A Proposal to Serve the

State of West Virginia

west virginia

Department of Environmental Protection

Division of Land Restoration

Office of Special Reclamation

RFQ Number DEP16199

Technical Proposal

July 25, 2013

PINNACLE
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Commitment Beyond Numbers

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Joseph A. Herbers, ACAS, MAAA, CERA
Managing Principal
jherbers@pinnacleactuaries.com

July 25, 2013

Department of Administration
Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130
Attention: Mr. Frank Whittaker

RE: RFQ Number DEP16199

Dear Mr. Whittaker:

On behalf of Pinnacle Actuarial Resources, Inc, I am pleased to offer our proposal to provide the requested actuarial services to West Virginia Department of Environmental Protection's Office of Special Reclamation (Agency). We trust that you will find it in accordance with your Request for Quotation.

As Pinnacle's Managing Principal, I am empowered to bind the company to this proposal. The attached proposal is "a firm and irrevocable offer" for 120 days or as long as necessary to finalize contract details.

Please feel free to contact me or Contract Manager Laura Maxwell to discuss any issues or concerns or if additional information is needed. Ms. Maxwell's contact information can be found within the attached response.

Respectfully submitted,

Joseph A. Herbers, ACAS, MAAA, CERA
Managing Principal
309.807.2300

Enclosures

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APPENDICES

1. SPECIAL RECLAMATION FUNDS BACKGROUND

The Special Reclamation Fund and the Special Reclamation Water Trust Fund (collectively referred to as the Funds) are both programs within the West Virginia Department of Environmental Protection (DEP) designed to provide funding if necessary to reclaim and restore land and/or water sites. The programs are funded through coal taxes, investment income, and other minor, miscellaneous sources of income. The Funds' objectives are to have systems that allow for maximum flexibility in a dynamic environmental restorations and protection program and to achieve greater cost savings and budget predictability.

The DEP seeks actuarial services in connection with the review of the programs' fiscal soundness. The review is to include an evaluation of the present and prospective assets and liabilities of the special reclamation fund.

2. PINNACLE ACTUARIAL RESOURCES, INC. OVERVIEW

Pinnacle Actuarial Resources, Inc. (Pinnacle) is one of the larger property/casualty actuarial consulting firms in the U.S. whose specialties include loss reserving, insurance pricing, alternative markets and financial risk modeling. Our clients include insurance companies, state regulators and state-operated funds, insurance trade organizations, captive insurers, self-insured businesses, accounting firms and a variety of risk retention groups. As a result of this broad client base, we are called on to provide a wide variety of actuarial consulting services.

Pinnacle Actuarial Resources, Inc. is an independent Illinois corporation, privately owned by its professional actuarial staff. Pinnacle took its current corporate form on January 1, 2003, but our core operations and many of our customer relationships have been maintained continuously since 1984.

Our actuaries have provided loss reserve (unpaid liability) analyses, pricing and funding studies for commercial insurers, state-operated funds self-insured entities and captives. We serve as appointed actuaries and provide public Statements of Actuarial Opinion for a number of insurers in accordance with NAIC Annual Statement instructions and the Actuarial Standards of Practice.

Also included among our practice specialties is the costing of proposed legislation. In this regard, we have performed costing studies of insurance legislation in California, Colorado, Florida, Hawaii, Louisiana, Maryland, New Jersey, New York, Pennsylvania, Texas and West Virginia.

Our staff includes twelve Fellows of the Casualty Actuarial Society and seven Associates of the Casualty Actuarial Society. All nineteen credentialed actuaries are members of the American Academy of Actuaries. Biographies for staff members for this project are included with this proposal.

For more information concerning our firm and all the services we provide, please visit our web site at www.pinnacleactuaries.com.

3. QUALIFICATIONS

A summary of Pinnacle's ability to meet the minimum qualification requirements, as set out in section 3 of the RFQ, immediately follows.

3.1 Licensure

All of our credentialed actuaries are members of the American Academy of Actuaries (AAA) and the Casualty Actuarial Society (CAS).

Laura Maxwell will be responsible for the Peer Review of the project which includes assurance of compliance with the specifications/scope of service of the engagement, as well as adherence to professional standards of the CAS, AAA, and Pinnacle. Laura will also oversee the development of Pinnacle's project plan and adherence to the plan throughout the engagement. She has prior experience with the mine reclamation programs in Kentucky, Ohio and Virginia. Laura is a Fellow of the Casualty Actuarial Society, Member of the American Academy of Actuaries, and meets the continuing education requirements of both organizations.

Art Randolph will provide analysis on the project, reporting directly to Ms. Maxwell. He has prior experience with the mine reclamation program in Kentucky, co-authoring our 2012 and 2013 reports to the state. Art is a Fellow of the Casualty Actuarial Society, Member of the American Academy of Actuaries, and meets the continuing education requirements of both organizations.

John Wade, who has worked on prior West Virginia mine reclamation studies as well similar studies in Kentucky, Ohio, and West Virginia, will provide analysis and assistance with project work flow. He will report directly to Ms. Maxwell. John is an Associate of the Casualty Actuarial Society, Member of the American Academy of Actuaries, and meets the continuing education requirements of both organizations.

3.1.1 Credentials

Documentation of our actuarial credentials is included as Appendix B.1 and B.2.

3.1.2 Continuing Education

Documentation of our continuing education compliance is included as Appendix B.3

3.2 Conflict of Interest

We have reviewed our current and past work for the state of West Virginia and have found no conflict of interest. Our policy regarding possible conflict of interest is listed below.

Before responding to any RFP the consultant must first determine that no potential conflict of interest, or no appearance of conflict of interest, exists. At Pinnacle our conflict check covers past, current and future client relationships.

A conflict of interest may exist on two levels:

i) A conflict of interest exists if Pinnacle, or the account executive, has any financial interest which may limit the consultant's ability to render an objective, professional opinion.

ii) A conflict exists if working for one client harms our ability to do business with another client.

In most cases, if the work is more than three years old that should remove concerns about potential conflicts of interest.

The "business" conflict in (ii) typically arises when a client demands that Pinnacle not do business with one of the client's competitors. This should not be a conflict we would face in any work done for the West Virginia DEP.

The "professional" conflict of interest in (i) is the more common situation and the one to which references of "conflict of interest" usually applies. The key in determining the existence of a conflict is the ability of the consultant and Pinnacle to render an objective opinion.

Our consultant base is large enough to exclude any consultant from the team of consultants that might be reviewing a specific company and still provide an efficient, professional, and comprehensive work product. However, we do and will continue to check with the Client on any potential conflicts before accepting an assignment where the potential for conflict exists.

It can be specifically noted that Ms. Maxwell and Mr. Wade both have been and are currently actively engaged by the West Virginia Offices of the Insurance Commissioner (OIC) in annual actuarial reviews of workers compensation funds managed by the State. The engagement with the OIC does not present itself as a conflict of interest with the services to be provided under this proposal.

We have endeavored to determine the existence of any potential conflict of interests which may exist that would impair our ability, or perceived ability, to render objective actuarial services. We have identified no conflict of interest with regard to any officer or employee of the organizations involved in this assignment. Specifically, none of the consultants and other staff that would be assigned to this engagement have a conflict of interest with the State, their current leadership or their senior staff members.

3.3 External Quality Control

Pinnacle does not have an external quality control report.

Pinnacle utilizes the internal audit procedures of peer review. A brief summary of Pinnacle's peer review procedure immediately follows. Our peer review policy is included at the end of this proposal as Appendix D.

> The primary purpose of peer review is to maximize the quality and comprehension of our work product, and to minimize our own professional liability exposure within practical time and fee constraints.
>
> The interest of the firm's clients, and those of the firm itself, mandate that work performed by the firm, and the communication of that work by the firm, conform to high professional standards. Appropriate recognition of such interests deserves and requires adoption of and compliance with certain internal standards and procedures regarding work performance and communication of the work product, the objectives of such standards and procedures being to attempt to determine, to the extent practicable, that:
>
> - methods and assumptions employed are appropriate and acceptable in the circumstances;
> - judgments made and applied are reasonable and supportable;
> - communications to clients are accurate, complete and understandable; and
> - work performed adequately supports all statements and conclusions.
>
> A system of peer review is the tool we use to exercise due care and diligence such that these objectives are achieved.
>
> File documentation is an important element of peer review. The file must maintain an adequate trail which minimizes the risk of an undocumented or unsupported work

product when viewed from the perspective of an independent third party. Pinnacle conducts random audits of client files to determine adherence with file documentation.

The peer review system is intended to foster the maintenance of high professional standards and practices, consistently applied to Pinnacle Actuarial Resources, Inc (the Firm's) assignments. Thus, the review should not be considered perfunctory, even in cases of the most routine or straightforward assignments.

It will be the expressed duty of the Professional Standards Officer (PSO) to ensure the work product of the firm abides by these guidelines.

3.4 Federal or State Reviews

Pinnacle has not been subject to any federal or state desk reviews or field reviews in the past three years.

3.5 Litigation

Pinnacle has not been subject to any litigation, taken or pending, in the past three years with any government regulatory bodies or professional organizations.

3.6 Client References

Pinnacle has provided actuarial studies related to mine reclamation liabilities to West Virginia and other states. Contacts with the West Virginia DEP include Ken Ellison and Tom McCarthy. Contacts from other State programs are

Client:	Ohio Department of Natural Resources
Scope:	Mine Reclamation Fund Liabilities
Date:	2009-2013
Professional Staff:	John Wade, Laura Maxwell
Client Contact:	Susan Grant, 614-265-6773, Sue.Grant@dnr.state.oh.us

Client:	Kentucky Department for Natural Resources
Scope:	Mine Reclamation Fund Liabilities
Date:	2012-2013
Professional Staff:	John Wade, Laura Maxwell, Art Randolph
Client Contact:	Steve Hohmann, 502-564-6940, steve.hohmann@ky.gov

Client:	Virginia Department of Mines, Minerals and Energy
Scope:	Mine Reclamation Fund Liabilities
Date:	2011-2012
Professional Staff:	John Wade, Laura Maxwell
Client Contact:	Greg Baker, 276-523-8160, Greg.Baker@dmme.virginia.gov

Additional references are available upon request.

3.7 Sample Reports

We have included two sample actuarial valuation reports as Appendix A to this proposal.

West Virginia Special Reclamation Fund and Special Reclamation Water Trust Fund

Ohio Mine Reclamation Forfeiture Fund

4. *MANDATORY REQUIREMENTS*

Pinnacle will provide actuarial services that will meet or exceed the mandatory requirements listed below.

4.1.1 Timeline and Deliverables

The following dates will be met:

❖ Upon Receipt of Contract	Work Commences
❖ September 15, 2013	Progress Report
❖ October 15, 2013	Progress Report
❖ November 15, 2013	Draft Report
❖ December 16, 2013	Exit Conference
❖ December 31, 2013	Delivery of Final Report

4.1.2 Report and Statement of Actuarial Opinion

We reiterate here key components of the Report and Statement of Actuarial Opinion as listed in section 4.1.2 of the RFQ to indicate our understanding and acceptance of the required services. Pinnacle will prepare a report with a statement of actuarial opinion as to the Program's fiscal soundness, in accordance with West Virginia Code 22-1-17. The report and opinion will include the following items:

1. A valuation in accordance with applicable actuarial standards of practice promulgated by the actuarial standards board of American Academy of Actuaries that will determine the Program's fiscal soundness;

2. An evaluation of the **present** (June 30, 2013) assets and liabilities of the Special Reclamation Program for a minimum of 20 years, including an annual table illustrating those assets and liabilities for underground versus surface mine permits, small versus large permits (based on bond amounts or acreage) and permits for tipples, preparation plants and impoundments and illustrating land and water liabilities separately;

3. An evaluation of the **prospective** assets and liabilities of the Special Reclamation Program for a minimum of 20 years, including a table illustrating estimates of underground versus surface mine permits, small versus large permits (based on bond amounts or acreage)and permits for tipples, preparation plants and impoundments and illustrating land and water liabilities separately, including the funded status of the water trust fund as well as the special reclamation fund;

4. A table combining the present and prospective findings of items 4.1.2.2 and 4.1.2.3;

5. An analysis and discussion of the ability of the Program to support long term and/or perpetual liabilities;

6. A one page executive summary of conclusion written in plain English with references to the body of the report;

7. 25 bound original copies and an electronic Microsoft Word 2010 copy of the final report;

8. Provide a physical and an electronic copy of work papers, table and models in Microsoft Excel 2010 format.

4.1.3 On-Site Entrance Conference

Pinnacle will participate in an on-site entrance conference involving interviews of each Special Reclamation Advisory Council member and other significant staff.

4.1.4 On-Site Entrance Conference

Pinnacle will provide two (2) on-site consultations, which may include presentation at quarterly Council meetings or presentations to the Legislature, in addition to the entrance and exit conferences.

4.1.5 Teleconference

Pinnacle will provide one (1) teleconference with the Special Reclamation Advisory Council.

4.1.6 Exit Conference

Pinnacle will provide an on-site exit conference with the Special Reclamation Advisory Council and significant staff.

4.1.7 Hourly Rates and Bid Schedule/Pricing Page

Under separate cover, we have provided the Hourly Rates for change order purposes and the Bid Schedule/Pricing Page showing our total price to complete this engagement. Pinnacle recognizes and accepts the Payment Schedule as listed in section 7.1 of the RFQ. Pinnacle further acknowledges that Travel Costs are inclusive in the Pricing Page and will not bill these costs separately to the Agency.

5. *MISCELLANEOUS ITEMS*

Specific Work Plan

In completing the elements of Section 4 above, the following Specific Work Plan will be adopted:

- Review of previous actuarial reports and all other presently available information concerning the present assets and liabilities of the Special Reclamation Fund and the Special Reclamation Water Trust Fund, expected future assets and liabilities of the Funds, and all other information related to the timing of fund deposits/collections and fund reclamation payments.
- On-site Entrance Conference – On-site meeting in Charleston to gain insight as to background, operations and significance of obtained data.
- Data Request – Immediately following the on-site entrance conference, Pinnacle will issue a formal data request outlining all additional required elements to support our study.
- Data Assimilation – Pinnacle will organize and assimilate available data into electronic worksheets for technical analysis
- Analysis
    - Observations of historical financial data
    - Review of structure of the Funds
    - Selection of appropriate methods and assumptions
    - Incorporation of Business Plan
- Results
    - Preliminary results
    - Diagnostics and fine-tuning
    - Finalization of range
    - Follow-Up with DEP and Special Reclamation Advisory Council
- Development of Report
    - Draft and Discussion
    - Final Report
- On-site exit conference and presentation to Special Reclamation Advisory Council in Charleston.
- Two Additional Onsite Consultations and One Teleconference which may include presentations at quarterly Council meetings or presentations to the West Virginia Legislature.

Assurance of Quality of Staff

We have assigned three highly qualified experienced consulting actuaries to this engagement team. These three individuals have worked closely together on numerous projects, including mine reclamation studies. Each of these consultants are qualified, able, and available to step in and fill the role of any other one of the consultants on the project team should one of the consultants become unavailable for any reason. We also have a pool of additional consulting actuaries that we could call upon, if needed. No changes would be made to the professional staff assigned to this team without the prior written consent of the Department of Environmental Protection. Finally it can also be noted that our lead supporting analyst on this engagement will be the same analyst used in our prior West Virginia mine reclamation studies, as well as in our studies of our other State mine reclamation programs.

General Terms and Conditions

Pinnacle agrees with the General Terms and Conditions as listed in the RFQ. Specifically, we currently maintain and agree to maintain the professional liability insurance certificates in the amount of $1,000,000. We also reaffirm that our managing actuary for this assignment, Laura Maxwell is a Fellow of the Casualty Actuarial Society, a member of the American Academy of Actuaries, and has the necessary experience to see this engagement is completed as specified.

Prior Engagements with the State of West Virginia

Pinnacle has provided the two most recent actuarial studies of the Special Reclamation Fund and the Special Reclamation Water Trust Fund for the West Virginia Department of Environmental Protection.

Pinnacle is currently engaged by the State of West Virginia, Department of Revenue, Offices of the Insurance Commissioner (OIC) to provide actuarial services in relation to the review of the remaining workers' compensation liabilities from coverage provided by the state run workers' compensation funds until 2005 and the successor funds created to supplement the private insurance market. Most recently the State has added their own State Entities Workers Compensation (SEWC) self-insurance fund into the mix. Pinnacle provided the original feasibility study for the SEWC and assists in the subsequent evaluations of the financial soundness of this and the other workers compensation funds. The annual contract for the OIC began in 2009 and has been extended through 2013. This engagement is currently being led by John Wade and Laura Maxwell

Contract Manager

Per section 11.1 of the RFQ, during the course of this engagement, Laura Maxwell will serve as the primary contract manage responsible for overseeing Pinnacle's responsibilities under the contract. John Wade is available as an alternate contact point.

DEP 16199	**Primary Contact**	Alternate Contact
Contract Manager	**Laura Maxwell**	John Wade
Telephone Number	**415.692.0938**	317.889.4760
Fax Number	**309.807.2301**	309.807.2301
Email Address	**LMaxwell@PinnacleActuaries.com**	JWade@PinnacleActuaries.com

PINNACLE
ACTUARIAL RESOURCES, INC.
The Firm of Choice

January 12, 2012

Special Reclamation Advisory Council
c/o Department of Environmental Protection
Division of Land Restoration – Office of Special Reclamation
601 57th Street S.E.
Charleston, West Virginia 25304

Dear Council Members:

Pinnacle Actuarial Resources, Inc is pleased to provide the enclosed final report to the Special Reclamation Advisory Council of the West Virginia Department of Environmental Protection. The report provides summary and various details regarding the actuarial valuation of the Special Reclamation Fund and the Special Reclamation Water Trust Fund as of June 30, 2011.

If you have any questions, comments, suggested wording revisions or require anything further please call John Wade at (317) 889-5760. Thank you for allowing us to be of service to the Council again this year. We look forward to the opportunity to work with you again in the near future.

Sincerely,

Christopher S. Carlson, FCAS, MAAA
Consulting Actuary

John E. Wade, ACAS, MAAA
Senior Consulting Actuary

Report for the
West Virginia Department of Environmental Protection
Office of Special Reclamation

Actuarial Valuation

of the

Special Reclamation Fund &
Special Reclamation Water Trust Fund

Actuarial Analysis

as of June 30, 2011

PINNACLE
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3040 Riverside Drive, Suite 206
Upper Arlington, Ohio 443221

374 Meridian Parke Lane, Suite C
Greenwood, IN 46142

REPORT ORGANIZATION

EXECUTIVE SUMMARY provides a thumbnail sketch of the results of our analysis.

ACTUARIAL CERTIFICATION attests that this valuation has been conducted in accordance with generally accepted actuarial principles and practices.

SECTION 1 describes the actuarial model in detail and the development of the assumptions used to estimate the revenues and liabilities of the Special Reclamation Fund and the Special Reclamation Water Trust Fund.

SECTION 2 provides a projection of required income for solvency through fiscal year 2035.

SECTION 3 describes the data reviewed and used in the report.

SECTION 4 describes the actuarial assumptions used in the valuation.

EXHIBITS have been included as a separate section of the report, primarily replacing tables previously embedded within the body of the report. These exhibits contain significant information (and sometimes significant amounts of information) that clarify the development of our estimates.

The timely completion of our report depended on complete responses to our data and information requests. The Department of Environmental Protection staff provided us with timely and complete responses to all of our requests for information. We wish to thank them, especially Lewis Halstead, Jennifer Paxton, Tom McCarthy, Jean Sheppard, Michael Sheehan, David McCoy and Yvonne Anderson for their time and providing us with their counsel as well as the information that we used in this report.

EXECUTIVE SUMMARY

This report from Pinnacle Actuarial Resources provides the Department of Environmental Protection (DEP) with information regarding the funded status of the Special Reclamation Fund (SRF) and an analysis of the SRF's projected financial status under a range of operational parameters. This report updates and expands our previous actuarial study completed in 2010. This analysis also incorporates the newly provided information regarding future water treatment costs under the expanded National Pollutant Discharge Elimination System (NPDES) standards as developed through the joint efforts of Dr. Ziemkiewicz of the Water Research Institute at West Virginia University and Michael Shannon and his team in the Office of Special Reclamation. The inclusion of this information has led to significant increases in the estimated cost of water treatment facilities and on-going expenses for both the permits currently under the supervision of the Office of Special Reclamation and the anticipated reclamation costs of permits projected to be forfeited in the future.

This valuation is a "closed" valuation in that it only considers liabilities associated with permits that have already been issued. The estimated Funds' liabilities account for both known forfeitures and anticipated forfeitures from permits issued before July 1, 2011. Accordingly, we have included in this report reclamation liabilities based on the date of forfeiture as well as based on the issue date of permit, to provide the SRF Advisory Council with a complete picture of the fund's current obligations.

The estimates in this report are actuarial central estimates. As actuarial central estimates, they represent an expected value within the range of reasonably possible outcomes. The bond recoveries are considered as an income item rather than an adjustment to the liabilities as the Fund is responsible for the reclamation from first dollar regardless of bond collection. The estimates do not consider any excess insurance or other recoveries because there is no excess insurance and no other recoveries are expected. The estimated liability at June, 30, 2011 is based on permit and forfeiture data through June 30, 2011 and data clarifications and corrections received through December 23, 2011.

BACKGROUND ON COAL TAX RATES FOR FUNDS

In Senate Bill No. 751, a separate Special Reclamation Water Trust Fund (SRWTF or Water Trust Fund) was established effective July 1, 2008. Beginning in July 2008, coal tax revenues based on a tax rate of 1.5 cents per ton are being paid into the Special Reclamation Water Trust Fund. In addition, coal tax revenues based on 12.9 cents per ton (7 cents plus 5.9 cents per SB 751) are being paid into the Special Reclamation Fund (SRF). These rates have continued into 2011 and our estimates assume they will for the foreseeable future.

Unless modified in response to future legislation, for budgeting and analysis purposes the Department of Environmental Protection plans to continue paying all costs for both land and water reclamation work out of the Special Reclamation Fund (SRF) through June 2018. This

delay may allow the SRWTF to build up assets and reach a position where it is large enough to begin covering water treatment costs – both water capital costs and ongoing water treatment costs.

ASSUMPTION CHANGES

While in many respects this analysis is similar to the analysis performed in 2010, there are a number of changes to key assumptions included in this year's analysis.

- Release rates
- Forfeiture rates
- Investment rates
- Discount rates
- Underlying land reclamation costs based upon actual recent historical costs
- Costs of water capital and water treatment of the currently open forfeited permits.
- Increased costs of water treatment to achieve compliance with NPDES water quality standards
- Length of time required for water treatment to achieve full compliance
- Inclusion of Legacy Water Treatment costs within the Water Treatment costs of permits forfeited prior to July 1st, 2011 instead of a separate category

These changes and the impact are described in more detail in the text of the report.

FUNDED STATUS

Separate projections of the SRF and the SRWTF have been developed to show the overall financial solvency of each fund.

For the funded status, we have compared the present value of future expenditures with the current value of the Fund's assets plus the present value of future income. Using a 20-year cash-flow projection, the funded status of the Special Reclamation Fund is over 100 percent and for the Special Reclamation Water Trust Fund is 18 percent. We also developed a longer 35 year time period projection the funded status is 97 percent for the SRF and 9 percent for the SRWTF.

We estimate on a cash flow basis that the Special Reclamation Fund's assets and future revenues cover the expected costs through 2038. With the significantly increased costs in water treatment, we project that the Special Reclamation Water Trust Fund will fall into a deficit position in the second year of operation - 2020.

VALUATION RESULTS

Expenditures

Tables A-1 through A-4 below show the present value of future expenditures from July 2011 to June 2030 and from July 2011 to June 2046 for the Special Reclamation Fund and the Special Reclamation Water Trust Fund. The future expenditures associated with these Funds include:

- land capital expenditures, (restoring the land to agreed setting)
- water capital expenditures, (creation of water treatment facilities)
- ongoing water treatment expenditures
- water abandonment expenditures, (removal of treatment facilities) and
- administration costs.

These amounts include the Department of Environmental Protection estimated costs for reclamation activities on permits that have already been forfeited, including the estimated on-going water treatment costs, which have increased significantly over the past 12 months. The projected amounts are the discounted present value of projected cash flows using a discount rate equal to the expected investment returns based upon recent returns on US Treasury Notes. Since the estimated annual reclamation cost inflation rate of 4 percent in the earlier years is far greater the implicit discount rate, the discounted figures are higher than the estimated costs in 2011 dollar terms. This difference means that more money needs to be invested today to cover the cost inflated expenditures in years to come.

A complete description of all of the assumptions used in the valuation can be found in Section 4. The Water Capital and Water Abandonment costs are only included in the Special Reclamation Fund figures until July of 2019, at which point following a ten year capital build up, the Water Trust Fund will begin covering water capital and water abandonment costs.

- Table A-1 - Special Reclamation Fund 20 Year Expenditures
- Table A-2 - Special Reclamation Fund 35 Year Expenditures
- Table A-3 - Special Reclamation Water Trust Fund 20 Year Expenditures
- Table A-4 - Special Reclamation Water Trust Fund 35 Year Expenditures

Table A-1
Special Reclamation Fund
Liability as of June 30, 2011 for Known and Expected Forfeitures
Limited to a 20-Year Cash Flow
(Present Value in $ Millions)

	Currently Forfeited Permits	Projected Future Forfeitures	**Total Liabilities**
Land Capital	$12.1	$91.6	$103.8
Water Capital	62.8	7.5	70.3
Water Abandonment	0.0	0.0	0.0
Ongoing Water Treatment	35.2	1.8	37.0
Administration			48.7
Total			**$ 259.7**

For comparison purposes, the 20-Year SRF cost projection in 2010 was $313.8 million.

Table A-2
Special Reclamation Fund
Liability as of June 30, 2011 for Known and Expected Forfeitures
Cash Flow Projection through 2046
(Present Value in $ Millions)

	Currently Forfeited Permits	Projected Future Forfeitures	**Total Liabilities**
Land Capital	$12.1	$123.2	$135.4
Water Capital	62.8	7.5	70.3
Water Abandonment	0.0	0.0	0.0
Ongoing Water Treatment	35.2	1.8	37.0
Administration			78.2
Total			**$320.8**

For comparison purposes, the 35-Year SRF cost projection in 2010 was $390.8 million.

Table A-3
Special Reclamation Water Trust Fund
Liability as of June 30, 2011 for Known and Expected Forfeitures
Limited to a 20-Year Cash Flow
(Present Value in $ Millions)

	Currently Forfeited Permits	Projected Future Forfeitures	**Total Liabilities**
Land Capital	$0.0	$0.0	$0.0
Water Capital	0.0	15.9	15.9
Water Abandonment	0.0	0.0	0.0
Ongoing Water Treatment	93.5	27.5	120.9
Administration			0.0
Total			**$136.8**

For comparison purposes, the 20-Year SRWTF cost projection in 2010 was $77.7 million.

Table A-4
Special Reclamation Water Trust Fund
Liability as of June 30, 2011 for Known and Expected Forfeitures
Cash Flow Projection through 2046
(Present Value in $ Millions)

	Currently Forfeited Permits	Projected Future Forfeitures	**Total Liabilities**
Land Capital	$0.0	$0.0	$0.0
Water Capital	0.0	23.6	23.6
Water Abandonment	0.0	0.0	0.0
Ongoing Water Treatment	186.5	82.4	268.9
Administration			0.0
Total			**$292.5**

For comparison purposes, the 35-Year SRWTF cost projection in 2010 was $147.1 million.

Revenues

The SRF and SRWTF receive revenues from several sources. The primary funding source for both Funds is tax on current coal extraction. The second funding source, available only to the SRF, is from the underlying security on forfeited permits, as the Fund collects the bond amounts associated with the forfeited permits and/or civil penalties and court settlements. The third funding source, available to both Funds, is interest income earned on the SRF and SRWTF assets invested in a fixed income fund managed by the West Virginia Investment Management Board.

As with the projection of expenses, we have developed income projections across both a 20 year and 35 year time horizon for each Fund. Future revenue streams have been discounted at the implicit annual investment returns for both the SRF and the SRWTF.

- Table B-1 - Special Reclamation Fund 20 Year Revenue
- Table B-2 - Special Reclamation Fund 35 Year Revenue
- Table B-3 - Special Reclamation Water Trust Fund 20 Year Revenue
- Table B-4 - Special Reclamation Water Trust Fund 35 Year Revenue

In general, the expected income levels are very similar to the income projections in 2010.

Table B-1
Special Reclamation Fund
Revenue Projection as of June 30, 2011 for Known and Expected Forfeitures
Limited to a 20-Year Cash Flow
(Present Value in $ Millions)

Coal Tax Current Permits	Bond Forfeiture, Civil Penalties & Court Settlements	Interest Income	**Total Income**
$161.7	$45.5	$9.4	**$216.7**

Table B-2
Special Reclamation Fund
Revenue Projection as of June 30, 2011 for Known and Expected Forfeitures
Cash Flow Projections Through 2046
(Present Value in $ Millions)

Coal Tax Current Permits	Bond Forfeiture, Civil Penalties & Court Settlements	Interest Income	**Total Income**
$179.9	$50.7	$11.5	**$242.0**

Table B-3 **Special Reclamation Water Trust Fund** Revenue Projection as of June 30, 2011 for Known and Expected Forfeitures ***Limited to a 20-Year Cash Flow*** (Present Value in $ Millions)			
Coal Tax Current Permits	Bond Forfeiture, Civil Penalties & Court Settlements	Interest Income	**Total Income**
$18.8	$0.0	$0.9	**$19.7**

Table B-4 **Special Reclamation Water Trust Fund** Revenue Projection as of June 30, 2011 for Known and Expected Forfeitures ***Cash Flow Projections Through 2046*** (Present Value in $ Millions)			
Coal Tax Current Permits	Bond Forfeiture, Civil Penalties & Court Settlements	Interest Income	**Total Income**
$20.9	$0.0	$0.9	**$21.8**

Fund Status as of June 30, 2011

The Special Reclamation Fund had accumulated assets of $70.2 million while the Special Reclamation Water Trust Fund had accumulated $5.9 million in assets as of June 30, 2011. The SRF balance is approximately $7 million higher than the balance at the time of the prior report. This level reflects both the significant reclamation efforts in the past year and the revenue from various sources including the coal tax collections.

In Tables C-1 and C-2 below, we combine the projected reclamation liabilities, current assets and expected future revenue to produce the Funded Status for each of the Funds. A Funded Status of above 100 percent indicates that the current revenue structure (i.e. legislated coal tax revenues and amounts of permit bonds) should provide sufficient funding to meet the long-term obligations of the Fund for the reclamation of forfeitures of permitted mining operations. A Funded Status of less than 100 percent would indicate that the Fund's assets, combined with expected future revenues, are not sufficient to cover the expected future expenditures for the reclamation of forfeitures of the permitted mining operations.

Table C-1 **Special Reclamation Fund** Funded Status as of June 30, 2011 (in $ Millions)		
	20 Years	Through 2046
Present Value of Future Revenues	216.7	242.0
Assets as of June 30, 2011	70.2	70.2
Assets + Present Value of Future Revenues	286.8	312.2
Present Value of Future Expenditures	259.7	320.8
Funded Status	110.4%	97.3%
Year Fund Balance Becomes Negative	2039	

Table C-2 **Special Reclamation Water Trust Fund** Funded Status as of June 30, 2011 (in $ Millions)		
	20 Years	Through 2046
Present Value of Future Revenues	19.7	21.8
Assets as of June 30, 2011	5.9	5.9
Assets + Present Value of Future Revenues	25.6	27.7
Present Value of Future Expenditures	136.8	292.5
Funded Status	18.7%	9.5%
Year Fund Balance Becomes Negative	2020	

The Funded Status of the Special Reclamation Fund is at a higher level this year compared to last year as the expected revenue has increased while the present value of the future expenditures declined slightly. Due primarily to the increased expected cost of currently forfeited sites with water treatment, the Funded Status of the Special Reclamation Water Trust Fund has declined significantly since our last review.

In Tables D and E in the attached exhibits, we provide projections of the estimated cash flows over the next 35 years. The elements shown in the projection are:

The expenditures are comprised of:

- Land capital expenditures
- Water capital expenditures
- Ongoing water treatment expenditures
- Water abandonment expenditures – delayed beyond the study horizon
- Administration costs

The revenues are comprised of:

- Coal tax receipts
- Bond forfeitures, civil penalties, and court settlements
- Investment income

The investment income is determined by applying varied US Treasury based interest rates against the prior year-end closing fund balance plus one-half the year's income less one- half of the year's expenditure. For projected years where the total fund balance is negative, total investment income is set to zero.

Tables D and E show the projected cash flow for the next 35 years assuming continuation of current law, whereby the coal tax continues to be collected at a rate of 14.4 cents per ton with 1.5 cents per ton allocated to the Special Reclamation Water Trust Fund.

Table D Summary shows that under the current law, the SRF balance is projected to fall below zero in Fiscal Year 2039. Subsequently, future income is projected to continue to be less than the expected required expenditures.

Table E Summary shows the accumulation of assets in the Water Trust Fund. The SRWTF plans begin making payments for water capital and ongoing water treatment in Fiscal Year 2019. The Fund is projected to have sufficient capital to operate until some point in 2020 before experiencing a deficit. We expect that the Water Trust Fund will have accumulated $17.2 million at the end of fiscal year 2018.

Table F below shows the expected capital costs for reclamation based upon previously forfeited permits in 2011 dollars. With the current bond limit of $5,000 per acre, the expected receipts from permits issued in the future will not be sufficient to cover the expected reclamation costs for Underground Permits or Other Permits.

Table F
Cost Per Acre by Permit Type
(in 2011 Dollars)

Based on Forfeited Permits	**Surface**	**Underground**	**Other Types**
Land Capital	2,898.24	13,259.83	9,575.60
Water Capital	913.81	1,024.62	1,804.78
Water Abandonment	203.38	538.46	473.16
Total Capital	4,015.43	14,822.91	11,853.55

For comparison purposes, we provide the key elements of the analysis that have been impacted by the cost assumptions to comply with the NPDES water quality standards.

Water Capital Costs Per Acre by Permit Type			
	Surface	**Underground**	**Other Types**
Cost in 2010 Analysis	674.30	2,547.06	2,167.38
Cost in 2011 Analysis	913.81	1,024.62	1,804.78

Annual Water Treatment Costs Per Acre by Permit Type			
	Surface	**Underground**	**Other Types**
Cost in 2010 Analysis	1.60	15.81	37.43
Cost in 2011 Analysis	101.39	141.27	199.22

While these increased costs are alarming, they are not unexpected. We note that the water construction costs of all of the treatment sites currently in operation as shown in line (1) of Table 1.2 of the Exhibit package were slightly more than $4 million. In order to adjust those treatment facilities to comply with the NPDES standards, an additional $17 million is anticipated to be needed, shown in line (6) of Table 1.2. In addition, there are 42 forfeited sites with water treatment facilities yet to be constructed. The estimated water capital costs for these new water treatment facilities exceed $30 million, shown on line (7) of Table 1.2.

Prior to the introduction of the revised annual operating and maintenance water treatment costs for the operating forfeited sites and legacy water treatment sites, the annual expenditure was approximately $3.2 million as displayed in Appendix A. Based on the information provided by the teams at West Virginia University and the Office of Special Reclamation, the annual water treatment costs for these same currently operating sites exceed $3.7 million.

We do note that the prior analyses figures were developed using the costs on closed water treatment expenses which did not in any way reflect the current or future cost structures. We used the new NPDES standards in our current projections to provide a more reasonable basis for future costs in this component.

Special Reclamation Water Trust Fund Council Proposed Tax Rate

We also were requested by the Council to provide a cash flow projection assuming a Special Reclamation Water Trust Fund tax rate of 15 cents per ton of coal.

Using this increased tax rate of 15 cents per ton of coal for the Special Reclamation Water Trust Fund, we project that the Fund could cover the water capital and water treatment expenditures through 2037 prior to developing a deficit. This estimate continues to assume that the Water Trust Fund will be used for any expenditure until fiscal year 2019. This requested alternative cash flow is provided in Tables 2.7, 2.8 and 2.9.

ACTUARIAL CERTIFICATION

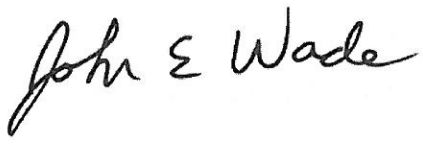
The State of West Virginia's Department of Environmental Protection retained Pinnacle Actuarial Resources, Inc to perform an actuarial valuation of the Special Reclamation Fund for the purposes of reporting the progress of the Fund.

Christopher S. Carlson, FCAS, MAAA, Consulting Actuary and John E. Wade, ACAS, MAAA, Senior Consulting Actuary are members of the American Academy of Actuaries and meet its Qualification Standards of Actuaries Issuing Statement of Actuarial Opinion in the United States to render the actuarial opinion contained here.

This valuation has been conducted in accordance with generally accepted actuarial principles and practices. The actuarial assumptions and methods employed in the measurement of the liability have been selected by Pinnacle Actuarial Resources, Inc. after consultation with the staff of the Department of Environmental Protection and the Special Reclamation Fund Board.

The results shown in this report are reasonable actuarial results. However, a different set of results could also be considered reasonable actuarial results. The reason for this is that actuarial standards of practice describe a "central estimate" for each assumption, rather than a single best-estimate value. Thus, reasonable results differing from those presented in this report could have been developed by selecting different points within the best-estimate ranges for various assumptions.

Christopher S. Carlson, FCAS, MAAA
Consulting Actuary
Pinnacle Actuarial Resources, Inc



John E. Wade, ACAS, MAAA
Senior Consulting Actuary
Pinnacle Actuarial Resources, Inc

December 2011

SECTION 1

ACTUARIAL VALUATION

BACKGROUND

This is the second actuarial valuation performed by Pinnacle Actuarial Resources, Inc. of the Special Reclamation Fund and the Special Reclamation Water Trust Fund. Prior valuations were completed by the Hay Group in 2007 and 2008. As in the prior valuations, forfeiture and release rates and reclamation costs have been selected on per permit or per acre bases separately for Underground, Surface, and Other permits. We have revised selections of expected future release rates based upon the available data. We have also reviewed the forfeiture data and developed expected forfeiture rates, based upon the fiscal calendar year rather than the year of permit issuance. This selection process is described more fully later in this document.

This valuation builds on the prior analyses valuations and develops separate updated reclamation costs for the different types of permits using the most up-to-date costs as reported in the Department of Environmental Protection database.

We have prepared a measurement of current liabilities and assets in accordance with the guidance set out in Governmental Accounting Standard Number 10, an excerpt of which is:

State and local governmental entities other than public entity risk pools are required to report an estimated loss from a claim as an expenditure/expense and as a liability if both of these conditions are met:

a. *Information available before the financial statements are issued indicates that it is probable that an asset had been impaired or a liability had been incurred at the date of the financial statements. It is implicit in this condition that it must be probable that one or more future events will also occur, confirming the fact of the loss.*
b. *The amount of the loss can be reasonably estimated.*

This valuation is a "closed" valuation in that it only considers liabilities associated with permits that have already been issued. With regard to the basis for the fund's liabilities, we believe the accounting rules are framed to require the fund to account for both known forfeitures and anticipated forfeitures from existing permits. Accordingly, we have included in this report reclamation liabilities based on the date of forfeiture as well as based on the date of permit, to provide the SRF Advisory Council with a complete picture of the fund's obligations.

DISTRIBUTION AND USE

The purpose of this report is to provide information to the Department of Environmental Protection to address the long-term funding requirements for both the Special Reclamation Fund and the Special Reclamation Water Trust Fund. It may be given to the SRF Advisory Council and the State of West Virginia's external auditor. However, we ask that this report be reproduced only in its entirety so that the reader has the full benefit of the information provided. Other distribution or use of this report or the estimates contained in it before it is made available to the public requires our prior, written permission.

LIMITATIONS AND RELIANCES

We relied without audit or verification on issued permits, forfeited permits, investment return and other information supplied for this analysis by Tom McCarthy, Jean Sheppard, Yvonne Anderson, David McCoy, Michael Sheehan and Jennifer Paxton, all employees of the West Virginia Department of Environmental Protection. We reviewed the data for overall reasonableness and consistency. When inconsistencies in the data arose, we worked with the above named individuals to gain a better understanding and were able to make the required adjustments as needed. Especially with the introduction of new estimates late in the analysis process, there may be additional issues in the data files that our review did not uncover. As such, if issues are discovered with the data as provided, we would ask to be informed as our estimates heavily rely upon the data.

ACTUARIAL MODEL

The actuarial model combines the Department of Environmental Protection Special Reclamation Unit's estimated reclamation expenditures of the permits that have already been forfeited with the projection of estimated expenditures associated with the estimated numbers and types of future forfeited permits. The actuarial model uses separate release and forfeiture rates to project the expected number of existing permits/acres to be released and the number of permits/acres that are expected to be forfeited in the future. The model assumes that the SRF does not incur any additional costs when a permit is released. The model projects four types of expenditures associated with a forfeited permit. A forfeited permit is expected to produce associated revenues to the SRF in the form of the amount of the bond associated with the permit and/or any associated civil penalties or court settlements.

The four types of reclamation expenditures associated with a forfeited permit are:

- Land capital expenditures
- Water capital expenditures
- Ongoing water treatment costs
- Water abandonment costs

Some forfeited sites will require only land capital expenditures, while others may require both land and water capital expenditures. The current model assumes that where water capital expenditures are incurred there also will be ongoing water treatment costs. The future reclamation capital costs are developed based on a projection of the forfeited acreage, the current status of each permit and the average reclamation cost amounts per permitted acre. With this treatment of costs as an overall average across permits, the water capital expenditures are projected for all forfeited permits, even though some sites may not require water treatment activities.

The future annual water treatment expenditures have been developed differently with this analysis from prior reports. The prior estimates were based on the total water treatment costs of forfeited permits where the water treatment process was fully completed. With the recent settlement agreement regarding compliance with the NPDES water quality standards, the prior costs are not reflective of future costs. We were provided with the increased annual water treatment costs for the forfeited permits currently in the process of treating water and those permits where the water treatment facilities are yet to be completed. These costs are from a study completed by Dr. Paul Ziemkiewicz and his colleagues at West Virginia University along with the members of the team in the Office of Special Reclamation.

As the treatment continues through time, it is expected that the nominal cost of treatment will decline by 2 percent per year before the application of normal cost inflation which is assumed to

be 4 percent per year. Thus, the net annual change in water treatment costs is expected to be 2 percent.

We also have expanded the number of years in which the water treatment process is expected to operate. The previous studies assumed a 17 year timeframe for treatment. At that time, the water treatment facilities would be dismantled; incurring water abandonment costs. Based upon the recommendation of Michael Sheehan and his staff in the Office of Special Reclamation, we are now assuming the Water Treatment costs will continue to be required beyond the 35 year time horizon of our estimates. This assumption leaves the Water Abandonment costs outside of the study horizon and becomes an un-reflected cost within our estimates. Thus, all water abandonment costs related to forfeited permits requiring water treatment would be in addition to any numbers quoted in this report.

Our analysis includes a projection of the administration costs expected to be incurred in the oversight of the reclamation activities. We have assumed that the administration costs are independent of the reclamation expenditures and will increase into the future in line with price inflation. We have not made an explicit adjustment to administrative costs for the fact that as time passes, forfeited sites being handled will include permits not yet issued as of July 2011.

The actuarial model was applied to a database of all existing issued permits that have not yet been released or forfeited. The data on each permit included:

- Date of permit issue
- Status of permit (Active, Inactive or Phased Release)
- Type of permit (Underground, Surface, or Other)
- Number of permitted acres
- Total current bond amount

The model projects the number of permits/acres expected to be released or forfeited each year over the next 20+ years.

The projection of permit forfeiture is also used to determine the expected revenues from bond forfeiture and/or civil penalties and court settlements.

The actuarial model produced as output expected cash disbursements over the next 35 years. These disbursements were incorporated into a cash flow model that included projected tax receipts from coal production. The resulting fund balance, after consideration of administration costs, was assumed to earn investment rates roughly equal to the current Treasury rates based on varying investment horizons. The current Treasury rates are 0.125 percent for investments less than 2 years and increase up to a rate of 3.75 percent for investments 20 years or greater. The graduated rates, used in our estimates, project the expected investment rates into the future.

THE KEY MODEL COMPONENTS

The actuarial model used the following components, each of which was developed from an analysis of experience data.

- Rates of release of permits by type of permit
- Rates of forfeiture of permits by type of permit
- Disturbed acres as a percent of permitted acres
- Expected land capital costs per disturbed acre
- Expected water capital costs per disturbed acre
- Expected ongoing water treatment costs per disturbed acre
- Expected water abandonment costs per disturbed acre
- Administration costs

Expected Release and Forfeiture Rates

With this analysis, we have reviewed the historical release and forfeiture data of the West Virginia Program. We have revised the expected release rates for the surface mine, underground mine and other facilities permits. We have removed the distinction between permits issued before 1996 and permits issued after 1995 used in prior studies. Our selections relied primarily on the release activity over the past 10 fiscal calendar years. As such, much of the activity related to the older permits in the early years of operation is not considered. We did not observe an obvious difference in the release rate activity based upon year in which the permit was issued. The selected release rates are provided in Tables 4.1, 4.2 and 4.3 of the Exhibit package.

The projected forfeiture rates have been selected on a fiscal calendar year basis rather than based upon the year of permit issuance as previously used in studies of the Fund. With the sporadic nature of forfeitures and the high likelihood that there is correlation between permit forfeiture of multiple permits of one operator, we feel that this calendar year method of estimation is more appropriate for the West Virginia dynamics associated with this analysis. We reviewed the historical and recent forfeiture rates as a percent of open permits and selected a rate for each of surface mines, underground mines and other facility permits. The selected rates are shown in Tables 4.1, 4.2 and 4.3 of the Exhibit package. Note that we continue to expect that there will be no forfeitures during the first three years following this issuance of any permit in West Virginia.

Since inception of the Special Reclamation Trust Fund in 1977, nearly 6,000 coal-related permits have been issued in West Virginia, 1,773 of which were still in-force as of June 30, 2011. A summary of the in-force and forfeited permit information is found in Section 3.

Each permit in the open permit database had an associated status. We grouped the statuses into three main categories:

- active,
- inactive, and
- phased release.

We performed the analysis of costs based on disturbed acres of the previously forfeited permits. As not all of the permitted acres are disturbed in the current coal production process, adjustment factors have been developed based on the percent of permitted acres that are disturbed. The ratios of disturbed acres to permitted acres are displayed in Table 4.4. With the expansion of the analysis to project water treatment based upon forfeited permits that are currently or expected to treat water issues, we have expanded this table to develop ratios based upon the inventory of those permits.

Permits that have already entered a phased release status were deemed to be much less likely to be forfeited than those in active or inactive status. However, as a single mine operator may hold permits in all three statuses, even some permits in phased release status may be forfeited due to enterprise risk rather than reclamation cost risk. We therefore applied a factor to each permit based on these categories that reflected variations in the magnitude of potential forfeiture and liability to the Fund. The factors used are shown in Table 4.5.

Development of Cost per Acre

We performed an analysis of the land capital expenditures for the 1,905 permits that have been forfeited in West Virginia as of June 30, 2011.

Table 1.1 provides the development of Land Capital Expenditures per Acre and by Permit Type.

Table 1.2 provides the development of Water Capital Expenditures per Acre and by Permit Type. The estimate of Water Capital Costs has been adjusted due to the new NPDES requirements. In previous studies, this figure was developed based upon the water capital costs to construct treatment facilities based on the old standards.

We are including only the actual costs for permits currently treating water as we have been provided with the significant additional cost to upgrade these facilities to treat to the higher standards. For comparison purposes, the original cost of currently operating water treatment facilities was $4 million. Per the information from the Office of Special Reclamation, the cost to enhance these facilities to provide treatment up to the NPDES standards is an additional $17.2 million. There are 42 sites where the water treatment facilities are yet to be constructed. The cost of these new facilities is anticipated to be $30.4 million. These figures are provided in Appendix A, which is based upon the figures developed by the Office of Special Reclamation and the team from West Virginia University.

Based upon the percentage of previously forfeited permits with significant water treatment issues (shown on Tables 3.2, 3.3 and 3.4), we have adjusted the projected future costs per permitted acre to reflect the fact that not all future forfeitures are anticipated to have significant water treatment issues. We have assumed that permits classified as "Closed Not Water But With Water Costs" do not have significant water treatment issues but rather the costs incurred were to test for compliance prior to closure.

Table 1.3 displays the Water Abandonment Costs per Acre by Permit Type.

The valuation includes the anticipated costs for water capital equipment removal after testing indicates that water treatment is no longer needed. We are now assuming that all water treatment will continue over the next 35 years and thus, have not included any water abandonment costs within our projections.

Table 1.4 provides a summary of the expected reclamation costs per Forfeited Acre by Permit Type. The Table is provided here as well as in the exhibit package.

Table 1.4

Reclamation Costs Summary

(In 2011 Dollars)

Based upon Forfeited Permits	***Surface***	***Underground***	***Other***
Land Capital Cost Per Permitted Acre	2,898.24	13,259.83	9,575.60
Water Capital Cost Per Permitted Acre	913.81	1,024.62	1,804.78
Water Abandonment Cost Per Permitted Acre	203.38	538.46	473.16
Total Capital Cost Per Permitted Acre	4,015.43	14,822.91	11,853.55

Based on the anticipated ongoing annual water treatment estimates developed by the Office of Special Reclamation in conjunction with Dr. Ziemkiewicz and his team at West Virginia University (displayed in Appendix A), we have developed the estimates of future water treatment costs per permitted acre. Table 1.5 summarizes the data for ongoing water treatment costs and shows the development of the initial year annual water treatment costs.

We have made a similar adjustment to the water treatment cost estimate as with the water capital estimate to reflect the assumption that not all future forfeited acres/permits will have water treatment issues. The ratio used in our analysis is based upon the historical ratio of forfeited permits with water treatment issues to the total number of forfeited permits. The development of these ratios is displayed in Tables 3.2, 3.3 and 3.4.

To show the impact of the new NPDES standards, we provide the prior expected annual expenditure for permits currently treating water.

We also note that the prior studies were based upon the annual costs from permits where the water treatment had been completed and the facilities dismantled. Even with an adjustment for inflation, we now see that this method seriously under-estimated the future annual water treatment costs.

Administration Costs

The Administration Costs are displayed and discussed further in the following section, Actuarial Valuation.

ACTUARIAL VALUATION

The actuarial model builds on the current cash projections developed by the Department of Environmental Protection for the expected reclamation costs on sites where permits have already been forfeited. The figures for permits forfeited prior to July 1, 2011 were provided by the Department of Environmental Protection in their Job Scheduling Report as of June 30, 2011. The following tables show the expected expenditures for the next 35 years in the following categories:

- **Table 1.6 - Land Capital Expenditures**
- **Table 1.7 - Water Capital Expenditures**
- **Table 1.8 –Water Abandonment Expenditures**
- **Table 1.9 - Water Treatment Expenditures**

Each table provides the estimated expenditures in the following categories:

- Permits forfeited prior to July 1, 2011 (from the Job Scheduling Report)
- Permits forfeited after July 1, 2011
- Total of the above

Fixed Pre-Existing (Legacy) Water Treatment Costs

In prior studies, the fixed pre-existing or legacy water treatment costs for five specific sites with multiple permits for which the Department of Environmental Protection took over responsibility from the federal Office of Surface Mining had been separately included in the analysis. We had assumed that the costs *($3.7 million annually)* would be those included by the Department of Environmental Protection in their Job Scheduling Report.

With the expansion of the water treatment costs to reflect the NPDES standards, we have included the water treatment cost of these sites as part of the water treatment estimates for currently forfeited permits. A major contributor to the future water treatment from these "legacy" sites is the permits of the DLM Coal Company which add $400,000 to the annual expected future water treatment costs.

Administration Costs

Generally, the administration costs are independent of the cost of the reclamation activities. The current DEP staffing levels may be adjusted over time as the inventory of older permit forfeitures is processed. We have assumed the current staffing levels will remain unchanged. Future administration costs were estimated by increasing the current administration costs by 1.5 percent per year. These expected costs by year are displayed in Table 1.11.

Coal Tax Revenues

Table 1.12 shows the projected coal production and the projected Coal Tax revenue by year and fund. These coal production figures have been taken from the "Consensus Coal Production Forecast for West Virginia 2010 Update" as prepared by George W. Hammond, PhD of West Virginia University's College of Business & Economics.

For the revenue projections included in our analysis, we have limited the expected coal tax revenues to the portion of the total expected coal tax revenues that are attributable to the permits issued prior to June 30, 2011. The expected coal tax to be paid from the permits issued prior to June 30, 2011 have been developed using the ratio of expected remaining surface and underground mining acres under permit to the total acres as of June 30, 2011. This ratio is provided in column (3) of this Table.

Bond Forfeiture, Civil Penalties, and Court Settlements

Based on the permit and acreage forfeiture projections along with the current bond values on the open permits issued in each year, we had developed an estimation of the expected bond forfeiture collections in each of the next 35 fiscal years. As might be expected, the amounts decline over time as the permits in-force today decline through attrition, and the expected number of permit forfeitures declines as well.

Table 1.13 provides the estimated bond collections from future forfeitures.

Investment Income

The investment income has been estimated by applying the investment rates to the fund balance at the beginning of the year plus one-half the current year income less one-half the current year expenditures.

We have selected investment rates of return based upon the recent returns available through investing in US Treasuries. The recent returns on Fund investments have declined significantly since the last study and the onset of the current global financial crisis. Our short term rate of 0.125% is slightly less than the 2010 return of 0.195% earned by the Funds. The use of the rates of return on US Treasuries also facilitates the gradual increase in expected rates of return to more historical levels.

As the SRF is prohibited from borrowing, when the projected fund balance is zero, there will be no investment income in the following year.

Given the long term nature of the liabilities and the short term nature of current investments, the Fund Board might wish to consider alternative investment strategies.

Table 1.14 provides the projected future investment rates.

Permit and Acreage Projections

As part of the analysis, we have developed projections of the permits and acreage into the future. While the most important pieces of information are the number of forfeited permits and number of forfeited acres, the number of (open) permits that remain to be closed via release or forfeiture is also interesting and useful. We have made separate projections of the active and inactive permits as well as permits in phased release status.

- Table 1.15 - projected number of permits in-force over time.
- Table 1.16 -the projection of the acreage of permits in force.
- Table 1.17 - projected acreage of in-force permits, forfeited permits, and released permits

Please note that these projections are only for the permits that had been issued on or before June 30, 2011.

We have also provided these tables separated by the type of permit.

SECTION 2

PROJECTION OF REQUIRED INCOME

As requested by the Special Reclamation Fund Advisory Council, we have also developed an estimate of the required coal tax rates needed to generate income sufficient for the Funds to cover the projected forfeiture reclamation of in-force permits through 2046. We also were requested to provide a cash flow projection assuming a Special Reclamation Water Trust Fund tax rate of 15 cents per ton of coal.

Alternate Tables D and E show the projected cash flow for the next 35 years with the goal of a positive cash balance at the end of fiscal year 2046.

Alternate Table D shows that under the current projections, the Special Reclamation Fund SRF tax would need to increase to 14.35 cents per ton of coal in order to balance the projected future income with the projected reclamation expenditures of permits in force as of June 30, 2011. The primary cause for the indicated tax increase is the anticipated additional cost of water capital and water treatment expenses to be covered by the SRF prior to the transfer of responsibility for these costs to the Water Trust Fund. Due to the requirements to comply with the NPDES standard, the SRF has additional water capital costs for currently forfeited permits of $37.9 million.

Due to the revised water capital cost and treatment assumptions, the anticipated annual costs in the Special Reclamation Water Trust Fund and the time horizon for these annual costs to be required, the required future revenue in this Fund is greatly increased. Alternate Table E shows that under the current projections the Special Reclamation Water Trust Fund would need to increase significantly to 20.56 cents per ton of coal in order to balance the projected future income with the projected reclamation expenditures of the permits in force as of June 30, 2011.

Alternate Tables D and E can be found in the Exhibits section of this report.

With all of the new information and assumptions included in this analysis, some level of increase appears to be required in the short term especially in the Water Trust Fund. We might suggest an incremental approach toward the adequacy target be taken to allow the various estimates and assumptions to be tested.

Using a tax rate of 15 cents per ton of coal for the Special Reclamation Water Trust Fund, we project that the Fund could cover the expenditures through 2037 prior to developing a deficit. This estimate continues to assume that the Water Trust Fund will be used for any expenditure until fiscal year 2019. This alternative cash flow is provided in Tables 2.7, 2.8 and 2.9.

SECTION 3

DATA UNDERLYING ANALYSIS

Data provided for this study are enumerated and discussed below. We did not audit or verify the data, although we did put them through some reasonability tests and found no obvious problems. In addition, we also used information provided for the prior evaluations of the Special Reclamation Fund and the Special Reclamation Water Trust Fund.

Data Provided By West Virginia for This Study

We were provided with a complete copy of the OSR (Office of Special Reclamation) database containing the forfeited permits as of June 30, 2011 in an Excel spreadsheet. The OSR also provided a detailed list of field definitions applicable to their database.

We also obtained a separate database from the Division of Mining and Reclamation that provided detailed information regarding permits issued for coal mining operations.

Following is a summary of the changes in the number of permits contained in the various databases and categories using information contained in the prior report and the current files.

Summary of Forfeited Permits in West Virginia			
	Total	*Active Reclamation*	*Completed Reclamation*
As of 6/30/2010	1,895	146	1,749
As of 6/30/2011	1,905	127	1,778
Change	10	(19)	29

Summary of Issued Permits in West Virginia			
	Total	*In Force*	*Released or Forfeited*
As of 6/30/2010	5,902	1,775	4,127
As of 6/30/2011	5,948	1,773	4,175
Change	46	(2)	48

We have utilized the "Consensus Coal Production Forecast for West Virginia 2010 Update" prepared by George W. Hammond, PhD of West Virginia University's College of Business & Economics. The most recent report was issued by Dr. Hammond in October 2011.

The forfeiture and release rates were reviewed using the available historical data updated through June of 2011. Based upon that data, we have revised the expected release rates for the surface mine, underground mine and other facilities permits. We have removed the distinction between permits issued before 1996 and permits issued after 1995 used in prior studies. Our selections relied primarily on the release activity over the past 10 fiscal calendar years. As such, much of the activity related to the older permits in the early years of operation is not considered. We did

not observe an obvious difference in the release rate activity based upon year in which the permit was issued. The selected release rates are provided in Tables 4.1, 4.2 and 4.3 of the Exhibit package.

Using the historical data, the projected forfeiture rates have been selected on a fiscal calendar year basis rather than based upon the year of permit issuance. With the sporadic nature of forfeitures and the high likelihood that there is correlation between permit forfeiture of multiple permits of one operator, we feel that this method of estimation is more appropriate for the West Virginia dynamics associated with this analysis. We reviewed the historical and recent forfeiture rates as a percent of open permits and selected a rate for each of surface mines, underground mines and other facility permits. The selected rates are shown in Tables 4.1, 4.2 and 4.3 of the Exhibit package. Note that we continue to expect that there will be no forfeitures during the first three years following this issuance of any permit in West Virginia.

We were provided with a copy of the Job Scheduling Report (JSR) as of June 30, 2011. This report contains the Department of Environmental Protection estimates of work scheduled to be performed on sites for permits forfeited prior to June 30, 2011. The JSR contains the expected amount of payment for work in the next several quarters. This information was used for projecting costs for land capital and water capital costs for permits forfeited prior to June 30, 2011. In addition, data in the JSR providing estimates of future Bond Forfeitures, Civil Penalties & Court Settlements was used in the valuation.

More recently, we were provided with additional expected water capital costs required to bring the existing water treatment facilities in compliance with the NPDES standards and the expected additional operating and maintenance water treatment costs to meet the NPDES water quality standards. We have used this information in conjunction with the most recent JSR data to better reflect the water treatment costs for permits which have already been forfeited in West Virginia.

Using the OSR Data – Forfeited Permits

Taking the database of forfeited permits as provided by the Department of Environmental Protection, we split the forfeited permit data into three components: Other, Surface, and Underground. Within these categories, we had four types of forfeited permits: open water, closed water, closed not water but with water costs, and land only. We further split each of these twelve categories into open land and closed land.

This resulted in the following eight categories for each of Other, Surface, and Underground:

- Open water – open land;
- Open water – closed land;
- Closed water – open land;
- Closed water – closed land;
- Closed not water but with water costs – open land;
- Closed not water but with water costs – closed land;
- Land only – open water; and
- Land only – closed water.

The water claims were determined by the use of the acid mine drainage code. Next, we split out the open and closed water claims. Open water forfeited permits are those that have not yet had the capital water projects completed. They are labeled TBC (to be contracted) or UC (under contract) in the water status column. As we worked our way through the remaining sorts, we discovered that there are some open water claims with no code in water status column because they are only being monitored at this time.

The closed water forfeited permits are those that have had the capital water projects completed but are undergoing monitoring and/or treatment. They are labeled ACT (active) or P (passive).

The closed not water but with water cost forfeited permits are those that have some capital or ongoing water costs associated with them but are not considered water forfeited permits. This can arise from several situations.

- A closed water forfeited permit that has four consecutive quarters of untreated water monitoring that shows no problems will be reclassified as closed (C);
- An open water forfeited permit that has four consecutive quarters of untreated water monitoring that shows no problems will be reclassified as not applicable (NA); and
- Land capital costs are at times labeled as water capital costs if they involve a water source even if the water is not being treated.

In all three situations, we treated the water capital and ongoing costs as land capital costs. This is consistent with the treatment in the prior actuarial study.

The land only forfeited permits are those that have no capital water costs or ongoing water costs.

We then went through these four categories and split them into open land and closed land based on the land status column. The open land claims were assigned to one of the following status:

- TBC (to be contracted),
- TPL (tree planting),
- SSR (sediment structure removal), or
- RO (reopened).

The closed land claims were assigned to the following status codes:

- UCW (under contract warranty),
- RPM (re-permitted),
- OTR (others to reclaim), or
- C (closed).

The first three closed land categories were deemed closed for the purpose of this study because any additional funds spent on the sites' reclamation would not come from the Special Reclamation Fund.

The final model parameters based on the OSR and other data are shown in Section 4.

Forfeited Permits by Type of Mining Operation –

Total Forfeited and Forfeited Pending Reclamation Completion

Of the 1,905 forfeited permits at June 30, 2011, 127 permits were either in active reclamation or awaiting reclamation activity.

In Tables 3.1 through 3.4 of the Exhibit Package, we display the total number of forfeited permits and the number of open forfeited permits, the total number of forfeited permitted acres and the number of open forfeited permitted acres that formed the basis for the measurement

- Table 3.1 - Forfeitures - All Permit Types
- Table 3.2 - Forfeitures – Surface Permits
- Table 3.3 - Forfeitures – Underground Permits
- Table 3.4 - Forfeitures - All Other Permit Types

In-Force Permits

In a separate database, we have been provided information regarding permits issued before June 30, 2011 that are still in-force. The in-force designation means that the site is either

a. currently being mined,
b. inactive and not yet reclaimed, or
c. in the process of being reclaimed (phased release)

Tables 3.5 through 3.8, displayed in the Exhibits section of our report, summarize the in-force permits and acreage as of June 30, 2011 by year of issuance and type of permit:

- Table 3.5 - the total number of permits and acres in force
  - Surface Mine,
  - Underground Mine,
  - Other Permit.
- Table 3.6 - Surface Permits in-force and issued by year.
- Table 3.7 - Underground Permits in-force and issued by year.
- Table 3.8 - Other Permits (acres) in-force and issued by year.

SECTION 4

ACTUARIAL ASSUMPTIONS

This section summarizes the actuarial assumptions used in the measurement.

Since the model is one based upon a projection of the number of permits that will be forfeited and become the obligation of the Funds, the rates of permit forfeiture and release are the first key model assumptions. The selected rates of forfeiture and release are applied to the current in-force permit counts by year of issuance and years since issuance, and by type of permit. The selected release and forfeiture rates by type of permit are displayed on Tables 4.1, 4.2, 4.3 and 4.4. Also, the number of forfeited acres is determined in this part of the process.

Table 4.1 Forfeiture and Release Rates – Surface Permits

Table 4.2 Forfeiture and Release Rates – Underground Permits

Table 4.3 Forfeiture and Release Rates – Other Permits

Once the number of projected forfeitures is determined, the cost of reclamation is estimated by applying the estimated average land reclamation costs, water reclamation costs, water abandonment costs and annual on-going water treatment costs per acre by type of mining operation (permit). The average costs in 2011 dollars as developed from the previously forfeited permit data are displayed in Table 4.6, shown below. In adjusting the previous costs to 2011 dollars, we have used a 5 percent inflation rate for reclamation costs.

Table 4.6

Cost Per Acre by Permit Type

(in 2011 Dollars)

	Surface	*Underground*	*Other Types*
Land Capital	2,898.24	13,259.83	9,575.60
Water Capital	913.81	1,024.62	1,804.78
Water Abandonment	203.38	538.46	473.16
Annual Water Treatment	101.39	141.27	199.22

In development of the cash flow projections, the first item to determine is the timing of future payments. We have used the following assumptions as to the delay between permit forfeiture and the expenditure of land capital and water capital funds for reclamation. This expenditure delay is the same as used in previous reviews by the Hay Group and our previous study. We have not attempted to test these assumptions based upon the timing of actual expenditures.

Land Capital and Water Capital Expenditure Delay	
Forfeiture Fiscal Year	***Expenditure Fiscal Year***
2012	Half in FY 2015, half in FY 2016
2013	Half in FY 2016, half in FY 2017
2014	All in FY 2017
2015	All in FY 2018
2016	Half in FY 2018, half in FY 2019
2017	All in FY 2019
2018 and beyond	Completed in fiscal year 2 years after forfeiture

For the projection of annual on-going water treatment expenditures, we have assumed that there is no delay between the water capital expenditure and the commencement of the on-going water treatment. Thus, the table above applies to the origination of the water treatment.

The projection of administration costs assumes an annual increase of 1.5 percent.

In the cash flow projections, we have applied an inflation rate to historical actual reclamation costs to develop these costs in terms of 2011 dollars. The inflation rate applied to these reclamation costs is 4.0 percent annually.

The reflection of investment income on the Fund Balances and general net cash flow has been developed based upon investment rates from US Treasuries. While the longer term investment returns are typically about 4 to 5 percent, the current returns of the Funds are less than 0.2 percent. The investment rates provided in Table 1.14 assume the current environment will gradually return to more long term rates in the coming years. Interim annual periods have been interpolated to further smooth the transition of rates to the historical levels. Implicit Discount Factors based upon the Investment Rates are also displayed in Exhibit 1.14.

We have continued to utilize the adjustment factors for Bond Value Size and Permit Status as shown in Tables 4.5 and 4.7 below.

Table 4.5	
Adjustment Factors for Permit Status	
Permit Status	***Liability Factor***
Active	100.00%
Inactive	75.00%
Phased Release	50.00%

We note that during our review this year, we discovered that the factors in Table 4.7 were not completely reflected in the previous analysis. This oversight resulted in an over-estimation of the future land capital costs in 2010 and is the main driver of the change in the Funded Status of the Special Reclamation Fund between the studies.

Table 4.7 Adjustment Factors for Size of Permits	
Bond Value	Factor
Less than $10,000	2.50
Between $10,000 and $100,000	1.00
Over $100,000	0.38

As previously mentioned, since not all permitted acres are disturbed during the mining operations, in the case of forfeiture, only a portion of the permitted acres will require reclamation. The following table shows the development of the percentages used in our analysis based upon historical forfeiture information.

Table 4.4			
Percent of Permitted Acres That Had Been Disturbed Prior to Forfeiture			
Based upon Forfeited Permits	**Surface**	**Underground**	**Other**
Forfeited Disturbed Acres	35,485.10	3,741.43	3,945.70
Forfeited Permitted Acres	50,453.48	5,153.62	5,021.56
Percent of Permitted Acres That Are Disturbed	70.33%	72.60%	78.58%
Forfeited Disturbed Acres with Open Water	9,282.55	446.62	812.01
Forfeited Permitted Acres with Open Water	13,259.49	513.21	1,007.55
Percent Disturbed with Open Water	70.01%	87.02%	80.59%
Forfeited Disturbed Acres with Closed Water	5,827.57	305.89	805.36
Forfeited Permitted Acres with Closed Water	7,934.50	339.89	1,007.90
Percent Disturbed with Closed Water	73.45%	90.00%	79.90%

A new variable considered in this year's analysis is the structure of the permit ownership. This potential variable has come into focus based upon work of Christine Risch at Marshall University in the Center for Business and Economic Research. During the operation of the Fund, we have a record of only one revoked permit from a publicly traded company. This permit did not appear to have been handled by the Office of Special Reclamation.

However, we do not yet have information with respect to the complete universe of permits (i.e. How many of the released permits were also held by public companies). This information is needed in order to determine an appropriate adjustment factor to apply to the forfeiture rates based on ownership structure.

We have built the following table into our model for possible future reflection of the impact of ownership structure on our projection of future permit forfeitures.

Adjustment Factors for Ownership Structure	
Ownership Structure	***Factor***
Sole Proprietor	100%
Partnership	100%
Multi-Corporation	100%
Public Corporation	100%
Private Corporation	100%

As can be seen, our current model sets all the adjustment factors to 100% (i.e., no impact in this year's analysis).

Table A-1
Special Reclamation Fund
Liability as of June 30, 2011 for Known and Expected Forfeitures
Limited to a 20-Year Cash Flow
(Present Value in $ Millions)

	Currently Forfeited	Projected Forfeited	Total Liabilities
(1) Land Capital	12.1	91.6	103.8
(2) Water Capital	62.8	7.5	70.3
(3) Water Abandonment	0.0	0.0	0.0
(4) Ongoing Water Treatment	35.2	1.8	37.0
(5) Legacy Water Treatment	0.0	0.0	0.0
(6) Administration			48.7
Total			259.7

Footnotes:

(1)	Table 1.6 Col (7)
(2)	Table 1.7 Col (7)
(3)	Table 1.8 Col (7)
(4)	Table 1.9 Col (7)
(5)	Table 1.10 Col (3)
(6)	Table 1.11 Col (3)

Table A-2
Special Reclamation Fund
Liability as of June 30, 2011 for Known and Expected Forfeitures
Cash Flow Projection through 2046
(Present Value in $ Millions)

	Currently Forfeited	Projected Forfeited	Total Liabilities
(7) Land Capital	12.1	123.2	135.4
(8) Water Capital	62.8	7.5	70.3
(9) Water Abandonment	0.0	0.0	0.0
(10) Ongoing Water Treatment	35.2	1.8	37.0
(11) Legacy Water Treatment	0.0	0.0	0.0
(12) Administration			78.2
Total			320.8

Footnotes:

(7)	Table 1.6 Col (8)
(8)	Table 1.7 Col (8)
(9)	Table 1.8 Col (8)
(10)	Table 1.9 Col (8)
(11)	Table 1.10 Col (3)
(12)	Table 1.11 Col (3)

Table A-3
Special Reclamation Water Trust Fund
Liability as of June 30, 2011 for Known and Expected Forfeitures
Limited to a 20-Year Cash Flow
(Present Value in $ Millions)

	Currently Forfeited	Projected Forfeited	Total Liabilities
(1) Land Capital	0.0	0.0	0.0
(2) Water Capital	0.0	15.9	15.9
(3) Water Abandonment	0.0	0.0	0.0
(4) Ongoing Water Treatment	93.5	27.5	120.9
(5) Legacy Water Treatment	0.0	0.0	0.0
(6) Administration			0.0
Total			136.8

Footnotes:
(1)
(2) Table 1.7 Col (7)
(3) Table 1.8 Col (7)
(4) Table 1.9 Col (7)
(5) Table 1.10 Col (3)
(6)

Table A-4
Special Reclamation Water Trust Fund
Liability as of June 30, 2011 for Known and Expected Forfeitures
Cash Flow Projection through 2046
(Present Value in $ Millions)

	Currently Forfeited	Projected Forfeited	Total Liabilities
(7) Land Capital	0.0	0.0	0.0
(8) Water Capital	0.0	23.6	23.6
(9) Water Abandonment	0.0	0.0	0.0
(10) Ongoing Water Treatment	186.5	82.4	268.9
(11) Legacy Water Treatment	0.0	0.0	0.0
(12) Administration			0.0
Total			292.5

Footnotes:
(7)
(8) Table 1.7 Col (8)
(9) Table 1.8 Col (8)
(10) Table 1.9 Col (8)
(11) Table 1.10 Col (3)
(12)

Table B-1
Special Reclamation Fund
Revenue Projection as of June 30, 2011 for Known and Expected Forfeitures
Limited to a 20-Year Cash Flow
(Present Value in $ Millions)

Coal Tax Current Permits	Bond, Forfeiture, Civil Penalties and Court Settlements	Interest Income	Total Income
(1)	(2)	(3)	(4)
161.7	45.5	9.4	216.7

Footnotes:

(1) Table 1.12 Col (7)
(2) Table 1.13 Col (3)
(3) Table D Revenue Col (3) x Table 1.14 Col (2)
(4) Sum of Col (1) through Col (3)

Table B-2
Special Reclamation Fund
Revenue Projection as of June 30, 2011 for Known and Expected Forfeitures
Cash Flow Projections through 2046
(Present Value in $ Millions)

Coal Tax Current Permits	Bond, Forfeiture, Civil Penalties and Court Settlements	Interest Income	Total Income
(5)	(6)	(7)	(8)
179.9	50.7	11.5	242.0

Footnotes:

(5) Table 1.12 Col (7)
(6) Table 1.13 Col (3)
(7) Table D Revenue Col (3) x Table 1.14 Col (2)
(8) Sum of Col (5) through Col (7)

Table B-3
Special Reclamation Water Trust Fund
Revenue Projection as of June 30, 2011 for Known and Expected Forfeitures
Limited to a 20-Year Cash Flow
(Present Value in $ Millions)

Coal Tax Current Permits	Bond, Forfeiture, Civil Penalties and Court Settlements	Interest Income	Total Income
(1)	(2)	(3)	(4)
18.8	0.0	0.9	19.7

Footnotes:
(1) Table 1.12 Col (8)
(2)
(3) Table E Revenue Col (3) x Table 1.14 Col (2)
(4) Sum of Col (1) through Col (3)

Table B-4
Special Reclamation Water Trust Fund
Revenue Projection as of June 30, 2011 for Known and Expected Forfeitures
Cash Flow Projections through 2046
(Present Value in $ Millions)

Coal Tax Current Permits	Bond, Forfeiture, Civil Penalties and Court Settlements	Interest Income	Total Income
(5)	(6)	(7)	(8)
20.9	0.0	0.9	21.8

Footnotes:
(5) Table 1.12 Col (8)
(6)
(7) Table E Revenue Col (3) x Table 1.14 Col (2)
(8) Sum of Col (5) through Col (7)

Table C-1
Special Reclamation Fund
Funded Status as of June 30, 2011
(in $ Millions)

	20 Years	Through 2046
(1) Present Value of Future Revenues	216.7	242.0
(2) Assets as of June 30, 2011	70.2	70.2
(3) Assets + Present Value of Future Revenues	286.8	312.2
(4) Present Value of Future Expenditures	259.7	320.8
(5) Funded Status	110.4%	97.3%
(6) Year Fund Balance Becomes Negative	2039	

Footnotes:

(1)	Table B-1 Col (4); Table B-2 Col (8)
(2)	Client Data
(3)	Row (1) + Row (2)
(4)	Table A-1 Total; Table A-2 Total
(5)	Row (3) / Row (4)
(6)	Table D Summary

Table C-2
Special Reclamation Water Trust Fund
Funded Status as of June 30, 2011
(in $ Millions)

	20 Years	Through 2046
(1) Present Value of Future Revenues	19.7	21.8
(2) Assets as of June 30, 2011	5.9	5.9
(3) Assets + Present Value of Future Revenues	25.6	27.7
(4) Present Value of Future Expenditures	136.8	292.5
(5) Funded Status	18.7%	9.5%
(6) Year Fund Balance Becomes Negative	2038	

Footnotes:

(1)	Table B-3 Col (4); Table B-4 Col (8)
(2)	Client Data
(3)	Row (1) + Row (2)
(4)	Table A-3 Total; Table A-4 Total
(5)	Row (3) / Row (4)
(6)	Table E Summary

Table D Summary
Special Reclamation Fund
Projected Cash Flow For 2012 to 2046
(in $ Thousands)

Fiscal Year Ending 6/30	Expenditures	Revenue	Projected Fund Balance
	(1)	(2)	(3)
2011	0	0	70,154
2012	13,629	21,004	77,529
2013	22,290	19,322	74,560
2014	18,439	17,829	73,950
2015	26,002	16,886	64,834
2016	41,286	16,020	39,568
2017	23,392	14,830	31,007
2018	23,514	13,693	21,186
2019	12,203	12,755	21,738
2020	8,818	12,131	25,050
2021	8,729	11,238	27,560
2022	8,637	10,584	29,506
2023	8,544	9,937	30,899
2024	8,450	9,388	31,836
2025	8,358	8,757	32,235
2026	8,265	8,214	32,184
2027	8,172	7,608	31,620
2028	8,081	7,062	30,601
2029	7,993	6,562	29,169
2030	7,907	6,123	27,385
2031	7,822	5,660	25,223
2032	7,740	5,217	22,700
2033	7,661	4,792	19,830
2034	7,587	4,380	16,624
2035	7,519	3,981	13,086
2036	7,457	3,590	9,218
2037	7,400	3,204	5,023
2038	7,348	2,822	497
2039	7,302	2,508	-4,297
2040	7,260	2,308	-9,250
2041	7,224	2,125	-14,349
2042	7,192	1,956	-19,585
2043	7,165	1,801	-24,948
2044	7,142	1,659	-30,431
2045	7,124	1,528	-36,027
2046	7,109	1,407	-41,729

Footnotes:

(1) Table D Expenditures Col (7)
(2) Table D Revenue Col (4)
(3) Prior Col (3) + (Col (2) - Col (1))

Table D Expenditures
Special Reclamation Fund
Projected Cash Flow For 2012 to 2046
(in $ Thousands)

Fiscal Year Ending 6/30	Land Capital	Water Capital	Water Abandonment	Ongoing Water	Fixed Water Treatment	Administration Costs	Total Expenditures
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2011	0	0	0	0	0	0	0
2012	4,748	3,112	0	3,369	0	2,400	13,629
2013	7,401	8,793	0	3,659	0	2,436	22,290
2014	0	12,008	0	3,959	0	2,473	18,439
2015	3,265	15,698	0	4,530	0	2,510	26,002
2016	6,710	26,389	0	5,639	0	2,548	41,286
2017	10,160	2,603	0	8,044	0	2,586	23,392
2018	9,870	2,530	0	8,489	0	2,625	23,514
2019	9,539	**Cost covered by Water Trust Fund post 2018**				2,664	12,203
2020	6,114					2,704	8,818
2021	5,984					2,745	8,729
2022	5,852					2,786	8,637
2023	5,717					2,827	8,544
2024	5,580					2,870	8,450
2025	5,445					2,913	8,358
2026	5,308					2,957	8,265
2027	5,171					3,001	8,172
2028	5,035					3,046	8,081
2029	4,901					3,092	7,993
2030	4,769					3,138	7,907
2031	4,637					3,185	7,822
2032	4,507					3,233	7,740
2033	4,380					3,281	7,661
2034	4,256					3,331	7,587
2035	4,138					3,381	7,519
2036	4,025					3,431	7,457
2037	3,917					3,483	7,400
2038	3,813					3,535	7,348
2039	3,714					3,588	7,302
2040	3,619					3,642	7,260
2041	3,527					3,696	7,224
2042	3,440					3,752	7,192
2043	3,357					3,808	7,165
2044	3,277					3,865	7,142
2045	3,200					3,923	7,124
2046	3,127					3,982	7,109

Footnotes:

(1) Table 1.6 Col (6)
(2) Table 1.7 Col (6)
(3) Table 1.8 Col (6)
(4) Table 1.9 Col (6)
(5) Table 1.10 Col (1)
(6) Table 1.11 Col (1)
(7) Sum of Col (1) through (6)

Table D Revenue
Special Reclamation Fund
Projected Cash Flow For 2012 to 2046
(in $ Thousands)

Fiscal Year Ending 6/30	SRF Coal Tax	Bond, Penalties, etc.	Investment Income	Total Revenue
	(1)	(2)	(3)	(4)
2011	0	0	0	0
2012	16,676	4,236	92	21,004
2013	15,094	4,085	142	19,322
2014	13,749	3,894	185	17,829
2015	12,770	3,684	432	16,886
2016	12,047	3,453	519	16,020
2017	11,190	3,223	417	14,830
2018	10,336	3,001	356	13,693
2019	9,620	2,789	346	12,755
2020	9,107	2,590	435	12,131
2021	8,283	2,402	553	11,238
2022	7,736	2,225	623	10,584
2023	7,194	2,060	683	9,937
2024	6,750	1,903	734	9,388
2025	6,225	1,757	775	8,757
2026	5,788	1,621	805	8,214
2027	5,290	1,495	823	7,608
2028	4,857	1,378	827	7,062
2029	4,474	1,270	818	6,562
2030	4,158	1,169	796	6,123
2031	3,822	1,076	761	5,660
2032	3,514	991	713	5,217
2033	3,230	912	649	4,792
2034	2,969	841	571	4,380
2035	2,729	775	477	3,981
2036	2,509	714	367	3,590
2037	2,306	658	240	3,204
2038	2,120	607	95	2,822
2039	1,948	560	0	2,508
2040	1,791	517	0	2,308
2041	1,647	478	0	2,125
2042	1,515	441	0	1,956
2043	1,394	408	0	1,801
2044	1,282	377	0	1,659
2045	1,179	349	0	1,528
2046	1,085	323	0	1,407

Footnotes:

(1) Table 1.12 Col (4)

(2) Table 1.13 Col (1)

(3) Table D Summary Prior Col (3) + [0.5 x Col (1) + Col (2) - Table D Summary Col (1)] x Table 1.14 Col (1)

(4) Sum of Col (1) through (3)

Table E Summary
Special Reclamation Water Trust Fund
Projected Cash Flow For 2012 to 2046
(in $ Thousands)

Fiscal Year Ending 6/30	Expenditures	Revenue	Projected Fund Balance
	(1)	(2)	(3)
2011	0	0	5,893
2012	0	1,948	7,841
2013	0	1,772	9,613
2014	0	1,625	11,237
2015	0	1,560	12,797
2016	0	1,536	14,333
2017	0	1,479	15,812
2018	0	1,428	17,240
2019	11,384	1,315	7,171
2020	10,871	1,101	-2,598
2021	11,211	963	-12,846
2022	11,559	900	-23,505
2023	11,914	837	-34,583
2024	12,277	785	-46,075
2025	12,650	724	-58,001
2026	13,030	673	-70,359
2027	13,420	615	-83,163
2028	13,819	565	-96,418
2029	14,229	520	-110,126
2030	14,649	483	-124,292
2031	15,079	444	-138,927
2032	15,521	409	-154,040
2033	15,975	376	-169,639
2034	16,442	345	-185,736
2035	16,923	317	-202,342
2036	17,419	292	-219,469
2037	17,929	268	-237,130
2038	18,454	246	-255,337
2039	18,996	227	-274,107
2040	19,554	208	-293,452
2041	20,129	192	-313,390
2042	20,722	176	-333,936
2043	21,334	162	-355,107
2044	21,964	149	-376,922
2045	22,615	137	-399,400
2046	23,286	126	-422,560

Footnotes:

(1) Table E Expenditures Col (7)
(2) Table E Revenue Col (4)
(3) Prior Col (3) + (Col (2) - Col (1))

Table E Expenditures
Special Reclamation Water Trust Fund
Projected Cash Flow For 2012 to 2046
(in $ Thousands)

Fiscal Year Ending 6/30	Land Capital	Water Capital	Water Abandonment	Ongoing Water	Fixed Water Treatment	Administration Costs	Total Expenditures
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2011							
2012							
2013							
2014							
2015							
2016							
2017							
2018		Cost covered by Special Reclamation Fund until 2019					
2019		2,445	0	8,939	0		11,384
2020		1,565	0	9,306	0		10,871
2021		1,529	0	9,682	0		11,211
2022		1,493	0	10,066	0		11,559
2023		1,456	0	10,458	0		11,914
2024		1,419	0	10,858	0		12,277
2025		1,383	0	11,267	0		12,650
2026		1,345	0	11,685	0		13,030
2027		1,308	0	12,112	0		13,420
2028		1,271	0	12,549	0		13,819
2029		1,234	0	12,995	0		14,229
2030		1,198	0	13,451	0		14,649
2031		1,161	0	13,918	0		15,079
2032		1,125	0	14,396	0		15,521
2033		1,090	0	14,885	0		15,975
2034		1,056	0	15,386	0		16,442
2035		1,023	0	15,900	0		16,923
2036		992	0	16,426	0		17,419
2037		962	0	16,966	0		17,929
2038		934	0	17,521	0		18,454
2039		906	0	18,090	0		18,996
2040		880	0	18,674	0		19,554
2041		854	0	19,275	0		20,129
2042		830	0	19,892	0		20,722
2043		807	0	20,526	0		21,334
2044		785	0	21,179	0		21,964
2045		764	0	21,851	0		22,615
2046		743	0	22,542	0		23,286

Footnotes:

(1)
(2) Table 1.7 Col (6)
(3) Table 1.8 Col (6)
(4) Table 1.9 Col (6)
(5) Table 1.10 Col (1)
(6)
(7) Sum of Col (1) through (6)

Table E Revenue
Special Reclamation Water Trust Fund
Projected Cash Flow For 2012 to 2046
(in $ Thousands)

Fiscal Year Ending 6/30	SRWTF Coal **Tax 1.5 cents**	Bond, Penalties, etc.	Investment Income	Total Revenue
	(1)	(2)	(3)	(4)
2011	0	0	0	0
2012	1,939	0	9	1,948
2013	1,755	0	16	1,772
2014	1,599	0	26	1,625
2015	1,485	0	75	1,560
2016	1,401	0	135	1,536
2017	1,301	0	178	1,479
2018	1,202	0	226	1,428
2019	1,119	0	197	1,315
2020	1,059	0	42	1,101
2021	963	0	0	963
2022	900	0	0	900
2023	837	0	0	837
2024	785	0	0	785
2025	724	0	0	724
2026	673	0	0	673
2027	615	0	0	615
2028	565	0	0	565
2029	520	0	0	520
2030	483	0	0	483
2031	444	0	0	444
2032	409	0	0	409
2033	376	0	0	376
2034	345	0	0	345
2035	317	0	0	317
2036	292	0	0	292
2037	268	0	0	268
2038	246	0	0	246
2039	227	0	0	227
2040	208	0	0	208
2041	192	0	0	192
2042	176	0	0	176
2043	162	0	0	162
2044	149	0	0	149
2045	137	0	0	137
2046	126	0	0	126

Footnotes:

(1) Table 1.12 Col (5)

(2)

(3) Table E Summary Prior Col (3) + [0.5 x Col (1) + Col (2) - Table E Summary Col (1)] x Table 1.14 Col (1)

(4) Sum of Col (1) through (3)

Table F
Cost Per Acre by Permit Type
Based on Forfeited Permits
(in 2011 Dollars)

	Surface	Underground	Other Types
(1) Land Capital	2,898.24	13,259.83	9,575.60
(2) Water Capital	913.81	1,024.62	1,804.78
(3) Water Abandonment	203.38	538.46	473.16
Total	4,015.43	14,822.91	11,853.55

Footnotes:

(1) Table 1.1 Row (9)
(2) Table 1.2 Row (9)
(3) Table 1.3 Row (3)

Table 2.1 Alternative Table D Summary
Special Reclamation Fund
Projected Cash Flow For 2012 to 2046
Using Coal Tax Rate of 14.35 Cents (in $ Thousands)

Fiscal Year Ending 6/30	Expenditures	Income	Projected Fund Balance
	(1)	(2)	(3)
2011	0	0	70,154
2012	13,629	22,879	79,404
2013	22,290	21,024	78,138
2014	18,439	19,385	79,084
2015	26,002	18,358	71,440
2016	41,286	17,447	47,601
2017	23,392	16,191	40,400
2018	23,514	14,992	31,878
2019	12,203	14,019	33,694
2020	8,818	13,388	38,264
2021	8,729	12,460	41,995
2022	8,637	11,781	45,139
2023	8,544	11,112	47,707
2024	8,450	10,554	49,811
2025	8,358	9,906	51,358
2026	8,265	9,357	52,450
2027	8,172	8,740	53,018
2028	8,081	8,192	53,128
2029	7,993	7,697	52,832
2030	7,907	7,273	52,197
2031	7,822	6,825	51,199
2032	7,740	6,402	49,862
2033	7,661	6,002	48,203
2034	7,587	5,622	46,238
2035	7,519	5,259	43,978
2036	7,457	4,909	41,430
2037	7,400	4,571	38,601
2038	7,348	4,242	35,495
2039	7,302	3,919	32,112
2040	7,260	3,600	28,451
2041	7,224	3,285	24,512
2042	7,192	2,951	20,271
2043	7,165	2,621	15,727
2044	7,142	2,293	10,877
2045	7,124	1,966	5,720
2046	7,109	1,639	249

Table 2.2 Alternative Table D Expenditures

Special Reclamation Fund

Projected Cash Flow For 2012 to 2046

Using Coal Tax Rate of 14.35 Cents (in $ Thousands)

Fiscal Year Ending 6/30	Land Capital	Water Capital	Water Abandonment	Ongoing Water	Fixed Water Treatment	Administration Costs	Total Expenditures
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2011	0	0	0	0	0	0	0
2012	4,748	3,112	0	3,369	0	2,400	13,629
2013	7,401	8,793	0	3,659	0	2,436	22,290
2014	0	12,008	0	3,959	0	2,473	18,439
2015	3,265	15,698	0	4,530	0	2,510	26,002
2016	6,710	26,389	0	5,639	0	2,548	41,286
2017	10,160	2,603	0	8,044	0	2,586	23,392
2018	9,870	2,530	0	8,489	0	2,625	23,514
2019	9,539	**Cost covered by Water Trust Fund post 2018**				2,664	12,203
2020	6,114					2,704	8,818
2021	5,984					2,745	8,729
2022	5,852					2,786	8,637
2023	5,717					2,827	8,544
2024	5,580					2,870	8,450
2025	5,445					2,913	8,358
2026	5,308					2,957	8,265
2027	5,171					3,001	8,172
2028	5,035					3,046	8,081
2029	4,901					3,092	7,993
2030	4,769					3,138	7,907
2031	4,637					3,185	7,822
2032	4,507					3,233	7,740
2033	4,380					3,281	7,661
2034	4,256					3,331	7,587
2035	4,138					3,381	7,519
2036	4,025					3,431	7,457
2037	3,917					3,483	7,400
2038	3,813					3,535	7,348
2039	3,714					3,588	7,302
2040	3,619					3,642	7,260
2041	3,527					3,696	7,224
2042	3,440					3,752	7,192
2043	3,357					3,808	7,165
2044	3,277					3,865	7,142
2045	3,200					3,923	7,124
2046	3,127					3,982	7,109

Table 2.3 Alternative Table D Revenue
Special Reclamation Fund
Projected Cash Flow For 2012 to 2046
Using Coal Tax Rate of 14.35 Cents (in $ Thousands)

Fiscal Year Ending 6/30	SRF Coal Tax	Bond, Penalties, etc.	Investment Income	Total Revenue
	(1)	(2)	(3)	(4)
2011	0	0	0	0
2012	18,550	4,236	93	22,879
2013	16,791	4,085	148	21,024
2014	15,295	3,894	196	19,385
2015	14,206	3,684	469	18,358
2016	13,401	3,453	592	17,447
2017	12,448	3,223	519	16,191
2018	11,498	3,001	494	14,992
2019	10,701	2,789	528	14,019
2020	10,130	2,590	668	13,388
2021	9,214	2,402	844	12,460
2022	8,606	2,225	951	11,781
2023	8,003	2,060	1,050	11,112
2024	7,509	1,903	1,141	10,554
2025	6,924	1,757	1,224	9,906
2026	6,438	1,621	1,297	9,357
2027	5,884	1,495	1,360	8,740
2028	5,403	1,378	1,411	8,192
2029	4,977	1,270	1,450	7,697
2030	4,625	1,169	1,479	7,273
2031	4,252	1,076	1,497	6,825
2032	3,909	991	1,503	6,402
2033	3,593	912	1,497	6,002
2034	3,303	841	1,479	5,622
2035	3,036	775	1,448	5,259
2036	2,791	714	1,404	4,909
2037	2,565	658	1,347	4,571
2038	2,358	607	1,277	4,242
2039	2,167	560	1,191	3,919
2040	1,992	517	1,091	3,600
2041	1,832	478	975	3,285
2042	1,686	441	824	2,951
2043	1,550	408	663	2,621
2044	1,426	377	490	2,293
2045	1,312	349	305	1,966
2046	1,207	323	110	1,639

Table 2.4 Alternative Table E Summary
Special Reclamation Water Trust Fund
Projected Cash Flow For 2012 to 2046
Using Coal Tax Rate of 20.56 Cents (in $ Thousands)

Fiscal Year Ending 6/30	Expenditures	Income	Projected Fund Balance
	(1)	(2)	(3)
2011	0	0	5,893
2012	0	26,602	32,495
2013	0	24,141	56,636
2014	0	22,082	78,718
2015	0	20,909	99,627
2016	0	20,293	119,920
2017	0	19,365	139,285
2018	0	18,502	157,787
2019	11,384	17,928	164,332
2020	10,871	17,629	171,091
2021	11,211	16,858	176,738
2022	11,559	16,238	181,417
2023	11,914	15,611	185,114
2024	12,277	15,125	187,962
2025	12,650	14,492	189,804
2026	13,030	13,981	190,755
2027	13,420	13,349	190,684
2028	13,819	12,795	189,660
2029	14,229	12,295	187,727
2030	14,649	11,874	184,952
2031	15,079	11,393	181,265
2032	15,521	10,922	176,666
2033	15,975	10,457	171,147
2034	16,442	9,991	164,695
2035	16,923	9,518	157,290
2036	17,419	9,034	148,905
2037	17,929	8,531	139,507
2038	18,454	8,005	129,059
2039	18,996	7,450	117,513
2040	19,554	6,859	104,818
2041	20,129	6,228	90,916
2042	20,722	5,481	75,675
2043	21,334	4,701	59,043
2044	21,964	3,884	40,963
2045	22,615	3,027	21,375
2046	23,286	2,126	215

Table 2.5 Alternative Table E Expenditures
Special Reclamation Water Trust Fund
Projected Cash Flow For 2012 to 2046
Using Coal Tax Rate of 20.56 Cents (in $ Thousands)

Fiscal Year Ending 6/30	Land Capital	Water Capital	Water Abandonment	Ongoing Water	Fixed Water Treatment	Administration Costs	Total Expenditures
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2011							
2012							
2013							
2014							
2015							
2016							
2017							
2018		**Cost covered by Special Reclamation Fund until 2019**					
2019		2,445	0	8,939	0		11,384
2020		1,565	0	9,306	0		10,871
2021		1,529	0	9,682	0		11,211
2022		1,493	0	10,066	0		11,559
2023		1,456	0	10,458	0		11,914
2024		1,419	0	10,858	0		12,277
2025		1,383	0	11,267	0		12,650
2026		1,345	0	11,685	0		13,030
2027		1,308	0	12,112	0		13,420
2028		1,271	0	12,549	0		13,819
2029		1,234	0	12,995	0		14,229
2030		1,198	0	13,451	0		14,649
2031		1,161	0	13,918	0		15,079
2032		1,125	0	14,396	0		15,521
2033		1,090	0	14,885	0		15,975
2034		1,056	0	15,386	0		16,442
2035		1,023	0	15,900	0		16,923
2036		992	0	16,426	0		17,419
2037		962	0	16,966	0		17,929
2038		934	0	17,521	0		18,454
2039		906	0	18,090	0		18,996
2040		880	0	18,674	0		19,554
2041		854	0	19,275	0		20,129
2042		830	0	19,892	0		20,722
2043		807	0	20,526	0		21,334
2044		785	0	21,179	0		21,964
2045		764	0	21,851	0		22,615
2046		743	0	22,542	0		23,286

Table 2.6 Alternative Table E Revenue
Special Reclamation Water Trust Fund
Projected Cash Flow For 2012 to 2046
Using Coal Tax Rate of 20.56 Cents (in $ Thousands)

Fiscal Year Ending 6/30	SRWTF Coal Tax	Bond, Penalties, etc.	Investment Income	Total Revenue
	(1)	(2)	(3)	(4)
2011	0	0	0	0
2012	26,578	0	24	26,602
2013	24,057	0	83	24,141
2014	21,913	0	169	22,082
2015	20,353	0	556	20,909
2016	19,201	0	1,092	20,293
2017	17,835	0	1,530	19,365
2018	16,474	0	2,028	18,502
2019	15,332	0	2,596	17,928
2020	14,514	0	3,115	17,629
2021	13,202	0	3,657	16,858
2022	12,330	0	3,908	16,238
2023	11,466	0	4,145	15,611
2024	10,759	0	4,367	15,125
2025	9,921	0	4,572	14,492
2026	9,224	0	4,756	13,981
2027	8,431	0	4,918	13,349
2028	7,741	0	5,055	12,795
2029	7,131	0	5,165	12,295
2030	6,626	0	5,247	11,874
2031	6,092	0	5,301	11,393
2032	5,600	0	5,322	10,922
2033	5,148	0	5,309	10,457
2034	4,732	0	5,258	9,991
2035	4,350	0	5,168	9,518
2036	3,998	0	5,035	9,034
2037	3,675	0	4,856	8,531
2038	3,378	0	4,627	8,005
2039	3,105	0	4,345	7,450
2040	2,854	0	4,005	6,859
2041	2,625	0	3,602	6,228
2042	2,415	0	3,066	5,481
2043	2,221	0	2,479	4,701
2044	2,043	0	1,841	3,884
2045	1,880	0	1,147	3,027
2046	1,729	0	397	2,126

Table 2.7 Proposed Tax Table E Summary
Special Reclamation Water Trust Fund
Projected Cash Flow For 2012 to 2046
Using Coal Tax Rate of 15 Cents (in $ Thousands)

Fiscal Year Ending 6/30	Expenditures (1)	Income (2)	Projected Fund Balance (3)
2011	0	0	5,893
2012	0	19,410	25,303
2013	0	17,615	42,919
2014	0	16,115	59,034
2015	0	15,264	74,298
2016	0	14,821	89,119
2017	0	14,147	103,267
2018	0	13,521	116,788
2019	11,384	13,082	118,487
2020	10,871	12,808	120,424
2021	11,211	12,174	121,387
2022	11,559	11,646	121,473
2023	11,914	11,103	120,663
2024	12,277	10,655	119,040
2025	12,650	10,088	116,478
2026	13,030	9,598	113,046
2027	13,420	9,009	108,636
2028	13,819	8,464	103,280
2029	14,229	7,943	96,995
2030	14,649	7,465	89,810
2031	15,079	6,926	81,657
2032	15,521	6,378	72,514
2033	15,975	5,814	62,353
2034	16,442	5,229	51,140
2035	16,923	4,618	38,835
2036	17,419	3,973	25,389
2037	17,929	3,290	10,751
2038	18,454	2,561	-5,142
2039	18,996	2,265	-21,873
2040	19,554	2,082	-39,344
2041	20,129	1,915	-57,558
2042	20,722	1,762	-76,518
2043	21,334	1,621	-96,231
2044	21,964	1,491	-116,705
2045	22,615	1,371	-137,948
2046	23,286	1,261	-159,972

Footnotes:

(1) Table 2.8 Proposed Tax Table E Expenditures Col (7)
(2) Table 2.9 Proposed Tax Table E Revenue Col (4)
(3) Prior Col (3) + (Col (2) - Col (1))

Table 2.8 Proposed Tax Table E Expenditures
Special Reclamation Water Trust Fund
Projected Cash Flow For 2012 to 2046
Using Coal Tax Rate of 15 Cents (in $ Thousands)

Fiscal Year Ending 6/30	Land Capital	Water Capital	Water Abandonment	Ongoing Water	Fixed Water Treatment	Administration Costs	Total Expenditures
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2011							
2012							
2013							
2014							
2015							
2016							
2017							
2018		Cost covered by Special Reclamation Fund until 2019					
2019		2,445	0	8,939	0		11,384
2020		1,565	0	9,306	0		10,871
2021		1,529	0	9,682	0		11,211
2022		1,493	0	10,066	0		11,559
2023		1,456	0	10,458	0		11,914
2024		1,419	0	10,858	0		12,277
2025		1,383	0	11,267	0		12,650
2026		1,345	0	11,685	0		13,030
2027		1,308	0	12,112	0		13,420
2028		1,271	0	12,549	0		13,819
2029		1,234	0	12,995	0		14,229
2030		1,198	0	13,451	0		14,649
2031		1,161	0	13,918	0		15,079
2032		1,125	0	14,396	0		15,521
2033		1,090	0	14,885	0		15,975
2034		1,056	0	15,386	0		16,442
2035		1,023	0	15,900	0		16,923
2036		992	0	16,426	0		17,419
2037		962	0	16,966	0		17,929
2038		934	0	17,521	0		18,454
2039		906	0	18,090	0		18,996
2040		880	0	18,674	0		19,554
2041		854	0	19,275	0		20,129
2042		830	0	19,892	0		20,722
2043		807	0	20,526	0		21,334
2044		785	0	21,179	0		21,964
2045		764	0	21,851	0		22,615
2046		743	0	22,542	0		23,286

Footnotes:

(1)
(2) Table 1.7 Col (6)
(3) Table 1.8 Col (6)
(4) Table 1.9 Col (6)
(5) Table 1.10 Col (1)
(6)
(7) Sum of Col (1) through (6)

Table 2.9 Proposed Tax Table E Revenue
Special Reclamation Water Trust Fund
Projected Cash Flow For 2012 to 2046
Using Coal Tax Rate of 15 Cents (in $ Thousands)

Fiscal Year Ending 6/30	SRWTF Coal Tax	Bond, Penalties, etc.	Investment Income	Total Revenue
	(1)	(2)	(3)	(4)
2011	0	0	0	0
2012	19,390	0	19	19,410
2013	17,552	0	64	17,615
2014	15,987	0	127	16,115
2015	14,849	0	415	15,264
2016	14,008	0	813	14,821
2017	13,012	0	1,136	14,147
2018	12,019	0	1,503	13,521
2019	11,186	0	1,896	13,082
2020	10,589	0	2,219	12,808
2021	9,632	0	2,542	12,174
2022	8,996	0	2,650	11,646
2023	8,365	0	2,738	11,103
2024	7,849	0	2,806	10,655
2025	7,238	0	2,850	10,088
2026	6,730	0	2,869	9,598
2027	6,151	0	2,858	9,009
2028	5,647	0	2,816	8,464
2029	5,202	0	2,741	7,943
2030	4,834	0	2,630	7,465
2031	4,444	0	2,482	6,926
2032	4,086	0	2,292	6,378
2033	3,756	0	2,059	5,814
2034	3,452	0	1,777	5,229
2035	3,174	0	1,444	4,618
2036	2,917	0	1,056	3,973
2037	2,681	0	608	3,290
2038	2,465	0	97	2,561
2039	2,265	0	0	2,265
2040	2,082	0	0	2,082
2041	1,915	0	0	1,915
2042	1,762	0	0	1,762
2043	1,621	0	0	1,621
2044	1,491	0	0	1,491
2045	1,371	0	0	1,371
2046	1,261	0	0	1,261

Footnotes:

(1) Table 1.12 Col (5) x (15 cents / 1.5 cents)

(2)

(3) Table 2.7 Proposed Tax Table E Summary Prior Col (3) + [0.5 x Col (1) + Col (2) - Table 2.7 Proposed Tax Table E Summary Col (1)] x Table 1.14 Col (1)

(4) Sum of Col (1) through (3)

Table 1.1

Land Capital Expenditure Per Acre by Permit Type

Based on Forfeited Permits

	Surface	Underground	Other
(1) Total expenditure in actual dollars	65,373,486.17	30,551,113.53	21,497,166.45
(2) Total disturbed acreage under permit	35,485.10	3,741.43	3,945.70
(3) Average cost per acre in actual dollars	1,842.28	8,165.62	5,448.25
(4) Mid-point of experience data	1994.5	1994.5	1994.5
(5) Average annual increase in Land capital expenditures over experience period	5%	5%	5%
(6) Increase factor (1.05)^16.5	2.24	2.24	2.24
(7) Average cost per disturbed acre in 2011 dollars	4,120.78	18,264.71	12,186.54
(8) Percent of permitted acreage that is disturbed	70.33%	72.60%	78.58%
(9) Cost Per Permitted Acre in 2011 dollars	2,898.24	13,259.83	9,575.60

Footnotes:

(1)	Client Data
(2)	Table 4.4 Row (1)
(3)	Row (1) / Row (2)
(4)	Client Data
(5)	Selection
(6)	(Row (5) + 1) ^ (2011 - Row (4))
(7)	Row (3) x Row (6)
(8)	Table 4.4 Row (3)
(9)	Row (7) x Row (8)

Table 1.2

Water Capital Expenditure Per Acre by Permit Type

Based on Forfeited Permits

	Surface	Underground	Other
(1) Total expenditure in actual dollars for Open Water Forfeited Permits	3,000,175.19	107,743.00	955,600.00
(2) Mid-point of experience data	2005.5	2005.5	2005.5
(3) Average annual increase in Water capital expenditures over experience period	5%	5%	5%
(4) Increase factor (1.04)^5.5	1.31	1.31	1.31
(5) Total expenditure in 2011 dollars	3,923,627.41	140,906.23	1,249,733.14
(6) Additional expenditure for Currently Operating Permits	9,525,645.19	2,855,677.68	4,778,686.90
(7) Additional expenditure for To Be Contracted Permits	26,939,389.28	2,261,848.00	1,245,217.50
(8) Total Expenditure	40,388,661.88	5,258,431.91	7,273,637.54
(9) Total disturbed acreage under permits with open water	9,282.55	446.62	812.01
(10) Average cost per disturbed acre in 2011 dollars	4,351.03	11,773.84	8,957.57
(11) Percent of permitted acreage that is disturbed under permits with open water	70.01%	87.02%	80.59%
(12) Cost Per Permitted Acre in 2011 dollars	3,046.02	10,246.16	7,219.13
(13) Percent of forfeited acres with water issues	30.00%	10.00%	25.00%
(114) Cost Per Permitted Acre in 2011 dollars with water issues	913.81	1,024.62	1,804.78

Footnotes:

(1)	Client Data Forfeited Database
(2)	Client Data
(3)	Selection
(4)	(Row (3) + 1) ^ (2011 - Row (2))
(5)	Row (1) x Row (4)
(6)	Client Data Appendix A
(7)	Client Data Appendix A
(8)	Row (5) + Row (6) + Row (7)
(9)	Client Data
(10)	Row (8) / Row (9)
(11)	Table 4.4 Row (6)
(12)	Row (10) x Row (11)
(13)	Table 3.2, Table 3.3, Table 3.4 Col (6)
(14)	Row (12) x Row (13)

Table 1.3

Water Abandonment Expenditure Per Acre by Permit Type

Based on Forfeited Permits

	Surface	Underground	Other
(1) Total expenditure in actual dollars	5,379,176.00	1,830,178.00	1,907,605.00
(2) Total disturbed acreage under permits with closed water	5,827.57	305.89	805.36
(3) Average cost per disturbed acre in 2011 dollars	923.06	5,983.12	2,368.64
(4) Percent of permitted acreage that is disturbed under permits with closed water	73.45%	90.00%	79.90%
(5) Cost Per Permitted Acre in 2011 dollars	677.95	5,384.62	1,892.65
(6) Percent of forfeited acres with water issues	30.00%	10.00%	25.00%
(7) Cost Per Permitted Acre in 2011 dollars with water issues	203.38	538.46	473.16

Footnotes:

(1)	Client Data
(2)	Client Data
(3)	Row (1) / Row (2)
(4)	Table 4.4 Row (9)
(5)	Row (3) x Row (4)
(6)	Table 3.2, Table 3.3, Table 3.4 Col (6)
(7)	Row (5) x Row (6)

Table 1.4

Total Capital Expenditure Per Acre by Permit Type

Based on Forfeited Permits

(in 2011 Dollars)

	Surface	Underground	Other
(1) Land Capital Cost Per Permitted Acre	2,898.24	13,259.83	9,575.60
(2) Water Capital Cost Per Permitted Acre	913.81	1,024.62	1,804.78
(3) Water Abandonment Cost Per Permitted Acre	203.38	538.46	473.16
(4) Total Capital Cost Per Permitted Acre	4,015.43	14,822.91	11,853.55

Footnotes:

(1)	Table 1.1 Row (9)
(2)	Table 1.2 Row (12)
(3)	Table 1.3 Row (3)
(4)	Sum of Row (1) through Row (3)

Table 1.5

Ongoing Water Treatment Expenditure Per Acre by Permit Type

Based on Forfeited Permits that are Currently Treating or Scheduled to Treat Water

	Surface	Underground	Other
(1) Total Annual Expenditure in Actual Dollars for Open Water Forfeited Permits	4,481,385.40	725,027.34	802,915.89
(2) Total disturbed acreage under permits with open water	9,282.55	446.62	812.01
(3) Total cost per disturbed acre for open sites	482.78	1,623.37	988.80
(4) Percent of permitted acreage that is disturbed under permits with open water	70.01%	87.02%	80.59%
(5) Valuation Cost Per Permitted Acre	337.98	1,412.73	796.90
(6) Percent of forfeited acres with water issues	30.00%	10.00%	25.00%
(7) Valuation Cost Per Permitted Acre with water issues	101.39	141.27	199.22
Prior Total Annual Expenditure in Actual Dollars for Open Water Forfeited Permits	1,309,558.48	55,574.26	100,299.42

Footnotes:

(1)	Client Data Appendix A
(2)	Client Data Appendix A
(3)	Row (1) / Row (2)
(4)	Table 4.4 Row (6)
(5)	Row (3) x Row (4)
(6)	Table 3.2, Table 3.3, Table 3.4 Col (6)
(7)	Row (5) x Row (6)

Table 1.5

Ongoing Water Treatment Expenditure Per Permit by Permit Type

Based on Forfeited Permits

	Surface	Underground	Other
(1) Total Annual Expenditure in Actual Dollars for Open Water Forfeited Permits	4,481,385.40	725,027.34	802,915.89
(2) Number of permits	140	31	18
(3) Total cost per permit for open sites	32,009.90	23,387.98	44,606.44

Footnotes:

(1)	Client Data
(2)	Client Data
(3)	Row (1) / Row (2)

Table 1.6
Land Capital Expenditures
(in 2011 Dollars)

Fiscal Year	Nominal			Inflated at 4%			Discounted Based on US Treasury Return		
	Prior to 7-1-11	After 7-1-11	Total	Prior to 7-1-11	After 7-1-11	Total	Prior to 7-1-11	After 7-1-11	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2012	4,656,086	-	4,656,086	4,748,294	-	4,748,294	4,745,330	-	4,745,330
2013	6,978,460	-	6,978,460	7,401,328	-	7,401,328	7,387,472	-	7,387,472
2014	-	-	-	-	-	-	-	-	-
2015		2,845,836	2,845,836		3,264,575	3,264,575		3,236,184	3,236,184
2016		5,624,177	5,624,177		6,709,791	6,709,791		6,597,843	6,597,843
2017		8,188,224	8,188,224		10,159,518	10,159,518		9,881,934	9,881,934
2018		7,648,795	7,648,795		9,869,831	9,869,831		9,478,720	9,478,720
2019		7,108,330	7,108,330		9,539,324	9,539,324		9,025,929	9,025,929
2020		4,380,964	4,380,964		6,114,390	6,114,390		5,685,822	5,685,822
2021		4,122,785	4,122,785		5,984,219	5,984,219		5,455,666	5,455,666
2022		3,876,335	3,876,335		5,851,556	5,851,556		5,221,640	5,221,640
2023		3,641,457	3,641,457		5,716,874	5,716,874		4,989,352	4,989,352
2024		3,417,679	3,417,679		5,580,177	5,580,177		4,759,251	4,759,251
2025		3,206,797	3,206,797		5,445,296	5,445,296		4,534,949	4,534,949
2026		3,005,866	3,005,866		5,308,271	5,308,271		4,313,401	4,313,401
2027		2,815,399	2,815,399		5,170,788	5,170,788		4,096,333	4,096,333
2028		2,636,195	2,636,195		5,035,327	5,035,327		3,885,922	3,885,922
2029		2,467,415	2,467,415		4,901,463	4,901,463		3,681,937	3,681,937
2030		2,308,530	2,308,530		4,769,273	4,769,273		3,484,526	3,484,526
2031		2,158,088	2,158,088		4,636,809	4,636,809		3,292,370	3,292,370
2032		2,016,975	2,016,975		4,506,964	4,506,964		3,107,624	3,107,624
2033		1,884,616	1,884,616		4,379,652	4,379,652		2,930,196	2,930,196
2034		1,761,162	1,761,162		4,256,469	4,256,469		2,761,066	2,761,066
2035		1,646,462	1,646,462		4,138,425	4,138,425		2,600,702	2,600,702
2036		1,539,869	1,539,869		4,025,320	4,025,320		2,448,740	2,448,740
2037		1,440,786	1,440,786		3,916,964	3,916,964		2,304,819	2,304,819
2038		1,348,661	1,348,661		3,813,171	3,813,171		2,168,590	2,168,590
2039		1,262,983	1,262,983		3,713,766	3,713,766		2,039,711	2,039,711
2040		1,183,280	1,183,280		3,618,577	3,618,577		1,917,849	1,917,849
2041		1,109,114	1,109,114		3,527,442	3,527,442		1,802,680	1,802,680
2042		1,040,082	1,040,082		3,440,204	3,440,204		1,694,552	1,694,552
2043		975,807	975,807		3,356,713	3,356,713		1,593,664	1,593,664
2044		915,946	915,946		3,276,824	3,276,824		1,499,504	1,499,504
2045		860,176	860,176		3,200,399	3,200,399		1,411,596	1,411,596
2046		808,201	808,201		3,127,302	3,127,302		1,329,499	1,329,499
Total	11,634,546	89,246,993	100,881,539	12,149,622	160,355,675	172,505,297	12,132,801	123,232,570	135,365,371
First 20 Years	11,634,546	69,452,873	81,087,419	12,149,622	104,057,481	116,207,103	12,132,801	91,621,780	103,754,581

Footnotes:

(1) Client Data
(2) Table 1.16
(3) Col (1) + Col (2)
(4) Col (1) x 4% inflation
(5) Col (2) x 4% inflation
(6) Col (4) + Col (5)
(7) Col (4) x Table 1.14 Col (2)
(8) Col (5) x Table 1.14 Col (2)
(9) Col (7) + Col (8)

Table 1.7
Water Capital Expenditures
(in 2011 Dollars)

Fiscal Year	Nominal			Inflated at 4%			Discounted Based on US Treasury Return		
	Prior to 7-1-11	After 7-1-11	Total	Prior to 7-1-11	After 7-1-11	Total	Prior to 7-1-11	After 7-1-11	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2012	3,051,084	-	3,051,084	3,111,508	-	3,111,508	3,109,565	-	3,109,565
2013	8,290,712	-	8,290,712	8,793,096	-	8,793,096	8,776,635	-	8,776,635
2014	10,886,374	-	10,886,374	12,007,888	-	12,007,888	11,955,517	-	11,955,517
2015	12,957,803	726,506	13,684,309	14,864,423	833,405	15,697,828	14,735,154	826,157	15,561,310
2016	20,681,162	1,438,402	22,119,563	24,673,170	1,716,051	26,389,222	24,261,516	1,687,420	25,948,936
2017		2,097,698	2,097,698		2,602,713	2,602,713		2,531,601	2,531,601
2018		1,960,976	1,960,976		2,530,398	2,530,398		2,430,126	2,430,126
2019		1,821,577	1,821,577		2,444,542	2,444,542		2,312,980	2,312,980
2020		1,121,278	1,121,278		1,564,936	1,564,936		1,455,248	1,455,248
2021		1,053,707	1,053,707		1,529,455	1,529,455		1,394,366	1,394,366
2022		989,205	989,205		1,493,263	1,493,263		1,332,514	1,332,514
2023		927,717	927,717		1,456,461	1,456,461		1,271,114	1,271,114
2024		869,173	869,173		1,419,132	1,419,132		1,210,357	1,210,357
2025		814,186	814,186		1,382,527	1,382,527		1,151,395	1,151,395
2026		761,713	761,713		1,345,163	1,345,163		1,093,054	1,093,054
2027		711,910	711,910		1,307,500	1,307,500		1,035,810	1,035,810
2028		665,241	665,241		1,270,660	1,270,660		980,608	980,608
2029		621,185	621,185		1,233,969	1,233,969		926,947	926,947
2030		579,693	579,693		1,197,608	1,197,608		874,996	874,996
2031		540,383	540,383		1,161,052	1,161,052		824,406	824,406
2032		503,544	503,544		1,125,176	1,125,176		775,827	775,827
2033		469,058	469,058		1,090,042	1,090,042		729,290	729,290
2034		436,946	436,946		1,056,034	1,056,034		685,023	685,023
2035		407,171	407,171		1,023,435	1,023,435		643,155	643,155
2036		379,557	379,557		992,188	992,188		603,582	603,582
2037		353,943	353,943		962,241	962,241		566,202	566,202
2038		330,180	330,180		933,543	933,543		530,915	530,915
2039		308,129	308,129		906,043	906,043		497,626	497,626
2040		287,662	287,662		879,695	879,695		466,239	466,239
2041		268,661	268,661		854,454	854,454		436,664	436,664
2042		251,018	251,018		830,276	830,276		408,971	408,971
2043		234,632	234,632		807,119	807,119		383,195	383,195
2044		219,409	219,409		784,944	784,944		359,197	359,197
2045		205,264	205,264		763,711	763,711		336,849	336,849
2046		192,116	192,116		743,384	743,384		316,032	316,032
Total	55,867,135	22,547,837	78,414,972	63,450,085	40,241,119	103,691,204	62,838,386	31,077,868	93,916,253
Years 2012 - 2018	55,867,135	6,223,581	62,090,717	63,450,085	7,682,567	71,132,653	62,838,386	7,475,304	70,313,690
Years 2019 - 2031	-	11,476,966	11,476,966	-	18,806,267	18,806,267	-	15,863,795	15,863,795
Years 2019 - 2046	-	16,324,256	16,324,256	-	32,558,551	32,558,551	-	23,602,564	23,602,564

Footnotes:

(1) Client Data
(2) Table 1.16
(3) Col (1) + Col (2)
(4) Col (1) x 4% inflation
(5) Col (2) x 4% inflation
(6) Col (4) + Col (5)
(7) Col (4) x Table 1.14 Col (2)
(8) Col (5) x Table 1.14 Col (2)
(9) Col (7) + Col (8)

Table 1.8
Water Abandonment Expenditures
(in 2011 Dollars)

Fiscal Year	Nominal			Inflated at 4%			Discounted Based on US Treasury Return		
	Prior to 7-1-11	After 7-1-11	Total	Prior to 7-1-11	After 7-1-11	Total	Prior to 7-1-11	After 7-1-11	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2012		-	-	-	-	-	-	-	-
2013		-	-	-	-	-	-	-	-
2014		-	-	-	-	-	-	-	-
2015		-	-		-	-		-	-
2016		-	-		-	-		-	-
2017		-	-		-	-		-	-
2018		-	-		-	-		-	-
2019		-	-		-	-		-	-
2020		-	-		-	-		-	-
2021		-	-		-	-		-	-
2022		-	-		-	-		-	-
2023		-	-		-	-		-	-
2024		-	-		-	-		-	-
2025		-	-		-	-		-	-
2026		-	-		-	-		-	-
2027		-	-		-	-		-	-
2028		-	-		-	-		-	-
2029		-	-		-	-		-	-
2030		-	-		-	-		-	-
2031		-	-		-	-		-	-
2032		-	-		-	-		-	-
2033		-	-		-	-		-	-
2034		-	-		-	-		-	-
2035		-	-		-	-		-	-
2036		-	-		-	-		-	-
2037		-	-		-	-		-	-
2038		-	-		-	-		-	-
2039		-	-		-	-		-	-
2040		-	-		-	-		-	-
2041		-	-		-	-		-	-
2042		-	-		-	-		-	-
2043		-	-		-	-		-	-
2044		-	-		-	-		-	-
2045		-	-		-	-		-	-
2046		-	-		-	-		-	-
Total	-	-	-	-	-	-	-	-	-
Years 2012 - 2018	-	-	-	-	-	-	-	-	-
Years 2019 - 2031	-	-	-	-	-	-	-	-	-
Years 2019 - 2046	-	-	-	-	-	-	-	-	-

Footnotes:

(1) Client Data
(2) Table 1.16
(3) Col (1) + Col (2)
(4) Col (1) x 4% inflation
(5) Col (2) x 4% inflation
(6) Col (4) + Col (5)
(7) Col (4) x Table 1.14 Col (2)
(8) Col (5) x Table 1.14 Col (2)
(9) Col (7) + Col (8)

Table 1.9
Water Treatment Expenditures
(in 2011 Dollars) **Including Legacy Sites**

	Nominal			Inflated at 4%			Discounted Based on US Treasury Return		
Fiscal Year	Prior to 7-1-11	After 7-1-11	Total	Prior to 7-1-11	After 7-1-11	Total	Prior to 7-1-11	After 7-1-11	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2012	3,303,317	-	3,303,317	3,368,736	-	3,368,736	3,366,632	-	3,366,632
2013	3,450,340	-	3,450,340	3,659,417	-	3,659,417	3,652,566	-	3,652,566
2014	3,588,964	-	3,588,964	3,958,698	-	3,958,698	3,941,433	-	3,941,433
2015	3,867,033	81,623	3,948,656	4,436,031	93,633	4,529,664	4,397,453	92,819	4,490,271
2016	4,485,379	241,567	4,726,946	5,351,175	288,196	5,639,371	5,261,895	283,388	5,545,282
2017	6,009,329	473,953	6,483,281	7,456,059	588,056	8,044,114	7,252,340	571,988	7,824,329
2018	5,889,142	689,480	6,578,623	7,599,215	889,690	8,488,905	7,298,082	854,434	8,152,516
2019	5,771,359	889,660	6,661,019	7,745,120	1,193,917	8,939,037	7,328,286	1,129,662	8,457,948
2020	5,655,932	1,011,515	6,667,447	7,893,826	1,411,743	9,305,569	7,340,536	1,312,791	8,653,327
2021	5,542,813	1,127,342	6,670,156	8,045,388	1,636,336	9,681,724	7,334,784	1,491,808	8,826,592
2022	5,431,957	1,236,043	6,668,000	8,199,859	1,865,880	10,065,739	7,317,150	1,665,019	8,982,170
2023	5,323,318	1,337,978	6,661,296	8,357,297	2,100,547	10,457,844	7,293,758	1,833,235	9,126,993
2024	5,216,852	1,433,471	6,650,323	8,517,757	2,340,484	10,858,241	7,264,669	1,996,165	9,260,833
2025	5,112,515	1,522,914	6,635,429	8,681,298	2,585,982	11,267,280	7,229,954	2,153,656	9,383,611
2026	5,010,264	1,606,583	6,616,848	8,847,978	2,837,178	11,685,157	7,189,701	2,305,438	9,495,139
2027	4,910,059	1,684,774	6,594,833	9,017,860	3,094,271	12,112,131	7,144,009	2,451,302	9,595,311
2028	4,811,858	1,757,831	6,569,689	9,191,003	3,357,586	12,548,589	7,092,989	2,591,156	9,684,145
2029	4,715,621	1,826,043	6,541,664	9,367,470	3,627,391	12,994,861	7,036,763	2,724,865	9,761,629
2030	4,621,308	1,889,693	6,511,001	9,547,325	3,903,983	13,451,309	6,975,467	2,852,328	9,827,795
2031	4,528,882	1,949,020	6,477,902	9,730,634	4,187,612	13,918,246	6,909,244	2,973,417	9,882,662
2032	4,438,304	2,004,299	6,442,603	9,917,462	4,478,637	14,396,099	6,838,250	3,088,093	9,926,343
2033	4,349,538	2,055,786	6,405,325	10,107,877	4,777,435	14,885,312	6,762,651	3,196,331	9,958,981
2034	4,262,548	2,103,745	6,366,292	10,301,949	5,084,440	15,386,389	6,682,618	3,298,150	9,980,768
2035	4,177,297	2,148,431	6,325,727	10,499,746	5,400,138	15,899,884	6,598,335	3,393,598	9,991,933
2036	4,093,751	2,190,083	6,283,833	10,701,341	5,725,024	16,426,365	6,509,990	3,482,727	9,992,717
2037	4,011,876	2,228,920	6,240,795	10,906,807	6,059,609	16,966,415	6,417,781	3,565,594	9,983,374
2038	3,931,638	2,265,146	6,196,784	11,116,218	6,404,417	17,520,635	6,321,909	3,642,259	9,964,168
2039	3,853,005	2,298,948	6,151,954	11,329,649	6,759,990	18,089,639	6,222,583	3,712,789	9,935,372
2040	3,775,945	2,330,502	6,106,448	11,547,178	7,126,885	18,674,063	6,120,015	3,777,255	9,897,271
2041	3,700,426	2,359,969	6,060,395	11,768,884	7,505,675	19,274,559	6,014,422	3,835,733	9,850,156
2042	3,626,418	2,387,497	6,013,915	11,994,847	7,896,954	19,891,801	5,908,337	3,889,826	9,798,163
2043	3,553,890	2,413,224	5,967,114	12,225,148	8,301,334	20,526,482	5,804,122	3,941,217	9,745,339
2044	3,482,812	2,437,280	5,920,091	12,459,870	8,719,446	21,179,317	5,701,746	3,990,095	9,691,841
2045	3,413,155	2,459,781	5,872,937	12,699,100	9,151,944	21,851,043	5,601,175	4,036,636	9,637,811
2046	3,344,892	2,480,838	5,825,731	12,942,923	9,599,501	22,542,424	5,502,379	4,081,002	9,583,380
Total	155,261,737	54,923,939	210,185,677	319,491,142	138,993,916	458,485,058	221,634,024	84,214,777	305,848,801
Years 2012 - 2018	30,593,504	1,486,623	32,080,127	35,829,331	1,859,574	37,688,905	35,170,401	1,802,629	36,973,029
Years 2019 - 2031	66,652,738	19,272,868	85,925,606	113,142,813	34,142,913	147,285,727	93,457,310	27,480,844	120,938,154
Years 2019 - 2046	124,668,234	53,437,316	178,105,550	283,661,811	137,134,342	420,796,153	186,463,623	82,412,149	268,875,772

Footnotes:

(1) Client Data
(2) Table 1.16
(3) Col (1) + Col (2)
(4) Col (1) x 4% inflation
(5) Col (2) x 4% inflation
(6) Col (4) + Col (5)
(7) Col (4) x Table 1.14 Col (2)
(8) Col (5) x Table 1.14 Col (2)
(9) Col (7) + Col (8)

Table 1.10
Legacy Water Treatment
NOW INCLUDED IN TABLE 1.9

Fiscal Year	Dollars	Discount Factors	Discounted Dollars
	(1)	(2)	(3)
2012	-	99.938%	-
2013	-	99.813%	-
2014	-	99.564%	-
2015	-	99.130%	-
2016	-	98.332%	-
2017	-	97.268%	-
2018	-	96.037%	-
2019	-	94.618%	-
2020	-	92.991%	-
2021	-	91.168%	-
2022	-	89.235%	-
2023	-	87.274%	-
2024	-	85.289%	-
2025	-	83.282%	-
2026	-	81.258%	-
2027	-	79.221%	-
2028	-	77.173%	-
2029	-	75.119%	-
2030	-	73.062%	-
2031	-	71.005%	-
2032	-	68.952%	-
2033	-	66.905%	-
2034	-	64.868%	-
2035	-	62.843%	-
2036	-	60.833%	-
2037	-	58.842%	-
2038	-	56.871%	-
2039	-	54.923%	-
2040	-	53.000%	-
2041	-	51.104%	-
2042	-	49.257%	-
2043	-	47.477%	-
2044	-	45.761%	-
2045	-	44.107%	-
2046	-	42.513%	-
Total	-		-
Years 2012 - 2018	-		-
Years 2019 - 2031	-		-
Years 2019 - 2046	-		-

Footnotes:

(1) Client Data
(2) Table 1.14 Col (2)
(3) Col (1) x Col (2)

Table 1.11
Administrative Expenditures

Fiscal Year	Dollars	Discount Factors	Discounted Dollars
	(1)	(2)	(3)
2012	2,400,339	99.938%	2,398,840
2013	2,436,344	99.813%	2,431,783
2014	2,472,889	99.564%	2,462,104
2015	2,509,983	99.130%	2,488,154
2016	2,547,632	98.332%	2,505,127
2017	2,585,847	97.268%	2,515,195
2018	2,624,634	96.037%	2,520,628
2019	2,664,004	94.618%	2,520,630
2020	2,703,964	92.991%	2,514,439
2021	2,744,524	91.168%	2,502,115
2022	2,785,691	89.235%	2,485,814
2023	2,827,477	87.274%	2,467,656
2024	2,869,889	85.289%	2,447,686
2025	2,912,937	83.282%	2,425,951
2026	2,956,631	81.258%	2,402,503
2027	3,000,981	79.221%	2,377,397
2028	3,045,995	77.173%	2,350,692
2029	3,091,685	75.119%	2,322,448
2030	3,138,061	73.062%	2,292,730
2031	3,185,132	71.005%	2,261,605
2032	3,232,909	68.952%	2,229,143
2033	3,281,402	66.905%	2,195,414
2034	3,330,623	64.868%	2,160,493
2035	3,380,583	62.843%	2,124,453
2036	3,431,291	60.833%	2,087,371
2037	3,482,761	58.842%	2,049,325
2038	3,535,002	56.871%	2,010,393
2039	3,588,027	54.923%	1,970,652
2040	3,641,848	53.000%	1,930,183
2041	3,696,475	51.104%	1,889,063
2042	3,751,922	49.257%	1,848,095
2043	3,808,201	47.477%	1,808,016
2044	3,865,324	45.761%	1,768,806
2045	3,923,304	44.107%	1,730,447
2046	3,982,154	42.513%	1,692,919
Total	109,436,466		78,188,270
First 20 Years	55,504,640		48,693,497

Footnotes:

(1) Client Data
(2) Table 1.14 Col (2)
(3) Col (1) x Col (2)

Table 1.12
Projected Coal Tax Revenues

Fiscal Year	Production (Millions of Tons)	Total Tax	Pre 7-1-2011 Ratio	SRF	SRWTF	Discount Factors	Discounted SRF	Discounted SRWTF
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2012	135.80	19,555,200	95.2%	16,675,795	1,939,046	99.938%	16,665,383	1,937,835
2013	129.50	18,648,000	90.4%	15,094,332	1,755,155	99.813%	15,066,074	1,751,869
2014	124.60	17,942,400	85.5%	13,749,174	1,598,741	99.564%	13,689,209	1,591,768
2015	122.50	17,640,000	80.8%	12,770,136	1,484,899	99.130%	12,659,079	1,471,986
2016	122.70	17,668,800	76.1%	12,047,218	1,400,839	98.332%	11,846,219	1,377,467
2017	121.40	17,481,600	71.5%	11,190,217	1,301,188	97.268%	10,884,472	1,265,636
2018	119.70	17,236,800	66.9%	10,336,257	1,201,890	96.037%	9,926,663	1,154,263
2019	119.10	17,150,400	62.6%	9,619,891	1,118,592	94.618%	9,102,159	1,058,391
2020	120.70	17,380,800	58.5%	9,106,596	1,058,907	92.991%	8,468,300	984,686
2021	117.70	16,948,800	54.6%	8,283,139	963,156	91.168%	7,551,535	878,086
2022	117.90	16,977,600	50.9%	7,736,296	899,569	89.235%	6,903,490	802,731
2023	117.80	16,963,200	47.3%	7,194,169	836,531	87.274%	6,278,649	730,075
2024	118.90	17,121,600	44.0%	6,750,268	784,915	85.289%	5,757,203	669,442
2025	118.00	16,992,000	40.9%	6,224,535	723,783	83.282%	5,183,914	602,781
2026	118.20	17,020,800	38.0%	5,787,587	672,975	81.258%	4,702,884	546,847
2027	116.50	16,776,000	35.2%	5,289,806	615,094	79.221%	4,190,620	487,281
2028	115.50	16,632,000	32.6%	4,856,779	564,742	77.173%	3,748,131	435,829
2029	115.00	16,560,000	30.2%	4,474,075	520,241	75.119%	3,360,887	390,801
2030	115.60	16,646,400	27.9%	4,157,503	483,431	73.062%	3,037,555	353,204
2031	115.00	16,560,000	25.8%	3,822,072	444,427	71.005%	2,713,865	315,566
2032	114.40	16,473,600	23.8%	3,513,615	408,560	68.952%	2,422,694	281,709
2033	113.80	16,387,200	22.0%	3,229,969	375,578	66.905%	2,161,003	251,279
2034	113.20	16,300,800	20.3%	2,969,144	345,249	64.868%	1,926,010	223,955
2035	112.60	16,214,400	18.8%	2,729,310	317,362	62.843%	1,715,175	199,439
2036	112.00	16,128,000	17.4%	2,508,782	291,719	60.833%	1,526,178	177,463
2037	111.40	16,041,600	16.0%	2,306,012	268,141	58.842%	1,356,903	157,779
2038	110.80	15,955,200	14.8%	2,119,572	246,462	56.871%	1,205,423	140,165
2039	110.20	15,868,800	13.7%	1,948,153	226,529	54.923%	1,069,984	124,417
2040	109.60	15,782,400	12.7%	1,790,548	208,203	53.000%	948,992	110,348
2041	109.10	15,710,400	11.7%	1,647,157	191,530	51.104%	841,770	97,880
2042	108.60	15,638,400	10.8%	1,515,220	176,188	49.257%	746,356	86,786
2043	108.10	15,566,400	10.0%	1,393,825	162,073	47.477%	661,745	76,947
2044	107.60	15,494,400	9.2%	1,282,130	149,085	45.761%	586,714	68,223
2045	107.10	15,422,400	8.5%	1,179,363	137,135	44.107%	520,180	60,486
2046	106.60	15,350,400	7.9%	1,084,812	126,141	42.513%	461,182	53,626
Total		584,236,800		206,383,457	23,998,076		179,886,601	20,917,047
First 20 Years		345,902,400		175,165,845	20,368,121		161,736,292	18,806,546

Footnotes:

(1) Client Data
(2) Col (1) x 1,000,0000 x Coal Tax of 14.4 cents / 100
(3) Ratio of current year Table 1.16 Col (1) surface and underground to all subsequent years Table 1.16 Col (1) surface and underground
(4) Col (2) x Col (3) x Coal Tax of (12.9 / 14.4)
(5) Col (2) x Col (3) x Coal Tax of (1.5 / 14.4)
(6) Table 1.14 Col (2)
(7) Col (4) x Col (6)
(8) Col (5) x Col (6)

Table 1.13
Projected Bond Forfeiture Collection

Fiscal Year	Projected Collection	Discount Factors	Discounted Projected Collection
	(1)	(2)	(3)
2012	4,235,516	99.938%	4,232,871
2013	4,085,370	99.813%	4,077,722
2014	3,894,485	99.564%	3,877,500
2015	3,683,886	99.130%	3,651,849
2016	3,453,448	98.332%	3,395,830
2017	3,223,472	97.268%	3,135,398
2018	3,000,704	96.037%	2,881,796
2019	2,789,018	94.618%	2,638,916
2020	2,589,783	92.991%	2,408,261
2021	2,402,143	91.168%	2,189,975
2022	2,224,662	89.235%	1,985,179
2023	2,059,502	87.274%	1,797,412
2024	1,903,331	85.289%	1,623,323
2025	1,757,014	83.282%	1,463,276
2026	1,621,447	81.258%	1,317,558
2027	1,495,245	79.221%	1,184,543
2028	1,378,231	77.173%	1,063,625
2029	1,269,553	75.119%	953,677
2030	1,168,951	73.062%	854,059
2031	1,076,214	71.005%	764,166
2032	990,840	68.952%	683,200
2033	912,492	66.905%	610,501
2034	840,582	64.868%	545,265
2035	774,572	62.843%	486,763
2036	713,970	60.833%	434,332
2037	658,324	58.842%	387,371
2038	607,220	56.871%	345,332
2039	560,280	54.923%	307,723
2040	517,158	53.000%	274,094
2041	477,536	51.104%	244,042
2042	441,122	49.257%	217,285
2043	407,651	47.477%	193,540
2044	376,878	45.761%	172,463
2045	348,580	44.107%	153,748
2046	322,551	42.513%	137,125
Total	58,261,732		50,689,719
First 20 Years	49,311,976		45,496,936

Footnotes:

(1) Client Data
(2) Table 1.14 Col (2)
(3) Col (1) x Col (2)

Table 1.14
Projected Investment Rates
Based on US Treasury Returns in Fall 2011

Fiscal Year	Investment Return (%)	Discount Factors
	(1)	(2)
2012	**0.125**	99.938%
2013	0.188	99.813%
2014	**0.250**	99.564%
2015	0.625	99.130%
2016	**1.000**	98.332%
2017	1.188	97.268%
2018	**1.375**	96.037%
2019	1.625	94.618%
2020	1.875	92.991%
2021	**2.125**	91.168%
2022	2.206	89.235%
2023	2.288	87.274%
2024	2.369	85.289%
2025	2.450	83.282%
2026	2.531	81.258%
2027	2.613	79.221%
2028	2.694	77.173%
2029	2.775	75.119%
2030	2.856	73.062%
2031	2.938	71.005%
2032	3.019	68.952%
2033	3.100	66.905%
2034	3.181	64.868%
2035	3.263	62.843%
2036	3.344	60.833%
2037	3.425	58.842%
2038	3.506	56.871%
2039	3.588	54.923%
2040	3.669	53.000%
2041	**3.750**	51.104%
2042	3.750	49.257%
2043	3.750	47.477%
2044	3.750	45.761%
2045	3.750	44.107%
2046	3.750	42.513%

Footnotes:
(1) Based on US Treasury Returns in Fall 2011
(2) Based on Col (1)

Table 1.15
Projected Number of Permits In-Force
(All Permit Types Combined)

Fiscal Year Ending 6/30	Active	Inactive	Phase Released	Total
	(1)	(2)	(3)	(4)
2011	1,336	150	287	1,773
2012	1,276	143	268	1,686
2013	1,216	135	250	1,601
2014	1,157	128	233	1,518
2015	1,099	121	217	1,437
2016	1,042	115	201	1,359
2017	987	109	187	1,283
2018	934	103	174	1,211
2019	883	97	162	1,142
2020	834	91	151	1,076
2021	787	86	140	1,013
2022	742	81	130	953
2023	699	77	121	897
2024	659	72	113	844
2025	620	68	105	793
2026	584	64	97	746
2027	550	60	91	701
2028	518	57	84	659
2029	488	54	79	620
2030	459	50	73	583
2031	433	48	68	549
2032	408	45	64	516
2033	384	42	60	486
2034	362	40	56	458
2035	342	38	52	432
2036	323	36	49	407
2037	305	34	45	384
2038	289	32	43	363
2039	273	30	40	343
2040	258	29	37	324
2041	245	27	35	307
2042	232	26	33	291
2043	220	24	31	275
2044	209	23	29	261
2045	198	22	27	247
2046	188	21	26	235

Footnotes:

(1) Table 3.6 through Table 3.8 x Table 4.1 through Table 4.3
(2) Table 3.6 through Table 3.8 x Table 4.1 through Table 4.3
(3) Table 3.6 through Table 3.8 x Table 4.1 through Table 4.3
(4) Sum of Col (1) through Col (3)

Table 1.15
Projected Number of Permits In-Force
Surface Permits

Fiscal Year Ending 6/30	Active	Inactive	Phase Released	Total
	(1)	(2)	(3)	(4)
2011	431	20	130	581
2012	408	19	120	548
2013	386	18	111	515
2014	363	17	102	483
2015	341	16	94	452
2016	319	15	87	421
2017	298	14	80	392
2018	277	13	73	364
2019	258	12	67	337
2020	239	11	62	312
2021	221	11	57	288
2022	204	10	52	266
2023	189	9	48	245
2024	174	8	44	226
2025	160	8	40	208
2026	148	7	37	191
2027	136	7	33	176
2028	125	6	31	161
2029	114	5	28	148
2030	105	5	26	135
2031	96	5	23	124
2032	88	4	21	113
2033	80	4	20	104
2034	73	4	18	95
2035	67	3	16	87
2036	62	3	15	79
2037	56	3	14	73
2038	51	2	13	67
2039	47	2	12	61
2040	43	2	11	56
2041	39	2	10	51
2042	36	2	9	47
2043	33	2	8	43
2044	30	1	7	39
2045	28	1	7	36
2046	25	1	6	33

Footnotes:

(1) Table 3.6 x Table 4.1
(2) Table 3.6 x Table 4.1
(3) Table 3.6 x Table 4.1
(4) Sum of Col (1) through Col (3)

Table 1.15
Projected Number of Permits In-Force
Underground Permits

Fiscal Year Ending 6/30	Active	Inactive	Phase Released	Total
	(1)	(2)	(3)	(4)
2011	510	86	119	715
2012	484	81	111	676
2013	459	76	103	637
2014	433	71	96	600
2015	408	67	89	564
2016	384	62	83	529
2017	361	58	77	496
2018	339	54	71	464
2019	318	51	66	434
2020	298	47	61	405
2021	278	44	56	378
2022	259	41	52	352
2023	241	38	48	327
2024	225	35	45	304
2025	208	32	41	282
2026	194	30	38	262
2027	180	28	35	243
2028	167	26	33	225
2029	155	24	30	209
2030	143	22	28	193
2031	132	20	26	179
2032	122	19	24	165
2033	113	17	22	153
2034	105	16	20	141
2035	97	15	19	131
2036	90	14	17	121
2037	83	13	16	112
2038	77	12	15	104
2039	71	11	14	96
2040	66	10	13	89
2041	61	9	12	82
2042	56	9	11	76
2043	52	8	10	70
2044	48	7	9	65
2045	44	7	9	60
2046	41	6	8	55

Footnotes:

(1) Table 3.7 x Table 4.2
(2) Table 3.7 x Table 4.2
(3) Table 3.7 x Table 4.2
(4) Sum of Col (1) through Col (3)

Table 1.15
Projected Number of Permits In-Force
Other Permits

Fiscal Year Ending 6/30	Active	Inactive	Phase Released	Total
	(1)	(2)	(3)	(4)
2011	395	44	38	477
2012	383	43	37	463
2013	372	41	36	449
2014	360	40	34	435
2015	349	39	33	421
2016	339	38	32	408
2017	328	36	31	395
2018	318	35	30	383
2019	307	34	29	370
2020	298	33	28	358
2021	288	32	27	347
2022	278	31	26	335
2023	269	30	25	324
2024	260	29	24	313
2025	251	28	23	303
2026	243	27	23	292
2027	235	26	22	282
2028	227	25	21	273
2029	219	24	20	264
2030	211	23	20	255
2031	204	23	19	246
2032	197	22	18	238
2033	191	21	18	230
2034	184	20	17	222
2035	178	20	17	214
2036	172	19	16	207
2037	166	18	16	200
2038	160	18	15	193
2039	155	17	14	186
2040	150	17	14	180
2041	145	16	14	174
2042	140	15	13	168
2043	135	15	13	162
2044	130	14	12	157
2045	126	14	12	152
2046	122	13	11	146

Footnotes:

(1) Table 3.8 x Table 4.3
(2) Table 3.8 x Table 4.3
(3) Table 3.8 x Table 4.3
(4) Sum of Col (1) through Col (3)

Table 1.16
Projected Acreage of Permits In-Force
(All Permit Types Combined)

Fiscal Year Ending 6/30	Active	Inactive	Phase Released	Total
	(1)	(2)	(3)	(4)
2011	265,234	15,654	38,649	319,536
2012	253,279	14,946	35,914	304,139
2013	241,265	14,239	33,320	288,824
2014	229,322	13,527	30,899	273,748
2015	217,595	12,817	28,633	259,045
2016	205,963	12,130	26,504	244,597
2017	194,449	11,456	24,514	230,419
2018	183,268	10,813	22,673	216,754
2019	172,540	10,202	20,973	203,715
2020	162,283	9,629	19,401	191,313
2021	152,490	9,076	17,938	179,504
2022	143,273	8,546	16,572	168,391
2023	134,446	8,045	15,309	157,800
2024	126,077	7,561	14,143	147,780
2025	118,204	7,108	13,066	138,379
2026	110,770	6,681	12,073	129,524
2027	103,759	6,280	11,156	121,196
2028	97,127	5,901	10,311	113,339
2029	90,887	5,548	9,531	105,966
2030	85,028	5,218	8,812	99,058
2031	79,560	4,910	8,149	92,619
2032	74,476	4,623	7,537	86,636
2033	69,747	4,355	6,973	81,074
2034	65,348	4,104	6,452	75,904
2035	61,254	3,870	5,971	71,095
2036	57,444	3,651	5,527	66,621
2037	53,895	3,446	5,117	62,459
2038	50,591	3,255	4,739	58,584
2039	47,512	3,075	4,390	54,977
2040	44,642	2,908	4,068	51,617
2041	41,967	2,750	3,770	48,487
2042	39,472	2,603	3,495	45,570
2043	37,145	2,465	3,241	42,850
2044	34,972	2,335	3,006	40,314
2045	32,944	2,214	2,789	37,947
2046	31,050	2,099	2,589	35,738

Footnotes:

(1) Client data x Table 4.1 through Table 4.3
(2) Client data x Table 4.1 through Table 4.3
(3) Client data x Table 4.1 through Table 4.3
(4) Sum of Col (1) through Col (3)

Table 1.16
Projected Acreage of Permits In-Force
Surface Permits

Fiscal Year Ending 6/30	Active	Inactive	Phase Released	Total
	(1)	(2)	(3)	(4)
2011	200,337	8,527	33,995	242,858
2012	190,962	8,144	31,531	230,637
2013	181,482	7,748	29,200	218,430
2014	172,004	7,331	27,020	206,356
2015	162,648	6,910	24,984	194,542
2016	153,285	6,488	23,072	182,845
2017	143,980	6,075	21,288	171,342
2018	134,910	5,680	19,641	160,232
2019	126,217	5,312	18,122	149,651
2020	117,904	4,969	16,719	139,592
2021	109,985	4,633	15,415	130,033
2022	102,568	4,318	14,197	121,083
2023	95,465	4,015	13,072	112,552
2024	88,741	3,720	12,036	104,497
2025	82,458	3,446	11,080	96,985
2026	76,531	3,189	10,200	89,919
2027	70,954	2,950	9,390	83,294
2028	65,690	2,725	8,644	77,058
2029	60,754	2,517	7,957	71,228
2030	56,141	2,325	7,325	65,791
2031	51,860	2,148	6,743	60,751
2032	47,906	1,984	6,208	56,097
2033	44,253	1,832	5,715	51,800
2034	40,878	1,692	5,261	47,832
2035	37,761	1,563	4,843	44,168
2036	34,882	1,444	4,459	40,785
2037	32,223	1,334	4,105	37,661
2038	29,766	1,232	3,779	34,777
2039	27,496	1,138	3,479	32,114
2040	25,400	1,051	3,203	29,654
2041	23,463	971	2,949	27,383
2042	21,674	897	2,715	25,286
2043	20,021	829	2,500	23,350
2044	18,495	765	2,302	21,562
2045	17,085	707	2,119	19,911
2046	15,782	653	1,951	18,386

Footnotes:

(1) Client data x Table 4.1
(2) Client data x Table 4.1
(3) Client data x Table 4.1
(4) Sum of Col (1) through Col (3)

Table 1.16
Projected Acreage of Permits In-Force
Underground Permits

Fiscal Year Ending 6/30	Active	Inactive	Phase Released	Total
	(1)	(2)	(3)	(4)
2011	24,349	3,533	3,241	31,124
2012	22,919	3,317	3,019	29,255
2013	21,534	3,112	2,802	27,448
2014	20,192	2,921	2,605	25,717
2015	18,922	2,731	2,419	24,073
2016	17,728	2,564	2,243	22,534
2017	16,569	2,398	2,078	21,045
2018	15,492	2,241	1,923	19,656
2019	14,467	2,089	1,779	18,336
2020	13,508	1,946	1,646	17,100
2021	12,591	1,813	1,523	15,927
2022	11,722	1,681	1,409	14,812
2023	10,906	1,564	1,303	13,773
2024	10,143	1,454	1,206	12,802
2025	9,419	1,351	1,115	11,886
2026	8,753	1,256	1,031	11,040
2027	8,132	1,164	954	10,250
2028	7,551	1,079	882	9,513
2029	7,009	1,001	816	8,826
2030	6,501	928	755	8,183
2031	6,028	860	698	7,586
2032	5,590	797	646	7,033
2033	5,183	739	597	6,520
2034	4,806	685	553	6,044
2035	4,457	635	511	5,603
2036	4,133	589	473	5,194
2037	3,832	546	437	4,815
2038	3,554	506	404	4,464
2039	3,295	469	374	4,138
2040	3,056	435	346	3,836
2041	2,833	403	320	3,557
2042	2,627	374	296	3,297
2043	2,436	346	274	3,057
2044	2,259	321	253	2,834
2045	2,095	298	234	2,627
2046	1,943	276	217	2,435

Footnotes:

(1) Client data x Table 4.2
(2) Client data x Table 4.2
(3) Client data x Table 4.2
(4) Sum of Col (1) through Col (3)

Table 1.16
Projected Acreage of Permits In-Force
Other Permits

Fiscal Year Ending 6/30	Active	Inactive	Phase Released	Total
	(1)	(2)	(3)	(4)
2011	40,548	3,594	1,412	45,554
2012	39,397	3,485	1,365	44,247
2013	38,249	3,379	1,318	42,946
2014	37,126	3,276	1,274	41,676
2015	36,024	3,176	1,230	40,430
2016	34,950	3,079	1,189	39,217
2017	33,900	2,983	1,148	38,032
2018	32,865	2,891	1,109	36,865
2019	31,856	2,801	1,072	35,729
2020	30,871	2,714	1,035	34,621
2021	29,914	2,630	1,000	33,544
2022	28,984	2,547	966	32,497
2023	28,076	2,466	933	31,475
2024	27,193	2,387	901	30,481
2025	26,327	2,311	871	29,508
2026	25,487	2,237	841	28,565
2027	24,673	2,166	813	27,652
2028	23,886	2,097	785	26,768
2029	23,124	2,030	758	25,912
2030	22,386	1,965	732	25,084
2031	21,672	1,903	708	24,282
2032	20,981	1,842	683	23,506
2033	20,311	1,783	660	22,755
2034	19,663	1,726	638	22,028
2035	19,036	1,671	616	21,323
2036	18,429	1,618	595	20,642
2037	17,841	1,567	575	19,982
2038	17,271	1,517	555	19,343
2039	16,720	1,468	537	18,725
2040	16,187	1,421	518	18,127
2041	15,671	1,376	501	17,547
2042	15,171	1,332	484	16,987
2043	14,687	1,290	467	16,444
2044	14,218	1,249	451	15,918
2045	13,764	1,209	436	15,409
2046	13,325	1,170	421	14,917

Footnotes:

(1) Client data x Table 4.3
(2) Client data x Table 4.3
(3) Client data x Table 4.3
(4) Sum of Col (1) through Col (3)

Table 1.17
Projected Acreage of Permits Issued On Or Before June 30, 2011
(All Permit Types Combined)

Fiscal Year Ending 6/30	Acreage of In Force Permits	Acreage of Forfeited Permits	Acreage of Released Permits	End of Year In Force Acreage
	(1)	(2)	(3)	(4)
2011	319,536	-	-	319,536
2012	304,139	1,692	13,705	288,741
2013	288,824	1,649	13,666	273,509
2014	273,748	1,596	13,480	258,673
2015	259,045	1,525	13,178	244,342
2016	244,597	1,441	13,007	230,149
2017	230,419	1,356	12,822	216,241
2018	216,754	1,273	12,392	203,089
2019	203,715	1,192	11,846	190,677
2020	191,313	1,116	11,287	178,911
2021	179,504	1,043	10,766	167,694
2022	168,391	974	10,139	157,278
2023	157,800	909	9,682	147,209
2024	147,780	848	9,172	137,760
2025	138,379	789	8,612	128,977
2026	129,524	735	8,120	120,670
2027	121,196	684	7,644	112,868
2028	113,339	636	7,221	105,482
2029	105,966	590	6,783	98,593
2030	99,058	548	6,360	92,150
2031	92,619	508	5,931	86,180
2032	86,636	471	5,512	80,652
2033	81,074	437	5,124	75,513
2034	75,904	406	4,765	70,733
2035	71,095	377	4,432	66,286
2036	66,621	350	4,124	62,148
2037	62,459	325	3,838	58,296
2038	58,584	302	3,573	54,710
2039	54,977	280	3,327	51,370
2040	51,617	260	3,099	48,258
2041	48,487	242	2,888	45,357
2042	45,570	225	2,692	42,653
2043	42,850	209	2,510	40,130
2044	40,314	195	2,342	37,777
2045	37,947	181	2,185	35,581
2046	35,738	169	2,040	33,530

Footnotes:

(1) Table 1.16 Col (4)
(2) Table 1.16 Col (4) x Table 4.1 through Table 4.3
(3) Table 1.16 Col (4) x Table 4.1 through Table 4.3
(4) Col (1) - Col (2) - Col (3)

Table 1.17
Projected Acreage of Permits Issued On Or Before June 30, 2011
Surface Permits

Fiscal Year Ending 6/30	Acreage of In Force Permits	Acreage of Forfeited Permits	Acreage of Released Permits	End of Year In Force Acreage
	(1)	(2)	(3)	(4)
2019	242,858	-	-	242,858
2020	230,637	1,518	10,704	218,415
2021	218,430	1,481	10,726	206,223
2022	206,356	1,432	10,642	194,282
2023	194,542	1,368	10,447	182,727
2024	182,845	1,291	10,406	171,149
2025	171,342	1,213	10,290	159,839
2026	160,232	1,136	9,974	149,122
2027	149,651	1,062	9,520	139,070
2028	139,592	991	9,068	129,533
2029	130,033	924	8,635	120,474
2030	121,083	861	8,089	112,133
2031	112,552	801	7,729	104,022
2032	104,497	745	7,311	96,441
2033	96,985	692	6,821	89,473
2034	89,919	642	6,424	82,854
2035	83,294	595	6,031	76,668
2036	77,058	551	5,685	70,823
2037	71,228	509	5,321	65,397
2038	65,791	471	4,966	60,354
2039	60,751	435	4,605	55,711
2040	56,097	401	4,253	51,443
2041	51,800	370	3,927	47,503
2042	47,832	342	3,626	43,864
2043	44,168	316	3,348	40,505
2044	40,785	291	3,092	37,402
2045	37,661	269	2,855	34,538
2046	34,777	248	2,636	31,893
2047	32,114	229	2,434	29,450
2048	29,654	211	2,248	27,195
2049	27,383	195	2,076	25,112
2050	25,286	180	1,917	23,189
2051	23,350	166	1,770	21,414
2052	21,562	154	1,634	19,774
2053	19,911	142	1,509	18,260
2054	18,386	131	1,394	16,862

Footnotes:

(1) Table 1.16 Col (4)
(2) Table 1.16 Col (4) x Table 4.1
(3) Table 1.16 Col (4) x Table 4.1
(4) Col (1) - Col (2) - Col (3)

Table 1.17
Projected Acreage of Permits Issued On Or Before June 30, 2011
Underground Permits

Fiscal Year Ending 6/30	Acreage of In Force Permits	Acreage of Forfeited Permits	Acreage of Released Permits	End of Year In Force Acreage
	(1)	(2)	(3)	(4)
2027	31,124	-	-	31,124
2028	29,255	87	1,781	27,387
2029	27,448	83	1,724	25,641
2030	25,717	80	1,651	23,986
2031	24,073	76	1,568	22,429
2032	22,534	71	1,468	20,995
2033	21,045	66	1,423	19,555
2034	19,656	62	1,326	18,268
2035	18,336	58	1,263	17,015
2036	17,100	54	1,181	15,865
2037	15,927	51	1,123	14,754
2038	14,812	47	1,068	13,696
2039	13,773	44	995	12,734
2040	12,802	41	930	11,831
2041	11,886	38	878	10,969
2042	11,040	35	811	10,194
2043	10,250	33	757	9,461
2044	9,513	30	707	8,775
2045	8,826	28	659	8,139
2046	8,183	26	617	7,540
2047	7,586	24	573	6,989
2048	7,033	22	531	6,479
2049	6,520	21	492	6,006
2050	6,044	19	456	5,568
2051	5,603	18	423	5,162
2052	5,194	17	392	4,785
2053	4,815	15	364	4,436
2054	4,464	14	337	4,113
2055	4,138	13	312	3,813
2056	3,836	12	290	3,535
2057	3,557	11	269	3,277
2058	3,297	10	249	3,038
2059	3,057	10	231	2,816
2060	2,834	9	214	2,611
2061	2,627	8	198	2,420
2062	2,435	8	184	2,244

Footnotes:

(1) Table 1.16 Col (4)
(2) Table 1.16 Col (4) x Table 4.2
(3) Table 1.16 Col (4) x Table 4.2
(4) Col (1) - Col (2) - Col (3)

Table 1.17
Projected Acreage of Permits Issued On Or Before June 30, 2011
Other Permits

Fiscal Year Ending 6/30	Acreage of In Force Permits	Acreage of Forfeited Permits	Acreage of Released Permits	End of Year In Force Acreage
	(1)	(2)	(3)	(4)
2035	45,554	-	-	45,554
2036	44,247	87	1,220	42,940
2037	42,946	85	1,216	41,645
2038	41,676	84	1,186	40,405
2039	40,430	82	1,163	39,185
2040	39,217	80	1,133	38,005
2041	38,032	77	1,108	36,846
2042	36,865	75	1,092	35,698
2043	35,729	73	1,064	34,593
2044	34,621	70	1,038	33,513
2045	33,544	68	1,009	32,467
2046	32,497	66	981	31,449
2047	31,475	64	958	30,453
2048	30,481	62	932	29,488
2049	29,508	60	913	28,535
2050	28,565	58	885	27,622
2051	27,652	56	857	26,739
2052	26,768	54	830	25,884
2053	25,912	53	803	25,057
2054	25,084	51	777	24,256
2055	24,282	49	753	23,481
2056	23,506	48	728	22,730
2057	22,755	46	705	22,004
2058	22,028	45	683	21,300
2059	21,323	43	661	20,619
2060	20,642	42	640	19,960
2061	19,982	41	619	19,322
2062	19,343	39	599	18,705
2063	18,725	38	580	18,107
2064	18,127	37	562	17,528
2065	17,547	36	544	16,968
2066	16,987	34	526	16,426
2067	16,444	33	510	15,901
2068	15,918	32	493	15,393
2069	15,409	31	478	14,901
2070	14,917	30	462	14,424

Footnotes:

(1) Table 1.16 Col (4)
(2) Table 1.16 Col (4) x Table 4.3
(3) Table 1.16 Col (4) x Table 4.3
(4) Col (1) - Col (2) - Col (3)

Summary of Forfeited Permits			
	Total	Active Reclamation	Completed Reclamation
As of 6/30/2010	1,895	146	1,749
As of 6/30/2011	1,905	127	1,778
Change	10	(19)	29

Summary of Issued Permits			
	Total	In Force	Released or Forfeited
As of 6/30/2010	5,902	1,775	4,127
As of 6/30/2011	5,948	1,773	4,175
Change	46	(2)	48

Table 3.1

Number of Forfeited Permits and Acres for All Permits

Site Type	Total Number of Forfeited Permits	Open Number of Forfeited Permits	Total Forfeited Permitted Acres	Open Forfeited Permitted Acres	Percent of Forfeited Permitted Acres are Water Only	Selected Percentage
	(1)	(2)	(3)	(4)	(5)	(6)
Open Water - Open Land	29	29	4,818	4,818		
Open Water - Closed Land	20	20	1,965	1,965		
Open Water - Total	49	49	6,784	6,784		
Closed Water - Open Land	5	5	706	706		
Closed Water - Closed Land	139	-	8,576	-		
Closed Water - Total	144	5	9,282	706		
Closed Not Water But With Water Costs - Open Land	43	43	4,103	4,103		
Closed Not Water But With Water Costs - Closed Land	738	-	25,477	-		
Closed Not Water But With Water Costs - Total	781	43	29,579	4,103		
Open Land - Land Only	30	30	1,974	1,974		
Closed Land - Land Only	901	-	13,010	-		
Land Only - Total	931	30	14,983	1,974		
Total	1,905	127	60,629	13,566	26.50%	

Footnotes:

(1) Table 3.2, Table 3.3, Table 3.4 Col (1)

(2) Table 3.2, Table 3.3, Table 3.4 Col (2)

(3) Table 3.2, Table 3.3, Table 3.4 Col (3)

(4) Table 3.2, Table 3.3, Table 3.4 Col (4)

(5) Col (3) ratio of water only acres and total acres

(6) Selection

Table 3.2

Number of Forfeited Permits and Acres for Surface Mines

Site Type	Total Number of Forfeited Permits	Open Number of Forfeited Permits	Total Forfeited Permitted Acres	Open Forfeited Permitted Acres	Percent of Forfeited Permitted Acres are Water Only	Selected Percentage
	(1)	(2)	(3)	(4)	(5)	(6)
Open Water - Open Land	23	23	4,630	4,630		
Open Water - Closed Land	17	17	1,899	1,899		
Open Water - Total	40	40	6,529	6,529		
Closed Water - Open Land	4	4	694	694		
Closed Water - Closed Land	97	-	7,241	-		
Closed Water - Total	101	4	7,935	694		
Closed Not Water But With Water Costs - Open Land	18	18	3,375	3,375		
Closed Not Water But With Water Costs - Closed Land	377	-	20,422	-		
Closed Not Water But With Water Costs - Total	395	18	23,798	3,375		
Open Land - Land Only	14	14	1,677	1,677		
Closed Land - Land Only	635	-	10,516	-		
Land Only - Total	649	14	12,192	1,677		
Total	1,185	76	50,453	12,275	28.67%	30.00%

Footnotes:

(1) Client data

(2) Client data

(3) Client data

(4) Client data

(5) Col (3) ratio of water only acres and total acres

(6) Selection

Table 3.3

Number of Forfeited Permits and Acres for Underground Mines

Site Type	Total Number of Forfeited Permits	Open Number of Forfeited Permits	Total Forfeited Permitted Acres	Open Forfeited Permitted Acres	Percent of Forfeited Permitted Acres are Water Only	Selected Percentage
	(1)	(2)	(3)	(4)	(5)	(6)
Open Water - Open Land	4	4	41	41		
Open Water - Closed Land	2	2	36	36		
Open Water - Total	6	6	78	78		
Closed Water - Open Land	1	1	12	12		
Closed Water - Closed Land	25	-	328	-		
Closed Water - Total	26	1	340	12		
Closed Not Water But With Water Costs - Open Land	15	15	309	309		
Closed Not Water But With Water Costs - Closed Land	282	-	3,000	-		
Closed Not Water But With Water Costs - Total	297	15	3,309	309		
Open Land - Land Only	7	7	114	114		
Closed Land - Land Only	152	-	1,313	-		
Land Only - Total	159	7	1,427	114		
Total	488	29	5,154	513	8.11%	10.00%

Footnotes:

(1) Client data

(2) Client data

(3) Client data

(4) Client data

(5) Col (3) ratio of water only acres and total acres

(6) Selection

Table 3.4

Number of Forfeited Permits and Acres for Other Mines

Site Type	Total Number of Forfeited Permits	Open Number of Forfeited Permits	Total Forfeited Permitted Acres	Open Forfeited Permitted Acres	Percent of Forfeited Permitted Acres are Water Only	Selected Percentage
	(1)	(2)	(3)	(4)	(5)	(6)
Open Water - Open Land	2	2	147	147		
Open Water - Closed Land	1	1	30	30		
Open Water - Total	3	3	177	177		
Closed Water - Open Land	-	-	-	-		
Closed Water - Closed Land	17	-	1,008	-		
Closed Water - Total	17	-	1,008	-		
Closed Not Water But With Water Costs - Open Land	10	10	419	419		
Closed Not Water But With Water Costs - Closed Land	79	-	2,054	-		
Closed Not Water But With Water Costs - Total	89	10	2,473	419		
Open Land - Land Only	9	9	183	183		
Closed Land - Land Only	114	-	1,181	-		
Land Only - Total	123	9	1,364	183		
Total	232	22	5,022	778	23.59%	25.00%

Footnotes:

(1) Client data

(2) Client data

(3) Client data

(4) Client data

(5) Col (3) ratio of water only acres and total acres

(6) Selection

Table 3.5
Number of In Force Permits by Type and Year of Issuance

Issue Year	Surface Permits In Force	Underground Permits In Force	Other Permits In Force	Total Permits In Force
	(1)	(2)	(3)	(4)
1977	4	4	2	10
1978	5	8	4	17
1979	6	14	8	28
1980	14	16	20	50
1981	18	29	57	104
1982	10	25	31	66
1983	8	50	71	129
1984	8	15	18	41
1985	15	13	18	46
1986	14	8	17	39
1987	9	27	9	45
1988	24	17	13	54
1989	27	20	16	63
1990	7	13	8	28
1991	13	19	10	42
1992	17	16	11	44
1993	12	22	18	52
1994	16	31	14	61
1995	22	28	9	59
1996	26	27	9	62
1997	32	28	13	73
1998	12	26	7	45
1999	9	22	4	35
2000	14	26	7	47
2001	31	17	7	55
2002	14	28	7	49
2003	30	17	12	59
2004	26	19	5	50
2005	14	19	4	37
2006	30	18	11	59
2007	23	21	7	51
2008	24	23	11	58
2009	19	16	6	41
2010	17	24	10	51
2011	11	9	3	23
Total	581	715	477	1,773
After 1995	332	340	123	795
Before 1996	249	375	354	978

Footnotes:

(1) Client data
(2) Client data
(3) Client data
(4) Sum of Col (1) through Col (3)

Table 3.5
Number of In Force Acres by Type and Year of Issuance

Issue Year	Surface Acres In Force	Underground Acres In Force	Other Acres In Force	Total Acres In Force
	(1)	(2)	(3)	(4)
1977	1,971	120	103	2,194
1978	2,588	194	116	2,898
1979	1,382	943	186	2,511
1980	3,334	496	1,154	4,984
1981	5,457	1,255	6,148	12,859
1982	3,423	975	2,095	6,493
1983	2,130	8,232	7,602	17,964
1984	2,317	1,869	2,294	6,480
1985	5,914	533	2,423	8,871
1986	5,380	160	1,611	7,151
1987	2,361	745	433	3,539
1988	8,172	529	720	9,422
1989	8,389	475	1,172	10,036
1990	3,024	484	511	4,020
1991	6,468	929	556	7,953
1992	8,123	368	973	9,464
1993	4,639	1,193	2,603	8,435
1994	7,971	1,118	1,922	11,011
1995	12,068	740	1,816	14,625
1996	16,204	683	1,361	18,248
1997	17,436	1,012	1,589	20,037
1998	6,121	912	1,265	8,298
1999	3,485	907	397	4,789
2000	7,428	861	877	9,165
2001	13,383	299	371	14,053
2002	5,238	1,050	683	6,971
2003	19,268	408	1,244	20,920
2004	13,166	665	387	14,219
2005	3,962	302	398	4,662
2006	10,012	540	292	10,844
2007	8,145	691	334	9,169
2008	10,597	470	587	11,654
2009	6,443	286	329	7,059
2010	4,973	560	898	6,430
2011	1,886	118	102	2,107
Total	242,858	31,124	45,554	319,536
After 1995	147,748	9,764	11,115	168,626
Before 1996	95,111	21,360	34,439	150,910

Footnotes:

(1) Client data
(2) Client data
(3) Client data
(4) Sum of Col (1) through Col (3)

Table 3.6
Number of Surface Permits by Year of Issuance

Issue Year	Number of Permits Issued	Number Still In Force as of June 30, 2011	Percent Still In Force
	(1)	(2)	(3)
1977	128	4	3%
1978	126	5	4%
1979	100	6	6%
1980	121	14	12%
1981	141	18	13%
1982	160	10	6%
1983	162	8	5%
1984	109	8	7%
1985	130	15	12%
1986	133	14	11%
1987	133	9	7%
1988	125	24	19%
1989	135	27	20%
1990	57	7	12%
1991	63	13	21%
1992	65	17	26%
1993	39	12	31%
1994	44	16	36%
1995	33	22	67%
1996	42	26	62%
1997	44	32	73%
1998	21	12	57%
1999	17	9	53%
2000	18	14	78%
2001	34	31	91%
2002	19	14	74%
2003	33	30	91%
2004	26	26	100%
2005	16	14	88%
2006	30	30	100%
2007	24	23	96%
2008	24	24	100%
2009	19	19	100%
2010	17	17	100%
2011	11	11	100%
Total	2,399	581	
After 1995	395	332	
Before 1996	2,004	249	

Footnotes:

(1) Client data

(2) Client data

(3) Col (2) / Col (1)

Table 3.6
Number of Surface Acres by Year of Issuance

Issue Year	Number of Acres Issued	Number Still In Force as of June 30, 2011	Percent Still In Force
	(1)	(2)	(3)
1977	4,579	1,971	43%
1978	4,542	2,588	57%
1979	4,795	1,382	29%
1980	8,914	3,334	37%
1981	9,860	5,457	55%
1982	9,506	3,423	36%
1983	6,222	2,130	34%
1984	6,193	2,317	37%
1985	10,846	5,914	55%
1986	13,955	5,380	39%
1987	8,204	2,361	29%
1988	14,657	8,172	56%
1989	17,289	8,389	49%
1990	8,273	3,024	37%
1991	10,945	6,468	59%
1992	11,687	8,123	70%
1993	7,611	4,639	61%
1994	11,388	7,971	70%
1995	13,862	12,068	87%
1996	17,580	16,204	92%
1997	19,688	17,436	89%
1998	7,302	6,121	84%
1999	4,424	3,485	79%
2000	7,626	7,428	97%
2001	13,639	13,383	98%
2002	5,919	5,238	88%
2003	19,645	19,268	98%
2004	13,166	13,166	100%
2005	4,290	3,962	92%
2006	10,012	10,012	100%
2007	8,153	8,145	100%
2008	10,597	10,597	100%
2009	6,443	6,443	100%
2010	4,973	4,973	100%
2011	1,886	1,886	100%
Total	338,675	242,858	
After 1995	155,345	147,748	
Before 1996	183,330	95,111	

Footnotes:

(1) Client data

(2) Client data

(3) Col (2) / Col (1)

Table 3.7
Number of Underground Permits by Year of Issuance

Issue Year	Number of Permits Issued	Number Still In Force as of June 30, 2011	Percent Still In Force
	(1)	(2)	(3)
1977	83	4	5%
1978	80	8	10%
1979	76	14	18%
1980	134	16	12%
1981	148	29	20%
1982	213	25	12%
1983	274	50	18%
1984	118	15	13%
1985	87	13	15%
1986	103	8	8%
1987	159	27	17%
1988	155	17	11%
1989	90	20	22%
1990	43	13	30%
1991	52	19	37%
1992	45	16	36%
1993	45	22	49%
1994	61	31	51%
1995	46	28	61%
1996	44	27	61%
1997	42	28	67%
1998	37	26	70%
1999	24	22	92%
2000	34	26	76%
2001	20	17	85%
2002	33	28	85%
2003	22	17	77%
2004	21	19	90%
2005	21	19	90%
2006	19	18	95%
2007	21	21	100%
2008	26	23	88%
2009	16	16	100%
2010	24	24	100%
2011	9	9	100%
Total	2,425	715	
After 1995	413	340	
Before 1996	2,012	375	

Footnotes:

(1) Client data

(2) Client data

(3) Col (2) / Col (1)

Table 3.7
Number of Underground Acres by Year of Issuance

Issue Year	Number of Acres Issued	Number Still In Force as of June 30, 2011	Percent Still In Force
	(1)	(2)	(3)
1977	455	120	26%
1978	314	194	62%
1979	1,496	943	63%
1980	1,380	496	36%
1981	2,016	1,255	62%
1982	2,238	975	44%
1983	9,957	8,232	83%
1984	2,506	1,869	75%
1985	1,027	533	52%
1986	919	160	17%
1987	1,634	745	46%
1988	3,094	529	17%
1989	1,197	475	40%
1990	867	484	56%
1991	1,347	929	69%
1992	776	368	47%
1993	1,501	1,193	79%
1994	1,762	1,118	63%
1995	1,095	740	68%
1996	868	683	79%
1997	1,209	1,012	84%
1998	1,094	912	83%
1999	932	907	97%
2000	1,025	861	84%
2001	332	299	90%
2002	1,147	1,050	92%
2003	463	408	88%
2004	723	665	92%
2005	340	302	89%
2006	556	540	97%
2007	691	691	100%
2008	527	470	89%
2009	286	286	100%
2010	560	560	100%
2011	118	118	100%
Total	46,451	31,124	
After 1995	10,871	9,764	
Before 1996	35,580	21,360	

Footnotes:

(1) Client data

(2) Client data

(3) Col (2) / Col (1)

Table 3.8
Number of Other Permits by Year of Issuance

Issue Year	Number of Permits Issued	Number Still In Force as of June 30, 2011	Percent Still In Force
	(1)	(2)	(3)
1977	19	2	11%
1978	18	4	22%
1979	20	8	40%
1980	44	20	45%
1981	113	57	50%
1982	101	31	31%
1983	215	71	33%
1984	56	18	32%
1985	59	18	31%
1986	46	17	37%
1987	62	9	15%
1988	59	13	22%
1989	30	16	53%
1990	17	8	47%
1991	17	10	59%
1992	31	11	35%
1993	44	18	41%
1994	18	14	78%
1995	13	9	69%
1996	12	9	75%
1997	17	13	76%
1998	9	7	78%
1999	7	4	57%
2000	8	7	88%
2001	7	7	100%
2002	7	7	100%
2003	13	12	92%
2004	5	5	100%
2005	4	4	100%
2006	13	11	85%
2007	8	7	88%
2008	13	11	85%
2009	6	6	100%
2010	10	10	100%
2011	3	3	100%
Total	1,124	477	
After 1995	142	123	
Before 1996	982	354	

Footnotes:

(1) Client data

(2) Client data

(3) Col (2) / Col (1)

Table 3.8
Number of Other Acres by Year of Issuance

Issue Year	Number of Acres Issued	Number Still In Force as of June 30, 2011	Percent Still In Force
	(1)	(2)	(3)
1977	210	103	49%
1978	184	116	63%
1979	297	186	63%
1980	1,388	1,154	83%
1981	7,428	6,148	83%
1982	2,634	2,095	80%
1983	8,787	7,602	87%
1984	3,115	2,294	74%
1985	2,832	2,423	86%
1986	1,782	1,611	90%
1987	1,364	433	32%
1988	1,219	720	59%
1989	2,086	1,172	56%
1990	919	511	56%
1991	849	556	66%
1992	1,841	973	53%
1993	3,154	2,603	83%
1994	2,196	1,922	88%
1995	1,958	1,816	93%
1996	1,429	1,361	95%
1997	1,736	1,589	92%
1998	1,275	1,265	99%
1999	740	397	54%
2000	877	877	100%
2001	371	371	100%
2002	683	683	100%
2003	1,259	1,244	99%
2004	387	387	100%
2005	398	398	100%
2006	296	292	99%
2007	339	334	99%
2008	592	587	99%
2009	329	329	100%
2010	886	898	101%
2011	102	102	100%
Total	55,944	45,554	
After 1995	11,699	11,115	
Before 1996	44,245	34,439	

Footnotes:

(1) Client data

(2) Client data

(3) Col (2) / Col (1)

Table 4.1
Valuation Rates of Forfeiture and Release for Surface Permits

Year Since Issuance	Forfeiture (1)	Release (2)
1	0.00%	0.00%
2	0.00%	0.00%
3	0.00%	0.00%
4	1.25%	0.50%
5	1.25%	0.50%
6	1.25%	1.00%
7	1.25%	1.00%
8	1.25%	2.00%
9	1.25%	3.00%
10	1.25%	5.00%
11	1.25%	5.00%
12	1.25%	5.00%
13	1.25%	5.00%
14	1.25%	5.00%
15	1.25%	5.00%
16	1.25%	5.00%
17	1.25%	5.00%
18	1.25%	5.00%
19	1.25%	5.00%
20+	1.25%	7.00%

Footnotes:

(1) Selection

(2) Selection

Table 4.2
Valuation Rates of Forfeiture and Release for Underground Permits

Year Since Issuance	Forfeiture (1)	Release (2)
1	0.00%	0.00%
2	0.00%	1.00%
3	0.00%	1.00%
4	0.50%	1.00%
5	0.50%	1.00%
6	0.50%	4.00%
7	0.50%	4.00%
8	0.50%	3.00%
9	0.50%	2.00%
10	0.50%	2.00%
11	0.50%	4.00%
12	0.50%	4.00%
13	0.50%	4.00%
14	0.50%	4.00%
15	0.50%	9.00%
16	0.50%	5.00%
17	0.50%	5.00%
18	0.50%	5.00%
19	0.50%	5.00%
20+	0.50%	7.00%

Footnotes:

(1) Selection

(2) Selection

Table 4.3
Valuation Rates of Forfeiture and Release for Other Permits

Year Since Issuance	Forfeiture (1)	Release (2)
1	0.00%	0.00%
2	0.00%	0.00%
3	0.00%	1.25%
4	0.40%	1.25%
5	0.40%	1.25%
6	0.40%	1.25%
7	0.40%	1.25%
8	0.40%	1.25%
9	0.40%	1.25%
10	0.40%	1.50%
11	0.40%	1.50%
12	0.40%	1.50%
13	0.40%	1.50%
14	0.40%	1.50%
15	0.40%	3.00%
16	0.40%	3.00%
17	0.40%	3.00%
18	0.40%	3.00%
19	0.40%	3.00%
20+	0.40%	3.00%

Footnotes:

(1) Selection

(2) Selection

Table 4.4

Percent of Permitted Acres That Had Been Disturbed

Based on Forfeited Permits

	Surface	Underground	Other
(1) Forfeited Disturbed Acres	35,485.10	3,741.43	3,945.70
(2) Forfeited Permitted Acres	50,453.48	5,153.62	5,021.56
(3) Percent of Permitted Acres That Are Disturbed	70.33%	72.60%	78.58%
(4) Forfeited Disturbed Acres for Permits with Open Water	9,282.55	446.62	812.01
(5) Forfeited Permitted Acres for Permits with Open Water	13,259.49	513.21	1,007.55
(6) Percent of Permitted Acres That Are Disturbed	70.01%	87.02%	80.59%
(7) Forfeited Disturbed Acres for Permits with Closed Water	5,827.57	305.89	805.36
(8) Forfeited Permitted Acres for Permits with Closed Water	7,934.50	339.89	1,007.90
(9) Percent of Permitted Acres That Are Disturbed	73.45%	90.00%	79.90%

Footnotes:

(1)	Client Data
(2)	Table 3.2, Table 3.3, Table 3.4 Col (3)
(3)	Row (1) / Row (2)
(4)	Client Data Appendix A
(5)	Client Data Appendix A
(6)	Row (4) / Row (5)
(7)	Client Data
(8)	Client Data
(9)	Row (7) / Row (8)

Table 4.5
Adjustment Factors for Permit Status

Permit Status	Liability Factor
	(1)
Active	100.00%
Inactive	75.00%
Phased Release	50.00%

Footnotes:

(1) Selection

Table 4.6
Valuation Costs Per Acre by Permit Type
(in 2011 Dollars)

	Surface	Underground	Other
(1) Land Capital	2,898.24	13,259.83	9,575.60
(2) Water Capital	913.81	1,024.62	1,804.78
(3) Water Abandoment	203.38	538.46	473.16
(4) Annual Water Treatment	101.39	141.27	199.22

Footnotes:

(1)	Table 1.1 Row (9)
(2)	Table 1.2 Row (12)
(3)	Table 1.3 Row (3)
(4)	Table 1.5 Row (7)

Table 4.7 **Adjustment Factors for Size of Permits**	
Bond Value	Factor
	(1)
Less than $10,000	2.50
Between $10,000 and $100,000	1.00
Above $100,000	0.38

Footnotes:

(1) Selection

Table 4.8
Adjustment Factors for Permit Ownership

Ownership	Factor
	(1)
Private Corporation	1.00
Public Corporation	1.00
Multi Corporation	1.00

Footnotes:

(1) Selection

WATER CAPITAL AND WATER TREATMENT COSTS
Estimates Reflecting NPDES Standards

Appendix A

Site Name	Permit Number	Water Status	Newly Estimated Capital Costs	Prior Estimated Liability Costs	Final Capital Const. Cost	Current Annual O&M	New Post-Construction Annual O&M		*PERMIT TYPE*	Distrubed Acres	*Permitted Acres*
A S & K, INC.	S-1011-89	TBC	$91,150.00	$243,000.00	-$151,850.00		$4,075.41		Surface	26	24
ALPHAINE CORP.	S-6032-86	C	$0.00		$0.00				Surface	0	0
AMANDA NICOLE FUELS, INC.	S-1018-88	UC	$0.00		$0.00		$48,465.00		Surface	30	28
B & S Contracting Inc.	U-3055-87	P	$88,530.00		$88,530.00	$4,221.35	$6,721.35		Underground	12	10
B & S CONTRACTING, INC.	O-3086-87	P	$0.00		$0.00				Other	0	0
B & S CONTRACTING, INC.	R-668	P	$3,360.00		$3,360.00	$3,265.60	$5,765.60		Other	26	26
BARRENSHE COAL CO.	UO-694	P	$83,782.00		$83,782.00	$288.42	$9,877.00		Underground	2	4
BARRETT FUEL CORP.	R-737	P	$10,200.00		$10,200.00	$1,680.23	$4,180.23		Other	200	175
BELLE CONTRACTING, INC.	S-6020-87	P	$116,377.69		$116,377.69	$5,040.94	$10,623.00		Surface	5	108
BENHAM GROUP	120-79	ACT	$8,960.00		$8,960.00	$17,326.62	$19,826.62		Surface	33	180
BJORKMAN MINING	S-37-81	P	$8,960.00		$8,960.00	$1,833.60	$4,333.60		Surface	35	35
BLACK DIAMOND MINING CO.	13-79	P	$2,800.00		$2,800.00	$1,231.28	$3,731.28		Surface	31	34
BOLINGREEN MINING COMPANY	S-1024-88	ACT	$8,990.41		$8,990.41	$4,464.00	$6,964.00		Surface	16	21
Borgman	EM-32	ACT	$451,555.00		$451,555.00	$12,862.53	$15,362.53		Other	9	6
BRADY CLINE	EM-97	ACT	$506,785.00		$506,785.00	$14,922.51	$17,422.51		Surface	2	11
BRENKEE COAL CO.	UO-435	NA							Underground	0	0
BUFFALO COAL	S-2003-88	TBC	$2,098,037.50		$2,098,037.50		$135,402.00		Surface	342	356
BUFFALO COAL COMPANY, INC.	S-122-80	ACT	$15,400.00		$15,400.00	$23,036.16	$25,536.16		Surface	270	306
BUFFALO COAL COMPANY, INC.	S-2001-86	TBC	$1,377,127.50	$401,939.00	$975,188.50		$66,769.00		Surface	505	595
BUFFALO COAL COMPANY, INC.	S-2003-03	TBC	$113,052.50	$577,878.00	-$464,825.50		$30,728.00		Surface	55	266
BUFFALO COAL COMPANY, INC.	S-2006-86	UC	$0.00		$0.00		$57,400.00		Surface	230	272
BUFFALO COAL COMPANY, INC.	S-2011-92	TBC	$0.00		$0.00				Surface	0	0
BUFFALO COAL COMPANY, INC.	S-52-80	TBC	$1,375,155.00	$944,494.00	$430,661.00		$107,233.00		Surface	190	191
BUFFALO COAL COMPANY, INC.	S-53-80	TBC	$1,190,250.00	$863,838.00	$326,412.00		$80,857.00		Surface	365	375
C. C. CONLEY & SONS, INC.	S-3046-91	P	$309,285.00		$309,285.00	$4,913.30	$14,010.00		Surface	170.24	195
CHAFIN COAL CO.	O-69-82	P	$0.00		$0.00	$1,095.39	$3,595.39		Other	1	8
CHESTNUT RIDGE COAL CORP.	S-28-83	ACT	$92,001.91		$92,001.91	$4,817.01	$61,930.00		Surface	29	30
CHEYENNE COAL SALES	S-2009-96	TBC	$570,725.00	$411,100.00	$159,625.00		$67,181.00		Surface	40.2	48.28
Cheyenne Sales	O-11-83	TBC	$133,365.00	$21,387.00	$111,978.00		$77,357.00		Other	22.1	22.1
Chicopee Coal Co. Inc.	S-3006-99	TBC	$3,602,677.50	$1,564,000.00	$2,038,677.50		$95,442.00		Surface	131.98	257.41
CHICOPEE COAL CO., INC.	S-3002-98	TBC	$104,460.00	$85,500.00	$18,960.00		$8,500.00		Surface	127.96	124.52
CHICOPEE COAL COMPANY, INC.	O-6013-88	UC	$0.00		$0.00		$5,442.00		Other	124.55	124.55
CLASSIC RES., INC.	S-55-81	TBC	$130,900.00	$175,000.00	-$44,100.00		$8,266.00		Surface	15	20
COAL X, INC.	UO-396	ACT	$0.00		$0.00	$2,224.34	$4,724.34		Underground	18	18
COWACO, INC.	R-3022-87	P	$0.00		$0.00	$3,245.62	$5,745.62		Other	63	63
CRADDOCK & SONS COAL CO.	S-68-83	P	$10,161.58		$10,161.58	$3,042.59	$5,542.59		Surface	45	94
CRANE COAL CO., INC.	S-27-83	P	$5,160.00		$5,160.00	$1,558.95	$4,058.95		Surface	8	8
DAUGHERTY COAL CO.	65-77	ACT	$504,013.51		$504,013.51	$13,873.99	$60,457.00		Surface	92	92
DAUGHERTY COAL CO.	S-1009-86	ACT	$9,520.00		$9,520.00	$30,199.45	$23,220.99		Surface	50	50
DAUGHERTY COAL COMPANY, INC.	124-79	NA	$0.00		$0.00				Surface	0	0

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DAUGHERTY COAL COMPANY, INC.	17-81	NA	$0.00		$0.00				Surface	0	0
DAUGHERTY COAL COMPANY, INC.	192-77	ACT	$0.00		$0.00				Surface	0	0
DAUGHERTY COAL COMPANY, INC.	246-74	NA	$0.00		$0.00				Surface	0	0
DAUGHERTY COAL COMPANY, INC.	S-73-83	NA	$0.00		$0.00				Surface	0	0
DECONDOR COAL CO.	U-147-82	TBC	$387,027.50	$400,000.00	-$12,972.50		$35,521.00		Underground	7.25	7.25
Delta Mining/Pierce Coal	U-2024-87/71-80	ACT	$163,500.00		$163,500.00	$10,146.46	$12,646.46	Multi	Surface	47	47
DLM COAL CO.	12-78	ACT	$0.00		$0.00	$11,205.35	$11,205.35		Surface	0	0
DLM COAL CO.	135-78	ACT	$0.00		$0.00	$14,883.12	$14,883.12		Surface	56	56
DLM COAL CO.	138-74	ACT	$0.00		$0.00	$27,641.67	$27,641.67		Surface	227	227
DLM COAL CO.	164-77	ACT	$0.00		$0.00	$4,222.87	$4,222.87		Surface	44	44
DLM COAL CO.	1-78	ACT	$0.00		$0.00	$12,167.98	$12,167.98		Surface	61	61
DLM COAL CO.	23-76	ACT	$0.00		$0.00	$35,560.52	$35,560.52		Surface	165	165
DLM COAL CO.	2-80	ACT	$15,340.00		$15,340.00	$24,077.43	$26,577.43		Surface	97	97
DLM COAL CO.	58-77	ACT	$0.00		$0.00	$14,929.83	$14,929.83		Surface	0	0
DLM COAL CO.	71-75	ACT	$0.00		$0.00	$9,507.84	$9,507.84		Surface	90	90
DLM COAL CO.	P-426					$236,325.20	$236,325.20		Surface	0	0
DLM COAL CO.	R-423					$11,821.97	$11,821.97		Surface	0	0
DUSTY COALS., INC.	S-119-85	P	$271,565.00		$271,565.00	$4,922.25	$12,104.00		Surface	30	71
E. J. & L. CO., INC.	S-3041-87	P	$62,787.50		$62,787.50	$1,543.35	$4,997.00		Surface	11	50
EASTERN ENERGY INVEST.	U-6012-88	P	$0.00		$0.00	$899.79	$3,399.79		Underground	5.35	5.35
EASTERN ENERGY INVESTMENTS	S-6029-86	ACT	$15,200.00		$15,200.00	$12,986.18	$15,486.18		Surface	124	297
Ed-E Development	S-1032-86	ACT	$336,917.00		$336,917.00	$15,367.06	$17,867.06		Surface	42	80
Ed-E Development	S-10-81	ACT	$284,510.00		$284,510.00	$95,556.49	$100,556.49		Surface	64	64
EDWARD E. THOMPSON	S-1041-89	ACT	$700,696.00		$700,696.00	$5,278.22	$61,140.00		Surface	20	26
F & M COAL CO.	46-79	P	$5,320.00		$5,320.00	$1,530.02	$4,030.02		Surface	116	130
F & M COAL CO.	S-1026-87	P	$5,260.00		$5,260.00	$5,511.71	$8,011.71		Surface	167	167
F & M COAL CO.	S-1073-86	NA	$0.00		$0.00				Surface	0	0
F&M Coal Co.	S-1044-87	ACT	$873,600.00		$873,600.00	$180,800.98	$183,300.98		Surface	102	87
F&M Coal Co.	S-57-84	ACT	$742,500.00		$742,500.00	$89,456.15	$96,956.15		Surface	72	96
FALCON LAND COMPANY	P-656	ACT	$150,814.95		$150,814.95	$27,428.25	$29,928.25		Other	0	132
FARKAS COAL CO.	34-81	ACT	$54,635.00		$54,635.00	$13,837.38	$16,337.38		Surface	10	10
FREEPORT MINING CORPORATION	S-1005-95	UC	$0.00		$0.00		$135,042.00		Surface	40	107
FRUSH ENTERPRISES	S-1008-89	TBC	$508,622.50		$508,622.50		$23,702.00		Surface	86	76
GAULEY COAL SALES CO.	O-43-84	ACT	$2,360.00		$2,360.00	$2,053.68	$4,553.68		Other	3	15
GLADE RUN MINING CO.	3-72	P	$2,800.00		$2,800.00	$1,951.03	$4,451.03		Surface	50	50
GLADY FORK MINING, INC.	D-35-82	UC	$0.00		$0.00	$121,261.23	$24,312.00		Underground	12.25	12.25
GLORY COAL CO., INC.	UO-744	P	$14,480.00		$14,480.00	$2,398.93	$4,898.93		Underground	1	3
GOLD STAR MINING CORP.	S-121-85	NA	$0.00		$0.00				Surface	0	0
GOLDEN PRODUCTS	S-1009-88	P	$1,800.00		$1,800.00	$2,543.69	$5,043.69		Surface	30	30
GREEN MOUNTAIN ENERGY	U-4013-91	P	$4,140.00		$4,140.00	$2,004.64	$4,504.64		Underground	15.23	15.23

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GREENDALE COAL CO.	S-75-83	TBC	$2,969,995.00	$2,257,490.20	$712,504.80		$287,952.00		Surface	200	224
Hallelujah Mining	40-81	ACT	$209,261.00		$209,261.00	$17,114.30	$19,614.30		Surface	52	55
Harvey Energy	S-11-82	P	$47,000.00		$47,000.00	$5,594.71	$8,094.71		Surface	25	41
HARVEY ENERGY CORP.	S-3030-89	P	$22,343.75		$22,343.75	$2,204.29	$6,461.00		Surface	44	44
HARVEY ENERGY CORP.	S-35-81	P	$245,565.00		$245,565.00	$3,393.70	$13,013.00		Surface	12	22
HAWKS NEST MINING CO.	O-1-81	ACT	$12,000.00		$12,000.00	$3,018.58	$5,518.58		Other	14	48
HIDDEN VALLEY COAL CO.	S-60-84	ACT	$11,688.82		$11,688.82	$4,921.84	$7,421.84		Surface	47	47
HUNT COAL, INC.	U-5071-86	ACT	$0.00		$0.00	$1,006.61	$3,506.61		Underground	10	10
INTERSTATE LUMBER CO	S-39-82	TBC	$718,210.00	$766,500.00	-$48,290.00		$43,254.00		Surface	20.18	31
INTER-STATE LUMBER CO.	176-77	ACT	$153,850.84		$153,850.84	$4,064.80	$6,564.80		Surface	57	110
INTER-STATE LUMBER COMPANY, INC.	S-112-80	P	$320,856.25		$320,856.25	$1,185.10	$24,923.00		Surface	97	100
INTER-STATE LUMBER COMPANY, INC.	S-52-83	ACT	$6,380.00		$6,380.00	$1,305.96	$3,805.96		Surface	20	48
INTER-STATE LUMBER COMPANY, INC.	S-96-82	P	$0.00		$0.00	$42.47	$2,542.87		Surface	7	25
J & N PROCESSING COMPANY, LLC	O-58-83	P	$294,800.22		$294,800.22	$6,961.12	$30,433.00		Other	202.9	202.9
J.A.L. COAL CO., INC.	S-23-82	P	$376,447.50		$376,447.50	$475.79	$2,975.79		Surface	31	40
J.E.B. Inc.	S-61-82	ACT	$119,100.00		$119,100.00	$5,802.60	$8,302.60		Surface	18	18
JINKS MINING COMPANY	U-3031-93	P	$7,720.00		$7,720.00	$3,056.67	$5,556.67		Underground	9	15
JOCARR RESOURCES, INC.	U-3059-86	TBC	$27,167.50	$175,500.00	-$148,332.50		$3,461.00		Underground	12	10
JOHN GALT	D-76-82	P	$0.00		$0.00	$1,344.39	$3,844.39		Underground	4	8
JONES COAL INC	S-1030-86	P	$3,480.00		$3,480.00	$2,108.70	$4,608.70		Surface	23	23
JONES COAL INC	S-9-83	TBC	$273,432.50	$120,000.00	$153,432.50		$13,422.00		Surface	46	46
Keister Coal	184-77	ACT	$7,840.00		$7,840.00	$82,134.17	$84,634.17		Surface	13	27
KEYSTONE COAL, INC.	S-84-83	TBC	$0.00	$162,000.00	-$162,000.00				Surface	0	0
KEYSTONE COAL, INC.	U-186-83	TBC	$281,698.00	$162,000.00	$119,698.00		$11,593.00		Underground	14	19
KODIAK LAND CO., INC.	S-3052-87	P	$168,252.50		$168,252.50	$1,950.90	$8,307.00		Surface	6	32
LAKEVIEW COAL COMPANY	S-55-84	P	$28,753.27		$28,753.27	$182.26	$4,398.00		Surface	2	27
LANDMARK CORP.	S-34-82	TBC	$732,433.00	$180,162.00	$552,271.00		$48,822.00		Surface	12	95
LANDMARK CORPORATION	S-5069-88	TBC	$0.00		$0.00				Surface	0	0
LAROSA FUEL COMPANY	S-1051-86	TBC	$1,206,222.50	$943,450.00	$262,772.50		$106,717.00		Surface	181.71	196.79
LEVEL LAND MINING CORPORATION	S-3031-90	P	$4,480.00		$4,480.00	$2,023.92	$4,523.92		Surface	24	24
LILLYBROOK COAL CO.	S-86-85	ACT	$114,590.00		$114,590.00	$11,735.78	$14,235.78		Surface	34	34
LOBO CAPITOL, INC.	UO-204	TBC	$448,895.00	$47,631.00	$401,264.00		$47,631.00		Underground	0	6
LODESTAR ENERGY, INC.	R-5-84	P	$222,666.73		$222,666.73	$1,365.62	$15,639.00		Other	31.46	34
LODESTAR ENERGY, INC.	S-19-85	P	$0.00		$0.00	$9,346.24	$11,846.24		Surface	53.53	98
LODESTAR ENERGY, INC.	S-3006-89	TBC	$674,825.00	$199,000.00	$475,825.00		$46,794.00		Surface	34	122.79
LODESTAR ENERGY, INC.	S-3083-86	TBC	$196,525.00	$167,000.00	$29,525.00		$10,088.00		Surface	8.5	74
LOW ASH COAL CO.	UO-389	P	$70,782.50		$70,782.50	$1,137.83	$5,166.00		Underground	3.18	3.18
M & T MINING CO.	S-3026-89	P	$5,600.00		$5,600.00	$8,219.09	$10,719.09		Surface	114	171
MANGUS COAL COMPANY	S-1036-91	TBC	$754,750.00	$437,100.00	$317,650.00		$54,102.00		Surface	32	32
MAURICE JENNINGS	53-78	TBC	$812,287.50	$165,566.00	$646,721.50		$37,295.00		Surface	65	65

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Maurice Jennings	S-61-83	TBC	$339,992.50	$422,042.00	-$82,049.50		$32,337.00		Surface	45	52
MOHIGAN MINING CO.	U-109-83	P	$82,909.97		$82,909.97	$3,049.71	$34,525.00		Underground	23	18
MORGANTOWN ENERGY EXPORT CO.	U-8-83	P	$53,642.50		$53,642.50	$1,263.80	$4,631.00		Underground	12	12
MOUNTAINEER FUELS, INC.	U-3083-87	P	$15,000.00		$15,000.00	$4,265.52	$6,765.52		Underground	2	10
NATIONAL CONSTRUCTION COMPANY, INC	S-2004-86	P	$73,121.62		$73,121.62	$2,821.80	$7,598.00		Surface	64.9	54
Omega	D-79-82	ACT	$1,452,655.00		$1,452,655.00	$337,987.10	$340,487.10		Underground	20	24
PIERCE COAL & CONSTRUCTION, INC.	252-76	NA	$0.00		$0.00				Surface	0	0
PIERCE COAL & CONSTRUCTION, INC.	71-80	P	$0.00		$0.00	$4,008.96	$4,008.96		Surface	37	37
PINNACLE CREEK MINING CORP.	R-721	P	$77,466.00		$77,466.00	$2,343.53	$4,843.53		Other	24	32
Preston Energy	O-1035-87	ACT	$6,800.00		$6,800.00	$49,052.60	$51,552.60		Other	30	54
PRESTON ENERGY, INC.	O-43-85	ACT	$0.00		$0.00	$3,400.30	$8,400.30		Surface	13	13
PRESTON ENERGY, INC.	O-86-82	ACT	$0.00		$0.00	$1,113.05	$1,113.05		Surface	16	18
PRIMROSE COAL, INC.	7-81	TBC	$381,142.50	$501,700.00	-$120,557.50		$32,019.00		Surface	147	190
PRINCESS CINDY MINING, INC.	30-79	P	$52,424.00		$52,424.00	$443.53	$4,470.00		Surface	137	137
PRINCESS SUSAN COAL CO.	S-6033-86	UC	$0.00		$0.00		$3,571.00		Surface	118	200
PRINCESS SUSAN COAL CO.	S-6-85	UC	$0.00		$0.00		$7,046.00		Surface	34	216
PRINCESS SUSAN COAL CO.	S-76-82	C	$0.00		$0.00				Surface	0	0
PUPS CREEEK COAL	S-3006-94	TBC	$689,117.50	$330,680.00	$358,437.50		$11,120.00		Surface	213.72	221.31
RALEIGH COMMERICAL DEVELOPMENT CO	149-79	P	$0.00		$0.00	$817.68	$3,317.68		Surface	20	70
ROBLEE COAL CO.	U-2001-00	TBC	$453,017.50	$38,380.00	$414,637.50		$16,975.00		Underground	0	9.19
Rockville Mining Co.	237-76	ACT	$146,700.00		$146,700.00	$18,141.19	$25,641.19		Surface	44	50
Rockville Mining Co.	65-78	ACT	$125,880.00		$125,880.00	$46,964.69	$49,464.69		Surface	145	158
Rockville Mining Co.	S-1035-86	ACT	$178,972.00		$178,972.00	$10,634.91	$15,634.91		Surface	93	120
Rockville Mining Co.	S-65-82	ACT	$57,000.00		$57,000.00	$50,626.29	$55,626.29		Surface	310	475
ROCKVILLE MINING CO.	S-91-85	TBC	$952,586.28	$351,000.00	$601,586.28		$48,309.00		Surface	50	125
ROYAL COAL CO.	R-676	TBC	$1,111,852.50	$243,000.00	$868,852.50		$61,971.00		Other	30	30
Royal Scot Minerals, Inc.	31-72	ACT	$395,000.00		$395,000.00	$486,447.26	$488,947.26		Surface	235	400
ROYAL SCOT MINERALS, INC.	56-81	P	$13,198.92		$13,198.92	$848.48	$3,452.00		Surface	120	300
ROYAL SCOT MINERALS, INC.	D-32-81	ACT	$42,900.00		$42,900.00	$9,341.88	$11,841.88		Underground	8.44	8.44
ROYAL SCOT MINERALS, INC.	R-3078-86	ACT	$717,660.00		$717,660.00	$11,875.99	$18,870.00		Other	26	30
ROYAL SCOT MINERALS, INC.	S-65-76	TBC			$0.00		$2,795.42		Surface	107.23	160
ROYAL SCOT MINERALS, INC.	S-90-82	P	$14,312.00		$14,312.00	$1,658.43	$4,158.43		Surface	92	154
ROYAL SCOT MINERALS, INC.	S-99-83	P	$7,220.00		$7,220.00	$5,936.21	$8,436.21		Surface	10	11
ROYAL SCOT MINERALS, INC.	U-3046-88	TBC	$477,532.50	$224,000.00	$253,532.50		$11,577.00		Underground	26	26.4
ROYAL SCOT MINERALS, INC.	U-40-85	P	$4,160.00		$4,160.00	$4,957.28	$7,457.28		Underground	23	23
S. Kelly Industries	51-78	ACT	$104,135.00		$104,135.00	$72,846.66	$75,346.66		Surface	40	40
SALYERS LEASING CORP.	U-5066-87	P	$0.00		$0.00	$761.73	$3,261.73		Underground	9	19
SAN SUE COAL CO.	19-75	P	$8,520.00		$8,520.00	$4,668.16	$7,168.86		Surface	14	14
SMITH & STOVER	EM-29	TBC	$377,772.50	$54,000.00	$323,772.50		$31,970.00		Surface	25	25
SOLITAIRE COAL CORP.	S-87-85	TBC	$139,377.50	$398,250.00	-$258,872.50		$31,907.00		Surface	85	138

WATER CAPITAL AND WATER TREATMENT COSTS
Estimates Reflecting NPDES Standards

Appendix A

Site Name	Permit Number	Water Status	Newly Estimated Capital Costs	Prior Estimated Liability Costs	Final Capital Const. Cost	Current Annual O&M	New Post-Construction Annual O&M		*PERMIT TYPE*	Distrubed Acres	*Permitted Acres*
SOUTHERN EAGLE MINING CORPORATION	U-32-84	P	$0.00		$0.00	$2,558.78	$5,058.78		Underground	12	11
STAR INDUSTRIES, INC.	R-3-81	ACT	$20,799.35		$20,799.35	$14,088.96	$25,062.00		Surface	38	38
STEWARTOWN COAL CORP	67-78	ACT	$17,920.00		$17,920.00	$5,547.69	$8,047.69		Surface	4	80
SUMMERSVILLE FIVE BLOCK	S-3051-88	TBC	$4,290,212.50	$243,000.00	$4,047,212.50		$231,065.00		Surface	175	604
T & J COAL, INC.	P-177-85	UC	$0.00		$0.00		$41,315.00		Surface	5	5
T & T FUELS, INC.	U-125-83	ACT	$78,574.21		$78,574.21	$17,565.94	$20,065.94		Underground	14	14
T&T	EM-113	ACT	$2,829,004.00		$2,829,004.00	$459,657.88	$462,157.88		Other	5	5
TEMPLEMAN CONST. CO., INC.	151-75	P	$4,200.00		$4,200.00	$1,469.65	$3,969.65		Surface	25	25
The Masteller Coal Co.	S-125-82	TBC	$136,257.50	$92,500.00	$43,757.50		$36,861.00		Surface	49	49
THE MASTELLER COAL COMPANY	S-10-85	TBC	$186,510.00	$113,419.00	$73,091.00		$9,908.00		Underground	122	142
Triple A Coals	S-96-85	P	$259,480.00		$259,480.00	$10,246.80	$12,746.80		Surface	58.4	262
TRIPLE A COALS, INC.	S-3028-87	P	$52,760.00		$52,760.00	$6,832.47	$9,332.47		Surface	96	121
TRIPLE A COALS, INC.	U-3046-87	P	$52,760.00		$52,760.00	$1,687.81	$4,187.81		Underground	25	25
VALLEY MINING CO.	S-17-82	ACT	$59,575.23		$59,575.23	$3,425.12	$5,944.00		Surface	45	62
VALLEY MINING CO.	S-64-83	ACT	$174,512.50		$174,512.50	$28,192.83	$30,692.83		Surface	161	160
VICKIE ENERGY, INC.	U-53-85	P	$61,247.50		$61,247.50	$1,667.93	$4,935.00		Underground	14	14
Viking Coal	UO-519	ACT	$742,394.00		$742,394.00	$66,132.58	$68,632.58		Underground	10.92	10.92
VMS, LIMITED	S-1045-87	ACT	$54,626.00		$54,626.00	$28,625.86	$31,125.86		Surface	87	162
W & E LOGGING & COAL	S-20-82	P	$5,040.00		$5,040.00	$1,922.20	$4,422.20		Surface	50	70
WERNER MINING CO., INC.	S-2003-86	P	$25,600.00		$25,600.00	$2,652.95	$5,152.95		Surface	43	43
WETER Co	S-71-79	P	$0.00		$0.00	$393.99	$2,893.99		Surface	57	56
WINCHESTER COALS, INC.	O-52-83	C	$0.00		$0.00				Surface	0	0
Wocap Energy	S-26-85	ACT	$268,993.00		$268,993.00	$24,898.42	$27,398.42		Surface	25	40
X W CORP.	S-6013-87	P	$0.00		$0.00	$2,443.57	$4,943.57		Surface	22	25
Z & F DEVELOPMENT CO.	S-21-84	ACT	$383,287.50		$383,287.50	$19,314.08	$50,791.00		Surface	28	28
ZINN COAL CO.	60-79	P	$11,320.00		$11,320.00	$2,569.25	$5,069.25		Surface	10	75
ZY COAL CO	S-6028-88	TBC	$132,092.50		$132,092.50		$7,526.00		Surface	150	190.39
ZY COAL CO.	91-79	P	$30,713.54		$30,713.54	$610.20	$3,237.00		Surface	64	64
ZY COAL CO.	S-30-80	C	$0.00		$0.00				Surface	0	0

TOTAL - Currently Operating Permits Table 1.2 Row (6)		17,160,009.77			
TOTAL - To Be Contracted Permits Table 1.2 Row (7)	30,446,454.78				
TOTAL - Table 1.5 Row (1)			3,175,444.29	6,009,328.63	
TOTAL - Table 1.2 Row (9) and Table 1.5 Row (2)					10,541.18

PINNACLE
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June 24, 2013

Nelson L. Kidder, P.E.
Chair – Ohio Reclamation Forfeiture Advisory Board
11355 Stonecreek Drive
Pickerington, Ohio 43147

Dear Mr. Kidder:

Attached is the report documenting our analysis of the financial soundness of Ohio's Reclamation Forfeiture Fund. This final report represents the combined efforts contributed by the Ohio Reclamation Forfeiture Advisory Board, the Ohio Department of Natural Resources – Division of Mineral Resources Management, and Pinnacle Actuarial Resources.

It has been a pleasure working with you, the rest of the Board, and the DMRM. Please do not hesitate to contact me if you have any questions. I look forward to working with you again as you continue to monitor the Fund and its financial condition.

Best regards,

John E Wade

John E. Wade, ACAS, MAAA
Senior Consulting Actuary
jwade@pinnacleactuaries.com

Enclosure

cc: **Lanny Erdos, Chief ODNR- DMRM**

Analysis of the
RECLAMATION FORFEITURE FUND

Oversight by the
Reclamation Forfeiture Fund Advisory Board of Ohio

Maintained by the
Ohio Department of Natural Resources
Division of Mineral Resources Management

Issued June 24, 2013

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Commitment Beyond Numbers

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Exhibits

Purpose

Pinnacle Actuarial Resources, Inc. (Pinnacle) has been retained by the Reclamation Forfeiture Fund Advisory Board of the State of Ohio (the Advisory Board or RFFAB) to review the Fund's financial soundness.

Qualification to Provide Actuarial Report

This report is provided to the Advisory Board by John E. Wade, ACAS, MAAA. Mr. Wade is a member in good standing of the American Academy of Actuaries and meets its qualification standards to prepare this report.

Distribution and Use

This report and conclusions contained herein are being provided to the Reclamation Forfeiture Fund Advisory Board for its use in connection with our actuarial analysis of the current and estimated future Fund's liability in comparison with the current and estimated future assets. This report has been prepared to support the Advisory Board in complying with the Ohio legislation which established the Board as advisory oversight organization with respect to the Fund. The legislation also required a report be made to the Governor of the State of Ohio by the Advisory Board on a biennial basis.

We understand that copies of this report may be provided to the state auditors and other regulatory authorities along with other parties in compliance with Ohio's open records policies. Permission is hereby granted for this distribution on the condition that the entire report, including all exhibits and appendices, is distributed rather than any excerpt. These third parties should recognize that the furnishing of this report is not a substitute for their own due diligence and should place no reliance on this report or the data contained herein that would result in the creation of any duty or liability by Pinnacle to the third party.

The attached appendices and attachments in support of our findings are an integral part of this report. These sections have been prepared so they document our actuarial assumptions and judgments. Judgments about the conclusions drawn in this report should be made only after considering the report in its entirety. We remain available to answer any questions that may arise regarding this report. We assume that the user of this report will seek such explanation on any matter in question.

Our conclusions are predicated on a number of assumptions as to future conditions and events. Those assumptions, which are documented in subsequent sections of this report, must be understood in order to place our conclusions in their appropriate context. In addition, our work is subject to inherent limitations, which are also further outlined and discussed later in this report.

Reliances and Limitations

We have prepared this report in conformity with its intended use by persons technically competent in the areas addressed and for the stated purposes only. Judgments as to conclusions, methods, and data contained in this report should be made only after studying the report in its entirety. Furthermore, we are available to explain any matter presented herein, and it is assumed that the user of this report will seek such explanation as to any matter in question.

We have relied upon data and information supplied by members of the Ohio Department of Natural Resources – Division of Mineral Resources Management (ODNR-DMRM) staff including Permitting & Bonding, Forfeiture and AML, Regulatory and Data Management.

There is a limitation upon the accuracy of these estimates in that there is an inherent uncertainty in any actuarial estimate of future costs. This uncertainty is due to the fact that the ultimate liability for claims is subject to the outcome of events yet to occur,

e.g., the likelihood of permit holders running into financial difficulty and default, the size and cost of reclamation, changes in the standards of reclamation and desired speed of reclamation. While there are no standard techniques for which to develop estimates for these specific issues, in our judgment, we have employed techniques and assumptions that are appropriate and the conclusions presented herein are reasonable, given the information currently available. However, it should be recognized that future loss emergence will likely deviate, perhaps materially, from our estimates.

We have relied on the data provided without independent audit or verification on the part of Pinnacle to develop our estimates of potential future reclamation cost. We also worked with the ODNR-DMRM staff to understand the operation of the Fund, the reclamation process and the underlying data provided but only to the extent such information may have affected our analysis. We have not anticipated any extraordinary changes to the economic, legal, or social environment which might affect the cost and frequency of default.

Our estimates are provided net of underlying performance security (also known as performance bonds or bonds). We have made no attempt to evaluate the quality of security provided. Should such providers be unable to fulfill their obligations, the Fund would be responsible for this additional reclamation cost.

We estimate nominal costs at an expected level (50% likely that actual costs will be below our estimate and 50% likely they will be above), then apply inflationary factors, and finally discount to present values using investment rates derived from the US Treasury. Discounting is reliant upon the investment rate and timing of payments, both of which are assumptions in this model and are subject to potentially high variability. Looking at future payments on a discounted basis could unintentionally remove a level of conservatism not intended by the RFFAB. For financial statement purposes, the Fund's liabilities might be better stated on an undiscounted basis. Exhibits 2.2 and 2.3

show the claims liabilities for land reclamation and water treatment before the impact of cost inflation and discounting (Columns 1 and 4), after the impact of cost inflation but before discounting (Columns 2, and 5), and after both cost inflation and discounting (Columns 3 and 6). The difference is most profound on the water treatment liability, where a 75 year payout is assumed.

Please note that for the purposes of this report, the Performance Security Estimate (PSE) and Central Tracking System (CTS) data was provided as of October 15, 2012.

Further reliances and limitations are contained in the subsequent text, and in the exhibits accompanying the text.

Executive Summary

There are several ways to view financial soundness. We find that the Fund is solvent on a short term basis as the current Fund assets ($16.3 million) exceed the current Fund outstanding liabilities and obligations for forfeited reclamation projects ($0.0 million). For longer-term solvency, the measurement compares the current available Fund assets with the Fund's long term expected exposure or liability ($18.9 million on a present value basis of expected land reclamation and long-term water treatment costs of current permits plus the administrative expense to settle the liabilities). We do not believe the fund currently meets the criteria for long term solvency. **We estimate it will take two more years of no forfeiture costs before the Fund accumulates enough surplus to cover expected liabilities and expenses.**

Another indicator of financial soundness is the Fund's ability to withstand a shock loss. It would take two more years of non-forfeitures before the Fund could cover an average loss, eight more years to cover the forfeited permits of the failure of the fifth largest permit holder, and thirty-eight more years to cover the forfeited permits of the failure of the largest permit holder. See Exhibit 1 for additional details.

To further describe the situation, if the Ohio law was changed somehow closing the Fund at this time to any new permits, the future expected revenues from severance tax from the operating permits currently covered by the Fund for future forfeiture potential plus the current Fund balance would appear to provide sufficient capital to finance the estimated reclamation cost from the long term expected forfeiture of some of the 225 permits included in the Fund today. However, an average shock loss on top of the expected forfeitures would eventually place the Fund in a negative cash flow position. Our long term solvency measure is intended to compare the current balance with the exposures currently in place in a fashion similar to the method used to judge the solvency of insurance or bonding companies.

As with the prior study, through the efforts of the engineers with the Division of Mineral Resources Management, we have developed an estimate of the total potential cost to reclaim all of the subject mining operations covered by the Fund. This effort had historically only been undertaken once a site had been forfeited. In general, we note that underlying Performance Security provided through the private insurer/bonding community reduces the potential liability of the Reclamation Forfeiture Fund.

Thus, the total potential cost to the Fund equals the total potential cost for all reclamation efforts less the underlying performance security. This potential Fund figure should be viewed as the maximum possible cost or the worst case scenario (although should a provider of the performance security also default, the Fund would also be obligated for the reclamation cost covered by that provider).

The Fund is involved in assuming financial risk for an exposure that is categorized as low frequency of claims but very high severity in dollar terms, when an event (default) does occur. There are currently 31 mining companies with coal mine related permits in the state of Ohio covered by the Fund and included in our study. Some of the operators have only a single permit while other larger operators have a dozen or more mining permits. The operator with the most coal mining permits in Ohio currently has 66 permits in the Fund.

The small number of operators and the tremendous potential liability from a few of the larger operators create a significant risk to the Fund from a concentration of risk perspective. For example, should one of the permit holders with only a single coal mining permit become financially unable to meet their reclamation obligations, the cost to the Fund might fall anywhere from no cost (liability covered through bonding) to over $22 million. See Exhibit 8.1a. With the current Fund balance, the reclamation cost of a forfeiture of a single permit holder can be financed.

On the other side of the spectrum, should one of the permit holders with a large number of sites become financially troubled, the cost to the Fund for reclamation could easily exceed $39 million, with the largest potentially exceeding $159 million. See Exhibit 8.1b.

Our analysis includes the development of the Expected Cost to the Fund. We define the expected cost as the long run average that considers both the potential of a permit holder's forfeiture along with the potential cost of that forfeiture. If the Fund was collecting a single "premium" from the operators at the start of each project for providing this financial security as do insurance and bonding companies, this Expected Cost (along with any operating expenses) would be the basis for the "premium" required from each site and operator.

With this analysis, we have developed our estimates based upon an annual forfeiture rate of 0.37%, as developed in Exhibits 6.1 and 6.2. Our method of estimating expected ultimate loss applies the selected 0.37% forfeiture rate to every permit every year to determine an average expected loss.

The forfeiture rate selection is based upon historical Ohio forfeiture information and forfeiture rates developed by using Kentucky and West Virginia information. Ohio's data received 75% weight in our selection, and the other states combined received 25% weight. Our prior analysis in 2011 utilized publically available financial ratings for the individual permit holders and a general estimation of business survival (1/3 weight), estimated West Virginia forfeiture rates (1/3 weight), and the two year change in estimated West Virginia forfeiture rates (1/3 weight) applied to the financial ratings selections. Our 2009 analysis gave 100% weight to publically available financial ratings.

To say it another way, with the current analysis our forfeiture rate selection is heavily driven by actual historic Ohio forfeiture experience which was omitted from both our 2009 and 2011 studies. The previous omissions were intentional because the recent years of no forfeiture activity was not thought to be very credible. However, four more years of no forfeiture activity have ensued since our first analysis. While it would not be prudent to assume that the future forfeiture rates over the long term would be 0%, the stability of the program should be recognized, hence the application of the ¾ weight to Ohio's long term average forfeiture rate.

We have also introduced a direct reflection of reclamation cost inflation and discounted the future liabilities to present value using interest rates based on recent US Treasury information. With this analysis we have presented the cash flow tables in Exhibit 1 on a discounted to present value basis.

Based on our analyses, we have developed a land reclamation Fund Expected Cost estimate for the permits currently included in the Fund of $13.4 million in Exhibit 2.2.

New to this year's analysis, we have developed a long-term water treatment Fund Expected Cost estimate for existing permits of $4.2 million in Exhibit 2.3.

In Exhibit 1, Cash Flow, we display the expected revenues that will cover the above costs. Tonnage fees from the permits associated with the above costs are expected to accumulate to $20.3 million over the next 78 years (the projected time period to work through the long-term water treatment liabilities). During that same time, interest income earned on the positive fund balance would be expected to accumulate to $30.5 million. A portion of the interest income earned over the long time horizon should be thought of as being attributable to new permits that will be issued in the future. This report does not study the potential of new permits, either for income or for costs.

In order to cover the expected costs for land reclamation and long-term water treatment of the current permits, the Fund should have a $18.9 million balance ($13.4 million for land plus $4.2 million for water plus $1.3 million for operating expense), which we would expect it to attain during 2014. This can be thought of as the funding level to be 50% confident that the funds will adequately cover expected costs, that is, half the time this level of funding would be adequate, and half the time it would be insufficient. It is reliant on the assumptions explained throughout this report.

Also new to this year's analysis, we have incorporated a shock loss scenario that examines how the forfeiture of an average-sized permit holder would affect the Fund: resulting in an estimated $20.9 million in liability to the Fund. See the derivation in Exhibit 8.1b and the cash flow play-out in Exhibit 1 - Shock Loss. For practical considerations, the cash flow exhibit spreads the shock loss out over a five year period. It is unlikely that the activities required to reclaim the land associated with the hypothetical shock loss could be performed in a shorter time period.

To adequately cover the expected cost of the current permits and the shock loss of an average-sized permit, the Fund would need to build to a balance of $39.8 million ($13.4 million plus $4.2 million plus $1.3 million in operating expense plus $20.9 million). It is informative to note in Exhibit 1 – Shock Loss that even after a shock loss as described above the Fund maintains a positive balance for approximately 60 more years before going negative. Given the current economy and the financial condition of some of the coal operators in Ohio, the RFFAB should consider to what extent it wants to fund for a shock loss, whether it be an average loss or one far greater as displayed in Exhibit 8.1b.

Please note that our previous analysis did not address the possibility that a permit in danger of forfeiture could be taken over by another more financially secure operator, who would potentially assume the previous permit holder's assets, mining rights and

reclamation responsibilities. This replacement action would eliminate the reclamation cost to the Fund. However, by using Ohio's historic forfeiture experience, we now account for that activity to the extent it has occurred in the past.

There are advantages that insurers have that are not available to the Fund. The most obvious advantages include

- The spread of risk across insureds, locations, industries and lines of business;
- The ability to individually underwrite and price each risk; and, maybe most importantly,
- A level of surplus (available capital) in addition to the collected premium which allows an insurer to survive years and periods where the actual costs exceed (and sometimes greatly so) the expected long run costs. When actual annual costs exceed long-term expected annual costs, the insurers have this operating capital. In contrast, the Fund until recently had been using recent proceeds to pay for the current reclamation projects. The Fund has now begun and continues the capital accumulation process.

Summary of Findings

Based upon the methodology and assumptions described above, we have estimated the present value of potential expected liability of the Fund as follows:

- $13.4 million for land reclamation (Exhibit 2.2)
- $4.2 million for water treatment liability (Exhibit 2.3)
- $1.3 million for administrative expenses (Exhibit 1)

Resulting in a total estimated liability of $18.9 million

It is interesting to note that the total estimated liability of $18.9 million is down significantly from our estimate in 2011 of $32.3 million and our 2009 estimate of $42.8 million. These large drops, even after the inclusion of long-term water treatment

liability, are primarily attributed to the absence of any recent forfeitures in the state of Ohio.

There can be considerable variation around this estimate due to:

- The limited number of coal operators within the state of Ohio,
- The uncertainty with respect to future forfeiture rates,
- The emergence of water treatment liability,
- The number of operators with multiple permits,
- The relationship of the performance security provided by the private insurance market and estimated cost to reclaim the various sites along with the large size of some of the operators.

For example, should one of the largest operators be unable to meet its obligations, the potential cost to the Fund from a single operator could easily approach $159 million. An additional $20.9 million would be needed to cover an "average" shock loss. Please see Exhibit 8.1b.

In actuarial and insurance regulatory language, the Fund has significant risk of material adverse deviation from the estimated expected loss. This risk can easily be seen in two contexts. The first would be in comparing the average potential cost with the largest single potential cost. On an operator basis, this is $21 million versus $159 million or a relationship approaching 8 to 1. Please see Exhibit 8.1b. The second context would be a comparison of the largest single potential loss with the current available capital in the Fund - $159 million to $15.5 million (as on January 2013) or a ratio of 10 to 1. Even the average potential cost of $21 million would easily eliminate the Fund's current capital.

Ohio Reclamation Forfeiture Fund Background

The current Ohio Coal Mine Reclamation Forfeiture Fund ("the Fund") was significantly revised in 2007 by the State Legislature to provide reclamation coverage to eligible coal mine operators permitted by the State of Ohio in addition to the required private performance security for each site. This coverage is designed to step in to provide for funding the reclamation costs of coal mining sites in the event of financial default of the permit holder. The mechanisms prior to House Bill 443 in 2007 had not accumulated a significant amount of capital or revenue for its operations but the Bill did assign the responsibility for the on-going cost associated with the prior operator defaults not yet fully reclaimed to the Reclamation Forfeiture Fund. Fortunately, there have been no new forfeitures requiring Fund financial support since year-end 2005. As of the end of January 2011, there were no permits/sites on the list to be reclaimed under the direction of the Fund through the efforts and oversight of the Division of Mineral Resources Management. All reclamation work on previously forfeited permits was substantially completed by year-end 2010.

The coal mine permit holders must maintain Performance Security (Bonding) coverage in the amount of $2,500 per acre of land based upon the acreage designated to be affected in the given year as allowed on the permit. The Performance Security can be obtained from the private insurance market or financed by some other means such as letters of credit, certificates of deposit, cash or trust agreements.

The Fund provides additional forfeiture coverage for reclamation efforts on underground mines, surface mines and facility permits. Facility permits might include operations such as preparation plants, coarse refuse and slurry areas. The eligible mine operators who select to be reliant on the Fund for costs above the Performance Security pay a severance tax to the Fund which varies from $0.12 to $0.16 per ton of coal extracted based upon the Fund's balance. The required amount of private

performance security is based upon the affected acreage included on each permit issued by the Division of Mineral Resources Management. Many operators have submitted permit applications with a significant amount of land not currently affected by mining. The extra acreage has been included within the permit and performance security up front to eliminate the need for the operator to reapply or post additional performance security each time mining operations commence on another parcel of land. Also, some eligible operations, by choice or requirement, are fully covered by private performance security and not part of the "pool" operated by the Fund.

The total potential reclamation cost estimate is based upon the ODNR-DMRM engineer's assessment of the approved mining and reclamation plan on each permit including any on-site processing facilities covered by the Fund. This cost estimate is commonly referred to as the Performance Security Estimate (PSE). Each PSE uses unit costs derived from the historical reclamation costs of the Division of Mineral Resources Management, based on the data found in R.S. Means and yearly direct inquiries for quotes. These unit costs are applied to the approved mining and reclamation plans to assess the total potential cost in the event of forfeiture. Prior to our 2009 analysis, this PSE information had not been routinely established at the beginning of each permit operation nor reviewed annually to assess the potential cost to the Fund. It should be noted that the forfeiture coverage is now updated periodically by the DMRM during the active mining operation period of the mine and also during the reclamation process until the permit is released by the ODNR-DMRM.

The amount of the required Performance Security on a permit is adjusted during the reclamation process based upon the acreage affected. The amount of the private Performance Security required on any given affected acre is decreased by 50 percent upon satisfactory completion of the procedure to backfill and re-grade the land (phase 1 of reclamation). Another 35 percent decrease in required Performance Security is made when the land is re-planted and re-growth or re-vegetation has been satisfactorily

completed in accordance with the requirements set forth in the Ohio Revised Code and Ohio Administrative Code (law and rule) (phase 2 of reclamation) . The final 15 percent of the required performance security amount is typically released in about seven years following the date of planting, if no additional action was necessary by the operator to achieve satisfactory reclamation. It should be noted that the private performance security is not related to the estimated reclamation cost but rather a fixed amount of coverage ($2,500) per acre affected. As noted previously, at any site, the operator may elect not to rely upon the financial support of the Fund and choose to provide complete private performance security in the full amount of the estimated reclamation cost (using the same estimation methodology and unit cost values as the permits which are eligible and choose to rely upon the Fund).

In the case of default by the operator, the private bonding company may elect to reclaim all or a portion of the site based upon the amount of performance security remaining as surety. The remainder of the site reclamation effort would be turned over to the Fund possibly with the performance security payment of up to $2,500 per acre depending upon the amount previously released. Each coal mine operator may have multiple active sites (permits) with affected acres at various phases at any time. This situation with multiple permits from a single operator results in additional concentration of risk.

As of October 15th, 2012, there were 125 active permits for coal mining operations in Ohio that were part of the Reclamation Forfeiture Fund "Pool". There were also 100 permits covered by the Fund with no future mining activity planned that had "Final Maps" accepted by the Ohio Department of Natural Resources – Division of Mineral Resources Management. See Exhibit 8.6a. Final Maps are created to provide the details of the impacted area from the mining operations and are used to determine the estimates of future reclamation costs.

From the data provided for this analysis, we had ODNR-DMRM engineer's performance security estimates on all 225 Fund-covered permits from 31 different operators. Of the 225 permits with PSEs, the current PSEs for 209 permits are greater than the possible funding from bonding, letters of credits, deposits or other instruments (private performance security). Please see Exhibit 8.2. The operator counts have been adjusted to reflect the fact that some permit holders are part of one umbrella company structure. This issue is noted due to the impact organizational structure has upon the concentration of risk. If a multiple permit holding operator should run into such financial difficulty that it defaults, we have assumed that all permits under that umbrella corporation are impacted and default as well.

Changes in the Data since Previous Report

We have compared the Performance Security Estimates for the 204 permits which had Performance Security Estimates in the data included in the previous report as well as Performance Security Estimates in the current data provided by the engineers from the Ohio Department of Natural Resources. Of these permits, the PSEs on 10 permits remained unchanged. For 94 permits, the PSEs in this year's data were lower than the PSEs included in the previous data by a total of $91.8 million of potential reclamation cost. For the remaining 100 permits, the performance security estimates increased by a total of $156.0 million since the data for the last review was collected. The overall net change is an increase in the Performance Security Estimate or the anticipated cost of reclamation of $64.2 million. Please see the bottom of Exhibit 8.6a.

In the 2009 report, we had performance security estimates on all but 25 of the permits. With the 2011 report and this year's analysis, we have been provided with performance security estimates on all the permits included in the Fund. Thus in this review, we are relying solely upon engineer's estimates of potential reclamation costs.

As might be expected, a grand majority of the permits in the database are from surface mining operations. Of the 225 permits included with PSEs, only 12 permits are related to underground mining operations and another 18 permits related to facility permits. Please see Exhibits 8.3a, 8.4a, and 8.5a.

Of the 125 active permits, we have PSE data for 101 surface mining operations, 8 active permits for underground mining operations and 16 operating facilities permits. Please see Exhibits 8.3a through 8.6a. We note that the preceding information reflects only those permits covered by the Fund and not those that have elected or are required to operate under full private performance security.

Historical Forfeitures

As background information, the ODNR-DMRM provided the historical forfeiture order information available from the US Department of the Interior's Office of Surface Mining (OSM) covering the past 20 years by the year in which the order was made. Since 1993, there have been a total of 98 bond forfeiture orders to 32 permit holders. This results in an average of 3 permits per permit holder. The actual number of forfeiture orders per permit holder has ranged from 1 to 21 permits.

In the past 13 years, there have been only 19 forfeiture orders. Seven of these forfeiture orders were terminated because the company was able to reclaim and continue operation on the affected sites. These forfeiture orders did not result in any dollars being requested from the Fund to assist with the reclamation process. Very fortunately, there have been no forfeiture orders in the past 7 calendar years, even in the midst of the recent global financial crisis. This lack of recent forfeitures has allowed the Fund to cover the reclamation costs of previously forfeited locations including those forfeited prior to House Bill 443.

More importantly, the Fund has begun accumulating capital to cover potential future forfeitures of currently covered permits. In the early 2000s before House Bill 443, this capital accumulation process had been further slowed by the insolvency of a performance security provider (bond insurer) for two of the permit holders, one of which was an operator with a significant number of permits.

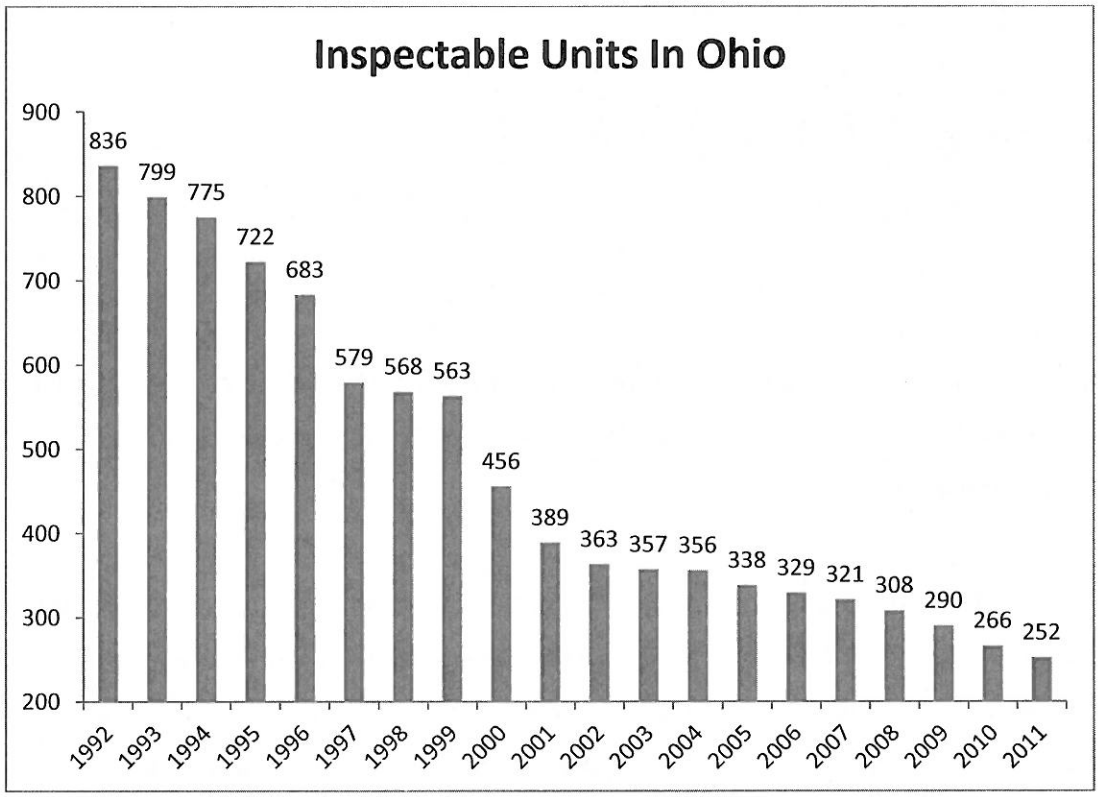
Source, Ohio Department of Natural Resources, Division of Mineral Resources Management

We note that similar to states that experience hurricanes, the lack of forfeitures in the recent past does not provide support for an assumption that there will be no forfeiture events in the future.

The average annual number of forfeiture orders over the twenty year available period has been about 4.9. We note that since 2000, the annual permit forfeiture order frequency has declined to 1.5 permits per year. And most notably, since 2006 there have been no forfeitures. We also note that although there were official forfeiture orders made on eight permits during calendar year 2005, the Fund was only called upon to provide reclamation capital on one of these sites – a very positive development for the Fund's financial situation. We were also provided with forfeiture information as compiled by the ODNR-DMRM which showed forfeiture activity during 1989 to 1992 at roughly the same levels as the 1993 to 1995 period.

If we measure the annual number of forfeitures at the *Permit Holder* level rather than the permit level, the long term permit holder forfeiture frequency has been less than two operators per year.

The number of inspectable units (permitted mining operations) in Ohio over the 20 year period is displayed in the chart below. Over the period of time 1992 through 2011, there have been anywhere from 836 to 252 inspectable units in Ohio. These figures are provided by the Office of Surface Mining from their publicly available records.



Source: Office of Surface Mining reports

The average forfeiture rate per number of permits issued is 1.12%. This translates to an annual forfeiture rate of 0.07% based on an average lifetime of a permit of 18 years and

adjusting for the fact that forfeitures rarely occur in the first two years of a permit's active life. Please see Exhibit 6.2. Note that our calculation of forfeiture frequency considers the seven 2005 permits discussed above that were eventually terminated. Since our goal is to estimate future frequency rates, it is prudent to realize that future remediation efforts leading to terminated forfeiture orders may not be as successful.

Comparing Ohio's historic 0.07% forfeiture rate to the Kentucky and West Virginia forfeiture rates of 1.10% and 1.14%, respectively, Pinnacle selected an Ohio annual forfeiture rate of 0.37%. The selection reflects 75% weight given to Ohio's data, 25% weight to Kentucky and West Virginia, and reflecting the new inclusion of a mine status forfeiture rate adjustment factor (Exhibit 6.3). While we do not have historical data to determine the forfeiture rate adjustment factors, our selections are intuitively logical. We have also adjusted the final selected forfeiture rate to account for the impact created by the adjustment factors, rendering the overall impact revenue neutral.

Analysis Overview and General Comments

For the current permits covered by the Fund, we have utilized the site specific current estimates of the total *potential* cost to reclaim all of the subject mining operations (Performance Security Estimate or PSE) from the engineers with the Ohio Department of Natural Resources– Division of Mineral Resources Management (ODNR-DMRM). We have combined the PSEs with estimated probability of forfeiture over the lifetime of the permit to develop an estimate of the total expected (or long term average) costs for the Fund.

The engineering estimation effort is now being undertaken by the ODNR-DMRM on a regular basis. This increased frequency of PSE updates greatly facilitates the monitoring of potential cost at the sites and the future analyses of the Fund's potential liability. Since the PSEs include all portions of the permit within a single figure, they are adjusted during our analysis to reflect the reported site operating status with respect to the various stages of mining and reclamation. A single permit may have various acres in process of achieving phase 1 release (all activity including active mining operations prior to completion of all land replacement), in the process of achieving phase 2 release (replanting and reforestation activity) and in the process of achieving phase 3 and final permit release (the waiting period prior to permit release).

In development of our estimation, we reflect that underlying performance security provided through the private insurer/bonding community, letter of credit or other security provided, if a permit is forfeited, would reduce the potential liability of the Reclamation Forfeiture Fund. Thus, the total potential cost to the Fund equals the total potential cost for all reclamation (PSE) less the underlying performance security (bond, etc.). This Fund potential cost figure should be viewed as the maximum possible cost or the worst case scenario, with one exception. In full disclosure of that one exception, we do note that should a provider of the performance security also default, the Fund would be obligated for the reclamation cost assumed to be covered by that provider.

Potential Fund Liability

Our analysis begins with estimates of total land reclamation cost (PSEs) for the 225 Fund-covered permits. In total, the engineer estimated reclamation cost is $872.2 million. This value is reduced by $172.8 million to reflect permitted acres not yet affected and by $71.8 million of available and required performance security. These adjustments to the initial PSEs result in a total *Potential Fund Liability* of $627.7 million for land reclamation. Again, these total potential cost figures should be considered a worst case scenario - if each and every operator would forfeit all their permits and no providers of performance security default.

Expected Fund Cost

The combination of the potential cost (adjusted PSEs) and probability that the Fund will be called upon (forfeiture rates) determines the *Expected* Cost to the Fund. This Expected Cost being a combination of the possible cost and the long run probability of default or forfeiture over the life of the permit could be considered the long run average cost of future forfeitures to the Fund. If the Fund was collecting a single up-front "premium" from the operators to provide this financial security in a manner similar to insurance and bonding companies, this Expected Cost (along with any operating expenses) would be the basis for the "premium" required from each site and operator.

We also note that while these are long term average projections, the actual results in any one year or series of years will vary, sometimes significantly, from the long run average. This is the nature of a low frequency/high severity risk such as this. For a similar example, we cite the cost of hurricane losses in a southern state. In some years, there will be no losses due to hurricane while in other years there will be significant losses. Most years are either well below or well above the long term average. The key is to generate sufficient capital in the less than average years to be available to cover the costs in the years where the costs far exceed the long term averages.

Forfeiture rates

For our previous analyses, we obtained publically available financial information about some of the firms holding Ohio coal mining permits through sources such as Standard & Poor's and Dun and Bradstreet. This potential default information was used to estimate the probability of an operator encountering financial difficulties such that the Fund would be called upon to assume the cost of the reclamation projects for each site of the firm.

Later we developed two additional estimates by using the probability of forfeiture estimates by permit type and permit issuance year from the West Virginia Special Reclamation Fund analysis.

With this analysis, we have developed a forfeiture rate based on historic Ohio experience. We blended that with projected forfeiture rates in West Virginia and Kentucky (using a 75/12.5/12.5 weighting). We determined that this measure was superior to the financial ratings as it should be directly related to the Reclamation Forfeiture Fund expected cost. The recent history of no forfeitures is fortunate, but it would not be appropriate to assume the future long term forfeiture rate would also be zero; hence we use the long term historic average and include the surrounding state information to add stability and credibility to our method.

Other methodology enhancements included in this year's analysis are:

- An adjustment factor to the forfeiture rates to reflect mine status (active, final map, pending phase 1 release, pending phase 2 release, pending phase 3 release)
- Expanded release rates determined from historic data
- An estimated liability for long-term water treatment or long-term alternative water supply (Water)

Based on a number of estimates and assumptions, described later in this report, along with the PSE information from the permits in the Fund, **we have developed an estimated land reclamation expected cost of $13.4 million,** reflecting inflationary trends and discounting to present value, both explained later in this report. See Exhibit 2.2. This compares to our estimate in the last analysis of $32.3 million. The substantial decrease is driven by the revised methodology of forfeiture rate selection.

Water

House Bill 163 recently amended the Ohio Revised Code to account for long-term water treatment and long-term alternative water supplies. It includes a provision for operators to set up a water trust fund to provide for a perpetual water liability. As discussed later in this report, **we have estimated a liability of $4.2 million to account for long-term water exposure on current permits. See Exhibit 2.3.**

Shock Loss

Another financial measure of the soundness of the Fund would be its ability to absorb a shock loss without threatening the viability of the Fund. A shock loss for purposes of this study could be considered to be the largest operator, carrying the largest liability, forfeiting all its permits. In this case, an additional $159.0 in estimated liability would come against the Fund.

In conversations between the RFFAB and coal producers it has been postulated that four of the largest operators would be less likely to be involved in a failure. However, there was some concern expressed about the financial difficulties facing large (and small) operators. For purposes of this study we considered the impact of a shock loss that was equal to the average liability for all operators in Ohio who are reliant on the Fund. See Exhibit 1 – Alternative. **That amounted to an additional $20.9 million of estimated**

liabilities for an "average" shock loss. For comparison purposes, this is approximately half the estimate of the cost for the fifth largest carrier defaulting. See Exhibit 8.1b.

While shock losses are highly unlikely to occur because of the financial strength and attractive value of the assets of the larger operating companies, it is prudent to be aware that remote possibilities do exist.

Actuarial Analysis

As described briefly above, the objective of our analysis is to measure the Expected Cost to the Fund of the current operating mines and all facilities currently in various phases of reclamation.

Data

The ODNR-DMRM has provided the following information by permit in an Excel spreadsheet format:

1. The Performance Security Estimate, which is the ODNR-DMRM engineer's assessment of the cost to reclaim the site based upon the approved mining and reclamation plan (described more fully later in this report) for all 225 mining permits covered by the Fund.
2. The Performance Security on-hand in total for each site along with the amounts separated into the three phases of the reclamation process (also described more fully in a later portion of the report).
3. The distribution of acres on the permitted site between the three phases of operation.
4. The Operator name by permit.
5. The provider of the performance security by permit.

Performance Security Estimate Groupings

The 225 PSEs are provided by the ODNR-DMRM engineers in the following two categories:

A. 100 Permits that have an approved Final Map and coal extraction is completed
B. 125 Permits still extracting coal and thus do not have an approved Final Map

The first category, permits with Final Maps, requires no additional adjustment prior to application of the default probabilities in the development of the estimated exposure

assumed by the Fund. The second category requires an additional adjustment to account for the typical situation where the PSE has assumed all acres proposed to be affected on the permit will require reclamation, when, in some cases, only a portion of the land proposed to be affected has been disturbed during the mining process. We have utilized the historic relationship of affected-to-permitted acres supplied by the ODNR-DMRM engineers from their work on PSE development of each of the Performance Security Estimates in Category B as an estimate of the affected–to-permitted acres relationship of our study sample. Please see Exhibit 5.

Performance Security (Bond) from Insurers

We next compare the estimated total cost of site reclamation developed in the prior step against the amount of private performance security on hand as provided from the Division of Mineral Resources Management data base (Central Tracking System - CTS) files. The private performance security, available should forfeiture occur, may be provided through any of the following means:

- Bond from an insurer licensed to do business in Ohio
- Letter of credit
- Certificate of Deposit
- Cash
- Trust agreements

The amount that the estimated total site cost exceeds the performance security on hand for the site is the potential reclamation cost to the Fund. There are a number of sites where the Performance Security on hand is greater than the Performance Security Estimate. Of the 225 permits included in the analysis, 16 permits, or slightly more than 7 percent, fall into this category and contribute zero dollars to our estimated potential and estimated expected Fund costs. In these cases, the Fund would have no reclamation liability in the case of operator default. But we understand that the Fund still could have some potential liability, if the provider of the Performance Security should become

insolvent prior to fulfilling its obligation. This situation occurred on a number of forfeited sites in Ohio in the early 2000s. We also note that the excess of individual permit Performance Security over the Performance Security Estimate has not been used as an offset to total Fund liabilities, as these monies would not be available to cover other forfeitures.

Estimated Potential Reclamation Fund Cost by Permit Holder

Exhibits 8.1a, 8.1b, and 8.1c provide the estimate of the potential reclamation cost by permit holder. One permit holder (operator) only has permits with zero net liability to the Fund. In essence, this operator is privately secured at "full cost". Therefore, 30 of the 31 current permit holders (operators) pose potential liability to the Fund (assuming their Performance Security providers do not fail).

The average potential cost of a permit holder forfeiture of the operators and sites is over $20.9 million per operator ($627.7 million divided by 30 operators with exposure to the Fund). As can be seen in Exhibit 8.1b, all of the five largest operators exceed the average. We do note that the estimated potential Fund cost for each of the other 25 operators is well below the average of $20.9 million. In fact, the average potential Fund cost of these 25 operators is roughly $5 million. We can conclude that the greatest concentration of risk to the Fund comes from a small number of mine operators.

Comparing the potential cost as obtained from the engineers at the ODNR-DMRM and adjusted for the available performance security with the number of permits with potential cost to the Fund, we develop the average potential cost of a forfeited permit of approximately $3.0 million ($627.7 million divided by the 209 permits with potential liability to the Fund). Please see Exhibit 4.3.

Based upon the information in the ODNR-DMRM data base (CTS) for each site within each of the three phases, we have allocated the total estimated reclamation cost to the three reclamation phases. This step is necessary to reflect the differences in the

estimated time until full release of the permit and the associated performance security based upon the assigned phase. These time estimates were developed based upon data from a report by the Office of Surface Mining Reclamation and Enforcement that is titled "A Report on the Success of Achieving Reclamation Standards on Surface Coal Mining Operations in Ohio". Please see Exhibit 3.2. As with any estimates, some sites may operate within significantly longer or shorter time periods – especially the active permits.

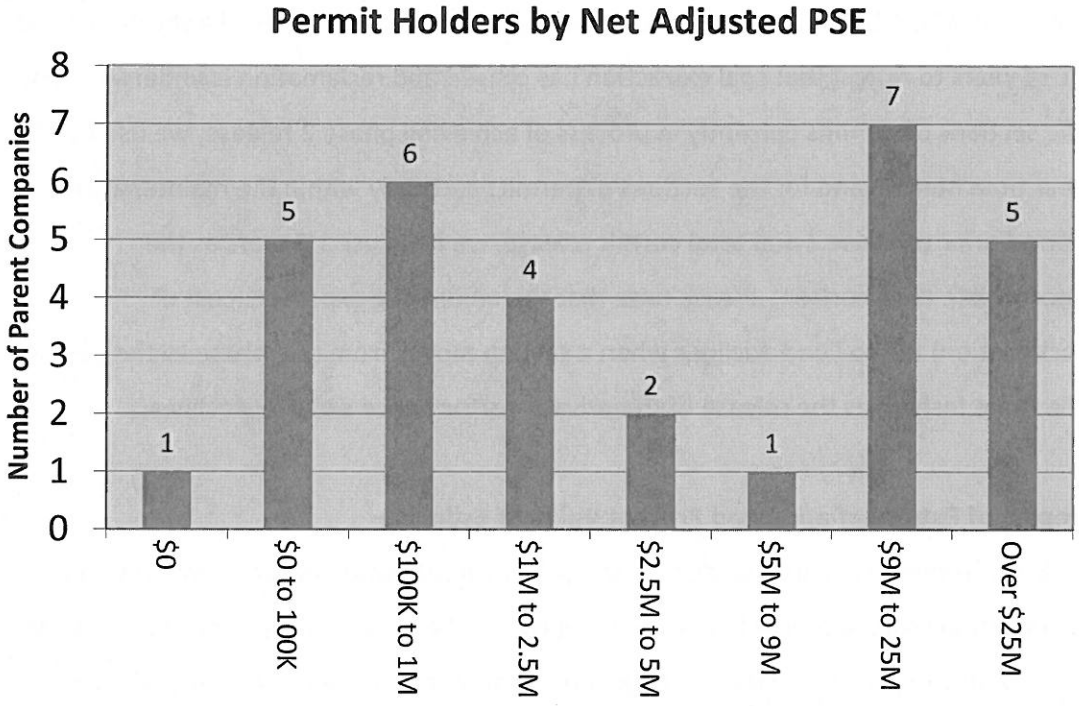
- For active permits (those without Final Maps), we have assumed that the future life cycle will take 18 years to completely proceed through the various phases of mining operation from coal extraction to land replacement, removal of collection ponds, replanting and reforestation and the maintenance period required to assure that the land is stable and fulfills the requirements of the approved reclamation plan and final release of the permits. At the point of permit release, the exposure to the Fund declines to zero and the private performance security is also fully released.
- For permits with Final Maps and CTS data pending phase 1 release, we assume that phase 1 release will be reached in 3 years. The additional times to release follows the phase 2 and phase 3 timeframes below.
- For permits with Final Maps and CTS data pending phase 2 release, we assume that phase 2 release will be reached in 4 years. The additional time to release follows the phase 3 timeframe below.
- For permits with Final Maps and CTS data pending phase 3 release, we assume that full release will be reached in 7 years.

The $627.7 million in potential cost from the permits in the study are spread across the Active and Final Map Permits within the three phases of reclamation as follows:

- Active Pending Phase 1 $420.4 million
- Active Pending Phase 2 $30.4 million
- Active Pending Phase 3 $28.6 million

- Final Map Pending Phase 1 $139.6 million
- Final Map Pending Phase 2 $6.5 million
- Final Map Pending Phase 3 $2.2 million

Please see Exhibit 4.2. These figures have significance as the permits now fully contained in phases 1, 2 and 3 of reclamation are no longer contributing revenue to the Fund but will continue to expose the Fund to potential cost. Please note that all potential costs are accumulated in the first category with any current activity. Thus, a permit with a final map pending phase 1 may also have some acres in pending phases 2 and 3 of the reclamation process, but all potential costs from the phase 2 or 3 acres would be included in the pending phase 1 category shown above.



Estimated Operator Financial Strength – Potential for Future Default

Since the Fund will only be called upon to financially support a reclamation effort if the permit holder should no longer have the financial resources to complete the effort, we need to consider the probability of forfeiture or financial default of the permit holder/operator. To reflect this financial capacity of the permit holder in our analysis, we have developed average forfeiture probabilities based on Ohio forfeiture data and the forfeiture rates in Kentucky and West Virginia. Please see Exhibit 6.2.

Projection into the Future

The time horizon for potential forfeiture varies based upon the reclamation phase determined by the Division of Mineral Resources Management. For the active permits, we used the longest period available – 18 years for the period of time from current until the reclamation is completed and the permit is released. For the sections of the permits with Final Maps currently working to achieve phase 1 release, we used a shorter period of 14 years to reflect that coal extraction has ceased and reclamation is underway. For the sections of permits currently in process of achieving phase 2 release, we used an 11 year time horizon and for the sections of permits currently within the maintenance period prior to phase 3 and total permit release, we have used 7 years as the appropriate time horizon. Please note that the underlying exposure (cost of reclamation) to the Fund declines when a section moves from one phase to the next in the same fashion as the release of the private performance security declines.

Impact of Future Inflation and Present Value of Estimate

As in our previous report, we include an explicit consideration of future inflation on reclamation costs (materials, fuel and manpower). We also explicitly consider that the costs of future potential liabilities could be discounted to present value based upon expected investment returns. That is -"how much money is needed to be set aside today to cover the costs years into the future?"

In this analysis, we make a separate reclamation cost inflation adjustment of 4% per year compounded. We also use the investment rates to discount the future costs to present value. The rates are based upon United States Treasury Note return rates as of March 1st, 2013. The Treasury Notes are sold for 2, 3, 5, 7, 10 and 30 year investment periods. We have interpolated the years in between those available. When investment returns are less than the assumed reclamation cost rates at any one point in time, the Fund liabilities are adversely impacted by cost inflation. Please see Exhibit 9 for a display of the rate of investment returns used in our analysis.

Development of the Estimates of Expected Cost

We develop estimates of the expected cost for each permit by combining the potential cost to the Fund information with the probabilities of forfeiture by permit age over the entire exposure period based upon the current distribution by phase. These forfeiture rates are adjusted to reflect the phase of the mine. The probability of forfeiture declines as the reclamation process transitions from active mining to reclamation and on to final release. Please see Exhibit 6.3. These expected long run average cost estimates by permit are then summed by parent company and then for the Fund in total. In this case, $13.4 million is the estimated long run average expected cost for land reclamation. Exhibit 2.2 summarizes the estimated costs over the next 18 years.

Estimated Expected Cost by Larger Permit Holders

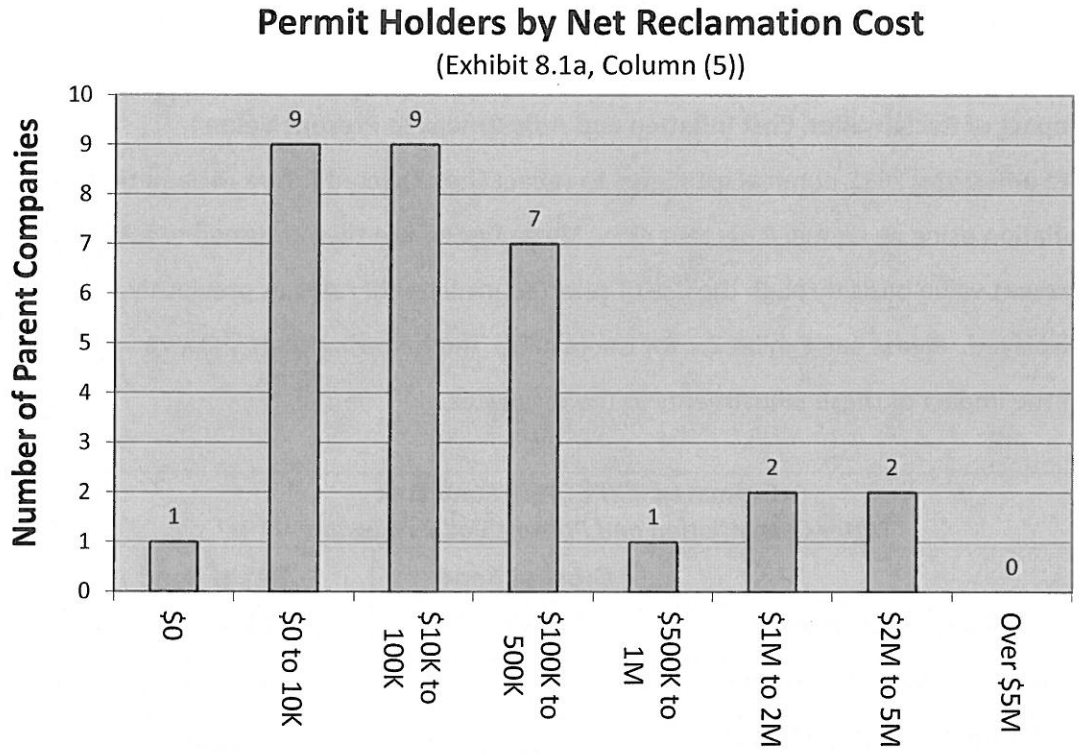
There are a number of sites that would be potentially impacted by a single large company becoming financially troubled. We have also developed estimates by permit holder as well as individual permit. Again, we are reflecting the assumption that if a permit holder should forfeit one permit, then all permits for that entity would simultaneously be forfeited.

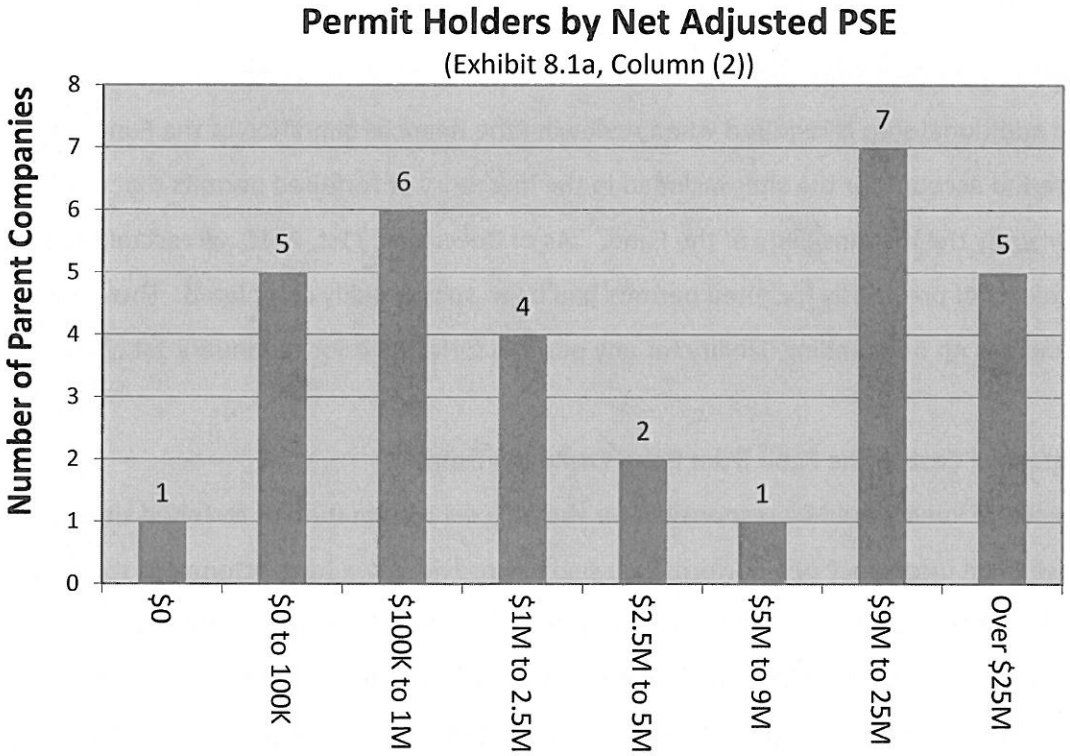
Thus, in the case of the forfeiture risk borne by the Fund, there is significant correlation between the default probabilities of various permits. On the other hand, we note that

no adjustment is made for any spread of risk between the various permit holders as the concentration of risk is much more significant. One might also look at it from the other perspective, i.e., if the larger permit holders continue to remain solid financially, the potential reclamation costs to the Fund might be much more manageable.

In Exhibit 8.1b, we provide the estimated nominal expected costs for the top five permit holders in terms of total expected cost to the Fund before application of reclamation cost inflation or present value calculations.

As can be seen, the estimated expected Fund cost (Net Reclamation Cost) at the permit holder level for those permits in the study is significantly less than the estimated potential Fund cost (Net Adjusted PSE) from the permit holder forfeiture. Please see the charts below and Exhibits 8.1a and 8.1b for comparisons. The difference in these figures can be thought of as being similar to the difference between the insured value of a home (potential cost) and the annual premium to insure the home against a multitude of potential losses over the many years of occupancy (expected cost).


Permit Holders by Net Reclamation Cost
(Exhibit 8.1a, Column (5))
Number of Parent Companies
10
9
8
7
6
5
4
3
2
1
0
1
9
9
7
1
2
2
0
$0
$0 to 10K
$10K to 100K
$100K to 500K
$500K to 1M
$1M to 2M
$2M to 5M
Over $5M


Permit Holders by Net Adjusted PSE
(Exhibit 8.1a, Column (2))
Number of Parent Companies
8
7
6
5
4
3
2
1
0
1
5
6
4
2
1
7
5
$0
$0 to 100K
$100K to 1M
$1M to 2.5M
$2.5M to 5M
$5M to 9M
$9M to 25M
Over $25M

Impact of Reclamation Cost Inflation and Adjustment to Present Value

We adjust the 2012 nominal estimates to reflect the expected future reclamation cost inflation using an annual 4 percent rate. These figures are then returned to a 2012 present value basis through the use of selected investment rates as previously displayed. Please see Exhibit 2.2 for the results. The following chart shows a summary of the impact of these adjustments to the estimates.

Estimated *EXPECTED* Fund Cost **After Cost Inflation and Present Value Adjustment**		
	Gross of Bond	**Net of Bond**
Nominal Estimate	**$12,857,773**	**$11,597,549**
Impact of 4% Cost Inflation	**2,439,197**	**2,203,785**
Present Value Adjustment	**(451,965)**	**(408,858)**
Resulting PV Estimate	**14,845,006**	**13,392,476**

Cost of Forfeited Sites Currently in the Reclamation Forfeiture Fund

An additional step is required when reviewing the financial condition of the Fund. We need to account for the sites included in the inventory of forfeited permits that are currently the responsibility of the Fund. As of December 31st, 2010, all reclamation projects of previously forfeited permits had been substantially completed. Thus, the Fund has no outstanding liability for any permits forfeited prior to January 1st, 2011.

Potential Cost to the Fund from Bond Company Default

Since the Fund would be responsible for the full cost reclamation of forfeited sites in the case of an insolvency of a performance security provider, we have attempted to roughly estimate the potential long term cost of this exposure to the Fund. As this has already happened in the past with a number of sites recently reclaimed by the Fund, this possibility of concurrent permit forfeiture and insurer insolvency is clearly a valid

concern. In order for the Fund to be obligated to provide reclamation coverage, there would need to be forfeiture by the permit holder and an insolvency of the bonding company for that permit holder. Bond amounts and account numbers are verified by the bonding company annually and by the DMRM every five years at renewal.

Typically, the Performance Security provided by the bonding company carries an annual premium for coverage that is irrevocable - even for non-payment of premium. The Fund's exposure to insurer insolvency is typically contained within a period of roughly 12 months rather than across the full life of the permit. The Fund management can require the replacement of a Performance Security provider in the event of an insurer's insolvency. The Ohio Revised Code allows up to 12 months for the operator to replace the coverage provided by an insolvent surety.

Other alternative financial arrangements do not carry a significant default risk. The following summarizes some of the underlying structure of those programs:

- Letters of credit must be issued for a term of 12 months or more and intent to non-renew requires 60-day notice to the Chief.
- Certificates of Deposit are automatically renewable and held at the Treasurer of the State's office. The amount of required security is verified annually at maturity. The Treasurer's office reports to the DMRM on any issues monthly.
- Cash is held by the Treasurer of State in a separate fund.

If we assume the probability of forfeiture by a permit operator in any one year is the same as selected for our analysis (0.37 percent, Exhibit 6.2) and the probability of the insolvency of a performance security provider is equal to the two year average default rate in 2011 for US financial institutions and insurance providers (0.57 percent) based on a recent Standard & Poor's study, the combined probability of default of both the permit holder and the provider of performance security is 0.37 percent times 0.57 percent, or .0021 percent. When applied to the estimated performance security of the

sites included in the Study as provided in the CTS files ($699 million), we develop an expected cost of approximately $14,600. This figure does not appear to be necessarily very material to the total Fund expected cost.

But it should be noted that, as has actually been previously witnessed, in the event of the situation where both the permit holder AND the performance security provider are unable to meet their obligations with respect to the completion of the reclamation, the actual cost of a provider of performance security to the Fund can be significant and material.

Reclamation Forfeiture Fund Operating Expenses

Reclamation Forfeiture Fund operating expenses include various oversight services provided by ODNR-DMRM personnel, travel cost reimbursements of Advisory Board members, external consulting costs, etc. The ODNR-DMRM booked operating expenses of $169,487 for Fund 5310/Reclamation Forfeiture for Fiscal Year 2012, and has booked $70,105 to the Fund through the first six months of Fiscal Year 2013.

The PSEs that we used to develop our future cost of reclamation estimates already include a 15% mark up for administrative expenses. For our estimates, we have assumed annual expenses of $5,000 for overhead costs not included in the PSEs, a biennial actuarial study at $50,000 per study, spread over two years, and long-term water treatment administrative expense of $10,000. (It should be noted that even though long-term water treatment trusts include operating expenses, our determination of the water treatment costs described below are not based on ODNR-DMRM cost estimates. We therefore add this additional expense in.) Our estimate therefore assumes the need for a periodic update to this type of analysis, annual water treatment administrative expense, and the need for the Advisory Board to meet periodically to discuss critical issues related to the financial operation of the Fund.

Long-Term Water Treatment and Alternative Water Supply

Currently there are 6 permits determined by ODNR-DMRM to require long-term water treatment. One of these permits, #433, Consolidated Coal Company (Consol), has established a standby trust fund to meet its obligation to cover long-term water treatment liability. The DMRM is monitoring another 6 permitted sites for potential long-term water treatment. The list of monitored sites is continually being updated as new information becomes available. See Exhibits 10.2a and 10.2b for the current listing of sites designated for water treatment or monitoring.

There is limited data on how these potential long-term water treatment sites might develop. In order to determine an estimated liability on current permits, we considered the limited data available in Ohio along with the somewhat broader data base available from our analysis of West Virginia water reclamation liabilities.

In our first approach we consider the average costs per permitted acre separately for water treatment and capital cost (including cost of set up, annual maintenance and abandonment). We developed averages for the Ohio Consol permit and another set of averages based on West Virginia data. The data for the one Ohio permit does not contain sufficient information to make use of our intended exposure measure of permitted acres. (Consol is showing the footprint of acres rather than the permitted number of acres, which may be different than our intended measure.) Since we only have this one data point for Ohio, we selected the West Virginia cost indications to use in our estimates for Ohio. It should be noted that the West Virginia indications are prior to that state having to meet higher NPDES standards (implemented in 2011), since Ohio is not currently subject to those standards. That is, we used 2011 West Virginia indications, reduced by our estimate of the 2011 NPDES standards on that state's water capital and water treatment costs.

We also developed an estimate of permitted acres that will be in future need of long-term water treatment. That estimate is the sum of current permitted acres designated for long-term water treatment and a portion of monitored permitted acres. Our initial estimate of the portion of monitored permitted acres that will become treated permitted acres has been set at 50%. There is limited data to estimate how many of the monitored sites will become treatment sites. The 50% estimate was selected to give a substantial weight to this liability and roughly reflects the judgment of the ODNR-DMRM as to the number of permits (3) of the current permits (6) on the monitor list that could require long term water treatment.

Since these situations are potentially perpetual in nature, the ODNR-DMRM has settled on a 75 year time horizon to estimate future costs. We also used the 75 year time horizon in our estimates.

The final piece of the first estimate is to determine a forfeiture rate. There is only a liability to the Fund if the permit is forfeited. We have already selected a 0.37% annual forfeiture rate for all permits in Ohio. That annual forfeiture rate was developed from Ohio, Kentucky and West Virginia lifetime forfeiture rates. We selected a lifetime forfeiture rate of 2.25% for permits involving water. Again, there is no data to develop statistical estimates. Our thinking was that the mere involvement of water treatment would lead to potentially catastrophic costs that would greatly increase the probability of forfeiture, thus we selected the 2.25% forfeiture rate (double the Ohio overall historical rate of 1.12%) as a potentially conservative measure.

Our first method of estimating the ultimate liability for long-term water treatment on current permits is then simply the product of the number of permitted acres, the average cost per permitted acre, the number of years for payment, and the probability a forfeiture will occur. This method yielded a long-term water cost of $1.3 million.

Our second estimate is fairly simple. We developed an estimate of the ratio of long-term water cost to land reclamation cost in West Virginia. The West Virginia ratio is approaching 100%. Because West Virginia's water treatment standards were greatly increased last year, beyond what Ohio currently would have to meet, we estimated the relationship of West Virginia's cost of the prior standards to the newer, stricter standards and found that to be roughly 5 percent. Water capital costs under the old West Virginia standards are estimated to be about 25% of what they will be under the new standards. The average relationship in West Virginia, of the old standards to the new standards for water treatment and water capital combined is estimated to be about 15%. Considering these values to define a reasonable range of what might be expected for Ohio, we have selected a conservative ratio of 20% of estimated land costs instead of West Virginia's 100% of estimated land cost, reflecting the fact that Ohio's geology is less likely to develop water issues. Applying the 20% ratio to the average land reclamation cost in Ohio ($12.9 million) produces our second estimate for long-term water treatment liabilities of $2.6 million.

Based upon these two methods' estimates of $1.3 million and $2.6 million, we selected a final estimate of $2.5 million.

We make a final adjustment to the estimate to account for underlying security, primarily in the form of standby trust funds. While these funds are to be set up to cover 100% of the cost of capital and treatment, the operator can spread the funding of standby trust over five years. In the mean time, the Reclamation Forfeiture Fund provides the remainder of the coverage. The one trust that has already been established is fully funded and presents no liability to the Fund since the trust has a built in mechanism to adjust for shortages over time. Of course, not all permits needing standby trust funds will necessarily have established a trust fund before a forfeiture occurs. In fact, the discovery of the need for water treatment could escalate the probability of forfeiture for

permits owned by operators already in economic distress. We selected a 10% credit adjustment factor to apply to our water liability estimate. This adjustment factor will likely increase with time as more of these trusts actually become reality.

It is recognized that permitted acres is not the most desirable estimates for costs. Actual engineering estimates will be much more accurate when they become available, or even basing the projection on an exposure base other than acreage. The flow of contaminated water could be useful, but there will be many assumptions built into estimated treatment costs even then.

Applying the 10% mitigating water trust adjustment factor estimate to the selected $2.5 million estimated expected costs results in a net $2.25 million estimate for long-term water treatment and alternative water supply liabilities. See Exhibit 10.1. As the underlying data for our calculations is very limited and the assumptions made to determine the estimated costs are open to a large range of variation, it is important to note here that final results could in fact deviate substantially from these estimates. The ODNR-DMRM will want to monitor this aspect of the Fund's liability closely and update these estimates as often as practical.

Please note that the above figures for long term water treatment are stated on a basis before inflation and present value are taken into account over the 75 year payout period. After consideration of inflation and present value, the estimated expected cost of $2.25 million becomes $4.2 million. See Exhibit 2.3.

Financial Capacity of the Fund

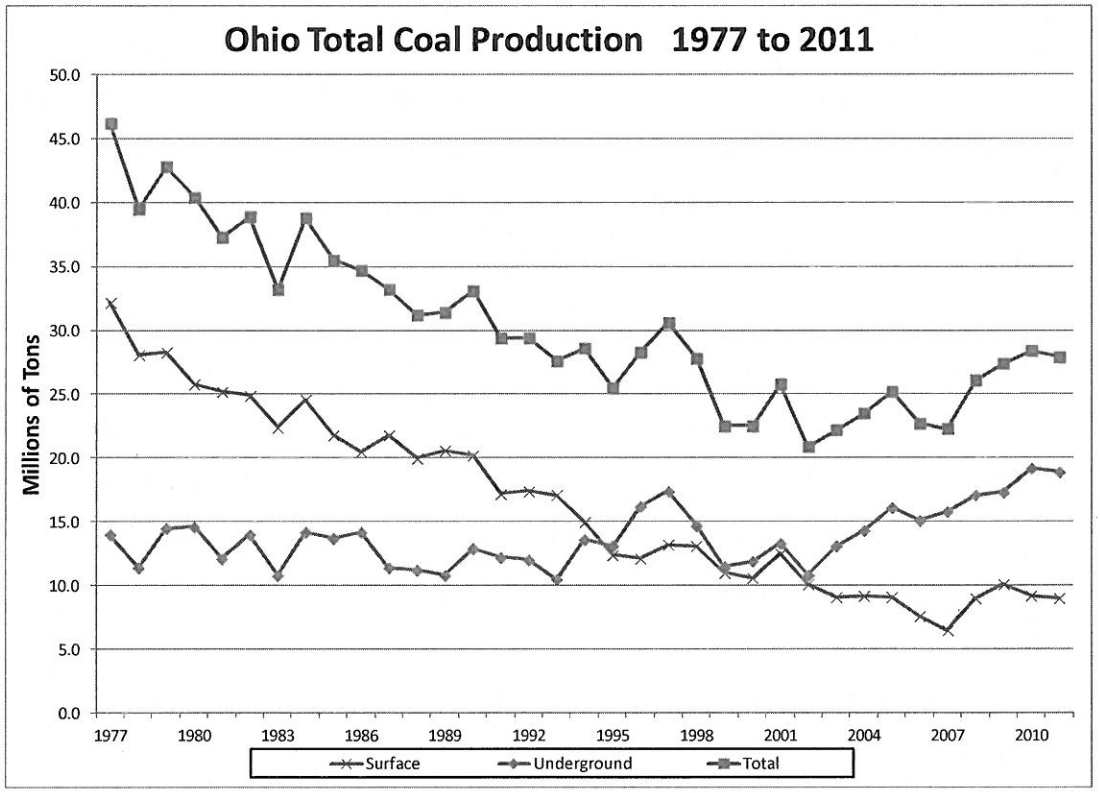
The capital available to operate the Fund is generated from revenues from the severance tax on the covered permit holders based upon their coal production. As explained in other sections of the report, this revenue is not directly related to the liability assumed / forfeiture protection provided by the Fund to the operators nor does it reflect the different financial capacity of each permit holder to fulfill his obligations to complete the land reclamation process. As opposed to an up-front premium payment required by the providers of the underlying private performance security (often to provide security over a single year time horizon) as is provided on "full cost" permits, Ohio's alternative bonding system is comprised of a per acre bond plus a severance tax charged to operators to build capital on an as-you-go basis. The collections from today need to cover the exposure that exists currently from both active mining sites and sites in the process of reclamation as well as potentially provide some additional capital accumulation to cover the current sites in the future.

The dynamic nature of the process whereby portions of the permitted sites move from active mining to phase 1 reclamation to phase 2 reclamation to phase 3 reclamation over time adds a complicating feature to any analysis or comparison of future revenue with either future expected or future potential costs. Any increase in mining operations will result in both an increase in revenue and an increase in potential future cost to the Fund. Similarly, declines in mining operations will result in decreased revenue and decreased exposure to the Fund. Since the Fund retains responsibility for forfeited reclamation projects in the years following the cessation of mining operations, the financial exposure to the Fund remains for a number of years after the revenue to the Fund has ceased.

Future Coal Production Projection

Based upon historical coal production figures developed by the US Department of Interior – Office of Surface Mining (OSM) and provided for our use by the Ohio Department of Natural Resources, we have the historical coal production from surface mining operations and underground mining operations. In the prior review, we used this data to attempt to project coal production into the future and thus the severance tax revenues.

The following chart displays the historical coal production in Ohio.



In our work on another project, we became aware of the "Consensus Coal Production Forecast Report for West Virginia 2009-2030". This report was prepared for the West Virginia Department of Environmental Protection Office of Special Reclamation by Dr. Randall A. Childs and Dr. George W. Hammond of West Virginia University's College of

Business and Economics. While this projection is specifically tailored to coal mining in West Virginia, it utilizes economic assumptions with respect to supply and demand related specifically to Northern Appalachia coal. We have developed a projected future annual change in Ohio coal production based upon the changes forecast in Northern Appalachian coal in the Energy Information Administration Annual Energy Outlook 2011 and a study performed by Wood Mackenzie Research and Consulting.

	Energy Information Agency Northern Appalachia Coal Production		Wood MacKenzie Northern West Virginia Steam Coal		
Year	Millions of Tons	Index to 2011	Millions of Tons	Index to 2011	Average Index
2011	*140.9*	1.0000	52.4	1.0000	1.0000
2012	142.2	1.0095	52.9	1.0095	1.0095
2013	140.8	0.9996	54.1	1.0324	1.0160
2014	142.1	1.0088	57.5	1.0973	1.0531
2015	141.0	1.0010	56.3	1.0744	1.0377
2016	142.9	1.0145	55.8	1.0649	1.0397
2017	141.9	1.0074	58.0	1.1069	1.0571
2018	140.6	0.9982	59.8	1.1412	1.0697
2019	140.2	0.9953	61.9	1.1813	1.0883
2020	143.6	1.0195	68.1	1.2996	1.1595
2021	141.5	1.0046	70.6	1.3473	1.1760
2022	141.8	1.0067	70.2	1.3397	1.1732
2023	143.6	1.0195	59.9	1.1431	1.0813
2024	150.1	1.0656	53.2	1.0153	1.0404
2025	149.6	1.0621	54.1	1.0324	1.0473
2026	155.5	1.1040	56.1	1.0706	1.0873
2027	154.6	1.0976	57.6	1.0992	1.0984
2028	151.3	1.0741	56.4	1.0763	1.0752
2029	152.7	1.0841	53.9	1.0286	1.0564
2030	152.4	1.0820	53.3	1.0172	1.0496
2031	154.7	1.0983	N/A	1.0197	1.0590
2032	156.4	1.1104	N/A	1.0223	1.0663
2033	158.0	1.1217	N/A	1.0249	1.0733
2034	158.0	1.1217	N/A	1.0275	1.0746
2035	159.7	1.1338	N/A	1.0301	1.0819
2036	N/A	1.1399	N/A	1.0326	1.0863
2037	N/A	1.1460	N/A	1.0352	1.0906
-	-	-	-	-	-
2067	N/A	1.3454	N/A	1.1164	1.2309

Please note that an anomaly in the Energy Information Agency's forecast for 2011 was replaced with a result producing a one percent annual increase rather than a nineteen percent annual increase in the first year of the forecast. This adjustment was necessary so that the anomaly would not be carried forward into 2012 and subsequent years.

We have used the average index to develop a projection of future Ohio coal production. In 2011, there were 27.9 million tons of coal mined in the state of Ohio, of which we attribute 25.1 million tons to operations that participate in the Fund. Based upon the methodology described above, the following table provides the projected future coal production in Ohio for operations under the Fund.

Ohio RFF Coal Production Projections (in million tons)		
Year	**Avg. Index**	**Tons**
2012	1.0095	25.3
2013	1.0160	25.5
2014	1.0531	26.4
2015	1.0377	26.1
2016	1.0397	26.1
2017	1.0571	26.5
2018	1.0697	26.9
2019	1.0883	27.3
2020	1.1595	29.1
2021	1.1760	29.5
2022	1.1732	29.5
2023	1.0813	27.2
2024	1.0404	26.1
2025	1.0473	26.3
2026	1.0873	27.3
2027	1.0984	27.6
2028	1.0752	27.0
2029	1.0564	26.5
2030	1.0496	26.4
2031	1.0590	26.6
2032	1.0663	26.8
2033	1.0733	27.0

As in our prior analysis, we feel that this projection is more predictive of the future than the use of an exponential trend of past Ohio coal production as was used in our 2009 analysis. We might suggest that Ohio consider commissioning a similar economic study specifically for Ohio coal production.

We caveat these estimates by stating that we assume the demand for coal from Ohio's mines will follow those projected in West Virginia for Northern Appalachia / Steam Coal. These assumptions are less certain the further out in the time horizon one goes. Another important assumption is that the supply of coal is more or less unlimited and thus the revenue to the Fund is not constrained or limited over the time horizon.

The per ton based severance tax rate is predicated upon the Fund balance from the prior year-end according to the following chart:

Fund Balance	Rate per Ton of Coal
Less than $5 Million	$0.16
Between $5 and $10 Million	$0.14
In excess of $10 Million	$0.12

The levels of estimated production along with the severance tax rates would generate between $3.0 and $4.7 million in annual operating capital for the Fund. We understand that currently about 90 percent of the current coal extraction is from Fund covered permits and have adjusted our revenue projections to account for this fact.

Based upon the various projections of future coal production provided, we have developed the following table that displays the estimated revenue from the severance tax that would be generated by these production levels with the added assumption that 90% of the coal production is from operators participating in the Fund. We provide the estimates at the three tax rates currently included in the statute.

OHIO RECLAMATION FORFEITURE FUND ANALYSIS Potential Reclamation Fund Revenue Projection			
Tons (in millions)	**$0.12**	**$0.14**	**$0.16**
25.0	3,000,000	3,500,000	4,000,000
25.5	3,060,000	3,570,000	4,080,000
26.0	3,120,000	3,640,000	4,160,000
26.5	3,180,000	3,710,000	4,240,000
27.0	3,240,000	3,780,000	4,320,000
27.5	3,300,000	3,850,000	4,400,000
28.0	3,360,000	3,920,000	4,480,000
28.5	3,420,000	3,990,000	4,560,000
29.0	3,480,000	4,060,000	4,640,000
29.5	3,540,000	4,130,000	4,720,000

Current Fund Balance

The Fund is in the process of collecting the revenue to build up sufficient capital to provide for future potential reclamation projects. The balance in the Fund as of June 2012 was approximately $13.0 million. This capital is increased $4.8 million from the December 2010 balance of $8.2 million.

We note that since June 2010, current reclamation work has been substantially completed on forfeited sites. Thus, a grand majority of the severance tax has been added to the Fund. The Fund balance at the end of May 2013 had risen to $16.3 million.

Investment Rate of Return

In addition to the revenue received from the "severance tax", the capital funds will be invested by the State Treasurer in conservative instruments. We note that the Fund's capital is invested along with all of the other State investments and the returns are allocated back to the Reclamation Forfeiture Fund's account. This investment income opportunity should be included in the projection of possible Fund financial levels.

Based upon the current investment situation, we have assumed that the current returns are slightly less than those seen more historically. The investment rates are based upon recent US Treasury Note return rates. The Treasury Notes are sold for 2, 3, 5, 7, 10 and 30 year investment periods. We have interpolated the years between the years available. Please see Exhibit 9 for the resulting rates and discount factors used in our analysis.

Financial Picture – Current Permit Portfolio

One way to view the financial situation and outlook of a dynamic system is to review such an analysis on a current portfolio run-off basis. While we understand that at times the system has operated on an approach where the revenues of present sites have funded the reclamation of previously forfeited sites, our assignment included the task of measuring the current solvency of the Fund. In most analyses of this type, it is not appropriate to only reflect future income without a reflection of the additional potential liabilities. The current permit portfolio approach attempts to match the current capital and expected revenue from the current sites with the potential and expected costs or future liabilities from those same sites. This view eliminates the burden of the past being placed upon the future operations.

In this view, we review the financial picture of the system without the complication of adding any new entrants with respect to permits beyond those currently in the Fund as time goes forward. This view allows us to compare the current Fund Balance and estimated future revenue from only the permits currently in the Fund with the estimated expected costs for the same permits over a time horizon from current until all of the permits are anticipated to have completed phase 3 of the reclamation process.

The addition of new permits would add both revenue and potential cost to the system – estimating the impact of that dynamic would rely upon the information in the current analysis – thus not providing additional information. Again, as with any estimation of

the future, there are many assumptions made and actual results may vary from the estimated expected results. In the case of the Fund, as is shown, these projected financial results can vary significantly and the differences can be very material.

In our estimation of the expected costs, we have assumed that the active mining operations continue fairly uniformly over a 7 year period of time. This is followed by a 4 year period pending phase 2 release and then a 7 year observation period pending phase 3 release. Any acreage pending phase 1 release with no associated mining is assumed to reach phase 1 release in 3 additional years. Because the probability of forfeiture varies based upon the number of years that we are projecting into the future, the expected cost to the Fund from a site will vary - even between years in the same phase of reclamation.

Exhibit 1 summarizes the revenues and costs associated with current permits that are expected to flow through the Fund through 2090. The tonnage fee revenue is based on the assumption of coal production of 25.5 million tons from the currently issued permits covered by the Fund, changing annually according to the Ohio RFF Coal Production table displayed above, and the associated revenue for the first six years. In the seventh and final year of assumed mining, we assume that coal extraction will be half of the indexed amount or 13.7 million tons from permits currently in-force

We have credited the Fund with investment income on the prior year surplus – this assumes the current revenue is not invested until after the annual costs are paid. Also, investment income is constrained to not less than zero. The reclamation costs are the expected reclamation costs from Exhibit 2.1. Please note that we have assumed ongoing operating expenses to be $10,000 in the next few years to cover general overhead not included in the land reclamation cost estimates, and another $10,000 for the next 75 years for water treatment expenses not already included in the water treatment reclamation costs.

With no forfeited permits in the current inventory of the Fund, in development of the cash flow scenario in Exhibit 1, we have delayed the reflection of the method expected annual costs by three years in order to reflect the period of time between forfeiture order and reclamation activity. We understand that the process can include significant periods of time for discussion, negotiating and possible litigation.

As can be seen in Exhibit 1, the recent Fund balance of $15.5 million could grow to over $47 million in the next 78 years. This figure is on a present value basis, which is a relatively important consideration given the long time horizon associated with water treatment liabilities.

Alternative Approach

One other way of approaching the issue of capital and solvency would be to determine how many additional years with no permit holder forfeitures would be needed to generate sufficient capital to fund the reclamation of various permit holders. For purpose of explanation, we have developed these estimates at four levels based upon expected permit cost:

- the median permit holder,
- the average permit holder value,
- the 5th largest and
- the largest permit holder.

With this approach, we have utilized the total annual coal production and assumed on-going operating expenses as described above and no on-going reclamation projects. Please see Exhibit 1 – Alternative for the details in the cash flow analysis.

Number of Years with No Forfeitures Needed to Accumulate Capital to Cover the Forfeiture of a Permit Holder

Permit Holder Size	Net Adjusted PSE	Years from 2012
Median	2,241,653	0
Average	20,922,140	2
5th Largest	39,224,100	8
Largest	159,028,180	38

These estimates are before inclusion of otherwise expected land reclamation and water treatment liability. Making this adjustment would add approximately four to six more years to the last three estimates in the table above.

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

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OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 1
Cash Flow
(all figures discounted to present value)

Calendar Year	Tonnage Fee	Interest Income	Land Reclamation	Water Reclamation	Operating Expense	Fund Balance
	(1)	(2)	(3)	(4)	(5)	(6)
2012						15,527,736
2013	3,056,000	42,586	0	0	30,000	18,596,322
2014	3,156,000	50,247	0	0	30,000	21,772,569
2015	3,111,000	86,882	0	0	30,000	24,940,451
2016	3,096,000	146,635	1,565,913	30,556	40,000	26,546,617
2017	3,123,000	207,038	1,750,700	31,699	40,000	28,054,256
2018	3,143,000	288,432	1,847,076	32,864	40,000	29,565,748
2019	1,577,000	365,297	1,790,148	34,020	40,000	29,643,877
2020	0	422,291	1,320,325	35,150	40,000	28,670,693
2021	0	468,880	1,361,228	36,239	40,000	27,702,106
2022	0	508,231	1,399,929	37,270	40,000	26,733,138
2023	0	495,117	459,853	38,235	40,000	26,690,167
2024	0	495,978	470,600	39,128	40,000	26,636,417
2025	0	498,389	480,417	39,944	40,000	26,574,444
2026	0	499,978	489,693	40,716	40,000	26,504,014
2027	0	498,590	71,194	41,479	40,000	26,849,931
2028	0	506,685	72,490	42,235	40,000	27,201,891
2029	0	512,183	73,767	42,979	40,000	27,557,328
2030	0	519,333	58,356	43,712	40,000	27,934,593
2031	0	526,284	59,320	44,434	10,000	28,347,123
2032	0	531,228	60,268	45,144	10,000	28,762,939
2033	0	537,726	61,197	45,840	10,000	29,183,628
2034	0	543,678	0	46,520	10,000	29,670,786
2035	0	548,237	0	47,185	10,000	30,161,837
2036	0	554,261	0	47,833	10,000	30,658,265
2037	0	557,778	0	48,463	10,000	31,157,581
2038	0	562,689	0	49,074	10,000	31,661,197
2039	0	567,001	0	49,666	10,000	32,168,532
2040	0	568,838	0	50,238	10,000	32,677,133
2041	0	571,963	0	50,790	10,000	33,188,305
2042	0	573,551	0	51,318	10,000	33,700,539
2043	0	564,755	0	51,824	10,000	34,203,470
2044	0	555,814	0	52,307	10,000	34,696,977
2045	0	546,748	0	52,765	10,000	35,180,960
2046	0	537,575	0	53,212	10,000	35,655,323
2047	0	528,314	0	53,664	10,000	36,119,973
2048	0	518,980	0	54,119	10,000	36,574,834
2049	0	509,591	0	54,578	10,000	37,019,847
2050	0	500,161	0	55,041	10,000	37,454,967
2051	0	490,706	0	55,508	10,000	37,880,164
2052	0	481,237	0	55,979	10,000	38,295,423
2053	0	471,770	0	56,454	10,000	38,700,738
2054	0	462,316	0	56,933	10,000	39,096,121
2055	0	452,887	0	57,416	10,000	39,481,591
2056	0	443,493	0	57,904	10,000	39,857,180
2057	0	434,145	0	58,395	10,000	40,222,930
2058	0	424,852	0	58,890	10,000	40,578,892
2059	0	415,623	0	59,390	10,000	40,925,125
2060	0	406,468	0	59,894	10,000	41,261,699
2061	0	397,392	0	60,402	10,000	41,588,689
2062	0	388,404	0	60,915	10,000	41,906,178
2063	0	379,509	0	61,431	10,000	42,214,255
2064	0	370,714	0	61,953	10,000	42,513,017
2065	0	362,025	0	62,478	10,000	42,802,563
2066	0	353,445	0	63,008	10,000	43,083,000

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 1
Cash Flow
(all figures discounted to present value)

Calendar Year	Tonnage Fee	Interest Income	Land Reclamation	Water Reclamation	Operating Expense	Fund Balance
	(1)	(2)	(3)	(4)	(5)	(6)
2067	0	344,980	0	63,543	10,000	43,354,437
2068	0	336,634	0	64,082	10,000	43,616,988
2069	0	328,410	0	64,626	10,000	43,870,772
2070	0	320,311	0	65,174	10,000	44,115,908
2071	0	312,340	0	65,727	10,000	44,352,521
2072	0	304,500	0	66,285	10,000	44,580,736
2073	0	296,792	0	66,847	10,000	44,800,680
2074	0	289,218	0	67,415	10,000	45,012,483
2075	0	281,780	0	67,987	10,000	45,216,276
2076	0	274,478	0	68,563	10,000	45,412,190
2077	0	267,314	0	69,145	10,000	45,600,359
2078	0	260,287	0	69,732	10,000	45,780,914
2079	0	253,399	0	70,324	10,000	45,953,990
2080	0	246,649	0	70,920	10,000	46,119,719
2081	0	240,038	0	71,522	10,000	46,278,234
2082	0	233,564	0	72,129	10,000	46,429,669
2083	0	227,227	0	72,741	10,000	46,574,156
2084	0	221,027	0	73,358	10,000	46,711,825
2085	0	214,963	0	73,980	10,000	46,842,808
2086	0	209,033	0	74,608	10,000	46,967,233
2087	0	203,238	0	75,241	10,000	47,085,229
2088	0	197,574	0	75,880	10,000	47,196,924
2089	0	192,041	0	76,523	10,000	47,302,441
2090	0	186,638	0	77,173	10,000	47,401,907
Total	20,262,000	30,495,365	13,392,476	4,200,719	1,290,000	

Coal Extraction Fee	
Fund Balance	Rate
< $5M	0.16
$5M - $10M	0.14
> $10M	0.12

Footnotes:

All columns shown at present value, based on Exhibit 9, Investment Rates

(1) Based on coal production from the US Department of Interior - Office of Surface Mining.
Future production forecast based on the report "Consensus Coal Production Forecast Report for West Virginia 2011 Update".
The per ton coal extraction fee is predicated upon the prior year Fund Balance in column (6) according to the chart at the bottom of the second page, titled Coal Extraction Fee.
Active mining continues for seven years, with the seventh year coal production being half the prior year. See Exhibit 3.1.

(2) [Prior year Col (6) x Exhibit 9 Col (1)] + [Col (1) / 2 x Exhibit 9 Col (1)]. Years 2043 through 2087 based on 3.125% discount factor

(3) Exhibit 2.1 Col (2). Delayed by three years to reflect period between forfeiture order and reclamation activity

(4) Exhibit 2.1 Col (4). Delayed by three years to reflect period between forfeiture order and reclamation activity

(5) Based on discussion with client. Inflation and discount rates assumed to offset.
Majority of expense for land reclamation included in reclamation cost column (2), based on 15% load in PSEs. Others include:

Overhead $5,000	Actuarial/2 yrs $50,000	Water Treatment $10,000

(6) Year 2012 client provided data. Subsequent years = prior year col (6) + Col (1) + Col (2) - Col (3) - Col (4) - Col (5)

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 1 - Alternative
Cash Flow - Number of Years to Accumulate Capital to Cover a Forfeiture
(all figures discounted to present value)

Calendar Year	Tonnage Fee	Interest Income	Land Reclamation	Water Reclamation	Operating Expense	Fund Balance
	(1)	(2)	(3)	(4)	(5)	(6)
2012						15,527,736
2013	3,056,000	42,586	0	0	30,000	18,596,322
2014	3,156,000	50,247	0	0	30,000	21,772,569
2015	3,111,000	86,882	0	0	30,000	24,940,451
2016	3,096,000	146,635	0	0	40,000	28,143,086
2017	3,123,000	218,798	0	0	40,000	31,444,884
2018	3,143,000	321,443	0	0	40,000	34,869,327
2019	3,154,000	438,612	0	0	40,000	38,421,939
2020	3,316,000	570,958	0	0	40,000	42,268,897
2021	3,308,000	718,315	0	0	40,000	46,255,211
2022	3,247,000	878,397	0	0	40,000	50,340,608
2023	2,935,000	959,523	0	0	40,000	54,195,132
2024	2,758,000	1,032,723	0	0	40,000	57,945,854
2025	2,721,000	1,109,670	0	0	40,000	61,736,524
2026	2,764,000	1,187,527	0	0	40,000	65,648,052
2027	2,733,000	1,260,670	0	0	40,000	69,601,721
2028	2,613,000	1,338,110	0	0	40,000	73,512,831
2029	2,505,000	1,407,751	0	0	40,000	77,385,583
2030	2,437,000	1,481,338	0	0	40,000	81,263,921
2031	2,396,000	1,553,571	0	0	10,000	85,203,492
2032	2,354,000	1,618,779	0	0	10,000	89,166,271
2033	2,312,000	1,688,585	0	0	10,000	93,156,856
2034	2,252,000	1,756,449	0	0	10,000	97,155,304
2035	2,209,000	1,815,578	0	0	10,000	101,169,882
2036	2,158,000	1,878,949	0	0	10,000	105,196,831
2037	2,106,000	1,933,047	0	0	10,000	109,225,878
2038	2,055,000	1,991,118	0	0	10,000	113,261,996
2039	2,004,000	2,046,286	0	0	10,000	117,302,282
2040	1,953,000	2,091,532	0	0	10,000	121,336,814
2041	1,902,000	2,140,459	0	0	10,000	125,369,272
2042	1,851,000	2,182,592	0	0	10,000	129,392,865
2043	1,808,000	2,183,520	0	0	10,000	133,374,385
2044	1,760,000	2,181,664	0	0	10,000	137,306,048
2045	1,712,000	2,177,129	0	0	10,000	141,185,177
2046	1,666,000	2,170,078	0	0	10,000	145,011,255
2047	1,622,000	2,160,684	0	0	10,000	148,783,939
2048	1,578,000	2,149,099	0	0	10,000	152,501,038
2049	1,536,000	2,135,472	0	0	10,000	156,162,510
2050	1,499,000	2,119,980	0	0	10,000	159,771,490
2051	1,459,000	2,102,758	0	0	10,000	163,323,248

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 1 - Alternative
Cash Flow - Number of Years to Accumulate Capital to Cover a Forfeiture
(all figures discounted to present value)

Calendar Year	Tonnage Fee	Interest Income	Land Reclamation	Water Reclamation	Operating Expense	Fund Balance
	(1)	(2)	(3)	(4)	(5)	(6)
2052	1,420,000	2,083,913	0	0	10,000	166,817,160
2053	1,381,000	2,063,566	0	0	10,000	170,251,726
2054	1,344,000	2,041,842	0	0	10,000	173,627,568
2055	1,308,000	2,018,865	0	0	10,000	176,944,432
2056	1,277,000	1,994,771	0	0	10,000	180,206,203
2057	1,242,000	1,969,661	0	0	10,000	183,407,864
2058	1,209,000	1,943,618	0	0	10,000	186,550,482
2059	1,176,000	1,916,739	0	0	10,000	189,633,221
2060	1,144,000	1,889,115	0	0	10,000	192,656,336
2061	1,117,000	1,860,855	0	0	10,000	195,624,190
2062	1,087,000	1,832,042	0	0	10,000	198,533,232
2063	1,057,000	1,802,735	0	0	10,000	201,382,967
2064	1,029,000	1,773,009	0	0	10,000	204,174,976
2065	1,004,000	1,742,951	0	0	10,000	206,911,927
2066	977,000	1,712,623	0	0	10,000	209,591,550
Total	111,140,000	83,973,814	0	0	1,050,000	

Coal Extraction Fee

Fund Balance	Rate
< $5M	0.16
$5M - $10M	0.14
> $10M	0.12

Number of Years with No Forfeitures Needed to Accumulate Capital to Cover the Forfeiture of a Permit Holder

Permit Holder Size	Net Adjusted PSE	Years from 2012
Median	2,241,653	0
Average	20,922,140	2
5th Largest	39,224,100	8
Largest	159,028,180	38

Number of Years with No Forfeitures Needed to Accumulate Capital to Cover the Forfeiture of a Permit Holder and otherwise expected land and water reclamations costs

Permit Holder Size	Net Adjusted PSE	Years from 2012
Median	20,301,594	2
Average	38,982,081	8
5th Largest	57,284,041	12
Largest	177,088,121	44

Footnotes:

All columns shown at present value, based on Exhibit 9, Investment Rates

(1) Based on coal production from the US Department of Interior - Office of Surface Mining.
Future production forecast based on the report "Consensus Coal Production Forecast Report for West Virginia 2011 Update".
The per ton coal extraction fee is predicated upon the prior year Fund Balance in column (6) according to the chart at the bottom of the second page, titled Coal Extraction Fee.

(2) [Prior year Col (6) x Exhibit 9 Col (1)] + [Col (1) / 2 x Exhibit 9 Col (1)]. Years 2043 through 2087 based on 3.125% discount factor

(3) Assume no losses

(4) Assume no losses

(5) Based on discussion with client. Inflation and discount rates assumed to offset.

(6) Year 2012 client provided data. Subsequent years = prior year col (6) + Col (1) + Col (2) - Col (3) - Col (4) - Col (5)

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 1 - Shock Loss
Cash Flow - Shock Loss Scenario with 5 Year Spread
(all figures discounted to present value)

Calendar Year	Tonnage Fee	Interest Income	Land Reclamation	Water Reclamation	Operating Expense	Fund Balance
	(1)	(2)	(3)	(4)	(5)	(6)
2012						15,527,736
2013	3,056,000	42,586	0	0	30,000	18,596,322
2014	3,156,000	50,247	0	0	30,000	21,772,569
2015	3,111,000	86,882	0	0	30,000	24,940,451
2016	3,096,000	146,635	**5,750,341** *	30,556	40,000	22,362,189
2017	3,123,000	176,217	**5,935,128** *	31,699	40,000	19,654,579
2018	3,143,000	206,654	**6,031,504** *	32,864	40,000	16,899,865
2019	1,577,000	212,870	**5,974,576** *	34,020	40,000	12,641,138
2020	0	180,079	**5,504,753** *	35,150	40,000	7,241,314
2021	0	118,424	1,361,228	36,239	40,000	5,922,271
2022	0	108,652	1,399,929	37,270	40,000	4,553,724
2023	0	84,338	459,853	38,235	40,000	4,099,974
2024	0	76,189	470,600	39,128	40,000	3,626,435
2025	0	67,854	480,417	39,944	40,000	3,133,927
2026	0	58,962	489,693	40,716	40,000	2,622,481
2027	0	49,334	71,194	41,479	40,000	2,519,142
2028	0	47,539	72,490	42,235	40,000	2,411,955
2029	0	45,415	73,767	42,979	40,000	2,300,624
2030	0	43,357	58,356	43,712	40,000	2,201,912
2031	0	41,484	59,320	44,434	10,000	2,129,642
2032	0	39,910	60,268	45,144	10,000	2,054,140
2033	0	38,402	61,197	45,840	10,000	1,975,505
2034	0	36,803	0	46,520	10,000	1,955,787
2035	0	36,138	0	47,185	10,000	1,934,740
2036	0	35,553	0	47,833	10,000	1,912,460
2037	0	34,794	0	48,463	10,000	1,888,792
2038	0	34,111	0	49,074	10,000	1,863,829
2039	0	33,378	0	49,666	10,000	1,837,541
2040	0	32,493	0	50,238	10,000	1,809,796
2041	0	31,678	0	50,790	10,000	1,780,684
2042	0	30,773	0	51,318	10,000	1,750,139
2043	0	29,329	0	51,824	10,000	1,717,644
2044	0	27,912	0	52,307	10,000	1,683,250
2045	0	26,524	0	52,765	10,000	1,647,009
2046	0	25,167	0	53,212	10,000	1,608,964
2047	0	23,840	0	53,664	10,000	1,569,141
2048	0	22,546	0	54,119	10,000	1,527,567
2049	0	21,283	0	54,578	10,000	1,484,273
2050	0	20,053	0	55,041	10,000	1,439,285
2051	0	18,856	0	55,508	10,000	1,392,633
2052	0	17,692	0	55,979	10,000	1,344,346
2053	0	16,561	0	56,454	10,000	1,294,453
2054	0	15,463	0	56,933	10,000	1,242,983
2055	0	14,399	0	57,416	10,000	1,189,965
2056	0	13,367	0	57,904	10,000	1,135,428
2057	0	12,368	0	58,395	10,000	1,079,401
2058	0	11,401	0	58,890	10,000	1,021,912
2059	0	10,467	0	59,390	10,000	962,989
2060	0	9,564	0	59,894	10,000	902,659
2061	0	8,694	0	60,402	10,000	840,951
2062	0	7,854	0	60,915	10,000	777,890
2063	0	7,045	0	61,431	10,000	713,503
2064	0	6,266	0	61,953	10,000	647,816
2065	0	5,517	0	62,478	10,000	580,854
2066	0	4,796	0	63,008	10,000	512,642

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 1 - Shock Loss
Cash Flow - Shock Loss Scenario with 5 Year Spread
(all figures discounted to present value)

Calendar Year	Tonnage Fee	Interest Income	Land Reclamation	Water Reclamation	Operating Expense	Fund Balance
	(1)	(2)	(3)	(4)	(5)	(6)
2067	0	4,105	0	63,543	10,000	443,204
2068	0	3,441	0	64,082	10,000	372,563
2069	0	2,805	0	64,626	10,000	300,743
2070	0	2,196	0	65,174	10,000	227,764
2071	0	1,613	0	65,727	10,000	153,649
2072	0	1,055	0	66,285	10,000	78,419
2073	0	522	0	66,847	10,000	2,094
2074	0	14	0	67,415	10,000	(75,307)
2075	0	0	0	67,987	10,000	(153,294)
2076	0	0	0	68,563	10,000	(231,857)
2077	0	0	0	69,145	10,000	(311,002)
2078	0	0	0	69,732	10,000	(390,734)
2079	0	0	0	70,324	10,000	(471,058)
2080	0	0	0	70,920	10,000	(551,978)
2081	0	0	0	71,522	10,000	(633,500)
2082	0	0	0	72,129	10,000	(715,629)
2083	0	0	0	72,741	10,000	(798,370)
2084	0	0	0	73,358	10,000	(881,728)
2085	0	0	0	73,980	10,000	(965,708)
2086	0	0	0	74,608	10,000	(1,050,317)
2087	0	0	0	75,241	10,000	(1,135,558)
2088	0	0	0	75,880	10,000	(1,221,437)
2089	0	0	0	76,523	10,000	(1,307,961)
2090	0	0	0	77,173	10,000	(1,395,134)
Total	20,262,000	2,620,465	34,314,616	4,200,719	1,290,000	

Coal Extraction Fee	
Fund Balance	Rate
< $5M	0.16
$5M - $10M	0.14
> $10M	0.12

Footnotes:

All columns shown at present value, based on Exhibit 9, Investment Rates

(1) Based on coal production from the US Department of Interior - Office of Surface Mining.
Future production forecast based on the report "Consensus Coal Production Forecast Report for West Virginia 2011 Update".
The per ton coal extraction fee is predicated upon the prior year Fund Balance in column (6) according to the chart at the bottom of the second page, titled Coal Extraction Fee.
Active mining continues for seven years, with the seventh year coal production being half the prior year. See Exhibit 3.1.

(2) [Prior year Col (6) x Exhibit 9 Col (1)] + [Col (1) / 2 x Exhibit 9 Col (1)]. Years 2043 through 2087 based on 3.125% discount factor

(3) Exhibit 2.1 Col (2). Delayed by three years to reflect period between forfeiture order and reclamation activity.
* In addition, Years 2016-2020 include a shock loss of $20,922,140, derived in Exhibit 8.1b Col (3), spread evenly over five years.

(4) Exhibit 2.1 Col (4). Delayed by three years to reflect period between forfeiture order and reclamation activity

(5) Based on discussion with client. Inflation and discount rates assumed to offset.

(6) Year 2012 client provided data. Subsequent years = prior year col (6) + Col (1) + Col (2) - Col (3) - Col (4) - Col (5)

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 2.1
Total Expenditures

Calendar Year	Land Reclamation		Water Reclamation				
	Gross	Net	Gross	Net	Operating Expense	Gross Total	Net Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2012						0	0
2013	1,739,517	1,565,913	33,951	30,556	30,000	1,803,468	1,626,469
2014	1,943,828	1,750,700	35,221	31,699	30,000	2,009,049	1,812,399
2015	2,050,805	1,847,076	36,516	32,864	30,000	2,117,320	1,909,940
2016	1,990,149	1,790,148	37,800	34,020	40,000	2,067,949	1,864,168
2017	1,460,875	1,320,325	39,056	35,150	40,000	1,539,931	1,395,475
2018	1,506,133	1,361,228	40,266	36,239	40,000	1,586,399	1,437,468
2019	1,548,953	1,399,929	41,411	37,270	40,000	1,630,364	1,477,199
2020	508,687	459,853	42,483	38,235	40,000	591,170	538,088
2021	520,576	470,600	43,476	39,128	40,000	604,051	549,729
2022	531,435	480,417	44,383	39,944	40,000	615,817	560,361
2023	541,696	489,693	45,240	40,716	40,000	626,935	570,409
2024	78,228	71,194	46,088	41,479	40,000	164,317	152,673
2025	79,653	72,490	46,928	42,235	40,000	166,581	154,725
2026	81,056	73,767	47,754	42,979	40,000	168,810	156,746
2027	64,280	58,356	48,569	43,712	40,000	152,849	142,068
2028	65,341	59,320	49,371	44,434	40,000	154,713	143,754
2029	66,385	60,268	50,160	45,144	40,000	156,545	145,411
2030	67,409	61,197	50,934	45,840	40,000	158,343	147,038
2031	0	0	51,689	46,520	10,000	61,689	56,520
2032	0	0	52,428	47,185	10,000	62,428	57,185
2033	0	0	53,148	47,833	10,000	63,148	57,833
2034	0	0	53,847	48,463	10,000	63,847	58,463
2035	0	0	54,526	49,074	10,000	64,526	59,074
2036	0	0	55,184	49,666	10,000	65,184	59,666
2037	0	0	55,820	50,238	10,000	65,820	60,238
2038	0	0	56,433	50,790	10,000	66,433	60,790
2039	0	0	57,020	51,318	10,000	67,020	61,318
2040	0	0	57,582	51,824	10,000	67,582	61,824
2041	0	0	58,118	52,307	10,000	68,118	62,307
2042	0	0	58,627	52,765	10,000	68,627	62,765
2043	0	0	59,125	53,212	10,000	69,125	63,212
2044	0	0	59,626	53,664	10,000	69,626	63,664
2045	0	0	60,132	54,119	10,000	70,132	64,119
2046	0	0	60,642	54,578	10,000	70,642	64,578
2047	0	0	61,157	55,041	10,000	71,157	65,041
2048	0	0	61,676	55,508	10,000	71,676	65,508
2049	0	0	62,199	55,979	10,000	72,199	65,979
2050	0	0	62,727	56,454	10,000	72,727	66,454
2051	0	0	63,259	56,933	10,000	73,259	66,933
2052	0	0	63,796	57,416	10,000	73,796	67,416
2053	0	0	64,337	57,904	10,000	74,337	67,904
2054	0	0	64,883	58,395	10,000	74,883	68,395
2055	0	0	65,434	58,890	10,000	75,434	68,890
2056	0	0	65,989	59,390	10,000	75,989	69,390
2057	0	0	66,549	59,894	10,000	76,549	69,894
2058	0	0	67,113	60,402	10,000	77,113	70,402
2059	0	0	67,683	60,915	10,000	77,683	70,915
2060	0	0	68,257	61,431	10,000	78,257	71,431
2061	0	0	68,836	61,953	10,000	78,836	71,953
2062	0	0	69,420	62,478	10,000	79,420	72,478
2063	0	0	70,009	63,008	10,000	80,009	73,008
2064	0	0	70,603	63,543	10,000	80,603	73,543
2065	0	0	71,202	64,082	10,000	81,202	74,082
2066	0	0	71,807	64,626	10,000	81,807	74,626

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 2.1
Total Expenditures

Calendar Year	Land Reclamation		Water Reclamation				
	Gross	Net	Gross	Net	Operating Expense	Gross Total	Net Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2067	0	0	72,416	65,174	10,000	82,416	75,174
2068	0	0	73,030	65,727	10,000	83,030	75,727
2069	0	0	73,650	66,285	10,000	83,650	76,285
2070	0	0	74,275	66,847	10,000	84,275	76,847
2071	0	0	74,905	67,415	10,000	84,905	77,415
2072	0	0	75,541	67,987	10,000	85,541	77,987
2073	0	0	76,182	68,563	10,000	86,182	78,563
2074	0	0	76,828	69,145	10,000	86,828	79,145
2075	0	0	77,480	69,732	10,000	87,480	79,732
2076	0	0	78,137	70,324	10,000	88,137	80,324
2077	0	0	78,800	70,920	10,000	88,800	80,920
2078	0	0	79,469	71,522	10,000	89,469	81,522
2079	0	0	80,143	72,129	10,000	90,143	82,129
2080	0	0	80,823	72,741	10,000	90,823	82,741
2081	0	0	81,509	73,358	10,000	91,509	83,358
2082	0	0	82,201	73,980	10,000	92,201	83,980
2083	0	0	82,898	74,608	10,000	92,898	84,608
2084	0	0	83,601	75,241	10,000	93,601	85,241
2085	0	0	84,311	75,880	10,000	94,311	85,880
2086	0	0	85,026	76,523	10,000	95,026	86,523
2087	0	0	85,747	77,173	10,000	95,747	87,173
Total	14,845,006	13,392,476	4,667,465	4,200,719	1,260,000	20,772,471	18,853,194

Footnotes:

(1) Exhibit 2.2 Col (3). Inflated and discounted reclamation costs.
(2) Exhibit 2.2 Col (6). Inflated and discounted reclamation costs.
(3) Exhibit 2.3 Col (3). Inflated and discounted reclamation costs.
(4) Exhibit 2.3 Col (6). Inflated and discounted reclamation costs.
(5) Client provided data
(6) Col (1) + Col (3) + Col (5)
(7) Col (2) + Col (4) + Col (5)

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 2.2
Land Reclamation Expenditures

Calendar Year	Gross of Bond	Gross Inflated	Gross Discounted	Net of Bond	Net Inflated	Net Discounted
	(1)	(2)	(3)	(4)	(5)	(6)
2012						
2013	1,707,867	1,741,690	1,739,517	1,537,422	1,567,869	1,565,913
2014	1,839,647	1,951,122	1,943,828	1,656,870	1,757,270	1,750,700
2015	1,872,072	2,064,932	2,050,805	1,686,099	1,859,800	1,847,076
2016	1,754,995	2,013,226	1,990,149	1,578,626	1,810,906	1,790,148
2017	1,246,824	1,487,494	1,460,875	1,126,868	1,344,383	1,320,325
2018	1,246,824	1,546,994	1,506,133	1,126,868	1,398,158	1,361,228
2019	1,246,824	1,608,874	1,548,953	1,126,868	1,454,084	1,399,929
2020	399,130	535,630	508,687	360,814	484,209	459,853
2021	399,130	557,055	520,576	360,814	503,578	470,600
2022	399,130	579,337	531,435	360,814	523,721	480,417
2023	399,130	602,511	541,696	360,814	544,670	489,693
2024	56,579	88,825	78,228	51,491	80,838	71,194
2025	56,579	92,378	79,653	51,491	84,071	72,490
2026	56,579	96,073	81,056	51,491	87,434	73,767
2027	44,116	77,907	64,280	40,050	70,728	58,356
2028	44,116	81,023	65,341	40,050	73,557	59,320
2029	44,116	84,264	66,385	40,050	76,499	60,268
2030	44,116	87,635	67,409	40,050	79,559	61,197
2031	0	0	0	0	0	0
2032	0	0	0	0	0	0
2033	0	0	0	0	0	0
Total	12,857,773	15,296,970	14,845,006	11,597,549	13,801,334	13,392,476

Footnotes:

(1) See report for details
(2) Col (1) x 4% annual inflation
(3) Col (2) + Col (2) x Exhibit 9 Col (3)
(4) See report for details
(5) Col (4) x 4% annual inflation
(6) Col (5) + Col (5) x Exhibit 9 Col (3)

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
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Exhibit 2.3
Water Reclamation Expenditures

Calendar Year	Gross of Bond	Gross Inflated	Gross Discounted	Net of Bond	Net Inflated	Net Discounted
	(1)	(2)	(3)	(4)	(5)	(6)
2012						
2013	33,333	33,993	33,951	30,000	30,594	30,556
2014	33,333	35,353	35,221	30,000	31,818	31,699
2015	33,333	36,767	36,516	30,000	33,091	32,864
2016	33,333	38,238	37,800	30,000	34,414	34,020
2017	33,333	39,768	39,056	30,000	35,791	35,150
2018	33,333	41,358	40,266	30,000	37,222	36,239
2019	33,333	43,013	41,411	30,000	38,711	37,270
2020	33,333	44,733	42,483	30,000	40,260	38,235
2021	33,333	46,522	43,476	30,000	41,870	39,128
2022	33,333	48,383	44,383	30,000	43,545	39,944
2023	33,333	50,319	45,240	30,000	45,287	40,716
2024	33,333	52,331	46,088	30,000	47,098	41,479
2025	33,333	54,425	46,928	30,000	48,982	42,235
2026	33,333	56,602	47,754	30,000	50,941	42,979
2027	33,333	58,866	48,569	30,000	52,979	43,712
2028	33,333	61,220	49,371	30,000	55,098	44,434
2029	33,333	63,669	50,160	30,000	57,302	45,144
2030	33,333	66,216	50,934	30,000	59,594	45,840
2031	33,333	68,865	51,689	30,000	61,978	46,520
2032	33,333	71,619	52,428	30,000	64,457	47,185
2033	33,333	74,484	53,148	30,000	67,035	47,833
2034	33,333	77,463	53,847	30,000	69,717	48,463
2035	33,333	80,562	54,526	30,000	72,506	49,074
2036	33,333	83,784	55,184	30,000	75,406	49,666
2037	33,333	87,136	55,820	30,000	78,422	50,238
2038	33,333	90,621	56,433	30,000	81,559	50,790
2039	33,333	94,246	57,020	30,000	84,821	51,318
2040	33,333	98,016	57,582	30,000	88,214	51,824
2041	33,333	101,936	58,118	30,000	91,743	52,307
2042	33,333	106,014	58,627	30,000	95,412	52,765
2043	33,333	110,254	59,125	30,000	99,229	53,212
2044	33,333	114,664	59,626	30,000	103,198	53,664
2045	33,333	119,251	60,132	30,000	107,326	54,119
2046	33,333	124,021	60,642	30,000	111,619	54,578
2047	33,333	128,982	61,157	30,000	116,084	55,041
2048	33,333	134,141	61,676	30,000	120,727	55,508
2049	33,333	139,507	62,199	30,000	125,556	55,979
2050	33,333	145,087	62,727	30,000	130,578	56,454
2051	33,333	150,891	63,259	30,000	135,802	56,933
2052	33,333	156,926	63,796	30,000	141,234	57,416
2053	33,333	163,203	64,337	30,000	146,883	57,904
2054	33,333	169,731	64,883	30,000	152,758	58,395
2055	33,333	176,521	65,434	30,000	158,869	58,890
2056	33,333	183,582	65,989	30,000	165,223	59,390
2057	33,333	190,925	66,549	30,000	171,832	59,894
2058	33,333	198,562	67,113	30,000	178,706	60,402
2059	33,333	206,504	67,683	30,000	185,854	60,915
2060	33,333	214,764	68,257	30,000	193,288	61,431
2061	33,333	223,355	68,836	30,000	201,020	61,953
2062	33,333	232,289	69,420	30,000	209,060	62,478
2063	33,333	241,581	70,009	30,000	217,423	63,008
2064	33,333	251,244	70,603	30,000	226,120	63,543
2065	33,333	261,294	71,202	30,000	235,164	64,082
2066	33,333	271,746	71,807	30,000	244,571	64,626

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
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Exhibit 2.3
Water Reclamation Expenditures

Calendar Year	Gross of Bond	Gross Inflated	Gross Discounted	Net of Bond	Net Inflated	Net Discounted
	(1)	(2)	(3)	(4)	(5)	(6)
2067	33,333	282,615	72,416	30,000	254,354	65,174
2068	33,333	293,920	73,030	30,000	264,528	65,727
2069	33,333	305,677	73,650	30,000	275,109	66,285
2070	33,333	317,904	74,275	30,000	286,113	66,847
2071	33,333	330,620	74,905	30,000	297,558	67,415
2072	33,333	343,845	75,541	30,000	309,460	67,987
2073	33,333	357,599	76,182	30,000	321,839	68,563
2074	33,333	371,903	76,828	30,000	334,712	69,145
2075	33,333	386,779	77,480	30,000	348,101	69,732
2076	33,333	402,250	78,137	30,000	362,025	70,324
2077	33,333	418,340	78,800	30,000	376,506	70,920
2078	33,333	435,073	79,469	30,000	391,566	71,522
2079	33,333	452,476	80,143	30,000	407,229	72,129
2080	33,333	470,575	80,823	30,000	423,518	72,741
2081	33,333	489,398	81,509	30,000	440,459	73,358
2082	33,333	508,974	82,201	30,000	458,077	73,980
2083	33,333	529,333	82,898	30,000	476,400	74,608
2084	33,333	550,507	83,601	30,000	495,456	75,241
2085	33,333	572,527	84,311	30,000	515,274	75,880
2086	33,333	595,428	85,026	30,000	535,885	76,523
2087	33,333	619,245	85,747	30,000	557,321	77,173
Total	2,500,000	15,250,534	4,667,465	2,250,000	13,725,481	4,200,719

Footnotes:

(1) Exhibit 10.1 Row (20), spread over 75 years
(2) Col (1) x 4% annual inflation
(3) Col (2) + Col (2) x Exhibit 9 Col (3)
Years 2043 through 2087 based on
3.125% discount factor

(4) Exhibit 10.1 Row (22), spread over 75 years
(5) Col (4) x 4% annual inflation
(6) Col (5) + Col (5) x Exhibit 9 Col (3)
Years 2043 through 2087 based on
3.125% discount factor

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 3.1
Remaining Performance Security Requirement

Years Since Issuance	Active Pending Phase 1 Release	Final Map Pending Phase 1 Release	Pending Phase 2 Release	Pending Phase 3 Release
	(1)	(2)	(3)	(4)
1	100%	100%	50%	15%
2	100%	100%	50%	15%
3	100%	100%	50%	15%
4	100%	50%	50%	15%
5	100%	50%	15%	15%
6	100%	50%	15%	15%
7	100%	50%	15%	15%
8	50%	15%	15%	
9	50%	15%	15%	
10	50%	15%	15%	
11	50%	15%	15%	
12	15%	15%		
13	15%	15%		
14	15%	15%		
15	15%			
16	15%			
17	15%			
18	15%			
19				
20				

Footnotes:
(1) - (4) Judgmentally selected based on historic Ohio timing of various stages of the mining and reclamation process

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 3.2
Reclamation Lifecycles

Evaluation Year	Final Map to Phase 1 release			Phase 1 release to Phase 2 release			Phase 2 release to Phase 3 release		
	Permit Count	Acres	Avg # Yrs	Permit Count	Acres	Avg # Yrs	Permit Count	Acres	Avg # Yrs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1999	115	5,470	1.9	129	7,117	3.9	147	5,961	6.5
2000	73	2,615	1.2	113	4,751	3.8	179	8,688	6.5
2001	91	7,671	1.7	117	7,640	3.6	162	6,844	6.9
2002	73	2,444	1.3	78	2,862	3.5	110	5,277	6.8
2003	87	4,840	2.6	62	2,603	3.7	105	4,800	7.2
2004	67	2,778	1.7	62	2,519	3.6	108	5,121	7.2
2005	70	3,357	1.2	50	2,415	3.3	73	2,519	6.0
2006	70	2,580	2.2	71	4,187	3.6	78	3,452	6.8
2007	53	2,216	1.6	61	2,675	4.2	81	3,125	7.8
2008	64	3,221	1.7	63	2,348	4.0	69	2,558	6.7
2009	40	2,030	1.8	57	1,852	5.2	50	2,358	8.5
2010	44	2,475	1.9	46	2,114	6.0	70	3,037	8.0
2011	54	2,285	3.4	68	3,181	4.3	73	3,081	7.0
2012	36	2,083	4.4	33	1,512	7.4	61	2,687	9.5
Total	937	46,065		1,010	47,776		1,366	59,508	
Average	67	3,290	2.04	72	3,413	4.29	98	4,251	7.24
Selected			3.00			4.00			7.00

Footnotes:

Yrs 1999 - 2011 from Office of Surface Mining Reclamation and Enforcement report
"A Report on the Success of Achieving Reclamation Standards on Surface Coal Mining Operations in Ohio"
Yr 2012 from client provided data

OHIO RECLAMATION FORFEITURE FUND ANALYSIS

SPRING 2013

Exhibit 4.1
Performance Security Estimate (PSE)

PSE	**Spring 2013**	Spring 2011	2013 vs. 2011
(1) Total Constant PSE	**424,121,656**	252,891,003	171,230,653
(2) Total PSE without Constant	**448,080,344**	479,411,077	-31,330,733
(3) Total PSE	**872,202,000**	732,302,080	139,899,920
(4) Final Map PSE	**170,182,000**	170,812,000	-630,000
(5) Active PSE	**529,266,142**	396,722,889	132,543,253
(6) Total Adjusted PSE	**699,448,142**	567,534,889	131,913,253
(7) Bond Amount	**71,783,943**	69,293,576	2,490,367
(8) Total Net Adjusted PSE	**627,664,199**	498,241,313	129,422,886

Footnotes:

(1), (3), (4), (5), (6), (8)	See report for details
(2)	Row (3) - Row (1)
(7)	Row (6) - Row (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 4.2
Net Adjusted PSE by Mine Status

Phase	**Spring 2013**	Spring 2011	2013 vs. 2011
(1) Active - Pending Phase 1 release	**420,449,906**	271,267,028	149,182,877
(2) Active - Pending Phase 2 release	**30,432,476**	61,646,604	-31,214,128
(3) Active - Pending Phase 3 release	**28,552,017**	16,381,793	12,170,224
(4) Active - Total	**479,434,399**	349,295,425	130,138,974
(5) Final Map - Pending Phase 1 release	**139,564,625**	138,898,250	666,375
(6) Final Map - Pending Phase 2 release	**6,455,063**	7,838,688	-1,383,625
(7) Final Map - Pending Phase 3 release	**2,210,113**	2,208,950	1,163
(8) Final Map - Total	**148,229,800**	148,945,888	-716,088
(9) Total Net Adjusted PSE	**627,664,199**	498,241,313	129,422,886

Footnotes:

(1) - (8)	See report for details
(9)	Row (4) + Row (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 4.3
Average PSE

PSE Average	**Spring 2013**	Spring 2011	2013 vs. 2011
(1) Total PSE Per Permit Count	**3,108,658**	2,384,600	23.29%
(2) Net Adj PSE Per Permit Count	**2,789,619**	2,093,451	24.96%
(3) Total PSE Per Bonded Acre	**8,667**	6,312	27.17%
(4) Net Adj PSE Per Bonded Acre	**7,778**	5,541	28.75%
(5) Total PSE Per Permit Count w/ PSE > Bond	**3,346,642**	2,782,034	16.87%
(6) Net Adj PSE Per Permit Count w/ PSE > Bond	**3,003,178**	2,442,359	18.67%

Footnotes:

(1)	Exhibit 4.1 Row (6) / Exhibit 8.6a Col (9) Total
(2)	Exhibit 4.1 Row (8) / Exhibit 8.6a Col (9) Total
(3)	Exhibit 4.1 Row (6) / Exhibit 8.6b Col (9) Total
(4)	Exhibit 4.1 Row (8) / Exhibit 8.6b Col (9) Total
(5)	Exhibit 4.1 Row (6) / Exhibit 8.2 Col (9) Total
(6)	Exhibit 4.1 Row (8) / Exhibit 8.2 Col (9) Total

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 5
Ratio of Affected-to-Permitted Active Acres

Affected Acres Ratio	Permit Count (1)
0%	14
0.1 to 25%	12
25.1 to 50%	25
50.1 to 67.5%	27
67.6 to 100%	47
Total Active Permits	125

Footnotes:
See report for details

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 6.1
Forfeiture Rates

Years Since Issuance	All Permit Types (1)
1	0.00%
2	0.00%
3	0.37%
4	0.37%
5	0.37%
6	0.37%
7	0.37%
8	0.37%
9	0.37%
10	0.37%
11	0.37%
12	0.37%
13	0.37%
14	0.37%
15	0.37%
16	0.37%
17	0.37%
18	0.37%
19	0.37%
20	0.37%

Footnotes:
(1) Exhibit 6.2 Row (8)

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 6.2
Forfeiture Rate Calculation

Calendar Year	Number of Permits Issued	Number of Permits Forfeited	Forfeiture Rate
	(1)	(2)	(3)
1993	799	17	2.13%
1994	775	6	0.77%
1995	722	27	3.74%
1996	683	4	0.59%
1997	579	4	0.69%
1998	568	4	0.70%
1999	563	17	3.02%
2000	456	2	0.44%
2001	389	4	1.03%
2002	363	1	0.28%
2003	357	3	0.84%
2004	356	1	0.28%
2005	338	8	2.37%
2006	329	0	0.00%
2007	321	0	0.00%
2008	308	0	0.00%
2009	290	0	0.00%
2010	266	0	0.00%
2011	252	0	0.00%
2012	N/A	0	N/A
Total	8,714	98	1.12%
(4a) Average lifetime of permit			18.00
(4b) Selected avg lifetime of permits w/o forfeitures			16.00
(5) Ohio indicated forfeiture annual rate			0.07%
(6) Kentucky forfeiture annual rate			1.10%
(7) West Virginia forfeiture annual rate			1.14%
(8) Ohio selected forfeiture annual rate			0.37%

Footnotes:

(1)	Historical Ohio permit data
(2)	Historical Ohio permit data
(3)	Col (2) / Col (1)
(4a)	Exhibit 3.1
(4b)	Selected average lifetime based on assumption of minimal forfeitures within the first two years of issuance
(5)	Col (3) / Row (4b)
(6)	From Pinnacle analysis of Kentucky data applied to Ohio permit count by mine type distribution
(7)	From Pinnacle analysis of West Virginia data applied to Ohio permit count by mine type distribution
(8)	Selected based on rows (5) through (7)

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 6.3
Forfeiture Rate Adjustment Factor for Mine Status

Mine Status	Factor (1)
Active, Pending Phase 1 Release	1.00
Final Map, Pending Phase 1 Release	0.80
Pending Phase 2 Release	0.67
Pending Phase 3 Release	0.33

Footnotes:
(1) Judgmentally selected

These factors are intended to reflect that the probability of forfeiture declines as the reclamation process moves from active mining to reclamation and on to final release.

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 7
Net Reclamation Cost by Mine Status

Phase	**Spring 2013**	Spring 2011	2013 vs. 2011
(1) Active - Pending Phase 1 release	**9,110,576**	23,279,440	-14,168,864
(2) Active - Pending Phase 2 release	**339,359**	1,491,776	-1,152,416
(3) Active - Pending Phase 3 release	**244,034**	192,800	51,234
(4) Active - Total	**9,693,970**	24,964,016	-15,270,046
(5) Final Map - Pending Phase 1 release	**1,813,560**	4,363,792	-2,550,232
(6) Final Map - Pending Phase 2 release	**71,130**	201,678	-130,549
(7) Final Map - Pending Phase 3 release	**18,890**	22,973	-4,084
(8) Final Map - Total	**1,903,579**	4,588,444	-2,684,865
(9) Total Net Reclamation Cost	**11,597,549**	29,552,459	-17,954,911

Footnotes:

(1), (2), (3), (5), (6), (7)	See report for details
(4)	Row (1) + Row (2) + Row (3)
(8)	Row (5) + Row (6) + Row (7)
(9)	Row (4) + Row (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 8.1a
Permit Information by Parent Company

Parent Company	Total PSE	Net Adjusted PSE	Permit Count	Implied Bond Acres	Net Reclamation Cost
	(1)	(2)	(3)	(4)	(5)
OXFORD RESOURCES PARTNERS	259,099,000	159,028,180	66	34,725	3,274,468
MURRAY ENERGY	146,825,000	113,540,550	13	6,954	2,471,355
CONSOLIDATED COAL COMPANY	118,319,000	116,839,688	9	5,347	1,579,241
RHINO ENERGY, LLC	92,026,000	74,586,025	10	5,295	1,211,342
WATERLOO COAL COMPANY INC	57,580,000	39,224,100	13	4,434	647,426
ROSEBUD MINING COMPANY	34,472,000	16,669,214	29	4,928	304,690
ANTHONY MINING COMPANY INC.	26,607,000	19,857,266	7	1,105	410,416
KIMBLE CLAY & LIMESTONE	25,926,000	10,275,856	15	4,371	212,297
DTE DICKERSON LLC	25,124,000	22,159,622	1	83	481,309
VALLEY MINING INC	21,624,000	13,871,842	9	4,037	227,736
BUCKINGHAM COAL COMPANY	12,419,000	9,236,673	5	3,016	246,441
B&N COAL INC	11,071,000	4,272,459	10	1,619	71,175
HERITAGE COAL COMPANY LLC	9,791,000	9,416,625	1	384	116,177
MARIETTA COAL COMPANY	8,476,000	4,724,265	9	1,642	76,687
SIDWELL MATERIALS INC	8,317,000	5,165,448	2	696	97,419
ETTA MAE INC	3,474,000	1,180,266	1	110	13,337
AMERICAN LANDFILL INC	3,056,000	2,241,653	1	82	48,472
THOMPSON BROTHERS MINING	2,257,000	1,532,688	4	186	25,240
L & M MINERAL CO	1,589,000	1,122,793	2	531	36,087
FRANKLIN MINERAL	774,000	616,753	1	80	12,145
R T G INC	653,000	426,250	1	200	5,631
CRAVAT COAL CO	558,000	457,775	4	254	3,940
COUNTYWIDE RECYCLING & DISPOSAL FACILITY	558,000	362,821	1	205	11,661
AMERIKOHL MINING INC	535,000	461,475	3	148	4,740
SCHANEY MINING	358,000	73,026	1	38	2,347
STATE LINE RESOURCES INC	328,000	137,794	2	54	2,993
F & M COAL CO	207,000	87,091	1	9	1,892
SAGINAW MINING CO	66,000	36,900	1	78	315
RED MALCUIT INC	60,000	35,475	1	65	303
RITCHIE MINING	42,000	23,625	1	25	267
CHAMBERS DEVL OF OHIO INC	11,000	0	1	1	0
Total	**872,202,000**	**627,664,199**	**225**	**80,699**	**11,597,549**
Spring 2011 Total	732,302,080	498,241,313	238	89,912	29,552,459
2013 vs. 2011	139,899,920	129,422,886	-13	-9,213	-17,954,911

Footnotes:
(1), (2), (3), (4), (5) See report for details

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 8.1b
Top Five Parent Companies

Parent Company	Net Adjusted PSE			Net Reclamation Cost		
	Amount	% of Total	Average	Amount	% of Total	Average
	(1)	(2)	(3)	(4)	(5)	(6)
OXFORD RESOURCES PARTNERS	159,028,180	25.34%		3,274,468	28.23%	
MURRAY ENERGY	113,540,550	18.09%		2,471,355	21.31%	
CONSOLIDATED COAL COMPANY	116,839,688	18.61%		1,579,241	13.62%	
RHINO ENERGY, LLC	74,586,025	11.88%		1,211,342	10.44%	
WATERLOO COAL COMPANY INC	39,224,100	6.25%		647,426	5.58%	
Subtotal	503,218,543	80.17%	100,643,709	9,183,831	79.19%	1,836,766
Remaining Parent Companies	124,445,656	19.83%	4,977,826	2,413,718	20.81%	96,549
Total	**627,664,199**	**100.00%**	**20,922,140**	**11,597,549**	**100.00%**	**386,585**
Spring 2011 Total	498,241,313		12,775,418	29,552,459		757,755
2013 vs. 2011	129,422,886		38.94%	-17,954,911		-96.01%

Footnotes:

(1)	Exhibit 8.1a Col (2)
(2)	Col (1) / Total Col (1)
(3)	Derived from Exhibit 8.1a Col (2)
(4)	Exhibit 8.1a Col (5)
(5)	Col (4) / Total Col (4)
(6)	Derived from Exhibit 8.1a Col (5)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
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Exhibit 8.1c
Parent Company Counts by PSE Range and Net Reclamation Cost Range

Net Adjusted PSE	Company Count	Net Reclamation Cost	Company Count
(1)	(2)	(3)	(4)
$0	1	$0	1
$0 to 100K	5	$0 to 10K	9
$100K to 1M	6	$10K to 100K	9
$1M to 2.5M	4	$100K to 500K	7
$2.5M to 5M	2	$500K to 1M	1
$5M to 9M	1	$1M to 2M	2
$9M to 25M	7	$2M to 5M	2
Over $25M	5	Over $5M	0
Total	**31**	**Total**	**31**

Footnotes:

(2)	Exhibit 8.1a Col (2)
(4)	Exhibit 8.1a Col (5)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
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Exhibit 8.2
Permits Counts with a Performance Security Estimate Greater Than Bond on Hand

Issue Year	Active				Final Map				Total
	Phase 1	Phase 2	Phase 3	Total	Phase 1	Phase 2	Phase 3	Total	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1982	0	0	1	1	0	0	0	0	1
1983	7	0	0	7	2	0	0	2	9
1984	8	1	0	9	3	0	2	5	14
1985	1	0	0	1	1	1	0	2	3
1986	0	0	0	0	0	1	2	3	3
1987	4	0	0	4	2	0	2	4	8
1988	1	2	0	3	1	1	0	2	5
1989	1	0	0	1	1	0	1	2	3
1990	0	0	0	0	1	1	0	2	2
1991	1	0	0	1	1	0	1	2	3
1992	1	2	1	4	0	1	1	2	6
1993	3	0	0	3	2	1	1	4	7
1994	2	1	1	4	1	0	0	1	5
1995	0	0	1	1	0	1	0	1	2
1996	1	0	0	1	0	2	1	3	4
1997	0	0	0	0	1	0	2	3	3
1998	8	1	0	9	1	1	0	2	11
1999	2	0	0	2	1	0	3	4	6
2000	1	0	1	2	1	1	1	3	5
2001	1	0	1	2	1	1	3	5	7
2002	2	0	0	2	1	2	1	4	6
2003	5	0	0	5	0	0	0	0	5
2004	5	2	0	7	2	3	4	9	16
2005	3	0	0	3	1	1	0	2	5
2006	8	0	0	8	2	4	4	10	18
2007	8	0	0	8	2	0	1	3	11
2008	6	0	0	6	2	1	0	3	9
2009	5	0	0	5	1	1	0	2	7
2010	5	0	0	5	0	2	0	2	7
2011	10	0	0	10	0	0	0	0	10
2012	8	0	0	8	0	0	0	0	8
Total	**107**	**9**	**6**	**122**	**31**	**26**	**30**	**87**	**209**
Spring 2011 Total				119				85	204
2013 vs. 2011				3				2	5

Footnotes:

(1) Client provided data, Pending Phase 1 Release
(2) Client provided data, Pending Phase 2 Release
(3) Client provided data, Pending Phase 3 Release
(4) Sum of Col (1) through Col (3)
(5) Client provided data, Pending Phase 1 Release
(6) Client provided data, Pending Phase 2 Release
(7) Client provided data, Pending Phase 3 Release
(8) Sum of Col (5) through Col (7)
(9) Col (4) + Col (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
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Exhibit 8.3a
Permits Counts by Mine Status and Year of Issuance - Surface

Issue Year	Active				Final Map				Total
	Phase 1	Phase 2	Phase 3	Total	Phase 1	Phase 2	Phase 3	Total	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1982	0	0	0	0	0	0	0	0	0
1983	2	0	0	2	0	0	0	0	2
1984	1	1	0	2	1	0	2	3	5
1985	0	0	0	0	0	1	0	1	1
1986	0	0	0	0	0	2	2	4	4
1987	2	0	0	2	2	0	2	4	6
1988	1	1	0	2	1	2	0	3	5
1989	0	0	0	0	1	1	1	3	3
1990	0	0	0	0	1	1	0	2	2
1991	1	0	0	1	1	1	1	3	4
1992	1	2	1	4	0	2	1	3	7
1993	3	0	0	3	2	1	1	4	7
1994	2	1	1	4	1	0	0	1	5
1995	1	0	1	2	0	1	0	1	3
1996	2	0	0	2	0	2	1	3	5
1997	0	0	0	0	1	0	2	3	3
1998	8	0	0	8	1	1	0	2	10
1999	2	0	0	2	1	0	3	4	6
2000	1	0	1	2	2	1	1	4	6
2001	1	0	1	2	2	1	3	6	8
2002	2	0	0	2	1	2	1	4	6
2003	4	0	0	4	1	0	0	1	5
2004	4	2	0	6	2	3	4	9	15
2005	3	0	0	3	2	2	0	4	7
2006	7	0	0	7	2	4	4	10	17
2007	8	0	0	8	2	1	1	4	12
2008	6	0	0	6	2	1	0	3	9
2009	4	0	0	4	1	2	0	3	7
2010	4	0	0	4	0	2	0	2	6
2011	11	0	0	11	0	0	0	0	11
2012	8	0	0	8	0	0	0	0	8
Total	**89**	**7**	**5**	**101**	**30**	**34**	**30**	**94**	**195**
Spring 2011 Total				103				104	207
2013 vs. 2011				-2				-10	-12

Permits Released Since Spring 2011	34
Total PSE of Permits Released Since Spring 2011	9,316,000
Net Adjusted PSE of Permits Released Since Spring 2011	5,386,771

Permits Issued Since Spring 2011	21
Total PSE of Permits Issued Since Spring 2011	84,994,000
Net Adjusted PSE of Permits Issued Since Spring 2011	41,940,724

Permits remaining in system from Spring 2011 to Spring 2013	174
Total PSE change of permits remaining in system from Spring 2011 to Spring 2013	21,609,000
Net Adjusted PSE change of permits remaining in system from Spring 2011 to Spring 2013	53,344,254

Footnotes:

(1) Client provided data, Pending Phase 1 Release
(2) Client provided data, Pending Phase 2 Release
(3) Client provided data, Pending Phase 3 Release
(4) Sum of Col (1) through Col (3)
(5) Client provided data, Pending Phase 1 Release
(6) Client provided data, Pending Phase 2 Release
(7) Client provided data, Pending Phase 3 Release
(8) Sum of Col (5) through Col (7)
(9) Col (4) + Col (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 8.3b
Implied Bonded Acres by Mine Status and Year of Issuance - Surface

Issue Year	Active				Final Map				Total
	Phase 1	Phase 2	Phase 3	Total	Phase 1	Phase 2	Phase 3	Total	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1982	0	0	0	0	0	0	0	0	0
1983	290	0	0	290	0	0	0	0	290
1984	97	39	55	191	16	23	126	166	356
1985	0	0	0	0	0	29	62	91	91
1986	0	0	0	0	0	133	615	748	748
1987	309	19	28	356	76	367	990	1,433	1,789
1988	0	32	46	78	4	201	427	631	709
1989	0	0	0	0	0	195	548	743	743
1990	0	0	0	0	45	81	142	268	268
1991	132	0	0	132	1	114	396	511	643
1992	3	149	256	408	0	54	147	201	609
1993	65	185	381	631	72	256	1,006	1,334	1,965
1994	22	495	968	1,485	171	491	1,046	1,709	3,193
1995	1	0	69	70	0	147	210	358	427
1996	244	50	146	441	0	352	831	1,183	1,624
1997	0	0	0	0	75	249	524	847	847
1998	350	683	1,510	2,543	6	77	149	233	2,775
1999	22	67	170	259	0	0	246	246	505
2000	213	530	858	1,601	22	39	213	275	1,875
2001	11	152	465	627	56	868	1,897	2,821	3,448
2002	41	196	365	602	23	157	656	836	1,438
2003	386	255	365	1,006	126	247	354	727	1,733
2004	126	309	442	878	43	280	1,017	1,339	2,217
2005	41	219	397	657	236	671	965	1,872	2,528
2006	1,250	540	805	2,595	139	462	1,003	1,604	4,200
2007	4,933	841	1,326	7,100	304	513	822	1,639	8,738
2008	531	848	1,212	2,591	285	547	782	1,614	4,205
2009	107	192	274	572	22	143	204	369	941
2010	3,451	75	108	3,635	0	64	91	155	3,790
2011	12,321	27	39	12,387	0	0	0	0	12,387
2012	3,505	0	0	3,505	0	0	0	0	3,505
Total	**28,451**	**5,903**	**10,283**	**44,638**	**1,723**	**6,762**	**15,465**	**23,950**	**68,588**
Spring 2011 Total				49,315				23,585	72,901
2013 vs. 2011				-4,677				365	-4,312

Acres Released Since Spring 2011	6,573

Acres Issued Since Spring 2011	16,283

Footnotes:

(1) Client provided data, Pending Phase 1 Release
(2) Client provided data, Pending Phase 2 Release
(3) Client provided data, Pending Phase 3 Release
(4) Sum of Col (1) through Col (3)
(5) Client provided data, Pending Phase 1 Release
(6) Client provided data, Pending Phase 2 Release
(7) Client provided data, Pending Phase 3 Release
(8) Sum of Col (5) through Col (7)
(9) Col (4) + Col (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
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Exhibit 8.4a
Permits Counts by Mine Status and Year of Issuance - Underground

Issue Year	Active				Final Map				Total
	Phase 1	Phase 2	Phase 3	Total	Phase 1	Phase 2	Phase 3	Total	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1982	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0
1984	4	0	0	4	3	0	0	3	7
1985	0	0	0	0	1	0	0	1	1
1986	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	1	0	1	0	0	0	0	1
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	1	0	0	1	0	0	0	0	1
2005	0	0	0	0	0	0	0	0	0
2006	1	0	0	1	0	0	0	0	1
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0
2010	1	0	0	1	0	0	0	0	1
2011	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0
Total	**7**	**1**	**0**	**8**	**4**	**0**	**0**	**4**	**12**
Spring 2011 Total				8				5	13
2013 vs. 2011				0				-1	-1

Permits Released Since Spring 2011	0
Total PSE of Permits Released Since Spring 2011	0
Net Adjusted PSE of Permits Released Since Spring 2011	0

Permits Issued Since Spring 2011	0
Total PSE of Permits Issued Since Spring 2011	0
Net Adjusted PSE of Permits Issued Since Spring 2011	0

Permits remaining in system from Spring 2011 to Spring 2013	12
Total PSE change of permits remaining in system from Spring 2011 to Spring 2013	21,098,000
Net Adjusted PSE change of permits remaining in system from Spring 2011 to Spring 2013	19,826,040

Footnotes:

(1) Client provided data, Pending Phase 1 Release
(2) Client provided data, Pending Phase 2 Release
(3) Client provided data, Pending Phase 3 Release
(4) Sum of Col (1) through Col (3)
(5) Client provided data, Pending Phase 1 Release
(6) Client provided data, Pending Phase 2 Release
(7) Client provided data, Pending Phase 3 Release
(8) Sum of Col (5) through Col (7)
(9) Col (4) + Col (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
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Exhibit 8.4b
Implied Bonded Acres by Mine Status and Year of Issuance - Underground

Issue Year	Active				Final Map				Total
	Phase 1	Phase 2	Phase 3	Total	Phase 1	Phase 2	Phase 3	Total	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1982	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0
1984	2,204	57	82	2,343	475	914	1,306	2,695	5,037
1985	0	0	0	0	8	204	291	502	502
1986	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	3	4	6	0	0	0	0	6
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	1,153	0	0	1,153	0	0	0	0	1,153
2005	0	0	0	0	0	0	0	0	0
2006	1,182	0	0	1,182	0	0	0	0	1,182
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0
2010	662	0	0	662	0	0	0	0	662
2011	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0
Total	**5,201**	**60**	**85**	**5,346**	**483**	**1,118**	**1,597**	**3,197**	**8,543**
Spring 2011 Total				4,424				7,727	12,151
2013 vs. 2011				922				-4,530	-3,608

Acres Released Since Spring 2011	0

Acres Issued Since Spring 2011	0

Footnotes:

(1) Client provided data, Pending Phase 1 Release
(2) Client provided data, Pending Phase 2 Release
(3) Client provided data, Pending Phase 3 Release
(4) Sum of Col (1) through Col (3)
(5) Client provided data, Pending Phase 1 Release
(6) Client provided data, Pending Phase 2 Release
(7) Client provided data, Pending Phase 3 Release
(8) Sum of Col (5) through Col (7)
(9) Col (4) + Col (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
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Exhibit 8.5a
Permits Counts by Mine Status and Year of Issuance - Facility Operations

Issue Year	Active				Final Map				Total
	Phase 1	Phase 2	Phase 3	Total	Phase 1	Phase 2	Phase 3	Total	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1982	0	0	1	1	0	0	0	0	1
1983	5	0	0	5	2	0	0	2	7
1984	3	0	0	3	0	0	0	0	3
1985	1	0	0	1	0	0	0	0	1
1986	0	0	0	0	0	0	0	0	0
1987	2	0	0	2	0	0	0	0	2
1988	0	1	0	1	0	0	0	0	1
1989	1	0	0	1	0	0	0	0	1
1990	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	1	0	0	1	0	0	0	0	1
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	1	0	0	1	0	0	0	0	1
2010	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0
Total	**14**	**1**	**1**	**16**	**2**	**0**	**0**	**2**	**18**
Spring 2011 Total				16				2	18
2013 vs. 2011				0				0	0

Permits Released Since Spring 2011	0
Total PSE of Permits Released Since Spring 2011	0
Net Adjusted PSE of Permits Released Since Spring 2011	0

Permits Issued Since Spring 2011	0
Total PSE of Permits Issued Since Spring 2011	0
Net Adjusted PSE of Permits Issued Since Spring 2011	0

Permits remaining in system from Spring 2011 to Spring 2013	18
Total PSE change of permits remaining in system from Spring 2011 to Spring 2013	21,514,920
Net Adjusted PSE change of permits remaining in system from Spring 2011 to Spring 2013	19,698,639

Footnotes:

(1) Client provided data, Pending Phase 1 Release
(2) Client provided data, Pending Phase 2 Release
(3) Client provided data, Pending Phase 3 Release
(4) Sum of Col (1) through Col (3)
(5) Client provided data, Pending Phase 1 Release
(6) Client provided data, Pending Phase 2 Release
(7) Client provided data, Pending Phase 3 Release
(8) Sum of Col (5) through Col (7)
(9) Col (4) + Col (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

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Exhibit 8.5b
Implied Bonded Acres by Mine Status and Year of Issuance - Facility Operations

Issue Year	Active				Final Map				Total
	Phase 1	Phase 2	Phase 3	Total	Phase 1	Phase 2	Phase 3	Total	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1982	0	0	4	4	0	0	0	0	4
1983	640	34	48	722	131	183	318	632	1,355
1984	1,233	6	9	1,248	0	0	0	0	1,248
1985	0	2	3	6	0	0	0	0	6
1986	0	0	0	0	0	0	0	0	0
1987	183	0	0	183	0	0	0	0	183
1988	0	35	53	88	0	0	0	0	88
1989	38	0	0	38	0	0	0	0	38
1990	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	21	0	0	21	0	0	0	0	21
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	625	0	0	625	0	0	0	0	625
2010	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0
Total	**2,740**	**78**	**117**	**2,935**	**131**	**183**	**318**	**632**	**3,567**
Spring 2011 Total				4,228				632	4,860
2013 vs. 2011				-1,293				0	-1,293

Acres Released Since Spring 2011	0

Acres Issued Since Spring 2011	0

Footnotes:

(1) Client provided data, Pending Phase 1 Release
(2) Client provided data, Pending Phase 2 Release
(3) Client provided data, Pending Phase 3 Release
(4) Sum of Col (1) through Col (3)
(5) Client provided data, Pending Phase 1 Release
(6) Client provided data, Pending Phase 2 Release
(7) Client provided data, Pending Phase 3 Release
(8) Sum of Col (5) through Col (7)
(9) Col (4) + Col (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
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Exhibit 8.6a
Permits Counts by Mine Status and Year of Issuance - Total

Issue Year	Active				Final Map				Total
	Phase 1	Phase 2	Phase 3	Total	Phase 1	Phase 2	Phase 3	Total	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1982	0	0	1	1	0	0	0	0	1
1983	7	0	0	7	2	0	0	2	9
1984	8	1	0	9	4	0	2	6	15
1985	1	0	0	1	1	1	0	2	3
1986	0	0	0	0	0	2	2	4	4
1987	4	0	0	4	2	0	2	4	8
1988	1	2	0	3	1	2	0	3	6
1989	1	0	0	1	1	1	1	3	4
1990	0	0	0	0	1	1	0	2	2
1991	1	0	0	1	1	1	1	3	4
1992	1	2	1	4	0	2	1	3	7
1993	3	0	0	3	2	1	1	4	7
1994	2	1	1	4	1	0	0	1	5
1995	1	0	1	2	0	1	0	1	3
1996	2	0	0	2	0	2	1	3	5
1997	0	0	0	0	1	0	2	3	3
1998	8	1	0	9	1	1	0	2	11
1999	2	0	0	2	1	0	3	4	6
2000	1	0	1	2	2	1	1	4	6
2001	1	0	1	2	2	1	3	6	8
2002	2	0	0	2	1	2	1	4	6
2003	5	0	0	5	1	0	0	1	6
2004	5	2	0	7	2	3	4	9	16
2005	3	0	0	3	2	2	0	4	7
2006	8	0	0	8	2	4	4	10	18
2007	8	0	0	8	2	1	1	4	12
2008	6	0	0	6	2	1	0	3	9
2009	5	0	0	5	1	2	0	3	8
2010	5	0	0	5	0	2	0	2	7
2011	11	0	0	11	0	0	0	0	11
2012	8	0	0	8	0	0	0	0	8
Total	**110**	**9**	**6**	**125**	**36**	**34**	**30**	**100**	**225**
Spring 2011 Total				127				111	238
2013 vs. 2011				-2				-11	-13

Permits Released Since Spring 2011	34
Total PSE of Permits Released Since Spring 2011	9,316,000
Net Adjusted PSE of Permits Released Since Spring 2011	5,386,771

Permits Issued Since Spring 2011	21
Total PSE of Permits Issued Since Spring 2011	84,994,000
Net Adjusted PSE of Permits Issued Since Spring 2011	41,940,724

Permits remaining in system from Spring 2011 to Spring 2013	204
Total PSE change of permits remaining in system from Spring 2011 to Spring 2013	64,221,920
Net Adjusted PSE change of permits remaining in system from Spring 2011 to Spring 2013	92,868,933

Footnotes:

(1) Sum of Exhibits 8.3a through 8.5a Col (1), Pending Release
(2) Sum of Exhibits 8.3a through 8.5a Col (2), Pending Release
(3) Sum of Exhibits 8.3a through 8.5a Col (3), Pending Release
(4) Sum of Col (1) through Col (3)
(5) Sum of Exhibits 8.3a through 8.5a Col (5), Pending Release
(6) Sum of Exhibits 8.3a through 8.5a Col (6), Pending Release
(7) Sum of Exhibits 8.3a through 8.5a Col (7), Pending Release
(8) Sum of Col (5) through Col (7)
(9) Col (4) + Col (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 8.6b
Implied Bonded Acres by Mine Status and Year of Issuance - Total

Issue Year	Active				Final Map				Total
	Phase 1	Phase 2	Phase 3	Total	Phase 1	Phase 2	Phase 3	Total	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1982	0	0	4	4	0	0	0	0	4
1983	930	34	48	1,012	131	183	318	632	1,645
1984	3,534	102	145	3,781	491	937	1,432	2,860	6,641
1985	0	2	3	6	8	233	353	593	599
1986	0	0	0	0	0	133	615	748	748
1987	492	19	28	539	76	367	990	1,433	1,972
1988	0	68	99	166	4	201	427	631	798
1989	38	0	0	38	0	195	548	743	781
1990	0	0	0	0	45	81	142	268	268
1991	132	0	0	132	1	114	396	511	643
1992	3	149	256	408	0	54	147	201	609
1993	65	185	381	631	72	256	1,006	1,334	1,965
1994	22	495	968	1,485	171	491	1,046	1,709	3,193
1995	1	0	69	70	0	147	210	358	427
1996	244	50	146	441	0	352	831	1,183	1,624
1997	0	0	0	0	75	249	524	847	847
1998	350	685	1,514	2,549	6	77	149	233	2,782
1999	22	67	170	259	0	0	246	246	505
2000	213	530	858	1,601	22	39	213	275	1,875
2001	11	152	465	627	56	868	1,897	2,821	3,448
2002	41	196	365	602	23	157	656	836	1,438
2003	407	255	365	1,027	126	247	354	727	1,754
2004	1,280	309	442	2,031	43	280	1,017	1,339	3,370
2005	41	219	397	657	236	671	965	1,872	2,528
2006	2,432	540	805	3,778	139	462	1,003	1,604	5,382
2007	4,933	841	1,326	7,100	304	513	822	1,639	8,738
2008	531	848	1,212	2,591	285	547	782	1,614	4,205
2009	732	192	274	1,197	22	143	204	369	1,566
2010	4,113	75	108	4,296	0	64	91	155	4,451
2011	12,321	27	39	12,387	0	0	0	0	12,387
2012	3,505	0	0	3,505	0	0	0	0	3,505
Total	**36,393**	**6,041**	**10,486**	**52,919**	**2,337**	**8,063**	**17,380**	**27,780**	**80,699**
Spring 2011 Total				57,968				31,944	89,912
2013 vs. 2011				-5,049				-4,165	-9,213

Acres Released Since Spring 2011	6,573

Acres Issued Since Spring 2011	16,283

Footnotes:

(1) Sum of Exhibits 8.3b through 8.5b Col (1), Pending Release
(2) Sum of Exhibits 8.3b through 8.5b Col (2), Pending Release
(3) Sum of Exhibits 8.3b through 8.5b Col (3), Pending Release
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(8) Sum of Col (5) through Col (7)
(9) Col (4) + Col (8)

Spring 2011 Amounts from the Spring 2011 Report by Pinnacle

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 9
Projected Investment Rates
Based on US Treasury Returns in Spring 2013

Calendar Year	Investment Return (%)	Yearly Discount Factor	Compound Discount Factor
	(1)	(2)	(3)
2013	0.250%	99.751%	-0.125%
2014	**0.250%**	99.751%	-0.374%
2015	**0.375%**	99.626%	-0.684%
2016	0.560%	99.443%	-1.146%
2017	**0.750%**	99.256%	-1.790%
2018	1.000%	99.010%	-2.641%
2019	**1.250%**	98.765%	-3.724%
2020	1.500%	98.522%	-5.030%
2021	1.750%	98.280%	-6.549%
2022	**2.000%**	98.039%	-8.269%
2023	2.060%	97.982%	-10.094%
2024	2.110%	97.934%	-11.930%
2025	2.170%	97.876%	-13.775%
2026	2.230%	97.819%	-15.631%
2027	2.280%	97.771%	-17.492%
2028	2.340%	97.714%	-19.355%
2029	2.390%	97.666%	-21.218%
2030	2.450%	97.609%	-23.079%
2031	2.510%	97.551%	-24.941%
2032	2.560%	97.504%	-26.796%
2033	2.620%	97.447%	-28.645%
2034	2.680%	97.390%	-30.487%
2035	2.730%	97.343%	-32.318%
2036	2.790%	97.286%	-34.135%
2037	2.840%	97.238%	-35.939%
2038	2.900%	97.182%	-37.726%
2039	2.960%	97.125%	-39.499%
2040	3.010%	97.078%	-41.252%
2041	3.070%	97.021%	-42.986%
2042	**3.125%**	96.970%	-44.698%

Footnotes:

(1) Based on US Treasury Returns in Spring 2013; Returns not in **Bold** are interpolated from US Treasury Rates

(2), (3) Based on Col (1)

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 10.1
Water Reclamation Cost

		Surface	Underground	Other	Total
Acres	(1) Permitted acres with water treatment	82	2,617	-	2,699
	(2) Permitted acres with water monitoring	3,432	-	395	3,827
	(3) Percent of monitored permits that become water treatment	50.00%	50.00%	50.00%	
	(4) Projected permitted acres with water treatment	1,797	2,617	198	4,612
Average Cost	(5) Water capital Ohio permit #433 avg cost per *affected* acre		14.53		
	(6) Water treatment Ohio permit #433 avg cost per *affected* acre		346.07		
	(7) Water capital West Virginia avg cost per permitted acre	11.09	51.00	38.91	
	(8) Water treatment West Virginia avg cost per permitted acre	6.11	213.69	157.02	
Selected Average Cost	(9) Water capital selected avg cost per permitted acre	11.09	51.00	38.91	
	(10) Water treatment selected avg cost per permitted acre	6.11	213.69	157.02	
Number of Exposure Years	(11) Number of years for water capital reclamation	75	75	75	
	(12) Number of years for water treatment reclamation	75	75	75	
Forfeiture Rate	(13) Water forfeiture rate	2.25%	2.25%	2.25%	
Estimate 1 Gross Reclamation Cost	(14) Water capital reclamation cost	33,626	225,142	12,977	271,745
	(15) Water treatment reclamation cost	18,526	943,346	52,367	1,014,240
	(16) Estimate 1 - Total gross water reclamation cost	52,152	1,168,488	65,344	1,285,985
Estimate 2 Gross Reclamation Cost	(17) Gross land reclamation cost				12,857,773
	(18) Selected relationship of water cost to land cost				20%
	(19) Estimate 2 - Total gross water reclamation cost				2,571,555
	(20) Selected gross water reclamation cost				2,500,000
Net Reclamation Cost	(21) Water Trust Fund mitigation adjustment percentage				10%
	(22) Total estimated net water reclamation cost				2,250,000

Footnotes:

(1), (2)	Provided by Client
(3)	Judgmental Selection (3 of 6 current monitored sites not expected to develop into long term water treatment)
(4)	Row (1) + Row (2) x Row (3)
(5), (6)	Derived from Client Data, Exhibit 10.2a
(7), (8)	Internal Analysis of West Virginia Data, treatment costs adjusted for pre 2011 NPDES standards
(9)	Row (7)
(10)	Row (8)
(11), (12)	Based on Client estimates.
(13)	Judgmental Selection. Compares to approximate 1% selection of non-water forfeiture.
(14)	Row (4) x Row (9) x Row (11) x Row (13)
(15)	Row (4) x Row (10) x Row (12) x Row (13)
(16)	Row (14) + Row (15)
(17)	Exhibit 2.2 Col (1)
(18)	Based on West Virginia 2012 Analysis: Water (Capital and Treatment) Liability / Land Liability approaching 100%, then adjusting for Ohio WATER TREATMENT being about 10% of WV post NPDES updated standards average costs.
(19)	Row (17) x Row (18)
(20)	Selection based on Row (16) and Row (19)
(21)	Judgmental Selection, considering forfeitures before Trust is set up or while Trust is partially funded by the RFF.
(22)	Row (20) x [1.00 - Row (21)]

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013

Exhibit 10.2a
Water Reclamation Cost

Ohio Permits with Water Treatment

		Surface	Underground	Other
Permit # 433 Issue Yr. 1984	Water Capital Cost per Year		7,293	
	Water Treatment Cost per Year		173,728	
	Permitted Acres		51	
	Affected Acres		502	
	Implied Bonded Acres		1,547	
	Total PSE		445,000	
	Net Adjusted PSE		2,630,075	
Permit # 325 Issue Yr. 1984	Water Capital Cost per Year		N/A	
	Water Treatment Cost per Year		N/A	
	Permitted Acres		934	
	Affected Acres		-	
	Implied Bonded Acres		384	
	Total PSE		9,791,000	
	Net Adjusted PSE		9,416,625	
Permit # 328 Issue Yr. 1984	Water Capital Cost per Year	N/A		
	Water Treatment Cost per Year	N/A		
	Permitted Acres	82		
	Affected Acres	-		
	Implied Bonded Acres	78		
	Total PSE	66,000		
	Net Adjusted PSE	36,900		
Permit # 354 Issue Yr. 1984	Water Capital Cost per Year		N/A	
	Water Treatment Cost per Year		N/A	
	Permitted Acres		1,048	
	Affected Acres		-	
	Implied Bonded Acres		1,796	
	Total PSE		111,690,000	
	Net Adjusted PSE		109,704,625	
Permit # 355 Issue Yr. 1984	Water Capital Cost per Year		N/A	
	Water Treatment Cost per Year		N/A	
	Permitted Acres		316	
	Affected Acres		-	
	Implied Bonded Acres		514	
	Total PSE		432,000	
	Net Adjusted PSE		-	
Permit # 463 Issue Yr. 1985	Water Capital Cost per Year		N/A	
	Water Treatment Cost per Year		N/A	
	Permitted Acres		319	
	Affected Acres		-	
	Implied Bonded Acres		502	
	Total PSE		1,581,000	
	Net Adjusted PSE		1,198,125	

Data provided by Client

OHIO RECLAMATION FORFEITURE FUND ANALYSIS
SPRING 2013
Exhibit 10.2b
Water Reclamation Cost

Ohio Permits Being Monitored For Possible Water Treatment

		Surface	Underground	Other
Permit #	Permitted Acres			344
215	Affected Acres			-
Issue Yr.	Implied Bonded Acres			564
1983	Total PSE			730,000
	Net Adjusted PSE			166,063
Permit #	Permitted Acres	527		
533	Affected Acres	-		
Issue Yr.	Implied Bonded Acres	91		
1985	Total PSE	74,000		
	Net Adjusted PSE	14,663		
Permit #	Permitted Acres	134		
219	Affected Acres	127		
Issue Yr.	Implied Bonded Acres	202		
1983	Total PSE	532,000		
	Net Adjusted PSE	316,727		
Permit #	Permitted Acres	1,830		
1059	Affected Acres	-		
Issue Yr.	Implied Bonded Acres	1,709		
1994	Total PSE	5,614,000		
	Net Adjusted PSE	4,179,313		
Permit #	Permitted Acres	940		
1149	Affected Acres	-		
Issue Yr.	Implied Bonded Acres	712		
1997	Total PSE	965,000		
	Net Adjusted PSE	321,313		
Permit #	Permitted Acres			52
223	Affected Acres			38
Issue Yr.	Implied Bonded Acres			23
1983	Total PSE			296,000
	Net Adjusted PSE			137,794

Data provided by client.

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Attestation:
2012 - Have complied
2013 - Have complied

Publications

Committees

committee name	position	start date	end date
Joint CAS/SOA Committee on Career Encouragement and Actuarial Diversity	Member	03/20/2013	
Joint CAS/SOA Committee on Actuarial Diversity	Member	11/04/2010	03/20/2013
Examination Committee	Member	09/01/2010	05/04/2011
Liaison to the International Association of Black Actuaries	Liaison	11/01/2007	11/01/2008
Examination Committee	Member	08/03/2007	08/31/2010
Joint CAS/SOA Committee on Actuarial Diversity	Member	02/01/2006	09/09/2010

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E-mail: **jwade@pinnacleactuaries.com**
Attestation:
2012 - Have complied
2013 - Have complied

Publications

Committees

committee name	position	start date	end date
Committee on Professionalism Education	Member	09/02/2008	
Member Advisory Panel Committee	Member	12/11/2003	11/19/2008

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Association Web Design and Development by Matrix Group International, Inc.

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ACTUARIAL RESOURCES, INC.

Laura A. Maxwell
FCAS, MAAA
Consulting Actuary

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San Ramon, CA 94583
www.pinnacleactuaries.com

Direct: (415) 692-0938
Mobile: (925) 487-3590
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Email: lmaxwell@pinnacleactuaries.com

Focus
Public Entities,
Enterprise Risk Management, Loss Reserving, Predictive Analytics, Pricing/Product Management, Large Project Management

Education
Moravian College
BS Mathematics

Certifications
Fellow of the Casualty Actuarial Society (FCAS)

Member of American Academy of Actuaries (MAAA)

SAS® Certified Predictive Modeler Using SAS® Enterprise Miner™ 5

Japanese Language Proficiency Test, Level 3

Professional Experience

Laura Maxwell is a Consulting Actuary with Pinnacle Actuarial Resources, Inc. in the San Francisco, California office. She holds a Bachelor of Science degree in Mathematics from Moravian College. She has more than 20 years of actuarial experience in the property/casualty insurance industry.

Ms. Maxwell is a Fellow of the Casualty Actuarial Society (FCAS) and a Member of the American Academy of Actuaries (MAAA). She currently serves the Casualty Actuarial Society (CAS) as a member of the Webinar and Examination Committees. Ms. Maxwell is a SAS® Certified Predictive Modeler Using SAS® Enterprise Miner™ 5.

Prior to joining Pinnacle Actuarial Resources, Ms. Maxwell was a consulting actuary for Milliman, Inc. Prior to Milliman she was a product manager for Kemper Direct and held actuarial positions with the New Jersey Department of Banking and Insurance and the National Council on Compensation Insurance. Her background includes personal and commercial lines pricing and reserving.

Engagement Experience

- Serves as the Appointed Actuary for a California private passenger automobile insurance company
- Provides loss reserve and funding analysis for several public entities self-insurance exposure
- Conducted reserve analyses for the State of West Virginia monopolistic state funds
- Participated in several insurance company audits for the New York State Insurance Department
- Prepared California rate filings
- Conducted rate filing reviews for several insurance departments
- Assisted in the development of underwriting score models for BOP insurers

Presentations/ Professional Publications

- "ORSA Implementation Planning – The Time is Now", IASA Conference, June 4, 2013
- "You've Set Your Goals! You've Evaluated Your Outcomes! Are You Realizing Your Rewards", CWC & Risk Conference, Dana Point, CA, September 20, 2012
- "Lights! Camera! Professionalism!",Casualty Loss Reserve Seminar, Denver, CO, September 6, 2012
- "Current State of Enterprise Risk Management," Pinnacle Apex Discussion Series, March 15, 2012
- "Using Predictive Modeling to Investigate the Underlying Claims Process and Understand its Impact on Traditional Loss Reserving Methods, " Casualty Loss Reserve Seminar, Las Vegas, NV, September 16, 2011
- "Free Markets are the Best Way to Lower Workers Compensation Costs, " Pinnacle Research Brief, January, 2010
- "Workers Compensation Healthier in Competitive States," Pinnacle Apex Discussion Series, May 21, 2009
- "Workshop: How to Use Predictive Modeling in Claim Organizations," National Underwriter Annual Claim Event, Las Vegas, NV, June 25, 2007

CURRICULUM VITAE

NAME	Laura A. Maxwell	
BUSINESS ADDRESS	One Annabel Lane, Suite 207 San Ramon, California 94583 Phone: (415) 692-0938 Fax: (309) 807-2301 e-mail: lmaxwell@pinnacleactuaries.com	
EDUCATION	MORAVIAN COLLEGE Bachelor of Science in Mathematics	 1985
CONTINUING EDUCATION	Estimated study time exceeding 3,000 hours necessary for completion of qualifying exams for membership in Casualty Actuarial Society (CAS) SAS® Certified Predictive Modeler Using SAS® Enterprise Miner™ 5	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	Casualty Actuarial Society (CAS) Associate Member Fellow American Academy of Actuaries (AAA)	 2002 2004 2002
EMPLOYMENT HISTORY	National Council on Compensation Insurance NJ Dept. of Banking & Insurance Kemper Direct Milliman, Inc Pinnacle Actuarial Resources, Inc.	1987 - 1991 1991 - 1998 1998 - 2003 2003 - 2005 2006 - Present
PROFESSIONAL ACTIVITIES	CAS Webinar Committee CAS Examination Committee CAS Student Liaison Committee	2009 - Present 2004 - Present 1996 - 1998
PROFESSIONAL PRESENTATIONS PUBLICATIONS	"Workshop: How to Use Predictive Modeling in Claim Organizations", National Underwriter Annual Claim Event, Las Vegas, NV, June 25, 2007 "Workers Compensation Healthier in Competitive States", Pinnacle Apex Discussion Series, May 21, 2009 "Free Markets are the Best Way to Lower Workers Compensation Costs", Pinnacle Research Brief, January, 2010 "Current State of Enterprise Risk Management", Pinnacle Apex Discussion Series, March 15, 2012 "Lights! Camera! Professionalism!," Casualty Loss Reserve Seminar, Denver, CO, September 6, 2012 "You've Set Your Goals! You've Evaluated Your Outcomes! Are You Realizing Your Rewards," CWC & Risk Conference, Dana Point, CA, September 20, 2012 "ORSA Implementation Planning – The Time is Now", IASA Conference, Washington, D.C., June 4, 2013	

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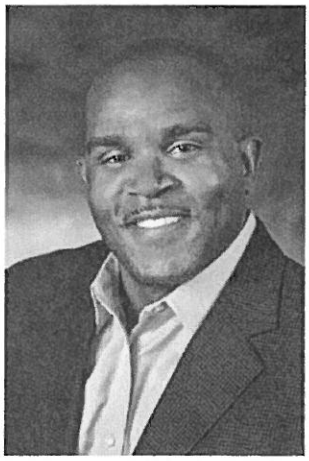

Arthur R. Randolph, II
FCAS, MAAA, CPCU, ARM, ARe
Senior Consulting Actuary

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Focus
Medical Professional Liability Insurers, Self-Insured Hospitals, Hospital and Physician Groups, Captive Insurers and Large Employers, Ratemaking, Reserving, Risk Transfer Testing, Developing Experience and Retrospective Rating Plans, Personal and Commercial Property, Workers' Compensation

Education
Temple University
B.B.A. in Actuarial Science & Risk Management

Certifications
Fellow of the Casualty Actuarial Society (FCAS)

Member of the American Academy of Actuaries (MAAA)

Chartered Property Casualty Underwriter (CPCU)

Associate in Risk Management (ARM)

Associate in Reinsurance (ARe)

Professional Experience

Arthur Randolph is a Senior Consulting Actuary with Pinnacle Actuarial Resources, Inc. in the firm's Atlanta, Georgia office, and has been in the insurance industry since 1998, consulting since 2001. His consulting career has focused on medical professional liability, workers' compensation, general liability, commercial and personal automobile, homeowners, commercial multi-peril, and construction defect exposures.

Mr. Randolph provides actuarial consulting services to medical professional liability insurers, traditional property and casualty insurers, self-insured hospitals and physician groups, public and private self-insured entities, risk retention groups, and captive insurers. His core services include ratemaking, reserving, risk transfer testing, funding allocations among members of risk sharing groups, and developing experience and retrospective rating plans. Mr. Randolph also conducts alternative risk financing feasibility and funding studies (e.g., large deductible plans, self-insurance structures, risk retention groups, captives) for organizations in both the public and private sectors that face various risk exposures. When clients have become involved in mergers and acquisitions, he has worked with them to seamlessly address all associated actuarial issues.

Mr. Randolph is a Fellow of the Casualty Actuarial Society (FCAS) and a Member of the American Academy of Actuaries (MAAA). He also holds the following insurance designations: Chartered Property Casualty Underwriter (CPCU), Associate in Risk Management (ARM) and Associate in Reinsurance (ARe). Mr. Randolph is a member of the Joint CAS/SOA Committee on Career Encouragement & Actuarial Diversity and the AAA Medical Professional Liability Committee, and is actively involved with Physician Insurers Association of America (PIAA), National Association of Mutual Insurance Companies (NAMIC), Casualty Actuaries of the Southeast (CASE), Gamma Iota Sigma Insurance Fraternity (GIS), and International Association of Black Actuaries (IABA, Past Treasurer & Director). He is a past member of the CAS Examination Committee and served as President & Director of the IABA Foundation.

Engagement Experience

- Served as Appointed Actuary for a national, multiline long-haul trucking insurance carrier
- Advises numerous self-insured entities and insurance companies on matters related to financial reporting of unpaid claim liabilities, routinely presenting to Boards of Directors and Executive Committees charged with financial reporting
- Performs extensive rate level reviews for a variety of coverages including preparing and submitting filings, and responding to insurance department inquiries
- Establishes proper funding allocations among members of risk sharing groups and among revenue cost centers of national retail companies
- Conducts valuation analyses of merger and acquisition targets
- Performs alternative risk financing feasibility studies and retention optimization studies including financial performance modeling
- Performs classification relativity studies to ensure price optimization and rate level adequacy for medical professional liability insurers
- Develops experience and retrospective rating plans for medical professional liability and workers' compensation insurers, including post-implementation parameter testing
- Assists insurance companies with new product development and geographic expansion into new territories and states

CURRICULUM VITAE

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BUSINESS ADDRESS

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EDUCATION

TEMPLE UNIVERSTY, PHILADELPHIA, PA
Bachelor of Business Administration 1997
Major – Actuarial Science & Risk Management

CONTINUING EDUCATION

Estimated study time exceeding over 5,000 hours necessary for completion of qualifying exams for membership in the Casualty Actuarial Society (CAS) and the American Institute for Chartered Property Casualty Underwriters (AICPCU)

Participation as an attendee at the CAS Ratemaking Seminar, Casualty Loss Reserve Seminar, CAS Annual and Spring Meetings, and other educational seminars on special topics (e.g., medical professional liability, property catastrophe risk)

Meet all continuing education requirements of the American Academy of Actuaries (AAA) necessary to sign statements of actuarial opinion

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

CAS	
Associate Member (ACAS)	2005
Fellow (FCAS)	2007
AAA	2005
AICPCU	
Associate in Risk Management (ARM)	2011
Chartered Property Casualty Underwriter (CPCU)	2012
Associate in Reinsurance (ARe)	2012
International Association of Black Actuaries (IABA)	2001 - Present
Casualty Actuaries of the Southeast (CASE)	2007 - Present
Physician Insurers Association of America (PIAA)	2009 - Present
American Society for Healthcare Risk Management (ASHRM)	2012 - Present
National Association of Mutual Insurance Companies (NAMIC)	2012 - Present

Arthur R. Randolph, II – Curriculum Vitae
Page 2

EMPLOYMENT HISTORY	Pinnacle Actuarial Resources, Inc.	2012 - Present
	Towers Watson / Towers Perrin	2005 - 2012
	The PMA Insurance Group	2003 - 2005
	PricewaterhouseCoopers LLP	2001 - 2003
	Allstate Insurance Company / CNA Personal Insurance	1998 - 2001
ACTUARIAL INTERNSHIPS	Towers Perrin	1997
	American International Group	1996
	Milliman & Robertson	1994 - 1995
PROFESSIONAL ACTIVITIES	CAS Joint Committee on Actuarial Diversity	2006 - Present
	AAA Medical Professional Liability Committee	2012 - Present
	CAS Examination Committee	2007 - 2011
	Treasurer, IABA	2003 - 2006
	President, IABA Foundation	2004 - 2007
APPOINTED ACTUARY	Lincoln General Insurance Company	2010 - 2012

PROFESSIONAL PRESENTATIONS

Numerous presentations at educational seminars and professional conferences conducted by a variety of organizations including Temple University, Howard University and IABA on topics including medical professional liability, workers' compensation and credit score utilization in personal automobile insurance

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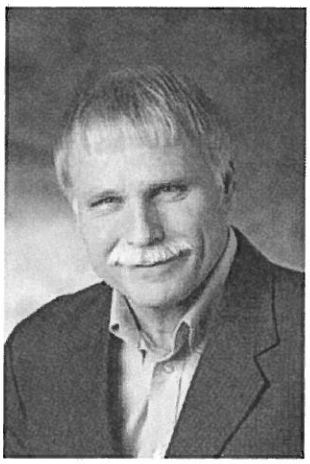

John E. Wade
ACAS, MAAA
Senior Consulting Actuary

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Focus
Primary Insurance Companies
State and Municipal Funds
Regulatory Support

Education
Ball State University
B. S. Actuarial Science
M. A. Actuarial Science

Certifications
Associate of the Casualty Actuarial Society (ACAS)

Member of American Academy of Actuaries (MAAA)

Professional Experience

John Wade is a Senior Consulting Actuary with Pinnacle Actuarial Resources, Inc., in the Indianapolis, Indiana office and has been providing actuarial consulting services since 1994. His practice is concentrated in providing loss reserving and funding studies for a wide variety of entities – both traditional insurance companies and alternative market entities. Mr. Wade's areas of focus include primary insurance companies, state and municipal funds, and regulatory support.

His skill set includes loss reserving and rating for most lines of business, hands-on interaction with regulators, and project management. Mr. Wade is an Associate of the Casualty Actuarial Society (ACAS) and a Member of the American Academy of Actuaries (MAAA). He also serves on the Casualty Actuarial Society Committee on Professionalism Education as well as on the Emerging Issues Task Force of the Casualty Practice Council of the American Academy of Actuaries. Mr. Wade has spoken at several industry events. He has actively mentored college actuarial students as well as young actuarial candidates already in the professional work force.

Engagement Experience

- Served as the Appointed Actuary to five domestic insurance companies, supported the reserve analysis of dozens more
- Worked directly with multiple State Insurance Departments in the review of rate filings and/or financial examinations
- Served a dozen state funds as the lead actuary in their reserve analysis and funding needs
- Served as an in-house consultant at various companies, complementing internal actuarial operations
- Provided training to client companies' actuarial students
- Conducted numerous rate indications and prepared supporting filing materials

Presentations

- "What is Professionalism?" Casualty Loss Reserve Seminar, 2011
- "Interactive Mock Trial Professionalism Session," Casualty Actuarial Society, 2011
- "Do We Have Enough Money? – an Actuarial Perspective," National Tanks Conference & Expo, 2010
- "Do You Know the Rules of the Actuarial Professionalism Road?," Casualty Actuarial Society, 2010
- Faculty Course on Professionalism, Casualty Actuarial Society, 2009-11
- "Ethical Case Studies from the Course on Professionalism," Casualty Loss Reserve Seminar, 2009
- "ASOP Fables, Real World Usage of the Actuarial Standards of Practice," Casualty Actuarial Society, 2008
- "Making an Actuarially Sound Rate Filing," Pinnacle Apex Webinar, 2008
- Loss Reserve Training Seminar, Indiana Department of Insurance, 2005
- "Role of the Consulting Actuary," Society of Insurance Research, 2004

CURRICULUM VITAE

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e-mail: jwade@pinnacleactuaries.com

EDUCATION

BALL STATE UNIVERSITY
- Bachelor of Science — 1977
  - Major: Actuarial Science
  - Minor: Economics
- Master of Arts — 1979
  - Major: Actuarial Science

CONTINUING EDUCATION

Attendance at CAS semi-annual meetings and various ratemaking and loss reserving seminars

Estimated study time exceeding 4,000 hours necessary for completion of qualifying exams for membership in the Casualty Actuarial Society (CAS)

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Casualty Actuarial Society (CAS)
- Associate Member — 2002

American Academy of Actuaries (AAA) — 2002

EMPLOYMENT HISTORY

State Farm Mutual Automobile Insurance
- Actuarial Analyst — 1978 - 1984

Indiana Farm Bureau Insurance
- Actuarial Department Manager — 1984 - 1993

Actuarial Business Consultants, Inc.
- Independent Consulting Firm, President — 1993 - 1997

Miller, Herbers, Lehmann, & Associates, Inc.
- Consultant — 1997 - 2002

Pinnacle Actuarial Resources, Inc.
- Senior Consultant — 2003 - Present

PROFESSIONAL ACTIVITIES

CAS Membership Advisory Panel Committee	2003 - 2008
CAS Committee on Professionalism Education	2008 - Present
AAA Emerging Issues Task Force (P&C)	2008 - Present

PROFESSIONAL PRESENTATIONS

"Role of the Consulting Actuary"
Society of Insurance Research, 2004
Loss Reserve Training Seminar
Presented to the Indiana Department of Insurance, Financial Services Division, 2005
"Making an Actuarially Sound Rate Filing"
Pinnacle Actuarial Resources, Inc. Apex Webinar series, 2008
"ASOP Fables, Real World Usage of the Actuarial Standards of Practice"
Casualty Actuarial Society, Spring 2008
"Ethical Case Studies from the Course on Professionalism"
Casualty Loss Reserve Seminar, 2009
Faculty, Course on Professionalism
Casualty Actuarial Society, 2009, 2010, 2011
"Do You Know the Rules of the Actuarial Professionalism Road?"
Casualty Actuarial Society, Spring 2010 meeting
"Do We Have Enough Money? - An Actuarial Perspective"
National Tanks Conference & Expo, September 2010
"Interactive Mock Trial Professionalism Session"
Casualty Actuarial Society, Spring 2011
"What is Professionalism?"
Casualty Loss Reserve Seminar, 2011

SIGNIFICANT ASSIGNMENTS

Serve as the Consulting Actuary to the Indiana Department of Insurance, Reviewing Property and Casualty Rate Filings	2005 - 2011
Serve various state insurance departments and state agencies providing financial examination support and funding analyses	2006 - Present
Serve as appointed actuary to two insurance companies	2006 - Present

Significant exposure to state Second Injury Funds reserve analyses

Significant exposure to state Petroleum Storage Tank Funds, funding and reserve analyses

Significant exposure to state Mine Subsidence Insurance Funds, rating and reserve analyses

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ACTUARIAL RESOURCES, INC.

Pinnacle Actuarial Resources, Inc.
Peer Review Procedures and Requirements

August 2012

Peer Review Procedures and Requirements
Table of Contents

Attachments

Pinnacle Actuarial Resources, Inc.
Peer Review Procedures and Requirements

I. Purpose of Peer Review

The purposes of peer review are to:

- confirm the actuary is qualified to perform the work he/she has undertaken;
- maximize the quality and comprehension of our work product and add value in the process;
- minimize the Firm's exposure to claims of professional liability;
- assure that all work products adhere to professional standards;
- assure the work product is free of errors, readable and is documented consistent with the requirements of ASOP 41; and,
- provide a process whereby more senior staff members provide guidance and mentoring to others in the firm regarding the actuarial work product.

A system of peer review is the compliance tool we use to assure that actuarial services have been provided with skill and care and that the objectives listed above are achieved.

The peer review system is intended to foster the maintenance of high professional standards and practices consistently applied to the Firm's assignments. Thus, the review should not be considered perfunctory, even in cases of the most routine or straightforward assignments.

II. Structure – Responsibilities & Expectations

The peer review structure has many forms and varies depending on the nature of the work being performed.

Billable Work

For billable work, it is the responsibility of the Account Executive (AE) to plan for and arrange for peer review. This task should not be delegated to the Project Manager and the process should involve advance planning. This includes making sure that technical review is performed prior to peer review, or that the peer reviewer is aware of any changes resulting from technical review. The relationship between the AE and peer reviewer throughout the project is also described in the current version of Pinnacle's Account Executive Guidelines.

The AE should provide background, often including the engagement letter or statement of work, and discuss any special client or analysis circumstances with the peer reviewer. After receiving the peer review comments, the AE should make sure that all peer review comments have been incorporated or refuted and that evidence of peer review is maintained in the client file.

Ideally the peer review will take place 1-2 days prior to the due date of the work product to allow time for changes that may be suggested by the peer reviewer. In all instances, avoid the temptation to ask for peer review at the last minute as such an approach will raise tension and decrease the effectiveness of peer review.

Besides reports, the peer review should involve communications conveying results, board meeting presentations, and presentations of draft results.

Non-Billable Work

For non-billable work, it is the responsibility of the Project Manager / Consultant to arrange for peer review. All such non-billable work that will be used by others or read by others must be peer reviewed. This is particularly important for non-billable work that will have a broad exposure to public scrutiny (e.g. papers, articles, monographs, presentations, webinar materials).

Peer Review Process

There are several Firm policies already in place designed to assist in the peer review process. These include but are not limited to conflict of interest, contract review, file retention guidelines and client acceptance. In addition, templates are readily available providing checklists for applicable Actuarial Standards of Practice.

The peer reviewer reasonably expects to have the following prior to engaging in the review itself:

- a complete document with narrative and all attached exhibits and appendices
- footnotes that are accurate and easy to follow
- a narrative that reads clearly and is consistent with the figures in the exhibits

The peer reviewer should generally provide comments in a written format to the consultant and clearly indicate whether or not the document must be reviewed again before being issued outside the Firm.

The following related points pertaining to peer review should be noted:

- If the work product is not ready for a thorough peer review, the peer reviewer may advise the consultant as to the areas needing work and direct that the work be done before further peer review.

- The peer reviewer may determine that an alternative or additional peer reviewer needs to get involved. The peer reviewer should assist in identifying such a peer reviewer with the help of the Professional Standards Officer (PSO – described in more detail on following page). A peer reviewer should not ask to be replaced simply because of a disagreement with the consultant.

- Consider whether the work product or results have a more sensitive nature (e.g., assignment evolves into expert witness work; reserve indications have deteriorated markedly from our prior work; any result that may surprise a client). If so, give extra consideration to all aspects of the project, including the scope of project, billing status, support for methods and assumptions, method of communication of results, and ways to turn "bad news" into an opportunity to assist the client.
- Specifically identify items requiring action, follow-up or response by consultant.

At the completion of a peer review, the account executive/project manager should ask whether the peer reviewer needs to see the client product again before it is sent to the client. If peer review comments are relatively minor, the answer will most likely be no. On the other hand, if major changes result from the peer review, the answer will likely by yes.

If the peer reviewer expects to see the product again before it is sent to the client, this should be made clear to the account executive/project manager. Follow-up by the technical reviewer is based on similar guidelines.

Professional Standards Officer

The peer review process is overseen by the Professional Standards Officer (PSO). The duties of the PSO include:

- Assistance in identifying peer reviewers
- Assist in assessing the sensitivity of peer review and recommending what levels of peer review are needed
- Resolution of disputes between author & peer reviewer
- Routine communications to staff about peer review issues
- Recommend changes to peer review process as needed
- Audit peer review process and provide periodic reports to Board of Directors

If the account executive/project manager and the peer reviewer cannot resolve a point of dispute between them, they should agree on an impartial arbitrator, who may be:

- another consultant who would be qualified to peer review the project, agreed upon by both parties
- the PSO
- another consultant designated by the PSO

Both parties should agree to abide by the conclusion reached by the impartial arbitrator. The PSO is available as a resource to resolve peer review conflicts.

On an annual basis, the PSO shall conduct an audit of the files sufficient to determine the degree of compliance with these peer review requirements and shall submit a written report of the audit findings to the Board of Directors.

III. Levels of Peer Review

The firm uses five distinct levels of peer review, but not all assignments involve all five levels:

Enhanced
Standard
Limited
Technical
Administrative

Most situations will involve a full and complete peer review – designated as **Standard** peer review. The Standard peer review will typically involve:

- Checking some or all of the computations and data summary totals underlying the work product (i.e., Technical Review);
- Evaluating the appropriateness of methodologies employed ;
- Evaluating the reasonableness of assumptions;
- Assuring the work product complies with all pertinent ASOPs;
- Assuring the actuary is qualified to do the work;
- Determining whether the preparing actuary's findings are reasonable and well-supported by the analysis and exhibits;
- Determining whether the work product is reasonably clear and complete, appears consistent with the level of understanding of the intended users, and contains the appropriate disclosures and caveats.

There are some situations that may require an even higher level of scrutiny – **Enhanced** peer review - that will go above and beyond the traditional peer review. These may involve sensitive, litigious, divisive, or highly visible situations, reports that may become publicly available and mergers & acquisitions (M&A). Typically, such Enhanced peer reviews will involve one or more of the Principal's group, Senior Consultants with leadership in the area of practice pertinent to the matter and/or the Managing Principal.

A **Limited** peer review is a review of a work product not subject to the requirements of ASOP 41; a common example would be internal communications.

A **Technical** peer review is an intensive review of the data, formulas, formatting, footnotes and presentation of an actuarial analysis. More detail of the Technical Peer Review Procedures and Guidance is enclosed as Attachment 6.

An **Administrative** peer review focuses on the form and presentation (i.e., grammar, pagination, stylistic standards and so forth) of the actuarial communication.

In the following pages, we will provide guidance on the levels of peer review required in a variety of situations. There are clearly situations where exceptions to this guidance are both permissible and appropriate.

IV. Items Requiring Peer Review

Actuarial Communication is defined in ASOP 41 as "a written, electronic, or oral communication issued by an actuary with respect to actuarial services." All actuarial communications are subject to peer review.

It is also important to recognize that section 3.1 of ASOP 41 specifically states that:

> 3.1 General Requirements for Actuarial Communications—The completion of a specific actuarial engagement or assignment typically requires significant and ongoing communications between the principal and the actuary regarding the following: the scope of the requested work; the methods, assumptions, data, and other information required to complete the work; and the development of the actuarial communication of the actuary's work product. The requirements of this standard should be applied to the cumulative communications with respect to each specific engagement or assignment so that all of the communications, taken together, satisfy this standard even though individual communications may not. (emphasis added)

Items are subject to the specified level of peer review as shown below. See Section III for descriptions of the levels of peer review.

A. Written Correspondence

All substantive correspondence written in a professional capacity from the Firm must be peer reviewed prior to release. Examples of written correspondence include:

- *Client Reports - Standard*

  Documents to be submitted to the client in draft or final forms are to be peer reviewed prior to release to a client. A draft stamp, footnote or watermark are common ways to denote the document or communication is not final. However, releasing a draft does not waive or delay the peer review requirement. Final reports are to be peer reviewed again if there have been changes made to the draft report. Any and all pertinent checklists relating to the ASOPs should be part of the peer review documentation.

- *NAIC Statement of Actuarial Opinion/Actuarial Opinion Summary – Standard or Enhanced*

  Year-end SAO/AOS require a three tier peer review (see Attachment #1) given time constraints at year-end. All SAOs and AOS documents must be peer reviewed by a consultant with specific knowledge of the special requirements, and that consultant must have attended the latest SAO review meeting.

  The special SAO/AOS checklist is a requirement of the peer review process (see Attachment #2) and should be retained in the file documentation for 7 years.

An Enhanced peer review is needed if/when the SAO involves any of the following circumstances:

- anything other than a Reasonable Opinion
- If the company is at or near the Company Action Level RBC (i.e., Surplus <= 2 x Adjusted Capital)
- Company is insolvent

The peer reviewer should pay special attention to disclosures made in the AOS document if the company has had 3 or more years (out of the last 5) with One Year Development to Surplus >= 5%.

- *Other Statement of Actuarial Opinion – Standard or Enhanced*

Formal SAOs are often required of self-insured entities, captives or insurers not subject to NAIC regulations. These must undergo an ASOP 36 peer review (see Attachment 3 for checklist).

Understand that there are some such entities that are required to file the statutory Annual Statement (i.e., Yellow Book); in such cases the NAIC format is required and the preceding section will apply to the peer review.

The governing documents for non-NAIC SAO peer reviews will be ASOP 36 and specific requirements of the local jurisdiction.

If the review involves a Canadian or Bermudian company, specific language is required in the SAO that must be included by the Appointed Actuary (or designated Loss Reserve Specialist). In many of these situations it is also imperative that the appointed actuary be approved in the applicable domicile.

- *Proposals and Engagement Letters - Standard*

The peer review of proposals and/or engagement letters should review the form and content of the communication. A checklist of the form and content for proposal letters is outlined in Attachment #4

Mention should be made on the expected number of days on site, anticipated attendance at meetings and presentations to management and/or Board of Directors.

To the extent there are changes to the standard terms and conditions, approval must be sought and granted by one of the Principals and documented accordingly. More guidance on issues related to peer review of engagement letters is contained in the current version of Pinnacle's Account Executive Guidelines.

- *Expert Witness Testimony - Enhanced*

  Written testimony must be reviewed by a member of the Principal's group, or other relevant leader in the applicable area of practice. It is desirable to have a peer reviewer present at forums where oral testimony is to be given such as in depositions, hearings and trials. We recognize the logistical concerns about being able to have a peer reviewer present in such instances, but expect a good faith effort to effect such on behalf of the firm. When the peer reviewer cannot be present in a situation, for example a deposition, it is advisable to have the peer reviewer review the written record of these meetings. The additional costs associated with peer review should be contemplated when quoting fees for expert witness services.

- *External Communications – Enhanced*

  All articles, publications, and similar materials intended for broad or general consumption, must be peer reviewed.

  - Articles
  - Professional Papers
  - Monographs
  - Marketing Materials
  - Newsletter
  - Webinars
  - Power Point Presentations – Standard / Enhanced
  - Firm responses to periodic professional issues
  - Actuarial Board of Counseling & Discipline (ABCD)
  - Strategic Partners (e.g., SAS, MSB, ISU Katie School, etc.)
  - Attorneys
  - Contracts (see Contract Review Policy)

  Many other routine external communications do not require a specific peer review but many may warrant a Limited or Administrative review:

  - Invoices
  - Vendors
  - Personnel matters

- *Internal Communications*

  Routine internal communications may need no peer review at all. However, presentations made at internal meetings and firmwide communications should undergo – at a minimum – a Limited peer review. These meetings include:

- Consultant's Meeting
- Analyst's Meeting
- Fall Planning Meeting
- Pinnacle U.
- Lunch & Learn
- Other training sessions

Given that many such communications will involve oral presentations, it may be helpful to have the peer reviewer on hand to provide constructive criticism at a rehearsal prior to the date of presentation.

B. Oral Communications

When practical, obtain prior peer review of phone conversations and meetings. The consultant must decide whether peer review (either prior or post) of oral advice and opinions is necessary. In many cases it may not be practical, or even possible, to have a peer reviewer in such cases. However, even discussing key talking points or strategy prior to an important call often adds tremendous value and improves the quality of the consulting advice Pinnacle's customers receive.

Peer review of substantive oral advice may, in certain circumstances, require the presence of a second consultant. When peer review of oral advice is not provided by the presence of a second consultant, there must be a peer review of subsequent written confirmation of the advice which should be present in the client file.

- Proposal Presentations - Standard

- Depositions / Litigation Conferences - Enhanced

  Depending upon the nature of the issues, the presence of a second consultant may be necessary for testimony as an expert witness, either at hearings or depositions. Alternately, a review of the court records may be the only viable course of review.

C. Electronic Communications

The Firm often provides file attachments in an electronic format when conveying actuarial findings. In order to protect the work product and reputation of the Firm, an Administrative peer review, in addition to the otherwise indicated peer review, is required for the electronic form of the work product before being sent outside the firm. The file attachments may take several forms.

- Adobe (PDF) Format

  The Administrative review will:

  - Assure the electronic copy is in the same format as the hard copy
  - Assure the document is machine readable
  - Protect the file to restrict changes to the document
  - Protect electronic signatures from being copied
  - Replace readable format pages with scanned pages (as needed)
  - Add footnotes or copyright (as needed)
  - Assist in reducing file size and increasing clarity of the pdfs
  - Modify file properties to increase search optimization features

- Microsoft WORD Format

  The Administrative review will

  - Assure proper pagination and formatting
  - Assure Table of Contents is accurate and complete
  - Assure all exhibits and appendices are in proper order and consistent with the Index of Exhibits and Index of Appendices
  - Remove electronic signatures
  - Add the following footnote for SAO/AOS:

  The electronic version of this document was released with no security features as per the NAIC requirements. Pinnacle Actuarial Resources, Inc. is not responsible for any additions, deletions or modifications made to this document after its release.

  - Add the following footnote for other documents:

  The electronic version of this document was released with limited security features. Pinnacle Actuarial Resources, Inc. is not responsible for any additions, deletions or modifications made to this document after its release.

- *Excel Spreadsheets*

In certain instances, we will share electronic spreadsheets with outside parties. These spreadsheets may or may not include functionality. Examples include:

- simple loss projections with all values hard-coded
- IBNR calculators with limited functionality
- Renewal loss fund projections with somewhat more functionality
- Competitive analysis with rating engines and more extensive functionality

Since the firm's core business is consulting – rather than software development – special review procedures are needed when such electronic spreadsheets are provided outside the firm. The primary concern is to **prevent the misuse of our work product**.

Spreadsheets can be categorized into those with functionality and those without functionality. The latter can be sent outside the firm with fairly few disclaimers. However, spreadsheets with functionality will involve more extensive disclosures and disclaimers. Standard examples of such are included in Attachment 8.

- *Email*

Any e-mail that conveys actuarial findings should undergo Standard peer review consistent with the qualifications of ASOP 41 section 3.1 noted above. A good practice for e-mail documentation is to add the phrase "all reliances and limitations outlined in our prior report dated ____ apply equally well to this communication," or words to that effect.

- *Social Media*

    - On behalf of Pinnacle - Enhanced
    - Actuarial Communication - Standard
    - Other Professional Communications – Standard

Employees using social media for personal communications should be guided by the firm's Social Media policy.

D. Joint Projects

Peer review requirements are not waived on joint projects with other firms. Components of the project and any references to or uses of Pinnacle's work elsewhere in the overall work product are subject to peer review standards of the firm. It would be beneficial for consultants to review the entire work product, even those sections outside of our area of expertise, for reasonableness and consistency.

E. Two Answer Situations

The firm will avoid any and all two answer situations as a *de facto* conflict of interest. Such two answer situations include, but are not limited to:

M&A - buyer vs. seller
M&A - two buyers
Rate filings Insurance department vs. insurance company
Two different states
Two filers in same state
Any other potential "two answer" situation

F. Predictive Analytics

Due to the differing nature and development platforms of the predictive analytics data preparation, modeling and implementation processes, a separate section was created to discuss peer and technical review for these projects. One key philosophical difference between predictive analytics projects and other traditional actuarial work worth noting is that the individual peer reviewing decisions made on a predictive analytics project may be involved in other aspects of the project as well. The level of familiarity and understanding often involved in data element breakdowns and relationships in addition to the limited personnel resources currently qualified to peer review such decisions make this a necessary concession at this point in time. Details are provided in Attachment 7.

V. Choosing a Peer Reviewer

A peer reviewer is someone who is qualified to perform the peer review assignment. When deciding between/among potential peer reviewers, the first choice should always be the person with the greater expertise in the type of work being reviewed.

Enhanced peer reviewers are generally members of the Principal's group or senior consultants with specific expertise in the area of practice involved in the matter. In certain instances, the Executive Director may perform such a review.

Standard peer reviewers are generally consultants, senior consultants and/or a member of the Principal's group.

Limited peer reviewers are generally consultants but may involve others.

Administrative peer reviewers are generally members of the administrative staff.

1. Specialty Knowledge

Certain projects require a peer reviewer with expertise in the specific area being addressed, as opposed to general expertise. Consider that construction defect (CD) type exposure, asbestos & environmental (A&E) claims and professional liability type claims have unique characteristics and often vary considerably from one jurisdiction to another.

This is either because of the sensitivity and/or professional liability exposure of the type of assignment, the complex or technical nature of the work, or the desire to have consistent answers (and work quality) in certain industry segments. On the actuarial side, in particular, it is necessary to ensure that assumptions conform to specialty standards or that deviating assumptions are well supported. In the cases where all knowledgeable consultants in a specialty area are already involved in the project, or the specialty consists of a "sole practitioner," a consultant not involved in the project but familiar with the scope of work being performed should review the work for reasonableness. The PSO can assist in peer review selection in such cases.

Whenever there is a question regarding the appropriateness of a peer reviewer for a particular assignment, contact the PSO.

2. Limitations

To minimize bias in the peer review process, the peer reviewer should not have been involved in the project previously other than in the role of peer review. An exception may be made for a former account executive that has recently handed off the responsibilities. This does not preclude keeping the peer reviewer notified as to the project status and the general methodology and assumptions to be used. In fact, the peer reviewer is ideally assigned in the proposal process or when the project is received.

The independence of the consultant and the peer reviewer is a key criterion in the selection of a peer reviewer.

Timing is often problematic in choosing a peer reviewer when there has been no advance planning. Plan ahead and choose the peer reviewer at the outset of the assignment, not at the end. Provide proper notice to the peer reviewer as to the timing of his/her involvement. Insufficient planning and execution is no excuse for not having a proper peer review conducted on every assignment.

If the project at hand is an update of work done in prior years, it is desirable to periodically rotate the peer reviewer on that particular project. There should be a balance between the efficiency gained through repeat peer reviews and the added value of an independent peer reviewer each year.

Index of Attachments

Attachment	*Description*
1	Year-end SAO Peer Review Procedures
2	NAIC SAO/AOS Checklist
3	ASOP Checklists a. ASOP 43 b. ASOP 36 c. ASOP 41 (to be completed)
4	Proposal Checklist
5	Report Checklist
6	Technical Review Checklist
7	Predictive Analytics Peer and Technical Review
8	Outside Distribution of Excel Spreadsheet

Year-End Statements of Actuarial Opinion
Peer Review Procedures

Problem: Report in support of the SAO and AOS is typically not completed until March or April, but SAO is due by March 1 and AOS is due March 15

Solution: 3 tier peer review
- indicated reserves prior to issuing SAO - send updated exhibits and copy of last year's narrative and/or outline of new issues, lines of business, etc. in current year to peer reviewer
- SAO is peer reviewed separately via Supplemental Peer Review Checklist
- Report in support of SAO and AOS is peer reviewed when completed

Timeline: Identify peer reviewer in advance in order to plan ahead

Indicated reserves (both D&A and net) must be peer reviewed prior to issuing the SAO (current year exhibits and prior year text). Should include UPR for long duration contracts, extended reporting reserves and any other items within the scope of the SAO

Annual Statement pages are provided mid February, triggering the calculation of Sch P reconciliation, Sch F ratings, IRIS tests, uncollectible rein., etc.

SAO is prepared and must be peer reviewed using the special SAO checklist

SAO is prepared and delivered by March 1
AOS is prepared and delivered by March 15

Report in support of SAO and AOS is prepared and delivered by May 1

2011 Statement of Actuarial Opinion - Supplemental Peer Review Checklist

Company: _____

Yes	No	n/a		Reference: Practice Note	Reference: ASOP 36 Section
			Applicabilty of ASOP 36		
			Does ASOP 36 apply to this SAO?		1.2
			Written Statement of actuarial opinion with respect to property/casualty loss and LAE reserves of reins. companies and other p/c risk financing systems, such as self-insurance, that provide simliar coverages under one of the following circumstances. Check one that applies:		
			- the SAO is prepared to comply with NAIC Property and Casualty Annual Statement Instructions, or		1.2
			- the SAO is otherwise prescribed by law or regulation, or		1.2
			- the SAO is represented by actuary as being in compliance with this standard		1.2
			Disclose "Statement of Actuarial Opinion" in the title of written opinion?		4.1a
			IDENTIFICATION		
			a) Identify name, affiliation, relationship, credentials, "in good standing", meet qualification standard	13	
			b) Board appointment date	14	
			SCOPE		
			a) Mention reserves listed in Exhibit A	14	
			b) Identify type of LAE covered by reserve (e.g., coverage disputes, defense, adjusting, etc.)		3.4.e
			c) Mention loss reserve Disclosure Items 8-13 in Exhibit B	15	
			d) Disclosure of person relied upon for data (by name)	15	
			e) Evaluate data for reasonableness and consistency	15	1
			f) Disclose reconciliation to Sch P	15	
			g) Treatment of Pooling Arrangements	13-14	
			OPINION		
			a) meet requirements of state of domicile.	16	
			b) are (consistent with reserves) computed in accordance with accepted actuarial standards	16	
			c) make a reasonable provision	16	
			d) mention long duration contracts in opinion	16	
			e) Disclosure if you made use of another actuary's work?	17, 19	
			h) Was there use of another actuary's work?		3.7
			- If Yes to above:		
			- Was the other actuary's work reviewed? And determined to be reasonable?		3.7.2
			- Was the other actuary's work not reasonable and separate analysis completed?		3.7.2
			f) Disclose use of analysis/opinion of another not within the control of actuary for material portion of reserves		4.2f
			- If Yes to above:		
			- Disclose whether actuary reviewed the others' underlying analysis		4.2f
			- Disclose extent of review including methods/assumptions and underlying arithmetic		4.2f
			g) State specifically - upfront in paragraph -- which type of Opinion applies	17	3.11
			Circle the one that applies Reasonable Deficient/ Inadequate Redundant/ Excessive Qualified No Opinion		
			h) If reserves are deficient/inadequate, disclose the minimum amount believed reasonable		4.2b
			i) If reserves are redundant/excessive, disclose the maximum amount believed reasonable		4.2c
			j) If Qualified Opinion, disclose items to which the qualification relates		4.2d
			- Disclose whether reserves make a reasonable provision for reserves in scope, except items to which qualification apply		4.2d
			k) disclosure that opinion applies to total loss and LAE, or other items combined or separately	17	3.5b
			RELEVANT COMMENTS		
			a) Identify intended purpose of SAO	20, 91	3.2, 4.1c
			b) Identify intended users of SAO	20, 91	3.2, 4.1b
			c) Identify reserves being opined upon		3.3.a., 4.1d
			d) Identify accounting date		3.3.b
			e) Identify applicable accounting standards (i.e., Stat, GAAP, IFRS, etc.)		3.3.c
			f) RMAD paragraph included	20, 91	4.2e
			- Disclose materiality threshold	20, 91	4.2e
			- Clear disclose as to whether there is a significant risk of material adverse deviation (RMAD)	20, 91	4.2e
			- If Yes, disclose major risk factors faced by company	20	4.2e
			- Disclosure of basis/rationale for actuary's choice of materiality standard	20-21, 91	
			g) Other Disclosures in Exh. B paragraph included (individual impact & in combination)	20	
			- Anticipated net salv/sub recoveries	24	
			- Discounting - identify whether stated reserves are nominal or discounted	24	3.4.a
			- Identify items discounted (e.g., IBNR only, tabular, etc.)		3.4.a
			- Identify basis for interest rate in discount calc (e.g., portfolio, risk-free, etc.)		3.4.a
			- Reserves for pools/associations	24-25	

2011 Statement of Actuarial Opinion - Supplemental Peer Review Checklist

Company: _____

Yes	No	n/a		Reference: Practice Note	Reference: ASOP 36 Section
			g) - A&E reserves & Mass Torts	25-27	
			- Extended reporting reserve (losses v unearned premium)	27	
			Did SAO rely on Present Values?		4.2g
			- If Yes to above and actuary judges such to have a material effect on results of evaluation:		
			- Disclose that PV were used in forming opinion		4.2g
			- Disclose interest rate(s) used by actuary		4.2g
			- Disclose monetary amount of discount reflected in reserve amount		4.2g
			h) Identify whether reserves include risk margin		3.4.b
			- If yes disclose basis of risk margin (i.e., percentile, load above mean, etc.)		3.4.b
			i) Identify whether reserves are gross or net of specified recoverables		3.4.c
			- Identify line in financial statement related to reserves being opinioned upon, if applicable		optional
			- Identify specified recoverables (i.e., ceded reinsurance, deductibles, salv/subro, etc.)		3.4.c
			- Identify whether uncollectible recoverables are considered		3.4.d
			- Identify when uncollectible recoverables are involved		3.4.d
			- Identify categories of uncollectible recoverables considered		3.4.d
			j) Reinsurance paragraph included	28	
			- Disclose retroactive reinsurance	28-29	
			- Disclose any loss portfolio transfers or financial rein effected in 2011	29	
			- Disclose potential reinsurance collectibility problems or problem reinsurers	30	4.2h
			- Identify whether concerns about these uncollectible recoverables are based on currently known and/or potential ultimate collectibility concerns		3.4.d
			- Disclose review of reinsurer ratings by A M Best	30	
			- Disclose review of Sch F for indications of regulatory activity or recoverables on paid losses over 90 days past due	20	
			- Disclose findings in reinsurance supplement	28	
			k) IRIS Ratios paragraph included	31	1
			- Disclose results of IRIS tests based on reserves	31	
			- Relevant comments on factors that led to unusual values	31	
			- Check of calculations of test results	31	
			l) Methods and Assumptions paragraph included	23	
			- Disclose significant changes in methods/assumptions	23	4.2
			- If not able to review prior actuaries work, disclose prior assumptions, procedures and methods are unkno		4.2a
			- Disclose impact of changes in methods/assumptions		
			- Disclose whether any material assumption or method was prescribed by law		4.1h
			- Disclose whether reliance on other source and/or disclaims responsibility for material assumption		4.1i
			m) Prepaid Loss Adjustment Expenses appropriately addressed - if relevant		91
			Instruction 7		
			a) - Disclose availability of actuarial report		
			b) - Disclose workpapers supporting Opinion will be maintained for 7 years	32	
			More Discolsures	32	
			c) Identify review date, if different from date the SAO is signed		3.5a
			d) disclosure any other item needed to describe scope of review		3.5c
			SIGNATURE BLOCK		
			a) Date included	34	
			b) Original signature	34	
			c) Printed name, company affiliation, address, phone #, e-mail	34	
			GENERAL		3.3.2d
			a) Was opinion qualified due to material amounts not within scope?		
			if "Yes" to a), identify claims exposure covered by SAO (i.e., LOB, AY, state, etc.)?		3.4.f
			b) Was Letter of Representation obtained?	Pinnacle Requirement	
			c) If first time opinion, was actuary able to review prior actuary's work product?	General Suggestion	
			d) Was an electronic version of opinion provided to client?	34	
			e) Disclose material deviation from ASOP 36		4.1j
			i) Form/content specified by regulators followed in this SAO?		4.2i
			j) Opining actuary has knowledge to comply with specific requirements of the laws or regulations.		3.1

Peer Reviewed by:	*Initials*	*Date*

2011 Statement of Actuarial Opinion - Supplemental Peer Review Checklist

Company: _____

Yes	No	n/a		Reference: Practice Note	Reference: ASOP 36 Section
☐	☐	☐	**Exh A and B included and updated for changes (see page 2)**		
			Exhibit A		
☐	☐	☐	Disclose Loss Reserves		
☐	☐	☐	1. Net Unpaid Loss		35
☐	☐	☐	2. Net Unpaid LAE		35
☐	☐	☐	3. D&A Unpaid Loss		35
☐	☐	☐	4. D&A Unpaid LAE		35
☐	☐	☐	5. Reserve for Retroactive Reinsurance		35
☐	☐	☐	6. Other Loss Reserve Items		35
			Disclose Premium Reserves		
☐	☐	☐	7. D&A UPR for long duration contracts		35
☐	☐	☐	8. Net UPR for long duration contracts		35
☐	☐	☐	9. Other premium reserves (list separately)		35
☐			**Exhibit B**		
☐	☐	☐	1. Name of Appointed Actuary		36
☐	☐	☐	2. Appointed Actuary's Relationship with Company (E/C)		36
☐	☐	☐	3. Appointed Actuary's Qualification (FAMO)		36
☐	☐	☐	4. Type of Opinion (RIEQN)		36
☐	☐	☐	5. Materiality Standard		36
☐	☐	☐	6. RMAD (Yes/No/N/A) Note: N/A only applicable to Pools		36
☐	☐	☐	7. Statutory Surplus		36
☐	☐	☐	8. Anticipated net salvage/subro recoveries		36
☐	☐	☐	9. Discounting of loss reserves		36
☐	☐	☐	10. Net reserves for residual markets, pools, underwriting associations		36
☐	☐	☐	11. Net reserves for asbestos and EIL		37
☐	☐	☐	12. Total CM extended reporting reserves per Sch P Interrogatories		37
☐	☐	☐	13. Other Items		37
			Actuarial Opinion Summary (AOS)		
☐	☐	☐	AOS issued as separate document with letter		39
☐	☐	☐	1 Range - net and gross		40-43
☐	☐	☐	2 Point estimate - net and gross		40-43
☐	☐	☐	3 Company recorded reserve - net and gross		40-43
☐	☐	☐	4 Difference between recorded and point/range		40-43
☐	☐	☐	5 Description of reserve elements or major contributory management decisions where one-yr reserve dev't exceeded 5% of surplus (Sch P, Pt 2) in 3 of past 5 cal yrs.		40-43
☐	☐	☐			
			General		
☐	☐	☐	1. Process for change in Appointed Actuary followed		8
☐	☐	☐	2. AA sufficiently aware of background & disclosure on RX to provide informed opinion on net reserves		General Suggestion
☐	☐	☐	3. Does Actuarial Report compare AA conclusions to carried reserves (net and gross).		General Suggestion

Note: RX = risk transfer

Peer Reviewed by:

Initials *Date*

ASOP 43 - Unpaid Claim Estimates - Supplemental Peer Review Checklist

Attachment 3a

Company: _____

Yes	No	n/a		ASOP 43 Section Reference
☐	☐	☐	Principal is identified	2.9
☐	☐	☐	Intended purpose or use is identified	3.1, 4.1
☐	☐	☐	Are multiple purposes or uses intended?	3.1
☐	☐	☐	- If yes, were potential conflicts and adjustments considered?	3.1
☐	☐	☐	Acknowledge any data, staff or time constraints	3.2, 4.1
☐	☐	☐	Type of measure is disclosed and described ☐ Actuarial Central Estimate ☐ Discounted? ☐ Range ☐ Interest Rate If a range, disclose basis ☐ Other ☐ Risk Margin	3.3 a , 4.1 c 4.2 a
☐	☐	☐	☐ Gross ☐ Net of specified recoverables	3.3 b
☐	☐	☐	- If yes, is collectibility risk considered?	3.3 c
☐	☐	☐	Type of unpaid claim expense covered in estimate is identified	3.3 d
☐	☐	☐	Claims to be covered by unpaid claim estimate are adequately described	3.3 e
☐	☐	☐	Risks posing a material effect disclosed	3.4
☐	☐	☐	Methods or models are appropriate and clearly documented	3.6.1
☐	☐	☐	If only one method is used for a material component, disclosure and discussion of rationale for such is included	3.6.1
☐	☐	☐	Assumptions are appropriate, unbiased, internally consistent and documented	3.6.2
☐	☐	☐	If estimates were calculated using principal's (client) assumptions, disclosure is made.	3.6.2
☐	☐	☐	Sensitivity to alternate assumptions considered and disclosed if material	3.6.2, 4.1 f
☐	☐	☐	Relevant known external factors are appropriately considered	3.6.6
☐	☐	☐	Significant changes in conditions considered ☐ Supporting evidence for management representations obtained? ☐ Reliance on management representations? ☐ Were representations reasonable?	3.6.7
☐	☐	☐	Elements of uncertainty considered	3.6.8
☐	☐	☐	If uncertainty is measured, consideration given to independence or correlation between components of reserve estimates.	3.6.8
☐	☐	☐	Relevant dates are clearly disclosed ☐ Accounting date ☐ Valuation date ☐ Review date	4.1 d
☐	☐	☐	Specific significant risks and uncertainties, if any, disclosed	4.1 e
☐	☐	☐	If an updated analysis, changes in methods and assumptions having a material impact are disclosed.	4.2 b
☐	☐	☐	Deviation from ASOP 43 disclosed NOTE: ANY DEVIATION FROM STANDARD MUST BE DISCUSSED WITH THE PEER REVIEW OFFICER	4.4

Peer Reviewed by: Date

Effective Date: 4/15/2009 Edition Date: 4/6/2009

Statement of Actuarial Opinion - ASOP 36 Peer Review Checklist

Company: _____

Yes	No	n/a		ASOP 36 Section Reference
			1. Applicabilty of ASOP 36	
			a) Does ASOP 36 apply to this SAO?	1.2
			Written Statement of actuarial opinion with respect to property/casualty loss and loss adjustment expense reserves of reinsurance companies and other property/casulaty risk financing systems, such as self-insurance, that provide simliar coverages under one of the following circumstances. Check one that applies:	
			- the statement of actuarial opinion is prepared to comply with NAIC Property and Casualty Annual Statement Instructions, or	1.2
			- the statement of actuarial opinion is otherwise prescribed by law or regulation, or	1.2
			- the statement of actuarial opinion is represented by actuary as being in compliance with this standard	1.2
			2. Intended Purpose & Users	Section
			a) Identify intended purpose of SAO	3.2, 4.1c
			b) Identify intended users of SAO	3.2, 4.1b
			3. Reserves Being Opined Upon	
			a) Identify reserves being opined upon	3.3.a., 4.1d
			b) Identify accounting date	3.3.b
			c) Identify applicable accounting standards (i.e., Stat, GAAP, IFRS, etc.)	3.3.c
			4. Stated Basis of Reserve Presentation	4.1e
			a) Identify whether stated reserves are nominal or discounted	3.4.a
			- Identify items discounted (e.g., IBNR only, tabular, etc.)	3.4.a
			- Identify basis for interest rate in discount calc (e.g., portfolio, risk-free, etc.)	3.4.a
			b) Identify whether reserves include risk margin	3.4.b
			- If yes disclose basis of risk margin (i.e., percentile, load above mean, etc.)	3.4.b
			c) Identify whether reserves are gross or net of specified recoverables	3.4.c
			- Identify line in financial statement related to reserves being opinioned upon, if applicable	optional
			- Identify specified recoverables (i.e., ceded reinsurance, deductibles, salv/subro, etc.)	3.4.c
			- Identify whether uncollectible recoverables are considered	3.4.d
			- Identify when uncollectible recoverables are involved	3.4.d
			- Identify categories of uncollectible recoverables considered	3.4.d
			d) Identify whether concerns about these uncollectible recoverables are based on currently known and/or potential ultimate collectibility concerns	3.4.d
			e) Identify type of LAE covered by reserve (e.g., coverage disputes, defense, adjusting, etc.)	3.4.e
			f) Identify claims exposure covered when SAO covers only a portion of reserve (i.e., LOB, AY, state, etc.)	3.4.f
			g) Identify any other items needed to describe reserves sufficiently	3.4.g
			h) Was there use of another actuary's work?	3.7
			- If Yes to above:	
			- Was the other actuary's work reviewed? And determined to be reasonable?	3.7.2
			- Was the other actuary's work not reasonable and separate analysis completed?	3.7.2

Statement of Actuarial Opinion - ASOP 36 Peer Review Checklist

Company: _____

Yes	No	n/a		ASOP 36 Section Reference
			5. Scope of Analysis	4.1f
			a) Identify review date, if different from date the SAO is signed	3.5a
			b) disclosure that opinion applies to total loss and LAE, or other items combined or separately	3.5b
			c) disclosure any other item needed to describe scope of review	3.5c
			6. Opinion	4.1g
			a) State specifically - upfront in paragraph -- which type of Opinion applies	3.11
			Circle the one that applies: Reasonable / Deficient/ Inadequate / Redundant/ Excessive / Qualified / No Opinion	
			7. Communications and Disclosures	
			a) Disclose "Statement of Actuarial Opinion" in the title of written opinion?	4.1a
			b) Disclose whether any material assumption or method was prescribed by law	4.1h
			c) Disclose whether reliance on other source and/or disclaims responsibility for material assumption	4.1i
			d) Disclose material deviation from ASOP 36	4.1j
			8. Additional Disclosures	
			a) Disclose nature of changes in assumptions, procedures or methods since prior opinion	4.2a
			- If not able to review prior actuaries work, disclose prior assumptions, procedures and methods are unknown	4.2a
			b) If reserves are deficient/inadequate, disclose the minimum amount believed reasonable	4.2b
			c) If reserves are redundant/excessive, disclose the maximum amount believed reasonable	4.2c
			d) If Qualified Opinion, disclose items to which the qualification relates	4.2d
			- Disclose whether reserves make a reasonable provision for reserves in scope, except items to which qualification apply	4.2d
			e) Significant risks/uncertainty that could result in material adverse disclosed	4.2e
			- If Yes to above:	
			- Was RMAD paragraph included?	4.2e
			- Disclose amount of adverse deviation judged to be material	4.2e
			- Disclose major factors / conditions that could result in material adverse deviation	4.2e
			f) Disclose use of analysis/opinion of another not within the control of actuary for material portion of reserves	4.2f
			- If Yes to above:	
			- Disclose whether actuary reviewed the others' underlying analysis	4.2f
			- Disclose extent of review including methods/assumptions and underlying arithmetic	4.2f
			g) Did SAO rely on Present Values?	4.2g
			- If Yes to above and actuary judges such to have a material effect on results of evaluation:	
			- Disclose that PV were used in forming opinion	4.2g
			- Disclose interest rate(s) used by actuary	4.2g
			- Disclose monetary amount of discount reflected in reserve amount	4.2g
			h) If ceded rein is material, comment on reinsurance collectibility included?	4.2h
			i) Form/content specified by regulators followed in this SAO?	4.2i
			j) Opining actuary has knowledge to comply with specific requirements of the laws or regulations.	3.1

Peer Reviewed by: _____ *Initials* _____ *Date* _____

Attachment 3c

ASOP 41 - Actuarial Communications - Supplemental Peer Review Checklist

Company: _____

Yes	No	n/a		ASOP 41 Reference
			Requirements for Actuarial Communications:	
☐	☐	☐	Form & Content are Appropriate for Intended Use	3.1.1
☐	☐	☐	Clarity of Report for Intended Users	3.1.2
			Actuarial Report:	
☐	☐	☐	Actuarial Findings Clearly Stated	3.2
☐	☐	☐	Disclose Methods, Procedures, Assumptions and Data Sources	3.2
☐	☐	☐	Allow Another Qualified Actuary Objectively Appraise for Reasonableness	3.2
			Specific Circumstances:	
☐	☐	☐	Do circumstances exist that constrain including content?	3.3
☐	☐	☐	If so, have circumstances been identified and supported	3.3
☐	☐	☐	Explanation of Material Differences from Prior Report	3.5
			Communications & Disclosures:	
☐	☐	☐	Identification of Responsible Actuary	4.1.1
☐	☐	☐	Identification of Actuarial Documents (Date/Subject in Cover Letter)	4.1.2
☐	☐	☐	Identification of Intended Users (Distribution & Use section)	4.1.3a
☐	☐	☐	Scope/Purpose of Engagement	4.1.3b
☐	☐	☐	Acknowledgement of Qualification	4.1.3c
☐	☐	☐	Cautions Regarding Risk or Uncertainty	3.4.1 & 4.1.3d
☐	☐	☐	Limitations on Use/Applicability of Actuarial Findings	4.1.3e
☐	☐	☐	Conflict of Interest	3.4.2 & 4.1.3f
☐	☐	☐	Reliance on Other Sources for Data/Information	3.4.3 & 4.1.3g
☐	☐	☐	Data/Information Date Identified	3.4.5 & 4.1.3h
☐	☐	☐	Subsequent Events Identified	3.4.6 & 4.1.3i
☐	☐	☐	Disclose Assumptions/Methods Prescribed by Law	4.2
☐	☐	☐	Disclose Responsibility for Assumptions/Methods	3.4.4 & 4.3
☐	☐	☐	Deviation from Standard	4.4
			NOTE: ANY DEVIATION FROM STANDARD MUST BE DISCUSSED WITH THE PEER REVIEW OFFICER	

Peer Reviewed by: _____

Date: _____

Attachment 4

Proposal / Engagement Letter
Peer Review Checklist

1. Scope of Work
2. Background on client's operations
3. Work plan and/or methodology
4. Project team
5. Background on Pinnacle
6. Firm's qualifications
7. Individual qualifications
8. Data requirements
9. Expected reliance on client and/or external data
10. Time table for completion
11. Specific deliverables
12. Expected professional fees and expenses
13. Signature block for acceptance
14. Standard terms & conditions
15. References
16. Biographies and/or Curriculum Vitae

Attachment 5

Report Peer Review Checklist

1. Purpose/Scope appropriate to proposal

2. Distribution & Use and Reliances/Limitations complete

3. Conclusions
   a. address the important issues
   b. conform to scope
   c. adequately supported

4. Methods employed (assumptions/judgments)
   a. reasonable and appropriate
   b. documented and described

5. Text and overall organization and appearance
   a. clear and well-formatted
   b. includes background where necessary
   c. use draft paper/stamp if not final

6. Exhibits/graphs clear and understandable

7. Background checks
   a. conflicts of interest/independence resolved/disclosed
   b. letter of representation, if required
   c. indemnification agreement, if required

Pinnacle Tech Review Procedures and Guidance

This document includes a tech review punch list and general guidance for tech reviews. The punch list is not a checklist that must be followed step by step or "checked off" during a tech review. It is instead a list of common considerations that should being taken into account during all tech reviews.

Following the punch list, is a general guidance section. This section was built on several conversations within the tech review subcommittee and feedback from several employees about the process. It is also where a number of the punch list items are expanded upon and should be referenced for general guidance when performing tech reviews.

Punch List

1. Begin with a specific scope for your tech review.
2. Begin with a completed project.
3. Perform tech review with flow of the exhibits. Typically you should begin in the back.
4. Check links in Edit Links.
5. Check all hardcoded data. Inquire on any unlabeled data (should not be any).
6. If you don't understand something, ASK.
7. Check formulas/footnotes for both consistency and accuracy.
8. Check exhibit numbers, general formatting, and overall presentation.
9. Check for appropriate pro-rating and interpolating, especially with partial years.
10. Check for reasonability of results.
11. Use spell check on headers, titles, footnotes, etc.
12. For full review or presentation review, exhibits should be printed out for review.
13. Document all significant disputes and provide documentation to project manager. Refer to the Dispute section in General Guidance for how to handle unresolved disputes

General Guidance

This section is meant to provide some general guidance on a number of tech review issues raised in the subcommittee. There may be some overlap with the previously discussed punch list, but this section is intended to provide further background and description than what is in the punch list.

Scope – The scope of every tech review should be laid out clearly to the tech reviewer at the onset of the review. The scope should include what specifically needs to be teched, including what data, if any, needs to be teched, and which links, if any, will need to be teched. Some examples of tech review scopes are provided below.

Full Tech Review – This is the most typical type of tech review. It generally is a full tech review of the entire project. It includes, but is not limited to, all formulas, formatting, footnotes, presentation, and the reasonability of the data. It does not include checking the data input unless specifically specified.

Data Check – This is check of all data input or data pulled into the analysis. Ideally, a data check will occur before any type of review of the formulas.

Incremental Tech Review – This tech review is to check updates to specified portions of the analysis. An incremental tech review can be done for a number of reasons, including if the project manager desires to only check the updated portions of an analysis updated from a prior year. For any incremental tech review, the sheets and cells need to be communicated and/or highlighted. Handing an analysis to someone and telling them to "tech the current year" is not specific enough.

Tech review meetings – Meetings to wrap up a tech review are generally a good use of time. Typically these meetings should not take more than 15 minutes of time. If they take more than 30 minutes, there should be reasons why and the project manager should be notified. If a longer meeting is anticipated, keeping the project manager in the loop early on is advised. The tech review should always be 100% complete prior to the meeting to avoid inefficient use of time. A wrap up meeting is not required. Email or electronic notes are acceptable and can sometimes be more appropriate. A secondary check of the file after the tech review updates have been made is not required, but follow up from the setup analyst notifying the tech reviewer that changes have been made is good practice.

Disputes – When there are unresolved disputes, the setup analyst should take the concern to the project manager. The tech reviewer may also take concerns to the project manager if the setup analyst is unavailable or unresponsive. It is good practice for the setup analyst to keep the tech reviewer in the loop when resolving disputes through the project manager.

Splitting out data versus formula reviews – If there is a clear divide, it is generally appropriate to split the data input checking from the formula tech review. Splitting out the two items into separate checks can be beneficial for timelines and to help keep costs low, since the data input checks can often be performed by technical analysts and interns. Obviously, a project needs to be sufficiently big enough before efficiencies can be gained.

Streamlining of files – Many of our files could be streamlined to make tech reviews more efficient and to improve the accuracy of updates. There are several areas where the efficiency of our files could be improved as laid out in the following list.

1. Documentation – All inputs, including those outside of the print range must be documented. This includes benchmarks, which should be documented with what they are and specifically where they come from(i.e. file name and location). A descriptor of "benchmark" is not sufficient.
2. Items out of print range – Items outside of the print range that are not relied upon and not clearly labeled should be removed from the file. It would be good practice for the setup analyst to follow up with the project manager before deleting significant items outside of the print range.
3. Overly complex formulas –Unnecessarily complex formulas introduce or increase opportunities for errors and increase tech review time. When setting up a file, consider

how easy it will be for someone else to follow your work and consider breaking complex formulas into multiple steps when appropriate. It is within the tech reviewer's responsibilities to question the necessity of overly complex formulas. If there is a disagreement, it should be brought to the attention of the project manager. Most importantly, be pragmatic. Don't get cute, silly, too clever, etc.

4. Compute times – Be aware of compute time in files. Consider taking steps to decrease file size or break links if opening or working in a file is too cumbersome. Also consider using the format cleaner for excel.
5. Links – Links make setting up files much simpler but can be overused and neglected. They can also lead to longer compute times and problems when linked files change or files are moved around. Because of this it is good practice to keep links to a minimum. For files with significant data links, the links should be broken after checking and balancing is completed. Obviously, files should then include proper documentation for where the data came from. Generally the only links that should be necessary are links to interacting files and links to large stable benchmark files. It is the duty of the setup analyst to manage links in the file and the tech reviewer should check the links. For files that require indirect formulas for links, a macro to open the required file is often a good idea.
6. Ranges – If ranges are used in a file, the setup analyst should be maintaining the ranges (i.e. keeping an appropriate number and deleting unnecessary ones) and the tech reviewer should be checking them.

Non formulaic errors/ Reasonability Checks – This is a difficult but important discussion item. A non formulaic error is one that is easily missed because the formula may seem correct, but it is being used incorrectly. An example of a non formulaic error is the pro rating of IBNR in the current year. The formula for the current year's IBNR may look correct because it matches the prior years, but it is wrong because it needed to pro rate the ultimate losses.

There is no clear way to be sure a tech reviewer is catching the non formulaic errors, but there are some things to consider. A tech review is not just checking formulas and the reviewer should consider the reasonability of the results the exhibits are producing. The setup analyst and tech reviewer should always take a look at the file from the viewpoint of their customers (the client and the project manager they are giving it to). The tech reviewer needs to seek guidance and ask questions when they don't know something or if anything looks "funny". Also, don't check items against the previous year and accept them as correct if you can't verify it. We have had errors carried over multiple years due to this type of checking. This is also why it is wise to avoid pairing inexperienced setup analysts with inexperienced tech reviewers.

Use of check formulas and tech files – We recognize that there is a clear need for these type of tech reviews (CRI renewals with a large number of members being the most obvious example). We also recognize that at times some reviews can be too time intensive and gloss over significant errors. It is also important to remember that most tech reviews include some sort of check file being used, at least on a temporary basis.

Current Selections – The selections in a worksheet are not typically within the scope of a tech review. They could be included if there are formulaic selections that are specifically outlined in the scope when the tech review is assigned. The tech reviewer should still consider the reasonability of the results given the selections in the analysis.

Predictive Analytics Peer and Technical Review

Due to the differing nature and development platforms of the predictive analytics data preparation, modeling and implementation processes, a separate section was created to discuss peer and technical review for these projects. One key philosophical difference between predictive analytics projects and other traditional actuarial work worth noting is that the individual peer reviewing decisions made on a predictive analytics project may be involved in other aspects of the project as well. The level of familiarity and understanding often involved in data element breakdowns and relationships in addition to the limited personnel resources currently qualified to peer review such decisions make this a necessary concession at this point in time.

Technical Review

Data Import

- Review data formats and variable lengths.

File Joins

- Review order and purpose of joins. Is this a logical way to assemble the data tables?
- Review record counts through joins to ensure they are logical.
- Review variables being joined to ensure all desired variables have been calculated.
- For projects that require joining losses to policy information, review loss tabulation to ensure all losses are being joined and that duplicate records are not being created.

Creating Additional Variables

- For analyses that include policy dates and mid-term transaction, review record effective and expiration date structure.
- Review additional variables created to ensure consistent with expectations.

Mapping

- Review variable levels to ensure all levels have been accounted for appropriately in mapping.
- Review levels to ensure sufficient credibility.

Model Process

- Review data table import, noting especially variable formats and labeling of exposure, claim, incurred losses.
- Review node settings in data partition and modeling nodes.
- If mapping or other data manipulation is done in a SAS node, verify code appropriateness and completeness.

Clustering

- Review data (internal and external)
- Review formulas from Analysis Template (capping, weighting changes, cat adjustments, etc.)
    - Note if original or modified Analysis Template was used.

Peer Review

One-Ways

- While a meeting with the client is set up with the purpose of reviewing the results and reasonability of the one-ways, a peer review of the data distribution of key variables ahead of time will ensure that meeting is optimally productive.

Mapped One-Ways

- Review the bucketing of levels. Note especially the granularity of such variables as age of home, amount of insurance, model year, etc. and any variable where data sparseness may have forced unusual bucketing.
- Review variables which were dropped or should have been dropped due to data sparseness.

Model Process

- Review appropriateness of variables included in final model, both type III results and variable performance.
- Evalute the reason variables were eliminated during the modeling process. Modeler should have tracked whether variable was eliminated due to its type III value, model performance, aliasing, etc.
- Verify no other variables or interactions need to be revisited in the final model or that there should not be other specific variables or interactions included in the final model despite their performance.

Clustering

- Review the use of external data as a compliment of credibility.
- Review capping considerations.
- Review catastrophe adjustments.
- Review smoothing settings used.
- Review selected number of clusters.

Scorecard

- Review variables and selections used in scorecard to ensure they are appropriate and complete.

Implementation

Attachment 8

Outside Distribution of Excel Spreadsheet
Peer Review Checklist

1. Intended Purpose clearly identified

2. Standard disclaimers are disclosed

3. All links to external sources removed

4. Worksheets not involved in Input/Output are hidden

5. Spreadsheets in "Normal View" with adequate print size

6. Common Disclosures

Loss cost projections are based on Pinnacle analysis of data and information supplied by Client/Broker in the underwriting submission. To the extent such information is not accurate and complete, our loss cost projections may need to be revised significantly.

Loss cost projections are provided at retention levels consistent with the entity's net retention.

Pinnacle incorporates significant assumptions regarding anticipated future loss development, changes in statutory benefit levels for WC, expected loss ratios, trend (in both losses and exposures) and weighting by policy period as documented in the footnotes to the exhibits.

Pinnacle is available to answer any questions that may arise regarding these loss projections

Third parties using the information contained in this communication are hereby notified that they can place no reliance on this work product that would in any way create a duty or liability to Pinnacle.

7. Common Disclaimers

The possessor of this spreadsheet and/or accompanying models should be aware that this does not represent the full scope of Pinnacle Actuarial Resources, Inc.'s capabilities.

Pinnacle has developed many customized models for several client insurance companies. These models may include much more detailed analysis than presented herein. The enclosed spreadsheet contains preloaded parameters which may or may not be appropriate for other types of applications not identified in the Intended Use description above.

Pinnacle Actuarial Resources, Inc. and any of its representatives are not responsible for how the

Attachment 8

spreadsheet model is installed and/or used by the user. We are also not responsible for any results and outputs developed and the manner in which these outputs are interpreted.

This software is provided as is, without warranty of any kind, either expressed or implied. This includes, but is not limited to, implied warranties of merchantability and fitness for a particular purpose. You bear the entire risk regarding the performance and quality of this program. Should the software prove defective, you assume the entire cost of all servicing and necessary corrections.

PROPERTY/CASUALTY ACTUARIAL CONSULTING ENGAGEMENT

Our firm has over 500 active clients including insurers of all sizes, state insurance regulators, government insurance programs, captive insurance companies, self-insured entities, municipal pools, and risk retention groups. Following is a list of selected clients:

Mine Reclamation Projects

Kentucky Department for Natural Resources
Ohio Department of Natural Resources
Virginia Department of Mines, Minerals and Energy
West Virginia Department of Environmental Protection

Other Projects

AIK Comp
Allstate Insurance Group
American Family Insurance
American Medical Association
Amerisure Insurance Companies
California Department of Insurance
Central Illinois Regional Airport Authority
Champaign County, IL
City of Chesapeake, VA
City of Detroit, MI
City of Las Cruces, NM
City of Phoenix, AZ
City of Tupelo, MS
Connecticut Department of Insurance
Educational School Insurance Cooperative
Farmers Insurance Group
Florida Association of Counties Trust
Florida Department of Financial Services
GEICO
Governmental Interinsurance Exchange
Hillsborough Area Regional Transit Illinois Public Transit Authority
Illinois State Toll Highway Authority
Indiana Department of Insurance
Kansas City Transit Authority
Kentucky Office of Insurance
Kentucky Transportation Cabinet
Kentucky Underground Storage Tank Fund
Liberty Mutual Insurance Group
Los Angeles Department of Water and Power
Maine Bureau of Insurance
Michigan Division of Insurance
Michigan University Self-Insured Corp.
Midwestern Higher Education Commission
Missouri Department of Insurance
Missouri Workers Compensation Division
Nationwide Insurance Group
New Mexico Public Regulation Commission
New Mexico Patient Compensation Fund
New York State Insurance Department
Ohio Bureau of Workers Compensation
Ohio Casualty Insurance
Ohio Department of Insurance
Oregon Insurance Division
Pennsylvania Department of Environmental Protection
ResCare
SAIF Corporation
Santa Clara Valley Water District
State Farm Insurance Company
Southwest Agency Risk Management
Tennessee Department of Corrections
Tennessee Department of Finance and Administration
Vermont Department of Insurance
Virginia Birth Related Injury Fund
Wisconsin Patient Compensation Fund

State of West Virginia

Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

PINNACLE ACTUARIAL RESOURCES, INC.

a corporation formed under the laws of Illinois filed an application to be registered as a foreign corporation authorizing it to transact business in West Virginia. The application was found to conform to law and a "Certificate of Authority" was issued by the West Virginia Secretary of State on June 11, 2009.

I further certify that the corporation has not been revoked by the State of West Virginia nor has a Certificate of Withdrawal been issued to the corporation by the West Virginia Secretary of State.

Accordingly, I hereby issue this

CERTIFICATE OF AUTHORIZATION

Validation ID: [redacted]

Given under my hand and the Great Seal of the State of West Virginia on this day of July 18, 2013

Natalie E Tennant

Secretary of State

Notice: A certificate issued electronically from the West Virginia Secretary of State's Web site is fully and immediately valid and effective. However, as an option, the issuance and validity of a certificate obtained electronically may be established by visiting the Certificate Validation Page of the Secretary of State's Web site, https://apps.wv.gov/sos/businessentitysearch/validate.aspx entering the validation ID displayed on the certificate, and following the instructions displayed. Confirming the issuance of a certificate is merely optional and is not necessary to the valid and effective issuance of a certificate.

STATE OF WEST VIRGINIA
State Tax Department, Excise and Support Unit
1001 Lee St. East
Charleston, WV 25301

Earl Ray Tomblin, Governor

Mark W. Matkovich, Acting Tax Commissioner

PINNACLE ACTUARIAL RESOURCES, INC.
2817 REED RD BLDG 2
BLOOMINGTON IL 61704-8295

Letter Id: L0158416768
Issued: 07/18/2013

West Virginia State Tax Department
Statement of Good Standing

EFFECTIVE DATE: July 18, 2013

A review of tax accounts indicates that the above named taxpayer is in good standing as of the effective date of this document.

The issuance of this Statement of Good Standing shall not bar any audits, investigations, assessments, refund or credits with respect to the taxpayer named above and is based only on a review of the tax returns and not on a physical audit of records.

Sincerely,

Diana L. Webb, Tax Unit Supervisor
Excise Tax Unit
Tax Account Administration Division

atL103 v.15

Appendix H

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 02/06/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER 1-630-773-3800 Arthur J. Gallagher Risk Management Services, Inc. Two Pierce Place Itasca , IL 60143-3141 Derek Wright	CONTACT NAME: JoAnn Bonnevier PHONE (A/C, No, Ext): 630-694-4423 FAX (A/C, No): E-MAIL ADDRESS: JoAnn_Bonnevier@ajg.com
INSURED Pinnacle Actuarial Resources, Inc. 2817 REED ROAD , SUITE 2 BLOOMINGTON, IL 61704	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : HARTFORD CAS INS CO — 29424 INSURER B : TWIN CITY FIRE INS CO CO — 29459 INSURER C : INDIAN HARBOR INS CO — 36940 INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** 31908720 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR X Add'l Insured Form X SS 00 08 04 05 GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC	X		[redacted]	01/17/13	01/17/14	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 300,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
A	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS			[redacted]	01/17/13	01/17/14	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ 1,000,000 $ $ $ $
A	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 10000			[redacted]	01/17/13	01/17/14	EACH OCCURRENCE AGGREGATE $	$ 2,000,000 $ 2,000,000 $
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		[redacted]	01/17/13	01/17/14	X WC STATU-TORY LIMITS OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 500,000 $ 500,000 $ 500,000
C	Professional Liability			[redacted]	02/14/13	02/14/14	Occ/Agg Deductible	2,000,000 10,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

EVIDENCE OF INSURANCE ONLY

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Michael R. Pench

Not Applicable

Appendix I

Rev. 07/12

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with ***West Virginia Code***, §5A-3-37. (Does not apply to construction contracts). ***West Virginia Code***, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the ***West Virginia Code***. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. **Application is made for 2.5% resident vendor preference for the reason checked:**
___ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
___ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
___ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. **Application is made for 2.5% resident vendor preference for the reason checked:**
___ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. **Application is made for 2.5% resident vendor preference for the reason checked:**
___ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. **Application is made for 5% resident vendor preference for the reason checked:**
___ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
___ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
___ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. **Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules.***
___ Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Pinnacle Actuarial Resources, Inc. Signed: Joseph A. Faber

Date: July 25, 2013 Title: Managing Principal and President

RFQ No. DEP16199

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"**Debt**" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"**Employer default**" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"**Related party**" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Pinnacle Actuarial Resources, Inc.

Authorized Signature: _____ Date: July 25, 2013

State of Illinois

County of McLean, to-wit:

Taken, subscribed, and sworn to before me this 25 day of July, 2013.

My Commission expires November 7, 2016.

AFFIX SEAL HERE

OFFICIAL SEAL
KIM L. BROWN
Notary Public, State of Illinois
My Commission Expires 11/07/2016

NOTARY PUBLIC _____

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Solicitation

NUMBER	PAGE
DEP16199	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER
304-558-2316

VENDOR
*111150233 309-807-2300
PINNACLE ACTUARIAL RESOURCES I
2817 REED RD STE 2

BLOOMINGTON IL 61704

SHIP TO
ENVIRONMENTAL PROTECTION
DEPARTMENT OF
OFFICE OF ADMINISTRATION
601 57TH STREET SE
CHARLESTON, WV
25304 304-926-0499

DATE PRINTED
07/01/2013

BID OPENING DATE: 07/31/2013 BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	JB		946-12		

ACTUARIAL SERVICES

THE WEST VIRGINIA PURCHASING DIVISION ON BEHALF OF THE AGENCY, THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF SPECIAL RECLAMATION, IS SOLICITING BIDS TO PROVIDE ACTUARIAL SERVICES PER THE ATTACHED BID SPECIFICATIONS, SCOPE OF WORK, BID REQUIREMENTS AND TERMS AND CONDITIONS.

****** THIS IS THE END OF RFQ DEP16199 ****** TOTAL:

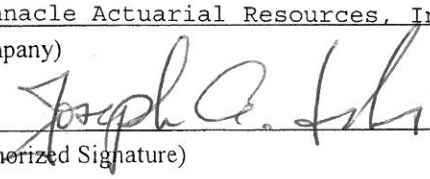
SIGNATURE	TELEPHONE	DATE
Joseph C. Fulks	309.807.2300	July 25, 2013
TITLE: Managing Principal/President	FEIN: 11-3669570	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

CERTIFICATION AND SIGNATURE PAGE

By signing below, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Pinnacle Actuarial Resources, Inc.
(Company)


(Authorized Signature)

Managing Principal and President
(Representative Name, Title)

309.807.2300 309.807.2301
(Phone Number) (Fax Number)

July 25, 2013
(Date)

ADDENDUM ACKNOWLEDGEMENT FORM

SOLICITATION NO.: DEP16199

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[x]	Addendum No. 1	[ ]	Addendum No. 6
[ ]	Addendum No. 2	[ ]	Addendum No. 7
[ ]	Addendum No. 3	[ ]	Addendum No. 8
[ ]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Pinnacle Actuarial Resources, Inc.
Company

Joseph A. Fisher
Authorized Signature

July 25, 2013
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

DEP16199	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER
304-558-2316

VENDOR
RFQ COPY
TYPE NAME/ADDRESS HERE
Pinnacle Actuarial Resources, Inc.
2817 Reed Road, Suite 2
Bloomington, IL 61704

SHIP TO
ENVIRONMENTAL PROTECTION
DEPARTMENT OF
OFFICE OF ADMINISTRATION
601 57TH STREET SE
CHARLESTON, WV
25304 304-926-0499

DATE PRINTED: 07/24/2013

BID OPENING DATE: 07/31/2013 BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
				ADDENDUM NO. 1		
				THIS ADDENDUM IS ISSUED TO PROVIDE:		
				1) TECHNICAL QUESTIONS AND ANSWERS		
				2) ADDENDUM ACKNOWLEDGEMENT. THIS DOCUMENT SHOULD BE SIGNED AND RETURNED WITH YOUR BID. FAILURE TO SIGN AND RETURN MAY RESULT IN THE DISQUALIFICATION OF YOUR BID.		
				********** END ADDENDUM NO. 1 **********		
0001	1	JB		946-12		
				ACTUARIAL SERVICES		

SIGNATURE: Joseph C. Schmitt
TELEPHONE: 309.807.2300
DATE: July 25, 2013
TITLE: Managing Principal/President
FEIN: 11-3669570
ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED VENDOR

A Proposal to Serve the

State of West Virginia

west virginia

Department of Environmental Protection

Division of Land Restoration

Office of Special Reclamation

RFQ Number DEP16199

Cost Proposal

July 25, 2013

PINNACLE
ACTUARIAL RESOURCES, INC.

2817 Reed Road, Suite 2
Bloomington, IL 61704
O: 309.807.2300
www.pinnacleactuaries.com

Commitment Beyond Numbers

PINNACLE
ACTUARIAL RESOURCES, INC.

2817 Reed Road, Suite 2
Bloomington, IL 61704
O: 309.807.2300
www.pinnacleactuaries.com

Joseph A. Herbers, ACAS, MAAA, CERA
Managing Principal
jherbers@pinnacleactuaries.com

July 25, 2013

Department of Administration
Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130
Attention: Mr. Frank Whittaker

RE: RFQ Number DEP16199

Dear Mr. Whittaker:

On behalf of Pinnacle Actuarial Resources, Inc, I am pleased to offer our Cost Proposal to provide the requested actuarial services to West Virginia Department of Environmental Protection's Office of Special Reclamation (Agency). We trust that you will find it in accordance with your Request for Quotation.

As Pinnacle's Managing Principal, I am empowered to bind the company to this proposal. The attached proposal is "a firm and irrevocable offer" for 120 days or as long as necessary to finalize contract details.

Please feel free to contact me or Contract Manager Laura Maxwell to discuss any issues or concerns or if additional information is needed. Ms. Maxwell's contact information can be found within the attached response.

Respectfully submitted,

Joseph A. Herbers, ACAS, MAAA, CERA
Managing Principal
309.807.2300

Enclosures

DEP 16199 – EXHIBIT A

Name of Firm:
Pinnacle Actuarial Resources, Inc.

Hourly Rates for Assigned Staff:

Title	Hourly Rate
Partner	$ 550.0
Senior Actuary	$ 425.00
Staff Actuary	$ 400.00
Actuary Assistant	$ 250.00
Administrative Staff	$ 90.00
Clerical Staff	$ 90.00

DEP 16199
BID SCHEDULE

ITEM	DESCRIPTION	UNIT MEASURE	TOTAL
1.0	Actuarial Study	JB	$ 102,000.00
	TOTAL BID		$ 102,000.00

FIRM NAME: Pinnacle Actuarial Resources, Inc.

SIGNATURE: Joseph A. Herbers **DATE:** July 25, 2013

Joseph A. Herbers
Managing Principal/President