2, or 3 Source Control Reports to Ecology.
- Facilities to perform extensive and specific sampling criteria.
- Facilities to conduct total copper and total lead sampling/analysis if total zinc levels exceeded the limit for two consecutive quarters.
- Facilities to submit a Notice of Termination when they receive a Conditional No Exposure exemption.
- Facilities to conduct oil and grease sampling and lab analysis and replaces it with the requirement for a visual assessment of “oil sheen.”
- Existing facilities (in operation prior to the effective date of the permit) to complete public notice requirements during the permit process.

The new permit gives:

- Facilities the option to request a modification of coverage to:
  - Get an extension of time to complete required corrective actions.
  - Receive an exemption from installing additional structural source control and/or treatment BMPs.
- Small businesses 3 years to ensure the personnel who conduct site inspections are trained and certified—large businesses have two years to comply with this requirement.
- Facilities the ability to incorporate other plans into SWPPPs.

- An exemption for sampling and analysis with the demonstration of “consistent attainment” of benchmarks.

Mitigation measures must comply with state and federal requirements.

The general permit rule requiring Economic Impact Analysis (WAC 173-226-120) states that mitigation only needs to be undertaken when it is legal and feasible in meeting the stated objectives of the federal Clean Water Act, and Chapter 90.48 RCW, the State Water Pollution Act. This provision is an important restriction. If a proposed mitigation measure violates federal law or regulations, or if it violates state statute or rules, then it cannot be undertaken.

The conditions of the general permit based on federal regulations are requirements of federal law. Significant mitigation of these conditions would be a violation of federal NPDES program regulations, which establish effluent standards. Because these conditions are a consequence of federal law, they cannot be mitigated, and the compliance costs associated with them cannot be reduced. The general permit must contain effluent limits that are at least as strict as federal effluent standards, to mitigate their impact on small businesses.

Conditions required to meet the AKART requirement of the state Water Pollution Control Act (Chapter 90.48 RCW) are also legal requirements that Ecology cannot allow permit holders to violate. Thus, compliance costs based on the AKART requirement also cannot be mitigated.

Ecology also places conditions in general permits to ensure discharges do not violate the state surface water quality, ground water quality, or sediment management standards (173-200, 173-201, 173-204, 173-224 WAC). These conditions are legal requirements that Ecology cannot allow permit holders to violate. Compliance costs associated with these permit conditions cannot be mitigated.

The above circumstances severely limit Ecology’s ability to reduce cost impacts on small businesses. Only costs imposed by permit conditions that are stricter than those required by the above laws can be legally mitigated. Because, for the most part, the permit simply contains conditions needed to comply with these laws, usually only minor mitigation measures can legally be undertaken. The cost reductions that result are usually small.

## **Impact of mitigation on effectiveness of general permit**

The general permit rule states mitigation only needs to be undertaken when it is legal and feasible in meeting the stated objectives of the Clean Water Act and Chapter 90.48 RCW, the State Water Pollution Control Act. Even if a proposed mitigation measure is legal, if it would limit the general permit’s effectiveness in controlling water pollution too much, it should not be undertaken.

Ecology has reduced the cost of the permit where possible. Reducing costs does not remove the disproportionate impact. The size of the facilities’ impermeable surface, nature of the industrial activity, and installation and maintenance of best management practices determines the quantity and quality of the stormwater discharge. Given this, there is no reason to believe small businesses will have a small stormwater impact simply because they have fewer employees. Therefore, there is no basis that would allow Ecology to be more lenient on small businesses without an unreasonable risk of violating federal or state water quality laws and rules.

A discharge of pollutants to receiving water requires a permit. If Ecology issues a general permit that allows people to harm the quality of the water receiving the discharge then Ecology would be in violation of state and federal law. Ecology hopes the benchmarks coupled with the adaptive management strategy in the general permit will allow dischargers to meet water quality standards without excessive costs. Nonetheless, the elements in the following section can potentially reduce the cost of the permit. Most of the mitigation presented is not only for small businesses, but applies to all facilities and therefore will benefit small businesses as well.

## **Mitigation measures in the new general permit**

### **SWPPP submittal requirement**

The permit no longer requires facilities to submit Stormwater Pollution Prevention Plans (SWPPPs) to Ecology as part of the permit application process. This is intended to reduce the burden and time delays associated with getting coverage under the general permit.

The completeness or accuracy of the SWPPP is a permit compliance issue and is not necessary to determine if a facility should be covered under the general permit. The permit still contains the ability for Ecology, local governments, and the public to obtain a copy of a permittee's SWPPP to assess the facility's compliance with the SWPPP permit conditions.

### **Public notice requirement**

The permit no longer requires existing, but previously unpermitted, facilities to complete public notice requirements during the permit application process. This change is consistent with WAC 173-226-130(5), which requires unpermitted facilities to complete public notice requirements only if they meet the definition of a "new operation". WAC 173-226-030(16) defines new operation as "an operation that begins activities that result in a discharge, or potential discharge to waters of the state, on or after the effective date of the general permit."

### **Sampling**

The permit no longer includes complex criteria for when stormwater samples may be collected. This will reduce the burden on permitted facilities, which were previously required to track weather information to ensure that the collected samples meet the criteria for sampling. In some cases, this change will allow facilities to collect their own samples, instead of hiring a consulting firm to track weather conditions and collect samples.

### **Total copper and lead analysis**

The permit no longer contains the requirement for total copper and total lead sampling/analysis to be conducted in future discharges if total zinc was exceeded for two consecutive quarters.

### **Quarterly oil and grease sampling**

The permit removed the requirement for all facilities to conduct quarterly oil and grease sampling and lab analysis. This requirement has been replaced with the requirement for a quarterly visual assessment to determine if stormwater has a "visible oil sheen."

## **Consistent attainment**

The permit allows suspension from certain sampling and analysis parameters when facilities receive “consistent attainment” of benchmark values during eight consecutive samples. Consistent attainment on any given set of monitoring parameters exempts the facility from sampling and analysis on that particular set of parameters for the remaining term of the permit.

## **Time extensions and exemptions for facilities subject to corrective actions**

The permit requires facilities that exceed the benchmarks multiple times to perform escalating levels of pollution prevention measures (i.e., install additional BMPs, with a goal of meeting benchmarks in future discharges). These BMPs need to be installed within specified timeframes to remain in compliance with the permit. The new permit includes a mechanism that allows facilities to request an extension to install the necessary structures.

In addition, the facility may request an exemption from having to install additional BMPs, if the additional BMPs are not feasible or not necessary to prevent violations of water quality standards. When requested, Ecology may grant time extensions or waivers if site-specific information supports the request, and the extension or waiver is approved through a modification of permit coverage per WAC 173-226-200(3)(f).

## **Corrective actions documented with SWPPP revisions rather than Level 1, 2 and 3 source control reports**

The new permit changes the way facilities document the completion of corrective actions. Specifically, the permit no longer requires facilities to submit Level 1, 2, or 3 Source Control Reports to Ecology. The new permit requires facilities to make appropriate revisions to the SWPPP and certify that the SWPPP is consistent with the permit and applicable stormwater management manual.

At Levels 1 and 2, the revised SWPPP would be kept on site, except at Level 3, the revised SWPPP must be submitted to Ecology.

## **Incorporation of plans in SWPPP**

The new permit allows facilities to incorporate, by reference, other plans (or portions of plans) prepared for other purposes at their facility. This reduces the potential burden that would occur if a facility had to restate or duplicate portions of plans that were already required for compliance with different regulations or laws. For example, portions of the Pollution Prevention Plan prepared under the Hazardous Waste Reduction Act, Chapter 70.95C RCW, could simply be referenced (rather than physically restated or duplicated) to comply with the Industrial Stormwater General Permit.

## **Training and certification**

The new permit requires facilities to ensure that site inspection and visual monitoring are done by personnel who have completed a training and certification program. The permit allows 3 years for small businesses to comply with this training and certification requirement, and 2 years for permittees who don't meet the definition of small business (50 or fewer employees).



## **Notice of termination**

The new permit removed the requirement for facilities to submit a Notice of Termination when they receive a Conditional No Exposure exemption. This removes an administrative burden on facilities, and ensures that permit related costs are cancelled as soon as possible after receiving a Conditional No Exposure exemption.