January 2015
PE 14-13-567

SPECIAL REPORT

DIVISION OF MINING AND RECLAMATION
DEPARTMENT OF ENVIRONMENTAL PROTECTION

AUDIT OVERVIEW

The Average Amount of Time the Division of Mining and Reclamation Takes to Issue National Pollution Discharge Elimination System Permits for Coal Mining Operations Increased Significantly for Several Reasons; However, Issuance Times Are Returning to Normal Levels and the Administration of the West Virginia Water Pollution Control Act and the United States Clean Water Act Is Improved.

WEST VIRGINIA LEGISLATIVE AUDITOR
PERFORMANCE EVALUATION & RESEARCH DIVISION

JOINT COMMITTEE ON GOVERNMENT OPERATIONS

Senate

Herb Snyder, Chair
Mike Green, Vice-Chair
Sam Cann
Rocky Fitzsimmons
Craig Blair
Evan H. Jenkins

House of Delegates

Jim Morgan, Chair
Dale Stephens, Vice-Chair
Brent Boggs
Eric Nelson
Ruth Rowan

Agency/ Citizen Members

John A. Canfield
Terry Lively
W. Joseph McCoy
Kenneth Queen
Vacancy

JOINT COMMITTEE ON GOVERNMENT ORGANIZATION

Senate

Herb Snyder, Chair
Ronald F. Miller, Vice-Chair
Sam Cann
Donald Cookman
Rocky Fitzsimmons
Mike Green
Art Kirkendoll
Ronald Stollings
Bob Williams
Jack Yost
Craig Blair
Donna J. Boley
Evan H. Jenkins
Dave Sypolt

House of Delegates

Jim Morgan, Chair
Dale Stephens, Vice-Chair
Gary G. Howell, Minority Chair
Tom Azinger
Joshua J. Barker
Mike Caputo
Phil Diserio
Jeff Eldridge
Ryan Ferns
William G. Hartman
Ronnie D. Jones
Timothy Kinsey
Brady Paxton
Margaret D. Smith
Margaret A. Staggers
Randy Swartzmiller
Karen Arvon
Scott Cadle
Larry Faircloth
Michael Folk
Larry D. Kump
Joshua Nelson
William Romine
Anna Sheppard
Randy Smith

WEST VIRGINIA LEGISLATIVE AUDITOR

PERFORMANCE EVALUATION & RESEARCH DIVISION

Building 1, Room W-314
State Capitol Complex
Charleston, West Virginia 25305
(304) 347-4890

Aaron Allred	John Sylvia	Brian Armentrout	Keith Brown	Matthew Pauley
Legislative Auditor	Director	Research Manager	Research Analyst	Referencer

CONTENTS

List of Tables

List of Figures

List of Appendices

EXECUTIVE SUMMARY

This special report on the Division of Mining and Reclamation's National Pollution Discharge Elimination System (NPDES) program for coal mining operations**,** was completed as authorized under the Legislative Auditor's authority, Chapter 4, Article 2, Section 5 of the *West Virginia Code,* as amended. The report contains one issue area focusing solely on the timeliness of NPDES application reviews, prior to and during the United States Environmental Protection Agency's review of draft permits.

Frequently Used Acronyms in This Report:

AEPP: Aquatic Ecosystem Protection Plan
AMP: Adaptive Management Plan
CWA: United States Clean Water Act
DEP: West Virginia Department of Environmental Protection
DMR: West Virginia Division of Mining and Reclamation
EPA: United States Environmental Protection Agency
NPDES: National Pollution Discharge Elimination System
TDS: Total Dissolved Solids
WET: Whole Effluent Toxicity

Report Highlights:

Issue 1: The Average Amount of Time the Division of Mining and Reclamation Takes to Issue National Pollution Discharge Elimination System Permits for Coal Mining Operations Increased Significantly for Several Reasons; However, Issuance Times Are Returning to Normal Levels and the Administration of the West Virginia Water Pollution Control Act and the United States Clean Water Act Is Improved.

- Processing times more than doubled for applications submitted between FY 2009 and FY 2011 but have decreased back to pre-EPA levels by FY 2013.

- The Legislative Auditor found that the causes for the delays in issuing water discharge permits were: 1) the initiation of the U.S. Environmental Protection Agency's (EPA) review of West Virginia's National Pollution Discharge Elimination System in July 2009; 2) the need for the DMR to implement changes to its process for improved compliance with the U.S. Clean Water Act as recommended by the EPA; and 3) the need for more information from coal companies by the DMR to address the EPA's concerns.

- Prior to the EPA review, the DEP did not have did not have adequate internal control to ensure that the narrative standards were consistently applied to all permits to protect water quality and aquatic life throughout the state.

- With the creation of a formal narrative water quality policy, the DEP now has a consistent and uniform policies and procedures in place that provide greater assurance that permits are protecting narrative water quality standards throughout West Virginia.

PERD's Response to the Agency's Written Response

The Office of the Legislative Auditor's Performance Evaluation and Research Division received the Division of Mining and Reclamation's response to the draft copy of this special report on January 9, 2015. The agency concurred with the findings of the report. The response can be found in Appendix C.

ISSUE1

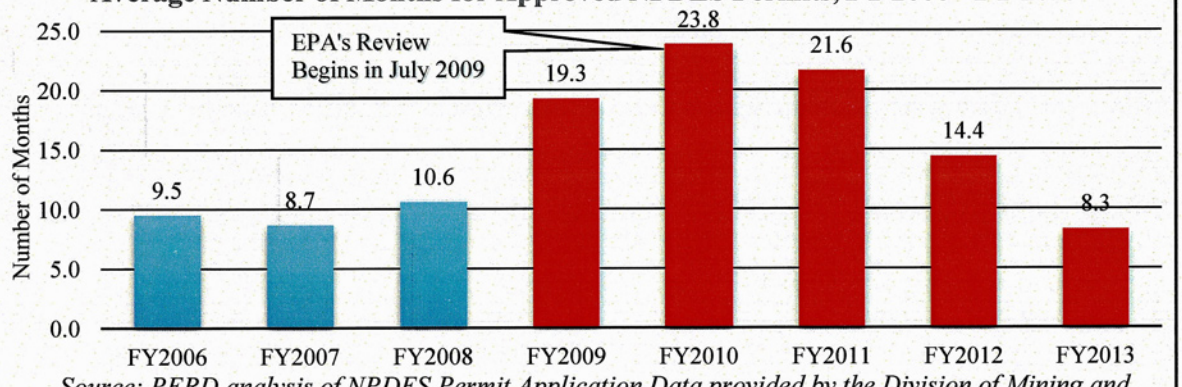
The Average Amount of Time the Division of Mining and Reclamation Takes to Issue National Pollution Discharge Elimination System Permits for Coal Mining Operations Increased Significantly for Several Reasons; However, Issuance Times Are Returning to Normal Levels and the Administration of the West Virginia Water Pollution Control Act and the United States Clean Water Act Is Improved.

The Legislative Auditor found that the causes for the delays in issuing water discharge permits were: 1) the initiation of the U.S. Environmental Protection Agency's (EPA) review of West Virginia's National Pollution Discharge Elimination System in July 2009; 2) the need for the DMR to implement changes to its process for improved compliance with the U.S. Clean Water Act as recommended by the EPA; and 3) the need for more information from coal companies by the DMR to address the EPA's concerns.

Issue Summary

Figure 1 shows the average amount of time the West Virginia Division of Mining and Reclamation (DMR) took to process water discharge permit applications needed for surface coal mining permits from FY 2006 - 2013. Processing times more than doubled for applications submitted between FY 2009 and FY 2011. The Legislative Auditor found that the causes for the delays in issuing water discharge permits were: 1) the initiation of the U.S. Environmental Protection Agency's (EPA) review of West Virginia's National Pollution Discharge Elimination System in July 2009[1]; 2) the need for the DMR to implement changes to its process for improved compliance with the U.S. Clean Water Act as recommended by the EPA; and 3) the need for more information from coal companies by the DMR to address the EPA's concerns.

Figure 1
Average Number of Months for Approved NPDES Permits, FY 2006 - FY 2013



Source: PERD analysis of NPDES Permit Application Data provided by the Division of Mining and Reclamtion, West Virginia Department of Environmental Protection.

Evidence suggests that the lengthier time to approve water discharge permits had an initial effect of delaying the issuance of permits for new surface coal mining. However, overall most surface coal mining

[1]*Although the EPA began its review in July 2009, the beginning of FY 2010, it affected applications submitted prior to July 2009, thus causing delays in FY 2009 applications.*

operations were not impeded because the Department of Environmental Protection (DEP) allowed ongoing surface coal mining to continue operating while companies waited for renewal permits to be issued for existing operations. Although the EPA's review of West Virginia's water discharge permit process initially lengthened the time to issue such permits, the issuance times are returning to normal levels and West Virginia's administration of the West Virginia Water Pollution Control Act on the U.S. Clean Water Act will be improved.

Although the EPA's review of West Virginia's water discharge permit process initially lengthened the time to issue such permits, the issuance times are returning to normal levels and West Virginia's administration of the West Virginia Water Pollution Control Act on the U.S. Clean Water Act will be improved.

The Legislative Auditor Initiated a Study of the EPA's Impact on the DMR's Timeliness of Issuing Water Discharge Permits for Surface Coal Mining.

In July 2012, the Performance Evaluation and Research Division (PERD) issued a report that showed the DMR was not meeting one of its permitting goals to make decisions within 12 months on 75 percent of surface mine and National Pollution Discharge Elimination Systems (NPDES) applications. An NPDES permit is necessary for all facilities, including surface coal mining, that discharge pollutants into the waters of the United States. In FY 2009 and FY 2010 the DMR made decisions on NPDES applications within 12 months in only 55 percent and 45 percent of the applications respectively. The slower performance could have negative effects on coal mining operations and environmental protection.

The Legislative Auditor reported in the 2012 performance review that three factors were likely negatively affecting the DMR's timeliness in issuing NPDES permits. They are:

1) an increase in position vacancies and staff turnover in the permitting unit,

2) a significant increase in the number of Freedom of Information Act (FOIA) requests the agency received, and

3) an increased scrutiny of applications for Clean Water Act and NPDES permits by the EPA.

In July 2012, the Performance Evaluation and Research Division (PERD) issued a report that showed the DMR was not meeting one of its permitting goals to make decisions within 12 months on 75 percent of surface mine and National Pollution Discharge Elimination Systems (NPDES) applications.

The Legislative Auditor did not determine in the 2012 report which of these three factors was the most significant. PERD found that the number of FOIA requests had increased; however, there were insufficient data to show how much time the DMR's permit review staff spent assisting DEP's Public Information Office in responding to FOIA requests related to coal mining permits. Moreover, although the increase in FOIA requests was a factor, it is unlikely the most significant reason for the decreased timeliness in the NPDES permit process. PERD

attempted to measure the turnover rate and its impact on the permit process; however, limitations in DEP's staffing data precluded such an analysis. The DMR agreed that staff turnover was a contributing factor, and it adopted PERD's recommendation to establish a goal for managing its turnover rate. However, the DMR asserted that the most significant factor in the lower timeliness of issuing NPDES permits was the increased scrutiny by the EPA. Since there has been such a significant drop in the timeliness of the NPDES permit process, and the less timely process impacts the environment and the coal mining industry, the Legislative Auditor decided to examine the impact of the EPA review as a follow-up to the 2012 report.

Since there has been such a significant drop in the timeliness of the NPDES permit process, and the less timely process impacts the environment and the coal mining industry, the Legislative Auditor decided to examine the impact of the EPA review as a follow-up to the 2012 report.

The EPA Invoked Its Right to Review the State's Water Discharge Permits for Surface Coal Mining Operations in July 2009 and Began Imposing Changes to Address What It Considered Significant Deficiencies.

There is clear evidence, as shown in Figure 1, that the slowdown of the NPDES permit process coincides with the EPA's decision in July 2009 to invoke its right to review draft NPDES permits associated with surface coal mining permits. Section 402 of the federal Clean Water Act grants the EPA authority over the NPDES program but stipulates that states may run their own programs if they apply and are approved by the EPA. The EPA may review states' NPDES permits or waive its review right. The EPA has in the past exercised its right to review certain aspects of West Virginia's NPDES permits. According to the EPA, the last time it did so was in 1998. In 2005, the EPA waived its review right of West Virginia. However, in July 2009 the EPA revoked its 2005 waiver and requested that the West Virginia Department of Environmental Protection (DEP) provide copies for its review of all draft NPDES permits for discharges associated with surface coal mining permits, currently pending NPDES permit applications and those received in the future. The EPA indicated that the purpose for invoking its review right "*was to ensure that permits contain the necessary effluent and monitoring conditions to achieve water quality standards, including narrative and numeric criteria, and incorporate NPDES regulatory requirements.*" While this statement regarding the EPA's purpose essentially includes all of the major components of a NPDES permit, **the EPA's primary focus has been on the DEP's interpretation and application of <u>narrative</u> water quality standards as opposed to <u>numeric</u> standards.**

There is clear evidence, as shown in Figure 1, that the slowdown of the NPDES permit process coincides with the EPA's decision in July 2009 to invoke its right to review draft NPDES permits associated with surface coal mining permits.

Water quality standards have two parts, one of which is the *numeric criteria* that sets the ambient levels of individual pollutants or parameters, and the second part is the *narrative criteria* that describe conditions of a water body that if met will generally protect the designated use of the water. The numeric criteria are **<u>values</u>** expressed as levels, constituents,

concentrations, toxicity units or numbers deemed necessary to protect designated water uses, while the narrative criteria are **statements** that describe the desired water quality goal, especially when a state does not have a numeric criteria for a pollutant or to limit toxicity when the toxicity cannot be traced to a specific pollutant. **The Legislative Auditor's review finds that the EPA has expressed significant concerns with the State's application of narrative water quality standards.**

The EPA's review is part of a larger reform initiative by the Obama Administration to better coordinate the various federal mine programs in the major coal producing states of the Appalachian region.

The EPA's review is part of a larger reform initiative by the Obama Administration to better coordinate the various federal mine programs in the major coal producing states of the Appalachian region. The purpose of the initiative is to, *"…reduce the environmental impacts of mountaintop coal mining in the six Appalachian states of Kentucky, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia."* To achieve this goal, the three federal agencies with regulatory authority involved—the EPA, the Department of the Interior, and the Army Corp of Engineers—announced an Interagency Action Plan that would tighten regulations and *"[e]nsure coordinated and stringent environmental reviews of permit applications under the Clean Water Act (CWA) and Surface Mining Control and Reclamation Act of 1997 (SMCRA)"* among other things. Additionally, the EPA stated that it would begin *"Strengthening [its] coordination with states on water pollution permits for discharges from valley fills and state water quality certifications for mountaintop coal mining operations."*

Evidence Suggests That Most of the Delay in Processing NPDES Permits Occurred Because the DEP Needed More Information From Coal Companies to Address the EPA's Concerns.

While it is clear that the EPA's review of the permit process is a defining factor in the slowdown, evidence suggests that other factors associated with the DEP and coal companies contributed to the slowdown.

A primary objective of this study is to determine the causes for the slowdown of the State's NPDES permit process. While it is clear that the EPA's review of the permit process is a defining factor in the slowdown, evidence suggests that other factors associated with the DEP and coal companies contributed to the slowdown. According to the DMR, the EPA review has contributed more time to the NPDES application process in two ways, as cited in the following statement:

> *…[T]he agency believes that the primary cause of the increase in NPDES permitting timeframes are changes that result from EPA involvement in the [permit application] review process on two levels. One is the time that results just from the process of EPA review…. A second, more significant element of the increase, …is the increase that results from the interjection of entirely new issues in coal mine permitting by EPA, EPA's attempt to override and supersede the State's interpretation of its own water*

quality standards and the moving target presented by EPA's shifting position on these issues.

In other words, having permits go through two separate reviews, the DMR and the EPA, as opposed to only the DMR contributes extra time to the permit process, and more importantly, the EPA has required the DMR to address new issues in the permitting process. The Legislative Auditor reviewed both of these factors to determine how much additional time each factor added. The new requirements imposed by the EPA are the result of it taking issue with the DMR's application of narrative water quality standards. However, the DMR sees this as the EPA's attempt to "override and supersede" the State's authority. More specifically, the DMR believes that, "Not only is EPA exercising its veto authority, it has completely taken control of all water-related permitting for mining activities."[2] Furthermore, the burden of the EPA review is compounded by what the DMR sees as inconsistencies or shifting positions in the EPA's stance over how narrative standards should be applied. While it is understandable that the DMR would perceive the EPA's review as intrusive, **the Legislative Auditor sought to determine if the additional changes imposed by the EPA are justified, and if actions by the DMR and coal companies also contributed to a slower process.**

The new requirements imposed by the EPA are the result of it taking issue with the DMR's application of narrative water quality standards.

The NPDES permit process consists of four major components, which are:

1) the Application Corrections stage,
2) the Draft Permit stage,
3) the Public and EPA Comment stage, and
4) the Final Approval stage.

This four-part process is made up of a series of actions completed by the applicant (coal companies), the DEP, and the EPA, as well as water testing labs and consultants who often handle the processing for coal companies. The corrections phase encompasses the time from when an application is submitted by a coal company to the date that the permit reviewer approves it. The corrections phase is where the DMR reviews the application and requests corrections and additional data from companies. By the time the application reaches the drafting phase, the information is complete and ready to be inserted into a draft of the permit with all the necessary limits and standards. The drafting phase begins with the date the permit application is approved and ends with the date the draft is completed or the date the company is notified to publish the advertisement (when included in the file). The commenting stage incorporates the time from the notice to publish the advertisement

[2] *West Virginia Department of Environmental Protection, "DEP Establishes Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia's Narrative Water Quality Standards." (News Release) 12 August 2010.*

to the close of the either the public comment period or the EPA comment period, whichever comes last. The EPA has a 30-day review period in which it can comment on or object to an individual state-issued permit. The final approval stage includes any action that occurs following the close of the comment phase through to issuance of the permit.

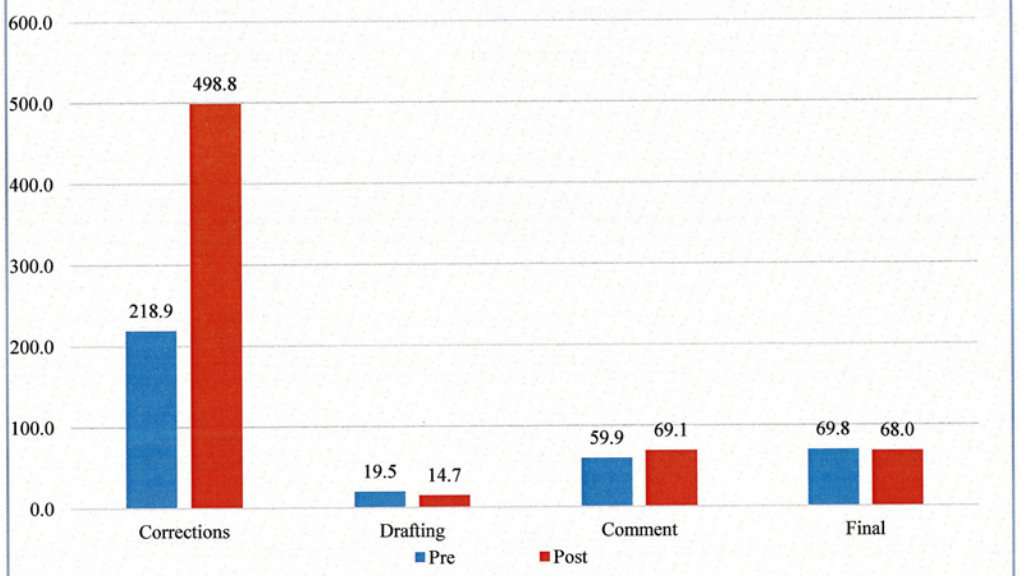
In order to measure the timeliness of the NPDES permit process and determine the causes for the slowdown, PERD took two samples of permit applications, one represented the Pre-EPA period of FY 2006-2009 and the other represented the EPA-Review period of FY 2010-2011. PERD took two test samples of 30 applications, one from each period, in order to gain an understanding of the application information and to estimate the standard deviations for determining the sample size needed for a 95 percent confidence interval of the sample means. The results from the test samples indicated sample sizes of 60 permits from the 1,594 permits issued in the Pre-EPA period, and 80 permits from the 502 permits issued in the EPA-Review period. The samples were stratified based on the three types of permits: new permits, modifications of existing permits, and renewals of existing permits.

After the permits were randomly selected, PERD staff reviewed digital versions of the permits archived on the Precision Information Services web-based database. These files contained digitized copies of the paper documents and archival versions of the applications from the DEP's e-Permitting database. The start and end dates for each pertinent activity was tracked and recorded as permits were reviewed. Once this information was compiled, PERD was able to establish the start and end dates of the four major components of the permit process.

Of the four major stages in the permit process, the corrections phase more than doubled following the EPA review, while the other three phases remained stable, including the final approval phase where the EPA's comments or objections would be addressed.

Figure 2 shows that of the four major stages in the permit process, the corrections phase more than doubled following the EPA review, while the other three phases remained stable, including the final approval phase where the EPA's comments or objections would be addressed. The average number of days for the corrections phase increased from approximately 219 days (7.3 months) to nearly 499 days (16.6 months). The commenting phase and final approval phases changed marginally, even in the face of the additional review by the EPA and any possible work that resulted from EPA comments or objections.

Figure 2
Comparison of the Average Number of Days for the Processing of NPDES Applications for the Pre-EPA and EPA-Review Groups



Source: Analysis performed by PERD using data submitted by the West Virginia Division of Mining and Reclamation

The increase in time occurring mostly in the corrections phase seems contradictory since the EPA generally would not be involved for review until it received the draft permit at the draft stage. However, it is important to note that when the EPA initiated its review in July 2009, it requested all pending permit applications, draft permits, and future applications for surface coal mining, and it would respond with comments or any objections within 30 days of receiving the draft permits consistent with the memorandum of agreement. Therefore, the DEP was learning at an early stage of the EPA's review of issues or objections to applications and draft permits. Consequently, the corrections phase was impacted by the EPA review through the DEP's attempt to address the EPA's concerns. **This suggests that the DEP was requiring new and additional information from coal companies that were not required prior to the EPA review.** The other phases of the permit process were primarily unaffected because the DEP had addressed the EPA's concerns in the corrections phase.

Consequently, the corrections phase was impacted by the EPA review through the DEP's attempt to address the EPA's concerns.

The following analysis confirms that the DEP was requesting more information from coal companies than in the Pre-EPA period as the EPA's objections became known. PERD examined the correspondence between the DMR and coal companies concerning corrections and requests for information from the Pre-EPA and EPA-Review samples of permit applications. Table 1 shows the results of this analysis. PERD measured the amount of time between the date the application was received and the date the DMR sent out its first request to a company. The length of

time the company took to respond was also measured from the date the request was made to when the company's response was received by the DMR. Oftentimes, the DMR may see the need for additional information after the first request is made or the company's response may generate the need for other information. When additional requests were made by the DMR, PERD calculated the number of days from the date the DMR received the company's previous response to the date the DMR sent out the additional request. This was intended to show how long it took the DMR to review companies' responses and determine if additional information was needed. Similar calculations were made to measure how long companies took to respond to each request.

Table 1 shows that the number of correction requests made by the DMR increased from an average of 2.6 in the Pre-EPA period to 6 correction requests per application in the EPA-Review period.[3] While an increase of approximately three requests for information may not seem significant, it is when you consider the total amount of time between each DMR request and a company's response. Table 1 shows that the average number of days between requests and company responses did not change considerably from the Pre-EPA period and the EPA-Review period. On average, the amount of time the DMR needed to review the application and a company's responses was 31 days in the Pre-EPA period and 34 days in the EPA-Review period. The time it took companies on average to respond to DMR requests was 40 days in the Pre-EPA period and 45 days in the EPA-Review period. Therefore, the complete turnaround per request on average was 71 days in the Pre-EPA period and 80 days in the EPA-Review period. **Therefore, an average of 3 additional informational requests from the DMR extended the permit process by as much as 240 days or nearly 8 months (3*80 days) on average.**

The number of correction requests made by the DMR increased from an average of 2.6 in the Pre-EPA period to 6 correction requests per application in the EPA-Review period. While an increase of approximately three requests for information may not seem significant, it is when you consider the total amount of time between each DMR request and a company's response.

Table 1
Analysis of DMR Requests and Company Responses During the Corrections Phase for the Pre-EPA and EPA-Review Periods

	Pre-EPA Period		EPA-Review Period	
	DEP	Companies	DEP	Companies
Average number of requests/corrections from the DMR to coal companies, and company responses.	2.6	2.6	6.0	6.0
Average number of days between each DMR request and companies' response.	31.2	40.4	34.6	45.4

Source: Results of PERD's study of NPDES applications based on archived files from the West Virginia Division of Mining and Reclamation's online database maintained by Precision Services.

[3] *A statistical test indicates that there is a significant difference between the two sample means of correction requests at a 95 percent confidence interval.*

The frequency distribution of the number of requests for more information by the DMR during the correction phase is shown in Table 2. The table shows that prior to the EPA involvement in the State's NPDES permit process, the large majority (73 percent) of permits required only two requests by the DMR for information on average. However, during the EPA-Review period, 72 percent of issued permits needed 3 to 10 requests for additional information on average. Again, this is significant because each request by the DMR and the response by companies had a combined average turnaround of 80 days.

Each request by the DMR and the response by companies had a combined average turnaround of 80 days.

Table 2
Frequency Distribution of the Number of Requests Made by the DMR to Companies as a Percentage of Permits for the Pre-EPA and EPA-Review Periods

	Pre-EPA Period	EPA-Review Period
0 – 2 requests by the DMR	73 %	14%
3 – 5 requests by the DMR	18%	46%
6 - 10 requests by the DMR	4%	26%
11 or more requests by the DMR	4%	14%
Total Percentage	100%*	100%

**The Pre-EPA period percentage does not add to 100 because of rounding error.*
Source: Results of PERD's study of a sample of NPDES applications from archived files from the West Virginia Division of Mining and Reclamation's online database maintained by Precision Services.

As PERD reviewed the Pre-EPA permits, we found that although the permits had the start and end dates of the major stages of the permit process, 15 of the 60 permits sampled did not have any correspondence between the DMR and coal companies. Some permit writers did not send everything to archives. Therefore, PERD could not determine in these 15 cases the number of requests made by the DMR, the nature of the requests, or the time frames in sending requests and companies' responses. However, PERD was able to determine that the corrections phase in these cases was on average 213 days compared to 218 for all 60 permits. This suggests that the length of time of the corrections phase for the permits with missing correspondence was close to the overall average length of time of the corrections phase for all permits. Therefore, the time frames in Table 1, and the frequency distribution in Table 2 for the Pre-EPA period are likely representative despite missing correspondence in 15 sample permits.

Prior to the EPA involvement in the State's NPDES permit process, the large majority (73 percent) of permits required only two requests by the DMR for information on average. However, during the EPA-Review period, 72 percent of issued permits needed 3 to 10 requests for additional information on average.

The Additional Requests by the DEP Were in Response to the EPA's Finding That Deficiencies Existed in the State's Narrative Water Quality Standards.

In the July 2009 letter from the EPA to the DEP that initiated the EPA review, the EPA requested all pending permits and any new applications. In its review, the EPA communicated to the DEP its findings, comments, objections, and recommendations through correspondence. PERD staff reviewed the correspondence dated from October 2009 through October 2010. The letters reflect that the EPA raised concerns on a variety of applications that the DEP lacked a formal written policy on how narrative water quality standards would be met in the NPDES permit process. As previously stated, narrative criteria for water quality are statements, as opposed to numeric criteria, that describe the desired water quality objective, especially when a state does not have numeric criteria for a pollutant or to limit toxicity when the toxicity cannot be traced to a specific pollutant. Although the State applied narrative standards to permits, without a formal written policy the DEP did not have adequate internal control to ensure that the narrative standards were consistently applied to all permits to protect water quality and aquatic life throughout the state. This was an important issue for the EPA, and the DEP felt that the lack of such a written policy was the primary reason that the EPA initiated its review of the State's NPDES permit process. The DEP stated that, "It became apparent in 2009 that the absence of a written plan to address narrative water quality criteria at the state level led the US Environmental Protection Agency to insert itself into the …permitting processes."

Although the State applied narrative standards to permits, without a formal written policy the DEP did not have adequate internal control to ensure that the narrative standards were consistently applied to all permits to protect water quality and aquatic life throughout the state.

Between October 2009 and October 2010 (the first 13 months of the EPA review), the majority of EPA letters included requests for DEP to address several narrative standard issues. PERD staff identified three primary issues contained in dozens of EPA letters associated with permits it reviewed. These three narrative standard issues included:

1. the potential effects of **conductivity** on aquatic life in streams affected by discharges from mining sites,
2. the need to include **in-stream and effluent monitoring** in permits, and
3. the recommendation that permits include the results of baseline bio-assessments and that in-stream monitoring include **biological monitoring**.

Between October 2009 and October 2010 the majority of EPA letters included requests for DEP to address several narrative standard issues, most notably: conductivity, in-stream and effluent monitoring, and biological monitoring.

These three issues were usually contained within the same EPA letters. The narrative standard issue of conductivity refers to the ability of inorganic dissolved solids, such as chloride, nitrate, and sulfate, to conduct an electric current within a body of water. According to a study conducted by the EPA: "observations of high conductivities in streams

below surface coal mining operations, especially mountaintop mining and valley fills, are associated with impairments of aquatic life." Surface coal mining can increase a stream's conductivity level when minerals dissolved from weathered rock are part of surface water runoff that enters the stream.

In 75 letters, the EPA requested that permits require a Reasonable Potential Analysis or Anti-degradation Analysis, either of which is intended to determine if Total Dissolved Solids (TDS), specific conductivity, and sulfates in proposed discharges for mining facilities had the potential to cause a deviation from the State's narrative water quality criteria. TDS refer to ion particles that can pass through a filter with pores of around two microns and the concentration of these particles can affect the water balance in the cells of aquatic organisms. Sulfates are a common-source of dissolved solid that contributes to a water body's conductivity level. In 53 letters, the EPA requested that the DEP include in-stream and effluent monitoring to evaluate TDS, specific conductivity, and/or sulfates. The third narrative standard issue was identified in 58 letters, in which the EPA recommended that the permit record include the results of baseline bio-assessments and that the in-stream monitoring program include biological monitoring using approved bio-assessment protocols used by the agency to assess attainment of biological use for purposes of Section 303(d) of the Clean Water Act.[4]

Surface coal mining can increase a stream's conductivity level when minerals dissolved from weathered rock are part of surface water runoff that enters the stream.

The EPA Review Has Resulted in the DEP Developing More Stringent Requirements for NPDES Permits in Order to Protect Narrative Water Quality Standards.

In summary, the DEP did not have a written policy regarding how narrative standards were to be met in the NPDES program, and the EPA encouraged the DEP to establish specific criteria for evaluating conductivity as a measure of water quality and address it under the narrative water quality standards. Water quality criteria can be expressed numerically or narratively to represent water quality that supports designated uses. West Virginia's narrative standards are stated in C.S.R. §47-2-3.2, under the subheading "Conditions Not Allowable In State Waters," which describes conditions or characteristics of water that are not allowed in any waters of the state, including:

3.2a Distinctly visible floating or settleable solids, suspended solids, scum, foam or oily slicks;

3.2.b Deposits or sludge banks on the bottom;

[4] *Bio-assessments are evaluations of the biological condition of a water body that use biological surveys of the resident biota. See, "A Stream Condition Index for West Virginia Wadeable Streams" (2000), pg. 1.*

3.2.c Odors in the vicinity of the waters;

3.2.d Taste or odor that would adversely affect the designated uses of the affected waters;

3.2.e Materials in concentrations which are harmful, hazardous or toxic to man, animal or aquatic life;

3.2.f Distinctly visible color;

3.2.g Algae blooms or concentrations of bacteria which may impair or interfere with the designated uses of the affected waters;

3.2.h Requiring an unreasonable degree of treatment for the production of potable water by modern water treatment processes as commonly employed; and

3.2.i Any other condition, including radiological exposure, which adversely alters the integrity of the waters of the State including wetlands; no significant adverse impact to the chemical, physical, hydrological, or biological components of aquatic ecosystems shall be allowed.

Without a written policy or guidelines for achieving these narrative standards, the DEP's permit writers did not have guidance on determining if a permit application had the potential to cause any of the narrative conditions listed.

Without a written policy or guidelines for achieving these narrative standards, the DEP's permit writers did not have guidance on determining if a permit application had the potential to cause any of the narrative conditions listed above and were forced to rely on inspectors' field observations to ensure compliance with the narrative water quality standards. Consequently, any requirements that permit writers placed in permits to uphold the narrative standards were not imposed consistently or uniformly. The EPA emphasized the need for the DEP to provide procedures to ensure that permits would not cause deviations from the narrative water standards throughout the State's NPDES program.

The EPA emphasized the need for the DEP to provide procedures to ensure that permits would not cause deviations from the narrative water standards throughout the State's NPDES program.

In response to the EPA's concerns, the DEP began developing a formal policy regarding the narrative water quality standard in August 2010, with DEP's release of the document entitled, *"Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia's Narrative Water Quality Standards."* The DEP developed the guidance document following the release of EPA's *"Comprehensive Guidance to Protect Appalachian Communities from Harmful Environmental Impacts of Mountaintop Mining"* on April 1, 2010. The EPA's guidance document stipulated that states were allowed to establish their own requirements, which DEP chose to do. According to the DEP, the Permitting Guidance document establishes, *"a holistic watershed monitoring approach through the use of biological and chemical monitoring, whole effluent*

toxicity (WET) testing, and the development of Aquatic Ecosystem Protection Plans (AEPP), and when necessary, Adaptive Management Plans (AMP)" to achieve narrative standards.

These requirements described in the Permitting Guidance document are listed in Table 3. The (WET) monitoring and limits the Adaptive Management Plans (AMP), and the Aquatic Ecosystem Protection Plans (AEPP) are new requirements for West Virginia coal mining NPDES permit developed during the EPA review. A WET limit is a specified numeric limit on an effluent, while WET testing is only a monitoring requirement that could lead to limits if test results show a significant enough increase in a pollutant to require establishing a limit. The other components listed in Table 3 were all part of the DMR's repertoire of regulatory tools, but they were not applied to all permits consistently. Some requirements were expanded under the new policy. For instance, chemical monitoring had always been a requirement; however, with the creation of the Narrative Guidance, monitoring requirements was expanded to include: Total Dissolved Solids, specific conductivity, sulfate, alkalinity, pH, calcium, magnesium, sodium, and potassium. Furthermore, the permittees are required to conduct this monitoring twice per month. These requirements listed in Table 3 are now standard procedures for each type of permit application as means to upholding the State's narrative water quality standards.

These requirements listed in Table 3 are now standard procedures for each type of permit application as means to upholding the State's narrative water quality standards.

Table 3
Narrative Water Quality Standards Requirements for NPDES Mining Permits Initiated Through the EPA Review

New Applications and Expansions (Modifications)	Renewals
WET Limits	WET Monitoring
Chemical Monitoring	Chemical Monitoring
In-Stream Biological Monitoring	In-Stream Biological Monitoring
Aquatic Ecosystem Protection Plan (AEPP)	Aquatic Ecosystem Protection Plan (AEPP)
Adaptive Management Plan (AMP), if necessary	Adaptive Management Plan (AMP), if necessary
Reopener Clause	Reopener Clause

Source: West Virginia DEP, "Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia's Narrative Water Quality Standards, 47 C.S.R. 2 §§3.2.e and 3.2.i.", August 12, 2010.

It should be noted that these requirements are not applicable to outlets that are primarily precipitation induced or for activities associated with outlets that are considered substantially completed.[5] The term "substantially complete" refers to an operation that is past the point when measures that could be undertaken under either an AEPP or an AMP could be effective in reducing the operation's impact on the aquatic ecosystem.

The DEP's New Permitting Guidance for Narrative Standards Shifted the EPA's Review on the DEP's Application of Its New Permitting Procedures.

In October 2010, shortly after the DEP formulated its Permitting Guidance document, the proportion of EPA letters containing comments and objections decreased significantly.

In October 2010, shortly after the DEP formulated its Permitting Guidance document, the proportion of EPA letters containing comments and objections decreased significantly. The biggest change following the release of the narrative guidance document was in the significant increase in the proportion of EPA responses with "no comment" or "did not review" statements. From October 2009 through October 2010, the number of no-comment letters accounted for only 16 percent (30 out of 184) of all EPA letters. However, from November 2010 to July 2012, 73 percent (303 out of 413) of EPA letters stated no comment. The overall decrease in the proportion of no-comment letters shows that the EPA was reviewing fewer draft permits and of the permits it was reviewing it was finding fewer issues with the State's narrative water quality standards.

Now that the DEP had an established policy for its narrative standard, the EPA's review was focused more on how the various components of the new policy were being applied.

Now that the DEP had an established policy for its narrative standard, the EPA's review was focused more on how the various components of the new policy were being applied. In PERD's review of EPA letters following the release of the DEP's narrative guidance document, we found that the most common request made by the EPA was for the DEP to establish effluent limits for conductivity. Between January and May 2012, the EPA had 16 requests for the DEP to assess the need for or to create effluent limits for conductivity or a related parameter (such as total dissolved solids or sulfates). The next most common request by the EPA was for the DEP to add a reopener clause to permits. The reopener clause is a component of the new Permitting Guidance that is a statement identifying that the DEP is authorized to reopen, modify, suspend, revoke, and reissue the permit if at any time information becomes available and demonstrates that the established controls do not attain and maintain the narrative water quality criteria. To a lesser extent, the EPA took issue with the DEP's application of the Aquatic Ecosystem Protection Plan, the application of WET requirements, and monitoring requirements. Overall, the decrease in the number of comment or objection-letters by

[5] *On bench outlets are drainage ditches and pools that are used to catch rainwater and prevent it from draining off the site, to ensure that the run-off can be monitored and treated as necessary.*

the EPA combined with the EPA's focus being primarily on the application of the State's new Permitting Guidance suggest that the DEP has made substantial progress in providing greater assurance that narrative water quality standards were being upheld. The DEP acknowledges that the EPA's comments and objections have eased over the last year. However, the EPA still comments and objects to new permits that include valley fills.

Overall, the decrease in the number of comment or objection-letters by the EPA combined with the EPA's focus being primarily on the application of the State's new Permitting Guidance suggest that the DEP has made substantial progress in providing greater assurance that narrative water quality standards were being upheld.

During the EPA Review, the DEP Gave Greater Priority to Processing Applications for New and Modified Coal Mining Operations Than Renewal Applications.

As this report indicates, the EPA's push for the DMR to address issues related to narrative water quality standards in the first 14 months of its review increased the processing times for many applications by requiring the DMR to respond to comments and objections on about one-third of draft permits it reviewed. According to the DEP, in order to implement the new narrative guidance, extensive training of staff and the mining industry was needed, and additional information was required from coal companies to complete their applications. This caused a significant backlog of NPDES permits. In addressing this backlog, the DEP altered its permitting priorities by giving preference to new and modification applications. This is indicated in the following statement:

> *WVDEP had to drastically alter its permitting priorities to accommodate the needs of mining operators who were facing serious challenges in obtaining the new permits and major modifications that were required to maintain valid permits and continue employment for their employees. Priority was given to these applications that were determined to be necessary to prevent job losses in the mining industry. Applications for activities where operations were at or nearing completion with no risk of job loss were given a lower priority.*

In the Pre-EPA period, renewals took the least amount of time to approve, 9 months on average, but under the EPA-Review period renewals took the longest, 21.6 months on average. This is a 140 percent increase compared to increases around 50 percent for new and modification applications.

The evidence indicates that the applications receiving low priority were renewals. Table 4 shows that renewal applications had a disproportionate increase in the length of time to be approved during the EPA-Review period compared to new and modification applications. In the Pre-EPA period, renewals took the least amount of time to approve, 9 months on average, but under the EPA-Review period renewals took the longest, 21.6 months on average. This is a 140 percent increase compared to increases around 50 percent for new and modification applications.

Table 4
Average Number of Months for a NPDES Permit to Be Issued
By Permit Type
Pre-EPA Period vs. EPA-Review Period

Permit Type	Pre-EPA	EPA-Review	Months Difference	Average Percentage Change
New Applications	14.2	21.5	7.3	51.4%
Renewals	9.0	21.6	12.6	140.0%
Modifications	9.6	14.4	4.8	50.0%

Source: Results of PERD's study of NPDES applications based on archived files from the West Virginia Division of Mining and Reclamation's online database maintained by Precision Services.

In addition to the DEP's re-prioritization, another impact to the disproportionate increase of time to approve renewals is that companies took longer to respond to DEP requests compared to requests associated with new and modification applications. Table 5 shows that the average amount of time for companies to respond to DEP requests increased for renewals by an average of 18 days, while response times decreased by an average of 10 days for new and modifications. New and modification applications generally are to establish new mining operations or modify current operations, which generally involve expanding current coal operations. Renewal applications, on the other hand, are for continuing ongoing mining operations. Therefore, companies have more of an incentive to have new and modification applications approved faster than renewals in order to expand mining. By rule, the DEP is required to specify the amount of time companies have to respond to DEP requests. PERD found that during the Pre-EPA period the DEP indicated in writing to companies that responses were due within 30 days. However, PERD found no written statements in the DEP's requests to companies specifying when responses were due. Moreover, with renewal applications taking much longer to approve, the DEP routinely extended current permits months beyond their expiration date in order to allow mining to continue.

Another impact to the disproportionate increase of time to approve renewals is that companies took longer to respond to DEP requests compared to requests associated with new and modification applications.

Table 5
Average Number of Days for Correction Requests and Responses by Companies Based on Permit Type Pre-EPA Period vs. EPA-Review Period

Permit Type	Pre-EPA		EPA-Review	
	DEP	Companies	DEP	Companies
Renewals	25	40	32	58
New and Major Modifications	35	39.5	38	29

Source: Results of PERD's study of NPDES applications based on archived files from the West Virginia Division of Mining and Reclamation's online database maintained by Precision Services.

While Additional Costs and Complexities Are Now Part of the Permitting Process, There Is Greater Assurance That Water Quality Will Be Protected.

The EPA review has clearly resulted in a more complex permit application review process. Since the DEP developed narrative water quality standards in response to the EPA's review, permit reviews have more detailed and longer rationale statements, and new requirements. The DEP indicated that its overtime costs increased substantially during the EPA review because permit writers had increased workload and needed more time to meet the additional conditions and requirements. The DEP's permits are also more stringent because more water testing and biological monitoring are now required, as part of the new standards under the narrative water quality policy. The additional testing and monitoring required by coal companies represent new regulatory costs; however, it is not known by how much costs will increase.

Since the DEP developed narrative water quality standards in response to the EPA's review, permit reviews have more detailed and longer rationale statements, and new requirements.

However, a benefit of the EPA review is the development of narrative water quality standards. A formal written policy by the DEP regarding how narrative standards were to be ensured did not exist at the start of the EPA review. These standards will provide a uniform and consistent approach to protecting narrative water quality. Moreover, the new water testing and biological monitoring requirements may increase company compliance with the Clean Water Act and West Virginia's standards, and the additional data will give the DEP more tools to ensure water quality is protected.

The new water testing and biological monitoring requirements may increase company compliance with the Clean Water Act and West Virginia's standards, and the additional data will give the DEP more tools to ensure water quality is protected.

Conclusions

Although the first few years of the EPA review substantially increased the amount of time to issue NPDES mining permits, the timeliness of the process is returning to Pre-EPA levels. An examination of each type of permit shows that renewal permits were disproportionately affected. This was partially the result of the EPA review, the DEP reprioritizing new and modification applications over renewals, the DEP not establishing deadlines for companies to respond, and companies taking longer to respond to requests associated with renewal permits. In addition, the fact that the DEP routinely extended permits well beyond their expiration dates also contributed to renewals taking significantly longer to approve.

Although there have been some clear costs associated with the EPA review such as a more complex permitting process and additional testing and monitoring costs for coal companies, there are also environmental benefits from the EPA review.

Although there have been some clear costs associated with the EPA review such as a more complex permitting process and additional testing and monitoring costs for coal companies, there are also environmental benefits from the EPA review. Improvements have been made to the State's NPDES permit process that should result in better compliance with state and national water quality standards. The testing and monitoring that existed in Pre-EPA permits were not applied consistently or uniformly within the DEP. In contrast to the Pre-EPA period, the DEP now has consistent and uniform policies and procedures in place that provide greater assurance that Post-EPA permits are protecting narrative water quality standards throughout West Virginia. Given that the timeliness of the permit process is returning to Pre-EPA levels, it appears that the DEP staff and the mining industry have acclimated to the system changes.

Appendix A
Transmittal Letter

WEST VIRGINIA LEGISLATURE
Performance Evaluation and Research Division

Building 1, Room W-314
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305-0610
(304) 347-4890
(304) 347-4939 FAX

John Sylvia
Director

December 30, 2014

Mr. Harold Ward, Acting Director
West Virginia Department of Environmental Protection
Division of Mining and Reclamation
601 57th St.
Charleston, WV 25304

Dear Mr. Ward:

This is to transmit a draft copy of the Special Study on the Causes for the Slowdown in the Mining NPDES program. This report is scheduled to be presented during the January 11-13, 2014 interim meetings of the Joint Committee on Government Operations, and Joint Committee on Government Organizations. We will inform you of the exact time and location once the information becomes available. It is expected that a representative from your agency be present at the meeting to orally respond to the report and answer any questions the committees may have.

We need to schedule an exit conference to discuss any concerns you may have with the report. We would like to have the meeting on Wednesday, January 7, 2015. Please notify us to schedule an exact time. In addition, we need your written response by noon on Friday, January 9, 2015 in order for it to be included in the final report. If your agency intends to distribute additional material to committee members at the meeting, please contact the House Government Organization staff at 340-3192 by Thursday, January 8, 2015 to make arrangements.

We request that your personnel not disclose the report to anyone not affiliated with your agency. Thank you for your cooperation.

Sincerely,

John Sylvia

Enclosure

JS/jda

Joint Committee on Government and Finance

Appendix B
Objectives, Scope and Methodology

The Performance Evaluation and Research Division (PERD) within the Office of the Legislative Auditor conducted this special report of the Division of Mining and Reclamation's National Pollution Discharge Elimination System program for coal mining operations**,** as authorized under the Legislative Auditor's authority, Chapter 4, Article 2, Section 5 of the *West Virginia Code,* as amended. The purpose of the West Virginia NPDES program, as established in West Virginia Code §22-11-1, is to maintain reasonable standards of purity and quality of the water of the state consistent with (1) public health and public enjoyment thereof; (2) the propagation and protection of animal, bird, fish, aquatic and plant life; and (3) the expansion of employment opportunities, maintenance and expansion of agriculture and the provision of a permanent foundation for healthy industrial development.

Objective

The objective of this review is to determine if there is a significant difference in the average processing times for National Pollution Discharge Elimination System (NPDES) permit applications before and after the US Environmental Protection Agency began to exercise its right to review draft permits in June 2009, and if so, what are the causes for the slowdown in review times.

Scope

The scope of the review was limited to the Division of Mining and Reclamation's (DMR) application review process for the mining NPDES program between FY 2006 and FY 2014. Since the purpose of this review was to determine the impact of the EPA's review, the scope was further limited to the three categories of applications that were subject to EPA review: new, renewals, and major modifications. Therefore, it did not include applications for minor modifications, transfers of ownership, or any other type of application. Finally, applications that were terminated, denied, or were still under review were eliminated from the universe of applications. Essential documentation used in this report includes: copies of EPA's comment and objection letters from October 2009 through October 2012; basic information on the universe of applications submitted between FY 2006 and FY 2014; and, the NPDES permit database maintained by Precision Information Services for the two samples of applications submitted between FY 2006 through FY 2012.

Methodology

PERD gathered and analyzed several sources of information and conducted audit procedures to assess the sufficiency and appropriateness of the information used as audit evidence. The information gathered and audit procedures are described below.

In order to complete this review, PERD staff used testimonial, physical, and documentary evidence. Testimonial evidence gathered for this review through interviews with the DMR's staff, as well as, with officials operating NPDES programs from surrounding states. The information gathered from those interviews was confirmed by written statements and, when applicable, corroborating evidence. Interviews with DMR staff were conducted over the telephone and in person at the DEP headquarters in Kanawha City and in the Welch and Logan regional offices. The site visits provided PERD staff with a sufficient understanding of the application review process from the permit writers' perspective. Physical evidence of the NPDES application review process was gathered through direct observation as part of the field work conducted at the

regional offices. Documentary evidence was gathered by requesting information from the agency, accessing the archival application data through an online database system, and from various government sources.

Almost all of the information was determined to be sufficient and appropriate, but issues with the DEP's Environmental Resources Information System (ERIS) required PERD staff to complete a file-level review of a sample from the mining NPDES application archives. The West Virginia Legislative Post Audit identified issues with the reliability of data and internal controls in ERIS in its 2012 report on the West Virginia Department of Environmental Protection Special Reclamation Funds and Fund 8796. Therefore, PERD staff determined that it was necessary to use the digitally archived files to ensure that the information was accurate when tracking the start and end dates for each application review activity. These files contained digitized copies of the paper documents and archival versions of the applications from the DEP's e-Permitting database.

In order to ensure that the samples for the two groups of permits sampled was representative of the universes of permits, the audit team used a statistical sample for the two timeframes. Pre-samples of 30 applications from each group was conducted to ensure that the sample sizes were representative of the contents of the permit/application files. As the audit team reviewed each permit file, it tracked and recorded the start and end dates for each pertinent activity. After the pre-sample review was completed, the audit team calculated the appropriate sample sizes for each group for a 95 percent confidence level, a marginal of error of 5 percent, and the pre-sample standard deviation.[1] The sample size calculation resulted in a sample size of 60 for the pre-EPA review group and 80 for the EPA review group. The audit team stratified the sample proportionately by permit type after calculating the proportions of each permit type in the permit data file provided by DEP. The tracking of the dates for permit activities was used to calculate the average timeframes for each of the permit application review stages.

[1] *See United States General Accounting Office, Using Statistical Sampling. GAO/PEMD-101.1.6 (Washington, DC, 1992), 57-62.*

Appendix C
Agency Response

west virginia department of environmental protection

Division of Mining and Reclamation
601 57th Street SE
Charleston, WV 25304
Office: 304-926-0490 Fax: 304-926-0456

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

January 9, 2015

Mr. John Sylvia, Director
West Virginia Legislature
Performance Evaluation and Research Division
Building 1, Room W-314
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305-0610

Dear Mr. Sylvia:

My staff and I have reviewed the Performance Evaluation and Research Division's draft report on the Division of Mining and Reclamation's (DMR) NPDES permitting time. We appreciate your efforts to condense the description of a complicated regulatory process and generally agree with the findings and conclusions of the report.

If you should have any questions or need further information, please do not hesitate to contact me at (304) 926-0490.

Sincerely,

Harold D. Ward
Acting Director

WEST VIRGINIA LEGISLATIVE AUDITOR
PERFORMANCE EVALUATION & RESEARCH DIVISION

Building 1, Room W-314, State Capitol Complex, Charleston, West Virginia 25305

telephone: 1-304-347-4890 | www.legis.state.wv.us /Joint/PERD/perd.cfm | fax: 1- 304-347-4939