

CHAPTER ONE

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has considered four regulatory options to address stormwater discharges from active construction sites. For Option 1, EPA considered enhanced inspection and BMP certification requirements, with other permit requirements based on BPJ, for sites where one acre of land or more is disturbed. For Option 2, EPA considered technology-based effluent limitation guidelines and standards (ELGs) for stormwater discharges from construction sites where 5 acres or more of land are disturbed. This option also included enhanced inspection requirements and certification of Best Management Practices (BMPs). As another option (Option 3), rather than establishing ELGs, EPA considered allowing technology-based permit requirements to rely on the existing National Pollution Stormwater Discharge Elimination System (NPDES). This is referred to as EPA's no-action option. As a last option (Option 4), EPA considered the Option 2 ELGs, but eliminated the enhanced inspection and BMP certification requirements.

The deposition of sediment discharged from construction sites contributes to the loss of capacity in small streams, lakes, and reservoirs. Mitigation efforts are required to repair loss of stream capacity and include dredging or replacement. The options requiring establishment of ELGs or inspection and certification procedures could significantly reduce the amount of sediment discharged from active construction sites. The Preamble to the Final Action discusses EPA's decision among instituting an ELG covering construction and development activities, requiring inspection and certification procedures, and allowing permits based on BPJ. This report provides the economic information EPA used to make the decision on which action to undertake.

This EA presents EPA's analysis of the incremental compliance costs and the economic impacts of the final options. The EA details the options that the Agency considered for the Final Action. The report covers financial impacts to establishments in the construction and development (C&D) industry, potential impacts on consumers, and market and secondary impacts on the national economy, such as employment and output. The EA also presents small business analyses to comply with the Regulatory

Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA). It includes cost-benefit analyses required under Executive Order 12866 and the Unfunded Mandates Reform Act (UMRA). Additionally, the EA presents information on environmental justice and children's health.

This chapter begins with a discussion of the current regulatory environment in the C&D industry. Section 1.1 provides background useful for understanding the regulatory baseline for the C&D economic analysis. To determine the baseline, EPA assumed 100 percent compliance with the Phase I and Phase II stormwater requirements and applicable state regulations. EPA also used the Development Document for the Effluent Guidelines for the Construction and Development Point Source Category (Technical Development Document) (U.S. EPA, 2004a) to identify states that have requirements equivalent to EPA's regulatory options.

Chapter One includes five additional sections. Section 1.2 presents EPA's reasons for considering the ELG and the inspection and certification provisions, as well as the "no-rule" option for the final decision. Section 1.3 identifies the potentially affected sectors of the C&D industry. Section 1.4 provides an overview of key data sources used in the development of this EA. Section 1.5 discusses some of the major comments received on the EA for the proposal, and Section 1.6 provides an outline for the remainder of this report.

1.1 EXISTING REGULATORY FRAMEWORK

The Federal Water Pollution Control Act, also known as the Clean Water Act (CWA), was passed by Congress in 1972 to "restore and maintain the chemical, physical, and biological integrity of the nation's waters" (33 U.S.C. § 1251 (a)), sometimes referred to as "fishable, swimmable" criteria. The CWA establishes a comprehensive program for protecting our nation's waters. Among its core provisions, the CWA prohibits discharging pollutants from a point source to waters of the United States without a NPDES permit. Under Title III, the CWA also provides for the development of technology-based effluent limitations that are imposed through the NPDES permit framework to control direct discharges of pollutants.

The CWA was amended in 1987 to provide for implementation of a comprehensive national program for addressing municipal and industrial stormwater discharges (Water Quality Act of 1987, Pub. L. 100-4, February 4, 1987). Section 402(p) of the CWA requires that industrial, municipal, and other stormwater dischargers designated by EPA obtain NPDES permits. In response to these amendments, EPA has promulgated two rules that contain provisions affecting the C&D industry. These regulations, commonly referred to as the Phase I (55 FR 47990) and Phase II (64 FR 68722) stormwater rules, require NPDES permits for construction activities disturbing more than 1 acre and discharging stormwater. Phase I was promulgated on November 16, 1990, with permit requirements taking effect in 1992. Phase II was promulgated on December 22, 1999, with permit requirements taking effect in March 2003.

The C&D industry is currently regulated under NPDES permit requirements for construction activities disturbing more than 1 acre. Construction activities disturbing 5 acres or more are covered under the Phase I requirements while construction activities disturbing between 1 acre and 5 acres are covered under the Phase II requirements. Phase II requirements took effect on March 10, 2003.

The Phase II requirements for the C&D industry are implemented through the NPDES program. The implementation tool is either EPA's Construction General Permit (CGP) in states without their own authorized NPDES program or a permit issued by a state that is authorized as a NPDES permit administrator. The national CGP issued by EPA applies in those areas where EPA Regions 1, 2, 3, 5, 6, 7, 8, 9 and 10 are the NPDES permitting authorities. (The CGP recently became available in EPA Region 6.) EPA Region 4 has their own version of the CGP, which applies only in those areas where the respective Region is the NPDES permitting authority. Permits required by NPDES programs can also be issued through one of EPA's ten regions (as described above) or through an authorized state/territory NPDES permitting authority. At this time, 44 states have NPDES permitting authority.² EPA also issues stormwater permits in nondelegated states, on tribal lands, and in most territories.

² With the exception of Alaska, Arizona, the District of Columbia, Idaho, Massachusetts, New Hampshire, and New Mexico, all states have some level of NPDES permitting authority. Even in states with NPDES permitting authority, EPA could be responsible for issuing permits for activities conducted at federal facilities and/or on tribal lands.

EPA's CGP was initially issued in 1992 to cover the Phase I requirements and, because permits must be renewed every five years, was renewed in 1998. These permits covered only construction activities on sites larger than 5 acres. The 1998 permit was renewed in July 2003. This revision of the CGP incorporates the small construction activity permitting requirements of the Phase II rule, which covers sites from 1 to 5 acres. It requires permittees (including the newly affected builders and developers of the smaller Phase II sites) to prepare a stormwater pollution prevention plan (SWPPP) for C&D activities. The permit lists options and goals for other erosion and sediment controls (ESCs), and the SWPPP must contain a description of any ESCs used, but there are no *required* elements.³ Options and goals for post-construction BMPs are also contained in the CGP, but none are specifically required. As with ESCs, those BMPs selected for use, if any, must be described in the SWPPP. The new CGP also continues to apply to the original Phase I activities (those disturbing 5 acres of land or more). The national CGP and the general permits currently used by NPDES permitting authorities are intended to be used as templates for the small construction permits.

The Phase II regulations also provide waivers for construction activities disturbing between 1 and 5 acres of land in instances where:

- Activity occurs during a negligible rainfall period (rainfall erosivity factor of less than five), or
- A Total Maximum Daily Load (TMDL) or equivalent analysis addresses the pollutants of concern, leading to a determination that stormwater controls are not necessary for construction activity. (64 FR 68735).

These waivers acknowledge that variance in regional factors, such as climate, annual rainfall patterns, and existing hydrology, affect the incidence and magnitude of stormwater runoff.

EPA has encountered some difficulties in implementing Phase II. First, one portion of the rule was remanded. The remanded portion applies to municipal separate storm sewer systems (MS4s), but not to construction. Additionally, EPA has postponed the permit application date for oil and gas

³ For sites with 10 acres or more of disturbed area, the CGP does require installation of temporary sediment basins.

construction activity that disturbs 1 to 5 acres (i.e., sites covered under the Phase II rule) until March 10, 2005. All other provisions of the Phase II requirements have been implemented under the current CGP. This fact leads to EPA's baseline assumption that Phase II, as it applies to the C&D activities applicable to the regulatory options under consideration, is fully in effect.

1.2 PURPOSE OF THE REGULATORY OPTIONS

The existing NPDES stormwater regulations require construction site operators to manage construction site runoff, but do not require any specific level of control. Two of the options under consideration (Options 2 and 4) are designed to establish ELGs in the form of minimum standards for design and implementation of erosion and sediment controls used during the active phase of construction.

Existing compliance determination practices for construction site stormwater controls rely principally on site inspections by local governments. Enforcement efforts are reported to be uneven nationwide, largely due to limited enforcement resources at the federal, state and local levels. Option 1 is designed to establish site inspection and certification requirements, but without the ESC standards. Option 2 (but not Option 4) also establishes minimum requirements for conducting site inspections and providing certification as to the design and completion of various aspects of those controls. These requirements could strengthen the current permit program.

1.3 INDUSTRIES POTENTIALLY AFFECTED BY THE REGULATORY OPTIONS

This report focuses on the major C&D industries potentially affected by the options considered by EPA. Table 1-1 identifies these industries according to both their North American Industry Classification System (NAICS) and Standard Industrial Classification (SIC) codes.⁴ A detailed description of these C&D industries can be found in Chapter Two of this report.

⁴ The NAICS system recently replaced the SIC system.

Table 1-1. Industries Potentially Affected by the Regulatory Options

Regulated Entities	North American Industry Classification System Code (NAICS)	Standard Industrial Classification Codes (SIC)^a
Land subdivision and development	23311	6552
Single-family housing construction	23321	1521, 1531, 8741
Multifamily housing construction	23322	1522, 1531, 8741
Manufacturing and industrial building construction	23331	1531, 1541, 8741
Commercial and institutional building construction	23332	1522, 1531, 1541, 1542, 8741
Highway and street construction	23411	1611, 8741
Bridge and tunnel construction	23412	1622, 8741
Water, sewer, and pipeline construction	23491	1623, 8741
Power and communication transmission line construction	23492	1623, 8741
Excavation contractors	23593	1794
Wrecking and demolition contractors	23594	1795

^a Some parts of the SIC Industries are included in other NAICS industry classifications.
Source: U.S. Census Bureau 1997 Census of Construction

1.4 OVERVIEW OF KEY DATA SOURCES

A common data source used to support the development of many past ELGs is the CWA section 308 industry survey. For this rulemaking process, however, EPA determined that such a survey should not be undertaken. This decision led to the use of existing data sources, including academic literature, industry trade associations, and government data, such as that provided by the U.S. Census Bureau. Major data sources are discussed in more detail where they are used to support sections of this analysis. This section provides an overview of several key sources and their importance to the economic analysis of the proposed C&D ELG.

Of primary importance in the development of this EA were the 1992 and 1997 results of the Census of Construction, conducted by the U.S. Census Bureau every five years. The census provided information on the industry sectors potentially affected by the proposed rule, as well as characteristics of each sector, such as employment and revenue levels. Questionnaires for the 2002 Census of Construction were mailed in December 2002. Responses were due by February 12, 2003, but many extensions of time to file were granted. Once they are received, responses are coded and checked before the data are released. The Census Bureau will not release data until they are thoroughly reviewed and consistent. The Bureau has not yet scheduled a date for release of Census of Construction data but expects to release information in 2004 and 2005. EPA does not have access to the new census data for this EA.

EPA used several other reports from the Census Bureau that are updated more frequently than the Census of Construction, including:⁵

- Report C20 – Housing Starts
- Report C25 – Characteristics of New Housing
- Report C30 – Value Put in Place
- Report C40 – Building Permits

All of these reports contributed to the various economic models developed for this EA.

The U.S. Department of Agriculture's (USDA's) Natural Resources Inventory (NRI) was used to determine the amount of disturbed acreage caused by urbanization and new development. This information was important to the environmental assessment, the benefits assessment, and as a way to determine the rate of new development.

EPA also used data collected from permits issued by existing NPDES permitting authorities. Currently, regulation of C&D activity is triggered when a builder/developer files a notice of intent (NOI) with the permitting authority. Permitting authorities record these NOIs in order to track development

⁵ These reports are available at the following web address: <http://www.census.gov/const/www/>.

within their jurisdiction. EPA obtained copies of NOI databases for NPDES-approved states and for those non-authorized states where EPA acts as the NPDES permitting authority.⁶ The databases contained a wide variety of information, such as total site size, disturbed acreage, project type (e.g., residential, nonresidential), and project ownership status (public or private). EPA planned to use this information to estimate the number of stormwater starts. The databases, however, lacked the level of detail EPA wanted to generate reliable estimates. In addition, inconsistencies in the type of data collected and coverage made it difficult to compare the databases with one another. Although EPA could not use these databases in the manner hoped, they were useful for generating rough estimates of the number of permits issued nationwide, as a check on the permit estimates reported by the Census Bureau. EPA did not conduct further analysis on these databases prior to a final decision on the action concerning a C&D ELG.

An additional source of information for the development of the economic analysis (described in Section 4.2) was a series of focus groups held with representatives of the National Association of Home Builders (NAHB). These focus groups helped EPA understand the process of construction project development and provided estimates of data elements most helpful in building economic models. These estimates were used when no other national-level data from other sources (such as the Census Bureau) were available. EPA continues to rely on some of these data where no alternative data are available.

Some of the data and methodologies used in the Phase II EA were also used in this rulemaking effort. These sources and methods are described in detail in Chapters Four, Five, and Six.

EPA received several comments on the sources of data used in the EA. Two comments were of special note. First, the Multi Housing Council and the National Apartment Council commented on EPA's solicitation of data on the financial conditions of multifamily builders and developers. They provided alternative assumptions about the length of time to complete a project and financing (i.e., whether these projects are financed separately from related projects by the same firms). EPA reviewed the information provided and found it valid for use in modeling multifamily projects. Chapter Four discusses these changes in more detail. Second, NAHB had similar issues with EPA's assumptions about single-family projects, stating that they are of longer duration and are rarely cross-subsidized by other ongoing projects

⁶ NPDES permits are fully administered by EPA in six states plus Washington, DC. In other states, EPA acts as the permitting authority for activities only on Indian and/or federal lands.

in the same firm. NAHB also questioned the validity of the focus group data. EPA reviewed the data that NAHB collected and their data collection techniques. Although the survey response rate was extremely low (less than 20 percent) and other aspects of the survey design could not be assessed, EPA has adopted some of the results in its analysis. More information can be found in Chapter Four.

Note that other key comments on the economic analysis are discussed where they are relevant in the report, along with summaries of EPA's responses. The complete comments with EPA's responses can be found in the Summary of Public Comments with Responses Based on the Proposed Effluent Limitations Guidelines for Construction and Development (U.S. EPA, 2004b) (Response to Comments Document).

1.5 MAJOR COMMENTS ON THE ECONOMIC ANALYSIS FOR THE PROPOSAL

EPA received numerous comments on the proposal, some of which pertain to the economic and/or the benefit-cost analyses. Some of the more significant comments, either due to the number of comments received or their impact on EPA's decision to modify certain analyses for the final action, are discussed below. Other comments that indirectly relate to the economic analysis, such as comments on EPA's cost analysis and comments on individual benefits categories, are not considered direct comments on EPA's economic analysis. Comments in these areas can be found in EPA's Response to Comments Document. For the most part, those comments not summarized here are discussed as they become relevant to the discussion in this EA. Detailed responses to all economics comments, including the ones summarized below, can be found in EPA's Response to Comments Document.

Many of the commenters on the economic analysis were concerned that the economic impacts on the industry, consumers, or the housing market itself would be too high if Options 1 or 2 were selected. EPA acknowledges that Options 1 or 2 could result in some impacts, but does not judge the economic achievability of these options in this report. See the Response to Comments Document.

Many commenters were concerned that EPA was proposing options (Options 1 and 2) that had a low benefit-cost ratio and felt EPA should not promulgate a rule where the costs outweighed the benefits to such an extent. EPA notes that the CWA does not require EPA to consider a strict comparison of the costs and benefits of an effluent guideline. Although EPA does consider the costs and benefits of the options in deciding which action to take, it does not solely rely on cost/benefit ratios in choosing an option for the Final Action. See EPA's Federal Register Notice for EPA's choice of option for the Final Action and reasoning behind that choice. EPA also notes, however, that costs are relatively easy to quantify, while benefits can be very difficult to quantify, and it may be even more difficult to assign a dollar value to them. The Agency continues to work on developing methodologies that could allow more accurate quantification of benefits in future rulemakings.

A few commenters were concerned that EPA had ignored a large segment of small operations—those constructing one to four houses per year, or those primarily involved with remodeling. EPA emphasizes that those building one to four houses per year or those primarily involved with remodeling are unlikely to *disturb* an acre of land or more. Some commenters seemed confused by the difference between total land developed and disturbed acreage. The disturbed acreage will generally be much less than the total acreage developed. Those who build one to four houses per year generally build one house at a time and often on nonadjacent lots. Even if they build four houses as part of one development, the construction of four houses is unlikely to disturb an entire acre. This is also true of firms primarily in the remodeling industry. EPA continues to believe that the assumption that remodeling operations and those constructing one to four houses per year will not disturb 1 acre of land or more at any one time is a valid one for the economic analyses.

Additionally, one commenter noted that EPA's analysis did not include firms with no employees. These firms do all of their construction work through subcontractors. The commenter pointed out that EPA's analysis does not account for impacts on subcontractors. EPA agrees that firms without employees could trigger compliance costs. Unfortunately, there are very little data available to characterize the impact of the regulation on such firms. EPA's analysis shows that, generally, these firms are very small, and their revenues generally fall in a range that is unlikely to be associated with the amount of work that would result in the disturbance of an acre or more of land. A few such firms, however, might have revenues in the ranges typically seen for firms that EPA does consider affected. Such firms could be characterized by the volume of business they do rather than their number of employees and, therefore,

might resemble firms EPA has analyzed. EPA assumes firms with no employees, doing a similar amount of business (measured as revenues) as those modeled in the analysis, will exhibit similar impacts and the percentage of firm impacts will not change.

Impacts on subcontractors were also raised as an issue by the same commenter. EPA believes that most additional costs to the subcontractor would be passed to the developer (since all potential subcontractors will take into account the additional work needed to meet requirements and submit bids reflecting this additional work). Even if this assumption is not true, costs would be shared between several subcontractors, limiting impacts further.

The same commenter was concerned that, because firms with no employees were not included in the count of firms, EPA had underestimated costs of compliance. EPA did not use a count of firms to estimate costs. Costs were estimated by multiplying the costs of compliance on a per-acre basis by the number of estimated acres disturbed in each type of construction activity (single family, multifamily, commercial, and industrial).

EPA received substantial, detailed comments from NAHB. A key source of confusion was the fact that numbers appearing in Chapter Four of the proposal EA were only examples to demonstrate how the methodology worked, rather than actual results. Tables in Chapter Five show the numbers used in the models to produce the actual reported results. Additional points of confusion are addressed in the Response to Comments Document. EPA has made substantial efforts to identify portions of the EA that NAHB found confusing and to ensure that these portions are clearer to the uninitiated reader. Chapter Four now clearly identifies which numbers are being used as examples only and indicates that similar numbers in Chapter Five are the actual numbers used in the analysis to produce the results seen. Additionally, EPA has substantially rewritten both Chapters Four and Five to make them clearer to the uninitiated reader.

As noted in Section 1.4, NAHB, the National Multi Housing Council, and the National Apartment Association commented on certain specific methodological issues and provided alternative data to replace assumptions on duration of projects, timing of expenditures (believing certain expenditures should be assumed to occur in the first year), and financial independence of individual projects from other projects a firm could have underway. EPA reviewed the information and, although it

had some reservations, concluded that the information provided or referenced by the associations provided valid assumptions for the modeling. Thus, EPA now considers single-family and multifamily projects to be independent projects (not cross-subsidized by other projects) and has set the duration of single-family projects to four years and multifamily projects to nine years. EPA, however, has not changed timing assumptions. As it did at proposal, EPA assumes that all costs are incurred in the first year of a project. This assumption tends to overstate costs to the extent that costs are incurred later in a project, but only to a very small degree (see Chapter Four).

NAHB commented that the data derived from the focus groups was anecdotal and suggested that EPA should have done a survey. EPA agrees that the data is anecdotal, but some of these focus group data are now augmented by data submitted by NAHB. The remaining data, although anecdotal, is still the only information available. Furthermore, the focus groups were attended by many of NAHB's own members, who are highly respected for their knowledge of the industry and who have every motivation to provide reasonable, if not fairly conservative, assumptions about their industry. NAHB was also concerned by EPA's use of a 14-community study to determine the portion of land disturbed, saying the sample was too small to provide useful data. The commenter did not, however, provide alternative data. EPA did not perform a section 308 survey, which would have been the only alternative to using the focus group and 14-community data. EPA, however, balances the burden to respondents with the additional benefits of more precise data. Many effluent guidelines in the past have forgone section 308 surveys and have been supported by similar types of information from focus groups and/or trade associations. In addition, many analyses have relied on assistance from these types of groups in the development of model facilities. EPA must sometimes rely on less than ideal data for decisionmaking purposes. EPA has done the best job it could with less than perfect data and has followed a reasonable approach in the use of that data.

EPA received numerous comments on the elimination of post-construction requirements, both for and against. Those against dropping the post-construction requirements suggest that EPA found them economically achievable and that the benefits significantly outweighed the costs. EPA reiterates that the Agency never proposed controls on post-construction discharges and did not seek comment on such measures. EPA discusses the reasons for the elimination of post-construction requirements in the Preamble to the proposal.

NAHB seemed confused by the purpose of EPA's various cost passthrough analyses. The organization did not seem to understand that the zero cost passthrough and the 100 percent cost passthrough analyses are alternative bounding analyses. NAHB was concerned that EPA had ignored impacts on consumers in the zero cost passthrough analysis and ignored industry in the 100 percent cost passthrough analysis. The analysis that EPA uses to assess the impacts on both industry and consumers simultaneously is the market analysis, which predicts a high proportion of cost passthrough, but not 100 percent. The other two analyses were undertaken only to determine the maximum possible impact on industry and consumers separately. EPA received no other comments on the ability of the C&D industry to pass through a large portion of costs or that raised issues with EPA's use of three cost passthrough assumptions (zero, 100 percent, and a market-based percentage).

One commenter thought EPA should clarify the baseline from which impacts are measured. EPA has provided a discussion of the baseline assumptions in Section 1.2 and Chapter Four, Section 4.1.1.

One commenter noted that EPA did not evaluate oil and gas projects and, therefore, did not determine if the proposed regulation is economically achievable for this industry. EPA's Final Action will not affect oil and gas projects.

1.6 REPORT ORGANIZATION

This EA report is organized as follows:

- **Chapter Two** contains the Industry Profile, which provides background information on the establishments and industry sectors potentially affected by the proposed rule.
- **Chapter Three** summarizes and discusses the options EPA considered in this decisionmaking process.
- **Chapter Four**, Economic Impact Analysis Methodology, explores the data, methodology, and analyses used in the determination of project, firm, and market-level impacts due to incremental stormwater control costs incurred under each of the options considered.

- **Chapter Five** presents the impacts of the options considered on the project level, firm level, and national and regional levels. This chapter also includes a discussion of other potential impacts of the options considered according to Executive Order 12866, including regional and social impacts.
- **Chapter Six** contains information for use in the Final Regulatory Flexibility Analysis (FRFA) and the small business analysis under the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA).
- **Chapter Seven** summarizes the methodology and results of EPA's benefits analysis, which is presented in the Technical Development Document.
- **Chapter Eight** looks at the costs and benefits of the options considered for the Final Action using the benefits assessment described in Chapter Seven. Here, EPA presents an assessment of the nationwide costs and benefits of the options considered pursuant to Executive Order 12866 and the Unfunded Mandates Reform Act (UMRA).
- **Chapter Nine** presents a discussion of the results of analyses pertaining to additional UMRA requirements.

1.7 REFERENCES

U.S. EPA, 2004a. Development Document for the Effluent Guidelines for the Construction and Development Point Source Category. Washington, DC: U.S. Environmental Protection Agency, EPA-821-B-04-001.

U.S. EPA, 2004b. Summary of Public Comments with Responses Based on the Proposed Effluent Limitations Guidelines for Construction and Development. Washington, DC: U.S. Environmental Protection Agency.