



Pennsylvania Bureau of Mining Programs - Land Reclamation Financial Guarantee Account

Actuarial Evaluation as of June 30, 2021

Issue Date: July 12, 2021

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Introduction

Purpose

Aon Global Risk Consulting (“AGRC”) was retained by Pennsylvania Bureau of Mining Programs (“PBMP”) to perform an actuarial evaluation of the Land Reclamation Financial Guarantee (“LRF”) account. The purpose of the analysis is to evaluate the projected costs and revenues of the LRF account. The estimates contained in this report are intended for use by PBMP in the evaluation of the financial sustainability of the LRF account.

Scope

The scope of our assignment includes the following specific estimates:

1. An evaluation as of June 30, 2021 of the LRF account, administered by the PBMP, to determine if the LRF account is actuarially sound.
2. Cash flow projections based on costs, balances, revenue and fees for the LRF account. Annual payment patterns for the central estimate of the LRF account value.
3. Confidence intervals around the central estimate of the LRF values.
4. Evaluation of the annual fee, program limit, operator limit, permit limit and retained funds under the LRF.
5. Evaluation of the fiscal sustainability of the current practice of the routine transfer of interest from the LRF account to the Reclamation Fee Operations and Maintenance Trust (RFO&M) account.
6. Evaluation of the fiscal sustainability of the potential transfer of some or all the income from premiums paid for LRFs to the RFO&M account.

The unpaid loss estimates presented in this report are actuarial central estimates (i.e., expected values over a range of reasonably probable outcomes). Our unpaid loss estimates are presented on an undiscounted basis unless noted otherwise.

* * * * *

Donald Riggins and Jo Ellen Cockley are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

We performed this analysis using generally accepted actuarial principles and in accordance with all relevant Actuarial Standards of Practice.

Please contact us if you have any questions regarding this report.

Respectfully submitted,

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Conditions and Limitations

Inherent Uncertainty

Actuarial calculations produce estimates of inherently uncertain future contingent events. We believe that the estimates provided represent reasonable provisions based on the appropriate application of actuarial techniques to the available data. However, there is no guarantee that actual future payments will not differ from estimates included herein.

Extraordinary Future Emergence

Our projections make no provision for the extraordinary future emergence of losses or types of losses not sufficiently represented in the historical data or which are not yet quantifiable. For example, increased forfeitures due to diminishing demand for coal.

The potential short-term and long-term impact of the COVID-19 pandemic is currently unknown. Consequently, the uncertainty in our estimates is greater than it would otherwise be. Unless noted otherwise, this analysis makes no adjustment for the impact of the COVID-19 pandemic.

Data Reliance

In conducting this analysis, we relied upon the provided data without audit or independent verification; however, we reviewed it for reasonableness and consistency. Any inaccuracies in quantitative data or qualitative representations could have a significant effect on the results of our review and analysis.

Use and Distribution

Use of this report is limited to PBMP for the specific purpose described in the Introduction section. Other uses are prohibited without an executed release with Aon.

Distribution by PBMP is unrestricted. We recognize that this report may be distributed to third parties. We request that Aon be notified of further distribution of this report. The report should only be distributed in its entirety including all supporting exhibits.

Performance Bonds

Our estimates exclude the costs of forfeitures and reclamation at sites for permits outside of the program established in PA Code 86.162b Land Reclamation Financial Guarantees. The analysis includes no provision, directly or indirectly, for the bonds, guarantees or any other security provided by mine operators.

Potential Legislation

Our model does not consider any future potential law changes or legislative initiatives. For example, we do not include impacts from future law changes on permitting fees, penalties, operational costs or maintenance costs.

Risk Loads

Our estimates do not include a risk load or contingency for actual losses deviating from expected losses. Financial guarantees have the potential for large fluctuations in losses relative to the expected losses. The fluctuations are typically covered by a catastrophe or excess of loss reinsurance program. An insurer would typically have surplus (capital in addition to the premium collected) to cover periods with adverse loss experience.

Background

Land Reclamation Financial Guarantees

The Surface Mining Conservation and Reclamation Act (“SMCRA”) of May 31, 1945 provided for the conservation and improvement of areas of land affected by mining. Provisions in the act related to mining licensing, permitting, bonding, security and land reclamation.

The Surface Mining Conservation and Reclamation Act – Mining Permit, Reclamation Plan and Bond and Land Reclamation Financial Guarantees Act (“ACT157”) of October 24, 2012 (No. 2012-157) amended the SMCRA of May 31, 1945. ACT157 authorized the Land Reclamation Financial Guarantee Program. ACT157 added Section 19.2, which required the Pennsylvania Department of Environmental Protection (DEP) to establish a program to provide land reclamation financial guarantees to mine operators to insure land reclamation from mining activities. The land reclamation financial guarantees could be used by a mine operator to satisfy the bonding obligation under SMCRA. Section 19.2 of Act 157 directed the DEP to determine, assess and collect premiums from mining operators to assure the financial stability of the land reclamation financial guarantee program and cover the DEP’s administration costs.

Under Section 19.2, the Land Reclamation Financial Guarantee (“LRFG”) account was authorized in the Surface Mining Conservation and Reclamation Fund (“SMCRF”). The LRFG account supports land reclamation financial guarantees. Premium payments are deposited in the LRFG account and the costs of land reclamation, in the event of operator default, are paid from the LRFG account. Section 19.2 also allows for the transfer of interest earned and premium payments in the LRFG account into the Reclamation Fee Operations and Maintenance Trust (“RFO&M”) account. The RFO&M is a separate trust that funds reclamation costs for forfeited sites under the legacy Alternative Bonding System (“ABS”).

To implement the LRFG program the DEP revised 25 PA Code Chapter 86 and established PA Code 86.162b. Land Reclamation Financial Guarantees.

The LRFG program has three limits. The Program Limit is the total amount of financial guarantees that can be underwritten by the LRFG. The current Program Limit is \$100,000,000 based on \$10,000,000 in LRFG account surplus and assumed 10% bond forfeiture rate. The Operator Limit is the aggregate amount of LRFGs on permits issued to a single operator. The current Operator Limit is \$3,000,000 based on 30% of the \$10,000,000 surplus in the LRFG Account. The Permit Limit is the maximum LRFG bond amount at a mining site. The current permit limit is 50% of the required bond amount on the mining permit. The LRFG Restricted Revenue Account is used for the accounting of the LRFG revenues and costs.

The LRFG program has a provision to exceed the Operator Limits and Program Limits if needed for existing sum-certain financial guarantee needed for the implementation of full-cost bonding previously issued by the DEP and converting to LRFG.

To participate in the LRFG program the mine operator must apply and meet eligibility requirements. Eligibility includes mining licensing requirements and obtaining a surety acceptance for the permit. The maximum for a LRFG is subject to the Permit Limit and Operator Limit. If approved, the annual fee for the mining operator is 1.5% of the LRFG amount. Fee payments are non-refundable and deposited into LRFG account. The LRFG is automatically renewed and annual premiums are due until the LRFG is released. The annual fee is reduced as the LRFG is reduced or released as determined by the DEP.

The LRFG program may be suspended by the DEP if the actual forfeiture rate of participating permits exceeds 10%, the forfeiture rate used in determining the Program Limit. The program can also be suspended if forfeitures are declared on 25% or more of the LRFG program obligations.

Executive Summary

LRFG Account Forecast Estimates

Based on our analysis the LRFG fund is financially sound as of June 30, 2021 with the current assets and revenue exceeding the estimated expenses and LRFG obligations for reclamation costs of forfeited mine sites.

A summary of the LRFG Restricted Revenue Account forecasted fiscal-year end balances are shown in the table below. The estimates are shown for optimistic, intermediate and pessimistic scenarios. The three scenarios represent a reasonable range of estimates based on varying cost, revenue, forfeiture rate and interest rate assumptions.

The results include a reclamation reserve for estimated reclamation costs for known or anticipated forfeitures that have not been paid.

Pennsylvania Bureau of Mining Programs
LRFG Estimates as of 06/30/2021
Summary of Results

Estimate	Optimistic Scenario	Intermediate Scenario	Pessimistic Scenario
Restricted Revenue Account FY End Balance			
2022	16,745,921	16,273,178	14,992,100
2023	17,507,292	16,552,823	13,985,882
2024	18,235,415	16,791,454	12,938,111
2025	18,966,570	17,024,153	11,879,517
2030	22,816,212	18,241,634	6,564,558
FY Ending 6/30/2022 Annual Forecast			
Premiums Collected	741,665	741,665	741,665
Interest Earned	<u>239,710</u>	<u>127,845</u>	<u>47,942</u>
Total Revenue	981,376	869,511	789,608
Reclamation Payments	250,031	250,031	250,031
Change in Reclamation Reserve	<u>-33,890</u>	<u>326,989</u>	<u>1,528,163</u>
Reclamation Costs Incurred	216,141	577,019	1,778,193
FY Ending 6/30/2022 Total Surplus/(Deficit)	765,235	292,492	-988,586
FY Ending 6/30/2022 Total Cash Flow	731,345	619,480	539,577

Note : Cash flow equals Total Revenue less Reclamation Payments.

The intermediate scenario reflects assumptions based on the historical forfeiture rate and individual operator forfeitures. The limited forfeitures in the past do not reflect the future risks in the program or the safety of the surplus. The concentration of risk and the likely correlation of forfeitures between operators presents a material risk factor to the program. The main risk factors are systematic and outside the control of individual operators. The pessimistic scenario reflects the upper end of the range based on historical information. The pessimistic scenario does not reflect a systemic, industry-wide disruption which could lead to liability for the total amount guaranteed by the LRFG Fund.

The forecast includes \$875,107 which is currently being held as a reserve for the potential expenditures that may be made for reclamations at the 7 forfeited sites. The estimates include a reserve at the end of each future fiscal year based on the unpaid portion of the reclamation costs at the projected forfeited sites. A reserve is carried on the unpaid portion of the estimated reclamation costs until the site is fully reclaimed or the LRFG amount has been paid.

The LRFG fund is susceptible to catastrophic or shock losses. Examples of risk factors that could lead to catastrophic losses include the concentration of operators or a systemic financial impact on mining operations. A discussion of risk factors is included in the Risk of Material Adverse Deviation section.

The risk factors are not independent, are interrelated (correlated) and can be self-fulfilling. For example, during an economic downturn the demand and price for the mined materials can decrease which increases the chance of mining companies becoming insolvent and being able to pay the future premiums to cover the land reclamation costs.

The LRFG's are primarily written for surface mines, approximately 11 LRFG's are for anthracite underground mines. According to the US EIA Annual Coal Report 2019 (Table 26), approximately 75% of the Pennsylvania end use coal consumption is for electric power. The use of carbon generated electricity has been decreasing in recent years and the future use is uncertain, particularly given the societal and political pressure to decrease the reliance on fossil fuels.

There is no reserve held, outside of the surplus in the fund, for the cost of future reclamation for operating mines where the operator will forfeit in the future.

LRFG Account Cash Flow Estimates

A summary of the LRFG Restricted Revenue Account fiscal-year cash flow estimates are shown in the table below. The estimates are shown for an intermediate scenario as well as an optimistic and pessimistic scenario.

Pennsylvania Bureau of Mining Programs
LRFG Cash Flow Estimates as of 06/30/2021
Summary of LRFG Restricted Revenue Account Cash Flows

Fiscal Year Ending 6/30	Optimistic Scenario	Intermediate Scenario	Pessimistic Scenario
2022	731,345	619,480	539,577
2023	769,059	648,055	562,846
2024	740,612	550,278	259,618
2025	749,277	489,811	-6,011
2026	770,296	441,840	-258,342
2027	788,898	391,281	-513,281
2028	806,965	340,025	-768,940
2029	779,351	242,927	-1,070,470
2030	792,832	246,937	-1,070,705

Under the optimistic and intermediate scenarios, cash flow remains positive through fiscal year ending 6/30/2030. Under the pessimistic scenario, cash flow becomes negative (e.g. costs are greater than revenue and interest income) beginning in fiscal year ending 6/30/2025.

The following sections discuss the methods and underlying assumptions used to derive the LRFG cost estimates and revenue sources.

Assumptions

The cost estimates and revenue sources are based on the assumptions in the following table.

**Pennsylvania Bureau of Mining Programs
Summary of Modelling Assumptions
06/30/2021 Analysis**

Assumption	Low Scenario	Intermediate Scenario	High Scenario	Exhibit
LRFG Program				
Average LRFG Per Permittee	540,000	775,000	1,010,000	LRFG Payment Summary
Instruments Per Permittee	1.9	1.9	1.9	LRFG Payment Summary
Average LRFG Per Instrument	284,000	408,000	532,000	LRFG Payment Summary
Forfeited LRFG's with Reclamation Payment *	55.0%	70.0%	85.0%	LRFG Payment Summary
Reclamation Cost Paid of LRFG Amount	95.0%	98.0%	100.0%	LRFG Payment Summary
Annual % of LRFG Amount Paid As Premium	1.5%	1.5%	1.5%	Per Act
Future Forfeiture Rate				
Overall Forfeiture Rate*	0.65%	0.95%	1.85%	Bond Forfeiture Rates
Discount and Trend Rates				
Short Term Investment Pool Return	1.50%	0.80%	0.30%	STIP Pool 99 Returns
Reclamation Cost Trend	2.00%	3.00%	4.00%	Selected

Note : * The forfeiture rate is estimated using the bond forfeiture rates for all coal permits and not just permits with LRFG bonds.

Land Reclamation and Financial Guarantee Revenue Sources

An estimate of the future revenue for the LRFG Account includes the premiums collected, interest earned on the LRFG Restricted Revenue Account and transfers from other sources.

Premiums Collected

The Pennsylvania Department of Environmental Protection (DEP) charges mining operators an annual fee of 1.5% of the LRFG amount. Fee payments are non-refundable and deposited into the LRFG account.

Premiums collected in future years are estimated as 1.5% of future LRFG Amounts. Future LRFG amounts are estimated based on the current LRFG Amount and the annual change of U.S. Energy Information Administration (EIA) forecasted coal production, coal price and natural gas price.

Based on discussions with PBMP there are no known or expectations of large swings in LRFG amounts. The forecasted LRFG amounts experience a slight drop in 2024 with the EIA forecasted drop in coal production but remain consistent throughout the forecast period.

Interest Earned

The DEP credits interest based on funds held in the account. Funds held in the account are invested by the Treasurer as outlined in the Investment Policy Statement from the Commonwealth of Pennsylvania. Funds are held in the Short-Term Investment Pool - Pool 99 (STIP). The primary object of STIP is to preserve principal and maintain a net asset value. STIP investments consist of fixed-income securities, primarily of short duration, time deposits, money market funds, or a line of credit. STIP performance is compared to the three-month U.S. Treasury bill.

Historical performance from the Short-Term Investment Pool - Pool 99 and the three-month U.S. Treasury bill are used to select the future annual return on the LRFG Restricted Revenue Account.

Interest on the LRFG Restricted Revenue Account for future years is calculated as the fund balance at the beginning of the year times the selected rate of return.

The range of interest rates is selected based on historical STIP returns and three-month U.S. Treasury bill yields.

Transfers from Other Accounts

Funds can be transferred into or out of the LRFG Restricted Revenue Account. Act 157, Section 19.2 allows for the transfer of interest earned and premium payments in the LRFG account into the Reclamation Fee Operations and Maintenance Trust ("RFO&M") account. The forecast does not include transfers to or from other accounts.

Land Reclamation and Financial Guarantee Cost Estimates

The estimate of the of the future costs for the LRFG account are calculated by multiplying the frequency of LRFG permits forfeited by the average severity for the reclamation cost per permit.

The frequency of forfeited permits is estimated as the forecasted LRFG amount times a selected bond forfeiture rate.

The severity for the reclamation cost per permit is estimated as the average LRFG Amount per permit times the percent of the LRFG amount paid as reclamation costs. The severity is adjusted for the percent of forfeited LRFG's with reclamation payments.

Bond Forfeiture Rates

The bond forfeiture rate is selected based on historical bond forfeitures since 1996. The historical forfeiture rates are for all coal permits and not just permits with LRFG bonds. Future LRFG forfeiture rates are estimated based on the current LRFG Amount and annual change of U.S. Energy Information Administration (EIA) forecasted coal production, coal price and natural gas price.

The forfeitures in the past do not reflect the future risks in the program. The main risk factors are systematic and outside the control of individual operators. Historical forfeiture rates do not reflect a systemic, industry-wide disruption.

Average LRFG Amount per Permit

The average LRFG amount per permit is selected based on the LRFG amounts of active LRFG permits. The average distinguishes between active instruments and active permittees (operators). An average number of instruments per permittee is also selected.

Reclamation Cost Paid of LRFG Amount

The percent of the LRFG amount paid as reclamation costs is selected based on historical amounts paid, or anticipated to be paid, in reclamation costs for forfeited permits.

If a payment is required on a forfeited permit, the reclamation payment under the LRFG program is anticipated to be a substantial part or the full LRFG amount in most cases.

Percent of Forfeited LRFG's with Payments

The percent of forfeited LRFG's with reclamation payments is selected based on the number of forfeited permits under the LRFG program that have paid or are anticipated to pay reclamation costs.

Forfeited permits can be taken over by another operator. This adjustment to severity reflects the forfeited sites that will be taken over by another operator.

The historical average LRFG amount on forfeited sites was lower than the average active LRFG amount. The percent of forfeited LRFG's with reclamation payments is selected above historical averages to account for future forfeitures with larger LRFG amounts being less likely to be taken over by other operators.

Reclamation Costs

Reclamation costs are calculated by multiplying the frequency of LRFG permits forfeited by the average severity for the reclamation cost per permit. The costs represent the actual incurred cost during the period the forfeiture is declared.

Reclamation Payments

Reclamation payments are estimated based on selected payment patterns. For the analysis we have selected level payments for 6 years starting in the third year after the forfeit declaration (1/6 in years 3 through 8 after costs are incurred).

Reclamation Reserve

Estimated reclamation costs for known or anticipated forfeitures incurred that have not been paid.

Risk of Material Adverse Deviation

Below is a list of risk factors that can lead to a risk of material adverse deviation in the LRFG Account. The risk factors are interrelated and can be correlated, the risk factors are not independent. A change in one risk factor can impact the likelihood and severity of a material impact from other risk factors.

- concentration of risk in the mining operations, the LRFG's are mainly surface mining which has higher reclamation costs than underground mining
- concentration of risk in the material mined, mainly electric power coal is mined which has experienced larger declines in usage than metallurgical coal
- concentration of risk from the number of permittees, over 50% of the currently active LRFG amounts are in the top 10 permittees
- adverse selection, including growth in the total LRFG amount for the program due to high risk operators
- financial risk to mining operators including the availability and pricing of performance bonds, collateral requirements, allowance of self-bonding, credit availability from financial institutions and reinsurance availability
- systemic financial impact on mining operations, including the decreasing demand for carbon generated electricity
- change in price or production of mined materials, substitutes for mined materials or change in geographical suppliers of mined materials
- changes in mining methods and costs from scientific or technological advancement
- government regulation impacting the price, usage, production of mined materials
- concentration and lack of spread of risk among the insurance carriers underwriting the surety bonds for the mining operators
- required bond amounts relative to the actual future costs of the land reclamation
- operators combining or acquiring operators, or parts of operators, that concentrates and increases the risk to the system
- an increase in the forfeiture rate
- lack of catastrophic or excess of loss protection for the program
- a reduction in the revenue stream, including interest earned on account funds

The absence of other risk factors from this list is not meant to imply that additional factors cannot be identified in the future as having had a significant influence on the LRFG account.

Evaluation of the LRFG Limits and Fees

The LRFG program has three limits. The current program limit is \$100,000,000. The current operator limit is \$3,000,000. The current permit limit is 50% of the required bond amount on the mining permit.

The program limit of \$100,000,000 is based on the \$10,000,000 LRFG account surplus and a 10% bond forfeiture rate.

Based on the historical forfeiture data for all coal permits, including those with LRFGs, the highest forfeiture rate over a 3-year period is 1.87% and the highest annual forfeiture rate is 2.95%. The 10% bond forfeiture rate built into the LRFG program limit would cover 3 years at the highest prior annual forfeiture rate for all coal permits. With the concentration of risk and possibility of shock losses, carrying surplus as a percent of the underwritten amount would enable the program to handle more adverse loss scenarios. Recommended surplus requirements are discussed in the Summary of Results section below.

With the concentration of the program risk, underwriting additional risks with highly correlated forfeiture risk would not decrease the risk of surplus exhaustion to the degree of adding additional risks whose chance of forfeiture is independent of the current risks. Adding additional correlated risks could increase the risk of surplus exhaustion.

The operator limit is the aggregate amount of LRFGs on permits issued to a single operator. The current operator limit is \$3,000,000 and is based on 30% of the \$10,000,000 LRFG account surplus.

The top 10 operators have active LRFG amounts totaling \$26,385,267. The total active LRFG amounts is approximately \$48,000,000. Having forfeitures from multiple operators in a year is not uncommon. If the forfeitures were large operators over multiple years, there would be a material impact on program surplus. The current operator limit controls the exposure from operator specific risks. We recommend not increasing the operator limit and having a surplus requirement based on the largest operator LRFG amounts. Recommended surplus requirements are discussed in the Summary of Results section below.

The permit limit is the maximum LRFG amount at a mining site. The permit limit ensures the operator could provide at least 50% of the bond without the LRFG. This requires a satisfactory underwriting result for a bond or the finances to post collateral or self-bond. As availability and pricing of performance bonds fluctuates in the commercial market or a systemic impact develops there can be a material shift in demand for LRFG's from the higher risk operators leading to adverse selection. We recommend keeping the current permit limit purchased for current LRFG's (only increasing current LRFG's in proportion to increases in the total required bond amount) and using a 30% permit limit for new operators or new sites requesting LRFG's. The limits would help control adverse selection by limiting growth in the total LRFG amounts during a spike in demand from high risk operators.

The current annual fee for the mining operator is 1.5% of the LRFG amount. With the risk of adverse selection, the premium charge of 1.5% should be evaluated relative to the market premium charged for the surety bonds. This should include an (re)evaluation of the required bond amounts relative to the future reclamation costs.

Transfer of Revenue from the LRFG Account

Act 157, Section 19.2 allows for the transfer of interest earned and premium payments in the LRFG account into the Reclamation Fee Operations and Maintenance Trust (“RFO&M”) account.

The LRFG fund has been financially sound and requires surplus of \$10,000,000 be held or 10% of the Program Limit. The program is susceptible to catastrophic or shock losses based on the risk factors identified above.

The concentration of the liability in the largest operators creates a significant financial risk to the LRFG fund. Should multiple large operators become insolvent there would be multiple sites with reclamation costs at the operator limit and future revenue may be adversely impacted. Large operators may be less likely to be acquired and more likely to have a LRFG payment.

An option to lessen the impact of shock or systemic losses is to require a higher level of minimum surplus be held to account for the operator concentration and for the program limits. A portion of excess surplus could then be distributed to other mine reclamation accounts.

The risk factors should be evaluated annually for market changes that would adversely impact the state of the mining operations including, for example, future revenue collection and the future forfeiture rate before transferring revenues from the account.

Having a formula for the maximum amount to be transferred based on the results and surplus requirements would keep consistency over the lifetime of the fund. Surplus should be expected to grow to prepare the program to handle shock and systematic losses should they occur in the future. Recommended surplus distributions are discussed in the Summary of Results section below.

Summary of Results

- 1) The LRFG fund is financially sound as of June 30, 2021 but has material systemic risks due to the concentration of risk, the likely correlation of forfeitures between operators and the possibility of adverse selection.
- 2) Cash flow estimates remain positive through fiscal year ending 6/30/2030 under the optimistic and intermediate scenarios. Cash flow estimates become negative beginning in fiscal year ending 6/30/2025 under the pessimistic scenario.
- 3) The results include a range of probable outcomes under optimistic, intermediate and pessimistic scenarios. The scenarios do not include all possible outcomes. A surplus is forecasted for fiscal year ending 2022 under the optimistic and intermediate scenarios but a deficit is forecasted under the pessimistic scenario.
- 4) The annual premium charge of 1.5% should be evaluated relative to market pricing. The amount the premium charge is below/above market pricing can lead to more/less adverse selection.
- 5) The program has a material risk of adverse deviation. We recommend having a minimum surplus requirement to enable the program to handle more adverse loss scenarios. We recommend not increasing the program or operator limits. We recommend keeping the current permit limit purchased for current LRFG's (only increasing current LRFG's in proportion to increases in the total required bond amounts) and using a 30% permit limit for new operators or new sites requesting LRFG's.
- 6) We recommend keeping a minimum surplus based on the maximum of:
 - 1) 10% of the program limit (currently \$10,000,000)
 - 2) The LRFG amounts on the top 3% of permittee's (currently \$13,467,404, based on 4 of the 114 active permittees)
 - 3) 20% of the active LRFG amounts (currently \$9,546,477) + 50% of annual growth in active LRFG amounts (for example, \$1,000,000 if the LRFG's amounts grow from \$48,000,000 to \$50,000,000)
- 7) We recommend limiting distributions to 50% of the surplus above the minimum surplus and annually evaluating the factors listed as Risks of Material Adverse Deviation.

Data

In developing the projected liabilities, we have relied on the following data:

1. LRFG Restricted Revenue Account monthly individual account data from February 2013 through April 2021 for premiums collected, interest earned, transfers from other accounts and contra premium collected (spent on forfeitures). (Land Reclamation Financial Guarantee Restricted Revenue Account Revenue through April 2021.xlsx)
2. LRFG Permit Information including: permittee name, permit number, mine name, instrument number, original LRFG amount, current LRFG amount, LRFG instrument status, date released, mine site status, LRFG approval date and total bond amount. (LRFG Spreadsheet Shared.xlsx, Master Data worksheet)
3. LRFG Spend Information for Forfeited Sites including: site name, LRFG held for site, amount spent from LRFG by site and anticipated spend for LRFG at site. (LRFG Spreadsheet Shared.xlsx, Summary worksheet)
4. Pennsylvania historical bond forfeiture rates. (BF_Frequency_Dec_2019.xlsx)
5. Pennsylvania short-term investment pool returns from 2008 through 2019. (POOL 99 RETURNS FY 2008-2018.xlsx, Pennsylvania Treasury Annual Investment Report)
6. U.S. Energy Information Administration (EIA), Short-Term Energy Outlook, Annual Coal Report and Annual Energy Outlook

Description of Exhibits

LRFG Financial Summary - contains LRFG Restricted Revenue Account fiscal year-end balance projections for the premiums collected, interest earned, other account transfers, reclamation reserve and LRFG reclamation costs by year

LRFG Forecast - contains projections for the premium collected, reclamation costs, reclamation payments by fiscal year

The financial summary and forecast exhibits for the optimistic and pessimistic scenarios are contained in the appendix.

LRFG Program Forecast – estimates the future LRFG amount and bond forfeiture rates through 2050

LRFG Account History – historical premiums collected, interest earned, transfers from other accounts and amount spent on LRFG reclamation costs from 2013 through April 2021, the account value is estimated through 6/30/2021

LRFG Payment Summary – historical data summary and selection of parameters for percent of forfeited LRFG's with reclamation payment, average reclamation costs and percent of LRFG amount paid as reclamation cost

LRFG Program Summary – data on LRFG instruments including status, permittee and year approved

LRFG Reclamation History - historical data for forfeited LRFG sites including permittee, mine name, LRFG instrument number, status, approval date, forfeiture date, LRFG amount and reclamation costs

Bond Forfeiture Rates - historical bond forfeiture rates and the selection of a future bond forfeiture rate

STIP Pool 99 Returns - historical Pennsylvania Short-Term Investment Pool (Pool 99) returns, the investment return on funds is selected

Appendix - financial summary and forecast exhibits for the optimistic and pessimistic scenarios

About Aon

Aon plc (NYSE:AON) is the leading global provider of risk management, insurance and reinsurance brokerage, and human resources solutions and outsourcing services. Through its more than 66,000 colleagues worldwide, Aon unites to empower results for clients in over 120 countries via innovative and effective risk and people solutions and through industry-leading global resources and technical expertise. Aon has been named repeatedly as the world's best broker, best insurance intermediary, best reinsurance intermediary, best captives manager, and best employee benefits consulting firm by multiple industry sources. Visit aon.com for more information on Aon and aon.com/manchesterunited to learn about Aon's global partnership with Manchester United.

**Pennsylvania Bureau of Mining Programs
LRFG Restricted Revenue Account Forecast as of 06/30/2021
Intermediate Estimate**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Fiscal Year Ending 6/30	Premiums Collected	Interest Earned	Other Revenue and Transfers	Total Revenue	Reclamation Payments	Other Costs and Transfers	Total Costs	LRFG Account - Annual Cash Flow	Reclamation Reserve	LRFG Account - Fiscal Year End Balance
2021									875,107	15,980,686
2022	741,665	127,845	0	869,511	250,031	0	250,031	619,480	1,202,096	16,273,178
2023	726,229	130,185	0	856,414	208,359	0	208,359	648,055	1,570,506	16,552,823
2024	680,713	132,423	0	813,135	262,857	0	262,857	550,278	1,882,153	16,791,454
2025	672,793	134,332	0	807,124	317,313	0	317,313	489,811	2,139,266	17,024,153
2026	677,039	136,193	0	813,232	371,392	0	371,392	441,840	2,342,276	17,262,982
2027	678,635	138,104	0	816,739	425,458	0	425,458	391,281	2,491,218	17,505,321
2028	679,502	140,043	0	819,545	479,520	0	479,520	340,025	2,586,097	17,750,467
2029	676,177	142,004	0	818,181	575,254	0	575,254	242,927	2,585,228	17,994,262
2030	677,800	143,954	0	821,754	574,817	0	574,817	246,937	2,584,793	18,241,634
2031	679,986	145,933	0	825,919	574,419	0	574,419	251,500	2,584,750	18,493,178
2032	685,165	147,945	0	833,111	574,399	0	574,399	258,712	2,584,693	18,751,946
2033	684,256	150,016	0	834,271	574,391	0	574,391	259,880	2,584,644	19,011,875
2034	684,717	152,095	0	836,812	574,381	0	574,381	262,432	2,584,605	19,274,346
2035	685,566	154,195	0	839,761	574,371	0	574,371	265,390	2,584,574	19,539,767
2036	683,966	156,318	0	840,284	574,361	0	574,361	265,923	2,584,550	19,805,714
2037	683,579	158,446	0	842,024	574,354	0	574,354	267,670	2,584,533	20,073,402
2038	689,777	160,587	0	850,364	574,346	0	574,346	276,017	2,584,477	20,349,476
2039	686,923	162,796	0	849,719	574,340	0	574,340	275,379	2,584,417	20,624,915
2040	692,491	164,999	0	857,491	574,331	0	574,331	283,160	2,584,328	20,908,163
2041	690,191	167,265	0	857,456	574,321	0	574,321	283,135	2,584,243	21,191,383
2042	692,785	169,531	0	862,316	574,304	0	574,304	288,012	2,584,166	21,479,472
2043	694,069	171,836	0	865,904	574,287	0	574,287	291,617	2,584,105	21,771,150
2044	692,215	174,169	0	866,384	574,269	0	574,269	292,115	2,584,058	22,063,312
2045	696,414	176,506	0	872,921	574,250	0	574,250	298,670	2,584,008	22,362,033
2046	699,400	178,896	0	878,296	574,239	0	574,239	304,057	2,583,959	22,666,138
2047	701,399	181,329	0	882,729	574,226	0	574,226	308,503	2,583,919	22,974,682
2048	703,540	183,797	0	887,338	574,217	0	574,217	313,120	2,583,882	23,287,839
2049	707,888	186,303	0	894,191	574,209	0	574,209	319,982	2,583,831	23,607,871
2050	713,325	188,863	0	902,187	574,201	0	574,201	327,987	2,583,755	23,935,935

Notes

- 1) Current year is prorated to 06/30/2021
- 2) [2], [6], [10] from LRFG Forecast
- 3) [3]=[2]* Short Term Investment Pool Return
- 4) [5]=[2]+[3]+[4], [8]=[6]+[7],[9]=[5]-[8]
- 5) [11]=Prior [11]-[9]-([10]-Prior[10])

**Pennsylvania Bureau of Mining Programs
LRFG Forecast as of 06/30/2021
Intermediate Estimate**

(1) Fiscal Year Ending 6/30	(2) LRFG Amount	(3) Active Instruments	(4) Active Permittees	(5) Premium Collected	(6) Forfeiture Rate	(7) Forfeited Permittees	(8) Reclamation Costs	(9) Reclamation Payments	(10) Reclamation Reserve	(11) Premium Less Costs
2021	47,732,387	213	114				875,107		875,107	
2022	49,444,366	221	118	741,665	0.92%	1.0636	577,019	250,031	1,202,096	164,646
2023	48,415,250	216	116	726,229	0.93%	1.0632	576,769	208,359	1,570,506	149,459
2024	45,380,848	203	108	680,713	0.99%	1.0590	574,504	262,857	1,882,153	106,209
2025	44,852,838	200	107	672,793	1.01%	1.0588	574,426	317,313	2,139,266	98,367
2026	45,135,933	201	108	677,039	1.00%	1.0588	574,403	371,392	2,342,276	102,636
2027	45,242,326	202	108	678,635	1.00%	1.0588	574,400	425,458	2,491,218	104,235
2028	45,300,158	202	108	679,502	1.00%	1.0588	574,399	479,520	2,586,097	105,103
2029	45,078,476	201	108	676,177	1.00%	1.0588	574,385	575,254	2,585,228	101,792
2030	45,186,639	202	108	677,800	1.00%	1.0588	574,382	574,817	2,584,793	103,418
2031	45,332,420	202	108	679,986	0.99%	1.0588	574,376	574,419	2,584,750	105,610
2032	45,677,682	204	109	685,165	0.99%	1.0587	574,343	574,399	2,584,693	110,823
2033	45,617,034	204	109	684,256	0.99%	1.0587	574,342	574,391	2,584,644	109,914
2034	45,647,824	204	109	684,717	0.99%	1.0587	574,341	574,381	2,584,605	110,376
2035	45,704,428	204	109	685,566	0.99%	1.0587	574,340	574,371	2,584,574	111,226
2036	45,597,751	203	109	683,966	0.99%	1.0587	574,337	574,361	2,584,550	109,629
2037	45,571,905	203	109	683,579	0.99%	1.0587	574,337	574,354	2,584,533	109,241
2038	45,985,108	205	110	689,777	0.98%	1.0586	574,290	574,346	2,584,477	115,487
2039	45,794,886	204	109	686,923	0.98%	1.0586	574,280	574,340	2,584,417	112,643
2040	46,166,095	206	110	692,491	0.98%	1.0585	574,242	574,331	2,584,328	118,249
2041	46,012,737	205	110	690,191	0.98%	1.0585	574,236	574,321	2,584,243	115,955
2042	46,185,689	206	110	692,785	0.98%	1.0585	574,228	574,304	2,584,166	118,557
2043	46,271,235	206	111	694,069	0.97%	1.0585	574,226	574,287	2,584,105	119,843
2044	46,147,640	206	110	692,215	0.98%	1.0585	574,222	574,269	2,584,058	117,993
2045	46,427,618	207	111	696,414	0.97%	1.0584	574,201	574,250	2,584,008	122,214
2046	46,626,649	208	111	699,400	0.97%	1.0584	574,190	574,239	2,583,959	125,210
2047	46,759,965	209	112	701,399	0.96%	1.0584	574,185	574,226	2,583,919	127,214
2048	46,902,671	209	112	703,540	0.96%	1.0584	574,180	574,217	2,583,882	129,360
2049	47,192,519	211	113	707,888	0.95%	1.0584	574,158	574,209	2,583,831	133,730
2050	47,554,968	212	114	713,325	0.95%	1.0583	574,124	574,201	2,583,755	139,200

Notes

- 1) Current year is prorated to 06/30/2021
- 2) [2], [6] from LRFG Program Forecast
- 3) [3],[4] Estimated based on [2]
- 4) [5]=[3]* 0.015
- 5) [7]=[3]*[6]/Instruments Per Permittee
- 6) [8]=[6]* Trended Average LRFG Per Permittee * Forfeited LRFG's with Reclamation Payment * * Reclamation Cost Paid of LRFG Amount
- 7) [9] Calculated based on selected payment patterns, [10] = Prior [10]+[8]-[9]
- 8) [11]=[5]-[8]

**Pennsylvania Bureau of Mining Programs
LRFG Revenue and Forefeiture Rate Forecast as of 06/30/2021**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Fiscal Year	Appalachia Coal Production (M/ST)	Change in Coal Production	Coal Minemouth Price (2020\$/Mbtu)	Change in Coal Price	Natural Gas Price (2020\$/Mbtu)	Change in Nat Gas Price	LRFG Amount	Forfeiture Rate
2021	148		1.53		5.47		47,732,387	0.95%
2022	157	5.9%	1.57	2.6%	5.59	2.2%	49,444,366	0.92%
2023	156	-0.3%	1.54	-1.9%	5.36	-4.1%	48,415,250	0.93%
2024	136	-13.0%	1.51	-2.0%	5.16	-3.7%	45,380,848	0.99%
2025	131	-3.4%	1.49	-1.0%	5.21	0.9%	44,852,838	1.01%
2026	133	0.9%	1.48	-0.7%	5.29	1.6%	45,135,933	1.00%
2027	132	-0.8%	1.49	0.4%	5.35	1.1%	45,242,326	1.00%
2028	131	-0.5%	1.47	-1.4%	5.47	2.2%	45,300,158	1.00%
2029	127	-2.7%	1.46	-0.8%	5.58	2.0%	45,078,476	1.00%
2030	126	-0.8%	1.45	-0.6%	5.70	2.2%	45,186,639	1.00%
2031	126	-0.1%	1.46	1.0%	5.71	0.1%	45,332,420	0.99%
2032	127	1.0%	1.47	0.3%	5.77	1.0%	45,677,682	0.99%
2033	126	-1.3%	1.46	-0.5%	5.84	1.3%	45,617,034	0.99%
2034	125	-0.6%	1.46	0.2%	5.88	0.6%	45,647,824	0.99%
2035	124	-0.8%	1.48	0.9%	5.89	0.3%	45,704,428	0.99%
2036	122	-1.4%	1.49	0.8%	5.89	0.0%	45,597,751	0.99%
2037	121	-0.8%	1.50	0.9%	5.87	-0.3%	45,571,905	0.99%
2038	122	0.3%	1.53	2.3%	5.88	0.1%	45,985,108	0.98%
2039	121	-0.9%	1.53	-0.1%	5.87	-0.3%	45,794,886	0.98%
2040	122	1.4%	1.55	1.3%	5.85	-0.3%	46,166,095	0.98%
2041	121	-1.2%	1.56	0.3%	5.84	-0.1%	46,012,737	0.98%
2042	122	0.9%	1.57	0.6%	5.82	-0.4%	46,185,689	0.98%
2043	122	0.1%	1.58	0.9%	5.79	-0.5%	46,271,235	0.97%
2044	121	-0.6%	1.58	0.1%	5.78	-0.2%	46,147,640	0.98%
2045	122	0.4%	1.61	1.4%	5.78	0.0%	46,427,618	0.97%
2046	122	0.4%	1.62	0.9%	5.78	0.0%	46,626,649	0.97%
2047	122	0.0%	1.63	0.6%	5.80	0.3%	46,759,965	0.96%
2048	122	0.0%	1.64	0.4%	5.83	0.6%	46,902,671	0.96%
2049	122	0.2%	1.65	1.0%	5.87	0.7%	47,192,519	0.95%
2050	124	1.1%	1.66	0.7%	5.90	0.5%	47,554,968	0.95%

Notes

- 1) Current year is prorated to 06/30/2021
- 2) [2], [4] and [6] Source : U.S. Energy Information Administration (EIA), Short-Term Energy Outlook and Annual Energy Outlook
- 3) [3]=Current [2]/Prior[2], [5]=Current [4]/Prior[4], [7]=Current [6]/Prior[6]
- 4) [8] and [9] Selected based on [3], [5] and [7]

**Pennsylvania Bureau of Mining Programs
LRFG Restricted Revenue Account History through 04/30/2021**

(1) Fiscal Year Ending	(2) Transfer From Other Accounts (4455246)	(3) Premiums Collected-BA35 (4436648)	(4) Interest Earned (4445065)	(5) Interest Earnings Act 157-Contra BA35 (4445066)	(6) Contra - Premiums Collected (to 60251) (4431243)	(7) Total LRFG Restricted Revenue Account
Annual Account Change Through Fiscal Year-End						
6/30/2013	12,534,082	71,989	5,097	0	0	12,611,168
6/30/2014	13,773	276,564	21,962	0	0	312,299
6/30/2015	0	295,735	23,970	0	0	319,705
6/30/2016	0	455,621	-8,703	0	-300,000	146,918
6/30/2017	0	667,135	63,692	0	0	730,826
6/30/2018	0	659,537	100,835	0	0	760,372
6/30/2019	0	703,646	153,831	0	0	857,477
6/30/2020	0	783,422	-76,884	0	0	706,538
4/30/2021	0	596,866	-254,791	0	0	342,076
06/30/2021 (Est)	0	716,239	-305,749	0	0	410,491
Account Total at Fiscal Year-End						
6/30/2013	12,534,082	71,989	5,097	0	0	12,611,168
6/30/2014	12,547,855	348,553	27,059	0	0	12,923,466
6/30/2015	12,547,855	644,287	51,029	0	0	13,243,171
6/30/2016	12,547,855	1,099,909	42,325	0	-300,000	13,390,089
6/30/2017	12,547,855	1,767,043	106,017	0	-300,000	14,120,916
6/30/2018	12,547,855	2,426,581	206,852	0	-300,000	14,881,288
6/30/2019	12,547,855	3,130,226	360,683	0	-300,000	15,738,765
6/30/2020	12,547,855	3,913,649	283,799	0	-300,000	16,445,303
4/30/2021	12,547,855	4,510,515	29,008	0	-300,000	16,787,378
06/30/2021 (Est)	12,547,855	4,629,888	-21,950	0	-300,000	16,855,793

Notes

- 1) Current year is estimated at 06/30/2021
- 2) [2] through [6] : Source : Land Reclamation Financial Guarantee Restricted Revenue Account Revenue through April 2021.xls:
- 3) [7] = sum [2] through [6]

**Pennsylvania Bureau of Mining Programs
LRFG Mine Reclamation Payment Summary through 04/30/2021**

Reclamation Costs

1) Active LRFG Permittees	114
2) Active LRFG Instruments	213
3) Active LRFG Instruments per Permittee	1.9
4) Active Average LRFG per Permittee	418,705
5) Active Average LRFG per Instrument	224,096
6) Top 20 Active Average LRFG per Permittee	1,844,793
7) Top 20 Active Average LRFG per Instrument	512,442
8) Top 10 Active Average LRFG per Permittee	2,638,527
9) Top 10 Active Average LRFG per Instrument	628,221

Reclamation Cost Paid of LRFG Amount

10) Forfeited LRFG's with Payment or Expected Payment	8
11) Paid or Expected Payment on 8 Non-Zero Forfeitures	1,174,425
12) LRFG Amount on 8 Non-Zero Forfeitures	1,192,807
13) Expected Reclamation Cost Paid of LRFG Amount	98%

Selected Reclamation Cost Paid of LRFG Amount

Intermediate	98.0%
Optimistic	95.0%
Pessimistic	100.0%

Selected	Average LRFG Per Permittee	Average Instruments per Permittee	Average LRFG Per Instrument
Intermediate	775,000	1.9	408,000
Optimistic	540,000		284,000
Pessimistic	1,010,000		532,000

Reclamation With Payment

14) Forfeited LRFG's	20
15) Reclaimed Without LRFG Payment	12
16) Reclaimed With LRFG Payment	8
17) % Forfeited With LRFG Payment	40.0%
18) % Forfeited With LRFG Payment (2018 and Later)	66.7%

Selected Forfeited LRFG's with Reclamation Payment

Intermediate	70.0%
Optimistic	55.0%
Pessimistic	85.0%

Notes

- 1) [1], [2], [4] through [9] : LRFG Program Summary
- 2) [3] = [2] / [1]
- 3) [10] through [12] and [14] through [16], [18]: LRFG Reclamation History
- 4) [13] = [11] / [12], [17] = [16] / [14]

**Pennsylvania Bureau of Mining Programs
LRFG Program Summary through 04/30/2021**

LRFG Instruments

Status	Instruments	Permittees	Current LRFG Amount	Average Instrument LRFG Amount	Average Permittee LRFG Amount
Active	213	114	47,732,387	224,096	418,705
Forfeited	20	17	1,747,282	87,364	102,781
Released	337	134	54,962,954	163,095	410,171
Total	570	265	104,442,624	183,233	394,123

LRFG Active Instrument Distribution by Operator

Permittee Name	Instruments	Current LRFG Amount	Permittee Count	Average Instrument LRFG Amount	Average Permittee LRFG Amount
ATLANTIC CARBON GRP INC	6	4,468,815	1	744,803	4,468,815
RES COAL LLC	3	3,000,000	1	1,000,000	3,000,000
BLASCHAK COAL CORP	2	3,000,000	1	1,500,000	3,000,000
READING ANTHRACITE CO	8	2,998,589	1	374,824	2,998,589
JR COAL CONTR INC	7	2,600,333	1	371,476	2,600,333
FARRAGUT ANTHRACITE CO	2	2,468,549	1	1,234,275	2,468,549
RIVER HILL COAL CO INC	6	2,426,251	1	404,375	2,426,251
BET ASSOC IV LLC	1	2,368,598	1	2,368,598	2,368,598
PHILA CITY TRUSTEE GIRARD ESTATE	4	1,642,997	1	410,749	1,642,997
SUSQUEHANNA COAL CO	3	1,411,134	1	470,378	1,411,134
BD MINING CO	1	1,271,245	1	1,271,245	1,271,245
RAUSCH CREEK LAND LP	1	1,224,403	1	1,224,403	1,224,403
KEYSTONE ANTHRACITE CO INC	4	1,156,684	1	289,171	1,156,684
MCKAY COAL CO INC	3	1,052,000	1	350,667	1,052,000
GILBERTON COAL CO	9	1,028,574	1	114,286	1,028,574
LEHIGH ANTHRACITE LP	2	1,021,662	1	510,831	1,021,662
PAGNOTTI ENTERPRISES INC	3	970,268	1	323,423	970,268
SCHUYLKILL RECLAMATION CORP	2	956,725	1	478,362	956,725
ORIGINAL FUELS INC	4	942,829	1	235,707	942,829
WHITE PINE COAL CO INC	1	886,195	1	886,195	886,195
All Other	141	10,836,536	94	76,855	115,282
Total	213	47,732,387	114	224,096	418,705
Top 5	26	16,067,737	5	617,990	3,213,547
Top 10	42	26,385,267	10	628,221	2,638,527
Top 20	72	36,895,852	20	512,442	1,844,793

LRFG Active Instrument Distribution by Approval Year

Year Approved	Instruments	Current LRFG Amount	Current LRFG Distribution	Average Instrument LRFG Amount
2002	44	13,544,045	28.4%	307,819
2007-2013	4	5,182,868	10.9%	1,295,717
2014	19	6,687,882	14.0%	351,994
2015	31	4,824,919	10.1%	155,643
2016	48	8,699,824	18.2%	181,246
2017	27	3,877,368	8.1%	143,606
2018	24	3,586,371	7.5%	149,432
2019	10	947,429	2.0%	94,743
2020	5	227,096	0.5%	45,419
2021	1	154,586	0.3%	154,586
Total	213	47,732,387	100.0%	224,096

Notes

- 1) Source : LRFG Spreadsheet Shared.xlsx
- 2) The majority of mines with LRFG's are surface mines, there are approximately 11 anthracite underground mines that currently have LRFGs.

**Pennsylvania Bureau of Mining Programs
LRFG Mine Reclamation Cost History through 04/30/2021**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Permittee Name	Permit #	Mine Name	Instrument #	LRFG Instrument Status	Mine Site Status	LRFG Approved	Forfeiture Declaration Date	Total Bond Amount	Original LRFG Amount	Current LRFG Amount	Reclamation Costs Paid	Reclamation Costs Reserved	Reclamation Costs Incurred
BLACK DOG MINING INC	5773002	DODSON NO 1 MINE	4840108CFG	Forfeited	Bond Forfeited-Passive Trtmt	08/30/2005	03/26/2004	\$245,350	\$3,881	\$3,881	\$0	\$0	\$0
COAL CASTLE FUELS INC	54890201	COAL CASTLE FUELS WL MINE	4810122CFG	Forfeited	Primacy Bond Forfeited	12/05/2014	04/17/2017	\$32,983	\$8,112	\$8,112	\$0	\$8,112	\$8,112
COALDALE ENERGY LLC	54070202	COALDALE ENERGY GL SILT BASIN	4810115CFG	Forfeited	Primacy Bond Forfeited	09/16/2014	07/06/2017	\$256,904	\$39,436	\$39,436	\$0	\$0	\$0
ED HANSLOVAN COAL CO INC	17980101	TOWER NORTH NO 2 MINE	482077CFG	Forfeited	Bond Forfeiture-Reclaimed	07/02/2002	07/01/2005	\$363,000	\$317,700	\$317,700	\$299,318	\$0	\$299,318
ED HANSLOVAN COAL CO INC	17990113	CLOVER RUN MINE	482028CFG	Forfeited	Bond Forfeiture-Reclaimed	04/16/2002	06/27/2005	\$270,920	\$199,500	\$199,500	\$0	\$0	\$0
FALCON COAL & CONST CO	57000901	MILDRED 2	482055CFG	Forfeited	Bond Forfeiture-Reclaimed	07/01/2002	05/05/2009	\$20,268	\$8,200	\$8,200	\$0	\$0	\$0
FALCON COAL & CONST CO	57960201	MILDRED SILT POND	482056CFG	Forfeited	Bond Forfeiture-Reclaimed	07/01/2002	08/28/2009	\$17,278	\$5,200	\$5,200	\$0	\$0	\$0
GINTHER COAL CO	54743208	GINTHER COAL LUCIANNA MINE	481065CFG	Forfeited	Primacy Bond Forfeited	05/14/2002	03/09/2016	\$104,340	\$42,485	\$42,485	\$0	\$42,485	\$42,485
JOHNSON BROS COAL CO	17970111	MCGEE MINE	482079CFG	Forfeited	Bond Forfeiture-Reclaimed	07/01/2002	03/02/2010	\$89,640	\$110,100	\$55,440	\$0	\$0	\$0
LAUREL LAND DEV INC	11980103	MCFADDEN NO 2 MINE	484049CFG	Forfeited	Bond Forfeiture-Reclaimed	04/24/2002	07/11/2005	\$168,609	\$19,389	\$19,389	\$0	\$0	\$0
MILLWOOD DEV INC	32010101	NOWRYTOWN NO 2 MINE	4840109CFG	Forfeited	Bond Forfeiture-Reclaimed	10/02/2006	08/14/2008	\$80,674	\$21,607	\$21,607	\$0	\$0	\$0
OLDE BUCK RUN COAL CO INC	54840105	OLDE BUCK RUN MINE HILL MINE	4810108CFG	Forfeited	Primacy Bond Forfeited	04/05/2012	07/08/2020	\$144,992	\$144,992	\$144,992	\$0	\$144,992	\$144,992
POPPLE BROS COAL CO	40763208	POPPLE BROS COAL DURYE MINE	481094CFG	Forfeited	Primacy Bond Forfeited	11/18/2002	04/27/2020	\$204,342	\$129,918	\$129,918	\$0	\$0	\$0
RALPH SMITH & SON INC	65990106	POVANDA MINE	483022CFG	Forfeited	Primacy Bond Forfeited	07/02/2002	06/16/2008	\$71,600	\$34,000	\$34,000	\$0	\$34,000	\$34,000
RJ COAL CO	17980121	BLOOM 2 MINE	482032CFG	Forfeited	Bond Forfeiture-Reclaimed	06/14/2002	07/26/2011	\$76,803	\$8,700	\$8,700	\$0	\$0	\$0
ROSINI ENTERPRISES INC	49860201	ROSINI COAL ROSINI MINE	481093CFG	Forfeited	Active	07/03/2002	11/02/2005	\$68,319	\$36,009	\$36,009	\$0	\$0	\$0
SHERMAN COAL CO INC	54931601	SHERMAN COAL BREAKER	4810134CFG	Active	Active	04/01/2015		\$81,122	\$6,185	\$27,195	\$0	\$0	\$0
SHERPA MINING CONTR INC	56920106	BRUBAKER MINE	4840110CFG	Active	Bond in Forfeiture	05/01/2008		\$264,342	\$106,748	\$74,410	\$0	\$74,410	\$74,410
SHERPA MINING CONTR INC	56950111	BURGESS 2 STRIP	484097CFG	Active	Reclaimed/Chemical Trtmt	05/12/2003		\$925,608	\$393,608	\$393,608	\$0	\$393,608	\$393,608
TIMOTHY A KECK	16050106	KECK 1 MINE	536050CFG	Forfeited	Primacy Bond Forfeited	12/18/2015	07/24/2018	\$371,300	\$177,500	\$177,500	\$0	\$177,500	\$177,500
Total								\$3,858,394	\$1,813,270	\$1,747,282	\$299,318	\$875,107	\$1,174,425

Notes

- 1) Source : LRFG Spreadsheet Shared.xlsx
- 2) SHERMAN COAL BREAKER was taken over while bond was in forfeiture.

**Pennsylvania Bureau of Mining Programs
Bond Forfeiture Rates**

(1) Year	(2) Forfeitures	(3) Total Units	(4) Active Units	(5) Bond Forfeiture %	(6) Nominal Coal Price (\$/ST)	(7) Change Coal Price (\$/ST)	(8) Natural Gas Price (\$/1K CF)	(9) Change Gas Price (\$/1K CF)
1996	35	2,448	2,206	1.59%	18.50			
1997	13	2,292	2,292	0.57%	18.14	-1.9%	2.78	
1998	10	2,379	2,379	0.42%	17.67	-2.6%	2.40	-13.7%
1999	20	2,377	2,377	0.84%	16.63	-5.9%	2.62	9.2%
2000	39	2,269	2,269	1.72%	16.78	0.9%	4.38	67.2%
2001	20	2,160	2,156	0.93%	17.58	4.8%	4.61	5.3%
2002	10	2,145	2,145	0.47%	17.89	1.8%	3.68	-20.2%
2003	36	2,025	2,025	1.78%	17.92	0.2%	5.57	51.4%
2004	18	1,977	1,977	0.91%	20.07	12.0%	6.11	9.7%
2005	57	1,928	1,928	2.96%	23.34	16.3%	8.47	38.6%
2006	8	1,820	1,820	0.44%	24.63	5.5%	7.11	-16.1%
2007	6	1,767	1,691	0.35%	25.82	4.8%	7.31	2.8%
2008	11	1,080	1,648	0.67%	31.25	21.0%	9.26	26.7%
2009	12	1,912	1,784	0.67%	33.24	6.4%	4.93	-46.8%
2010	5	1,684	1,623	0.31%	35.61	7.1%	5.27	6.9%
2011	3	1,731	1,388	0.22%	41.01	15.2%	4.89	-7.2%
2012	2	1,649	1,463	0.14%	39.95	-2.6%	3.54	-27.6%
2013	4	1,458	1,356	0.29%	37.24	-6.8%	4.49	26.8%
2014	4	1,465	1,364	0.29%	34.83	-6.5%	5.19	15.6%
2015	2	1,404	1,261	0.16%	31.81	-8.7%	3.38	-34.9%
2016	34	1,287	1,151	2.95%	30.57	-3.9%	2.99	-11.5%
2017	5	1,254	1,116	0.45%	33.72	10.3%	3.51	17.4%
2018	2	1,192	1,053	0.19%	35.99	6.7%	3.68	4.8%
2019	3	1,194	1,039	0.29%	36.07	0.2%	2.99	-18.8%
2020	2	1,105	963	0.21%			2.48	-17.1%
Average				0.85%				
2005-2020 Avg.				0.71%				
20th Percentile				0.27%				
80th Percentile				1.06%				
Highest Year				2.96%				
Highest 2 FY Year Period				1.92%				
Highest 3 FY Year Period				1.87%				
Selected Forfeiture Rate								
Intermediate				0.95%				
Optimistic				0.65%				
Pessimistic				1.85%				

Notes

1) [2] through [4] Source : BF_Frequency_Dec_2019 (002)b.xlsx

2) [5] = [2] / [4]

3) [6] Source: US EIA Annual Coal Report 2019 , [7] = [6] / Prior [6]

4) [8] Source: http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_a.htm N3045US3 [9] = [9] / Prior [9]

**Pennsylvania Bureau of Mining Programs
Pennsylvania Short-Term Investment Pool - Pool 99**

(1) FY Beginning (7/1)	(2) STIP Pool 99 Return	(3) 3 Month Treasury Yield - 1/1 of FY
2004		2.32%
2005		4.16%
2006		5.07%
2007		3.26%
2008	1.58%	0.08%
2009	0.29%	0.08%
2010	0.28%	0.15%
2011	0.26%	0.02%
2012	0.22%	0.08%
2013	0.17%	0.07%
2014	0.19%	0.02%
2015	0.35%	0.22%
2016	0.82%	0.53%
2017	1.55%	1.44%
2018	2.42%	2.42%
2019	1.63%	1.54%
Average	0.81%	1.34%
2010-2019 Avg.	0.79%	0.65%
2015-2019 Avg.	1.35%	1.23%
<hr/>		
Selected Return		
Intermediate	0.80%	
Optimistic	1.50%	
Pessimistic	0.30%	

Notes

- 1) [2] Source : Pennsylvania Treasury Annual Investment Report
2) [3] Source : 3 Month Treasury Yield : Treasury.gov

**Pennsylvania Bureau of Mining Programs
LRFG Restricted Revenue Account Forecast as of 06/30/2021
Optimistic Estimate**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Fiscal Year Ending 6/30	Premiums Collected	Interest Earned	Other Revenue and Transfers	Total Revenue	Reclamation Payments	Other Costs and Transfers	Total Costs	LRFG Account - Annual Cash Flow	Reclamation Reserve	LRFG Account - Fiscal Year End Balance
2021									875,107	15,980,686
2022	741,665	239,710	0	981,376	250,031	0	250,031	731,345	841,217	16,745,921
2023	726,229	251,189	0	977,418	208,359	0	208,359	769,059	848,906	17,507,292
2024	680,713	262,609	0	943,322	202,711	0	202,711	740,612	861,394	18,235,415
2025	672,793	273,531	0	946,324	197,047	0	197,047	749,277	879,516	18,966,570
2026	677,039	284,499	0	961,538	191,241	0	191,241	770,296	903,436	19,712,946
2027	678,635	295,694	0	974,329	185,431	0	185,431	788,898	933,164	20,472,116
2028	679,502	307,082	0	986,584	179,619	0	179,619	806,965	968,704	21,243,541
2029	676,177	318,653	0	994,830	215,479	0	215,479	779,351	968,379	22,023,217
2030	677,800	330,348	0	1,008,148	215,316	0	215,316	792,832	968,216	22,816,212
2031	679,986	342,243	0	1,022,229	215,167	0	215,167	807,063	968,200	23,623,290
2032	685,165	354,349	0	1,039,515	215,159	0	215,159	824,355	968,179	24,447,667
2033	684,256	366,715	0	1,050,971	215,156	0	215,156	835,814	968,160	25,283,500
2034	684,717	379,252	0	1,063,970	215,152	0	215,152	848,817	968,145	26,132,332
2035	685,566	391,985	0	1,077,551	215,149	0	215,149	862,403	968,134	26,994,746
2036	683,966	404,921	0	1,088,887	215,145	0	215,145	873,742	968,125	27,868,497
2037	683,579	418,027	0	1,101,606	215,142	0	215,142	886,464	968,119	28,754,967
2038	689,777	431,325	0	1,121,101	215,140	0	215,140	905,961	968,097	29,660,950
2039	686,923	444,914	0	1,131,838	215,137	0	215,137	916,700	968,075	30,577,673
2040	692,491	458,665	0	1,151,157	215,134	0	215,134	936,023	968,042	31,513,728
2041	690,191	472,706	0	1,162,897	215,130	0	215,130	947,767	968,010	32,461,527
2042	692,785	486,923	0	1,179,708	215,124	0	215,124	964,584	967,981	33,426,140
2043	694,069	501,392	0	1,195,461	215,117	0	215,117	980,343	967,958	34,406,506
2044	692,215	516,098	0	1,208,312	215,111	0	215,111	993,202	967,941	35,399,726
2045	696,414	530,996	0	1,227,410	215,104	0	215,104	1,012,307	967,922	36,412,051
2046	699,400	546,181	0	1,245,580	215,099	0	215,099	1,030,481	967,904	37,442,550
2047	701,399	561,638	0	1,263,038	215,094	0	215,094	1,047,943	967,888	38,490,509
2048	703,540	577,358	0	1,280,898	215,091	0	215,091	1,065,807	967,875	39,556,329
2049	707,888	593,345	0	1,301,233	215,088	0	215,088	1,086,145	967,856	40,642,493
2050	713,325	609,637	0	1,322,962	215,085	0	215,085	1,107,877	967,827	41,750,398

Notes

- 1) Current year is prorated to 06/30/2021
- 2) [2], [6], [10] from LRFG Forecast Opt
- 3) [3]=[2]* Short Term Investment Pool Return
- 4) [5]=[2]+[3]+[4], [8]=[6]+[7],[9]=[5]-[8]
- 5) [11]=Prior [11]-[9]-([10]-Prior[10]).

**Pennsylvania Bureau of Mining Programs
LRFG Forecast as of 06/30/2021
Optimistic Estimate**

(1) Fiscal Year Ending 6/30	(2) LRFG Amount	(3) Active Instruments	(4) Active Permittees	(5) Premium Collected	(6) Forfeiture Rate	(7) Forfeited Permittees	(8) Reclamation Costs	(9) Reclamation Payments	(10) Reclamation Reserve	(11) Premium Less Costs
2021	47,732,387	213	114				875,107		875,107	
2022	49,444,366	221	118	741,665	0.63%	0.7277	216,141	250,031	841,217	525,525
2023	48,415,250	216	116	726,229	0.64%	0.7274	216,047	208,359	848,906	510,182
2024	45,380,848	203	108	680,713	0.68%	0.7246	215,199	202,711	861,394	465,514
2025	44,852,838	200	107	672,793	0.69%	0.7245	215,169	197,047	879,516	457,623
2026	45,135,933	201	108	677,039	0.68%	0.7244	215,161	191,241	903,436	461,878
2027	45,242,326	202	108	678,635	0.68%	0.7244	215,160	185,431	933,164	463,475
2028	45,300,158	202	108	679,502	0.68%	0.7244	215,159	179,619	968,704	464,343
2029	45,078,476	201	108	676,177	0.68%	0.7244	215,154	215,479	968,379	461,023
2030	45,186,639	202	108	677,800	0.68%	0.7244	215,153	215,316	968,216	462,647
2031	45,332,420	202	108	679,986	0.68%	0.7244	215,151	215,167	968,200	464,836
2032	45,677,682	204	109	685,165	0.68%	0.7244	215,138	215,159	968,179	470,027
2033	45,617,034	204	109	684,256	0.68%	0.7244	215,138	215,156	968,160	469,118
2034	45,647,824	204	109	684,717	0.68%	0.7244	215,138	215,152	968,145	469,580
2035	45,704,428	204	109	685,566	0.67%	0.7244	215,137	215,149	968,134	470,429
2036	45,597,751	203	109	683,966	0.68%	0.7244	215,136	215,145	968,125	468,830
2037	45,571,905	203	109	683,579	0.68%	0.7244	215,136	215,142	968,119	468,442
2038	45,985,108	205	110	689,777	0.67%	0.7243	215,118	215,140	968,097	474,658
2039	45,794,886	204	109	686,923	0.67%	0.7243	215,115	215,137	968,075	471,809
2040	46,166,095	206	110	692,491	0.67%	0.7242	215,101	215,134	968,042	477,391
2041	46,012,737	205	110	690,191	0.67%	0.7242	215,098	215,130	968,010	475,093
2042	46,185,689	206	110	692,785	0.67%	0.7242	215,095	215,124	967,981	477,690
2043	46,271,235	206	111	694,069	0.67%	0.7242	215,094	215,117	967,958	478,974
2044	46,147,640	206	110	692,215	0.67%	0.7242	215,093	215,111	967,941	477,122
2045	46,427,618	207	111	696,414	0.66%	0.7242	215,085	215,104	967,922	481,329
2046	46,626,649	208	111	699,400	0.66%	0.7242	215,081	215,099	967,904	484,319
2047	46,759,965	209	112	701,399	0.66%	0.7242	215,079	215,094	967,888	486,320
2048	46,902,671	209	112	703,540	0.66%	0.7242	215,077	215,091	967,875	488,463
2049	47,192,519	211	113	707,888	0.65%	0.7241	215,069	215,088	967,856	492,819
2050	47,554,968	212	114	713,325	0.65%	0.7241	215,056	215,085	967,827	498,268

Notes

- 1) Current year is prorated to 06/30/2021
- 2) [2], [6] from LRFG Program Forecast
- 3) [3],[4] Estimated based on [2]
- 4) [5]=[3]* 0.015
- 5) [7]=[3]*[6]/Instruments Per Permittee
- 6) [8]=[6]* Trended Average LRFG Per Permittee * Forfeited LRFG's with Reclamation Payment ** Reclamation Cost Paid of LRFG Amount
- 7) [9] Calculated based on selected payment patterns, [10] = Prior [10]+[8]-[9]
- 8) [11]=[5]-[8]

**Pennsylvania Bureau of Mining Programs
LRFG Restricted Revenue Account Forecast as of 06/30/2021
Pessimistic Estimate**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Fiscal Year Ending 6/30	Premiums Collected	Interest Earned	Other Revenue and Transfers	Total Revenue	Reclamation Payments	Other Costs and Transfers	Total Costs	LRFG Account - Annual Cash Flow	Reclamation Reserve	LRFG Account - Fiscal Year End Balance
2021									875,107	15,980,686
2022	741,665	47,942	0	789,608	250,031	0	250,031	539,577	2,403,270	14,992,100
2023	726,229	44,976	0	771,205	208,359	0	208,359	562,846	3,972,334	13,985,882
2024	680,713	41,958	0	722,670	463,053	0	463,053	259,618	5,279,723	12,938,111
2025	672,793	38,814	0	711,607	717,618	0	717,618	-6,011	6,332,306	11,879,517
2026	677,039	35,639	0	712,678	971,020	0	971,020	-258,342	7,131,417	10,822,063
2027	678,635	32,466	0	711,101	1,224,382	0	1,224,382	-513,281	7,677,157	9,763,043
2028	679,502	29,289	0	708,792	1,477,732	0	1,477,732	-768,940	7,969,544	8,701,716
2029	676,177	26,105	0	702,282	1,772,752	0	1,772,752	-1,070,470	7,966,868	7,633,923
2030	677,800	22,902	0	700,701	1,771,406	0	1,771,406	-1,070,705	7,965,527	6,564,558
2031	679,986	19,694	0	699,680	1,770,182	0	1,770,182	-1,070,502	7,965,393	5,494,191
2032	685,165	16,483	0	701,648	1,770,119	0	1,770,119	-1,068,471	7,965,219	4,425,894
2033	684,256	13,278	0	697,533	1,770,093	0	1,770,093	-1,072,560	7,965,067	3,353,486
2034	684,717	10,060	0	694,778	1,770,062	0	1,770,062	-1,075,284	7,964,945	2,278,323
2035	685,566	6,835	0	692,401	1,770,032	0	1,770,032	-1,077,631	7,964,851	1,200,787
2036	683,966	3,602	0	687,569	1,770,003	0	1,770,003	-1,082,434	7,964,777	118,427
2037	683,579	355	0	683,934	1,769,980	0	1,769,980	-1,086,046	7,964,725	-967,567
2038	689,777	-2,903	0	686,874	1,769,957	0	1,769,957	-1,083,083	7,964,551	-2,050,475
2039	686,923	-6,151	0	680,772	1,769,937	0	1,769,937	-1,089,165	7,964,366	-3,139,456
2040	692,491	-9,418	0	683,073	1,769,910	0	1,769,910	-1,086,837	7,964,092	-4,226,018
2041	690,191	-12,678	0	677,513	1,769,878	0	1,769,878	-1,092,365	7,963,830	-5,318,121
2042	692,785	-15,954	0	676,831	1,769,827	0	1,769,827	-1,092,996	7,963,593	-6,410,881
2043	694,069	-19,233	0	674,836	1,769,774	0	1,769,774	-1,094,938	7,963,405	-7,505,631
2044	692,215	-22,517	0	669,698	1,769,717	0	1,769,717	-1,100,020	7,963,260	-8,605,505
2045	696,414	-25,817	0	670,598	1,769,660	0	1,769,660	-1,099,063	7,963,107	-9,704,415
2046	699,400	-29,113	0	670,286	1,769,625	0	1,769,625	-1,099,339	7,962,956	-10,803,603
2047	701,399	-32,411	0	668,989	1,769,585	0	1,769,585	-1,100,596	7,962,832	-11,904,075
2048	703,540	-35,712	0	667,828	1,769,558	0	1,769,558	-1,101,730	7,962,718	-13,005,691
2049	707,888	-39,017	0	668,871	1,769,532	0	1,769,532	-1,100,661	7,962,562	-14,106,197
2050	713,325	-42,319	0	671,006	1,769,507	0	1,769,507	-1,098,501	7,962,327	-15,204,463

Notes

- 1) Current year is prorated to 06/30/2021
- 2) [2], [6], [10] from LRFG Forecast Pess
- 3) [3]=[2]* Short Term Investment Pool Return
- 4) [5]=[2]+[3]+[4], [8]=[6]+[7],[9]=[5]-[8]
- 5) [11]=Prior [11]-[9]-([10]-Prior[10]).

**Pennsylvania Bureau of Mining Programs
LRFG Forecast as of 06/30/2021
Pessimistic Estimate**

(1) Fiscal Year Ending 6/30	(2) LRFG Amount	(3) Active Instruments	(4) Active Permittees	(5) Premium Collected	(6) Forfeiture Rate	(7) Forfeited Permittees	(8) Reclamation Costs	(9) Reclamation Payments	(10) Reclamation Reserve	(11) Premium Less Costs
2021	47,732,387	213	114				875,107		875,107	
2022	49,444,366	221	118	741,665	1.78%	2.0713	1,778,193	250,031	2,403,270	-1,036,528
2023	48,415,250	216	116	726,229	1.82%	2.0704	1,777,423	208,359	3,972,334	-1,051,194
2024	45,380,848	203	108	680,713	1.93%	2.0622	1,770,441	463,053	5,279,723	-1,089,729
2025	44,852,838	200	107	672,793	1.96%	2.0620	1,770,202	717,618	6,332,306	-1,097,409
2026	45,135,933	201	108	677,039	1.95%	2.0619	1,770,131	971,020	7,131,417	-1,093,092
2027	45,242,326	202	108	678,635	1.94%	2.0619	1,770,121	1,224,382	7,677,157	-1,091,486
2028	45,300,158	202	108	679,502	1.94%	2.0619	1,770,118	1,477,732	7,969,544	-1,090,616
2029	45,078,476	201	108	676,177	1.95%	2.0618	1,770,076	1,772,752	7,966,868	-1,093,899
2030	45,186,639	202	108	677,800	1.94%	2.0618	1,770,066	1,771,406	7,965,527	-1,092,266
2031	45,332,420	202	108	679,986	1.94%	2.0618	1,770,047	1,770,182	7,965,393	-1,090,061
2032	45,677,682	204	109	685,165	1.92%	2.0617	1,769,945	1,770,119	7,965,219	-1,084,779
2033	45,617,034	204	109	684,256	1.92%	2.0617	1,769,941	1,770,093	7,965,067	-1,085,686
2034	45,647,824	204	109	684,717	1.92%	2.0617	1,769,941	1,770,062	7,964,945	-1,085,223
2035	45,704,428	204	109	685,566	1.92%	2.0617	1,769,938	1,770,032	7,964,851	-1,084,372
2036	45,597,751	203	109	683,966	1.93%	2.0617	1,769,928	1,770,003	7,964,777	-1,085,962
2037	45,571,905	203	109	683,579	1.93%	2.0617	1,769,928	1,769,980	7,964,725	-1,086,349
2038	45,985,108	205	110	689,777	1.91%	2.0615	1,769,782	1,769,957	7,964,551	-1,080,006
2039	45,794,886	204	109	686,923	1.92%	2.0614	1,769,752	1,769,937	7,964,366	-1,082,829
2040	46,166,095	206	110	692,491	1.90%	2.0613	1,769,636	1,769,910	7,964,092	-1,077,144
2041	46,012,737	205	110	690,191	1.91%	2.0613	1,769,616	1,769,878	7,963,830	-1,079,425
2042	46,185,689	206	110	692,785	1.90%	2.0613	1,769,591	1,769,827	7,963,593	-1,076,806
2043	46,271,235	206	111	694,069	1.90%	2.0613	1,769,585	1,769,774	7,963,405	-1,075,517
2044	46,147,640	206	110	692,215	1.90%	2.0612	1,769,572	1,769,717	7,963,260	-1,077,358
2045	46,427,618	207	111	696,414	1.89%	2.0612	1,769,507	1,769,660	7,963,107	-1,073,093
2046	46,626,649	208	111	699,400	1.88%	2.0611	1,769,475	1,769,625	7,962,956	-1,070,075
2047	46,759,965	209	112	701,399	1.88%	2.0611	1,769,460	1,769,585	7,962,832	-1,068,061
2048	46,902,671	209	112	703,540	1.87%	2.0611	1,769,444	1,769,558	7,962,718	-1,065,904
2049	47,192,519	211	113	707,888	1.86%	2.0610	1,769,376	1,769,532	7,962,562	-1,061,488
2050	47,554,968	212	114	713,325	1.85%	2.0609	1,769,272	1,769,507	7,962,327	-1,055,947

Notes

- 1) Current year is prorated to 06/30/2021
- 2) [2], [6] from LRFG Program Forecast
- 3) [3],[4] Estimated based on [2]
- 4) [5]=[3]* 0.015
- 5) [7]=[3]*[6]/Instruments Per Permittee
- 6) [8]=[6]* Trended Average LRFG Per Permittee * Forfeited LRFG's with Reclamation Payment * * Reclamation Cost Paid of LRFG Amount
- 7) [9] Calculated based on selected payment patterns, [10] = Prior [10]+[8]-[9]
- 8) [11]=[5]-[8]