

**REPORT OF THE
SPECIAL RECLAMATION FUND
ADVISORY COUNCIL**

January 30, 2023



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EXECUTIVE SUMMARY

The Special Reclamation Fund Advisory Council (the “SRFAC”) was established by the Legislature in 2001 in order to ensure the effective, efficient and financially stable operation of the Special Reclamation Fund (the Fund). (W.Va. Code § 22-1-17). According to W.Va. Code § 22-1-17 the SRFAC shall consist of eight members, including the Secretary of the West Virginia Department of Environmental Protection (WVDEP) or his or her designee, the Treasurer of the State of West Virginia or his or her designee, the Director of the National Mine Land Reclamation Center at West Virginia University and five members to be appointed by the governor with the advice and consent of the Senate.

The Fund is designated by the Legislature for the reclamation and rehabilitation of lands subject to permitted coal mining operations and abandoned after 1977, where the bond posted is insufficient to cover the cost of reclamation. The Fund is presently funded by a tax of 27.9 cents per ton of clean coal mined in West Virginia. From this revenue, funds based on a tax rate of 15 cents per ton are being paid into the Special Reclamation Water Trust Fund (SRWTF), while funds based on a tax rate of 12.9 cents per ton are being paid into the Fund. According to W.Va. Code § 22-3-11, “Beginning with the tax period commencing on July 1, 2009, and every two years thereafter, the special reclamation tax shall be reviewed by the Legislature to determine whether the tax should be continued: *Provided*, That the tax may not be reduced until the Fund and SRWTF have sufficient moneys to meet the reclamation responsibilities of the state established in this section.”

The SRWTF was created “for the purpose of assuring a reliable source of capital to construct, operate, and maintain water treatment systems on forfeited sites.” (W.Va. Code § 22-3-11).

The Secretary of the WVDEP is required to conduct formal actuarial studies every two years and conduct informal reviews annually on the Fund and SRWTF. The SRFAC is also required to make a report to the Legislature every year on the financial condition of the Fund. (W.Va. Code § 22-1-17). The report is to include: “A recommendation as to whether or not any adjustments to the special reclamation tax should be made considering the cost, timeliness, and adequacy of bond forfeiture reclamation, including water treatment and a discussion of the SRFAC 's required study issues.”

In accordance with the statutory requirements, the SRFAC submits the following:

1. Recommendation:

Based upon conclusions drawn from information included in this report, the SRFAC makes the following recommendations to the Legislature:

The SRFAC recommends that the present 12.9 cent per ton tax dedicated to the Fund remain in force and that the tax dedicated to the SRWTF remain at 15 cents per ton. It was previously established by the Council that the Fund would cover all costs for both land reclamation and water treatment through June 2018. Then starting in July 2018, the SRWTF would begin covering the cost for water treatment—both water capital costs and ongoing water treatment costs. Following reviews of the financial status and investment earnings of both funds it was the consensus of the Council to continue paying for all reclamation costs out of the Fund to allow the SRWTF to continue building assets while earning higher yields. It was also agreed that fund transfers from the SRWTF to the Fund would occur, as needed, to maintain a Fund balance of \$10,000,000.

The SRFAC further recommends that the State Legislature form a panel to examine the elements of our State code that result in uncontrolled liabilities, and to propose a State legislative initiative to rationalize water quality regulation to meet the conditions of the Federal Clean Water Act while adding rationality and certainty to the process.

The SRFAC recommends that the Legislature continue to examine the implications of the recent court rulings and subsequent lawsuit settlements on the Special Reclamation Fund, Abandoned Mine Lands, and voluntary efforts by citizen-led watershed groups to address historic mining reclamation related liabilities. The SRFAC further recommends that the Legislature examine the mine reclamation and bonding programs of other states as implemented in Tennessee, by the federal Office of Surface Mining in order to determine whether the statute and regulations creating the Fund and SRWTF in West Virginia have inappropriately interpreted SMCRA to require long-term CWA liabilities. The SRFAC further recommends the Legislature examine the separate and distinct authorities of the Clean Water Act (CWA) in assessing the eligibility of future forfeitures for transfer of liabilities to the SRWTF. The SRFAC is concerned about default transfer of water treatment liability to the SRWTF when opportunities exist to pursue responsible parties under the CWA per the requirements of an NPDES (CWA Section 402) permit.

2022 SRFAC Study Issues

- Review of the current investment strategy
- Continue review of DMR database and improvement to functionality. A priority addition is to include a data field that indicates whether an active permit is treating AMD, or other water pollutants, as part of the effort to compile water management and treatment costs on active sites.
- Integrate more detailed inspection data with the DMR permit data used by the SRF. Currently, the database only specifies a broad inspection status on the date of last inspection. Information about permit violations, including number, date, and types of violations, is needed to evaluate risk of forfeiture. DMR is working to connect two databases to make this happen.
- Continue to improve upon the active mine pollutant inventory.
- Consensus Coal Forecast and Actuarial Modeling Improvements for 2023 Study

2022 Notable Projects:

- Southwestern Energy (SWN) partnership for Operation & Maintenance ongoing for two sites.
- Rare Earth Elements Extraction Plant combined with new Acid Mine Drainage Treatment facility is now online at site A34, near Bismarck WV.
- A study was undertaken to compare the costs and benefits of the watershed strategy for treating AMD vs point source treatment within Muddy Creek (Ziemkiewicz, Risch) Results indicate that the 10 year capX + opX costs were \$ 7,280,000 less using the watershed strategy and that stream recovery totaled 19.2 miles. On the other hand, previous experience using a point source (NPDES) treatment strategy resulted in much higher cost while recovering zero stream miles (table 1). Costs to the SRWTF were significantly reduced by a voluntary contribution by Southwestern Energy Co. However, even without that contribution, costs of the watershed strategy were still lower than the point source treatment strategy.

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Table 1. Summary of costs and benefits related to point source vs. watershed level treatment strategies. The example reflects actual costs for implementing the Muddy Ck. Project and includes the voluntary contributions by Southwestern Energy Co.

| Cost (\$ million) | Strategy | | |
|----------------------------------|----------------------|----------------------|----------------------|
| | Point Source | Watershed * | Watershed ** |
| CapX | \$ 12,500,000 | \$ 15,920,000 | \$ 15,920,000 |
| Southwestern Energy Contribution | | \$ (2,500,000) | |
| Net CapX | \$ 12,500,000 | \$ 13,420,000 | \$ 15,920,000 |
| OpX per year | \$ 1,000,000 | \$ 530,000 | \$ 530,000 |
| Southwestern Energy Contribution | | \$ (350,000) | |
| Net OpX (10 yrs) | \$ 10,000,000 | \$ 1,800,000 | \$ 5,300,000 |
| Total costs over 10 years | \$ 22,500,000 | \$ 15,220,000 | \$ 21,220,000 |
| Savings | | \$ 7,280,000 | \$ 1,280,000 |
| Stream Miles Recovered | | | |
| Muddy Ck | 0 | 3.20 | 3.20 |
| Cheat River | 0 | 16.00 | 16.00 |
| Total stream recovery | 0 | 19.20 | 19.20 |

* with SWE contribution

** without SWE contribution

Membership Status of the Special Reclamation Fund Advisory Council

David McCoy is temporarily serving as the member representing the Cabinet Secretary of the WVDEP, while Matthew Butler, the new Deputy Director for Division of Land Restoration, is transitioning into the lead representative. Lindsay Marchio serves as the member representing the Treasurer of the State of West Virginia. Dr. Paul Ziemkiewicz serves as the member representing the Director of the National Mine Land Reclamation Center at West Virginia University. Christine Risch, Marshall University, Center for Business and Economic Research, serves as the Actuary/Economist member. Jason Bostic serves as the member representing the interests of the coal industry. John Morgan serves as the member representing the interest of environmental protection

organizations. Ronald Pauley serves as the member representing the interests of coal miners. Christopher Pence serves as the member representing the interests of the general public.

BACKGROUND ON THE SPECIAL RECLAMATION FUND

In 2001 the legislation establishing the SRFAC also increased the tax on clean coal mined in West Virginia, from three to seven cents per ton (the “Continuing Tax”) and levied an additional seven cents per ton (the “Temporary Tax”), to be deposited into the Fund. The revenues of the Fund were designated to pay for reclamation on post-1977 bond-forfeited (permit revoked) sites.

The 2001 legislation provided for the Temporary Tax to be in effect for thirty-nine months. As a result of a 2005 actuarial report finding that the expiration of the Temporary Tax would result in nearly immediate insolvency of the Fund, the Temporary Tax was extended by the Legislature in 2005, for an additional eighteen months. A 2007 actuarial study commissioned by the SRFAC found that the failure to extend the Temporary Tax again would result in insolvency of the Fund. Accordingly, in 2008 the Legislature, through SB 751, created the SRWTF and enacted a temporary, twelve-month tax of 7.4 cents which was to be allocated between the Fund and a SRWTF. Twelve and nine-tenths cents was dedicated to the Fund and 1.5 cents was deposited into the SRWTF. An updated actuarial study in 2008 concluded that terminating the temporary tax would result in insolvency within a few years. In response, during the 2009 legislative session, the Legislature amended W.Va. Code § 22-3-11 to remove the expiration date for the Temporary Tax and provided instead for biennial review of the Tax by the Legislature. (Acts of the Legislature 2009, chapter 216).

Based upon projections under the 2011 Actuarial Analysis performed by Pinnacle Actuarial Resources, Inc. the Fund was found to be sufficiently funded under the existing 12.9 cent tax. However, the SRFAC was concerned that as the SRWTF began making payments for water capital and ongoing water treatment in Fiscal Year 2019, as projected, the SRWTF would fall into a deficit position in the second year of operation-2020. (2011 Actuarial Valuation, page 3). Declining coal production projected by the 2011 Consensus Coal Production Forecast and the significant increase in water treatment costs resulting from court rulings in two cases were contributing factors in the projected insolvency of the SRWTF. Accordingly, in 2012 the Legislature increased the special reclamation tax to 27.9 cents per ton, 15 cents of which was to be deposited into the SRWTF.

Based upon projections under the 2013 Actuarial Analysis performed by Pinnacle Actuarial Resources, Inc. the Fund was projected to be over 100 percent funded using a 20-year cash flow basis and 95.7 percent funded

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using a 35-year cash flow basis. The SRWTF was (and is today) accumulating 15 cents per ton coal tax revenue and interest and was projected by the 2013 Actuarial Valuation to be 150.4 percent funded using a 20-year cash flow basis and 89.9 percent funded using a 35-year cash flow basis.

Based on the 2015 Actuarial Analysis conducted by Taylor & Mulder, the Fund was projected to fall to a low of \$51.5 million in 2018. This was due to paying for all reclamation cost for both land and water as well as operation and maintenance cost associated with water treatment. The Fund was projected to then recover to \$187.5 million slowly by the end of the twenty-year study period, at which point an \$8.2 million liability would remain. The SRWTF was expected to accumulate approximately \$120 million by 2018 before beginning to support water reclamation costs in 2019 (*However, it should be noted that as of December 31, 2017 the balance in the SRWTF had only reached \$104 million*). Afterwards, the SRWTF was projected to show gains, reaching \$289.8 million by the end of the twenty-year study period with a \$110.5 million liability remaining. Both funds combined were projected to total approximately \$477.3 million at the end of the twenty-year study period with a total remaining liability of \$118.7 million.

Based on the 2017 Actuarial Analysis conducted by Pinnacle Actuarial Resources, Inc, the results indicated that on a present value basis the Fund is 97.3% funded over a twenty-year projection and 93.6% funded over a thirty five-year projection period but indicated that the fund would go into a negative balance in 2021. The SRWTF is 162.6% funded over a twenty-year projection, 151.4% funded over a thirty five-year projection period and is fully funded throughout the entire projection period. Combined the two funds are 123.4% and 115.8% funded over twenty and thirty five-year projections respectively, and fully funded throughout the entire projection period. Pinnacle determined that a transfer of \$38 million in assets from the SRWTF to the Fund would keep the Fund in a positive balance position throughout the projection period without causing the SRWTF to move into a negative balance.

A change starting in 2019, only a twenty-year analysis is being performed due to a new study performed every two years.



Taylor and Mulder 2019 projections of revenues and expenses to the Funds imply that the Funds will be solvent on a cash basis through 2039.

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The chart below (Figure 1) shows a simplified cash flow projection for the SRF and WTF combined over the next 20 years. Note that these projections assume that money will be transferred from the Water Trust Fund to the Special Reclamation Fund to maintain a minimum fund balance of \$10,000,000.

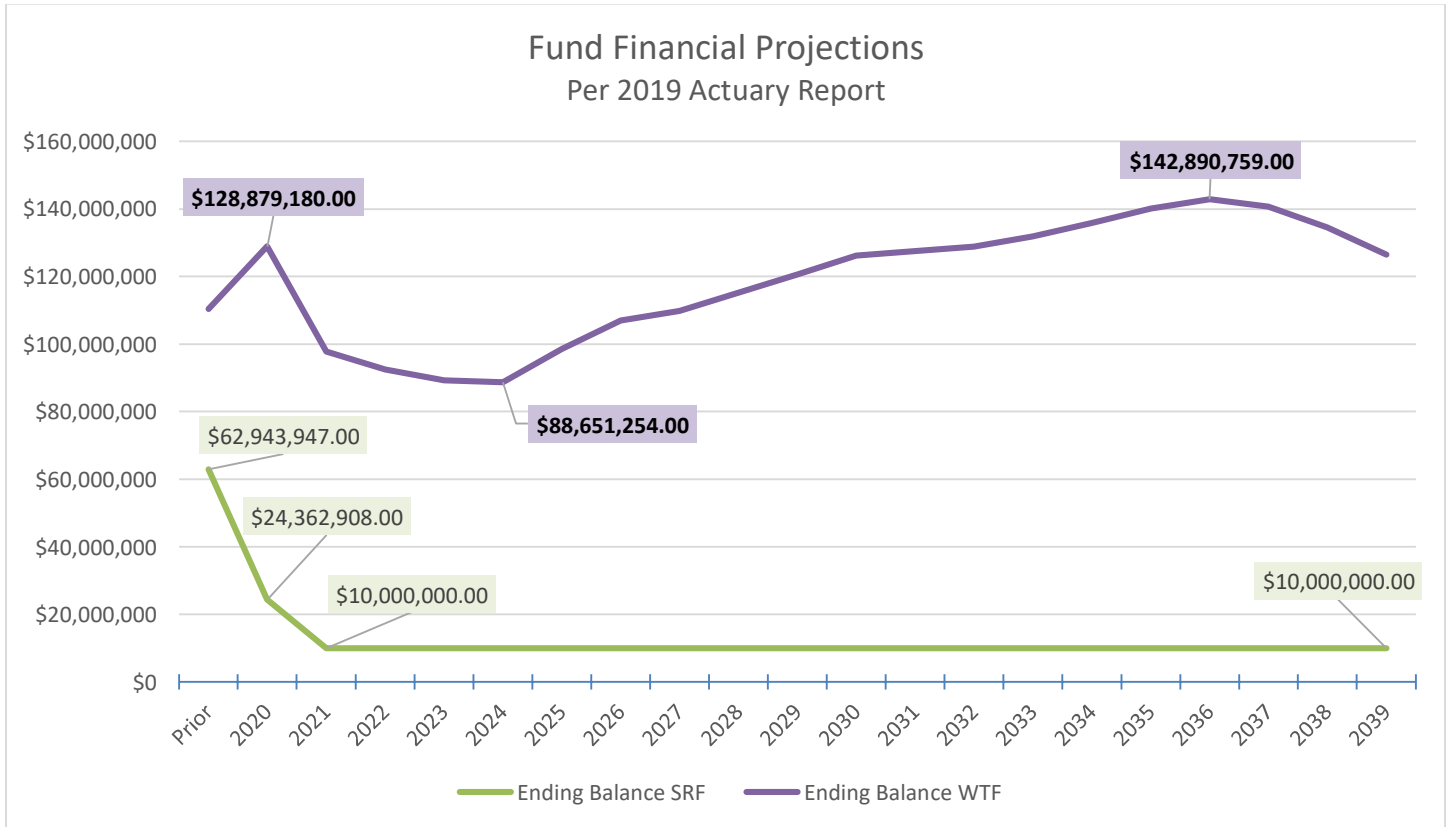


Figure 1



Taylor and Mulder 2021 projections of revenues and expenses to the Funds imply that the Funds will be solvent on a cash basis through 2039. Note that these projections assume that money will be transferred from the Water Trust Fund to the Special Reclamation Fund to maintain a minimum fund balance of \$10,000,000.

The chart below (Figure 2) shows a simplified cash flow projection for the SRF and WTF combined over the next 20 years.

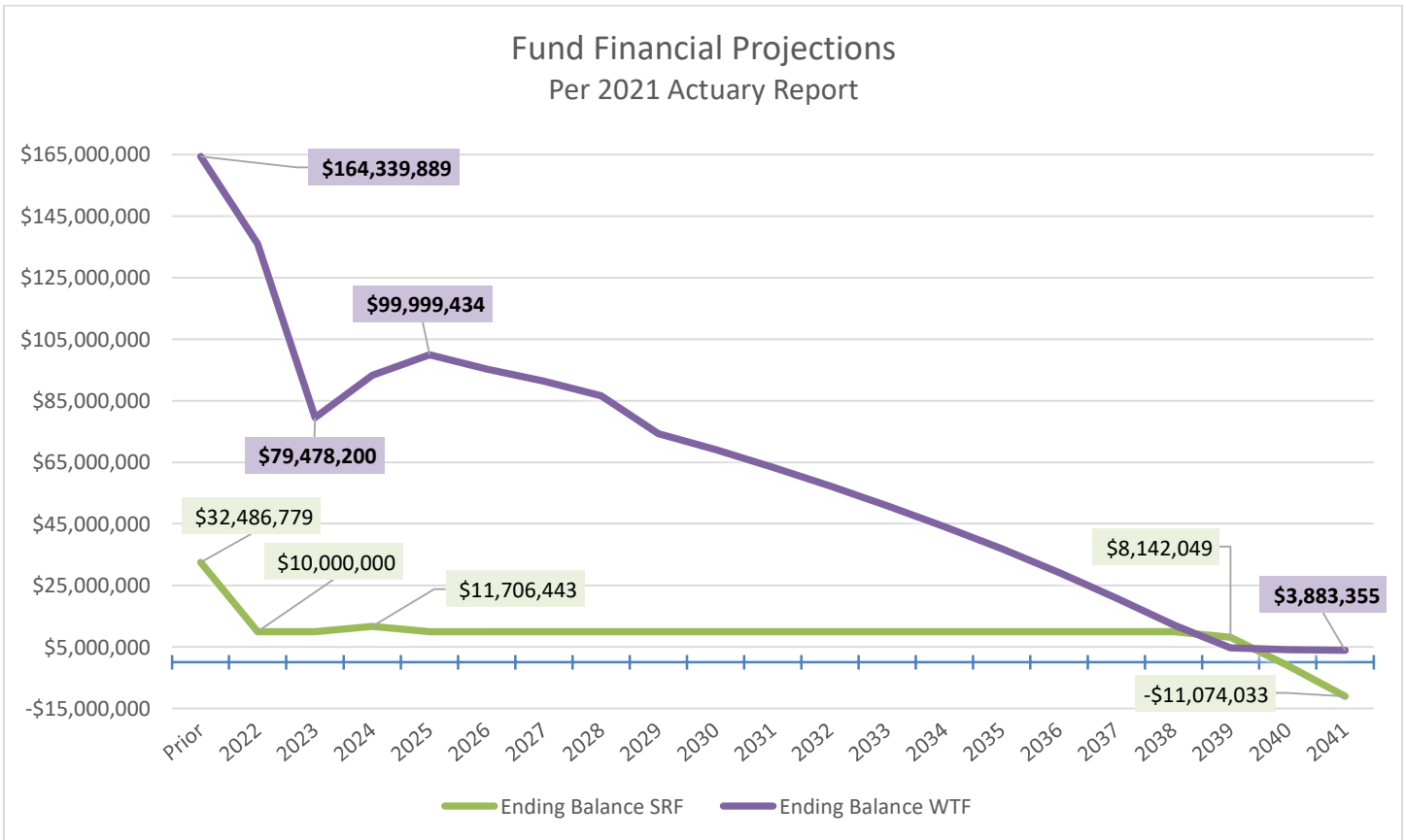


Figure 2

Recommendations from 2021 Actuary Report

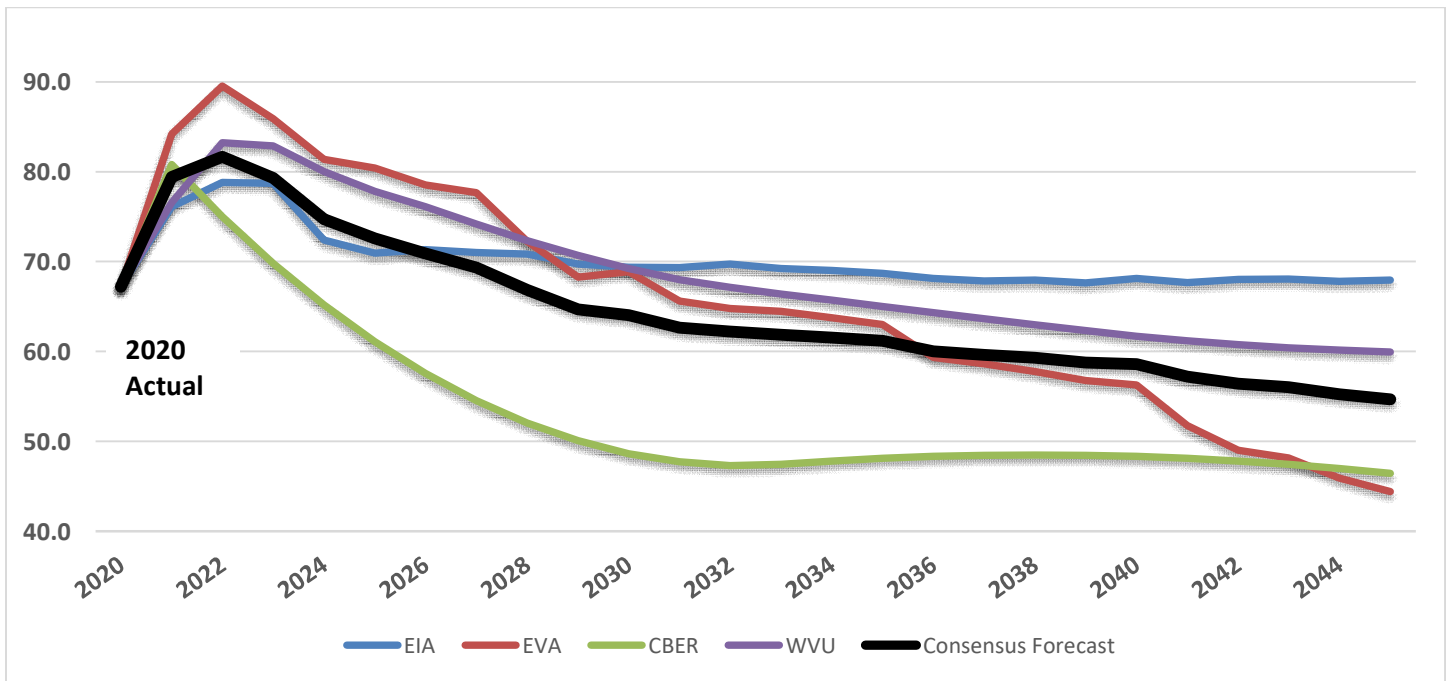
Coal Production Risks: There has been some instability in coal production forecasts and the coal market in general over the preceding decade because of different regulatory regimes, alternative energy adoption rates, economic events, and, most recently, the COVID-19 pandemic. Future studies may benefit from considering alternative coal production scenarios.

Permit Status History: Permit databases were evaluated as of a specific date. However, because this study estimates anticipated changes in permit status over time, it is necessary to make assumptions about permit status changes in order to develop revocation models. If records exist, it could be possible to produce more accurate models if a full history of each permit (including all status changes over time and dates when status changes occurred) were available.

Coal Consensus Forecast by Marshall University-Center for Business & Economic Research

Consensus Forecast: The four long-term forecasts produced by EIA, EVA, CBER and BBER are combined to create the 2021 Consensus Forecast for West Virginia Coal Production. For simplicity, a simple average was used to calculate the consensus forecast⁴ (Figure 6 and Table 2). Coal production in West Virginia is projected to initially rebound from 67.3 million tons in 2020 to 81.6 million tons in 2022, followed by a steady decline to about 55 million tons in 2045.

Figure 6: Consensus and Component Forecasts 2021 (million tons)



Source: EIA, EVA, WVU BBER and Marshall.

Summary: The four component models incorporate a range of possible levels of West Virginia coal production over the next 24 years, with varying forecasts that illustrate the impact of primary supply and demand variables and uncertainty over the continuation of recent trends. The consensus reduces uncertainty by combining the forecasts into one aggregate projection. Despite an expected short-term recovery in coal production, the consensus forecast projects that West Virginia will experience a steady decline in coal production through 2045.

SRFAC Recommendation

The SRFAC recommends that the present 12.9 cent per ton tax dedicated to the Fund remain in force and that the tax dedicated to the SRWTF remain at 15 cents per ton. It was previously established by the Council that the Fund would cover all costs for both land reclamation and water treatment through June 2018. Then starting in July 2018, the SRWTF would begin covering the cost for water treatment—both water capital costs and ongoing water treatment costs. Following reviews of the financial status and investment earnings of both funds it was the consensus of the Council, this year, to continue paying for all reclamation costs out of the Fund to allow the SRWTF to continue building assets while earning higher yields. It was also agreed that fund transfers from the SRWTF to the Fund would occur, as needed, to maintain a fund balance of \$10,000,000.

FINANCES OF THE SPECIAL RECLAMATION FUND & THE SRWTF

This section of the Report to the Legislature outlines the financial status of the Fund and the SRWTF for calendar year 2022 and provides comments regarding the future financial position of both. The three key factors that have the most effect on the adequacy of the Fund are the coal production levels in West Virginia, the risk of future forfeitures, and the cost of reclaiming existing and future bond-forfeited sites.

The WVDEP acknowledges that future forfeitures and any water management costs associated with them could affect funding needs of the Fund and the SRWTF. WVDEP is currently working to compile water management and treatment costs on active (still permitted) sites to better inform the actuaries and policy makers in prediction of future water management and treatment costs associated with revoked sites. Additionally, the SRFAC is continuously looking for ways to improve upon the ability to project future forfeitures, which will continue to be a focal point of the SRFAC through 2022. The Office of Surface Mining Reclamation and Enforcement (OSMRE) supports WVDEP's efforts to improve the active mine pollutant inventory to ensure the accuracy of future forfeiture cost projections and has formed a team with WVDEP to develop a work plan for obtaining additional data.

To summarize the data and analysis that follow, it should be noted that the Fund will continue to pay for all costs for both land reclamation and water treatment. Money transfers from the SRWTF to the Fund will occur as needed to maintain the Fund balance of \$10,000,000.

As of December 31, 2022, the Fund has accumulated assets of \$15.4 million, a 20.2% decrease from 2021 values, while the SRWTF has accumulated \$150.2 million in assets, a 11.3% decrease over 2021 SRWTF values.

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Increased revenues for the SRWTF are attributed to the tax increase in 2012 as well as the improved investment strategy which was initiated in 2013 as described below.

In May of 2013, following numerous discussions between WVDEP personnel and members of the Investment Management Board and the Board of Treasury Investments, the SRFAC was updated on various investment options and made the following recommendations:

The first recommendation was in two parts:

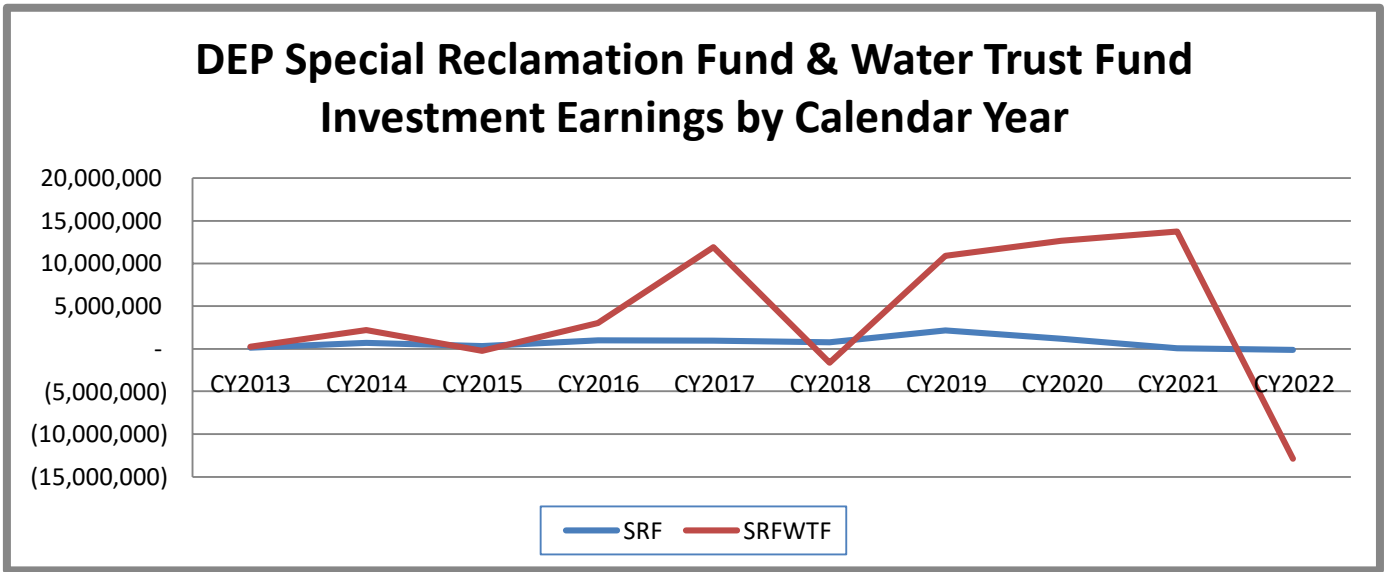
1. That the current balance of the Water Quality (WQ) Trust Fund and all additional revenue of the WQ Trust Fund through Fiscal Year 2018 be invested in the Investment Management Board (IMB) Fixed Income Pool until FY 2019.
2. That WVDEP develops plans to maximize the return on investment for future WQ Trust revenue.

The second recommendation was also in two parts:

1. That the current balance of the Special Reclamation Fund be invested in the Board of Treasury Investments West Virginia Short Term Bond Pool except for \$5 million, which should remain in the West Virginia Money Market Pool.
2. That WVDEP develops plans to maximize the return on investment for future SR Fund revenue.

In October of 2013 the balance of \$28 million from the SRWTF was transferred to the Investment Management Board Fixed Income Pool.

In June of 2013, except for \$5 million, the balance of the Fund was transferred to the West Virginia Short Term Bond Pool. The following chart depicts the investment earnings for the previous six years prior to the new investment strategies and results of the new strategy leading up to the current year.



Since 2001, despite a very aggressive reclamation schedule, the Fund has been serving the people of West Virginia well through providing for the reclamation of bond-forfeited (permit revoked) sites. From post-1977 time until legislation in 2001, there were 392 revoked permits requiring reclamation, including 122 requiring water treatment. Since passage of that legislation, an additional 251 permits have been revoked as well, bringing the total to 643 revoked permits requiring reclamation. Reclamation work remains on 229 sites, which includes ongoing water remediation sites. Regarding water treatment, the Fund is treating water at 180 sites and has an additional 18 sites under review or construction. As of December 31, 2022, the Fund had accumulated cash and investments totaling \$15.4 million, while the SRWTF had accumulated \$150.2 million.

A complete inventory of all bond forfeiture sites is in Appendix E, along with bond forfeiture sites that have mine drainage related problems, and a prioritized order in which they will be addressed.

Graphic summaries of the status of the Funds are outlined in the following figures.

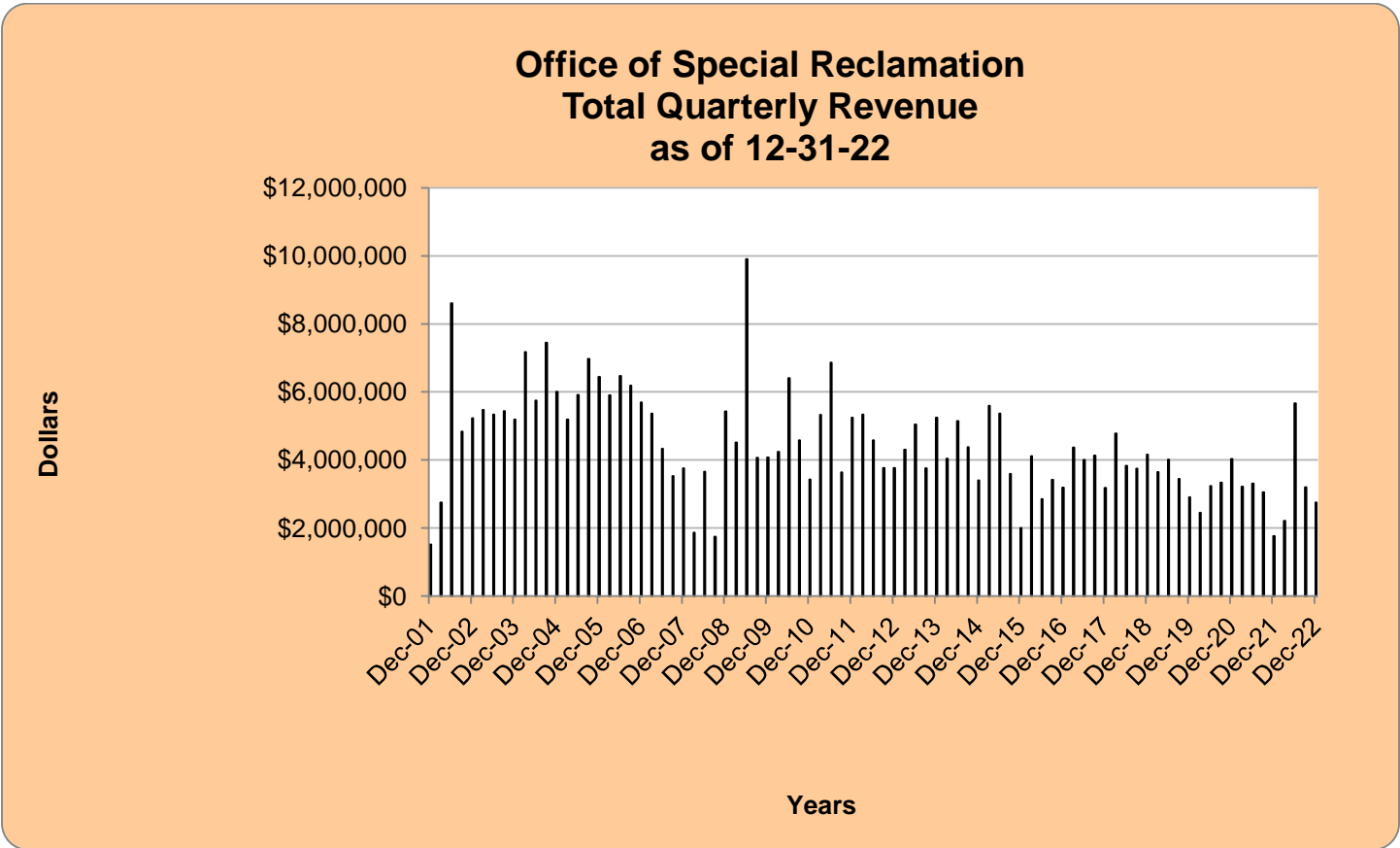


Figure 3

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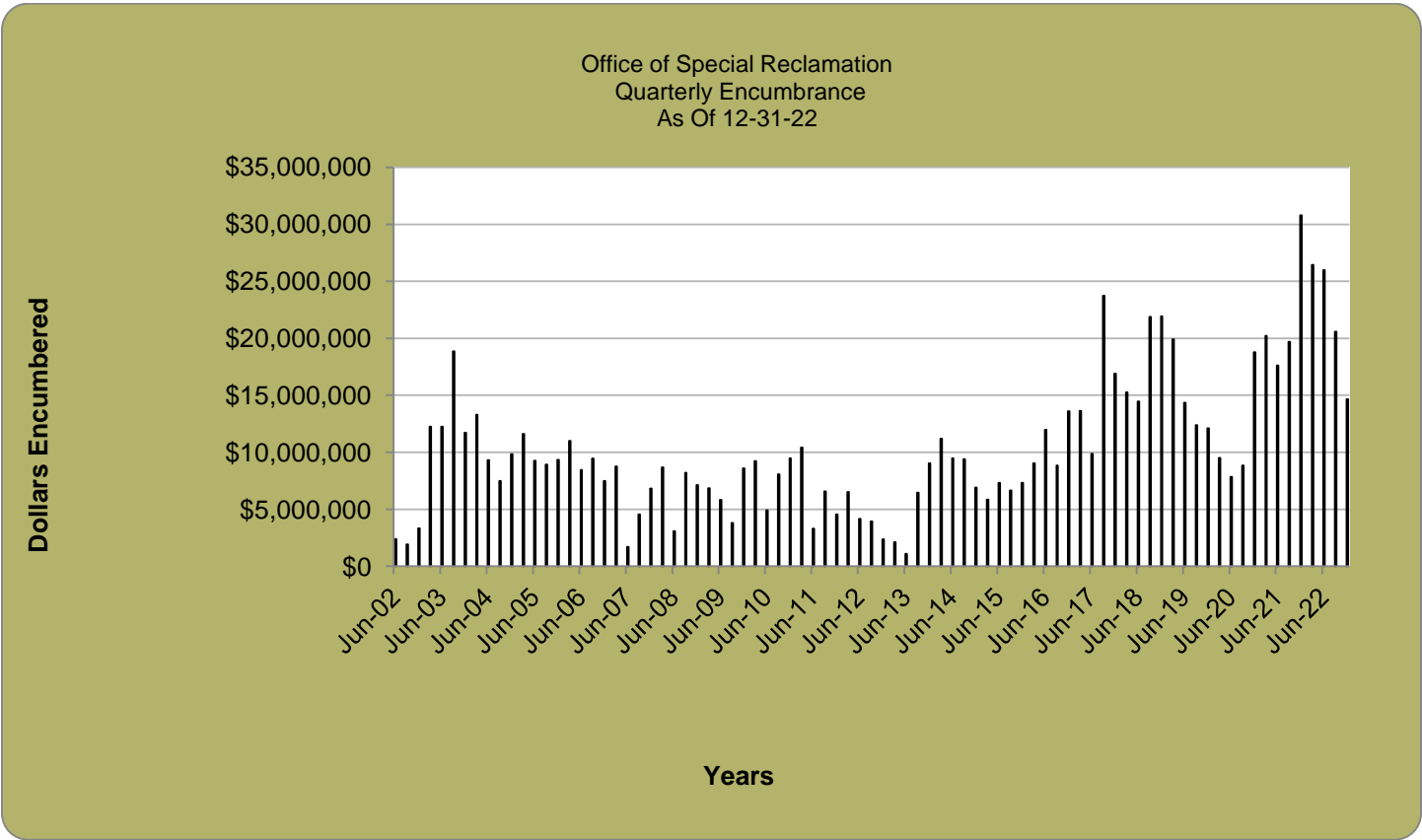


Figure 4

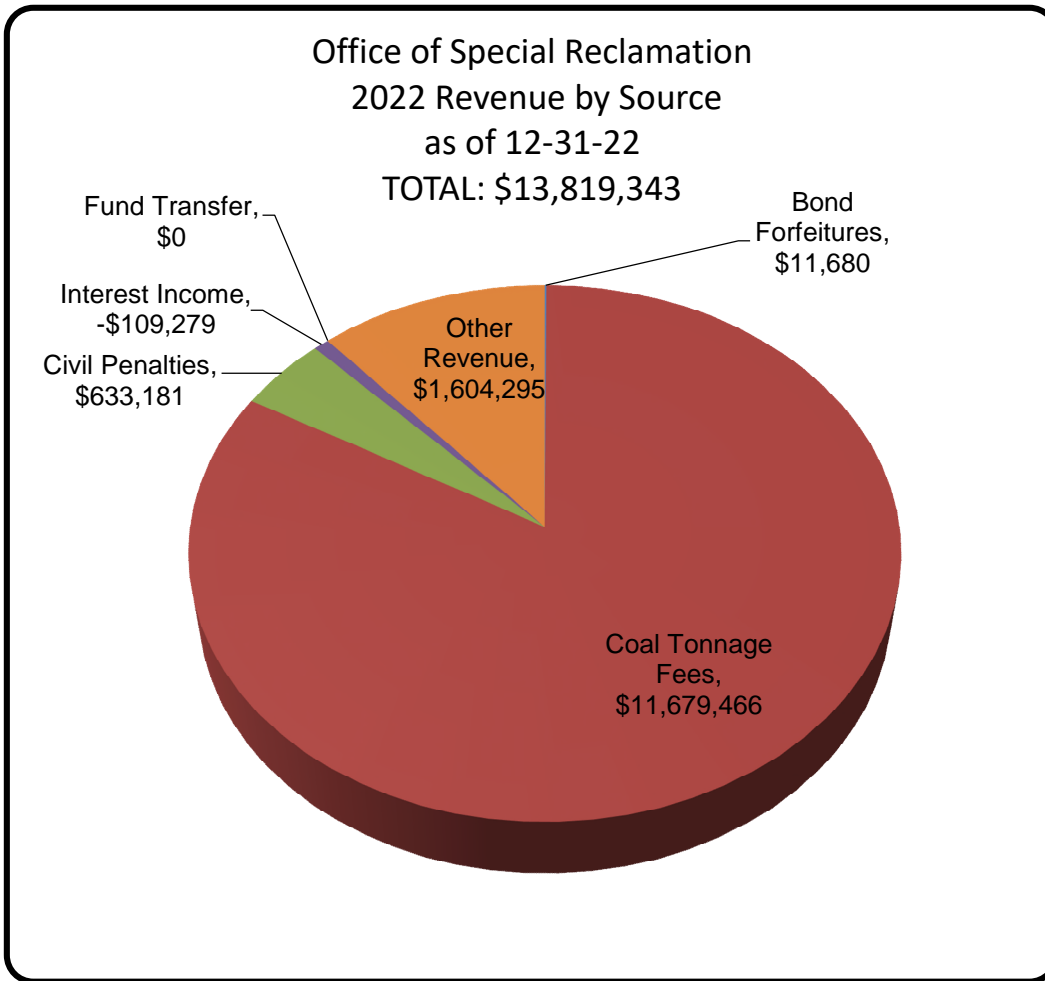


Figure 5

Water Treatment Funding

A complete inventory of bond forfeiture sites that are producing mine drainage that violate effluent limitations or applicable water quality standards for long-term treatment of these sites are in Appendix E.

The current main funding mechanism for bond-forfeited sites is the 27.9 cent tax per ton of clean coal mined, of which fifteen cents is dedicated to the SRWTF.

In 2008, the Legislature authorized, but did not separately fund, the SRWTF. In reliance on the SRWTF statutory authorization, beginning in July 2008, coal tax revenues based on a tax rate of 1.5 cents per ton were being paid into the SRWTF. In addition, coal tax revenues based on 12.9 cents per ton were being paid into the

Fund. In 2012 the Legislature increased the amount dedicated to the SRWTF to 15 cents per ton; but based on the funded status of the Fund at the time the Fund remained at 12.9 cents per ton.

The average yearly revenue, fees and investment earnings for the past five years have exceeded twenty-six million dollars (\$26.9 M/year). The current balance in the SRWTF is \$150,244,655 as of December 31, 2022. The SRFAC is continuing to look at alternatives for water treatment funding.

Increased water capital cost and water treatment cost are the result of two identical lawsuits filed against the WVDEP. In 2011 and 2012 the WVDEP entered separate consent decrees with the northern and southern district courts respectively. As will be discussed later in this report, the WVDEP was required to apply for and obtain NPDES permits for all the sites included in Attachment A of the consent decrees plus an additional 21 sites which were included in an earlier lawsuit, for a total of 192 sites. The WVDEP estimated that it will cost approximately \$35.5 million to bring bond forfeiture sites into compliance with the more stringent water quality-based effluent limits. Additionally, WVDEP estimated that it will cost approximately \$6.7 million to operate and maintain these treatment systems on an annual basis.

WVDEP has fulfilled the requirements of the Consent Decree by obtaining all NPDES permits.

Additional Charges to the Fund Due to NPDES Requirements

Due to NPDES requirements, the WVDEP has been faced with charging more expenditures to the Fund. These include:

- Realty – Land and/or easement purchases have been necessary to expand existing or new water treatment sites outside permit boundaries. Surveying and appraisal costs are included in these purchases.

Increased staff – As a result of having to apply for and obtain NPDES permits at all bond forfeiture sites now and into the future, the WVDEP has found it necessary to incorporate an NPDES permitting section into the Office of Special Reclamation (OSR - The office responsible for reclamation of land and waters for bond forfeited sites). Five new staff members consisting of one (1) Program Manager and four (4) Environmental Resource Specialists have been added to fulfil the NPDES requirements for the WVDEP. Additionally, to reduce surveying costs associated with reality needs and design, a licensed surveyor was hired.

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Also, two (2) land agents were hired in 2018 to address realty needs, although the responsibilities and salaries are split between OSR and the Office of Abandoned Mine Lands.

- NPDES permitting fees:
 - Application fees - \$1,000/application
 - Modification fees - \$2000/Major.mod. and \$1000/minor
 - Annual fees - \$2000/permit.
 - Reissuance fees - \$ 3000/permit
- Additional water sampling related to permit applications.
- The WVDEP entered into a grant agreement with the West Virginia Land Stewardship Corporation (WVLSC) to provide contractual services in the areas of design, construction, and project oversight. The purpose of the agreement was to enhance the capacity of WVDEP professional staff to meet reclamation deadlines. It is estimated that project costs increase by 10 to 15% for contractual services and another 1% for indirect cost associated with managing the grant.

The WVLSC was created by state legislation in 2013 to lessen the burdens of government when government identifies a need for WVLSC to assist with land stewardship and the remediation of properties with known environmental issues, including former mining sites.

A pilot grant agreement, known as the LaRosa Fuels site (Permit Number S-1051-86), was approved in 2016 to evaluate the efficiency and benefits of a work-sharing partnership.

WVDEP approved a grant amendment in 2017 and provided additional funds, as well as additional permits to be reclaimed. The grant was structured as an up-front payment to provide the WVLSC with the funds needed to cover the level of liability inherent in multiple reclamation projects, which requires engaging multiple engineering and construction firms simultaneously. Having the resources to cover at least the original liability estimates provided by WVDEP gave the WVLSC Board the level of certainty it needed to take on the project.

The WVLSC invested the grant funds so that they could earn interest that could be used on the project. In 2018, when it was identified that WVDEP investments were gaining a higher rate of return, the grant funds were returned to the WVDEP to maximize investment earnings. The WVLSC invoices the WVDEP when expenditures regularly occur. WVLSC had one design

project in 2021 to fulfill the grant agreement, which was completed before the end of the year, and the agreement was terminated.

WVDEP Policy Relevant to the Fund

Effective May 21, 2014, the WVDEP has implemented a new policy establishing a standard procedure the WVDEP will follow to terminate the State's jurisdiction over bond-forfeited former mining sites (Special Reclamation Sites). With a decision that the Special Reclamation Site has satisfied the applicable performance standards, WVDEP will terminate jurisdiction over the subject Special Reclamation Site. The policy limits the vulnerability of the State, and consequently the Fund, by reducing the possibility of lawsuits pertaining to damages unrelated to former mining practices or reclamation practices, i.e., due to recreation, timbering, oil & gas, etc., as well as any changes to environmental laws taking effect after reclamation of the subject Special Reclamation Site. The WVDEP will retain jurisdiction of Special Reclamation Sites, or portions thereof, that are necessary for the effective treatment of mine discharges emanating from the subject Site. By the end of 2022, the WVDEP has terminated jurisdiction on 9 sites.

Litigation

1. The Fund through FY 2018 and the SRWTF starting in FY 2019 has acquired liability for additional water treatment because of lawsuits filed against the WVDEP, as described below.

Identical complaints were filed in the Northern and Southern District Courts, Civil Actions No. 07-cv-87 (the "Northern District Case") and No. 2:07-0410 (the "Southern District Case"), assigned to Judge Irene Keeley and Judge John T. Copenhaver, Jr., respectively. Both cases were styled *West Virginia Highland Conservancy and West Virginia Rivers Coalition v. Randy C. Huffman, Secretary, West Virginia*

Department of Environmental Protection.

The two suits alleged that the West Virginia Department of Environmental Protection (WVDEP) had violated, and continues to violate, the federal Clean Water Act (the Act) by failing to obtain West Virginia National Pollutant Discharge Elimination System (WV/NPDES) permits when the WVDEP reclaims and treats water at bond forfeited sites as directed by state law. The Northern District Case named 18 specific bond forfeited sites and the Southern District Case named 3 sites.

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On March 26, 2009, the Northern District Court entered summary judgment in favor of Plaintiffs in the Northern District Case and granted a permanent injunction. The injunction requires WVDEP to apply for, process, and issue WV/NPDES permits to itself for the discharge into waters and streams of pollutants from the eighteen bond-forfeited, coal mining sites at issue in the case, whose reclamation the agency is required to manage. WVDEP appealed this decision to the United States Court of Appeals for the Fourth Circuit (“Fourth Circuit Court of Appeals”). By order dated November 8, 2010, the Fourth Circuit Court of Appeals affirmed the Northern District Court’s ruling.

Similarly, a motion for summary judgment in the Southern District Case was granted by Order dated August 24, 2009. The Southern District Court found that the Secretary of the WVDEP was “in violation of the National Pollutant Discharge Elimination System permitting requirements of the Clean Water Act.” The Southern District Court ordered the Secretary to “apply for, and obtain, NPDES permits for all sites at issue in this action,” and the parties subsequently submitted a joint stipulation agreeing to the same injunctive relief and timeframes for compliance set forth in the Northern District litigation. The Southern District Court entered final judgment August 31, 2010.

On January 11, 2010, the same Plaintiffs (West Virginia Highlands Conservancy and West Virginia Rivers Coalition) and the Sierra Club submitted a letter giving WVDEP notice of their intent to sue WVDEP regarding discharges from 131 additional bond forfeited sites on the same legal basis as the previous suits. Based on the outcome of the previous litigation, WVDEP engaged in settlement negotiations with the Plaintiffs and reached agreement regarding the permitting of the 21 sites in the previous litigation and the additional 131 sites. In August 2011, the Plaintiffs filed two new suits regarding the additional sites, *West Virginia Rivers Coalition, et al v. Huffman*, Civil Action No. 1:11-cv-118 (N.D. W.Va.), and *West Virginia Rivers Coalition, et al v. Huffman*, Civil Action No. 2:11-cv-524 (S.D. W.Va.) and lodged a proposed Consent Decree with both courts. The Northern District Court entered the Consent Decree on October 12, 2011. The Southern District Court entered the Consent Decree February 10, 2012. A list of all bond forfeited sites at issue in all four suits is attached to the Consent Decree as Attachment A. As required by the Consent Decree on July 2, 2012, WVDEP submitted a Final Treatment Cost Report to Plaintiffs and SRFAC, in which WVDEP determined the capital cost and annual operating and maintenance costs for water discharges from each bond forfeiture site to meet applicable water quality-based effluent limitations. The WVDEP estimated that these costs will amount to \$35.5 million for one-time capital construction costs and over \$6 million in annual operations and maintenance costs.

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The Consent Decree resolves all four suits filed by the Plaintiffs regarding bond forfeited sites. The Consent Decree required WVDEP to obtain WV/NPDES permits for all 21 bond forfeiture sites cited in the initial litigation by September 1, 2011. Thereafter, WVDEP issued draft WV/NPDES permits for 50 additional sites by the end of each calendar year, beginning in 2012. By December 31, 2015, the Consent Decree required WVDEP to issue draft WV/NPDES permits for all bond forfeited sites listed in Attachment A of the Consent Decree and for sites that were in existence on the date the Decree was executed. Thereafter, the WVDEP shall exercise its best judgment on the timing of issuance of draft permits for sites forfeited after the execution of the consent decree.

Note: The final draft permit was issued December 10, 2015.

2. A third case presents potential for future litigation, should the legislature not adequately fund the Fund and SRWTF. *West Virginia Highlands Conservancy v. Secretary Salazar, DOI*, Civil Action No. 2:00-1062 (S.D. W.Va.). The West Virginia Highlands Conservancy (WVHC) had filed a motion with the U.S. District Court for the Southern District of West Virginia to reopen the case and schedule further proceedings on the grounds that the recommendations of the SRFAC were not being followed with regard to funding the Special Reclamation Fund. Based upon the Legislature's extension of funding through the Continuing and Temporary taxes, the case was placed on the court's inactive docket as of May 2008; however, the court allowed the possibility of a renewed motion if the Legislature does not continue to provide sufficient monies for the Fund to remain solvent.

In March 2011, the WVHC moved once again to have the litigation reopened alleging continuing problems with the Fund. A status conference was held on August 5, and the court ordered the filing of a joint status report. On August 25, 2011, the WVHC and the Defendants filed a joint status report with the court. The WVHC stated that the court should not delay reopening the case until the new actuarial report and SRFAC recommendations are issued, whereas the Defendants recommended that it was premature for the court to reopen this matter prior to the close of the 2012 legislative session.

On March 30, 2012, a status conference call was conducted by the Court. In light of the enactment of Senate Bill 579 that increased the special reclamation tax from 14.4 cents to 27.9 cents per ton of clean coal mined, the Plaintiff acknowledged that it would move to withdraw its Second Motion to reopen and refile it to address the changed circumstances that have occurred since the filing of its motion to reopen.

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On April 2, 2012, the WVHC filed its Motion to withdraw its Second Motion to reopen this case with the Court. On August 5, 2012, the Court issued an Order granting the Plaintiff's Motion to withdraw its Second Motion. In addition, the Court granted the WVHC leave to file an additional motion to explain deficiencies that remain, notwithstanding the recent revenue increase in the Special Reclamation Fund.

This case remains open, so the District Court can address any issue that may arise regarding the State's ABS (alternative bonding system).

3. On or about April 20, 2016, the West Virginia Highlands Conservancy, West Virginia Rivers Coalition, and Sierra Club sued the West Virginia Department of Environmental Protection's (WVDEP) Special Reclamation Program alleging it was in violation of seven West Virginia National Pollution Discharge Elimination System (WVNPDES) permits issued for sites controlled by the Special Reclamation Program, four in the United States District Court for the Northern District of West Virginia¹ and three in the Southern District². The lawsuits allege that the WVDEP had discharged and continued to discharge quantities of aluminum, iron, nitrogen ammonia, and suspended solids in excess of the effluent limitations in those permits. The lawsuits further allege discharges of effluent with pH outside of the permit range. On December 12, 2016, the parties met at WVDEP's headquarters in Charleston. The WVDEP explained to the Plaintiffs that a timetable for achieving compliance had already been established and were included in a corrective action plan required under the enforcement actions being carried out by the WVDEP's Division of Mining and Reclamation. On July 10, 2017, the parties filed a consent decree in the Northern District action. On April 25, 2018, the parties filed a consent decree in the Southern District. The compliance requirements found in these consent decrees are based on the schedule that the WVDEP had prepared for inclusion in the corrective action plan; no new or different requirements were added as a result of the litigation.

4. On June 29, 2021, Appalachian Mountain Advocates, on behalf of Sierra Club, West Virginia Highlands Conservancy, and West Virginia Rivers Coalition, delivered to the West Virginia Department of Environmental Protection ("WVDEP") a Notice of Intent ("NOI") to sue for violations of the Clean Water Act regarding WV/NPDES Permit No. WV1027301, which is associated with the Greendale bond forfeiture site operated by the WVDEP Office of Special Reclamation. Discussions between the parties resulted in no further legal action being taken by either party to date.

5. *Living Lands, LLC and D.C. Chapman Ventures, Inc. v. Jack Cline, Brady Cline Coal Co., Spruce Run Coal Co., Harold Ward, Secretary, West Virginia Department of Environmental Protection, Civil Action No.*

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3.20-cv-00275, revolves around three primary claims. The first of which being that unlined treatment ponds, unlined AMD sludge drying pits for treated sludge, and unlined conveyance ditches allow for infiltration and pollution of groundwater; therefore, point sources requiring individual NPDES permits. The second being that the material in the treatment ponds and the treated sludge in the sludge drying pits are hazardous wastes and/or solid wastes under RCRA, therefore triggering the relevant waste handling and disposal requirements. The third being that the material in the unlined treatment ponds, unlined sludge drying pits, and unlined conveyance ditches is AMD contaminated mining waste under CERCLA, therefore triggering financial responsibility requirements for potential responsible parties, including but not limited to the DEP.

The implications of the DEP losing on the first issue would be that similarly situated ponds across the state of West Virginia could be required to install liners and obtain NPDES permits, at a huge cost. A loss on the second issue would completely upend how the DEP, and all other entities who generate, store, or dispose of AMD sludge currently operate. A loss on the third issue would expose the DEP, as well as any other potential responsible parties in the handling history of the material, to massive financial liability for the cleanup and remediation of this site, and very likely many others. A loss on any of these claims is likely to impact similar operations in other states, as a precedent would allow for similar challenges in courts across the nation.

The case was set for trial in the United States District Court for the Southern District of West Virginia, before Judge Robert C. Chambers, on November 1, 2022. The Court has scheduled oral arguments on outstanding issues on January 30, 2023.

1. *West Virginia Highlands Conservancy, et al. v. Austin Caperton, Secretary, West Virginia Department of Environmental Protection,*

United States District Court for the Northern District of West Virginia, Civil Action No. 1:16-cv-70

2. *West Virginia Highlands Conservancy, et al. v. Austin Caperton, Secretary, West Virginia Department of Environmental Protection,*

United States District Court for the Southern District of West Virginia, Civil Action No. 2:16-cv-03769

2023 SRFAC Study Issues

- Review of the current investment strategy

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- Initiate a new approach for watershed based treatment from multiple Acid Mine Drainage (AMD) sources to meet a downstream Total Maximum Daily Load (TMDL) compliance versus individual NPDES compliance at individual outlets.
- Continue to improve upon the active mine pollutant inventory.
- Review coal refuse impoundment liabilities and review the required balance in the Water Trust Fund to support long term treatment obligations.
- Determination of controlling entities
- Consensus Coal Forecast
- Actuarial Modeling Improvements for 2023 Study

The SRFAC is continuously looking for ways to improve the ability to project future forfeitures. Although limited in its current form the DMR database of open permits is the primary source of information used for the biennial actuarial analysis of the SRF and SRWTF. The analysis also relies heavily on information obtained from forfeited permits and applied to current permits to project future forfeitures.

The SRFAC would like to explore options to increase the linkages of data from past forfeitures to open permits, to improve the predictive power of historical data. Some pieces of data that may be available in the permit databases that have not been previously utilized include:

- length of time a permit had a particular status
- number of times a permit changed status
- groupings with other permits (proximity or use), including Parent Company level of existing permits
- annual coal production associated with a permit or group of permits

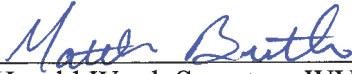
The SRFAC recognizes that not all these pieces of data are available, even in open permits, and may no longer be available for permits that forfeited many years ago but would like to explore the ability to enhance the information available that can help quantify risk. The database will need to be cleaned and augmented prior to future in depth study.

The SRFAC would like to recognize the WVDEP for their conscientious management of the Fund and the SRWTF and their efforts in minimizing the impacts of bankruptcies to the Funds.

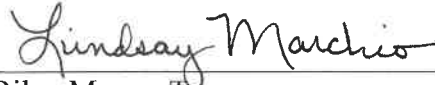
2022 SRF Advisory Council Annual Report

**Special Reclamation Fund Advisory Council
Annual Report to the Legislature**

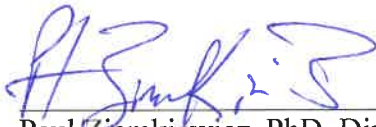
Date: January 30, 2023



Harold Ward, Secretary WVDEP
Ex Officio
Designee: Matthew Butler
WVDEP Deputy Director
Div. of Land Restoration
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Charleston, WV 25304



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Appendices for 2022 SRFAC Annual Report
(All Appendices as of 12-31-22)

A. WVDEP Graphs:

Land Projects to Be Contracted
Land Liabilities to Be Contracted
Reclamation Projects Started Since 6-30-01
Permits Revoked Since 6-30-01
Contract Dollars Encumbered Quarterly
Ending Cash Balance
Total Revenue
Revenue Collected by Source: Bonds, Civil Penalties, Tax

B. Rare Earth Elements

C. Coal Consensus Forecast

D. Actuarial Study

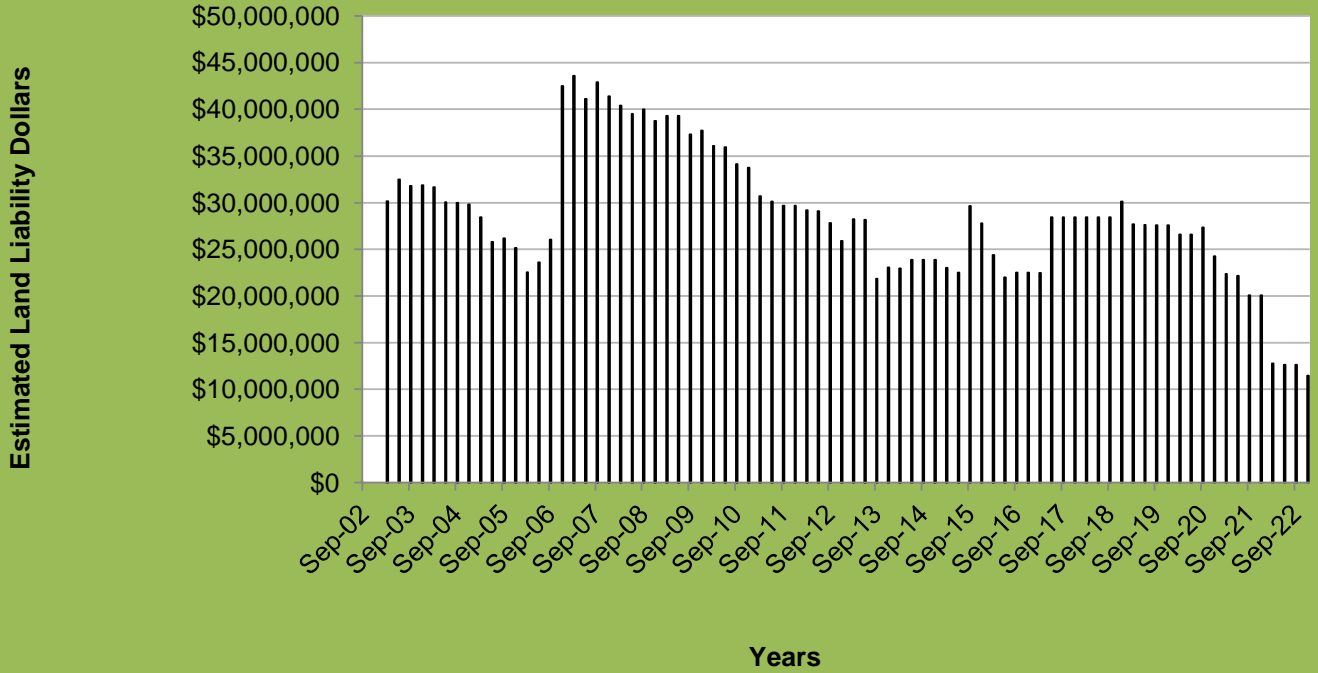
E. Bond Forfeiture Inventories

- a. **Revoked Permit Inventory**
- b. **Acid Mine Drainage Inventory**
- c. **Mine Drainage Treatment Prioritization**

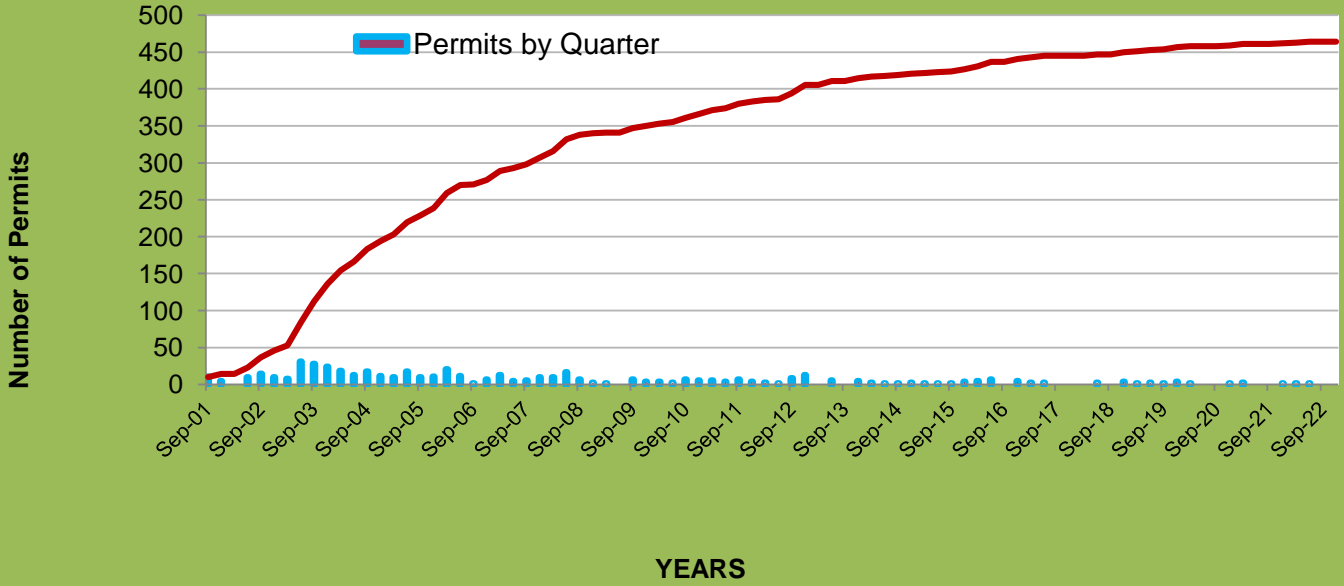
Appendix A

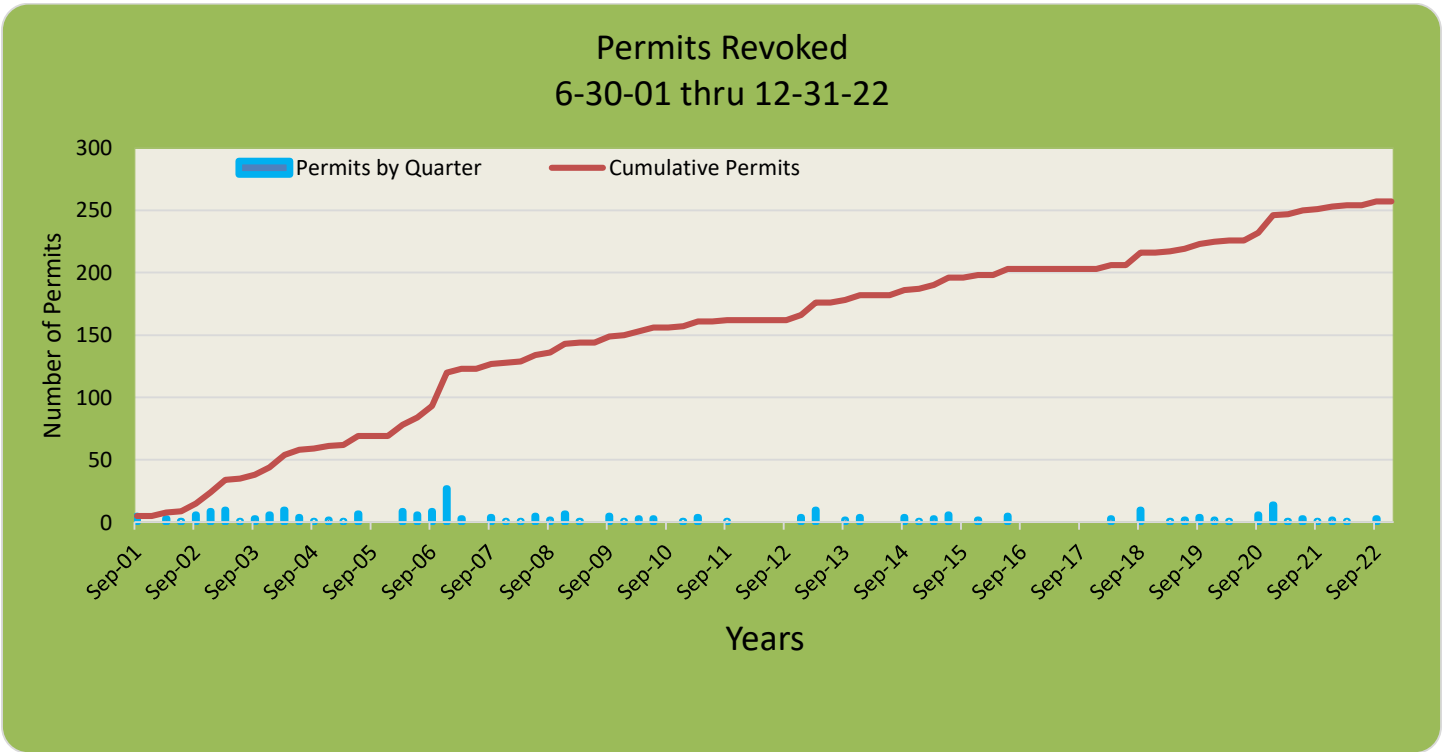


Estimated Land Liabilities for Land Projects To Be Contracted As Of 12-31-22

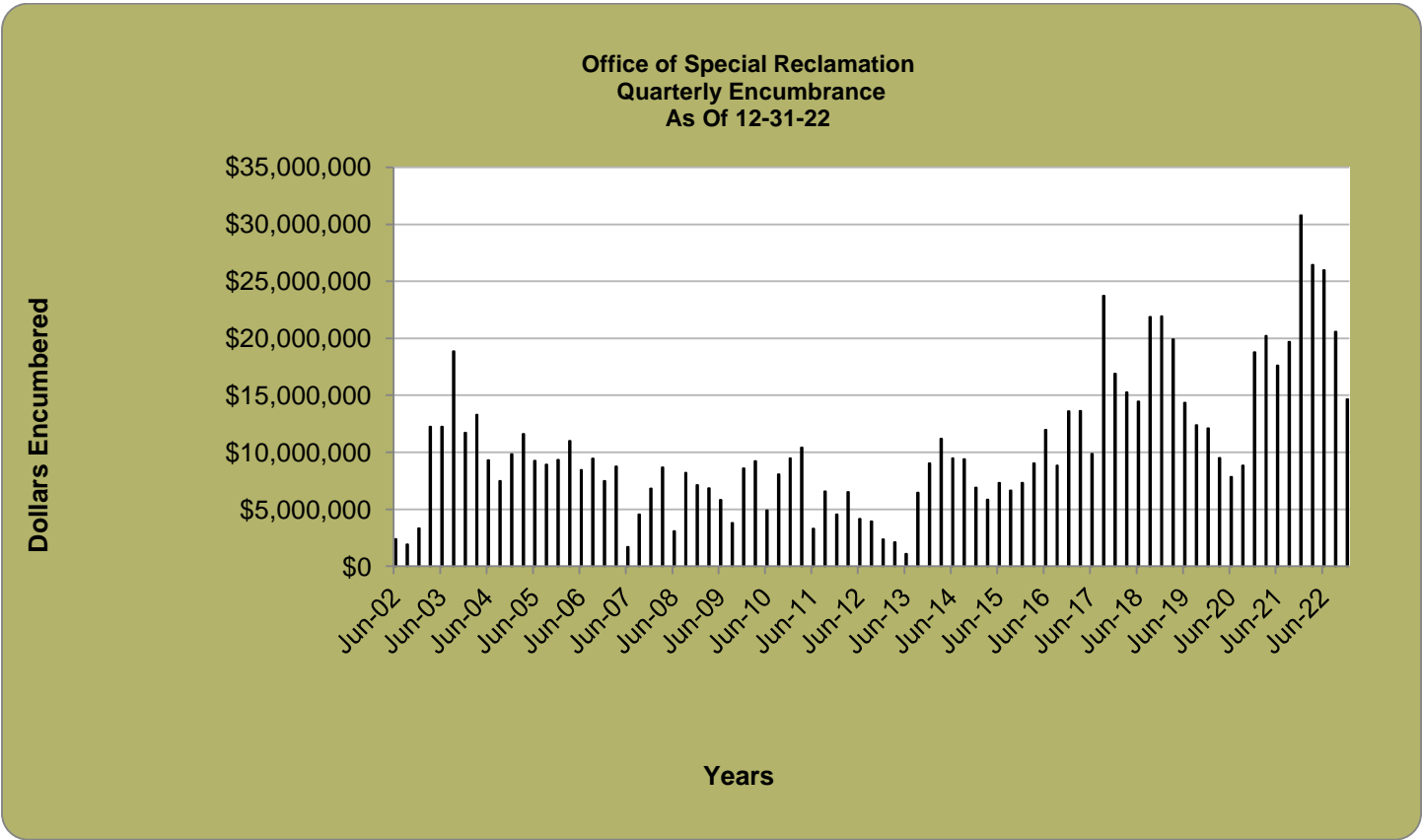


Reclamation Started
6-30-01 thru 12-31-22



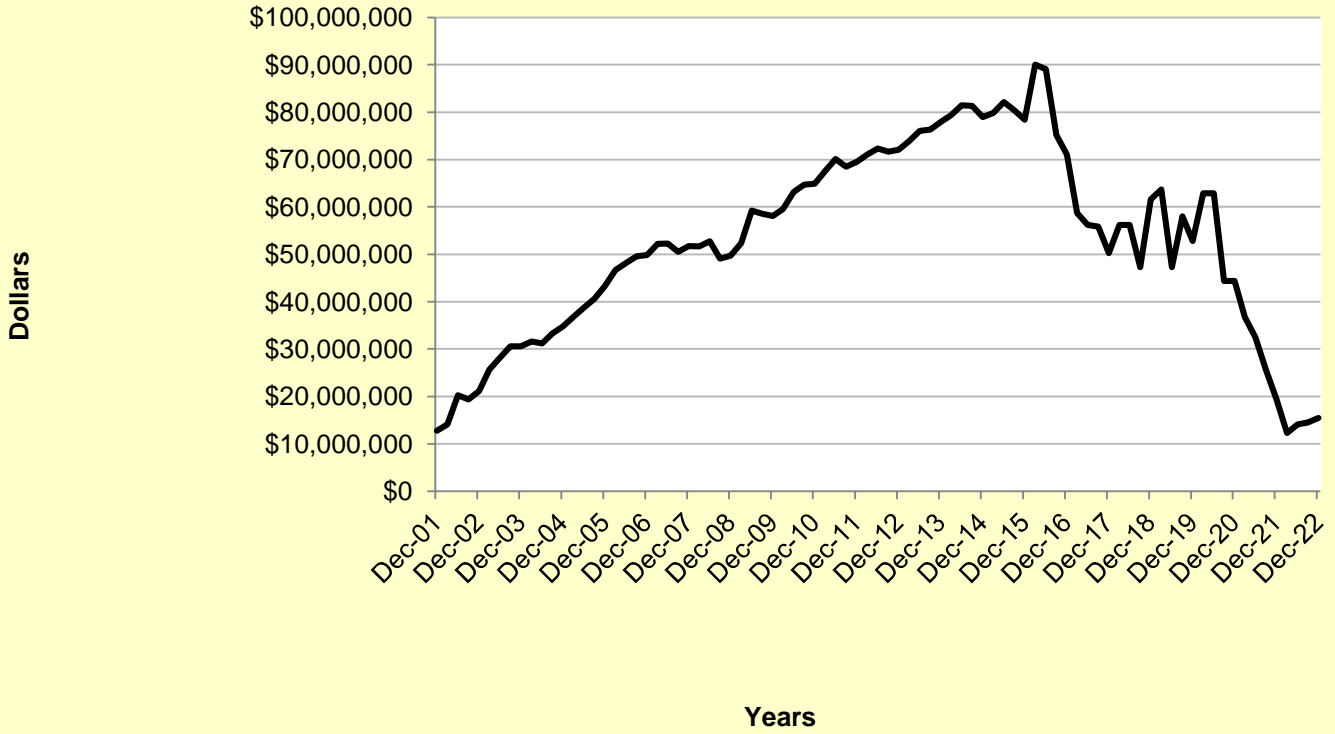


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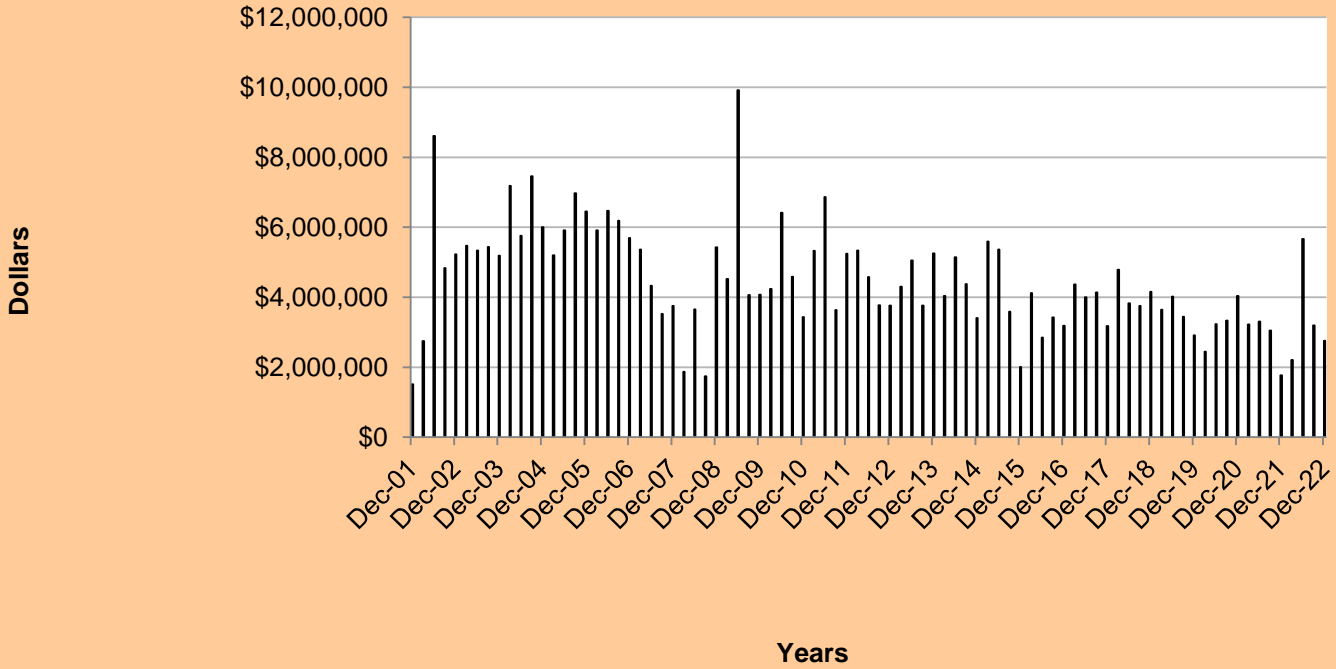


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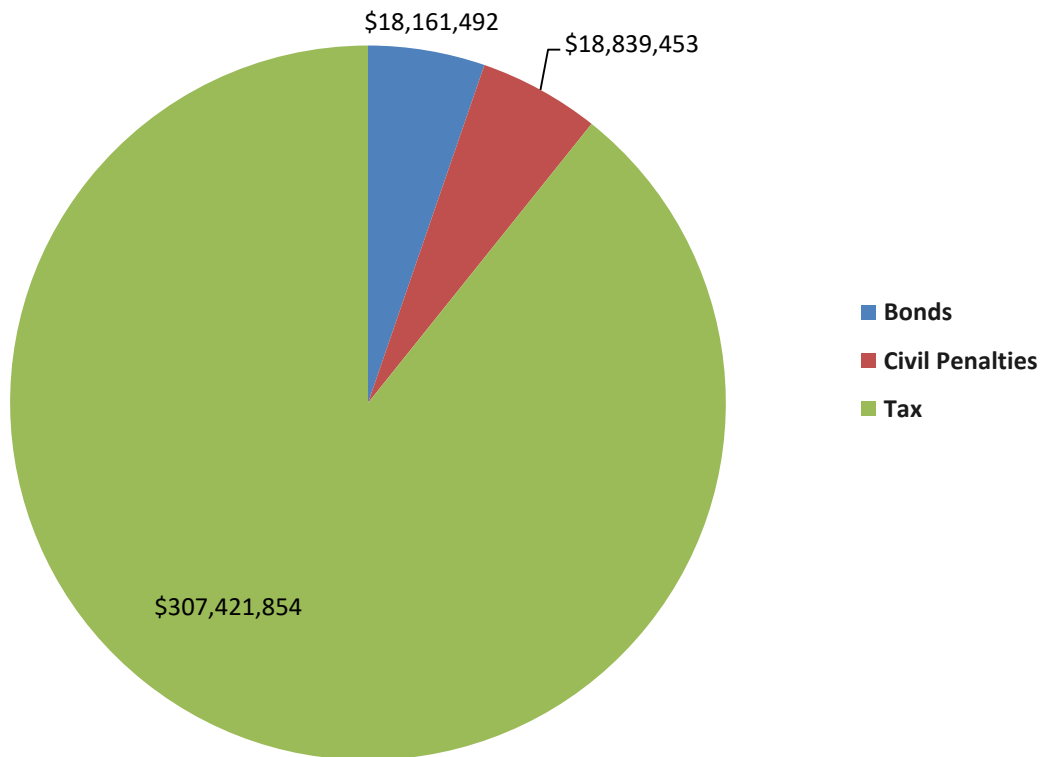
Office of Special Reclamation
Quarterly Ending Cash Balance
as of 12-31-22



Office of Special Reclamation Total Quarterly Revenue as of 12-31-22



**Office of Special Reclamation
Cumulative Revenue Collected from Bonds, Civil Penalties and Tax
As of 12-31-22**



Appendix B

Project Summary

Applicant: West Virginia University
Principle Investigator: Paul F. Ziemkiewicz, PhD
Project Title: At-source Recovery of Rare Earth and Critical Minerals from Acid Coal Mine Drainage ETD67
Project Objective: Develop and test a continuous process for efficiently producing an enriched rare earth element/critical mineral (RECM) concentrate from acid mine drainage (AMD) at the site of production, upstream of conventional AMD treatment.

- Sub-objective 1. Evaluate a process for purifying that concentrate at a central acid leaching/solvent extraction (ALSX) facility.
- Sub-objective 2. Achieve a target RECM oxide purity in excess of 90%.
- Sub-objective 3. Demonstrate that the final process will achieve its purity goal at commercially attractive efficiencies.

Project Description: RECM can be extracted from many waste products and ores. However, few such sources are economically attractive. We have identified that AMD is an attractive source since it relies on natural processes to create a concentrated, easily extracted source of RECM (REE+Co). Further, we have demonstrated that this process is environmentally beneficial since it would incentivize treatment of AMD and produces insignificant NORM or other noxious wastes.

Across the northern and central Appalachian Coal Basins, water pollution caused by acid mine drainage (AMD) is the single greatest cause of stream impairment. Our recent research has shown that AMD is enriched in rare earth elements (REE) and the critical mineral cobalt. AMD has an average total REE concentration of about 287 µg/L (0.287 ppm), ranging from negligible to 2,000 µg/L. Five of those REEs are classified as CM: Y, Nd, Eu, Tb, Dy while the critical mineral cobalt (Co) alone is present at about 75% of the TREE concentration in a given sample. Operators of AMD producing coal mines and tailings facilities are obliged to treat AMD to neutralize acidity and remove regulated metals (e.g., iron (Fe), aluminum (Al), and manganese (Mn)) prior to discharge. These metals precipitate as hydroxides during AMD treatment, leaving a solid residue that contains the RECMs.

We have created a concentrate of 80% REE derived from AMD treatment precipitates (DE FE 0026927). Ongoing research (DE FE 0031524) indicates that significant gains in efficiency can be made by semi-selective precipitation of RECM upstream of compliance AMD treatment when most of the gangue metals are still in solution. The strategy of using raw AMD as the feedstock to our acid leaching/solvent extraction (ALSX) refining process was recently demonstrated at the bench scale and also in the field where a mobile field unit was deployed at a conventional AMD treatment plant operated by WVDEP. Early work has produced solid feedstock with RECM ranging from 3.6% in the laboratory to 0.2% in an initial, continuous, field extraction trial. Of that amount, 0.14% are mixed REE oxides (MREO), including the five REEs that are also CM (0.07%) and the Critical Mineral cobalt (0.06%).

By focusing on raw AMD The proposed strategy 1) creates an enriched, homogenized REE feedstock, 2) reduces transportation costs to a REE refinery, 3) reduces acid consumption in the acid leaching step, and 4) reduces the volume of waste produced during REE refining. All of these factors would significantly reduce the capital and operating costs of an RECM extraction enterprise. For example, we have already identified transportation, waste handling and acid consumption during the leaching stage as major opX cost centers. Cost reductions resulting from at-source production of a RECM concentrate are obvious. Perhaps as important, extraction of a concentrate prior to AMD treatment dramatically reduces the mass of unreacted lime, an artifact of conventional AMD treatment, in the solid phase that would consume acid during the ALSX stage.

Major Participants: Virginia Tech University-ALSX technical support, TEA. West Virginia Department of Environmental Protection-will collaborate by jointly constructing and operating a field scale coupled

AMD treatment/RECM extraction plant. Rockwell Automation, Inc., will provide system controls, sensors and automation. InnoH2O, Inc., will provide their proprietary treatment system for recycling raffinate during ALSX.

Appendix C

Consensus Coal Production Forecast for West Virginia: 2021

Prepared for:

**Special Reclamation Fund Advisory Council,
West Virginia Department of Environmental Protection**

Date:

June 2021



**Center for Business and
Economic Research**

Consensus Coal Production Forecast for West Virginia: 2021

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Disclaimer:

The contents of this report reflect the views of the authors who are responsible for the accuracy of the data presented herein. The views expressed in this report are those of the authors and do not reflect the official policy or position of Marshall University or its governing bodies. The use of trade names, if applicable, does not signify endorsement.

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Consensus Coal Production Forecast for West Virginia: 2021

Introduction

The West Virginia Consensus Coal Production Forecast is a combined production forecast comprised of four component forecasts. A consensus approach to forecasting seeks the wisdom of the crowd in producing an expectation for output from the coal industry. The Consensus Forecast is used to provide the best expectation of tax revenues to be collected for mandatory reclamation activities conducted through the Special Reclamation Fund and the Special Reclamation Water Trust Fund.

This report describes recent historical coal production trends for the State of West Virginia including the individual industries that comprise the major segments of demand for coal produced in West Virginia. Each of the component forecasts used to form the Consensus Forecast is described, with information about assumptions and resulting projected levels of production for West Virginia. The process used to produce the Consensus is also described, including the weightings applied to each of the component forecasts. The West Virginia Consensus Coal Production Forecast is calculated for the years 2021 through 2045.

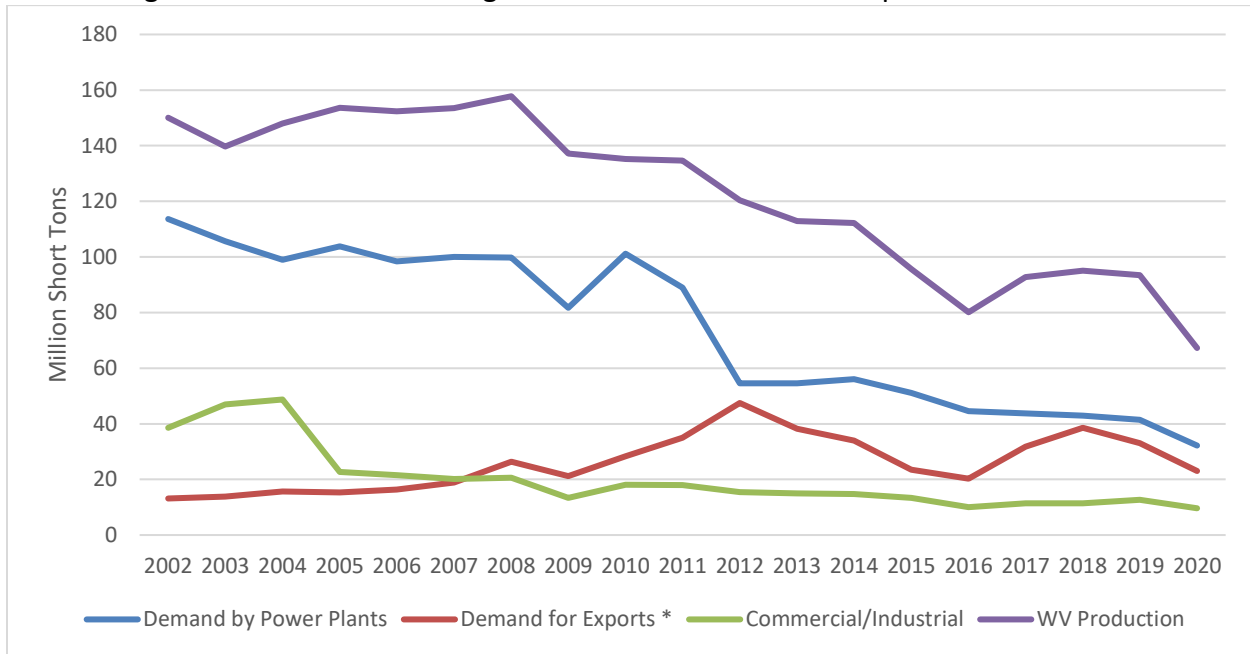
Overview of West Virginia Coal Production

West Virginia coal production for 2020 was 67.3 million tons (EIA 2021),¹ a decrease from the 93.3 million tons produced in 2019. This decrease reflects various trends and events within the coal industry's primary markets: power generation, exports, and industrial demand, all compounded by the effects of the COVID-19 pandemic. Demand for West Virginia coal decreased by about 28 percent from 2019 levels, led by a decrease in demand for exports.

Future demand for West Virginia coal depends on several variables. These include the pace of economic recovery from the pandemic, the capacity of gas-fired electrical generators in the region and the price paid for gas by those generators, the lifespan and generation levels of the coal-fired power plants that will continue to burn coal from the State, the extent of new renewable generation, exchange rates and the rate of economic growth of countries that import West Virginia coal, and the nature of compliance with environmental regulations. Recent demand trends with preliminary and estimated data for 2020 are shown in Figure 1.

¹ 67.3 million tons is the Energy Information Administration's revised 2020 production value based on the final 2020 value published by MSHA (clean coal production reported on MSHA Form 7000-2). The West Virginia Office of Miner's Health, Safety and Training (WVOMHST) reports 2020 production of 73 million tons, but this may not be exclusively clean coal, which is the final production volume.

Figure 1. Historical West Virginia Coal Production and Components of Demand



Source: EIA. Asterisk (*) 2020 volumes estimated by MU CBER. Other 2020 figures are preliminary by EIA.

The Electricity Sector

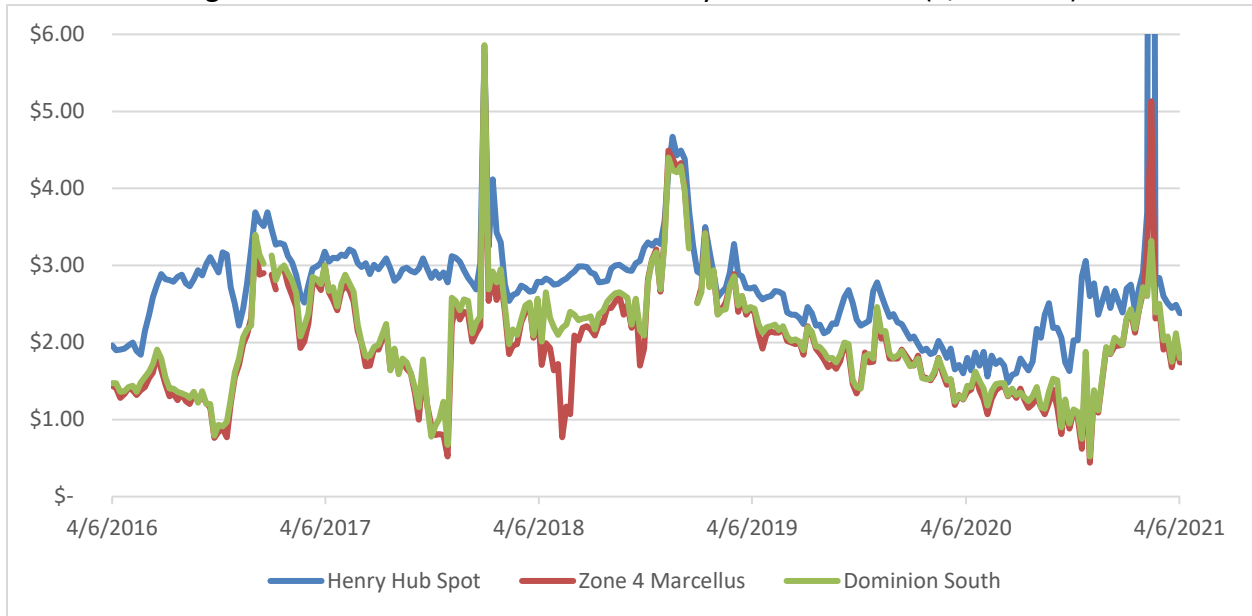
Preliminary coal distribution data for 2020, published by the U.S. Energy Information Administration (EIA), indicate that demand for West Virginia-produced coal by the electricity sector fell sharply in 2020, to about 32.2 million tons, compared to 41.4 million tons in 2019 (EIA 2021). This was a decline of 22.4 percent between 2019 and 2020, while total coal distribution to the electric power industry also fell by about 22.4 percent during the same time (EIA 2021).

Natural Gas Prices

In previous years, a large contributor to reduced coal demand was the price of natural gas. From 2019 to 2020, the average U.S. price of gas delivered to the electric power sector decreased sharply, averaging \$2.99/mcf in 2019 (nominal dollars) and \$2.48/mcf in 2020 (EIA 2020). Coal has been somewhat less competitive than in 2018, when delivered gas prices averaged \$3.68/mcf.

For several years, abundant gas production from the Marcellus play, combined with relatively low takeaway capacity, has resulted in especially low gas prices in a primary region in which West Virginia coal competes. That differential has diminished but still persists at times, as shown in the following chart of weekly prices at the two primary Marcellus area price hubs vs. the Henry Hub (Figure 2).

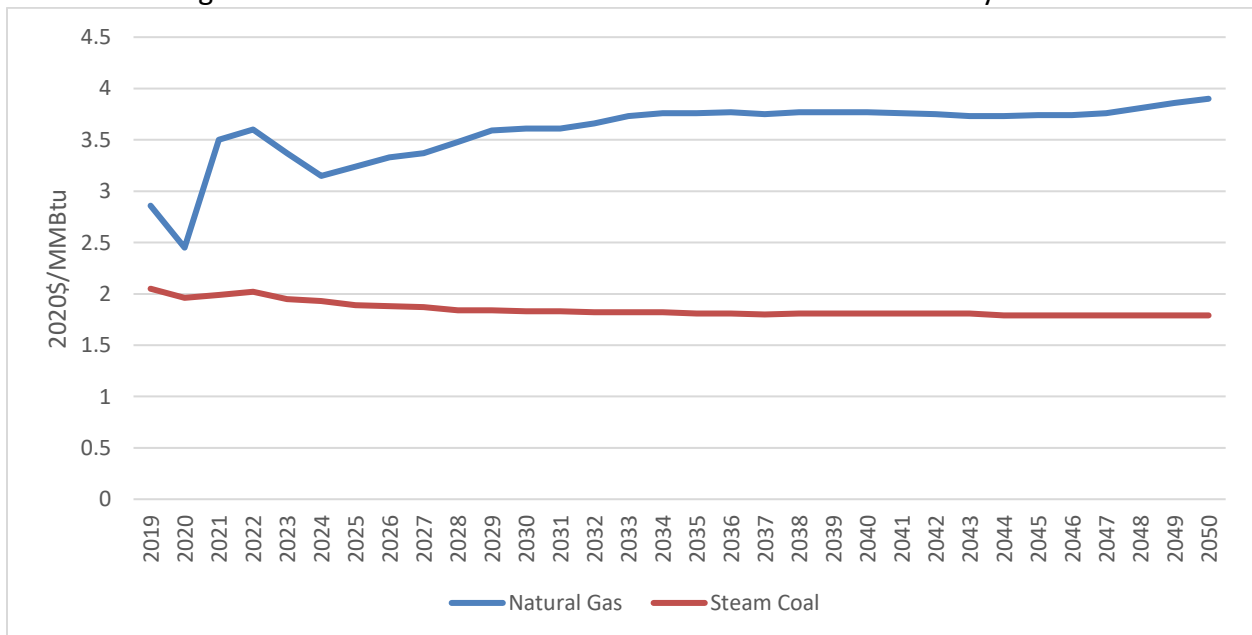
Figure 2. Select Marcellus Area Vs. Henry Hub Gas Prices (\$/MMBTU)



Source: EIA, Natural Gas Weekly.

In its Annual Energy Outlook (AEO) 2021 Reference Case analysis, the EIA continues to project real natural gas prices delivered to the power generation sector to increase while coal prices decline at a gradual rate through 2050 (Figure 3) (EIA 2021).

Figure 3. EIA Forecasted Natural Gas & Coal Prices to Electricity Sector



Source: EIA, AEO 2021.

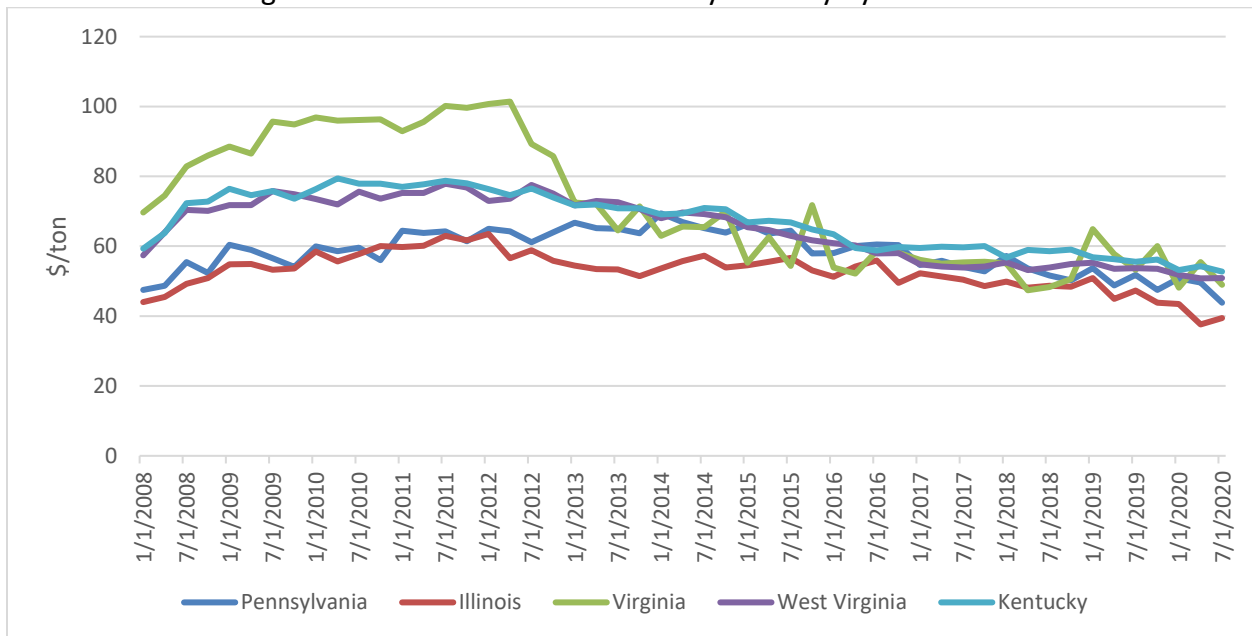
Coal-Fired Power Plant Retirements

In 2019 and 2020, several coal-fired power plants retired that were consumers of West Virginia coal. One of these plants, the 69 MW Morgantown Energy Facility, was located in West Virginia. Other significant closures included two other independent power producers, the 655 MW Somerset plant in New York, and the 588 MW Dickerson plant in Maryland. In 2019, Virginia Electric & Power closed smaller coal units at three plants that used West Virginia coal - Chesterfield, Mecklenburg, and Yorktown (EIA 2020).

Prices of Coal Delivered to the Electricity Industry

The price of West Virginia-produced coal delivered to power plants has been falling since around 2012. Average prices for regional coal producing states are much closer than in previous decades. Prior to 2013 West Virginia, Virginia and Kentucky producers commanded a premium over coal produced from Pennsylvania and Illinois. Prior to 2019 that premium had largely disappeared, although the gap between Illinois coal grew in 2019 and 2020 (Figure 4).

Figure 4. Coal Prices to the Electricity Industry by Mine State



Source: EIA, Quarterly Coal Report.

Environmental Regulation

On March 15, 2021, EPA finalized the Revised Cross-State Air Pollution Rule Update for the 2008 ozone National Ambient Air Quality Standards (NAAQS). Starting in the 2021 ozone season, the rule will require additional emissions reductions of nitrogen oxides (NOX) from power plants in 12 states (Environmental Protection Agency 2021).

The Waters of the United States (WOTUS) law was revised in 2020. The new version of the law is considered to be less stringent than the 2015 version and to provide some clarity for the mining industry (National Mining Association 2020). The rule rejected the “significant nexus” test for navigability from 2015, but may have extended regulation for wetlands, man-made ditches, and ephemeral streams. Per the law man-made ditches are now considered “tributaries” if they pass through wetlands and water flows through them. Ephemeral streams are now only federally regulated if an ephemeral break is part of an otherwise regulated intermittent or perennial tributary, or if they are seasonally inundated by more than a direct response to precipitation, e.g., indirectly by groundwater table elevation or snowpack melts (The National Law Review 2020).

The Industrial Sector

As shown In Figure 1, demand for West Virginia coal by the industrial sector (coke plants and self-generating manufacturers, including coal-fired combined heat and power plants) decreased substantially from 2018 to 2020, with demand down about 15 percent from 2018. This decrease occurred primarily at coke plants, which represented annual demand of almost 8.8 million tons in 2020. From 2018 to 2019, U.S. steel production increased by one percent, to 87.8 million metric tons (mmt), up from 86.8 mmt in 2018, but fell to 72.7 mmt in 2020 (International Trade Administration 2021).

In 2020, the U.S. imported 20 million metric tons of steel, a 21% decrease from 25.4 mmt in 2019. The U.S. steel trade deficit amounted to 13.9 mmt, a 25% decrease from 18.7 mmt in 2019. Imports from Russia (-60%) showed the largest volume decline in 2020, followed by Japan (-35%), Taiwan (-31%), South Korea (-22%) and Mexico (-11%). 2020 imports from Turkey increased by 72% (ITA 2021).

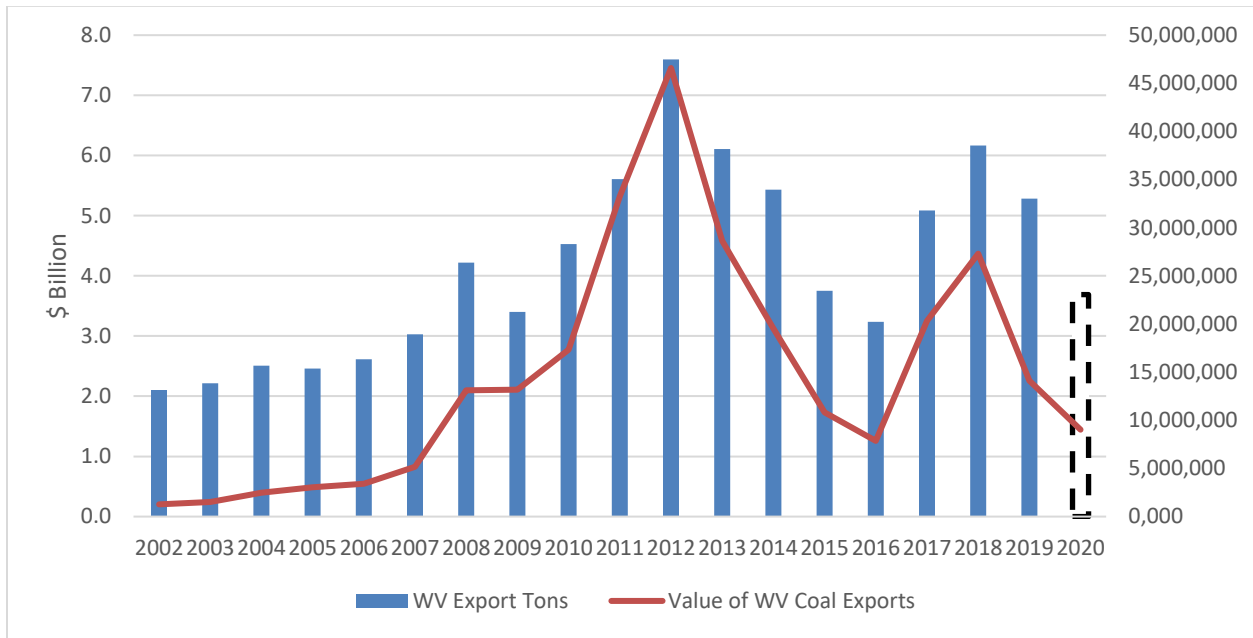
Exports

The nation’s coal exports fell in 2019 and 2020, totaling 93.7 million short tons in 2019 and 69.1 million tons in 2020, down from about 116 million short tons in 2018.²

The value of coal exports from West Virginia dropped to \$1.4 billion in 2020, down from \$2.3 billion in 2019. The State maintained exports to many countries in North America, Europe, South America, Africa, and Asia. The top five importing countries by value were India, Ukraine, Brazil, the Netherlands, and Morocco (ITA 2021). Figure 5 shows the value of West Virginia-based coal exports and associated tonnage from 2002 to 2020.

² 2020 data for coal export tonnage by U.S. state of origin has not yet been released. CBER estimates West Virginia’s exports based on historical shares of total exports and the value of coal exports from the state.

Figure 5. Value and Tonnage of West Virginia Coal Exports, 2002-2020



Source: EIA, ITA; 2020 export tonnage estimated by CBER.

Component Forecasts

Energy Information Administration (EIA)

| | |
|-------------------|---|
| Publication: | Annual Energy Outlook 2021 |
| Date: | January 2021 |
| Forecast Horizon: | 2021-2050 |
| Region(s): | Northern Appalachia, Central Appalachia |

The EIA provides a forecast of coal production by region in its 2021 Annual Energy Outlook, projecting through 2050. This projection is generated using the National Energy Modeling System (NEMS). NEMS uses a market-based approach that balances energy supply and demand while considering regulations and industry standards. NEMS is a modular system, with modules that represent each of the fuel supply markets, conversion sectors, and end-use consumption sectors of the energy system (EIA 2021).

Only the EIA Reference Case figures are used for the Consensus forecast, which represents EIA's 'best assessment of how U.S. and world energy markets will operate through 2050.' This projection assumes improvement in known energy production, delivery, and consumption technology trends (Energy Information Administration 2021).

The EIA's forecasts for Appalachia are used to create an EIA forecast for West Virginia coal production. The method used is described in Appendix B.

Key Assumptions:

Macroeconomic Issues: Real GDP growth averages 2.1% per year from 2020 to 2050.

Coal Prices: EIA projects the average mine mouth price for all coals to be about \$31/ton in 2021 (2020\$) and to rise to \$35 by 2050.

Natural Gas Prices: Henry Hub³ spot prices are expected to be about \$3.10 in 2021 and rise thereafter at an annual rate of 2.0 percent, resulting in an average expected price of \$3.69/MMBtu in 2050.

Electricity: U.S. use of coal for production of electricity is expected to decline by 1.1% annually through 2050. Coal-fired generating capacity is expected to decrease at a rate of 2.5 percent

³ The Henry Hub in Louisiana is the delivery point for the natural gas futures contract on the New York Mercantile Exchange.

per year through 2050. By comparison, combined cycle (natural gas) capacity is projected to increase by 1.6% per year and renewable capacity is projected to increase by 3.2 percent per year.

Industrial/Commercial: Industrial self-generators (CHP plants, power plants with a non-regulatory status, and small on-site generating systems) are expected to see a very slight increase in coal consumption of 0.2 percent per year through 2050. Metallurgical coal use in coke plants is projected to decrease by 0.4 percent per year. The commercial sector is expected to maintain flat coal consumption of one million tons per year.

Exports: U.S. coal exports are projected to rise steadily to 99 million tons in 2024 and to be at least 95 million tons throughout the remaining forecast period.

Environmental: The AEO2021 includes the effects of current legislation, environmental regulations, and international protocols including recent government actions for which implementing regulations were available as of the end of September 2020. This includes the Mercury and Air Toxics Standards (MATS) and the Cross-State Air Pollution Rule (CSAPR). AEO2021 reflects a number of state-level policies that affect its projections of the electricity generation mix. These include the Illinois Future Energy Jobs Act, the New York Clean Energy Standard, and the Maryland Clean Energy Jobs Act. In 2020, only Virginia enacted new legislation for renewable portfolio standards (RPS) programs. At the federal level, the U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) jointly issued The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks in April 2020 as an amendment to and replacement of the 2012 Corporate Average Fuel Economy (CAFE) standards for light-duty vehicles. The updated standard sets fuel economy and carbon dioxide standards, which increase 1.5% in stringency each year from model years 2021 through 2026 (EIA 2021).

Energy Ventures Analysis (EVA)

Publication: EVA Long-Term Forecast

Date: June 2021

Forecast Horizon: 2021-2050

Region(s): All states

EVA utilizes the AURORAxmp 24/7 dispatch model (which EVA licenses) to calculate electricity generation by fuel type. The forecast reflects the least cost dispatch solution consistent with the operating parameters of individual units and regulatory requirements. Existing generation, planned generation which is deemed to be likely to be constructed, and announced retirements are reflected. In addition, the model adds and retires capacity in an economic manner and as required by law.

Key Assumptions:

Macroeconomic Issues: GDP growth is expected to average 2.8% per year over the forecast period, with strong GDP growth in the next three years and then gradually declining growth to under 2% in the latter part of the forecast period.

Coal Prices: Coal prices vary by region, coal quality, and market. Current prices are relatively high due to the strength in the global market and expected economic growth as a result of the recovery from the coronavirus pandemic. After recovery, prices are expected to soften slightly and then start to grow slightly in real terms throughout the forecast period. Pricing is based upon production costs including return on investment. Future pricing also reflects the higher cost of capital related to the reduced access to capital as a result of environmental, social and governance (ESG) concerns.

Natural Gas Prices: Henry Hub gas prices are expected to soften from current levels which are above \$3.00 per MMBtu (\$2020) in 2021 and range from \$2.50 to \$3.00 (\$2020) through 2040. Thereafter, prices are expected to increase through 2050 resulting in a price of \$3.56 per MMBtu (2020\$) in 2050.

Electricity: Growth in electricity demand is expected to average 1.0% per year. This rate of growth is higher than in prior years due to the expected impact of electric vehicles on demand. Utility demand for coal is expected to decline from 515 million tons in 2021 to less than 100 million tons by 2050. The decline is heavier in the early years as a number of plants are retired in response to CCR and ELG rule. The forecast production reflects which power plants are

assumed to be in operation in each year and their expected coal supply. Therefore, the forecast would change with any changes to the retirement schedules.

Industrial/Commercial: Demand from other sectors is also expected to decline. The decline reflects industrial plant conversions from coal to natural gas and reduced metallurgical coal in steelmaking as the industry continues to shift from blast furnace to electric arc furnace production. The non-metallurgical industrial demand affects most coal supply regions. As this demand is tied to specific plants, demand depends upon their continued operation. As industrial plants are retired, the mix of coals is affected. All of the domestic metallurgical coal is expected to originate in Appalachia. Commercial demand is relatively small.

Exports: The level of exports is affected by global demand for coal and global supply. U.S. export levels are a function of the competitiveness of U.S. coals in the global market which in turn is affected by the relative strength of the U.S. dollar particularly with respect to the Australian dollar as global coal trade is U.S. dollar denominated and Australia is the largest exporter of bituminous coals. The U.S. exports both steam and metallurgical coals. U.S. metallurgical coal exports exclusively originate in Appalachia. U.S. steam coals originate throughout the U.S. with the origin a function of coal quality, transportation logistics, and cost. Steam and met coal export forecasts are exogenously determined through an analysis of global supply and demand. The resulting price forecast, however, affects domestic pricing and therefore utility coal demand.

Steam coal exports are largely expected from four regions in the future: Northern Appalachia, the Illinois Basin, the Powder River Basin, and the Rockies. Other regions, such as Central Appalachia, are believed to be not economic long-term and therefore unlikely to participate except in unusual circumstance. The exports reflecting the expected shift in the market away from the Atlantic to the Pacific. Both the Powder River Basin and Rockies coal are typically exported through the west coast, primarily terminals in western Canada. Northern Appalachia coals will move through the U.S. East Coast while Illinois Basin coals will move through the U.S. East Coast and the U.S. Gulf. While the U.S. continues to be a swing global supplier, contraction in the global coal industries has created a potentially larger role.

Met coal exports are largely expected from Appalachia. Metallurgical coal production is expected from the Northern, Central, and Southern areas where the highest quality metallurgical coal is produced. While global metallurgical coal demand is expected to decline over time, some continued blast furnace production is expected globally through 2050.

Environmental: Coal Combustion Residuals (CCR) and Effluent Limitation Guidelines (ELGs) go into effect according to their regulatory schedule. Plants which are not expected to comply are retired. Federal carbon limitations are not assumed. Compliance is assumed with announced

state/regional plans. Pennsylvania is assumed to join the Regional Greenhouse Gas Initiative (RGGI) effective January 2022. The caps in AB32 (California) are assumed to be extended through 2050. Florida is assumed to put into place a Renewable Performance Standard (RPS) for solar development. The various tax credits (i.e., production tax credits, investment tax credits, and Section 45Q [carbon capture] credits) are generally assumed to continue as they are.

Market Uncertainty: There are substantial changes underway in the global energy market as global concerns over carbon emissions are resulting in significant changes in the U.S. and other countries. The changes include efforts to reduce carbon emissions through the expansion of low carbon generation including increased use of renewables including offshore wind, batteries, small modular nuclear reactions, and green hydrogen. With respect to fossil fuels, there are global efforts to expand the use of carbon capture technology. Other technologies of interest include direct air capture. In addition, the transportation sector is moving toward greater use of electrical vehicles which in turn would increase electricity demand growth. The future forecasts of coal production are qualified by these uncertainties.

Marshall University Center for Business and Economic Research (CBER)

Publication: CBER West Virginia Coal Production Forecast 2021

Date: May 2021

Forecast Horizon: 2021-2050

Region(s): West Virginia

The CBER forecast of West Virginia total coal production is an econometric model based on quarterly coal production from 1984 through 2020. The forecast uses an averaging approach based on two separate long-term forecasts (through 2050). Both models incorporate a mid/short-term forecast (through 2033) based largely on the market for thermal coal produced in the State. One short-term model treats the economic recession in 2009 and subsequent sharp downturns in historical coal production as structural breaks in the market while the other uses the differential between natural gas and coal prices delivered to the power generation sector to explain changes in production. To create the initial short-term forecasts, quarterly changes in total coal production were modeled with a vector autoregression (VAR) approach based on historical demand for West Virginia-sourced coal in regional power generation. For years beyond 2033, the forecast utilizes an autoregressive approach, which estimates future changes in total coal production based on historical patterns.

Because this is a technical model based solely on historical data, CBER does not make any specific assumptions about future micro or macroeconomic variables. The model is heavily influenced by recent downward trends in demand for coal and projects a continued and fairly rapid decline in production over the next few years.

West Virginia University Bureau for Business and Economic Research (BBER)

Publication: WVU BBER Coal Production Forecast 2021

Date: June 2021

Forecast Horizon: 2021-2050

Region: Northern West Virginia and Southern West Virginia

The WVU Bureau of Business and Economic Research Coal Production Forecast is an econometric model based upon changes in factors that affect the demand and price for coal sourced from mines in Northern and Southern West Virginia between 1985 and 2020. Historical data on coal prices, production and other energy-related data are obtained from a variety of Energy Information Administration reports. Forecasts for US-level explanatory variables were taken from the IHS March 2021 Long-Term Forecast and the 2021 Annual Energy Outlook from the Energy Information Administration (West Virginia University 2021).

Consensus Forecast

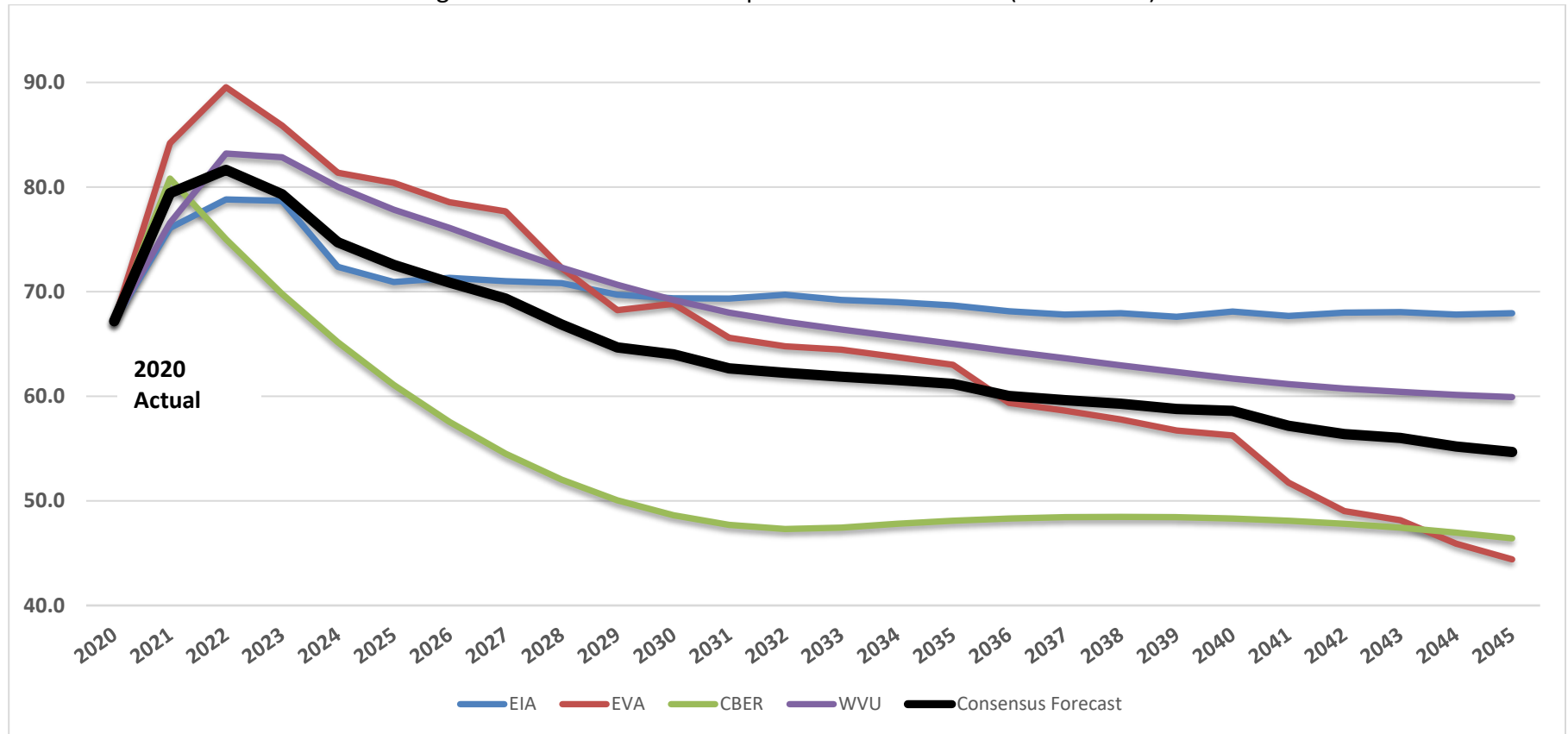
The four long-term forecasts produced by EIA, EVA, CBER and BBER are combined to create the 2021 Consensus Forecast for West Virginia Coal Production. For simplicity, a simple average was used to calculate the consensus forecast⁴ (Figure 6 and Table 2). Coal production in West Virginia is projected to initially rebound from 67.3 million tons in 2020 to 81.6 million tons in 2022, followed by a steady decline to about 55 million tons in 2045.

Summary

The four component models incorporate a range of possible levels of West Virginia coal production over the next 24 years, with varying forecasts that illustrate the impact of primary supply and demand variables and uncertainty over the continuation of recent trends. The consensus reduces uncertainty by combining the forecasts into one aggregate projection. Despite an expected short-term recovery in coal production, the consensus forecast projects that West Virginia will experience a steady decline in coal production through 2045.

⁴ Due to the subjective nature of weight selection, a simple average approach (with same weight for all four forecasts) would generate a very similar forecast as the weighted average but does not require additional (often unrealistic) assumptions to estimate accuracy rate of historical forecasts.

Figure 6: Consensus and Component Forecasts 2021 (million tons)



Source: EIA, EVA, WVU BBER and authors' calculation.

Table 2: Consensus Forecast for West Virginia Coal Production 2021 (million tons)

| Year | Historical | 2021 Forecasting Group | | | | 2021 Consensus | 2019 Consensus | 2017 Consensus | 2016 Consensus | 2015 Consensus |
|------|------------|------------------------|------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | EIA | EVA | CBER | BBER* | | | | | |
| 2015 | 95.5 | | | | | | | | 107.2 | |
| 2016 | 80.1 | | | | | | | 79.5 | 103.4 | |
| 2017 | 92.8 | | | | | | 86.8 | 76.9 | 101.7 | |
| 2018 | 95.1 | | | | | | 83.6 | 74.7 | 102.7 | |
| 2019 | 92.4 | | | | | 91.1 | 84.1 | 76.7 | 104.8 | |
| 2020 | 67.2 | | | | | 88.3 | 87.1 | 80.1 | 104.9 | |
| 2021 | | 76.1 | 84.2 | 80.8 | 76.6 | 79.4 | 84.4 | 86.1 | 78.6 | 104.4 |
| 2022 | | 78.8 | 89.5 | 75.0 | 83.2 | 81.6 | 84.1 | 85.9 | 75.7 | 103.4 |
| 2023 | | 78.7 | 85.9 | 69.8 | 82.9 | 79.3 | 83.3 | 84.7 | 73.1 | 102.8 |
| 2024 | | 72.4 | 81.4 | 65.2 | 80.0 | 74.7 | 82.3 | 82.8 | 70.3 | 102.8 |
| 2025 | | 70.9 | 80.4 | 61.1 | 77.8 | 72.6 | 81.2 | 81.5 | 69.1 | 102.4 |
| 2026 | | 71.3 | 78.5 | 57.5 | 76.1 | 70.9 | 80.7 | 80.2 | 67.9 | 102.2 |
| 2027 | | 71.0 | 77.7 | 54.5 | 74.2 | 69.3 | 80 | 79.3 | 66.2 | 101.7 |
| 2028 | | 70.8 | 72.3 | 52.0 | 72.3 | 66.8 | 78.8 | 77.7 | 64.5 | 101.2 |
| 2029 | | 69.7 | 68.2 | 50.1 | 70.7 | 64.7 | 78.7 | 76.8 | 63 | 100.9 |
| 2030 | | 69.4 | 68.8 | 48.6 | 69.2 | 64.0 | 77.6 | 76.3 | 61.7 | 100.9 |
| 2031 | | 69.3 | 65.6 | 47.7 | 68.0 | 62.7 | 76.8 | 76.1 | 62.1 | 100.5 |
| 2032 | | 69.7 | 64.8 | 47.3 | 67.1 | 62.2 | 76.1 | 76 | 62.9 | 100.9 |
| 2033 | | 69.2 | 64.5 | 47.4 | 66.4 | 61.9 | 75.3 | 76.6 | 63.3 | 99.8 |
| 2034 | | 69.0 | 63.7 | 47.8 | 65.7 | 61.6 | 74 | 76.7 | 63.1 | 98.3 |
| 2035 | | 68.7 | 63.0 | 48.1 | 65.0 | 61.2 | 73.5 | 76.6 | 62.5 | 97.3 |
| 2036 | | 68.1 | 59.4 | 48.3 | 64.3 | 60.0 | 73.4 | 76.5 | 62.3 | |
| 2037 | | 67.8 | 58.6 | 48.4 | 63.6 | 59.6 | 73.1 | 76.1 | 60.4 | |
| 2038 | | 67.9 | 57.8 | 48.5 | 63.0 | 59.3 | 72.6 | 75.6 | 59.7 | |
| 2039 | | 67.6 | 56.7 | 48.4 | 62.3 | 58.8 | 72 | 75.8 | 58.6 | |
| 2040 | | 68.1 | 56.3 | 48.3 | 61.7 | 58.6 | 71.2 | 75.3 | 57.1 | |
| 2041 | | 67.7 | 51.7 | 48.1 | 61.2 | 57.2 | 70.7 | | | |
| 2042 | | 68.0 | 49.0 | 47.8 | 60.7 | 56.4 | 70.4 | | | |
| 2043 | | 68.0 | 48.1 | 47.4 | 60.4 | 56.0 | 70.3 | | | |
| 2044 | | 67.8 | 45.9 | 47.0 | 60.1 | 55.2 | 70.1 | | | |
| 2045 | | 67.9 | 44.4 | 46.4 | 59.9 | 54.7 | 69.9 | | | |

Source: EIA, EVA, WVU BBER and authors' calculation. All forecasts were produced in 2021.

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Appendix A: EIA Forecasts for Regional Coal Production

EIA forecasts Appalachian coal production to decline gradually through 2037, with greater stability from 2037 to 2050. As shown below (Figure A1), Interior⁵ production is projected to challenge Appalachian production throughout the time period. Northern Appalachian⁶ production is expected to be 10 million tons above Central Appalachia through 2050.

Figure A1. EIA Forecasted Coal Production by Region

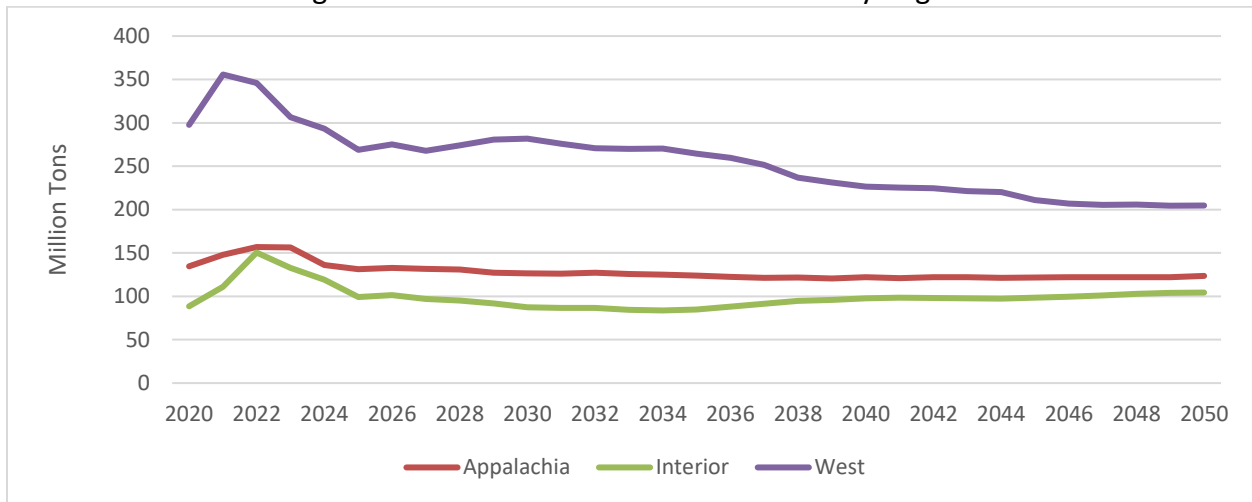
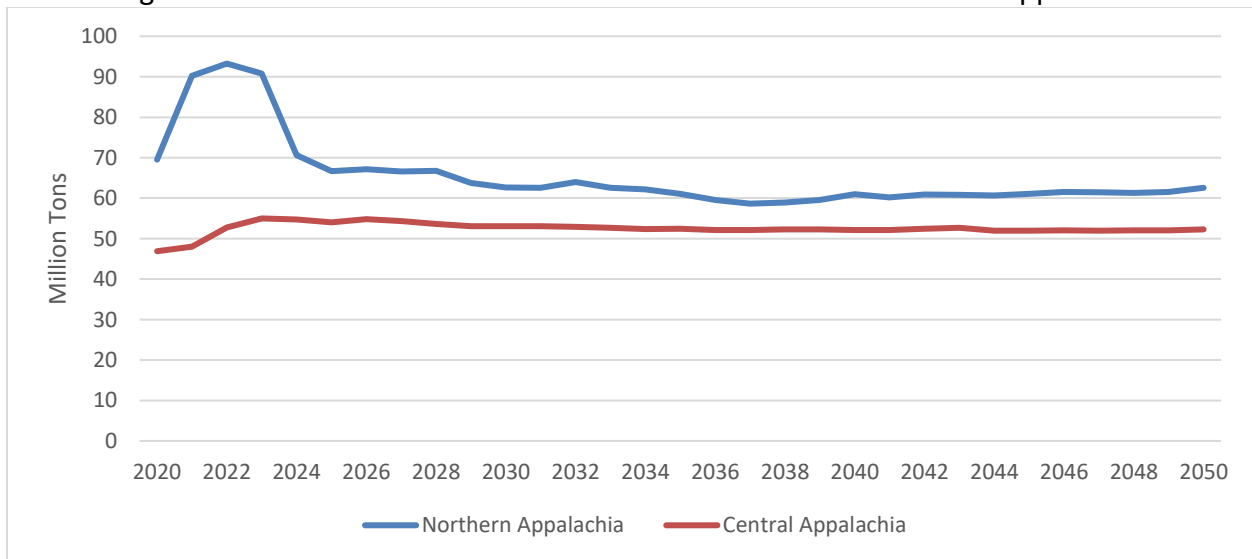


Figure A2. EIA Forecasted Coal Production for Northern and Central Appalachia



Source for Figure A1 and Figure A2: EIA AEO 2021.

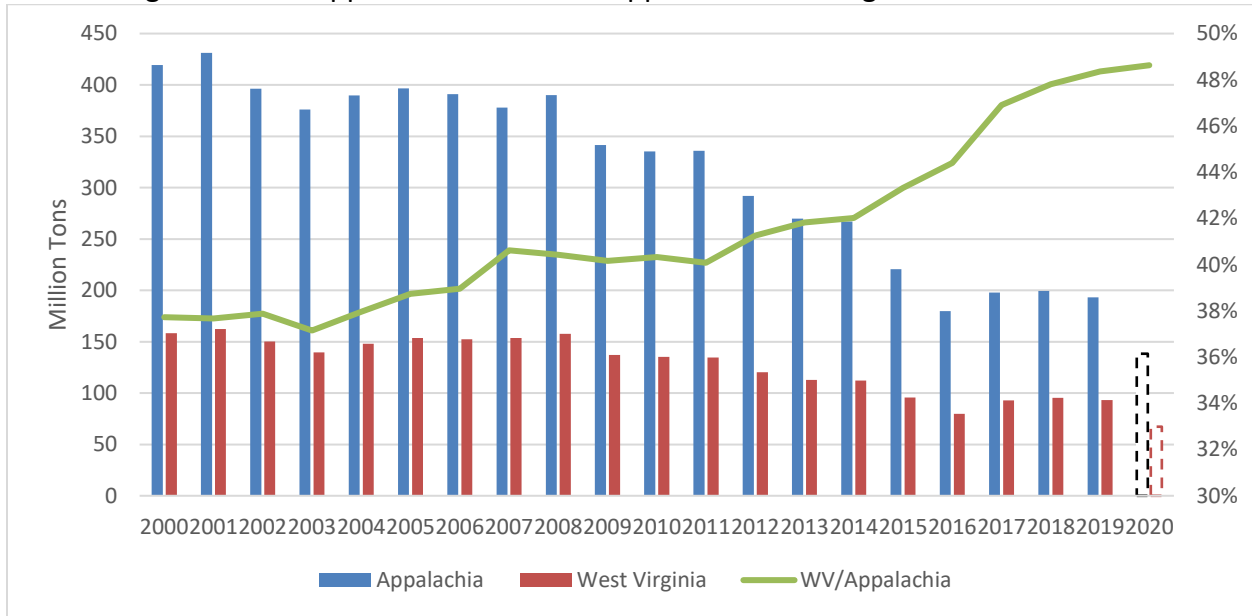
⁵ Arkansas, Illinois, Indiana, Iowa, Kansas, W. Kentucky, Louisiana, Mississippi, Missouri, Oklahoma, and Texas.

⁶ Northern Appalachia includes Pennsylvania, Maryland, Ohio, and N. West Virginia. Central Appalachia includes Virginia, E. Kentucky, N. Tennessee, and S. West Virginia.

Appendix B. EIA Forecast for West Virginia

The EIA forecast for WV coal production is derived from EIA’s forecast for the Appalachia region, as the agency does not publish forecasts for individual states. The WV forecast was calculated using year-adjusted WV/Appalachia coal production.

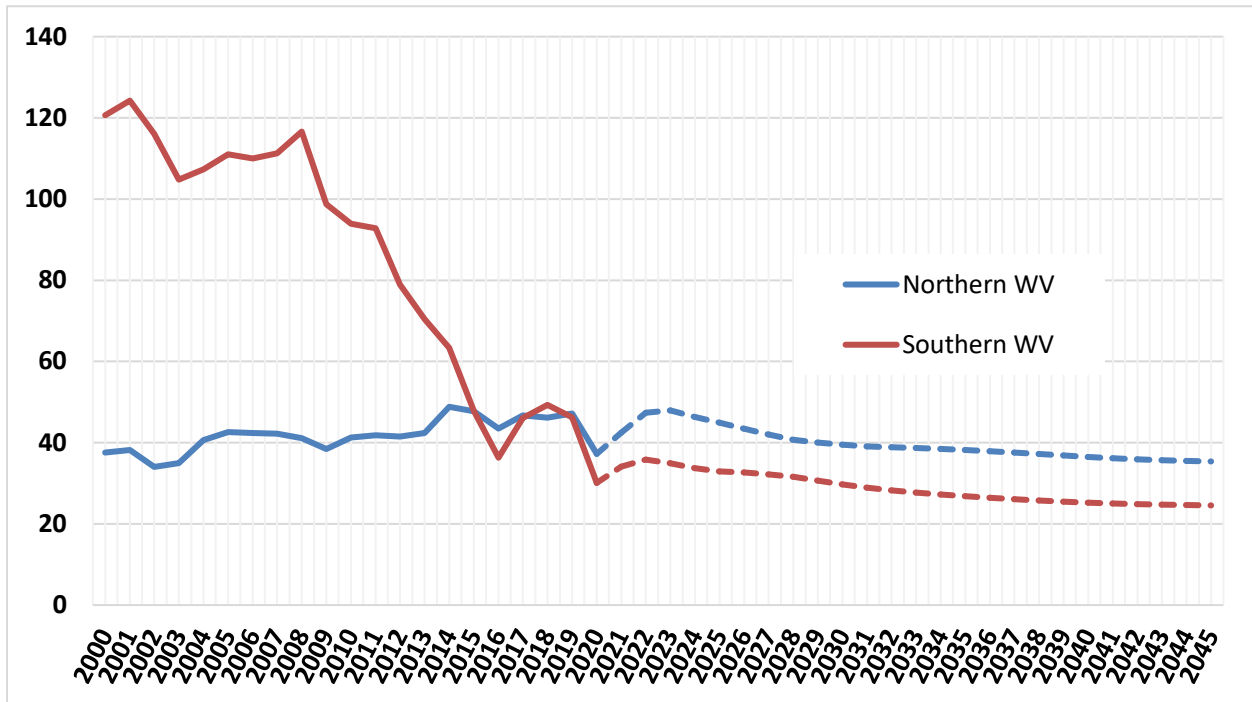
Figure A3. EIA Appalachian Forecasts Applied to West Virginia Coal Production



Source: EIA AEO 2021 and CBER calculations for West Virginia production.

Appendix C. WVU BBER Forecast of Northern vs. Southern WV Production

Figure A4. WVU BBER Forecast of Northern vs. Southern WV Production



Appendix D



Taylor & Mulder
Property and Casualty Consulting Actuaries

**West Virginia Office of Special Reclamation
Actuarial Reserve Study as of June 30, 2021**

November 2021



Taylor & Mulder
Property and Casualty Consulting Actuaries

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November 16, 2021

Mr. David B. McCoy, PE
Engineer-Chief
Division of Land Reclamation
West Virginia Department of Environmental Protection
Office of Special Reclamation
47 School Street Suite 301
Phillipi, WV 26416
David.B.McCoy@wv.gov

Dear Mr. McCoy,

Enclosed is the actuarial review of the West Virginia Department of Environmental Protection (“WVDEP”) Special Reclamation Fund and Water Trust Fund (“SRF” and “WTF”, respectively, or collectively “the Funds”) as of June 30, 2021.

The first section in the text of our report is the *Executive Summary*. This section presents our conclusions and recommendations. It also describes the purpose and scope of our report, explains the distribution and use of our report, and provides the conditions and limitations underlying our work. This section of our report also includes the Background section which provides information about the Fund history.

The next section of the text of our report is the *Actuarial Analysis* that describes the sources of data, our overall methodology, the selection of factors and specific methodologies and considerations by line of business. It also describes the selection of ultimate losses. The *Exhibits* section of our report follows the text of the report and includes all of our analyses.

Please feel free to call if you have any questions regarding any aspect of our report.

Sincerely,

Daniel W. Lupton, FCAS, MAAA, CSPA, MBA

Evelyn Toni Mulder, FCAS, MAAA, FCA

Bobby J. Jaegers, ACAS, MAAA, FCA

Enclosures

West Virginia Office of Special Reclamation

Actuarial Reserve Study as of June 30, 2021

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Executive Summary

Purpose and Scope

Taylor & Mulder, Incorporated (“T&M”) was requested by the West Virginia Department of Environmental Protection (“WVDEP”) to conduct an actuarial review of its loss reserves as of June 30, 2021. This report contains our summary and conclusions along with a description of the analysis underlying our conclusions.

Specifically, T&M was asked by the WVDEP to conduct an actuarial analysis to include within its scope the following tasks:

- A valuation in accordance with applicable actuarial standards of practice promulgated by the Actuarial Standards Board of the American Academy of Actuaries that will determine the Program’s fiscal soundness;
- An evaluation of the present 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;
- 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 (“WTF”) as well as the Special Reclamation Fund (“SRF”);
- A table that combines the findings of the two previous tasks;
- An analysis and discussion of the ability of the Program to support long term and/or perpetual liabilities; and,
- A one-page executive summary of conclusions with references to the body of the report.

Note: This is a “closed” valuation of the Funds’ liabilities insofar as it considers only liabilities arising from permits that have already been issued. The estimated liabilities account for current

known reclamation projects as well as anticipated permit revocations on permits issued prior to June 30, 2021. Anticipated income is also linked to permits issued by June 30, 2021 without regard to future permits issued.

This report presents the results of those analyses. This report was prepared by:

- Daniel W. Lupton, FCAS, MAAA, CSPA, MBA, Vice President and Consulting Actuary,
- Evelyn Toni Mulder, FCAS, MAAA, FCA, Principal and Consulting Actuary,
- Bobby J. Jaegers, ACAS, MAAA, FCA, Consulting Actuary

In accordance with the requirements of the Actuarial Standards of Practice in making statements of actuarial opinion, I provide the following statement:

I, Daniel W. Lupton, am Vice President and Consulting Actuary in the firm of Taylor & Mulder, Inc. I am a Fellow of the Casualty Actuarial Society in good standing and qualified to issue a Statement of Actuarial Opinion. I am also a Member of the American Academy of Actuaries.

Conclusions

Overall Fund Liabilities

The following chart shows the projected undiscounted liabilities for land reclamation costs, water capital costs, maintenance and operations costs, and administrative expenses for the next 20 years:

**West Virginia Office of Special Reclamation
Actuarial Reserve Study as of June 30, 2021
Special Reclamation Fund and Water Trust Fund Combined
Undiscounted Liabilities**

| Expense Category | Current Forfeitures | Prospective Forfeitures | Total Liability |
|-------------------------|----------------------------|--------------------------------|------------------------|
| Land Reclamation Costs | 21,306,701 | 78,439,530 | 99,746,231 |
| Water Capital Costs | 131,598,040 | 93,479,328 | 225,077,369 |
| O&M Costs* | 150,959,602 | 29,872,179 | 180,831,780 |
| Administrative Expense | | | 59,166,576 |
| Total Liability | 303,864,343 | 201,791,037 | 564,821,955 |

*O&M Costs are Operation and Maintenance Costs

It should be noted that because this is a “closed” study, the above table does not include anticipated liabilities arising from permits issued after June 30, 2021.

Administrative expenses in the above table include employee benefits, contractual obligations, personnel services, and unclassified expenses other than reclamation costs. The following table shows the estimated total liability from all forfeitures (current and projected) for the next 20 years, as well as a comparison to the same values projected as of the previous study:

**West Virginia Office of Special Reclamation
Actuarial Reserve Study as of June 30, 2021
Special Reclamation Fund and Water Trust Fund Combined
Undiscounted Liabilities**

| Expense Category | Current Study | Prior Study | Difference |
|-------------------------|----------------------|--------------------|-------------------|
| Land Reclamation | 99,746,231 | 88,723,579 | 11,022,652 |
| Water Capital | 225,077,369 | 180,471,492 | 44,605,877 |
| Water O&M | 180,831,780 | 168,065,548 | 12,766,232 |
| Administrative* | 59,166,576 | 59,442,730 | (276,154) |
| Total | 564,821,955 | 496,703,348 | 68,118,607 |

Relative to the prior study, the current study anticipates higher land reclamation, water capital, and water O&M expenses.

A detailed breakdown of these liability cash flows is provided in Exhibits E-6 through E-9.

Funds' Assets

In addition to projecting the Funds' liabilities, we also projected the Funds' assets. This was performed in the context of modeling future fiscal year cash flows. The following chart shows anticipated revenues over the next 20 years:

| West Virginia Office of Special Reclamation Actuarial Reserve Study as of June 30, 2021 Projected Revenues for SRF and WTF | |
|---|--------------------|
| Revenue Category | 20 Years |
| Bond Forfeitures | 37,998,926 |
| Civil Penalties | 9,881,849 |
| SRF Coal Fees | 111,105,361 |
| WTF Coal Fees | 129,192,280 |
| SRF Investment Yield | 2,687,481 |
| WTF Investment Yield | 69,938,713 |
| Total | 360,804,609 |

Note that due to the closed nature of the study, the revenues in the table above only reflect projected revenues associated with currently in-force permits. The actual anticipated revenues over that time period are considerably higher. For example, the SRF and WTF coal fees included in the table above represent only 66% of the total anticipated coal production over the next 20 years, as coal production in future years will increasingly come from permits that have not yet been issued as of June 30, 2021.

Relatedly, it should be noted that the actual investment yield will vary based on the rate at which funds must be transferred from the WTF to the SRF to pay for liabilities. Because the WTF earns a higher investment yield than the SRF (projected 5.3% as compared to 1.3%), additional revenues in the SRF (for example, from coal tonnage fees associated with new permits that are outside the scope of our study) will have a significant positive impact on total investment yield over time. This is because less money will need to be transferred from the WTF to the SRF to pay for reclamation activities, and therefore more investment income can be earned.

Technical details regarding how each revenue category was projected are provided in **Appendix A**, below. Revenue projection details are provided in Exhibits E-3 through E-5.

Financial Projections

Our projections of revenues and expenses to the Funds imply that the Funds will be solvent on a cash basis through 2039. The chart on the following page shows a simplified cash flow projection for the SRF and WTF combined over the next 20 years.

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Financial Projection

| Fiscal Year Ending 6/30 | Total | Total | Beginning Balance | | WTF to SRF | Ending Balance | |
|----------------------------|---------------------|-----------------|-------------------|-------------|------------------|----------------|-------------|
| | <u>Expenditures</u> | <u>Revenues</u> | <u>SRF</u> | <u>WTF</u> | <u>Transfers</u> | <u>SRF</u> | <u>WTF</u> |
| Prior | | | | | | 32,486,779 | 164,339,889 |
| 2022 | 85,202,817 | 34,289,512 | 32,486,779 | 164,339,889 | 48,800,723 | 10,000,000 | 135,913,363 |
| 2023 | 87,243,420 | 30,808,258 | 10,000,000 | 135,913,363 | 74,433,112 | 10,000,000 | 79,478,200 |
| 2024 | 10,011,434 | 25,605,954 | 10,000,000 | 79,478,200 | - | 11,706,443 | 93,366,278 |
| 2025 | 20,000,794 | 24,927,507 | 11,706,443 | 93,366,278 | 7,288,204 | 10,000,000 | 99,999,434 |
| 2026 | 28,648,560 | 23,992,386 | 10,000,000 | 99,999,434 | 18,324,324 | 10,000,000 | 95,343,260 |
| 2027 | 26,613,321 | 22,586,973 | 10,000,000 | 95,343,260 | 16,895,057 | 10,000,000 | 91,316,911 |
| 2028 | 25,822,793 | 21,105,477 | 10,000,000 | 91,316,911 | 16,762,332 | 10,000,000 | 86,599,594 |
| 2029 | 32,054,940 | 19,758,765 | 10,000,000 | 86,599,594 | 23,565,724 | 10,000,000 | 74,303,419 |
| 2030 | 23,479,197 | 18,349,255 | 10,000,000 | 74,303,419 | 15,394,969 | 10,000,000 | 69,173,477 |
| 2031 | 22,994,878 | 17,242,092 | 10,000,000 | 69,173,477 | 15,360,443 | 10,000,000 | 63,420,691 |
| 2032 | 22,345,760 | 16,277,491 | 10,000,000 | 63,420,691 | 15,082,863 | 10,000,000 | 57,352,422 |
| 2033 | 21,861,836 | 15,367,071 | 10,000,000 | 57,352,422 | 14,934,072 | 10,000,000 | 50,857,657 |
| 2034 | 21,306,992 | 14,469,640 | 10,000,000 | 50,857,657 | 14,693,148 | 10,000,000 | 44,020,306 |
| 2035 | 20,674,453 | 13,571,037 | 10,000,000 | 44,020,306 | 14,362,833 | 10,000,000 | 36,916,890 |
| 2036 | 20,358,909 | 12,568,592 | 10,000,000 | 36,916,890 | 14,390,442 | 10,000,000 | 29,126,574 |
| 2037 | 19,986,700 | 11,671,859 | 10,000,000 | 29,126,574 | 14,295,304 | 10,000,000 | 20,811,733 |
| 2038 | 19,461,630 | 10,791,877 | 10,000,000 | 20,811,733 | 14,020,891 | 10,000,000 | 12,141,980 |
| 2039 | 19,189,331 | 9,888,344 | 10,000,000 | 12,141,980 | 12,141,980 | 8,142,049 | 4,698,945 |
| 2040 | 18,918,303 | 9,086,888 | 8,142,049 | 4,698,945 | 4,698,945 | (1,132,583) | 4,142,162 |
| 2041 | 18,645,888 | 8,445,631 | (1,132,583) | 4,142,162 | 4,142,162 | (11,074,033) | 3,883,355 |

Note that these projections assume that the Water Trust Fund transfers money to the Special Reclamation Fund in order to maintain a fund balance of \$10,000,000.

A detailed version of this financial projection is provided in Exhibit E-2, which shows the breakdown by type of undiscounted expenditure and revenue item.

Recommendations

Coal Production Risks: There has been some instability in coal production forecasts and the coal market in general over the preceding decade as a result of different regulatory regimes, alternative energy adoption rates, economic events, and, most recently, the COVID-19 pandemic. Future studies may benefit from considering alternative coal production scenarios.

Permit Status History: Permit databases were evaluated as of a specific date. However, because this study estimates anticipated changes in permit status over time, it is necessary to make assumptions about how permit statuses change in order to develop forfeiture models. If records exist, it could be possible to produce more accurate models if a full history of each permit (including all status changes over time and dates when status changes occurred) were available.

Background

On August 3, 1977, Congress enacted the Surface Mining Control and Reclamation Act of 1977 (“the SMCRA”) to encourage the reclamation of mined areas and return land and water resources to beneficial use. The SMCRA established a program for the regulation of mining permits and a program for reclaiming bond forfeiture sites. In West Virginia, reclamation of abandoned mine lands is performed by the West Virginia Department of Environmental Protection (“WVDEP”) Office of Special Reclamation.

Funding for the reclamation of mined areas comes from bond forfeitures, coal tonnage fees, civil penalties, and interest income. The largest of these funding sources is coal tonnage fees. Coal tonnage fees of \$0.15 per ton of coal mined are deposited in the Water Trust Fund (“WTF”) and \$0.129 per ton are deposited in the Special Reclamation Fund (“SRF”). Amounts from bond forfeitures go to the SRF.

Currently, all reclamation activities, including water treatment, are paid through the SRF, with amounts being transferred to the SRF from the WTF to fund payment of certain costs. Financial projections assume that funds will be transferred to the SRF to maintain a certain minimum balance of working capital, and that the remaining amounts will be left in the WTF to achieve a higher average investment yield.

Report Distribution and Use

This report has been prepared for internal use by the management of the WVDEP and its board, its accountants, auditors, and attorneys, and the West Virginia legislature. The WVDEP is not authorized to include this report in any marketing or request for proposal solicitations. In addition, it should be understood that T&M consultants are available to respond to any questions by authorized third parties with respect to this report.

Conditions and Limitations

The analyses contained in this report were performed using accepted loss and loss adjustment expense reserving methods adjusted to the special needs of the WVDEP and in conformance with sound actuarial standards and principles. T&M introduced assumptions and judgments that we considered appropriate in the circumstances.

With regard to projections of ultimate values, it should be understood that the emergence and settlement of claims are subject to uncertainty. While we have used our best professional judgment in all instances, projections of future ultimate losses and loss expenses are inherently uncertain because of the random nature of claims occurrences. They are also dependent upon future contingent events and are affected by many additional factors.

WVDEP claim reserving procedures, current and perceived social and economic inflation, current and future court and jury attitudes, legislative changes affecting the WVDEP, improvements in technology, and many other economic, legal, political, legislative and social factors all can have significant effects on ultimate claim costs. Therefore, we cannot warrant that actual developments

will not differ from current projections. Such differences could be upward or downward and could be significant.

In summary, the ultimate loss and loss adjustment expense levels estimated in this report are subject to potential variations in estimation due to:

- (1) the fact that the ultimate liability of WVDEP is subject to the outcome of events yet to occur;
- (2) the unanticipated changes in the legal, economic, legislative or claims adjudication environments;
- (3) statistical fluctuation in losses around the estimated or expected values when all other factors remain constant; and
- (4) the fact that the actual future loss and loss payment and reporting patterns may differ from those applied in the determination of the expected losses or there may be unanticipated changes in the loss and expense loss and expense payment and reporting patterns;

Accordingly, no assurance can be given that future loss emergence will not deviate from the estimated ultimate loss and loss adjustment expenses. However, the ultimate loss and loss adjustment expense estimates were based on a reasonable application of generally accepted actuarial procedures and techniques applied to the information available.

We reviewed the information for overall reasonableness and consistency.

T&M relied without audit or verification on historical loss, loss adjustment expense, exposure data, and other information provided by the WVDEP and its employees. T&M has relied upon the data provided and on the oral and/or written statements made regarding the quality, accuracy, and completeness of the data and information supplied. Any inaccuracies or inconsistencies in the data could have a significant effect on the conclusions drawn.

Should any inaccuracies be found in the data, T&M should be notified immediately so that the analysis can be adjusted accordingly.

With regard to projections of estimated revenues, it should be understood that the revenue streams are subject to uncertainty similar to that experienced in modeling loss projections. While we have used our best professional judgment in all instances, projections of future revenues are inherently uncertain due to potential changes in technology, the implementation of environmental requirements, the introduction of and/or enhanced use of alternative fuels, and changes in the economy among others. While T&M has used its best judgment in selecting values and trends for each category of revenue, actual revenue collected is dependent upon unknown future events and may be affected by additional factors outside of WVDEP control.

This report is limited in scope to the estimate of the level of reserve adequacy at the evaluation date of the report. It also includes projections regarding cash flow of the operations of the WVDEP under certain narrow assumptions and conditions.

This report was prepared for use by persons technically competent in insurance financial matters. Persons receiving this report should be made aware of the availability of T&M personnel to answer questions and/or amplify on any matter addressed therein.

Appendix A: Actuarial Analysis

Sources of Data

The data underlying our analysis was compiled from several sources. The following are the primary sources from which data was taken and how each data source was used:

- Special Reclamation Database: This database was provided by David B. McCoy, Engineer-Chief, Division of Land Reclamation. The database includes information pertaining to historical and ongoing reclamation projects in the state, including site characteristics, land use information, anticipated and actual land and water reclamation costs (both individual capital expenditures and ongoing costs), and administrative costs. This database replaced a similar database provided earlier by Michael Sheehan, former Executive Director; however, that database was determined to have errors that rendered it unsuitable for this analysis.
- Permits database: This database was provided by Amy Crouser, Assistant Director for the WVDEP Division of Mining and Reclamation. This database includes data on permits issued between 1961 and June 30, 2021, including the permit status, permit location and type, bond amount, and bonded acres.
- 2021 Consensus Coal Forecast by the Center for Business and Economic Research at Marshall University was used for coal market history and projections.
- Special Reclamation Fund Expenditures: This database was provided by Scott Fairchild, Financial Reporting Specialist (II) for the WVDEP. This database included SRF and WTF expenditures from July 1, 2005 to June 30, 2021.
- Revenues for WTF and SRF were also provided by Scott Fairchild. These databases include all revenues to the Special Reclamation Fund and Water Trust Fund from July 1, 2005 to June 30, 2021.
- Prior Actuarial Reports: These were provided by Mr. Sheehan to provide additional context for our projections.
- Coal Production Decline Rates, including an analysis of anticipated coal production decline rates, was provided by John Morgan, indicating the anticipated rate at which coal production will decline from currently in-force permits.

- SRF and WTF Investment Allocations: These were provided by Mr. Sheehan and were used to project anticipated SRF and WTF investment revenues based on the allocation of funds to money market, short term bonds, and IMB fund.

Overall Methodology

Loss Projections

Losses were projected using two models: a traditional deterministic model and a stochastic generalized linear model, described in greater detail below.

Based on the results of these methods, we selected anticipated payment amounts in each future fiscal year. A three-year delay was added to these payment patterns to account for the delay between a permit revocation and the commencement of reclamation activities at the site.

Current cost estimates on active reclamation activities were adjusted for historical variances between cost estimates and the final costs. These costs were then spread out over time, assuming 50% of costs will be incurred in the year that work is scheduled to commence and 50% of costs will be incurred in the following year for land reclamation and water capital costs. Water operations & maintenance costs were projected to continue each year according to current estimated annual costs subject to an annual attenuation factor of 98% starting in 2031. This is due to the fact that annual O&M costs associated with currently active reclamations are projected to show modest declines after 10 years.

All costs are then adjusted to nominal dollars using an inflation factor of 2.5%.

Deterministic Loss Model

The traditional deterministic model projects anticipated bond forfeiture and permit release rates based on historical data triangles. Permits are arranged into cohorts by year of permit issuance based on the assumption that permit releases and bond forfeitures vary based on the age of

permit. From these data triangles, overall release and forfeiture rates are selected for each age of permit, then adjusted to reflect anticipated differences in rates for permits based on current status (active, inactive, or phased release). These release and forfeiture rates are applied to currently open permits, separately for surface, underground, and other mine types and separately by permit status types. A final adjustment is made based on bond size, whereby permits backed by smaller bonds (less than \$500,000) are anticipated to be forfeited at a rate that is higher than permits backed by large bonds (greater than \$500,000.)

These adjusted forfeiture and release rates are applied to currently open permits or bonded acres to determine the number of permits and acres expected to be released or forfeited each year in the future. We then apply anticipated average costs per forfeited acre to determine future costs by year for the anticipated land reclamation costs, water capital costs, and water operations & maintenance costs.

Stochastic Loss Model

The stochastic model uses advanced statistical techniques to project future anticipated forfeiture and release rates.

The stochastic model is formally based on a kind of generalized linear model, specifically a multinomial logistic regression model. The model uses historical data about forfeited and released bonds to predict the probability that open permits will experience forfeiture or release each year in the future. In addition, the stochastic model considers the parent companies of each permit and simulates bankruptcies from parent companies. When a parent company experiences bankruptcy, we project that the probability of forfeiture for the company's permits is increased by 30% for the year following. This is based on the understanding that although parent company bankruptcies can lead to forfeitures, the permits are often sold as assets to other companies as a way of preventing further forfeitures.

Technical details of the stochastic model are provided as **Appendix B** of the report.

Comparison of Deterministic and Stochastic Models

The deterministic and stochastic loss models have unique advantages and disadvantages that we considered carefully as part of our projections.

The deterministic model has the advantage that patterns of releases and forfeitures can be easily visualized. As a result, it is possible to make selections of anticipated release and forfeiture rates that explicitly anticipate recent or future changes in rates that could affect loss projections. For example, the most recent ten years have generally experienced lower forfeiture rates than the preceding ten. It is straightforward to account for this change when selecting anticipated future forfeiture rates. By comparison, the stochastic model is less intuitive, and it can be challenging to make manual adjustments to fitted model results.

However, there are several drawbacks to the deterministic model that prompted the development of the stochastic model. First, the method assumes that future forfeitures and releases are roughly statistically independent. This assumption may be incorrect. Recent years have seen increasing consolidation in coal industry. As a result, permits are controlled by a smaller set of companies. For this reason, a single bankruptcy could lead to a large number of simultaneous forfeitures. This key issue was accounted for explicitly in the stochastic model.

Relatedly, the deterministic model makes a simplifying assumption about the number of bonds that will be forfeited or released in a year. For example, for a given age, the deterministic model may project that 0.93% of a particular kind of bond will be forfeited. Realistically, this means that a given bond will be forfeited with probability 0.93% or not forfeited with probability 99.07%. However, the deterministic model projects that 0.93% of all bonds will be forfeited. That is, for a given bond of 100 acres, the deterministic model might project that 0.93 acres will be forfeited in that year, where in actuality either 0 acres or 100 acres will be forfeited. This assumption may result in excessive confidence about the accuracy of the central estimate, particularly with respect to the timing and amount of cash flows. The stochastic model, by comparison, simulates individual permit behavior directly and thereby avoids using this assumption.

A final advantage of the stochastic model is that the use of a statistical framework enables the use of model validation tools that are not generally available for traditional models. This makes it possible to directly assess the extent to which different assumptions impact model predictive performance and deliver a model that is optimized to provide the most accurate predictions possible. In the deterministic model, predictions are assumed to be accurate, and model validation is, at best, implicit in the extent to which forfeiture or release rates are selected to mirror or diverge from historical rates.

Revenue Projections

Anticipated coal tonnage fees were modeled by considering the anticipated change in Appalachian coal production per year from the consensus coal forecast as well as the effect of the “runoff” of permits. The runoff of permits is comprised of two separate factors:

1. A factor representing the reduction in number of active permits among the current cohort of open permits. This factor was projected as part of the loss models.
2. A factor representing the reduced coal production over time among the permits that remain open. This factor was determined judgmentally based on discussions with the Board and based on analysis provided by John Morgan, as discussed above.

With respect to the second point, we assumed the following rates of decline in coal production:

| | Northern Mines | Southern Mines |
|--------------------------|----------------|----------------|
| Underground Mines | 2.5% | 5.0% |
| Surface Mines | 25.0% | 10.0% |

Bond forfeitures revenues were determined based on the loss models. The deterministic loss model tracked the anticipated bond dollars forfeited in each period. The stochastic loss model considered the bond dollars forfeited across different simulated scenarios. These projections were combined to select a central estimate of bond forfeiture revenues.

Civil penalties were anticipated to decline in a manner commensurate with the decline in production on the current cohort of permits.

Investment returns were projected based on historical average returns. Both the SRF and WTF experienced historically high investment returns on short-term bonds in 2021. It is anticipated that these short-term bond returns will drift back to historical average returns over the next several years.

Administrative Expense Calculations

Historical administrative expenses were provided to us for the years 2006 through June 30, 2021. Administrative expenses are defined as the sum of employee benefits, contractual obligations, personnel services, and other unclassified expenses.

Administrative expenses associated with the current cohort of permits were projected assuming 3% inflation each year and discounted based on the projected number of remaining permits in force from the cohort of open permits as of June 30, 2021.

Appendix B: Technical Details of the Stochastic Loss Model

Data Pre-Processing

The model was fitted on closed permits. However, the permit database only reflects the current status of the permits and the date that this status was set. Therefore, to determine the probability that a permit stays open in a given year, it was necessary to reconstruct historical permit data reflecting the fact that a permit with certain attributes was open in a given year.

For example, if a permit was issued in 1990 and released in 2000, the permit database reflects a single entry of “released” with a status year of 2000. However, inherent in that entry is an implied 10 years in which the permit had “open” status (during 1990, 1991, ... 1999).

Model Form

The stochastic loss model is a multinomial logistic model with four outcomes: “Open,” “Forfeited,” “Release,” and “Terminated.” It predicts, based on a linear predictor, the log-odds of each outcome. The model was fitted using a neural network as part of the “nnet” package in R.

The linear predictor of the model is of the following form:

$$\text{Permit Type} \times \text{NS} \times \text{Permits} \times \text{Permit Years} + \text{Spline}(\text{Log}(\text{Cohort Acres}), 3) \\ + \text{Spline}(\text{Issue Year}, 5) + \text{Spline}(\text{Age}^*, 3) + \text{Poly}(\text{Age}, 2)$$

Where the variables used are described as follows:

| Variable | Description |
|--------------|--|
| Permit Type | Notes whether a permit is a surface mine, underground mine, prospect, or other |
| NS | Notes whether a mine is in a northern or southern county |
| Permits | Counts the number of permits held by the permittee |
| Permit Years | Counts the sum of the ages of all permits held by permittee |
| Cohort Acres | Sum of acres held by all permits issued in the same year as a given permit |
| Age | The length of time that a permit has been in force |
| Age* | Age, subject to a maximum value of 3 |
| Issue Year | The year that a permit was issued |

| | |
|----------------------------|--|
| Spline(Variable, N) | A “beta spline” function of a given variable with N-1 knots. This is a piecewise function of 3 rd degree polynomials with N different “pieces.” |
| Poly(Variable, N) | An N-degree polynomial function of the variable |

Beta splines were used after initial testing revealed that high-order polynomials produced superior fit (as measured by the AIC and by cross entropy error, discussed below) but failed to provide useful results when extrapolating beyond the training dataset. We determined that this was due to the inherent instability of high-order polynomials. We determined that spline functions produced similarly good fit over the training data and test set but generalized more robustly over the set of open permits.

Variable Selection and Model Validation

The closed permits were split randomly into 80% training data and 20% test data. After the model form was determined, the model was re-fit on the entire dataset. Model predictions were carried out on the set of open permits.

Variables tested included size of bonds, specific county, permit status, specific permit type, and bonded acres. These variables were generally rejected either because of missing data or because they resulted in over-fitting the model. The same is true of many variable interactions that were tested.

Variables were selected based on the extent to which they improved the Akaike Information Criterion (AIC) of the model over the full training data or the extent to which they improved the cross-entropy error in the test dataset. This is a measure of the degree to which the model properly categorizes permits as being open, forfeited, released, or terminated.

The model was additionally validated using plots of actual and fitted permit forfeitures and by reviewing model statistics such as t-statistics.

Initial tests of the model included the “Status Year” variable, indicating the latest year when the status of the permit was updated. This variable significantly improves the AIC and cross-entropy

error when using a random sample of data, but out-of-time samples perform very poorly. This seems to be the result of the historical patterns in permit forfeiture, which causes the Status Year variable to generate significant over-fitting. For this reason, Status Year was excluded as a variable in this study.

Simulation

The final simulation was carried out in two steps. First, the baseline “status probabilities” (i.e., the probability that a permit remains open, is forfeited, etc.) were determined for each open permit for each of the 20 years in the future. Then, for each of 5,000 simulations, we carried out the following procedure:

1. Simulate whether each of the ultimate parent companies goes bankrupt in a given year using a Bernoulli probability distribution with probability 0.5%. This probability is based on default probability for high-grade credit ratings from major credit rating agencies.
2. Augment the baseline status probabilities with the simulated bankruptcies by adding 30% to the unnormalized log-odds of a permit being forfeited. This means that if a permit previously had a 10% probability of being forfeited, following the bankruptcy it would have a $(10\% + 30\%) / 130\% = 30.8\%$ probability of being forfeited. The 30% probability was based on discussion with the Board and judgment.
3. For each year in the future, the status of each permit was simulated until the permit status was no longer “open.”
4. The results of this simulation were stored, and then the process was repeated for the next simulation, starting at step 1.

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Executive Summary

| <u>Expense Category</u> | (1) | (2) | (3) | (4) | (5) |
|--|--|--------------------|------------------------|----------------|------------|
| | Undiscounted Liabilities Arising From... | | Total Liability | Previous Study | Difference |
| | Current Forfeitures | Future Forfeitures | | | |
| Land Capital | 21,306,701 | 78,439,530 | 99,746,231 | 88,723,579 | 11,022,652 |
| Water Capital | 131,598,040 | 93,479,328 | 225,077,369 | 180,471,492 | 44,605,877 |
| Ongoing Water Treatment Administration | 150,959,602 | 29,872,179 | 180,831,780 | 168,065,548 | 12,766,232 |
| | | | 59,166,576 | 59,442,730 | (276,154) |
| Total | 303,864,343 | 201,791,037 | 564,821,955 | 496,703,348 | 68,118,607 |

Notes:

- Col (1) - (2) from Exhibits E-6 to E-8, Cols (6) and (7)
- Col (3) Administration Expense from Exhibit E-9, Col (3)
- Col (4) from Prior Study
- Col (5) = (3) - (4)

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Financial Projection

| Fiscal Year Ending 6/30 | Expenditures | | | | | Revenues | | | | | | Beginning Balance | | WTF to SRF Transfers | Ending Balance | | |
|----------------------------|--------------|---------------|----------------|-----------|------------|---------------|---------------|------------------|-----------------|-----------------|-----------------|-------------------|-------------|-------------------------|----------------|-------------|-------------|
| | Land | Water Capital | Water Op/Maint | Admin | Total | SRF Coal Fees | WTF Coal Fees | Bond Forfeitures | Civil Penalties | SRF Investments | WTF Investments | SRF | WTF | | SRF | WTF | |
| Prior | | | | | | | | | | | | | | | | | |
| 2022 | 10,421,876 | 64,986,687 | 6,220,885 | 3,573,369 | 85,202,817 | 10,005,152 | 11,633,898 | 2,675,265 | 889,871 | 345,027 | 8,740,299 | 32,486,779 | 164,339,889 | 48,800,723 | 10,000,000 | 164,339,889 | 135,913,363 |
| 2023 | 10,782,374 | 66,611,354 | 6,376,407 | 3,473,285 | 87,243,420 | 9,252,553 | 10,758,782 | 2,604,576 | 822,934 | 130,246 | 7,239,167 | 10,000,000 | 135,913,363 | 74,433,112 | 10,000,000 | 79,478,200 | 79,478,200 |
| 2024 | 102,450 | - | 6,535,817 | 3,373,166 | 10,011,434 | 8,303,147 | 9,654,823 | 2,545,991 | 738,492 | 130,246 | 4,233,255 | 10,000,000 | 79,478,200 | - | 11,706,443 | 93,366,278 | 93,366,278 |
| 2025 | 4,421,876 | 5,458,547 | 6,836,689 | 3,283,682 | 20,000,794 | 7,695,609 | 8,948,383 | 2,473,609 | 684,457 | 152,472 | 4,972,978 | 11,706,443 | 93,366,278 | 7,288,204 | 10,000,000 | 99,999,434 | 99,999,434 |
| 2026 | 8,159,603 | 10,026,211 | 7,259,618 | 3,203,128 | 28,648,560 | 7,174,007 | 8,341,869 | 2,381,918 | 638,065 | 130,246 | 5,326,280 | 10,000,000 | 99,999,434 | 18,324,324 | 10,000,000 | 95,343,260 | 95,343,260 |
| 2027 | 7,126,493 | 8,695,438 | 7,659,050 | 3,132,340 | 26,613,321 | 6,699,770 | 7,790,430 | 2,292,362 | 595,886 | 130,246 | 5,078,278 | 10,000,000 | 95,343,260 | 16,895,057 | 10,000,000 | 91,316,911 | 91,316,911 |
| 2028 | 6,634,679 | 8,068,464 | 8,052,546 | 3,067,104 | 25,822,793 | 6,175,826 | 7,181,193 | 2,205,105 | 549,286 | 130,246 | 4,863,822 | 10,000,000 | 91,316,911 | 16,762,332 | 10,000,000 | 86,599,594 | 86,599,594 |
| 2029 | 9,065,571 | 10,976,194 | 9,006,775 | 3,006,399 | 32,054,940 | 5,725,009 | 6,656,987 | 2,124,771 | 509,189 | 130,246 | 4,612,563 | 10,000,000 | 86,599,594 | 23,565,724 | 10,000,000 | 74,303,419 | 74,303,419 |
| 2030 | 5,279,421 | 6,346,677 | 8,899,873 | 2,953,226 | 23,479,197 | 5,424,361 | 6,307,396 | 2,047,172 | 482,449 | 130,246 | 3,957,631 | 10,000,000 | 74,303,419 | 15,394,969 | 10,000,000 | 69,173,477 | 69,173,477 |
| 2031 | 4,924,371 | 5,896,950 | 9,269,352 | 2,904,205 | 22,994,878 | 5,094,006 | 5,923,263 | 1,957,115 | 453,067 | 130,246 | 3,684,394 | 10,000,000 | 69,173,477 | 15,360,443 | 10,000,000 | 63,420,691 | 63,420,691 |
| 2032 | 4,498,579 | 5,353,682 | 9,634,253 | 2,859,245 | 22,345,760 | 4,847,485 | 5,636,611 | 1,854,024 | 431,141 | 130,246 | 3,377,983 | 10,000,000 | 63,420,691 | 15,082,863 | 10,000,000 | 57,352,422 | 57,352,422 |
| 2033 | 4,214,982 | 4,993,242 | 9,835,894 | 2,817,718 | 21,861,836 | 4,630,704 | 5,384,539 | 1,754,954 | 411,861 | 130,246 | 3,054,768 | 10,000,000 | 57,352,422 | 14,934,072 | 10,000,000 | 50,857,657 | 50,857,657 |
| 2034 | 3,901,456 | 4,593,520 | 10,031,688 | 2,780,328 | 21,306,992 | 4,426,385 | 5,146,960 | 1,663,524 | 393,688 | 130,246 | 2,708,837 | 10,000,000 | 50,857,657 | 14,693,148 | 10,000,000 | 44,020,306 | 44,020,306 |
| 2035 | 3,555,834 | 4,151,052 | 10,219,218 | 2,748,348 | 20,674,453 | 4,226,693 | 4,914,760 | 1,578,753 | 375,927 | 130,246 | 2,344,658 | 10,000,000 | 44,020,306 | 14,362,833 | 10,000,000 | 36,916,890 | 36,916,890 |
| 2036 | 3,349,477 | 3,888,774 | 10,402,914 | 2,717,744 | 20,358,909 | 3,985,083 | 4,633,817 | 1,498,700 | 354,438 | 130,246 | 1,966,308 | 10,000,000 | 36,916,890 | 14,390,442 | 10,000,000 | 29,126,574 | 29,126,574 |
| 2037 | 3,118,811 | 3,593,822 | 10,581,821 | 2,692,246 | 19,986,700 | 3,809,019 | 4,429,091 | 1,413,353 | 338,779 | 130,246 | 1,551,372 | 10,000,000 | 29,126,574 | 14,295,304 | 10,000,000 | 20,811,733 | 20,811,733 |
| 2038 | 2,823,585 | 3,214,442 | 10,753,638 | 2,669,965 | 19,461,630 | 3,648,671 | 4,242,641 | 1,337,305 | 324,517 | 130,246 | 1,108,497 | 10,000,000 | 20,811,733 | 14,020,891 | 10,000,000 | 12,141,980 | 12,141,980 |
| 2039 | 2,639,242 | 2,977,905 | 10,921,855 | 2,650,328 | 19,189,331 | 3,484,914 | 4,052,225 | 1,264,288 | 309,953 | 130,246 | 646,720 | 10,000,000 | 12,141,980 | 12,141,980 | 8,142,049 | 4,698,945 | 4,698,945 |
| 2040 | 2,454,919 | 2,740,904 | 11,086,377 | 2,636,103 | 18,918,303 | 3,347,018 | 3,891,882 | 1,193,973 | 297,688 | 106,047 | 250,280 | 8,142,049 | 4,698,945 | (1,132,583) | 4,142,162 | (1,132,583) | 4,142,162 |
| 2041 | 2,270,632 | 2,503,504 | 11,247,108 | 2,624,643 | 18,645,888 | 3,149,948 | 3,662,730 | 1,132,168 | 280,160 | - | 220,624 | (1,132,583) | 4,142,162 | 4,142,162 | (11,074,033) | 3,883,355 | 3,883,355 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Coal Tonnage Fees and Civil Penalties Projections

| Fiscal Year Ending 6/30 | (1) - (5) Coal Production in Million Tons | | | | | (6) - (9) % Coal Production From In-Force Permits | | | | (10) Total In-Force Production | (11) - (13) Coal Tonnage Fees from In-Force Permits | | | (14) Civil Penalties |
|----------------------------|--|-------------|----------|-------------|-------|--|-------------|----------|-------------|---|--|------------|------------|----------------------------|
| | Northern | | Southern | | | Northern | | Southern | | | SRF | WTF | Total | |
| | Surface | Underground | Surface | Underground | Total | Surface | Underground | Surface | Underground | | | | | |
| 2008 | 7.0 | 34.1 | 62.4 | 54.3 | 157.8 | 100% | 100% | 100% | 100% | 157.8 | 9,415,063 | - | 9,415,063 | 855,750 |
| 2009 | 5.2 | 33.1 | 51.0 | 47.7 | 137.1 | 100% | 100% | 100% | 100% | 137.1 | 17,098,738 | 1,850,648 | 18,949,386 | 1,151,628 |
| 2010 | 4.0 | 37.3 | 46.7 | 47.2 | 135.2 | 100% | 100% | 100% | 100% | 135.2 | 16,639,204 | 1,924,569 | 18,563,773 | 688,062 |
| 2011 | 3.3 | 38.6 | 48.0 | 44.8 | 134.7 | 100% | 100% | 100% | 100% | 134.7 | 18,168,515 | 2,100,436 | 20,268,951 | 805,018 |
| 2012 | 2.0 | 39.4 | 37.9 | 41.0 | 120.4 | 100% | 100% | 100% | 100% | 120.4 | 16,876,736 | 1,963,409 | 18,840,145 | 940,571 |
| 2013 | 1.5 | 40.9 | 32.4 | 37.9 | 112.8 | 100% | 100% | 100% | 100% | 112.8 | 15,277,933 | 14,605,229 | 29,883,163 | 677,771 |
| 2014 | 1.3 | 47.4 | 29.1 | 34.0 | 111.9 | 100% | 100% | 100% | 100% | 111.9 | 13,949,645 | 16,210,221 | 30,159,866 | 734,975 |
| 2015 | 0.9 | 46.9 | 19.4 | 28.4 | 95.6 | 100% | 100% | 100% | 100% | 95.6 | 14,936,957 | 17,369,799 | 32,306,756 | 2,551,755 |
| 2016 | 0.2 | 43.3 | 15.5 | 20.8 | 79.8 | 100% | 100% | 100% | 100% | 79.8 | 10,774,387 | 12,530,157 | 23,304,544 | 612,182 |
| 2017 | 0.1 | 46.6 | 20.1 | 25.9 | 92.8 | 100% | 100% | 100% | 100% | 92.8 | 11,174,041 | 12,994,938 | 24,168,979 | 822,617 |
| 2018 | 0.6 | 45.5 | 22.5 | 26.7 | 95.4 | 100% | 100% | 100% | 100% | 95.4 | 11,831,011 | 13,758,966 | 25,589,977 | 716,346 |
| 2019 | 0.7 | 46.3 | 22.3 | 23.9 | 93.3 | 100% | 100% | 100% | 100% | 93.3 | 12,138,331 | 14,116,367 | 26,254,698 | 976,343 |
| 2020 | 0.3 | 33.8 | 15.0 | 18.1 | 67.2 | 100% | 100% | 100% | 100% | 67.2 | 9,269,937 | 10,780,545 | 20,050,482 | 612,870 |
| 2021 | 0.4 | 39.9 | 17.7 | 21.4 | 79.4 | 100% | 100% | 100% | 100% | 79.4 | 8,771,920 | 10,166,395 | 18,938,315 | 877,641 |
| 2022 | 0.4 | 41.1 | 18.2 | 22.0 | 81.6 | 75% | 98% | 90% | 95% | 77.6 | 10,005,152 | 11,633,898 | 21,639,051 | 889,871 |
| 2023 | 0.4 | 39.9 | 17.7 | 21.4 | 79.3 | 56% | 95% | 81% | 90% | 71.7 | 9,252,553 | 10,758,782 | 20,011,335 | 822,934 |
| 2024 | 0.4 | 37.6 | 16.6 | 20.1 | 74.7 | 42% | 93% | 73% | 86% | 64.4 | 8,303,147 | 9,654,823 | 17,957,970 | 738,492 |
| 2025 | 0.3 | 36.5 | 16.2 | 19.6 | 72.6 | 32% | 90% | 66% | 81% | 59.7 | 7,695,609 | 8,948,383 | 16,643,992 | 684,457 |
| 2026 | 0.3 | 35.7 | 15.8 | 19.1 | 70.9 | 24% | 88% | 59% | 77% | 55.6 | 7,174,007 | 8,341,869 | 15,515,877 | 638,065 |
| 2027 | 0.3 | 34.9 | 15.4 | 18.7 | 69.3 | 18% | 86% | 53% | 74% | 51.9 | 6,699,770 | 7,790,430 | 14,490,201 | 595,886 |
| 2028 | 0.3 | 33.6 | 14.9 | 18.0 | 66.8 | 13% | 84% | 48% | 70% | 47.9 | 6,175,826 | 7,181,193 | 13,357,018 | 549,286 |
| 2029 | 0.3 | 32.6 | 14.4 | 17.4 | 64.7 | 10% | 82% | 43% | 66% | 44.4 | 5,725,009 | 6,656,987 | 12,381,996 | 509,189 |
| 2030 | 0.3 | 32.2 | 14.3 | 17.2 | 64.0 | 8% | 80% | 39% | 63% | 42.0 | 5,424,361 | 6,307,396 | 11,731,757 | 482,449 |
| 2031 | 0.3 | 31.5 | 14.0 | 16.9 | 62.7 | 6% | 78% | 35% | 60% | 39.5 | 5,094,006 | 5,923,263 | 11,017,269 | 453,067 |
| 2032 | 0.3 | 31.3 | 13.8 | 16.8 | 62.2 | 4% | 76% | 31% | 57% | 37.6 | 4,847,485 | 5,636,611 | 10,484,097 | 431,141 |
| 2033 | 0.3 | 31.1 | 13.8 | 16.7 | 61.9 | 3% | 74% | 28% | 54% | 35.9 | 4,630,704 | 5,384,539 | 10,015,243 | 411,861 |
| 2034 | 0.3 | 31.0 | 13.7 | 16.6 | 61.6 | 2% | 72% | 25% | 51% | 34.3 | 4,426,385 | 5,146,960 | 9,573,345 | 393,688 |
| 2035 | 0.3 | 30.8 | 13.6 | 16.5 | 61.2 | 2% | 70% | 23% | 49% | 32.8 | 4,226,693 | 4,914,760 | 9,141,453 | 375,927 |
| 2036 | 0.3 | 30.2 | 13.4 | 16.2 | 60.0 | 1% | 68% | 21% | 46% | 30.9 | 3,985,083 | 4,633,817 | 8,618,900 | 354,438 |
| 2037 | 0.3 | 30.0 | 13.3 | 16.1 | 59.6 | 1% | 67% | 19% | 44% | 29.5 | 3,809,019 | 4,429,091 | 8,238,110 | 338,779 |
| 2038 | 0.3 | 29.8 | 13.2 | 16.0 | 59.3 | 1% | 65% | 17% | 42% | 28.3 | 3,648,671 | 4,242,641 | 7,891,311 | 324,517 |
| 2039 | 0.3 | 29.6 | 13.1 | 15.8 | 58.8 | 1% | 63% | 15% | 40% | 27.0 | 3,484,914 | 4,052,225 | 7,537,139 | 309,953 |
| 2040 | 0.3 | 29.5 | 13.0 | 15.8 | 58.6 | 0% | 62% | 14% | 38% | 25.9 | 3,347,018 | 3,891,882 | 7,238,900 | 297,688 |
| 2041 | 0.3 | 28.8 | 12.7 | 15.4 | 57.2 | 0% | 60% | 12% | 36% | 24.4 | 3,149,948 | 3,662,730 | 6,812,678 | 280,160 |

Notes: Cols (1) - (4) for 2008 - 2019 from USEIA; 2020-2041 based on Col (5) allocated out by mine and location type
 Col (5) for 2008 - 2019 from USEIA; 2020 - 2041 from 2021 Consensus Coal Forecast
 Col (6) - (7) from Exhibit E-70, Cols (6) and (7)
 Cols (6) through (9) based on decline rates of 25%, 2.5%, 10%, and 5%, respectively; based on analysis provided by John Morgan
 Col (10) = Sum Product of Cols (1) - (4) and Cols (6) - (9)
 Col (11) = (10) × 1,000,000 × \$0.129
 Col (12) = (10) × 1,000,000 × \$0.150
 Col (13) = (11) + (12)
 Col (14) from client data for 2021 and prior; 2022 and subsequent = average of 2008-2021 trended out based on Col (13)

West Virginia Department of Environmental Protection Office of Special Reclamation
Actuarial Reserve Study as of June 30, 2021
Coal Tonnage Fees Detail

| Fiscal Year Ending 6/30 | (1) Coal Tonnage Fees from Permits In Force As of June 30, 2021 | | | (2) Total Coal Tonnage Fees | | | (3) Coal Tonnage Fees from New Permits | | | (4) Total Civil Penalties | (5) New Permit Civil Penalties |
|----------------------------|---|------------|------------|--------------------------------|------------|------------|---|-----------|-----------|------------------------------------|---|
| | SRF | WTF | Total | SRF | WTF | Total | SRF | WTF | Total | | |
| 2008 | 9,415,063 | - | 9,415,063 | 9,415,063 | - | 9,415,063 | | | | 855,750 | |
| 2009 | 17,098,738 | 1,850,648 | 18,949,386 | 17,098,738 | 1,850,648 | 18,949,386 | | | | 1,151,628 | |
| 2010 | 16,639,204 | 1,924,569 | 18,563,773 | 16,639,204 | 1,924,569 | 18,563,773 | | | | 688,062 | |
| 2011 | 18,168,515 | 2,100,436 | 20,268,951 | 18,168,515 | 2,100,436 | 20,268,951 | | | | 805,018 | |
| 2012 | 16,876,736 | 1,963,409 | 18,840,145 | 16,876,736 | 1,963,409 | 18,840,145 | | | | 940,571 | |
| 2013 | 15,277,933 | 14,605,229 | 29,883,163 | 15,277,933 | 14,605,229 | 29,883,163 | | | | 677,771 | |
| 2014 | 13,949,645 | 16,210,221 | 30,159,866 | 13,949,645 | 16,210,221 | 30,159,866 | | | | 734,975 | |
| 2015 | 14,936,957 | 17,369,799 | 32,306,756 | 14,936,957 | 17,369,799 | 32,306,756 | | | | 2,551,755 | |
| 2016 | 10,774,387 | 12,530,157 | 23,304,544 | 10,774,387 | 12,530,157 | 23,304,544 | | | | 612,182 | |
| 2017 | 11,174,041 | 12,994,938 | 24,168,979 | 11,174,041 | 12,994,938 | 24,168,979 | | | | 822,617 | |
| 2018 | 11,831,011 | 13,758,966 | 25,589,977 | 11,831,011 | 13,758,966 | 25,589,977 | | | | 716,346 | |
| 2019 | 12,138,331 | 14,116,367 | 26,254,698 | 12,138,331 | 14,116,367 | 26,254,698 | | | | 976,343 | |
| 2020 | 9,269,937 | 10,780,545 | 20,050,482 | 9,269,937 | 10,780,545 | 20,050,482 | | | | 612,870 | |
| 2021 | 8,771,920 | 10,166,395 | 18,938,315 | 8,771,920 | 10,166,395 | 18,938,315 | | | | 877,641 | |
| 2022 | 10,005,152 | 11,633,898 | 21,639,051 | 10,526,400 | 12,240,000 | 22,766,400 | 521,248 | 606,102 | 1,127,349 | 936,231 | 46,360 |
| 2023 | 9,252,553 | 10,758,782 | 20,011,335 | 10,229,700 | 11,895,000 | 22,124,700 | 977,147 | 1,136,218 | 2,113,365 | 909,842 | 86,909 |
| 2024 | 8,303,147 | 9,654,823 | 17,957,970 | 9,636,300 | 11,205,000 | 20,841,300 | 1,333,153 | 1,550,177 | 2,883,330 | 857,065 | 118,572 |
| 2025 | 7,695,609 | 8,948,383 | 16,643,992 | 9,365,400 | 10,890,000 | 20,255,400 | 1,669,791 | 1,941,617 | 3,611,408 | 832,970 | 148,513 |
| 2026 | 7,174,007 | 8,341,869 | 15,515,877 | 9,146,100 | 10,635,000 | 19,781,100 | 1,972,093 | 2,293,131 | 4,265,223 | 813,466 | 175,400 |
| 2027 | 6,699,770 | 7,790,430 | 14,490,201 | 8,939,700 | 10,395,000 | 19,334,700 | 2,239,930 | 2,604,570 | 4,844,499 | 795,108 | 199,222 |
| 2028 | 6,175,826 | 7,181,193 | 13,357,018 | 8,617,200 | 10,020,000 | 18,637,200 | 2,441,374 | 2,838,807 | 5,280,182 | 766,425 | 217,139 |
| 2029 | 5,725,009 | 6,656,987 | 12,381,996 | 8,346,300 | 9,705,000 | 18,051,300 | 2,621,291 | 3,048,013 | 5,669,304 | 742,330 | 233,141 |
| 2030 | 5,424,361 | 6,307,396 | 11,731,757 | 8,256,000 | 9,600,000 | 17,856,000 | 2,831,639 | 3,292,604 | 6,124,243 | 734,299 | 251,850 |
| 2031 | 5,094,006 | 5,923,263 | 11,017,269 | 8,088,300 | 9,405,000 | 17,493,300 | 2,994,294 | 3,481,737 | 6,476,031 | 719,383 | 266,316 |
| 2032 | 4,847,485 | 5,636,611 | 10,484,097 | 8,023,800 | 9,330,000 | 17,353,800 | 3,176,315 | 3,693,389 | 6,869,703 | 713,647 | 282,505 |
| 2033 | 4,630,704 | 5,384,539 | 10,015,243 | 7,985,100 | 9,285,000 | 17,270,100 | 3,354,396 | 3,900,461 | 7,254,857 | 710,205 | 298,344 |
| 2034 | 4,426,385 | 5,146,960 | 9,573,345 | 7,946,400 | 9,240,000 | 17,186,400 | 3,520,015 | 4,093,040 | 7,613,055 | 706,763 | 313,074 |
| 2035 | 4,226,693 | 4,914,760 | 9,141,453 | 7,894,800 | 9,180,000 | 17,074,800 | 3,668,107 | 4,265,240 | 7,933,347 | 702,173 | 326,246 |
| 2036 | 3,985,083 | 4,633,817 | 8,618,900 | 7,740,000 | 9,000,000 | 16,740,000 | 3,754,917 | 4,366,183 | 8,121,100 | 688,405 | 333,967 |
| 2037 | 3,809,019 | 4,429,091 | 8,238,110 | 7,688,400 | 8,940,000 | 16,628,400 | 3,879,381 | 4,510,909 | 8,390,290 | 683,816 | 345,037 |
| 2038 | 3,648,671 | 4,242,641 | 7,891,311 | 7,649,700 | 8,895,000 | 16,544,700 | 4,001,029 | 4,652,359 | 8,653,389 | 680,374 | 355,857 |
| 2039 | 3,484,914 | 4,052,225 | 7,537,139 | 7,585,200 | 8,820,000 | 16,405,200 | 4,100,286 | 4,767,775 | 8,868,061 | 674,637 | 364,685 |
| 2040 | 3,347,018 | 3,891,882 | 7,238,900 | 7,559,400 | 8,790,000 | 16,349,400 | 4,212,382 | 4,898,118 | 9,110,500 | 672,342 | 374,654 |
| 2041 | 3,149,948 | 3,662,730 | 6,812,678 | 7,378,800 | 8,580,000 | 15,958,800 | 4,228,852 | 4,917,270 | 9,146,122 | 656,280 | 376,119 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Investment Return Calculations

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|--------------------|------------------|-------------|--------------|--------------|------------------|---------------------|-------|
| | Investment Rates | | | | | Discount Factor for | |
| Fiscal Year | Money | Short Term | SRF | IMB | SRWTF | SRF | WTF |
| <u>Ending 6/30</u> | <u>Market</u> | <u>Bond</u> | <u>Blend</u> | <u>Yield</u> | <u>Selection</u> | | |
| 2021 | 0.5% | 1.4% | 1.1% | 5.5% | 5.3% | 98.9% | 95.0% |
| 2022 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 97.7% | 90.1% |
| 2023 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 96.4% | 85.6% |
| 2024 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 95.2% | 81.3% |
| 2025 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 94.0% | 77.2% |
| 2026 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 92.7% | 73.3% |
| 2027 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 91.6% | 69.5% |
| 2028 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 90.4% | 66.0% |
| 2029 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 89.2% | 62.7% |
| 2030 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 88.1% | 59.5% |
| 2031 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 86.9% | 56.5% |
| 2032 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 85.8% | 53.7% |
| 2033 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 84.7% | 50.9% |
| 2034 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 83.6% | 48.4% |
| 2035 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 82.6% | 45.9% |
| 2036 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 81.5% | 43.6% |
| 2037 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 80.4% | 41.4% |
| 2038 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 79.4% | 39.3% |
| 2039 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 78.4% | 37.3% |
| 2040 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 77.4% | 35.4% |
| 2041 | 0.5% | 1.8% | 1.3% | 5.5% | 5.3% | 76.4% | 33.6% |

Notes:

- Col (1) Based on average annual money market returns
- Col (2) based on average annual change in returns, returning to long-run average over time
- Col (3) = Col (1) × 39% + Col (2) × 61%; percents based on current allocations
- Col (4) from West Virginia Investment Management Board 2020 Report, Returns Capped at 5.5%
- Col (5) = Col (1) × 2% + Col (2) × 2% + Col (4) × 96%; percents based on current allocations
- Col (6) = 1.0 / [1 + (3)] × Prior Year Discount
- Col (7) = 1.0 / [1 + (5)] × Prior Year Discount

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Special Reclamation Fund
 Payout of Land Liabilities

| Fiscal Year Ending 6/30 | (1) | (2) | (3) Unadjusted Costs | | | (6) Inflated Cost at 2.50% Annual Inflation | | |
|----------------------------|--------------------------------|----------------|--|---------------------------------------|-------------------|---|---------------------------------------|-------------------|
| | Curr. Scheduled Liabilities | Payout Pattern | Proj. Payout of Current Liabilities | Proj. Payout of Future Liabilities | Total | Proj. Payout of Current Liabilities | Proj. Payout of Future Liabilities | Total |
| Prior | 17,050,200 | | | | | | | |
| 2022 | 1,601,504 | 50% | 9,325,852 | - | 9,325,852 | 10,421,876 | - | 10,421,876 |
| 2023 | 174,516 | 50% | 9,413,110 | - | 9,413,110 | 10,782,374 | - | 10,782,374 |
| 2024 | - | | 87,258 | - | 87,258 | 102,450 | - | 102,450 |
| 2025 | - | | - | 3,674,325 | 3,674,325 | - | 4,421,876 | 4,421,876 |
| 2026 | - | | - | 6,614,792 | 6,614,792 | - | 8,159,603 | 8,159,603 |
| 2027 | - | | - | 5,636,365 | 5,636,365 | - | 7,126,493 | 7,126,493 |
| 2028 | - | | - | 5,119,403 | 5,119,403 | - | 6,634,679 | 6,634,679 |
| 2029 | - | | - | 6,824,498 | 6,824,498 | - | 9,065,571 | 9,065,571 |
| 2030 | | | | 3,877,377 | 3,877,377 | | 5,279,421 | 5,279,421 |
| 2031 | | | | 3,528,406 | 3,528,406 | | 4,924,371 | 4,924,371 |
| 2032 | | | | 3,144,701 | 3,144,701 | | 4,498,579 | 4,498,579 |
| 2033 | | | | 2,874,589 | 2,874,589 | | 4,214,982 | 4,214,982 |
| 2034 | | | | 2,595,870 | 2,595,870 | | 3,901,456 | 3,901,456 |
| 2035 | | | | 2,308,202 | 2,308,202 | | 3,555,834 | 3,555,834 |
| 2036 | | | | 2,121,219 | 2,121,219 | | 3,349,477 | 3,349,477 |
| 2037 | | | | 1,926,964 | 1,926,964 | | 3,118,811 | 3,118,811 |
| 2038 | | | | 1,702,008 | 1,702,008 | | 2,823,585 | 2,823,585 |
| 2039 | | | | 1,552,087 | 1,552,087 | | 2,639,242 | 2,639,242 |
| 2040 | | | | 1,408,478 | 1,408,478 | | 2,454,919 | 2,454,919 |
| 2041 | | | | 1,270,972 | 1,270,972 | | 2,270,632 | 2,270,632 |
| Total | 18,826,221 | | 18,826,221 | 56,180,256 | 75,006,477 | 21,306,701 | 78,439,530 | 99,746,231 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Trust Fund
 Payout of Water Capital Liabilities

| Fiscal Year Ending 6/30 | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|----------------------------|--------------------------------|----------------|--|---|--------------------|--|---------------------------------------|--------------------|
| | Unadjusted Costs | | | Inflated Cost at 2.50% Annual Inflation | | | | |
| | Curr. Scheduled Liabilities | Payout Pattern | Proj. Payout of Current Liabilities | Proj. Payout of Future Liabilities | Total | Proj. Payout of Current Liabilities | Proj. Payout of Future Liabilities | Total |
| Prior | 110,821,281 | | | | | | | |
| 2022 | 5,483,347 | 50% | 58,152,314 | - | 58,152,314 | 64,986,687 | - | 64,986,687 |
| 2023 | - | 50% | 58,152,314 | - | 58,152,314 | 66,611,354 | - | 66,611,354 |
| 2024 | - | | - | - | - | - | - | - |
| 2025 | - | | - | 4,535,739 | 4,535,739 | - | 5,458,547 | 5,458,547 |
| 2026 | - | | - | 8,128,006 | 8,128,006 | - | 10,026,211 | 10,026,211 |
| 2027 | - | | - | 6,877,249 | 6,877,249 | - | 8,695,438 | 8,695,438 |
| 2028 | - | | - | 6,225,730 | 6,225,730 | - | 8,068,464 | 8,068,464 |
| 2029 | | | | 8,262,802 | 8,262,802 | - | 10,976,194 | 10,976,194 |
| 2030 | | | | 4,661,203 | 4,661,203 | - | 6,346,677 | 6,346,677 |
| 2031 | | | | 4,225,278 | 4,225,278 | - | 5,896,950 | 5,896,950 |
| 2032 | | | | 3,742,454 | 3,742,454 | - | 5,353,682 | 5,353,682 |
| 2033 | | | | 3,405,358 | 3,405,358 | - | 4,993,242 | 4,993,242 |
| 2034 | | | | 3,056,341 | 3,056,341 | - | 4,593,520 | 4,593,520 |
| 2035 | | | | 2,694,576 | 2,694,576 | - | 4,151,052 | 4,151,052 |
| 2036 | | | | 2,462,755 | 2,462,755 | - | 3,888,774 | 3,888,774 |
| 2037 | | | | 2,220,451 | 2,220,451 | - | 3,593,822 | 3,593,822 |
| 2038 | | | | 1,937,610 | 1,937,610 | - | 3,214,442 | 3,214,442 |
| 2039 | | | | 1,751,248 | 1,751,248 | - | 2,977,905 | 2,977,905 |
| 2040 | | | | 1,572,559 | 1,572,559 | - | 2,740,904 | 2,740,904 |
| 2041 | | | | 1,401,320 | 1,401,320 | - | 2,503,504 | 2,503,504 |
| Total | 116,304,628 | | 116,304,628 | 67,160,680 | 183,465,307 | 131,598,040 | 93,479,328 | 225,077,369 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Trust Fund
 Payout of Water Operations & Maintenance Liabilities

| Fiscal Year Ending 6/30 | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|----------------------------|--------------------------------|----------------|--|---------------------------------------|--------------------|---|---------------------------------------|--------------------|
| | Curr. Scheduled Liabilities | Payout Pattern | Unadjusted Costs Proj. Payout of Current Liabilities | Proj. Payout of Future Liabilities | Total | Inflated Cost at 2.50% Annual Inflation | | |
| | | | | | | Proj. Payout of Current Liabilities | Proj. Payout of Future Liabilities | Total |
| Prior | 5,441,358 | | | | | | | |
| 2022 | 5,566,661 | n/a | 5,566,661 | - | 5,566,661 | 6,220,885 | - | 6,220,885 |
| 2023 | 5,566,661 | | 5,566,661 | - | 5,566,661 | 6,376,407 | - | 6,376,407 |
| 2024 | 5,566,661 | | 5,566,661 | - | 5,566,661 | 6,535,817 | - | 6,535,817 |
| 2025 | 5,566,661 | | 5,566,661 | 114,235 | 5,680,896 | 6,699,213 | 137,476 | 6,836,689 |
| 2026 | 5,566,661 | | 5,566,661 | 318,535 | 5,885,196 | 6,866,693 | 392,925 | 7,259,618 |
| 2027 | 5,566,661 | | 5,566,661 | 490,906 | 6,057,567 | 7,038,360 | 620,690 | 7,659,050 |
| 2028 | 5,566,661 | | 5,566,661 | 646,786 | 6,213,447 | 7,214,319 | 838,227 | 8,052,546 |
| 2029 | 5,566,661 | | 5,566,661 | 1,213,575 | 6,780,237 | 7,394,677 | 1,612,097 | 9,006,775 |
| 2030 | 5,566,661 | | 5,566,661 | 969,692 | 6,536,353 | 7,579,544 | 1,320,329 | 8,899,873 |
| 2031 | 5,566,661 | | 5,566,661 | 1,075,007 | 6,641,669 | 7,769,033 | 1,500,319 | 9,269,352 |
| 2032 | 5,566,661 | | 5,566,661 | 1,168,097 | 6,734,758 | 7,963,259 | 1,670,994 | 9,634,253 |
| 2033 | 5,455,328 | | 5,455,328 | 1,252,685 | 6,708,013 | 7,999,093 | 1,836,800 | 9,835,894 |
| 2034 | 5,346,221 | | 5,346,221 | 1,328,456 | 6,674,677 | 8,035,089 | 1,996,599 | 10,031,688 |
| 2035 | 5,239,297 | | 5,239,297 | 1,394,314 | 6,633,611 | 8,071,247 | 2,147,971 | 10,219,218 |
| 2036 | 5,134,511 | | 5,134,511 | 1,453,640 | 6,588,150 | 8,107,568 | 2,295,346 | 10,402,914 |
| 2037 | 5,031,821 | | 5,031,821 | 1,506,181 | 6,538,002 | 8,144,052 | 2,437,769 | 10,581,821 |
| 2038 | 4,931,184 | | 4,931,184 | 1,550,922 | 6,482,107 | 8,180,700 | 2,572,938 | 10,753,638 |
| 2039 | 4,832,561 | | 4,832,561 | 1,590,371 | 6,422,932 | 8,217,513 | 2,704,342 | 10,921,855 |
| 2040 | 4,735,909 | | 4,735,909 | 1,624,758 | 6,360,667 | 8,254,492 | 2,831,885 | 11,086,377 |
| 2041 | 4,641,191 | | 4,641,191 | 1,654,306 | 6,295,497 | 8,291,637 | 2,955,471 | 11,247,108 |
| Total | 112,022,653 | | 106,581,295 | 19,352,467 | 125,933,762 | 150,959,602 | 29,872,179 | 180,831,780 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Administrative Expense Projection

| Fiscal Year <u>Ending 6/30</u> | (1) Total Admin <u>Expense</u> | (2) Remaining <u>Permits</u> | (3) Admin Expense <u>On In-Force Permits</u> |
|-----------------------------------|--------------------------------------|------------------------------------|--|
| 2022 | 3,786,261 | 94% | 3,573,369 |
| 2023 | 3,899,849 | 89% | 3,473,285 |
| 2024 | 4,016,844 | 84% | 3,373,166 |
| 2025 | 4,137,349 | 79% | 3,283,682 |
| 2026 | 4,261,470 | 75% | 3,203,128 |
| 2027 | 4,389,314 | 71% | 3,132,340 |
| 2028 | 4,520,993 | 68% | 3,067,104 |
| 2029 | 4,656,623 | 65% | 3,006,399 |
| 2030 | 4,796,322 | 62% | 2,953,226 |
| 2031 | 4,940,212 | 59% | 2,904,205 |
| 2032 | 5,088,418 | 56% | 2,859,245 |
| 2033 | 5,241,071 | 54% | 2,817,718 |
| 2034 | 5,398,303 | 52% | 2,780,328 |
| 2035 | 5,560,252 | 49% | 2,748,348 |
| 2036 | 5,727,059 | 47% | 2,717,744 |
| 2037 | 5,898,871 | 46% | 2,692,246 |
| 2038 | 6,075,837 | 44% | 2,669,965 |
| 2039 | 6,258,112 | 42% | 2,650,328 |
| 2040 | 6,445,856 | 41% | 2,636,103 |
| 2041 | 6,639,231 | 40% | 2,624,643 |
| Total | 101,738,247 | | 59,166,576 |

Notes: Col (1) from client data, trended at 3% per year.
 Col (2) from Exhibit E-17, Col (5)
 Col (3) = (1) × (2)

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Average Reclamation Expenses - Land

| | <u>Surface</u> | <u>Underground</u> | <u>Other</u> |
|--|----------------|--------------------|--------------|
| (1) Total reclamation expenditure in 2021 dollars (i.e., inflated) | 142,676,375 | 61,814,683 | 49,768,338 |
| (2) Total disturbed acreage | 37,176 | 3,910 | 4,501 |
| (3) Average cost per disturbed acre in 2021 dollars | 3,838 | 15,808 | 11,058 |
| (4) Percent of permitted acreage that is disturbed | 70.01% | 73.44% | 79.46% |
| (5) Cost per permitted acre in 2021 dollars | 2,687 | 11,609 | 8,787 |
| (6) Selected cost per acre | 2,685 | 11,610 | 8,785 |
| Previous Selection | 2,765 | 10,880 | 8,095 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Average Reclamation Expenses - Water Capital

| | <u>Surface</u> | <u>Underground</u> | <u>Other</u> |
|---|----------------|--------------------|--------------|
| (1) Total expenditure in 2021 Dollars (i.e., inflated) | 185,121,050 | 29,300,748 | 46,410,461 |
| (2) Total disturbed acreage under permits with water issues | 11,702 | 614 | 1,317 |
| (3) Average cost per disturbed acre in 2021 dollars | 15,820 | 47,726 | 35,238 |
| (4) Percent of permitted acreage that is disturbed under permits with water | 70.34% | 87.67% | 81.66% |
| (5) Cost Per Permitted Acre in 2021 dollars | 11,128 | 41,839 | 28,775 |
| (6) Percent of forfeited acres with water issues | 31.33% | 13.15% | 28.48% |
| (7) Cost Per Disturbed Acre in 2021 dollars with water issues | 4,956 | 6,277 | 10,034 |
| (8) Cost Per Permitted Acre in 2021 dollars with water issues | 3,486 | 5,503 | 8,194 |
| (9) Selected Cost Per Acre with water issues | 3,490 | 5,595 | 8,145 |
| Previous Selection | 3,490 | 5,690 | 8,095 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Average Reclamation Expenses - Water O&M

| | <u>Surface</u> | <u>Underground</u> | <u>Other</u> |
|---|----------------|--------------------|--------------|
| (1) Total Annual Expenditure in Actual Dollars for Water Forfeited Permits | 4,054,151 | 697,530 | 712,356 |
| (2) Total disturbed acreage under permits with water issues | 11,702 | 614 | 1,317 |
| (3) Total cost per disturbed acre for water issue sites | 346 | 1,136 | 541 |
| (4) Percent of permitted acreage that is disturbed under permits with water | 70.34% | 87.67% | 81.66% |
| (5) Valuation Cost Per Permitted Acre | 244 | 996 | 442 |
| (6) Percent of forfeited acres with water issues | 31.33% | 13.15% | 28.48% |
| (7) Valuation Cost Per Disturbed Acre with water issues | 109 | 149 | 154 |
| (8) Valuation Cost Per Permitted Acre with water issues | 76 | 131 | 126 |
| (9) Selected Valuation Cost Per Acre with water issues | 90 | 140 | 135 |
| Previous Selection | 100 | 145 | 140 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Bond Size Adjustment Factor Calculation

| <u>Bond Category</u> | <u>Bond Value</u> | (1) Previous Selected Factor | (2) 2015 Active + Inactive Permits | (3) 2015-21 Revoked Permits | (4) Forfeiture Probability | (5) Relativity | (6) 2021 Selected Factor |
|----------------------|---------------------------------|---------------------------------------|---|--------------------------------------|----------------------------------|-------------------|-----------------------------------|
| Small | Less than \$100,000 | 1.50 | 982 | 16 | 1.63% | 1.05 | 1.25 |
| Medium | Between \$100,000 and \$500,000 | 0.50 | 447 | 4 | 0.89% | 0.57 | 0.55 |
| Large | Above \$500,000 | 0.50 | 431 | 9 | 2.09% | 1.34 | 0.90 |
| Total | | | 1,860 | 29 | 1.56% | 1.00 | |

Notes: Col (1) from previous analysis
 Cols (2) and (3) from client data
 Col (4) = (3) / (2)
 Col (5) = (4) / (4 Total)
 Col (6) selected based on previous and current relativities

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Release and Forfeiture Probability Relativities by Status

| | (1) | (2) | (3) | (4) | (5) | (6) |
|----------------|---------------------------|----------------------------------|--------------------|-------------------|-----------------------|-----------------|
| <u>Status</u> | <u>Total Permits 2015</u> | <u>Total Forfeitures 2015-21</u> | <u>Probability</u> | <u>Relativity</u> | <u>2019 Selection</u> | <u>Selected</u> |
| Active | 1,338 | 14 | 1.05% | 0.67 | 0.50 | 0.60 |
| Inactive | 264 | 8 | 3.03% | 1.94 | 0.75 | 1.35 |
| Phased Release | 258 | 7 | 2.71% | 1.74 | 3.00 | 2.35 |
| Overall | 1,860 | 29 | 1.56% | | | |

| | (1) | (2) | (3) | (4) | (5) | (6) |
|----------------|---------------------------|-------------------------------|--------------------|-------------------|-----------------------|-----------------|
| <u>Status</u> | <u>Total Permits 2015</u> | <u>Total Releases 2015-21</u> | <u>Probability</u> | <u>Relativity</u> | <u>2019 Selection</u> | <u>Selected</u> |
| Active | 1,338 | 142 | 10.61% | 0.84 | 0.80 | 0.80 |
| Inactive | 264 | 16 | 6.06% | 0.48 | 0.55 | 0.50 |
| Phased Release | 258 | 76 | 29.46% | 2.34 | 2.50 | 2.40 |
| Overall | 1,860 | 234 | 12.58% | | | |

Notes:
 Cols (1) and (2) from client data
 Col (3) = (2) / (1)
 Col (4) = (3) / (3 Total)
 Col (5) from previous analysis
 Col (6) selected based on previous and current relativities

**Triangle Data on Number of Permits, Forfeitures, Releases, and Terminations
By Permit Type and Issue Year**

Surface
Total Permits

| Issue Yr | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 10 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 8 | 8 | 8 | 8 | 8 | 8 | 7 | 7 | 7 | 5 | 5 |
| 1969 | 11 | 11 | 11 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 9 | 8 | 7 | 7 | 7 | 5 | 5 |
| 1970 | 13 | 13 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 10 | 10 | 8 | 7 | 5 | 5 |
| 1971 | 20 | 20 | 19 | 19 | 19 | 19 | 19 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 14 | 13 | 11 | 7 | 7 | 7 |
| 1972 | 22 | 22 | 22 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 19 | 11 | 7 | 4 | 1 | 1 | 1 | 1 |
| 1973 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 19 | 16 | 11 | 10 | 10 | 8 | 7 | 6 | 6 |
| 1974 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 39 | 39 | 37 | 26 | 22 | 20 | 16 | 14 | 12 | 12 | 12 | 12 |
| 1975 | 103 | 103 | 103 | 103 | 103 | 101 | 100 | 98 | 95 | 89 | 67 | 47 | 38 | 30 | 25 | 24 | 22 | 20 | 16 | 16 |
| 1976 | 92 | 92 | 90 | 90 | 85 | 84 | 83 | 81 | 74 | 55 | 40 | 35 | 30 | 27 | 26 | 20 | 18 | 18 | 17 | 17 |
| 1977 | 118 | 116 | 114 | 107 | 106 | 105 | 104 | 96 | 76 | 54 | 45 | 35 | 32 | 27 | 25 | 22 | 21 | 18 | 17 | 17 |
| 1978 | 166 | 164 | 162 | 158 | 155 | 152 | 142 | 114 | 86 | 77 | 62 | 49 | 47 | 44 | 39 | 38 | 33 | 30 | 27 | 27 |
| 1979 | 81 | 81 | 80 | 78 | 77 | 73 | 63 | 52 | 44 | 42 | 40 | 36 | 36 | 31 | 29 | 24 | 19 | 17 | 15 | 15 |
| 1980 | 115 | 115 | 115 | 113 | 110 | 102 | 97 | 92 | 85 | 79 | 73 | 64 | 55 | 45 | 42 | 37 | 31 | 30 | 29 | 29 |
| 1981 | 165 | 165 | 162 | 153 | 146 | 139 | 130 | 126 | 118 | 111 | 107 | 100 | 91 | 85 | 76 | 72 | 59 | 53 | 47 | 47 |
| 1982 | 93 | 93 | 89 | 81 | 72 | 69 | 65 | 59 | 56 | 51 | 43 | 33 | 26 | 20 | 15 | 14 | 10 | 8 | 6 | 6 |
| 1983 | 190 | 188 | 180 | 157 | 147 | 133 | 125 | 113 | 105 | 93 | 72 | 63 | 54 | 49 | 43 | 40 | 34 | 28 | 24 | 24 |
| 1984 | 107 | 106 | 101 | 92 | 90 | 86 | 81 | 76 | 64 | 54 | 46 | 37 | 33 | 26 | 23 | 19 | 16 | 15 | 14 | 14 |
| 1985 | 133 | 128 | 121 | 120 | 118 | 116 | 112 | 104 | 93 | 81 | 68 | 60 | 46 | 38 | 31 | 27 | 25 | 25 | 24 | 24 |
| 1986 | 128 | 119 | 114 | 109 | 106 | 104 | 99 | 90 | 78 | 64 | 60 | 54 | 49 | 43 | 38 | 32 | 29 | 26 | 24 | 24 |
| 1987 | 140 | 138 | 131 | 127 | 124 | 115 | 103 | 92 | 81 | 69 | 58 | 53 | 45 | 35 | 29 | 22 | 20 | 19 | 19 | 19 |
| 1988 | 115 | 113 | 109 | 107 | 99 | 91 | 88 | 78 | 69 | 59 | 48 | 44 | 40 | 32 | 29 | 28 | 27 | 27 | 27 | 27 |
| 1989 | 134 | 125 | 123 | 120 | 115 | 110 | 103 | 97 | 86 | 74 | 62 | 52 | 47 | 40 | 37 | 35 | 33 | 31 | 28 | 28 |
| 1990 | 92 | 92 | 86 | 81 | 74 | 71 | 67 | 59 | 57 | 47 | 39 | 34 | 33 | 32 | 31 | 31 | 30 | 28 | 27 | 27 |
| 1991 | 74 | 72 | 69 | 67 | 66 | 65 | 64 | 56 | 50 | 42 | 35 | 31 | 31 | 29 | 27 | 25 | 23 | 19 | 19 | 19 |
| 1992 | 52 | 51 | 48 | 47 | 44 | 43 | 41 | 39 | 31 | 22 | 20 | 16 | 16 | 14 | 13 | 11 | 10 | 9 | 9 | 9 |
| 1993 | 59 | 58 | 52 | 49 | 49 | 48 | 45 | 42 | 37 | 32 | 29 | 27 | 26 | 24 | 20 | 19 | 16 | 16 | 16 | 16 |
| 1994 | 42 | 41 | 39 | 39 | 38 | 34 | 30 | 28 | 28 | 24 | 23 | 21 | 21 | 18 | 18 | 15 | 14 | 14 | 14 | 14 |
| 1995 | 40 | 40 | 40 | 39 | 39 | 37 | 34 | 30 | 28 | 26 | 25 | 24 | 23 | 23 | 22 | 22 | 21 | 20 | 20 | 20 |
| 1996 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 27 | 26 | 26 | 26 | 25 | 24 | 22 | 22 | 22 | 21 | 19 | 19 |
| 1997 | 47 | 45 | 44 | 44 | 42 | 42 | 42 | 40 | 38 | 37 | 36 | 36 | 34 | 31 | 30 | 29 | 28 | 27 | 27 | 27 |
| 1998 | 36 | 36 | 35 | 35 | 35 | 34 | 33 | 33 | 31 | 30 | 30 | 28 | 28 | 27 | 27 | 27 | 27 | 26 | 26 | 26 |
| 1999 | 17 | 17 | 14 | 14 | 14 | 12 | 12 | 11 | 11 | 10 | 10 | 9 | 8 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 2000 | 19 | 19 | 19 | 19 | 17 | 16 | 14 | 13 | 12 | 12 | 12 | 11 | 11 | 11 | 9 | 9 | 8 | 8 | 7 | 7 |
| 2001 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 24 | 24 | 24 | 24 | 24 | 24 |
| 2002 | 23 | 23 | 22 | 22 | 22 | 22 | 22 | 21 | 21 | 21 | 20 | 20 | 20 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| 2003 | 29 | 29 | 29 | 28 | 28 | 27 | 25 | 24 | 24 | 23 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| 2004 | 33 | 33 | 32 | 32 | 32 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 28 | 26 | 26 | 26 |
| 2005 | 19 | 19 | 19 | 19 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| 2006 | 16 | 16 | 16 | 15 | 15 | 15 | 15 | 15 | 15 | 14 | 13 | 13 | 13 | 13 | 13 | 12 | | | | |
| 2007 | 31 | 31 | 31 | 31 | 30 | 30 | 30 | 30 | 28 | 26 | 26 | 26 | 25 | 25 | 24 | | | | | |
| 2008 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 22 | 21 | 20 | 20 | 17 | 16 | | | | | | |
| 2009 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 24 | 24 | 24 | 23 | 22 | 21 | | | | | | | |
| 2010 | 14 | 14 | 14 | 14 | 14 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | | | | | | | |
| 2011 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 19 | | | | | | | | | |
| 2012 | 26 | 26 | 26 | 25 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | | | | | | | | | |
| 2013 | 25 | 25 | 24 | 23 | 23 | 23 | 23 | 23 | 23 | | | | | | | | | | | |
| 2014 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | | | | | | | | | | | |
| 2015 | 16 | 16 | 15 | 15 | 15 | 15 | 15 | | | | | | | | | | | | | |
| 2016 | 11 | 11 | 11 | 11 | 11 | 11 | | | | | | | | | | | | | | |
| 2017 | 6 | 6 | 6 | 6 | 6 | | | | | | | | | | | | | | | |
| 2018 | 9 | 9 | 9 | 9 | | | | | | | | | | | | | | | | |
| 2019 | 9 | 9 | 9 | | | | | | | | | | | | | | | | | |
| 2020 | 11 | 11 | | | | | | | | | | | | | | | | | | |
| 2021 | 7 | | | | | | | | | | | | | | | | | | | |

Surface
Total Permits

| Issue Yr | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 4 | 4 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 4 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 6 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 1972 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1973 | 5 | 5 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 12 | 10 | 10 | 10 | 7 | 5 | 4 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1975 | 15 | 11 | 9 | 8 | 6 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 2 | 2 | 2 |
| 1976 | 15 | 15 | 14 | 14 | 13 | 11 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 9 | 9 | 8 | 8 | 8 | 7 |
| 1977 | 14 | 14 | 13 | 12 | 12 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 1978 | 22 | 19 | 17 | 17 | 16 | 15 | 13 | 13 | 11 | 11 | 11 | 11 | 9 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 1979 | 13 | 11 | 11 | 11 | 10 | 8 | 8 | 7 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 4 |
| 1980 | 28 | 24 | 19 | 18 | 15 | 14 | 12 | 12 | 11 | 11 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 6 | 6 |
| 1981 | 43 | 39 | 38 | 36 | 34 | 32 | 30 | 29 | 29 | 27 | 26 | 24 | 23 | 23 | 22 | 21 | 21 | 20 | 19 | 19 |
| 1982 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 |
| 1983 | 22 | 20 | 16 | 16 | 15 | 15 | 14 | 13 | 12 | 11 | 11 | 11 | 9 | 9 | 9 | 9 | 9 | 9 | 8 | 7 |
| 1984 | 14 | 13 | 12 | 12 | 11 | 11 | 10 | 9 | 8 | 8 | 8 | 8 | 7 | 7 | 7 | 6 | 6 | 5 | 4 | |
| 1985 | 18 | 16 | 16 | 16 | 13 | 10 | 10 | 10 | 10 | 8 | 8 | 8 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | |
| 1986 | 23 | 22 | 22 | 21 | 18 | 17 | 17 | 15 | 15 | 15 | 14 | 14 | 14 | 14 | 14 | 14 | 13 | | | |
| 1987 | 19 | 18 | 18 | 16 | 13 | 12 | 12 | 12 | 12 | 12 | 12 | 11 | 10 | 9 | 9 | 9 | | | | |
| 1988 | 26 | 24 | 23 | 20 | 18 | 16 | 15 | 15 | 15 | 15 | 15 | 15 | 14 | 14 | 14 | | | | | |
| 1989 | 25 | 22 | 21 | 21 | 20 | 19 | 17 | 17 | 17 | 15 | 15 | 15 | 15 | 15 | | | | | | |
| 1990 | 27 | 26 | 24 | 22 | 21 | 19 | 19 | 19 | 18 | 17 | 17 | 17 | 16 | | | | | | | |
| 1991 | 19 | 16 | 15 | 15 | 15 | 15 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | | | | | | | |
| 1992 | 9 | 9 | 9 | 9 | 9 | 8 | 8 | 7 | 7 | 6 | 6 | | | | | | | | | |
| 1993 | 16 | 14 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | | | | | | | | | |
| 1994 | 14 | 14 | 14 | 13 | 13 | 13 | 13 | 13 | 13 | | | | | | | | | | | |
| 1995 | 20 | 20 | 19 | 19 | 19 | 19 | 19 | 19 | | | | | | | | | | | | |
| 1996 | 19 | 19 | 18 | 18 | 18 | 18 | 17 | | | | | | | | | | | | | |
| 1997 | 27 | 26 | 26 | 26 | 26 | 26 | | | | | | | | | | | | | | |
| 1998 | 25 | 24 | 23 | 23 | 23 | | | | | | | | | | | | | | | |
| 1999 | 7 | 7 | 7 | 6 | | | | | | | | | | | | | | | | |
| 2000 | 7 | 7 | 7 | | | | | | | | | | | | | | | | | |
| 2001 | 24 | 23 | | | | | | | | | | | | | | | | | | |
| 2002 | 18 | | | | | | | | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | | | | | | | | | |
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| 2011 | | | | | | | | | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Surface
Total Permits

| Issue Yr | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1975 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1976 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 1977 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 1978 | 7 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 1979 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 1980 | 6 | 5 | 3 | | | | | | | | | | | | | | | | | |
| 1981 | 19 | 19 | | | | | | | | | | | | | | | | | | |
| 1982 | 2 | | | | | | | | | | | | | | | | | | | |
| 1983 | | | | | | | | | | | | | | | | | | | | |
| 1984 | | | | | | | | | | | | | | | | | | | | |
| 1985 | | | | | | | | | | | | | | | | | | | | |
| 1986 | | | | | | | | | | | | | | | | | | | | |
| 1987 | | | | | | | | | | | | | | | | | | | | |
| 1988 | | | | | | | | | | | | | | | | | | | | |
| 1989 | | | | | | | | | | | | | | | | | | | | |
| 1990 | | | | | | | | | | | | | | | | | | | | |
| 1991 | | | | | | | | | | | | | | | | | | | | |
| 1992 | | | | | | | | | | | | | | | | | | | | |
| 1993 | | | | | | | | | | | | | | | | | | | | |
| 1994 | | | | | | | | | | | | | | | | | | | | |
| 1995 | | | | | | | | | | | | | | | | | | | | |
| 1996 | | | | | | | | | | | | | | | | | | | | |
| 1997 | | | | | | | | | | | | | | | | | | | | |
| 1998 | | | | | | | | | | | | | | | | | | | | |
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| 2002 | | | | | | | | | | | | | | | | | | | | |
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| 2004 | | | | | | | | | | | | | | | | | | | | |
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| 2006 | | | | | | | | | | | | | | | | | | | | |
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| 2009 | | | | | | | | | | | | | | | | | | | | |
| 2010 | | | | | | | | | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Surface
Total Releases

| Issue Yr | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 | |
|----------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | 0 |
| 1969 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 |
| 1970 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | 2 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 2 | 2 | 0 |
| 1972 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 4 | 3 | 3 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 1 | 0 | 2 | 0 | 1 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 4 | 2 | 4 | 2 | 1 | 0 | 2 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 22 | 17 | 8 | 7 | 4 | 1 | 2 | 2 | 4 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 18 | 13 | 5 | 4 | 2 | 1 | 6 | 1 | 0 | 1 | 1 |
| 1977 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 8 | 20 | 20 | 8 | 10 | 3 | 3 | 2 | 3 | 1 | 2 | 1 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 23 | 22 | 7 | 14 | 12 | 1 | 2 | 3 | 1 | 4 | 2 | 2 | 2 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 3 | 9 | 9 | 7 | 2 | 2 | 3 | 0 | 4 | 2 | 3 | 3 | 1 | 2 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 3 | 6 | 4 | 5 | 7 | 6 | 5 | 6 | 5 | 8 | 2 | 3 | 6 | 1 | 1 | 0 |
| 1981 | 0 | 0 | 0 | 7 | 4 | 6 | 9 | 4 | 6 | 6 | 4 | 5 | 7 | 4 | 6 | 1 | 11 | 6 | 6 | 0 |
| 1982 | 0 | 0 | 3 | 6 | 7 | 3 | 3 | 6 | 3 | 5 | 4 | 7 | 5 | 6 | 4 | 0 | 4 | 2 | 1 | 0 |
| 1983 | 0 | 1 | 6 | 18 | 7 | 13 | 4 | 10 | 8 | 8 | 14 | 4 | 7 | 2 | 4 | 3 | 6 | 4 | 1 | 0 |
| 1984 | 0 | 1 | 0 | 4 | 1 | 3 | 3 | 5 | 9 | 5 | 7 | 8 | 4 | 7 | 2 | 4 | 0 | 1 | 1 | 0 |
| 1985 | 0 | 4 | 4 | 1 | 0 | 1 | 3 | 4 | 8 | 9 | 11 | 7 | 10 | 8 | 7 | 4 | 2 | 0 | 1 | 0 |
| 1986 | 1 | 7 | 2 | 2 | 0 | 1 | 3 | 3 | 6 | 9 | 4 | 5 | 4 | 4 | 3 | 5 | 3 | 2 | 2 | 0 |
| 1987 | 1 | 2 | 3 | 2 | 1 | 2 | 7 | 5 | 6 | 11 | 10 | 5 | 7 | 6 | 5 | 7 | 2 | 0 | 0 | 0 |
| 1988 | 1 | 2 | 0 | 1 | 3 | 3 | 0 | 6 | 8 | 7 | 9 | 4 | 4 | 7 | 2 | 0 | 0 | 1 | 0 | 0 |
| 1989 | 0 | 3 | 1 | 1 | 1 | 1 | 3 | 5 | 11 | 8 | 12 | 5 | 4 | 7 | 3 | 1 | 2 | 2 | 3 | 0 |
| 1990 | 0 | 0 | 0 | 0 | 4 | 1 | 3 | 6 | 2 | 10 | 7 | 3 | 1 | 1 | 0 | 0 | 1 | 2 | 1 | 0 |
| 1991 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 8 | 5 | 8 | 7 | 4 | 0 | 2 | 1 | 2 | 1 | 3 | 0 | 0 |
| 1992 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 8 | 7 | 2 | 4 | 0 | 2 | 1 | 2 | 1 | 0 | 0 | 0 |
| 1993 | 0 | 1 | 1 | 2 | 0 | 1 | 1 | 3 | 5 | 4 | 3 | 1 | 1 | 2 | 4 | 0 | 1 | 0 | 0 | 0 |
| 1994 | 0 | 1 | 1 | 0 | 0 | 4 | 1 | 1 | 0 | 4 | 1 | 2 | 0 | 3 | 0 | 0 | 3 | 1 | 0 | 0 |
| 1995 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 4 | 2 | 0 | 2 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 0 |
| 1997 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 2 | 2 | 1 | 1 | 0 | 1 | 2 | 1 | 1 | 1 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Surface
Total Releases

| Issue Yr | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 2 | 0 | 0 | 3 | 2 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 1 | 4 | 2 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 1976 | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 1977 | 3 | 0 | 1 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 5 | 3 | 2 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 2 | 2 | 0 | 0 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1980 | 1 | 4 | 3 | 1 | 3 | 1 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1981 | 3 | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| 1982 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1983 | 1 | 2 | 3 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1984 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 1985 | 4 | 2 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 1 | 1 | 0 | 3 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1989 | 2 | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | 0 | 1 | 2 | 2 | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1991 | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1994 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1996 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Surface
Total Releases

| Issue Yr | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 1 | 0 | 0 | 1 | 0 | | | | | | | | | | | | | | | |
| 1979 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | |
| 1980 | 0 | 1 | 2 | | | | | | | | | | | | | | | | | |
| 1981 | 0 | 0 | | | | | | | | | | | | | | | | | | |
| 1982 | 0 | | | | | | | | | | | | | | | | | | | |
| 1983 | | | | | | | | | | | | | | | | | | | | |
| 1984 | | | | | | | | | | | | | | | | | | | | |
| 1985 | | | | | | | | | | | | | | | | | | | | |
| 1986 | | | | | | | | | | | | | | | | | | | | |
| 1987 | | | | | | | | | | | | | | | | | | | | |
| 1988 | | | | | | | | | | | | | | | | | | | | |
| 1989 | | | | | | | | | | | | | | | | | | | | |
| 1990 | | | | | | | | | | | | | | | | | | | | |
| 1991 | | | | | | | | | | | | | | | | | | | | |
| 1992 | | | | | | | | | | | | | | | | | | | | |
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| 1995 | | | | | | | | | | | | | | | | | | | | |
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| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Surface
Total Forfeitures

| Issue Yr | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|----------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 3 | 2 | 0 | 3 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 2 | 0 | 5 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 1977 | 0 | 2 | 2 | 6 | 1 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 |
| 1978 | 0 | 2 | 2 | 4 | 3 | 3 | 4 | 5 | 6 | 2 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 1 | 1 |
| 1979 | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 2 | 1 | 0 |
| 1980 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 3 | 4 | 2 | 1 | 2 | 0 | 0 | 0 |
| 1981 | 0 | 0 | 3 | 2 | 3 | 1 | 0 | 0 | 2 | 1 | 0 | 2 | 2 | 2 | 3 | 3 | 2 | 0 | 0 |
| 1982 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 4 | 3 | 2 | 0 | 1 | 1 | 0 | 0 | 1 |
| 1983 | 0 | 1 | 2 | 5 | 3 | 1 | 4 | 2 | 0 | 4 | 7 | 5 | 2 | 3 | 2 | 0 | 0 | 2 | 3 |
| 1984 | 0 | 0 | 5 | 5 | 1 | 1 | 2 | 0 | 3 | 5 | 1 | 1 | 0 | 0 | 1 | 0 | 3 | 0 | 0 |
| 1985 | 0 | 1 | 3 | 0 | 2 | 1 | 1 | 4 | 3 | 3 | 2 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 2 | 3 | 3 | 3 | 1 | 2 | 6 | 6 | 5 | 0 | 1 | 1 | 2 | 2 | 1 | 0 | 1 | 0 |
| 1987 | 0 | 0 | 4 | 2 | 2 | 7 | 5 | 6 | 5 | 1 | 1 | 0 | 1 | 4 | 1 | 0 | 0 | 1 | 0 |
| 1988 | 0 | 0 | 4 | 1 | 5 | 5 | 3 | 4 | 1 | 3 | 2 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| 1989 | 0 | 6 | 1 | 2 | 4 | 4 | 4 | 1 | 0 | 4 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1990 | 0 | 0 | 6 | 5 | 3 | 2 | 1 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1991 | 0 | 2 | 2 | 2 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| 1992 | 0 | 1 | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1993 | 0 | 0 | 5 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 1994 | 0 | 0 | 1 | 0 | 1 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1997 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 1998 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1999 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Surface
Total Forfeitures

| Issue Yr | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1981 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1985 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1989 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1991 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1994 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | | | | | | | | | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
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| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Surface
Misc Terminations

| Issue Yr | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|----------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1989 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1991 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1994 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Surface
Percent Forfeited

| Issue Year | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 | |
|------------|-------|-------|-------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|--------|---------|-------|--------|--------|--------|--------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 10.00% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 5.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.26% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 7.14% | 0.00% | 18.18% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.76% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 12.50% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.88% | 0.00% | 2.56% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 7.14% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 1.94% | 0.99% | 1.00% | 3.06% | 2.11% | 0.00% | 4.48% | 2.13% | 2.63% | 3.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 2.17% | 0.00% | 5.56% | 1.18% | 1.19% | 1.20% | 1.23% | 1.35% | 3.64% | 0.00% | 2.86% | 3.33% | 0.00% | 0.00% | 5.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 1.69% | 1.72% | 5.26% | 0.93% | 0.94% | 0.95% | 0.00% | 0.00% | 2.63% | 1.85% | 0.00% | 0.00% | 6.25% | 0.00% | 0.00% | 0.00% | 0.00% | 4.76% | 0.00% |
| 1978 | 0.00% | 1.20% | 1.22% | 2.47% | 1.90% | 1.94% | 2.63% | 3.52% | 5.26% | 2.33% | 1.30% | 1.61% | 2.04% | 2.13% | 4.55% | 0.00% | 2.63% | 3.03% | 3.33% | 0.00% |
| 1979 | 0.00% | 0.00% | 1.23% | 2.50% | 1.28% | 1.30% | 1.37% | 1.17% | 1.92% | 0.00% | 0.00% | 3.81% | 7.53% | 6.94% | 3.17% | 5.56% | 4.08% | 0.00% | 5.88% | 10.71% |
| 1980 | 0.00% | 0.00% | 0.00% | 1.74% | 0.00% | 1.82% | 0.98% | 0.00% | 0.00% | 0.00% | 1.27% | 4.11% | 6.25% | 3.64% | 2.22% | 4.76% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1981 | 0.00% | 0.00% | 1.82% | 1.23% | 1.96% | 0.68% | 0.00% | 0.00% | 1.59% | 0.85% | 0.00% | 1.87% | 2.00% | 2.20% | 3.53% | 3.95% | 2.78% | 0.00% | 0.00% | 0.00% |
| 1982 | 0.00% | 0.00% | 1.08% | 2.25% | 2.47% | 0.00% | 1.45% | 0.00% | 0.00% | 0.00% | 7.84% | 6.98% | 6.06% | 0.00% | 5.00% | 6.67% | 0.00% | 0.00% | 12.50% | 0.00% |
| 1983 | 0.00% | 0.53% | 1.06% | 2.78% | 1.91% | 0.68% | 3.01% | 1.60% | 0.00% | 3.81% | 7.53% | 6.94% | 3.17% | 5.56% | 4.08% | 0.00% | 0.00% | 0.00% | 5.88% | 10.71% |
| 1984 | 0.00% | 0.00% | 4.72% | 4.95% | 1.09% | 1.11% | 2.33% | 0.00% | 3.95% | 7.81% | 1.85% | 2.17% | 0.00% | 0.00% | 3.85% | 0.00% | 15.79% | 0.00% | 0.00% | 0.00% |
| 1985 | 0.00% | 0.75% | 2.34% | 0.00% | 1.67% | 0.85% | 0.86% | 3.57% | 2.88% | 3.23% | 2.47% | 1.47% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1986 | 0.00% | 1.56% | 2.52% | 2.63% | 2.75% | 0.94% | 1.92% | 6.06% | 6.67% | 6.41% | 0.00% | 1.67% | 1.85% | 4.08% | 4.65% | 2.63% | 0.00% | 3.45% | 0.00% | 0.00% |
| 1987 | 0.00% | 0.00% | 2.90% | 1.53% | 1.57% | 5.65% | 4.35% | 5.83% | 5.43% | 1.23% | 1.45% | 0.00% | 1.89% | 8.89% | 2.86% | 0.00% | 0.00% | 5.00% | 0.00% | 0.00% |
| 1988 | 0.00% | 0.00% | 3.54% | 0.92% | 4.67% | 5.05% | 3.30% | 4.55% | 1.28% | 4.35% | 3.99% | 0.00% | 0.00% | 2.50% | 3.13% | 0.00% | 3.45% | 0.00% | 0.00% | 0.00% |
| 1989 | 0.00% | 4.48% | 0.80% | 1.63% | 3.33% | 3.48% | 3.64% | 0.97% | 0.00% | 4.65% | 0.00% | 8.06% | 1.92% | 0.00% | 0.00% | 2.70% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1990 | 0.00% | 0.00% | 6.52% | 5.81% | 3.70% | 2.70% | 1.41% | 2.99% | 0.00% | 0.00% | 2.13% | 5.13% | 0.00% | 0.00% | 3.13% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1991 | 0.00% | 2.70% | 2.78% | 2.90% | 1.49% | 1.52% | 0.00% | 0.00% | 1.79% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.45% | 0.00% | 4.00% | 4.35% | 0.00% | 0.00% |
| 1992 | 0.00% | 1.92% | 5.88% | 2.08% | 0.00% | 0.00% | 2.33% | 2.44% | 0.00% | 6.45% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 10.00% | 0.00% | 0.00% |
| 1993 | 0.00% | 0.00% | 8.62% | 1.92% | 0.00% | 0.00% | 4.17% | 0.00% | 0.00% | 2.70% | 0.00% | 0.00% | 0.00% | 0.00% | 3.45% | 0.00% | 5.00% | 10.53% | 0.00% | 0.00% |
| 1994 | 0.00% | 0.00% | 2.44% | 0.00% | 2.56% | 0.00% | 8.82% | 3.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1995 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.56% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.17% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1996 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.76% | 0.00% |
| 1997 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.78% | 2.94% | 0.00% | 0.00% | 0.00% | 0.00% | 3.57% | 0.00% |
| 1998 | 0.00% | 0.00% | 2.78% | 0.00% | 0.00% | 2.86% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.70% | 0.00% | 0.00% |
| 1999 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 8.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2000 | 0.00% | 0.00% | 0.00% | 0.00% | 5.26% | 5.88% | 12.50% | 0.00% | 7.69% | 0.00% | 0.00% | 0.00% | 0.00% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2001 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2002 | 0.00% | 0.00% | 4.35% | 0.00% | 0.00% | 0.00% | 0.00% | 4.55% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2003 | 0.00% | 0.00% | 0.00% | 3.45% | 0.00% | 0.00% | 7.14% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2004 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.33% | 7.14% | 0.00% | 0.00% |
| 2005 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2006 | 0.00% | 0.00% | 0.00% | 6.25% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 7.14% | 0.00% | 0.00% | 0.00% | 0.00% | 7.69% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2007 | 0.00% | 0.00% | 0.00% | 0.00% | 3.23% | 0.00% | 0.00% | 0.00% | 3.33% | 3.57% | 0.00% | 0.00% | 0.00% | 0.00% | 4.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2008 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.35% | 0.00% | 0.00% | 0.00% | 0.00% | 5.88% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2009 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2010 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 7.14% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2011 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2012 | 0.00% | 0.00% | 0.00% | 3.85% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2013 | 0.00% | 0.00% | 4.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2014 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2015 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2016 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2017 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2018 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2019 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2020 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2021 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Wtd Avg | | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.96% | 0.92% | 0.97% | 0.88% | 1.98% | 0.00% | 0.00% |
| 10 Yr | 0.00% | 0.00% | 0.65% | 0.58% | 0.00% | 0.49% | 0.00% | 0.47% | 0.90% | 0.46% | 0.47% | 0.00% | 0.00% | 1.05% | 1.01% | 0.50% | 0.48% | 1.93% | 0.53% | 0.00% |
| 15 Yr | 0.00% | 0.00% | 0.37% | 0.68% | 0.32% | 0.31% | 0.60% | 0.61% | 0.95% | 0.31% | 0.31% | 0.00% | 0.30% | 1.55% | 0.63% | 0.68% | 1.32% | 1.99% | | |

Surface
Percent Forfeited

| Issue Year | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|-----------------|--------|--------|-------|-------|--------|--------|-------|--------|-------|--------|--------|-------|-------|-------|--------|-------|-------|-------|-------|-------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 33.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 20.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 33.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 20.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 15.38% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 10.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 7.69% | 0.00% | 0.00% | 0.00% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1979 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1980 | 0.00% | 0.00% | 8.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 27.27% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1981 | 2.13% | 4.65% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 6.90% | 0.00% | 3.85% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1982 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1983 | 0.00% | 0.00% | 5.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1984 | 0.00% | 0.00% | 7.69% | 0.00% | 0.00% | 0.00% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1985 | 8.33% | 0.00% | 0.00% | 0.00% | 0.00% | 15.38% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1986 | 0.00% | 4.35% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 7.14% | | | | |
| 1987 | 0.00% | 0.00% | 0.00% | 5.56% | 6.25% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | |
| 1988 | 0.00% | 3.85% | 4.17% | 0.00% | 5.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | |
| 1989 | 3.57% | 4.00% | 0.00% | 0.00% | 4.76% | 5.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | |
| 1990 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | |
| 1991 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | |
| 1992 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | |
| 1993 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | |
| 1994 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | | |
| 1995 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | |
| 1996 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | | |
| 1997 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | | |
| 1998 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | | | | |
| 1999 | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | | | | | |
| 2000 | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | | | | | | |
| 2001 | 0.00% | 4.17% | | | | | | | | | | | | | | | | | | |
| 2002 | 5.26% | | | | | | | | | | | | | | | | | | | |
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| 2021 | | | | | | | | | | | | | | | | | | | | |
| Wtd Avg | | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 1.20% | 1.11% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.17% | 2.56% | 0.00% | 0.00% | 0.00% | 0.00% |
| 10 Yr | 0.56% | 0.60% | 0.64% | 0.00% | 0.56% | 0.58% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 1.10% | 1.14% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 Yr | 0.69% | 1.06% | 0.75% | 0.37% | 2.27% | 1.24% | 0.48% | 0.00% | 0.00% | 1.04% | 1.67% | 0.57% | 0.60% | 0.00% | 0.77% | 0.88% | 0.96% | 0.00% | 0.00% | 0.00% |
| All Yr | 0.99% | 1.27% | 1.24% | 0.22% | 1.42% | 1.36% | 0.32% | 0.35% | 0.40% | 1.29% | 1.45% | 0.52% | 0.57% | 0.00% | 0.76% | 0.86% | 0.95% | 0.00% | 0.00% | 0.00% |
| All Avg Rolling | 1.10% | 0.77% | 0.84% | 0.60% | 0.62% | 0.67% | 0.69% | 0.36% | 0.13% | 0.26% | 0.49% | 0.55% | 0.45% | 0.19% | 0.22% | 0.54% | 1.01% | 0.89% | 0.47% | 0.00% |
| Linear Smoothed | 0.86% | 0.83% | 0.80% | 0.77% | 0.75% | 0.72% | 0.69% | 0.66% | 0.64% | 0.61% | 0.58% | 0.55% | 0.53% | 0.50% | 0.47% | 0.45% | 0.42% | 0.39% | 0.36% | 0.34% |
| Prior Sel | 0.63% | 0.62% | 0.60% | 0.58% | 0.57% | 0.55% | 0.53% | 0.52% | 0.50% | 0.48% | 0.47% | 0.45% | 0.43% | 0.42% | 0.40% | 0.39% | 0.37% | 0.35% | 0.34% | 0.32% |
| Selected | 0.86% | 0.83% | 0.80% | 0.77% | 0.75% | 0.72% | 0.69% | 0.66% | 0.64% | 0.61% | 0.58% | 0.55% | 0.53% | 0.50% | 0.47% | 0.45% | 0.42% | 0.39% | 0.36% | 0.34% |
| Active | 0.51% | 0.50% | 0.48% | 0.46% | 0.45% | 0.43% | 0.41% | 0.40% | 0.38% | 0.37% | 0.35% | 0.33% | 0.32% | 0.30% | 0.28% | 0.27% | 0.25% | 0.23% | 0.22% | 0.20% |
| Inactive | 1.15% | 1.12% | 1.08% | 1.04% | 1.01% | 0.97% | 0.93% | 0.90% | 0.86% | 0.82% | 0.79% | 0.75% | 0.71% | 0.68% | 0.64% | 0.60% | 0.56% | 0.53% | 0.49% | 0.45% |
| Phased Release | 2.01% | 1.95% | 1.88% | 1.82% | 1.75% | 1.69% | 1.62% | 1.56% | 1.50% | 1.43% | 1.37% | 1.30% | 1.24% | 1.18% | 1.11% | 1.05% | 0.98% | 0.92% | 0.85% | 0.79% |

Surface
Percent Forfeited

| Issue Year | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1979 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1980 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1981 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1982 | 0.00% | | | | | | | | | | | | | | | | | | | |
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| 2001 | | | | | | | | | | | | | | | | | | | | |
| 2002 | | | | | | | | | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | | | | | | | | | |
| 2009 | | | | | | | | | | | | | | | | | | | | |
| 2010 | | | | | | | | | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |
| Wtd Avg | | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 10 Yr | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 Yr | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Yr | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Avg Rolling | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Linear Smoothed | 0.31% | 0.28% | 0.25% | 0.23% | 0.20% | 0.17% | 0.14% | 0.12% | 0.09% | 0.06% | 0.04% | 0.01% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Prior Sel | 0.30% | 0.29% | 0.27% | 0.25% | 0.24% | 0.22% | 0.20% | 0.19% | 0.17% | 0.15% | 0.14% | 0.12% | 0.10% | 0.09% | 0.07% | 0.06% | 0.04% | 0.02% | | |
| Selected | 0.31% | 0.28% | 0.25% | 0.23% | 0.20% | 0.17% | 0.14% | 0.12% | 0.09% | 0.06% | 0.04% | 0.01% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Active | 0.19% | 0.17% | 0.15% | 0.14% | 0.12% | 0.10% | 0.09% | 0.07% | 0.05% | 0.04% | 0.02% | 0.01% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Inactive | 0.42% | 0.38% | 0.34% | 0.31% | 0.27% | 0.23% | 0.20% | 0.16% | 0.12% | 0.09% | 0.05% | 0.01% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Phased Release | 0.73% | 0.66% | 0.60% | 0.53% | 0.47% | 0.40% | 0.34% | 0.28% | 0.21% | 0.15% | 0.08% | 0.02% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |

Surface
Percent Released

| Issue Year | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|-----------------|-------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 10.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 12.50% | 0.00% | 28.57% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 12.50% | 0.00% | 28.57% | 0.00% |
| 1970 | 0.00% | 0.00% | 7.69% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 16.67% | 0.00% | 20.00% | 12.50% | 28.57% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 22.22% | 0.00% | 15.38% | 18.18% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 4.55% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.76% | 42.11% | 36.36% | 42.86% | 75.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 13.64% | 15.79% | 31.25% | 9.09% | 0.00% | 20.00% | 0.00% | 14.29% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.56% | 29.73% | 15.38% | 9.09% | 20.00% | 12.50% | 7.14% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 1.00% | 0.00% | 4.21% | 24.72% | 25.37% | 17.02% | 18.42% | 13.33% | 4.00% | 8.33% | 9.09% | 20.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 1.20% | 7.41% | 24.32% | 23.64% | 12.50% | 11.43% | 6.67% | 3.70% | 23.08% | 5.00% | 0.00% | 5.56% | 0.00% |
| 1977 | 0.00% | 0.00% | 0.00% | 0.88% | 0.00% | 0.00% | 7.69% | 20.83% | 26.32% | 14.81% | 22.22% | 8.57% | 9.38% | 7.41% | 12.00% | 4.55% | 9.52% | 5.56% | 0.00% |
| 1978 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.95% | 16.20% | 19.30% | 8.14% | 18.18% | 19.35% | 2.04% | 4.26% | 6.82% | 2.56% | 10.53% | 6.06% | 6.67% | 0.00% |
| 1979 | 0.00% | 0.00% | 0.00% | 0.00% | 3.90% | 12.33% | 14.29% | 13.46% | 4.55% | 4.76% | 7.50% | 0.00% | 11.11% | 6.45% | 10.34% | 12.50% | 5.26% | 11.76% | 0.00% |
| 1980 | 0.00% | 0.00% | 0.00% | 0.00% | 2.65% | 5.45% | 3.92% | 5.15% | 7.61% | 7.06% | 6.33% | 8.22% | 7.81% | 14.55% | 4.44% | 7.14% | 16.22% | 3.23% | 3.33% |
| 1981 | 0.00% | 0.00% | 0.00% | 4.32% | 2.61% | 4.11% | 6.47% | 3.08% | 4.76% | 5.08% | 3.60% | 4.67% | 7.00% | 4.40% | 7.06% | 1.32% | 15.28% | 10.17% | 11.32% |
| 1982 | 0.00% | 0.00% | 3.23% | 6.74% | 8.64% | 4.17% | 4.35% | 5.08% | 8.93% | 7.84% | 16.28% | 15.15% | 23.08% | 20.00% | 0.00% | 28.57% | 20.00% | 12.50% | 0.00% |
| 1983 | 0.00% | 0.53% | 3.19% | 10.00% | 4.46% | 8.84% | 3.01% | 8.00% | 7.08% | 7.62% | 15.05% | 5.56% | 11.11% | 3.70% | 8.16% | 6.98% | 15.00% | 11.76% | 3.57% |
| 1984 | 0.00% | 0.93% | 0.00% | 3.96% | 1.09% | 3.33% | 3.49% | 6.17% | 11.84% | 7.81% | 12.96% | 17.39% | 10.81% | 21.21% | 7.69% | 17.39% | 0.00% | 6.25% | 6.67% |
| 1985 | 0.00% | 3.01% | 3.13% | 0.83% | 0.00% | 0.85% | 2.59% | 3.57% | 7.69% | 9.68% | 13.58% | 10.29% | 16.67% | 17.39% | 18.42% | 12.90% | 7.41% | 0.00% | 4.00% |
| 1986 | 0.78% | 5.47% | 1.68% | 1.75% | 0.00% | 0.94% | 2.88% | 3.03% | 6.67% | 11.54% | 6.25% | 8.33% | 7.41% | 8.16% | 6.98% | 13.16% | 9.38% | 6.90% | 7.69% |
| 1987 | 0.71% | 1.43% | 2.17% | 1.53% | 0.79% | 1.61% | 6.09% | 4.85% | 6.52% | 13.58% | 14.49% | 8.62% | 13.21% | 13.33% | 14.29% | 24.14% | 9.09% | 0.00% | 0.00% |
| 1988 | 0.87% | 1.74% | 0.00% | 0.92% | 2.80% | 3.03% | 0.00% | 6.82% | 10.26% | 10.14% | 15.25% | 8.33% | 9.09% | 17.50% | 6.25% | 0.00% | 0.00% | 3.57% | 0.00% |
| 1989 | 0.00% | 2.24% | 0.80% | 0.81% | 0.83% | 0.87% | 2.73% | 4.85% | 11.34% | 9.30% | 16.22% | 8.06% | 7.69% | 14.89% | 7.50% | 2.70% | 5.71% | 6.06% | 9.68% |
| 1990 | 0.00% | 0.00% | 0.00% | 0.00% | 4.94% | 1.35% | 4.23% | 8.96% | 3.39% | 17.54% | 14.89% | 7.69% | 3.03% | 0.00% | 0.00% | 3.23% | 6.67% | 3.57% | 0.00% |
| 1991 | 0.00% | 0.00% | 1.39% | 0.00% | 0.00% | 0.00% | 1.54% | 12.50% | 8.93% | 16.00% | 16.67% | 11.43% | 0.00% | 6.45% | 3.45% | 7.41% | 4.00% | 13.04% | 0.00% |
| 1992 | 0.00% | 0.00% | 0.00% | 0.00% | 6.38% | 2.27% | 2.33% | 2.44% | 20.51% | 22.58% | 9.09% | 20.00% | 0.00% | 12.50% | 7.14% | 15.38% | 9.09% | 0.00% | 0.00% |
| 1993 | 0.00% | 1.69% | 1.72% | 3.85% | 0.00% | 2.04% | 2.08% | 6.67% | 11.90% | 10.81% | 9.38% | 3.45% | 3.70% | 7.69% | 16.67% | 0.00% | 5.26% | 0.00% | 0.00% |
| 1994 | 0.00% | 2.38% | 2.44% | 0.00% | 0.00% | 10.53% | 2.94% | 3.33% | 0.00% | 14.29% | 4.17% | 8.70% | 0.00% | 14.29% | 0.00% | 0.00% | 16.67% | 6.67% | 0.00% |
| 1995 | 0.00% | 0.00% | 0.00% | 2.50% | 0.00% | 2.56% | 8.11% | 11.76% | 6.67% | 0.00% | 7.14% | 3.85% | 4.00% | 0.00% | 4.35% | 0.00% | 4.55% | 4.76% | 0.00% |
| 1996 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 6.90% | 3.70% | 0.00% | 3.85% | 0.00% | 8.33% | 0.00% | 0.00% | 4.55% | 4.76% | 0.00% |
| 1997 | 0.00% | 4.26% | 2.22% | 0.00% | 4.55% | 0.00% | 0.00% | 4.76% | 5.00% | 2.63% | 2.70% | 0.00% | 2.78% | 5.88% | 3.23% | 3.33% | 3.45% | 0.00% | 0.00% |
| 1998 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.94% | 0.00% | 6.06% | 3.23% | 0.00% | 6.67% | 0.00% | 3.57% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1999 | 0.00% | 0.00% | 17.65% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 9.09% | 0.00% | 10.00% | 11.11% | 12.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2000 | 0.00% | 0.00% | 0.00% | 0.00% | 5.26% | 0.00% | 0.00% | 7.14% | 0.00% | 0.00% | 0.00% | 8.33% | 0.00% | 9.09% | 0.00% | 11.11% | 0.00% | 12.50% | 0.00% |
| 2001 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.85% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2002 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.76% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2003 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.57% | 0.00% | 4.00% | 0.00% | 4.17% | 4.35% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2004 | 0.00% | 0.00% | 3.03% | 0.00% | 0.00% | 3.13% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.23% | 3.33% | 0.00% | 0.00% |
| 2005 | 0.00% | 0.00% | 0.00% | 0.00% | 5.26% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2006 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2007 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.33% | 3.57% | 0.00% | 0.00% | 3.85% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2008 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.55% | 4.76% | 0.00% | 15.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2009 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.17% | 4.35% | 4.55% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2010 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2011 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2012 | 0.00% | 0.00% | 0.00% | 0.00% | 4.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2013 | 0.00% | 0.00% | 0.00% | 4.17% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2014 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2015 | 0.00% | 0.00% | 6.25% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2016 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2017 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2018 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2019 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2020 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2021 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Wtd Avg | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 0.00% | 0.00% | 2.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.97% | 2.88% | 1.05% | 5.05% | 0.00% | 0.00% | 0.97% | 0.88% | 0.00% | 1.25% | 0.00% |
| 10 Yr | 0.00% | 0.00% | 0.65% | 0.58% | 0.55% | 0.00% | 0.00% | 0.00% | 0.45% | 1.83% | 2.37% | 0.47% | 2.40% | 0.53% | 1.01% | 1.00% | 1.45% | 0.97% | 1.59% |
| 15 Yr | 0.00% | 0.00% | 0.37% | 0.34% | 0.65% | 0.62% | 0.00% | 0.91% | 0.32% | 1.88% | 1.85% | 1.54% | 2.71% | 2.17% | 2.83% | 1.69% | 2.98% | 2.66% | 2.40% |
| All Yr | 0.10% | 0.88% | 1.04% | 1.77% | 1.46% | 2.01% | 2.62% | 5.22% | 7.18% | 8.53% | 9.71% | 9.03% | 6.87% | 8.80% | 7.20% | 5.99% | 7.85% | 5.57% | 4.93% |
| All Avg Rolling | 0.10% | 0.12% | 0.42% | 0.63% | 0.78% | 0.67% | 0.66% | 0.95% | 1.39% | 2.27% | 3.16% | 3.51% | 3.83% | 3.39% | 3.30% | 2.68% | 2.82% | 2.67% | 2.71% |
| Linear Smoothed | 0.10% | 0.12% | 0.24% | 0.36% | 0.69% | 1.03 | | | | | | | | | | | | | |

Surface
Percent Released

| Issue Year | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|-----------------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|--------|-------|--------|-------|-------|--------|--------|--------|---------|--------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 40.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 50.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 50.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 20.00% | 50.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 14.29% | 33.33% | 0.00% | 0.00% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 50.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 16.67% | 0.00% | 40.00% | 66.67% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 16.67% | 0.00% | 0.00% | 30.00% | 28.57% | 20.00% | 25.00% | 0.00% | 33.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 6.25% | 26.67% | 18.18% | 11.11% | 25.00% | 0.00% | 16.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 25.00% | 33.33% | 0.00% | 0.00% | 0.00% |
| 1976 | 11.76% | 0.00% | 6.67% | 0.00% | 7.14% | 0.00% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 11.11% | 0.00% | 0.00% | 12.50% |
| 1977 | 17.65% | 0.00% | 7.14% | 7.69% | 0.00% | 33.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 18.52% | 13.64% | 10.53% | 0.00% | 5.88% | 6.25% | 13.33% | 0.00% | 7.69% | 0.00% | 0.00% | 9.09% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1979 | 13.33% | 15.38% | 0.00% | 0.00% | 9.09% | 20.00% | 0.00% | 12.50% | 14.29% | 0.00% | 16.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 20.00% | 0.00% |
| 1980 | 3.45% | 14.29% | 12.50% | 5.26% | 16.67% | 6.67% | 14.29% | 0.00% | 8.33% | 0.00% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% |
| 1981 | 6.38% | 4.65% | 2.56% | 5.26% | 5.56% | 5.88% | 6.25% | 3.33% | 0.00% | 0.00% | 3.70% | 3.85% | 4.17% | 0.00% | 4.35% | 4.55% | 0.00% | 4.76% | 5.00% | 0.00% |
| 1982 | 16.67% | 0.00% | 0.00% | 20.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 33.33% |
| 1983 | 4.17% | 9.09% | 15.00% | 0.00% | 6.25% | 0.00% | 6.67% | 7.14% | 7.69% | 8.33% | 0.00% | 0.00% | 18.18% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 11.11% | 12.50% |
| 1984 | 0.00% | 7.14% | 0.00% | 0.00% | 8.33% | 0.00% | 0.00% | 10.00% | 0.00% | 11.11% | 0.00% | 0.00% | 12.50% | 0.00% | 0.00% | 0.00% | 0.00% | 16.67% | 20.00% | |
| 1985 | 16.67% | 11.11% | 0.00% | 0.00% | 18.75% | 7.69% | 0.00% | 0.00% | 0.00% | 20.00% | 0.00% | 0.00% | 12.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| 1986 | 4.17% | 0.00% | 0.00% | 4.55% | 0.00% | 5.56% | 0.00% | 11.76% | 0.00% | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| 1987 | 0.00% | 5.26% | 0.00% | 5.56% | 12.50% | 7.69% | 0.00% | 0.00% | 0.00% | 0.00% | 8.33% | 9.09% | 10.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| 1988 | 3.70% | 3.85% | 0.00% | 13.04% | 5.00% | 11.11% | 6.25% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| 1989 | 7.14% | 8.00% | 4.55% | 0.00% | 0.00% | 0.00% | 10.53% | 0.00% | 0.00% | 11.76% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| 1990 | 0.00% | 3.70% | 7.69% | 8.33% | 4.55% | 9.52% | 0.00% | 0.00% | 0.00% | 5.26% | 5.56% | 0.00% | 5.88% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| 1991 | 0.00% | 15.79% | 6.25% | 0.00% | 0.00% | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| 1992 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 11.11% | 0.00% | 0.00% | 12.50% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| 1993 | 0.00% | 12.50% | 7.14% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| 1994 | 0.00% | 0.00% | 0.00% | 0.00% | 7.14% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| 1995 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| 1996 | 0.00% | 0.00% | 0.00% | 5.26% | 0.00% | 0.00% | 5.56% | | | | | | | | | | | | | |
| 1997 | 0.00% | 3.70% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | | | |
| 1998 | 3.85% | 4.00% | 4.17% | 0.00% | 0.00% | | | | | | | | | | | | | | | |
| 1999 | 0.00% | 0.00% | 0.00% | 14.29% | | | | | | | | | | | | | | | | |
| 2000 | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | | | | | | |
| 2001 | 0.00% | 0.00% | | | | | | | | | | | | | | | | | | |
| 2002 | 0.00% | | | | | | | | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | | | | | | | | | |
| 2009 | | | | | | | | | | | | | | | | | | | | |
| 2010 | | | | | | | | | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |
| Wtd Avg | | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 1.20% | 2.22% | 2.41% | 1.08% | 0.00% | 0.00% | 1.41% | 1.49% | 1.52% | 5.80% | 0.00% | 1.37% | 4.17% | 1.67% | 0.00% | 0.00% | 0.00% | 4.35% | 6.98% | 5.00% |
| 10 Yr | 0.56% | 2.38% | 2.56% | 2.38% | 0.56% | 2.91% | 3.29% | 2.04% | 0.74% | 5.38% | 0.83% | 0.85% | 5.56% | 1.82% | 1.02% | 1.10% | 0.00% | 3.66% | 5.41% | 4.41% |
| 15 Yr | 1.38% | 4.23% | 2.61% | 3.36% | 3.03% | 3.31% | 2.87% | 2.79% | 1.49% | 4.17% | 2.78% | 1.15% | 4.79% | 2.05% | 0.77% | 0.88% | 1.92% | 4.49% | 6.41% | 4.35% |
| All Yr | 5.42% | 6.90% | 4.97% | 3.81% | 5.92% | 5.43% | 5.36% | 3.19% | 2.37% | 4.29% | 2.90% | 1.04% | 4.57% | 2.00% | 0.76% | 0.86% | 1.90% | 4.49% | 6.41% | 4.35% |
| All Avg Rolling | 2.33% | 2.87% | 3.07% | 3.24% | 2.72% | 2.65% | 2.84% | 2.84% | 2.38% | 2.94% | 2.69% | 2.55% | 2.50% | 2.59% | 2.43% | 1.08% | 0.77% | 1.97% | 3.84% | 5.03% |
| Linear Smoothed | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% |
| Prior Sel | 3.26% | 3.21% | 3.15% | 3.09% | 3.03% | 2.97% | 2.91% | 2.85% | 2.80% | 2.74% | 2.68% | 2.62% | 2.56% | 2.50% | 2.45% | 2.39% | 2.33% | 2.27% | 2.21% | 2.15% |
| Selected | 2.94% | 2.88% | 2.82% | 2.76% | 2.71% | 2.66% | 2.60% | 2.55% | 2.50% | 2.45% | 2.40% | 2.35% | 2.30% | 2.26% | 2.21% | 2.17% | 2.13% | 2.08% | 2.04% | 2.00% |
| Active | 2.35% | 2.30% | 2.26% | 2.21% | 2.17% | 2.12% | 2.08% | 2.04% | 2.00% | 1.96% | 1.92% | 1.88% | 1.84% | 1.81% | 1.77% | 1.74% | 1.70% | 1.67% | 1.63% | 1.60% |
| Inactive | 1.47% | 1.44% | 1.41% | 1.38% | 1.35% | 1.33% | 1.30% | 1.27% | 1.25% | 1.22% | 1.20% | 1.18% | 1.15% | 1.13% | 1.11% | 1.08% | 1.06% | 1.04% | 1.02% | 1.00% |
| Phased Release | 7.05% | 6.91% | 6.77% | 6.63% | 6.50% | 6.37% | 6.24% | 6.12% | 6.00% | 5.88% | 5.76% | 5.64% | 5.53% | 5.42% | 5.31% | 5.21% | 5.10% | 5.00% | 4.90% | 4.80% |

Surface
Percent Released

| Issue Year | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|-----------------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 12.50% | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1979 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1980 | 0.00% | 16.67% | 40.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1981 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1982 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1983 | | | | | | | | | | | | | | | | | | | | |
| 1984 | | | | | | | | | | | | | | | | | | | | |
| 1985 | | | | | | | | | | | | | | | | | | | | |
| 1986 | | | | | | | | | | | | | | | | | | | | |
| 1987 | | | | | | | | | | | | | | | | | | | | |
| 1988 | | | | | | | | | | | | | | | | | | | | |
| 1989 | | | | | | | | | | | | | | | | | | | | |
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| 1994 | | | | | | | | | | | | | | | | | | | | |
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| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |
| Wtd Avg | | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 2.56% | 2.27% | 9.68% | 3.70% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 10 Yr | 1.72% | 1.79% | 8.33% | 3.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 Yr | 1.69% | 1.79% | 8.33% | 3.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Yr | 1.69% | 1.79% | 8.33% | 3.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Avg Rolling | 4.25% | 2.78% | 4.17% | 4.67% | 4.03% | 1.14% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Linear Smoothed | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% | 2.87% |
| Prior Sel | 2.09% | 2.04% | 1.98% | 1.92% | 1.86% | 1.80% | 1.74% | 1.69% | 1.63% | 1.57% | 1.51% | 1.45% | 1.39% | 1.34% | 1.28% | 1.22% | 1.16% | 1.10% | | |
| Selected | 1.96% | 1.92% | 1.88% | 1.85% | 1.81% | 1.77% | 1.74% | 1.70% | 1.67% | 1.63% | 1.60% | 1.57% | 1.54% | 1.51% | 1.48% | 1.45% | 1.42% | 1.39% | 1.36% | 1.34% |
| Active | 1.57% | 1.54% | 1.51% | 1.48% | 1.45% | 1.42% | 1.39% | 1.36% | 1.33% | 1.31% | 1.28% | 1.26% | 1.23% | 1.21% | 1.18% | 1.16% | 1.14% | 1.11% | 1.09% | 1.07% |
| Inactive | 0.98% | 0.96% | 0.94% | 0.92% | 0.90% | 0.89% | 0.87% | 0.85% | 0.83% | 0.82% | 0.80% | 0.79% | 0.77% | 0.75% | 0.74% | 0.72% | 0.71% | 0.70% | 0.68% | 0.67% |
| Phased Release | 4.71% | 4.61% | 4.52% | 4.43% | 4.34% | 4.25% | 4.17% | 4.09% | 4.00% | 3.92% | 3.85% | 3.77% | 3.69% | 3.62% | 3.55% | 3.48% | 3.41% | 3.34% | 3.27% | 3.21% |

Underground
Total Permits

| Issue Yr | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1977 | 36 | 36 | 35 | 33 | 32 | 30 | 28 | 28 | 19 | 16 | 14 | 14 | 11 | 11 | 9 | 9 | 8 | 8 | 8 |
| 1978 | 103 | 102 | 99 | 94 | 91 | 86 | 75 | 55 | 49 | 41 | 38 | 35 | 32 | 32 | 29 | 28 | 26 | 24 | 24 |
| 1979 | 71 | 70 | 65 | 64 | 63 | 58 | 47 | 40 | 36 | 36 | 35 | 35 | 35 | 34 | 34 | 33 | 32 | 29 | 29 |
| 1980 | 107 | 107 | 107 | 106 | 92 | 78 | 72 | 67 | 65 | 61 | 60 | 60 | 59 | 57 | 56 | 53 | 46 | 45 | 42 |
| 1981 | 178 | 178 | 177 | 172 | 157 | 149 | 148 | 142 | 138 | 136 | 133 | 131 | 129 | 127 | 124 | 113 | 99 | 90 | 83 |
| 1982 | 102 | 102 | 100 | 97 | 93 | 90 | 86 | 84 | 83 | 82 | 78 | 77 | 74 | 69 | 54 | 44 | 36 | 34 | 29 |
| 1983 | 306 | 303 | 286 | 276 | 256 | 232 | 219 | 214 | 204 | 185 | 172 | 163 | 150 | 134 | 126 | 118 | 108 | 95 | 84 |
| 1984 | 191 | 187 | 181 | 171 | 152 | 131 | 124 | 119 | 112 | 106 | 99 | 90 | 88 | 77 | 73 | 58 | 55 | 46 | 46 |
| 1985 | 90 | 87 | 83 | 78 | 72 | 66 | 61 | 60 | 58 | 57 | 49 | 42 | 34 | 34 | 32 | 28 | 25 | 23 | 19 |
| 1986 | 96 | 95 | 90 | 87 | 84 | 81 | 78 | 76 | 74 | 69 | 57 | 49 | 44 | 38 | 30 | 24 | 24 | 22 | 20 |
| 1987 | 107 | 104 | 101 | 96 | 94 | 89 | 88 | 84 | 76 | 71 | 65 | 61 | 56 | 41 | 36 | 33 | 29 | 28 | 28 |
| 1988 | 175 | 170 | 163 | 156 | 139 | 126 | 115 | 97 | 87 | 83 | 71 | 65 | 52 | 44 | 38 | 33 | 31 | 28 | 28 |
| 1989 | 130 | 128 | 124 | 112 | 105 | 92 | 86 | 77 | 69 | 65 | 56 | 47 | 42 | 39 | 32 | 32 | 31 | 28 | 25 |
| 1990 | 52 | 50 | 48 | 47 | 43 | 41 | 39 | 38 | 32 | 31 | 27 | 25 | 24 | 22 | 18 | 17 | 16 | 15 | 15 |
| 1991 | 47 | 43 | 41 | 41 | 37 | 37 | 31 | 31 | 31 | 28 | 25 | 25 | 21 | 20 | 19 | 19 | 19 | 19 | 18 |
| 1992 | 49 | 49 | 49 | 45 | 45 | 44 | 43 | 42 | 41 | 35 | 32 | 31 | 31 | 28 | 28 | 26 | 25 | 24 | 22 |
| 1993 | 56 | 53 | 46 | 45 | 42 | 40 | 39 | 39 | 37 | 37 | 35 | 32 | 30 | 30 | 29 | 26 | 25 | 25 | 24 |
| 1994 | 56 | 55 | 54 | 54 | 51 | 48 | 47 | 45 | 45 | 44 | 43 | 39 | 38 | 36 | 34 | 33 | 31 | 30 | 29 |
| 1995 | 43 | 43 | 41 | 40 | 38 | 36 | 35 | 33 | 33 | 32 | 32 | 30 | 28 | 25 | 24 | 24 | 21 | 21 | 21 |
| 1996 | 45 | 44 | 44 | 44 | 40 | 37 | 37 | 36 | 36 | 34 | 34 | 31 | 30 | 29 | 29 | 28 | 27 | 27 | 25 |
| 1997 | 43 | 42 | 42 | 42 | 41 | 41 | 38 | 37 | 37 | 37 | 33 | 32 | 31 | 31 | 29 | 29 | 29 | 29 | 29 |
| 1998 | 37 | 37 | 37 | 37 | 34 | 32 | 30 | 29 | 29 | 28 | 25 | 24 | 24 | 23 | 23 | 22 | 19 | 19 | 19 |
| 1999 | 35 | 35 | 34 | 34 | 33 | 31 | 31 | 31 | 31 | 31 | 30 | 29 | 29 | 29 | 28 | 27 | 24 | 24 | 23 |
| 2000 | 31 | 31 | 31 | 31 | 30 | 30 | 30 | 27 | 27 | 27 | 26 | 25 | 25 | 24 | 24 | 24 | 23 | 20 | 19 |
| 2001 | 20 | 20 | 20 | 20 | 20 | 20 | 18 | 18 | 18 | 17 | 17 | 16 | 16 | 16 | 16 | 12 | 12 | 12 | 12 |
| 2002 | 25 | 25 | 25 | 25 | 25 | 23 | 23 | 23 | 21 | 21 | 19 | 19 | 18 | 18 | 17 | 15 | 14 | 14 | 12 |
| 2003 | 31 | 31 | 30 | 30 | 29 | 28 | 28 | 26 | 26 | 25 | 24 | 24 | 23 | 23 | 22 | 22 | 22 | 22 | 20 |
| 2004 | 23 | 22 | 21 | 21 | 19 | 19 | 19 | 18 | 18 | 16 | 15 | 15 | 15 | 15 | 13 | 13 | 12 | 12 | 12 |
| 2005 | 18 | 18 | 18 | 18 | 18 | 17 | 17 | 17 | 16 | 15 | 15 | 15 | 15 | 14 | 14 | 14 | 14 | 14 | 14 |
| 2006 | 20 | 20 | 20 | 19 | 19 | 19 | 18 | 18 | 18 | 18 | 17 | 17 | 16 | 16 | 15 | 15 | 15 | 15 | 15 |
| 2007 | 21 | 21 | 21 | 21 | 20 | 20 | 20 | 20 | 19 | 19 | 19 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| 2008 | 21 | 21 | 18 | 18 | 17 | 16 | 16 | 16 | 15 | 15 | 15 | 15 | 15 | 13 | 13 | 13 | 13 | 13 | 13 |
| 2009 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| 2010 | 26 | 26 | 26 | 24 | 24 | 24 | 22 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| 2011 | 17 | 17 | 16 | 16 | 16 | 16 | 15 | 15 | 15 | 15 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| 2012 | 17 | 17 | 15 | 14 | 13 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 2013 | 19 | 18 | 18 | 17 | 17 | 17 | 17 | 17 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| 2014 | 29 | 29 | 29 | 24 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| 2015 | 9 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 2016 | 7 | 7 | 7 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 2017 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 2018 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 2019 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 2020 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 2021 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |

Underground
Total Permits

| Issue Yr | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1977 | 7 | 6 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1978 | 21 | 20 | 19 | 15 | 14 | 12 | 11 | 11 | 11 | 10 | 9 | 9 | 8 | 8 | 7 | 7 | 7 | 7 | 7 | 7 |
| 1979 | 28 | 25 | 25 | 21 | 21 | 19 | 19 | 18 | 18 | 17 | 16 | 14 | 14 | 13 | 11 | 10 | 10 | 10 | 10 | 10 |
| 1980 | 40 | 36 | 34 | 30 | 26 | 25 | 18 | 15 | 14 | 14 | 14 | 12 | 12 | 11 | 11 | 11 | 10 | 10 | 10 | 10 |
| 1981 | 79 | 66 | 61 | 55 | 50 | 45 | 45 | 42 | 38 | 38 | 36 | 36 | 35 | 35 | 31 | 31 | 30 | 30 | 30 | 30 |
| 1982 | 24 | 23 | 23 | 21 | 18 | 16 | 16 | 15 | 15 | 14 | 13 | 12 | 12 | 11 | 10 | 10 | 10 | 10 | 9 | 8 |
| 1983 | 79 | 75 | 73 | 68 | 63 | 59 | 52 | 51 | 51 | 49 | 49 | 44 | 44 | 44 | 44 | 44 | 44 | 43 | 42 | 41 |
| 1984 | 41 | 41 | 41 | 38 | 34 | 32 | 31 | 30 | 28 | 27 | 24 | 24 | 23 | 22 | 22 | 20 | 20 | 19 | 19 | |
| 1985 | 19 | 19 | 17 | 15 | 13 | 11 | 11 | 11 | 11 | 10 | 10 | 10 | 10 | 9 | 8 | 8 | 7 | 7 | | |
| 1986 | 19 | 15 | 15 | 14 | 12 | 10 | 10 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | | | |
| 1987 | 26 | 22 | 20 | 16 | 16 | 16 | 15 | 15 | 15 | 15 | 13 | 12 | 11 | 11 | 10 | 10 | | | | |
| 1988 | 26 | 25 | 25 | 24 | 23 | 22 | 20 | 19 | 18 | 18 | 18 | 17 | 17 | 16 | 16 | | | | | |
| 1989 | 25 | 23 | 21 | 21 | 20 | 19 | 19 | 19 | 19 | 19 | 18 | 18 | 18 | 17 | | | | | | |
| 1990 | 13 | 13 | 12 | 12 | 11 | 11 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | | | | | | | |
| 1991 | 17 | 16 | 14 | 14 | 14 | 14 | 14 | 13 | 12 | 11 | 11 | | | | | | | | | |
| 1992 | 22 | 22 | 21 | 21 | 19 | 18 | 17 | 16 | 16 | 15 | 15 | | | | | | | | | |
| 1993 | 23 | 19 | 19 | 19 | 19 | 18 | 18 | 18 | 18 | | | | | | | | | | | |
| 1994 | 27 | 26 | 25 | 24 | 24 | 17 | 17 | 17 | | | | | | | | | | | | |
| 1995 | 20 | 20 | 20 | 20 | 19 | 18 | 18 | 17 | | | | | | | | | | | | |
| 1996 | 23 | 23 | 20 | 18 | 18 | 18 | 16 | | | | | | | | | | | | | |
| 1997 | 29 | 28 | 27 | 26 | 26 | 25 | | | | | | | | | | | | | | |
| 1998 | 18 | 17 | 16 | 16 | 16 | | | | | | | | | | | | | | | |
| 1999 | 23 | 21 | 20 | 20 | | | | | | | | | | | | | | | | |
| 2000 | 19 | 19 | 18 | | | | | | | | | | | | | | | | | |
| 2001 | 11 | 11 | | | | | | | | | | | | | | | | | | |
| 2002 | 10 | | | | | | | | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
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| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Underground
Total Permits

| Issue Yr | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | | | | | | | | | | |
| 1977 | 2 | 2 | 1 | 1 | 1 | 1 | | | | | | | | | | | | | | |
| 1978 | 6 | 6 | 6 | 6 | 6 | | | | | | | | | | | | | | | |
| 1979 | 10 | 10 | 10 | 10 | | | | | | | | | | | | | | | | |
| 1980 | 10 | 10 | 10 | | | | | | | | | | | | | | | | | |
| 1981 | 30 | 29 | | | | | | | | | | | | | | | | | | |
| 1982 | 8 | | | | | | | | | | | | | | | | | | | |
| 1983 | | | | | | | | | | | | | | | | | | | | |
| 1984 | | | | | | | | | | | | | | | | | | | | |
| 1985 | | | | | | | | | | | | | | | | | | | | |
| 1986 | | | | | | | | | | | | | | | | | | | | |
| 1987 | | | | | | | | | | | | | | | | | | | | |
| 1988 | | | | | | | | | | | | | | | | | | | | |
| 1989 | | | | | | | | | | | | | | | | | | | | |
| 1990 | | | | | | | | | | | | | | | | | | | | |
| 1991 | | | | | | | | | | | | | | | | | | | | |
| 1992 | | | | | | | | | | | | | | | | | | | | |
| 1993 | | | | | | | | | | | | | | | | | | | | |
| 1994 | | | | | | | | | | | | | | | | | | | | |
| 1995 | | | | | | | | | | | | | | | | | | | | |
| 1996 | | | | | | | | | | | | | | | | | | | | |
| 1997 | | | | | | | | | | | | | | | | | | | | |
| 1998 | | | | | | | | | | | | | | | | | | | | |
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| 2000 | | | | | | | | | | | | | | | | | | | | |
| 2001 | | | | | | | | | | | | | | | | | | | | |
| 2002 | | | | | | | | | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | | | | | | | | | |
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| 2010 | | | | | | | | | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Underground
Total Releases

| Issue Yr | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|----------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 2 | 2 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 15 | 3 | 7 | 3 | 0 | 2 | 2 | 0 | 1 | 0 | 1 | 1 |
| 1979 | 0 | 1 | 0 | 0 | 0 | 3 | 8 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 2 |
| 1980 | 0 | 0 | 0 | 0 | 7 | 7 | 3 | 3 | 2 | 4 | 1 | 0 | 1 | 1 | 1 | 2 | 6 | 1 | 2 |
| 1981 | 0 | 0 | 0 | 3 | 10 | 4 | 1 | 6 | 4 | 1 | 3 | 1 | 1 | 1 | 0 | 9 | 11 | 8 | 6 |
| 1982 | 0 | 0 | 2 | 2 | 3 | 3 | 4 | 2 | 1 | 1 | 4 | 1 | 1 | 3 | 11 | 9 | 7 | 2 | 4 |
| 1983 | 0 | 1 | 16 | 6 | 16 | 21 | 12 | 3 | 9 | 13 | 11 | 3 | 8 | 11 | 6 | 8 | 8 | 10 | 10 |
| 1984 | 0 | 1 | 3 | 6 | 10 | 18 | 2 | 4 | 6 | 3 | 5 | 5 | 1 | 8 | 2 | 15 | 3 | 8 | 0 |
| 1985 | 0 | 3 | 1 | 5 | 3 | 2 | 3 | 0 | 0 | 1 | 5 | 6 | 5 | 0 | 2 | 2 | 2 | 2 | 3 |
| 1986 | 0 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 9 | 6 | 5 | 6 | 7 | 5 | 0 | 1 | 2 | 2 |
| 1987 | 1 | 2 | 1 | 3 | 2 | 4 | 1 | 1 | 5 | 3 | 5 | 2 | 5 | 12 | 3 | 3 | 3 | 1 | 0 |
| 1988 | 4 | 4 | 3 | 5 | 15 | 5 | 8 | 7 | 7 | 3 | 6 | 5 | 9 | 7 | 6 | 3 | 1 | 2 | 0 |
| 1989 | 0 | 0 | 4 | 9 | 3 | 9 | 4 | 9 | 5 | 3 | 7 | 7 | 3 | 2 | 4 | 0 | 1 | 2 | 3 |
| 1990 | 0 | 1 | 1 | 0 | 3 | 2 | 0 | 0 | 5 | 1 | 3 | 2 | 0 | 2 | 4 | 1 | 1 | 0 | 1 |
| 1991 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 3 | 3 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 1 |
| 1992 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 6 | 2 | 0 | 0 | 3 | 0 | 2 | 1 | 1 | 2 |
| 1993 | 0 | 3 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 3 | 2 | 0 | 1 | 3 | 1 | 0 | 1 |
| 1994 | 0 | 0 | 0 | 0 | 2 | 3 | 1 | 2 | 0 | 1 | 1 | 4 | 1 | 2 | 2 | 1 | 2 | 1 | 1 |
| 1995 | 1 | 0 | 1 | 1 | 1 | 2 | 0 | 2 | 0 | 1 | 0 | 2 | 2 | 3 | 0 | 0 | 3 | 0 | 0 |
| 1996 | 0 | 1 | 0 | 0 | 2 | 3 | 0 | 1 | 0 | 2 | 0 | 2 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| 1997 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 4 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 1 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 0 |
| 1999 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 3 | 1 |
| 2000 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 3 | 1 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 |
| 2003 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 2 |
| 2004 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 0 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Underground
Total Releases

| Issue Yr | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 3 | 1 | 1 | 4 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 1 | 0 | 4 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 |
| 1980 | 2 | 4 | 2 | 4 | 4 | 1 | 7 | 3 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1981 | 4 | 12 | 5 | 5 | 5 | 5 | 0 | 3 | 4 | 0 | 2 | 0 | 1 | 0 | 4 | 0 | 1 | 0 | 0 | 0 |
| 1982 | 5 | 1 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| 1983 | 2 | 3 | 2 | 4 | 5 | 3 | 7 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 1984 | 4 | 0 | 0 | 2 | 4 | 2 | 1 | 0 | 2 | 1 | 3 | 0 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 0 |
| 1985 | 0 | 0 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 1986 | 1 | 1 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 1 | 4 | 2 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 2 | 1 | 0 | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1989 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1991 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 1 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1994 | 2 | 1 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1996 | 2 | 0 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | | | | | | | | | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | | | | | | | | | |
| 2009 | | | | | | | | | | | | | | | | | | | | |
| 2010 | | | | | | | | | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Underground
Total Forfeitures

| Issue Yr | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|----------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 1 | 2 | 1 | 1 | 2 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 1 | 3 | 5 | 3 | 5 | 3 | 5 | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 1 | 1 | 1 |
| 1979 | 0 | 0 | 5 | 1 | 1 | 2 | 3 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1980 | 0 | 0 | 0 | 1 | 7 | 7 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| 1981 | 0 | 0 | 1 | 2 | 5 | 4 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 3 | 2 | 3 | 1 | 1 |
| 1982 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 1 | 1 | 0 | 1 |
| 1983 | 0 | 2 | 1 | 4 | 4 | 3 | 1 | 2 | 1 | 6 | 2 | 6 | 5 | 5 | 2 | 0 | 2 | 3 | 1 |
| 1984 | 0 | 3 | 3 | 4 | 9 | 3 | 5 | 1 | 1 | 3 | 2 | 4 | 1 | 3 | 2 | 0 | 0 | 1 | 0 |
| 1985 | 0 | 0 | 3 | 0 | 3 | 4 | 2 | 1 | 2 | 0 | 3 | 1 | 3 | 0 | 0 | 2 | 1 | 0 | 1 |
| 1986 | 0 | 0 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | 3 | 2 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |
| 1987 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 3 | 3 | 2 | 1 | 2 | 0 | 3 | 2 | 0 | 1 | 0 | 0 |
| 1988 | 0 | 1 | 4 | 2 | 2 | 8 | 3 | 11 | 3 | 1 | 6 | 1 | 4 | 1 | 0 | 2 | 1 | 1 | 0 |
| 1989 | 0 | 2 | 0 | 3 | 4 | 4 | 2 | 0 | 3 | 1 | 2 | 2 | 2 | 1 | 3 | 0 | 0 | 1 | 0 |
| 1990 | 0 | 1 | 1 | 1 | 1 | 0 | 2 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1991 | 0 | 3 | 1 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 0 | 0 | 6 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1994 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1996 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1997 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | | | | | |
| 2009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |

Underground
Total Forfeitures

| Issue Yr | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1981 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | | | |
| 1988 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 1989 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 1990 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 1991 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 1992 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 1993 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 1994 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 1995 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 1996 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 1997 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 1998 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 1999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
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| 2021 | | | | | | | | | | | | | | | | | | | | |

Underground
Total Forfeitures

| Issue Yr | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1981 | 0 | 1 | | | | | | | | | | | | | | | | | | |
| 1982 | 0 | | | | | | | | | | | | | | | | | | | |
| 1983 | | | | | | | | | | | | | | | | | | | | |
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| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Underground
Misc Terminations

| Issue Yr | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|----------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1989 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1991 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1994 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Underground
Percent Forfeited

| Issue Year | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|-----------------|-------|-------|--------|-------|-------|-------|--------|-------|--------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 0.00% | 2.78% | 5.71% | 3.03% | 3.13% | 6.67% | 0.00% | 10.71% | 5.26% | 0.00% | 0.00% | 0.00% | 0.00% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 0.00% | 0.97% | 2.94% | 5.05% | 3.19% | 5.49% | 3.49% | 6.67% | 5.45% | 2.04% | 0.00% | 0.00% | 2.63% | 2.86% | 0.00% | 6.25% | 3.45% | 3.57% | 3.85% |
| 1979 | 0.00% | 0.00% | 7.14% | 1.54% | 1.56% | 3.17% | 5.17% | 8.51% | 0.00% | 0.00% | 2.78% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.13% |
| 1980 | 0.00% | 0.00% | 0.00% | 0.93% | 6.60% | 7.61% | 3.85% | 2.78% | 0.00% | 0.00% | 0.00% | 0.00% | 1.69% | 0.00% | 1.79% | 1.89% | 0.00% | 2.22% | 0.00% |
| 1981 | 0.00% | 0.00% | 0.56% | 1.13% | 2.91% | 2.55% | 0.00% | 0.00% | 0.00% | 0.72% | 0.00% | 0.75% | 0.76% | 0.78% | 2.36% | 1.61% | 2.65% | 1.01% | 1.11% |
| 1982 | 0.00% | 0.00% | 0.00% | 1.00% | 1.03% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.60% | 2.70% | 5.80% | 1.85% | 2.27% | 0.00% | 2.94% |
| 1983 | 0.00% | 0.65% | 0.33% | 1.40% | 1.45% | 1.17% | 0.43% | 0.91% | 0.47% | 2.94% | 1.08% | 3.49% | 3.07% | 3.33% | 1.49% | 0.00% | 1.69% | 2.78% | 1.05% |
| 1984 | 0.00% | 1.57% | 1.60% | 2.21% | 5.26% | 1.97% | 3.82% | 0.81% | 0.84% | 2.68% | 1.89% | 4.04% | 1.11% | 3.41% | 2.60% | 0.00% | 0.00% | 1.82% | 0.00% |
| 1985 | 0.00% | 0.00% | 3.45% | 0.00% | 3.85% | 5.56% | 3.03% | 1.64% | 3.33% | 0.00% | 5.26% | 2.04% | 7.14% | 0.00% | 0.00% | 6.25% | 3.57% | 0.00% | 4.35% |
| 1986 | 0.00% | 0.00% | 3.16% | 1.11% | 1.15% | 1.19% | 1.23% | 1.28% | 1.32% | 5.41% | 4.35% | 3.51% | 0.00% | 0.00% | 2.63% | 3.33% | 0.00% | 4.17% | 0.00% |
| 1987 | 0.00% | 0.93% | 1.92% | 1.98% | 0.00% | 1.06% | 0.00% | 3.41% | 3.57% | 2.63% | 1.41% | 3.08% | 0.00% | 5.36% | 4.88% | 0.00% | 3.03% | 0.00% | 0.00% |
| 1988 | 0.00% | 0.57% | 2.35% | 1.23% | 1.28% | 5.76% | 2.38% | 9.57% | 3.09% | 1.15% | 7.23% | 1.41% | 6.15% | 1.92% | 0.00% | 5.26% | 3.03% | 3.23% | 0.00% |
| 1989 | 0.00% | 1.54% | 0.00% | 2.42% | 3.57% | 3.81% | 2.17% | 0.00% | 3.90% | 1.45% | 3.08% | 3.57% | 4.26% | 2.38% | 7.69% | 0.00% | 0.00% | 3.23% | 0.00% |
| 1990 | 0.00% | 1.92% | 2.00% | 2.08% | 2.13% | 0.00% | 4.88% | 2.56% | 2.63% | 0.00% | 3.23% | 0.00% | 4.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1991 | 0.00% | 6.38% | 2.33% | 0.00% | 4.88% | 0.00% | 10.81% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1992 | 0.00% | 0.00% | 0.00% | 6.12% | 0.00% | 2.22% | 0.00% | 2.33% | 0.00% | 0.00% | 2.86% | 3.13% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1993 | 0.00% | 0.00% | 11.32% | 0.00% | 2.22% | 2.38% | 0.00% | 0.00% | 2.56% | 0.00% | 2.70% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1994 | 0.00% | 1.79% | 1.82% | 0.00% | 1.85% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1995 | 0.00% | 0.00% | 2.33% | 0.00% | 2.50% | 0.00% | 2.78% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1996 | 0.00% | 0.00% | 0.00% | 0.00% | 4.55% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.94% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.70% |
| 1997 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.44% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1998 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.94% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1999 | 0.00% | 0.00% | 0.00% | 0.00% | 2.94% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2000 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2001 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.56% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2002 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2003 | 0.00% | 0.00% | 3.23% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2004 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2005 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2006 | 0.00% | 0.00% | 0.00% | 5.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 6.25% | | | |
| 2007 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 6.67% | 0.00% | | | |
| 2008 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2009 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2010 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2011 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2012 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2013 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2014 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2015 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2016 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2017 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2018 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2019 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2020 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2021 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Wtd Avg | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 1.30% | 0.00% | 1.20% | 0.00% | 0.00% | 0.00% |
| 10 Yr | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.53% | 0.00% | 0.49% | 0.00% | 0.00% | 0.46% | 0.00% |
| 15 Yr | 0.00% | 0.00% | 0.00% | 0.40% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.33% | 0.00% | 0.62% | 0.00% | 0.29% | 0.29% | 0.29% | 0.00% | 0.00% | 0.30% |
| All Yr | 0.00% | 0.59% | 1.54% | 1.37% | 2.16% | 2.13% | 1.64% | 1.69% | 1.24% | 1.32% | 1.46% | 1.52% | 1.48% | 1.51% | 1.65% | 1.13% | 1.14% | 1.03% | 0.99% |
| All Avg Rolling | 0.00% | 0.07% | 0.18% | 0.33% | 0.46% | 0.51% | 0.49% | 0.45% | 0.38% | 0.38% | 0.36% | 0.44% | 0.42% | 0.60% | 0.59% | 0.72% | 0.52% | 0.44% | 0.33% |
| Linear Smoothed | 0.00% | 0.15% | 0.22% | 0.29% | 0.36% | 0.42% | 0.49% | 0.41% | 0.41% | 0.41% | 0.41% | 0.40% | 0.40% | 0.40% | 0.39% | 0.39% | 0.39% | 0.38% | 0.38% |
| Prior Sel | 0.00% | 0.47% | 0 | | | | | | | | | | | | | | | | |

Underground
Percent Forfeited

| Issue Year | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1979 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1980 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1981 | 0.00% | 3.33% | | | | | | | | | | | | | | | | | | |
| 1982 | 0.00% | | | | | | | | | | | | | | | | | | | |
| 1983 | | | | | | | | | | | | | | | | | | | | |
| 1984 | | | | | | | | | | | | | | | | | | | | |
| 1985 | | | | | | | | | | | | | | | | | | | | |
| 1986 | | | | | | | | | | | | | | | | | | | | |
| 1987 | | | | | | | | | | | | | | | | | | | | |
| 1988 | | | | | | | | | | | | | | | | | | | | |
| 1989 | | | | | | | | | | | | | | | | | | | | |
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| 2001 | | | | | | | | | | | | | | | | | | | | |
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| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |
| Wtd Avg | | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 0.00% | 1.72% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 10 Yr | 0.00% | 1.69% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 Yr | 0.00% | 1.69% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Yr | 0.00% | 1.69% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Avg Rolling | 0.00% | 0.57% | 0.57% | 0.57% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Linear Smoothed | 0.31% | 0.31% | 0.31% | 0.30% | 0.30% | 0.30% | 0.29% | 0.29% | 0.29% | 0.28% | 0.28% | 0.28% | 0.28% | 0.27% | 0.27% | 0.27% | 0.26% | 0.26% | 0.26% | 0.25% |
| Prior Sel | 0.24% | 0.23% | 0.23% | 0.22% | 0.22% | 0.21% | 0.21% | 0.20% | 0.19% | 0.19% | 0.18% | 0.18% | 0.17% | 0.16% | 0.16% | 0.15% | 0.15% | 0.14% | | |
| Selected | 0.31% | 0.31% | 0.31% | 0.30% | 0.30% | 0.30% | 0.29% | 0.29% | 0.29% | 0.28% | 0.28% | 0.28% | 0.28% | 0.27% | 0.27% | 0.27% | 0.26% | 0.26% | 0.26% | 0.25% |
| Active | 0.19% | 0.19% | 0.18% | 0.18% | 0.18% | 0.18% | 0.18% | 0.17% | 0.17% | 0.17% | 0.17% | 0.17% | 0.17% | 0.16% | 0.16% | 0.16% | 0.16% | 0.16% | 0.15% | 0.15% |
| Inactive | 0.42% | 0.42% | 0.41% | 0.41% | 0.41% | 0.40% | 0.40% | 0.39% | 0.39% | 0.38% | 0.38% | 0.38% | 0.38% | 0.37% | 0.37% | 0.36% | 0.36% | 0.35% | 0.35% | 0.34% |
| Phased Release | 0.74% | 0.73% | 0.72% | 0.71% | 0.71% | 0.70% | 0.69% | 0.68% | 0.68% | 0.67% | 0.66% | 0.65% | 0.65% | 0.64% | 0.63% | 0.62% | 0.62% | 0.61% | 0.60% | 0.59% |

Underground
Percent Released

| Issue Year | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|-----------------|-------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 50.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 50.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.13% | 0.00% | 0.00% | 21.43% | 10.53% | 12.50% | 0.00% | 21.43% | 0.00% | 9.09% | 0.00% | 11.11% | 0.00% | 0.00% |
| 1978 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 9.30% | 0.00% | 0.00% | 14.29% | 7.32% | 0.00% | 5.26% | 5.71% | 0.00% | 3.13% | 0.00% | 3.57% | 3.85% |
| 1979 | 0.00% | 1.41% | 0.00% | 0.00% | 0.00% | 4.76% | 13.79% | 6.38% | 10.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.86% | 0.00% | 2.94% | 3.03% | 6.25% |
| 1980 | 0.00% | 0.00% | 0.00% | 0.00% | 6.60% | 7.61% | 3.85% | 4.17% | 2.99% | 6.15% | 1.64% | 0.00% | 1.67% | 1.69% | 1.75% | 3.57% | 11.32% | 2.17% | 4.44% |
| 1981 | 0.00% | 0.00% | 0.00% | 1.69% | 5.81% | 2.55% | 0.67% | 4.05% | 2.82% | 0.72% | 2.21% | 0.75% | 0.76% | 0.78% | 0.00% | 7.26% | 9.73% | 8.08% | 6.67% |
| 1982 | 0.00% | 0.00% | 1.96% | 2.00% | 3.09% | 3.23% | 4.44% | 2.33% | 1.19% | 1.20% | 4.88% | 1.28% | 1.30% | 4.05% | 15.94% | 16.67% | 15.91% | 5.56% | 11.76% |
| 1983 | 0.00% | 0.33% | 5.28% | 2.10% | 5.80% | 8.20% | 5.17% | 1.37% | 4.21% | 6.37% | 5.95% | 1.74% | 4.91% | 7.33% | 4.48% | 6.35% | 6.78% | 9.26% | 10.53% |
| 1984 | 0.00% | 0.52% | 1.60% | 3.31% | 5.85% | 11.84% | 1.53% | 3.23% | 5.04% | 2.68% | 4.72% | 5.05% | 1.11% | 9.09% | 2.60% | 20.55% | 5.17% | 14.55% | 0.00% |
| 1985 | 0.00% | 3.33% | 1.15% | 6.02% | 3.85% | 2.78% | 4.55% | 0.00% | 0.00% | 1.72% | 8.77% | 12.24% | 11.90% | 0.00% | 5.88% | 6.25% | 7.14% | 8.00% | 13.04% |
| 1986 | 0.00% | 1.04% | 2.11% | 2.22% | 2.30% | 2.38% | 2.47% | 1.28% | 1.32% | 1.35% | 13.04% | 10.53% | 10.20% | 13.64% | 18.42% | 16.67% | 0.00% | 4.17% | 9.09% |
| 1987 | 0.93% | 1.87% | 0.96% | 2.97% | 2.08% | 4.26% | 1.12% | 1.14% | 5.95% | 3.95% | 7.04% | 3.08% | 8.20% | 21.43% | 7.32% | 8.33% | 9.09% | 3.45% | 0.00% |
| 1988 | 2.29% | 2.29% | 1.76% | 3.07% | 9.62% | 3.60% | 6.35% | 6.09% | 7.22% | 3.45% | 7.23% | 7.04% | 13.85% | 13.46% | 13.64% | 7.89% | 3.03% | 6.45% | 0.00% |
| 1989 | 0.00% | 0.00% | 3.13% | 7.26% | 2.68% | 8.57% | 4.35% | 10.47% | 6.49% | 4.35% | 10.77% | 12.50% | 6.38% | 4.76% | 10.26% | 0.00% | 3.13% | 6.45% | 10.71% |
| 1990 | 0.00% | 1.92% | 2.00% | 0.00% | 6.38% | 4.65% | 0.00% | 0.00% | 13.16% | 3.13% | 9.68% | 7.41% | 0.00% | 8.33% | 18.18% | 5.56% | 5.88% | 0.00% | 6.25% |
| 1991 | 0.00% | 2.13% | 2.33% | 0.00% | 4.88% | 0.00% | 5.41% | 0.00% | 0.00% | 9.68% | 10.71% | 0.00% | 16.00% | 4.76% | 5.00% | 0.00% | 0.00% | 0.00% | 5.26% |
| 1992 | 0.00% | 0.00% | 0.00% | 2.04% | 0.00% | 0.00% | 2.27% | 0.00% | 2.38% | 14.63% | 5.71% | 0.00% | 0.00% | 9.68% | 0.00% | 7.14% | 3.85% | 4.00% | 8.33% |
| 1993 | 0.00% | 5.36% | 1.89% | 2.17% | 2.22% | 2.38% | 2.50% | 0.00% | 2.56% | 0.00% | 2.70% | 8.57% | 6.25% | 0.00% | 3.33% | 10.34% | 3.85% | 0.00% | 4.00% |
| 1994 | 0.00% | 0.00% | 0.00% | 0.00% | 3.70% | 5.88% | 2.08% | 4.26% | 0.00% | 2.22% | 2.27% | 9.30% | 2.56% | 5.26% | 5.56% | 2.94% | 6.06% | 3.23% | 3.33% |
| 1995 | 2.33% | 0.00% | 2.33% | 2.44% | 2.50% | 5.26% | 0.00% | 5.71% | 0.00% | 3.03% | 0.00% | 6.25% | 6.67% | 10.71% | 0.00% | 0.00% | 12.50% | 0.00% | 0.00% |
| 1996 | 0.00% | 2.22% | 0.00% | 0.00% | 4.55% | 7.50% | 0.00% | 2.70% | 0.00% | 5.56% | 0.00% | 5.88% | 3.23% | 3.33% | 0.00% | 3.45% | 3.57% | 3.00% | 3.70% |
| 1997 | 0.00% | 2.33% | 0.00% | 0.00% | 2.38% | 0.00% | 4.88% | 2.63% | 0.00% | 0.00% | 10.81% | 3.03% | 3.13% | 0.00% | 6.45% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1998 | 0.00% | 0.00% | 0.00% | 0.00% | 8.11% | 2.94% | 6.25% | 3.33% | 0.00% | 3.45% | 10.71% | 0.00% | 4.17% | 0.00% | 4.35% | 13.64% | 0.00% | 0.00% | 0.00% |
| 1999 | 0.00% | 0.00% | 2.86% | 0.00% | 0.00% | 6.06% | 0.00% | 0.00% | 0.00% | 0.00% | 3.23% | 3.33% | 0.00% | 0.00% | 3.45% | 3.57% | 11.11% | 4.17% | 0.00% |
| 2000 | 0.00% | 0.00% | 0.00% | 0.00% | 3.23% | 0.00% | 0.00% | 10.00% | 0.00% | 0.00% | 3.70% | 3.85% | 0.00% | 4.00% | 0.00% | 4.17% | 13.04% | 5.00% | 0.00% |
| 2001 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 10.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.88% | 0.00% | 0.00% | 0.00% | 25.00% | 0.00% | 0.00% | 0.00% |
| 2002 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 8.00% | 0.00% | 0.00% | 8.70% | 0.00% | 9.52% | 0.00% | 5.26% | 0.00% | 5.56% | 11.76% | 0.00% | 6.67% | 14.29% |
| 2003 | 0.00% | 0.00% | 0.00% | 0.00% | 3.33% | 3.45% | 0.00% | 0.00% | 7.14% | 0.00% | 3.85% | 4.00% | 0.00% | 4.17% | 0.00% | 4.35% | 0.00% | 0.00% | 9.09% |
| 2004 | 0.00% | 4.35% | 4.55% | 0.00% | 9.52% | 0.00% | 0.00% | 5.26% | 0.00% | 11.11% | 6.25% | 0.00% | 0.00% | 0.00% | 13.33% | 0.00% | 7.69% | 0.00% | 0.00% |
| 2005 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.56% | 0.00% | 0.00% | 5.88% | 6.25% | 0.00% | 0.00% | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2006 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.26% | 0.00% | 0.00% | 0.00% | 0.00% | 5.56% | 0.00% | 5.88% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2007 | 0.00% | 0.00% | 0.00% | 0.00% | 4.76% | 0.00% | 0.00% | 0.00% | 5.00% | 0.00% | 21.05% | 0.00% | 0.00% | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2008 | 0.00% | 0.00% | 14.29% | 0.00% | 5.56% | 5.88% | 0.00% | 0.00% | 0.00% | 6.25% | 0.00% | 0.00% | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2009 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 10.53% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2010 | 0.00% | 0.00% | 0.00% | 7.69% | 0.00% | 0.00% | 8.33% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2011 | 0.00% | 0.00% | 5.88% | 0.00% | 0.00% | 0.00% | 6.25% | 0.00% | 0.00% | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2012 | 0.00% | 0.00% | 11.76% | 6.67% | 7.14% | 23.08% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2013 | 0.00% | 5.26% | 0.00% | 5.56% | 0.00% | 0.00% | 0.00% | 0.00% | 5.88% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2014 | 0.00% | 0.00% | 0.00% | 17.24% | 4.17% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2015 | 0.00% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2016 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2017 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2018 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2019 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2020 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2021 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Wtd Avg | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 0.00% | 0.00% | 0.00% | 8.93% | 1.59% | 5.88% | 1.35% | 2.30% | 3.70% | 1.28% | 5.81% | 1.18% | 0.00% | 3.90% | 2.41% | 3.61% | 6.25% | 4.76% | 6.52% |
| 10 Yr | 0.00% | 1.65% | 2.22% | 6.00% | 1.95% | 3.05% | 2.33% | 1.13% | 2.94% | 2.29% | 4.95% | 1.70% | 0.56% | 2.65% | 1.55% | 2.45% | 5.21% | 3.38% | 3.67% |
| 15 Yr | 0.00% | 0.88% | 2.60% | 3.63% | 2.66% | 3.28% | 2.15% | 2.03% | 3.03% | 1.66% | 5.59% | 2.47% | 1.54% | 3.53% | 2.33% | 3.45% | 5.31% | 2.79% | 4.85% |
| All Yr | 0.24% | 0.91% | 1.83% | 2.20% | 4.06% | 4.72% | 3.53% | 3.53% | 3.89% | 3.66% | 5.71% | 3.80% | 4.15% | 5.64% | 4.94% | 6.67% | 6.52% | 5.47% | 5.69% |
| All Avg Rolling | 0.24% | 0.46% | 0.86% | 2.57% | 3.14% | 4.00% | 3.05% | 2.94% | 2.66% | 2.62% | 3.71% | 3.34% | 3.12% | 2.59% | 2.77% | 3.59% | 4.23% | 4.66% | 5.03% |
| Linear Smoothed | 1.39% | 1.55% | 1.72% | 1.89% | 2.05% | 2.22% | 2.39% | 2.56% | 2.72% | 2.89% | 3.06% | 3.23% | 3.39% | | | | | | |

Underground
Percent Released

| Issue Year | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|------------|--------|--------|--------|--------|--------|--------|---------|--------|-------|-------|--------|--------|--------|--------|--------|-------|--------|-------|--------|--------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 12.50% | 14.29% | 16.67% | 0.00% | 20.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 25.00% | 33.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 12.50% | 4.76% | 5.00% | 21.05% | 6.67% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 10.00% | 0.00% | 11.11% | 0.00% | 12.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1979 | 0.00% | 3.57% | 0.00% | 16.00% | 0.00% | 9.52% | 0.00% | 5.26% | 0.00% | 5.66% | 5.88% | 6.25% | 0.00% | 7.14% | 15.38% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1980 | 4.76% | 10.00% | 5.56% | 11.76% | 13.33% | 3.85% | 28.00% | 16.67% | 6.67% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 9.09% | 0.00% | 0.00% |
| 1981 | 4.82% | 15.19% | 7.58% | 8.20% | 9.09% | 10.00% | 0.00% | 6.67% | 9.52% | 0.00% | 5.26% | 0.00% | 2.78% | 0.00% | 11.43% | 0.00% | 3.23% | 0.00% | 0.00% | 0.00% |
| 1982 | 17.24% | 4.17% | 0.00% | 4.35% | 14.29% | 11.11% | 0.00% | 6.25% | 0.00% | 0.00% | 7.14% | 7.69% | 0.00% | 8.33% | 9.09% | 0.00% | 0.00% | 0.00% | 10.00% | 11.11% |
| 1983 | 2.38% | 3.80% | 2.67% | 5.48% | 7.35% | 4.76% | 11.86% | 0.00% | 0.00% | 3.92% | 0.00% | 4.08% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.27% | 2.33% | 2.38% |
| 1984 | 8.70% | 0.00% | 0.00% | 4.88% | 10.53% | 5.88% | 3.13% | 0.00% | 6.67% | 3.57% | 11.11% | 0.00% | 4.17% | 4.35% | 0.00% | 9.09% | 0.00% | 5.00% | 0.00% | 0.00% |
| 1985 | 0.00% | 0.00% | 5.26% | 11.76% | 13.33% | 15.38% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 10.00% | 11.11% | 0.00% | 12.50% | 0.00% | 0.00% | 0.00% |
| 1986 | 5.00% | 5.26% | 0.00% | 6.67% | 14.29% | 16.67% | 0.00% | 10.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1987 | 3.57% | 15.38% | 9.09% | 15.00% | 0.00% | 0.00% | 6.25% | 0.00% | 0.00% | 0.00% | 13.33% | 7.69% | 8.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1988 | 7.14% | 3.85% | 0.00% | 0.00% | 4.17% | 4.35% | 9.09% | 5.00% | 0.00% | 0.00% | 0.00% | 5.56% | 0.00% | 5.88% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1989 | 0.00% | 8.00% | 8.70% | 0.00% | 4.76% | 5.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.26% | 0.00% | 0.00% | 5.56% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1990 | 13.33% | 0.00% | 0.00% | 7.69% | 0.00% | 8.33% | 0.00% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1991 | 0.00% | 5.88% | 12.50% | 0.00% | 0.00% | 0.00% | 0.00% | 7.14% | 7.69% | 0.00% | 0.00% | 18.18% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1992 | 0.00% | 0.00% | 4.55% | 0.00% | 4.76% | 5.26% | 5.56% | 5.88% | 0.00% | 6.25% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1993 | 4.17% | 17.39% | 0.00% | 0.00% | 0.00% | 0.00% | 5.26% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1994 | 6.90% | 3.70% | 3.85% | 0.00% | 0.00% | 29.17% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1995 | 4.76% | 0.00% | 0.00% | 0.00% | 5.00% | 5.26% | 0.00% | 5.56% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1996 | 8.00% | 0.00% | 0.00% | 13.04% | 10.00% | 0.00% | 0.00% | 5.56% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1997 | 0.00% | 3.45% | 3.57% | 3.70% | 0.00% | 3.85% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1998 | 5.26% | 5.56% | 5.88% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1999 | 0.00% | 8.70% | 4.76% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2000 | 0.00% | 0.00% | 5.26% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2001 | 8.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2002 | 16.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2003 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2004 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2005 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2006 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2007 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2008 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2009 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2010 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2011 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2012 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2013 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2014 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2015 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2016 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2017 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2018 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2019 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2020 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2021 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Wtd Avg | | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 4.71% | 4.00% | 6.48% | 2.91% | 0.96% | 8.49% | 3.33% | 3.57% | 1.35% | 1.33% | 1.37% | 5.71% | 1.52% | 4.62% | 1.49% | 2.15% | 1.10% | 1.80% | 1.79% | 1.98% |
| 10 Yr | 4.69% | 4.19% | 5.21% | 1.55% | 2.09% | 6.22% | 4.07% | 3.16% | 0.68% | 1.28% | 3.28% | 4.00% | 1.56% | 2.62% | 4.40% | 1.84% | 1.32% | 2.11% | 1.52% | 1.80% |
| 15 Yr | 4.36% | 5.28% | 5.18% | 3.08% | 4.36% | 6.34% | 5.00% | 2.88% | 2.67% | 1.71% | 3.99% | 4.33% | | | | | | | | |

Underground
Percent Released

| Issue Year | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|-----------------|--------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 0.00% | 50.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1979 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1980 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1981 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1982 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
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| Wtd Avg | | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 1.54% | 0.00% | 3.45% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 10 Yr | 1.47% | 0.00% | 3.45% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 Yr | 1.47% | 0.00% | 3.45% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Yr | 1.47% | 0.00% | 3.45% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Avg Rolling | 1.64% | 1.11% | 1.65% | 1.15% | 1.15% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Linear Smoothed | 1.55% | 1.38% | 1.20% | 1.03% | 0.85% | 0.68% | 0.50% | 0.33% | 0.15% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Prior Sel | 2.26% | 2.15% | 2.03% | 1.91% | 1.79% | 1.67% | 1.55% | 1.43% | 1.31% | 1.19% | 1.07% | 0.95% | 0.83% | 0.72% | 0.60% | 0.48% | 0.36% | 0.24% | | |
| Selected | 1.55% | 1.38% | 1.20% | 1.03% | 0.85% | 0.68% | 0.50% | 0.33% | 0.15% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Active | 1.24% | 1.10% | 0.96% | 0.82% | 0.68% | 0.54% | 0.40% | 0.26% | 0.12% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Inactive | 0.78% | 0.69% | 0.60% | 0.51% | 0.43% | 0.34% | 0.25% | 0.16% | 0.08% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Phased Release | 3.72% | 3.30% | 2.88% | 2.46% | 2.04% | 1.62% | 1.20% | 0.78% | 0.36% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |

Other
Total Permits

| Issue Yr | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1969 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1970 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1971 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1972 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 |
| 1973 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 5 | 5 | 5 | 5 | 5 | 4 | 4 |
| 1974 | 16 | 16 | 16 | 14 | 14 | 14 | 13 | 13 | 13 | 13 | 11 | 8 | 7 | 7 | 6 | 5 | 5 | 5 | 4 |
| 1975 | 26 | 26 | 25 | 24 | 24 | 24 | 23 | 23 | 23 | 19 | 13 | 12 | 6 | 5 | 4 | 4 | 4 | 4 | 4 |
| 1976 | 23 | 23 | 22 | 22 | 22 | 22 | 22 | 21 | 19 | 14 | 11 | 9 | 9 | 7 | 7 | 7 | 7 | 7 | 7 |
| 1977 | 23 | 23 | 21 | 20 | 20 | 19 | 19 | 16 | 15 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 10 | 10 |
| 1978 | 25 | 23 | 22 | 17 | 17 | 17 | 16 | 12 | 11 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 9 | 9 | 9 |
| 1979 | 21 | 21 | 20 | 19 | 19 | 17 | 15 | 13 | 12 | 12 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 8 | 7 |
| 1980 | 38 | 37 | 35 | 34 | 33 | 31 | 27 | 24 | 23 | 23 | 23 | 22 | 22 | 22 | 21 | 19 | 19 | 19 | 19 |
| 1981 | 122 | 122 | 122 | 120 | 116 | 115 | 113 | 112 | 112 | 109 | 109 | 105 | 104 | 101 | 98 | 95 | 91 | 90 | 90 |
| 1982 | 70 | 69 | 65 | 62 | 61 | 57 | 56 | 53 | 50 | 46 | 45 | 41 | 39 | 34 | 31 | 29 | 28 | 23 | 23 |
| 1983 | 220 | 215 | 208 | 198 | 181 | 167 | 161 | 159 | 156 | 144 | 136 | 119 | 113 | 110 | 101 | 97 | 96 | 89 | 83 |
| 1984 | 133 | 131 | 124 | 117 | 112 | 104 | 101 | 99 | 95 | 90 | 79 | 77 | 74 | 69 | 65 | 64 | 58 | 57 | 53 |
| 1985 | 78 | 77 | 71 | 67 | 65 | 62 | 62 | 57 | 49 | 46 | 38 | 37 | 33 | 32 | 31 | 27 | 26 | 24 | 24 |
| 1986 | 80 | 73 | 67 | 64 | 62 | 60 | 51 | 44 | 37 | 33 | 31 | 28 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| 1987 | 89 | 83 | 78 | 71 | 67 | 54 | 44 | 38 | 31 | 26 | 21 | 19 | 18 | 16 | 16 | 16 | 16 | 16 | 16 |
| 1988 | 124 | 117 | 111 | 108 | 95 | 74 | 60 | 43 | 35 | 35 | 29 | 24 | 22 | 20 | 18 | 16 | 16 | 15 | 15 |
| 1989 | 137 | 130 | 127 | 103 | 79 | 61 | 45 | 31 | 29 | 27 | 24 | 20 | 19 | 17 | 14 | 14 | 14 | 14 | 14 |
| 1990 | 148 | 143 | 102 | 66 | 40 | 20 | 13 | 12 | 11 | 11 | 11 | 10 | 10 | 10 | 10 | 9 | 9 | 8 | 8 |
| 1991 | 199 | 159 | 104 | 67 | 41 | 24 | 23 | 19 | 17 | 17 | 17 | 16 | 16 | 15 | 14 | 14 | 11 | 11 | 11 |
| 1992 | 170 | 131 | 98 | 57 | 38 | 33 | 25 | 25 | 22 | 22 | 21 | 20 | 20 | 20 | 19 | 19 | 17 | 17 | 17 |
| 1993 | 169 | 146 | 91 | 49 | 39 | 34 | 29 | 27 | 27 | 24 | 23 | 23 | 21 | 20 | 19 | 19 | 19 | 17 | 16 |
| 1994 | 114 | 83 | 48 | 33 | 27 | 23 | 22 | 22 | 21 | 20 | 20 | 20 | 19 | 18 | 18 | 18 | 16 | 16 | 16 |
| 1995 | 150 | 118 | 65 | 38 | 22 | 15 | 15 | 13 | 13 | 13 | 13 | 12 | 11 | 11 | 11 | 10 | 10 | 10 | 10 |
| 1996 | 130 | 86 | 53 | 27 | 17 | 9 | 9 | 9 | 8 | 8 | 6 | 6 | 5 | 5 | 5 | 4 | 4 | 4 | 4 |
| 1997 | 162 | 129 | 82 | 50 | 34 | 31 | 30 | 25 | 20 | 19 | 19 | 19 | 18 | 18 | 16 | 15 | 15 | 15 | 15 |
| 1998 | 161 | 111 | 58 | 32 | 18 | 16 | 11 | 10 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 5 |
| 1999 | 140 | 110 | 68 | 45 | 33 | 19 | 14 | 8 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 6 |
| 2000 | 117 | 94 | 66 | 38 | 23 | 15 | 11 | 9 | 7 | 5 | 5 | 5 | 4 | 3 | 3 | 3 | 3 | 3 | 3 |
| 2001 | 125 | 91 | 66 | 35 | 23 | 17 | 13 | 9 | 8 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 6 | 6 |
| 2002 | 110 | 96 | 57 | 37 | 24 | 20 | 14 | 12 | 11 | 11 | 10 | 9 | 9 | 9 | 9 | 8 | 8 | 8 | 8 |
| 2003 | 80 | 65 | 47 | 24 | 18 | 10 | 9 | 9 | 9 | 8 | 8 | 8 | 7 | 7 | 7 | 6 | 6 | 5 | 5 |
| 2004 | 126 | 98 | 75 | 35 | 19 | 13 | 13 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 8 | 8 | 8 | 8 | 8 |
| 2005 | 128 | 115 | 69 | 30 | 19 | 13 | 10 | 8 | 5 | 5 | 5 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 2006 | 198 | 166 | 86 | 30 | 22 | 19 | 12 | 10 | 10 | 9 | 9 | 8 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 2007 | 183 | 139 | 80 | 41 | 28 | 18 | 13 | 9 | 9 | 9 | 9 | 7 | 6 | 6 | 5 | | | | |
| 2008 | 191 | 161 | 102 | 49 | 27 | 17 | 14 | 13 | 12 | 11 | 11 | 10 | 10 | 10 | | | | | |
| 2009 | 176 | 140 | 79 | 41 | 20 | 12 | 11 | 10 | 9 | 8 | 7 | 7 | 6 | | | | | | |
| 2010 | 143 | 124 | 63 | 32 | 23 | 20 | 16 | 13 | 13 | 11 | 9 | 9 | | | | | | | |
| 2011 | 170 | 156 | 95 | 44 | 31 | 17 | 13 | 7 | 4 | 3 | 3 | | | | | | | | |
| 2012 | 162 | 141 | 75 | 46 | 31 | 26 | 17 | 13 | 8 | 8 | | | | | | | | | |
| 2013 | 132 | 107 | 72 | 40 | 32 | 22 | 21 | 20 | 18 | | | | | | | | | | |
| 2014 | 84 | 67 | 34 | 23 | 14 | 10 | 8 | 8 | | | | | | | | | | | |
| 2015 | 67 | 52 | 33 | 17 | 11 | 10 | 10 | | | | | | | | | | | | |
| 2016 | 30 | 24 | 14 | 9 | 8 | 6 | | | | | | | | | | | | | |
| 2017 | 43 | 37 | 17 | 9 | 7 | | | | | | | | | | | | | | |
| 2018 | 57 | 42 | 19 | 5 | | | | | | | | | | | | | | | |
| 2019 | 62 | 47 | 18 | | | | | | | | | | | | | | | | |
| 2020 | 58 | 40 | | | | | | | | | | | | | | | | | |
| 2021 | 35 | | | | | | | | | | | | | | | | | | |

Other
Total Permits

| Issue Yr | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1969 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1973 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1974 | 4 | 4 | 4 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1975 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 |
| 1976 | 7 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 1977 | 9 | 9 | 7 | 6 | 6 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 1978 | 8 | 6 | 6 | 6 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 |
| 1979 | 7 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 1980 | 19 | 19 | 19 | 18 | 17 | 17 | 16 | 16 | 16 | 16 | 16 | 15 | 15 | 15 | 12 | 11 | 11 | 11 | 11 | 11 |
| 1981 | 87 | 82 | 80 | 76 | 74 | 71 | 68 | 68 | 67 | 67 | 65 | 64 | 64 | 62 | 61 | 60 | 59 | 58 | 58 | 57 |
| 1982 | 21 | 20 | 20 | 20 | 19 | 19 | 18 | 17 | 17 | 17 | 17 | 16 | 15 | 15 | 14 | 11 | 11 | 11 | 10 | 9 |
| 1983 | 80 | 76 | 74 | 73 | 69 | 67 | 63 | 61 | 59 | 58 | 57 | 56 | 56 | 55 | 55 | 53 | 51 | 50 | 48 | 46 |
| 1984 | 52 | 51 | 50 | 50 | 49 | 49 | 49 | 49 | 48 | 48 | 47 | 47 | 46 | 44 | 44 | 44 | 44 | 44 | 43 | |
| 1985 | 23 | 23 | 23 | 22 | 22 | 22 | 22 | 21 | 21 | 20 | 20 | 19 | 19 | 19 | 19 | 18 | 18 | 18 | | |
| 1986 | 20 | 20 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 17 | 17 | 17 | 16 | 14 | 14 | 13 | 13 | | | |
| 1987 | 16 | 15 | 15 | 14 | 13 | 13 | 13 | 13 | 13 | 12 | 12 | 12 | 12 | 11 | 10 | 9 | | | | |
| 1988 | 15 | 14 | 14 | 14 | 13 | 13 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 10 | | | | |
| 1989 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | | | | | | |
| 1990 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | | | | | | | |
| 1991 | 10 | 10 | 9 | 9 | 9 | 8 | 8 | 8 | 8 | 8 | 7 | 7 | | | | | | | | |
| 1992 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 15 | 14 | 14 | | | | | | | | |
| 1993 | 16 | 15 | 15 | 15 | 14 | 14 | 14 | 14 | 14 | 14 | | | | | | | | | | |
| 1994 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 15 | 14 | | | | | | | | | |
| 1995 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | | | | | | | | | | | | |
| 1996 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | | | | | | | | |
| 1997 | 15 | 14 | 14 | 14 | 14 | 14 | | | | | | | | | | | | | | |
| 1998 | 5 | 5 | 5 | 5 | 5 | | | | | | | | | | | | | | | |
| 1999 | 6 | 6 | 6 | 6 | | | | | | | | | | | | | | | | |
| 2000 | 3 | 3 | 3 | | | | | | | | | | | | | | | | | |
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| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Other
Total Permits

| Issue Yr | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1973 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1974 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1975 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1976 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 1977 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 1978 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1979 | 5 | 5 | 5 | 4 | | | | | | | | | | | | | | | | |
| 1980 | 11 | 10 | 9 | | | | | | | | | | | | | | | | | |
| 1981 | 53 | 51 | | | | | | | | | | | | | | | | | | |
| 1982 | 9 | | | | | | | | | | | | | | | | | | | |
| 1983 | | | | | | | | | | | | | | | | | | | | |
| 1984 | | | | | | | | | | | | | | | | | | | | |
| 1985 | | | | | | | | | | | | | | | | | | | | |
| 1986 | | | | | | | | | | | | | | | | | | | | |
| 1987 | | | | | | | | | | | | | | | | | | | | |
| 1988 | | | | | | | | | | | | | | | | | | | | |
| 1989 | | | | | | | | | | | | | | | | | | | | |
| 1990 | | | | | | | | | | | | | | | | | | | | |
| 1991 | | | | | | | | | | | | | | | | | | | | |
| 1992 | | | | | | | | | | | | | | | | | | | | |
| 1993 | | | | | | | | | | | | | | | | | | | | |
| 1994 | | | | | | | | | | | | | | | | | | | | |
| 1995 | | | | | | | | | | | | | | | | | | | | |
| 1996 | | | | | | | | | | | | | | | | | | | | |
| 1997 | | | | | | | | | | | | | | | | | | | | |
| 1998 | | | | | | | | | | | | | | | | | | | | |
| 1999 | | | | | | | | | | | | | | | | | | | | |
| 2000 | | | | | | | | | | | | | | | | | | | | |
| 2001 | | | | | | | | | | | | | | | | | | | | |
| 2002 | | | | | | | | | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | | | | | | | | | |
| 2009 | | | | | | | | | | | | | | | | | | | | |
| 2010 | | | | | | | | | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Other
Total Releases

| Issue Yr | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|----------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 1 | 5 | 1 | 1 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 3 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| 1980 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 |
| 1981 | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 1 | 0 | 0 | 3 | 0 | 4 | 0 | 1 | 1 | 3 | 4 | 1 |
| 1982 | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 1 | 2 | 0 | 4 | 0 | 1 | 2 | 3 | 3 | 1 | 1 | 3 |
| 1983 | 0 | 4 | 4 | 8 | 12 | 12 | 4 | 1 | 2 | 9 | 5 | 13 | 3 | 1 | 9 | 3 | 1 | 4 | 4 |
| 1984 | 0 | 2 | 2 | 5 | 5 | 7 | 2 | 1 | 4 | 4 | 7 | 2 | 2 | 2 | 3 | 1 | 4 | 1 | 4 |
| 1985 | 0 | 0 | 3 | 2 | 2 | 2 | 0 | 5 | 5 | 3 | 6 | 1 | 4 | 0 | 1 | 2 | 0 | 2 | 0 |
| 1986 | 0 | 2 | 2 | 2 | 0 | 2 | 7 | 5 | 5 | 3 | 2 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 2 | 5 | 4 | 3 | 11 | 7 | 6 | 6 | 4 | 4 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 2 | 5 | 4 | 3 | 12 | 19 | 9 | 17 | 7 | 0 | 5 | 5 | 1 | 1 | 2 | 1 | 0 | 1 | 0 |
| 1989 | 0 | 1 | 0 | 24 | 24 | 16 | 13 | 12 | 2 | 2 | 3 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 |
| 1990 | 0 | 2 | 40 | 33 | 23 | 19 | 7 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 1991 | 0 | 40 | 55 | 36 | 25 | 15 | 1 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 1992 | 2 | 39 | 33 | 37 | 18 | 4 | 8 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 |
| 1993 | 2 | 23 | 49 | 41 | 10 | 5 | 5 | 1 | 0 | 3 | 1 | 0 | 2 | 1 | 1 | 0 | 0 | 2 | 1 |
| 1994 | 3 | 31 | 35 | 14 | 6 | 4 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 1995 | 6 | 32 | 52 | 27 | 16 | 7 | 0 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1996 | 4 | 44 | 33 | 25 | 10 | 8 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1997 | 6 | 33 | 47 | 31 | 16 | 3 | 1 | 5 | 5 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 1998 | 12 | 50 | 53 | 25 | 13 | 2 | 3 | 1 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1999 | 15 | 30 | 42 | 23 | 12 | 13 | 5 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2000 | 4 | 23 | 28 | 27 | 15 | 8 | 4 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 6 | 34 | 25 | 31 | 11 | 4 | 4 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 2002 | 6 | 14 | 38 | 20 | 13 | 4 | 6 | 2 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 3 | 15 | 18 | 23 | 6 | 8 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 2004 | 9 | 28 | 23 | 40 | 16 | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 2005 | 6 | 13 | 45 | 39 | 11 | 6 | 3 | 2 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 6 | 32 | 80 | 55 | 8 | 3 | 7 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 8 | 44 | 59 | 39 | 13 | 10 | 4 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 4 | 29 | 59 | 52 | 22 | 9 | 3 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 5 | 36 | 61 | 38 | 20 | 8 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 4 | 19 | 61 | 31 | 9 | 3 | 4 | 3 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 1 | 14 | 61 | 51 | 13 | 14 | 4 | 6 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 21 | 66 | 29 | 15 | 5 | 9 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 3 | 25 | 35 | 32 | 8 | 10 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 3 | 17 | 33 | 11 | 9 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 3 | 15 | 19 | 16 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 2 | 6 | 10 | 5 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 3 | 6 | 20 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 1 | 15 | 23 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 4 | 15 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Other
Total Releases

| Issue Yr | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 1 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 1 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1979 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 |
| 1981 | 2 | 4 | 2 | 4 | 1 | 1 | 3 | 0 | 1 | 0 | 2 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 1982 | 2 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 1 |
| 1983 | 3 | 4 | 2 | 1 | 4 | 2 | 4 | 2 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 2 | 2 | 1 | 1 | 2 |
| 1984 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 1986 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1989 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1991 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1994 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Other
Total Releases

| Issue Yr | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1981 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
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| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Other
Total Forfeitures

| Issue Yr | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|----------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 2 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 1 | 2 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1981 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 0 |
| 1982 | 0 | 1 | 3 | 3 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 3 | 0 | 2 | 0 | 1 | 0 | 2 |
| 1983 | 0 | 1 | 3 | 2 | 5 | 2 | 2 | 1 | 1 | 3 | 3 | 4 | 3 | 2 | 0 | 1 | 0 | 3 | 2 |
| 1984 | 0 | 0 | 5 | 2 | 0 | 1 | 1 | 1 | 0 | 1 | 4 | 0 | 1 | 3 | 1 | 0 | 2 | 0 | 0 |
| 1985 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 0 |
| 1986 | 1 | 5 | 4 | 1 | 2 | 0 | 2 | 2 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 4 | 0 | 3 | 1 | 2 | 3 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 1 | 2 | 2 | 0 | 1 | 2 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 1989 | 1 | 6 | 3 | 0 | 0 | 2 | 3 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 1990 | 0 | 3 | 1 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1991 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 1992 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1994 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1995 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1996 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 2001 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2005 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 2008 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Other
Total Forfeitures

| Issue Yr | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1981 | 1 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1984 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | | | | |
| 1988 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1989 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1991 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1994 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Other
Total Forfeitures

| Issue Yr | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1963 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1981 | 1 | 2 | | | | | | | | | | | | | | | | | | |
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| 2001 | | | | | | | | | | | | | | | | | | | | |
| 2002 | | | | | | | | | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | | | | | | | | | |
| 2009 | | | | | | | | | | | | | | | | | | | | |
| 2010 | | | | | | | | | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |

Other
Percent Forfeited

| Issue Year | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|-----------------|-------|-------|-------|--------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|--------|--------|--------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 12.50% | 0.00% | 0.00% | 7.14% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 3.85% | 4.00% | 0.00% | 0.00% | 4.17% | 0.00% | 0.00% | 0.00% | 5.26% | 0.00% | 8.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 4.35% | 0.00% | 0.00% | 0.00% | 0.00% | 4.55% | 4.76% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 0.00% | 8.70% | 4.76% | 0.00% | 5.00% | 0.00% | 10.53% | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 0.00% | 8.00% | 4.35% | 22.73% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1979 | 0.00% | 0.00% | 4.76% | 5.00% | 0.00% | 5.26% | 5.88% | 6.67% | 0.00% | 0.00% | 8.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1980 | 0.00% | 2.63% | 5.41% | 2.86% | 0.00% | 0.00% | 6.45% | 0.00% | 4.17% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1981 | 0.00% | 0.00% | 0.00% | 0.00% | 2.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.95% | 1.92% | 1.98% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1982 | 0.00% | 1.43% | 4.35% | 4.62% | 0.00% | 3.28% | 0.00% | 3.57% | 1.89% | 0.00% | 0.00% | 2.17% | 6.67% | 0.00% | 5.13% | 0.00% | 3.23% | 0.00% | 7.14% |
| 1983 | 0.00% | 0.45% | 1.40% | 0.96% | 2.53% | 1.10% | 1.20% | 0.62% | 0.63% | 1.92% | 2.08% | 2.94% | 2.52% | 1.77% | 0.00% | 0.99% | 0.00% | 3.13% | 2.25% |
| 1984 | 0.00% | 0.00% | 3.82% | 1.61% | 0.00% | 0.89% | 0.96% | 0.99% | 0.00% | 1.05% | 4.44% | 0.00% | 1.30% | 4.05% | 1.45% | 0.00% | 3.13% | 0.00% | 0.00% |
| 1985 | 0.00% | 1.28% | 3.90% | 2.82% | 0.00% | 1.54% | 0.00% | 0.00% | 5.26% | 0.00% | 4.35% | 0.00% | 0.00% | 3.03% | 0.00% | 6.45% | 3.70% | 0.00% | 0.00% |
| 1986 | 1.25% | 6.25% | 5.48% | 1.49% | 3.13% | 0.00% | 3.33% | 3.92% | 4.55% | 2.70% | 0.00% | 3.23% | 7.14% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1987 | 0.00% | 4.49% | 0.00% | 3.85% | 1.41% | 2.99% | 5.56% | 0.00% | 2.63% | 3.23% | 3.85% | 0.00% | 0.00% | 5.56% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1988 | 0.81% | 1.61% | 1.71% | 0.00% | 0.93% | 2.11% | 6.76% | 0.00% | 2.33% | 0.00% | 2.86% | 0.00% | 4.17% | 4.55% | 0.00% | 5.56% | 0.00% | 0.00% | 0.00% |
| 1989 | 0.73% | 4.38% | 2.31% | 0.00% | 0.00% | 2.53% | 4.92% | 4.44% | 0.00% | 0.00% | 0.00% | 12.50% | 0.00% | 0.00% | 11.76% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1990 | 0.00% | 2.03% | 0.70% | 2.94% | 4.55% | 2.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1991 | 0.00% | 0.00% | 0.00% | 0.96% | 1.49% | 4.88% | 0.00% | 0.00% | 5.26% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 21.43% | 0.00% |
| 1992 | 0.00% | 0.00% | 0.00% | 4.08% | 1.75% | 2.63% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1993 | 0.00% | 0.00% | 4.11% | 1.10% | 0.00% | 0.00% | 0.00% | 3.45% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1994 | 0.00% | 0.00% | 0.00% | 2.08% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.76% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.56% | 0.00% |
| 1995 | 0.00% | 0.00% | 0.85% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1996 | 0.00% | 0.00% | 0.00% | 1.89% | 0.00% | 0.00% | 0.00% | 0.00% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 16.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1997 | 0.00% | 0.00% | 0.00% | 1.22% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1998 | 0.00% | 0.00% | 0.00% | 1.72% | 3.13% | 0.00% | 12.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1999 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 3.03% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2000 | 0.00% | 0.00% | 0.00% | 1.52% | 0.00% | 0.00% | 0.00% | 0.00% | 11.11% | 0.00% | 0.00% | 0.00% | 20.00% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2001 | 0.00% | 0.00% | 0.00% | 0.00% | 2.86% | 8.70% | 0.00% | 0.00% | 0.00% | 12.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2002 | 0.00% | 0.00% | 1.04% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 11.11% | 0.00% | 0.00% |
| 2003 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 10.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 12.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 16.67% |
| 2004 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 9.09% | 0.00% | 0.00% | 0.00% |
| 2005 | 0.00% | 0.00% | 0.87% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2006 | 0.00% | 0.00% | 0.00% | 1.16% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2007 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.56% | 7.69% | 0.00% | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 16.67% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2008 | 0.00% | 0.52% | 0.00% | 0.98% | 0.00% | 3.70% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2009 | 0.00% | 0.00% | 0.00% | 0.00% | 2.44% | 0.00% | 8.33% | 0.00% | 0.00% | 11.11% | 12.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2010 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 7.69% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2011 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 28.57% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2012 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 11.76% | 7.69% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2013 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.76% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2014 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2015 | 0.00% | 0.00% | 0.00% | 0.00% | 5.88% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2016 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2017 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2018 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2019 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2020 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2021 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Wtd Avg | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 0.00% | 0.00% | 0.00% | 0.00% | 1.02% | 0.00% | 0.00% | 4.00% | 4.76% | 4.35% | 2.38% | 2.22% | 2.78% | 0.00% | 2.94% | 2.70% | 2.94% | 0.00% | 3.33% |
| 10 Yr | 0.00% | 0.00% | 0.00% | 0.00% | 0.65% | 0.44% | 1.17% | 2.96% | 2.63% | 2.22% | 1.15% | 1.16% | 2.63% | 1.39% | 2.99% | 1.28% | 1.41% | 0.00% | 1.23% |
| 15 Yr | 0.00% | 0.06% | 0.12% | 0.22% | 0.43% | 0.31% | 1.23% | 2.05% | 2.48% | 2.29% | 0.75% | 0.78% | 1.59% | 1.50% | 1.44% | 0.67% | 1.32% | 2.01% | 0.68% |
| All Yr | 0.06% | 0.52% | 1.33% | 1.30% | 0.99% | 1.30% | 1.85% | 1.54% | 1.55% | 1.10% | 1.50% | 1.17% | 1.64% | 1.49% | 1.28% | 1.06% | 0.95% | 1.00% | 0.88% |
| All Avg Rolling | 0.06% | 0.08% | 0.17% | 0.29% | 0.50% | 0.55% | 0.78% | 1.40% | 2.19% | 2.66% | 2.26% | 1.76% | 1.65% | 1.53% | 1.81% | 1.56% | 1.75% | 1.28% | 1.31% |
| Linear Smoothed | 0.00% | 0.00% | 0.02% | 0.33% | 0.65% | 0.96% | 1.27% | 1.59% | 1.90% | 2.22% | 2.11% | 1.98% | 1.86% | 1.73% | 1.60% | 1.48% | 1.35% | | |

Other
Percent Forfeited

| Issue Year | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1979 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1980 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1981 | 1.75% | 3.77% | | | | | | | | | | | | | | | | | | |
| 1982 | 0.00% | | | | | | | | | | | | | | | | | | | |
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| 2021 | | | | | | | | | | | | | | | | | | | | |
| Wtd Avg | | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 1.19% | 2.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 10 Yr | 1.02% | 2.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 Yr | 1.01% | 2.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Yr | 1.01% | 2.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Avg Rolling | 0.53% | 1.16% | 1.16% | 0.80% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Linear Smoothed | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% |
| Prior Sel | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% |
| Selected | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% | 0.35% |
| Active | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% | 0.21% |
| Inactive | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% | 0.47% |
| Phased Release | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% |

Other
Percent Released

| Issue Year | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 |
|-----------------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 16.67% | 20.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 14.29% | 16.67% | 0.00% | 0.00% | 0.00% | 0.00% | 20.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 15.38% | 27.27% | 12.50% | 0.00% | 14.29% | 16.67% | 0.00% | 0.00% | 0.00% | 20.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 17.39% | 26.32% | 7.69% | 41.67% | 16.67% | 20.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.76% | 26.32% | 21.43% | 18.18% | 0.00% | 22.22% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.26% | 6.25% | 20.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 9.09% | 0.00% |
| 1978 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.88% | 25.00% | 8.33% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 10.00% | 0.00% | 0.00% |
| 1979 | 0.00% | 0.00% | 0.00% | 0.00% | 5.26% | 5.88% | 6.67% | 7.69% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 27.27% | 12.50% |
| 1980 | 0.00% | 0.00% | 0.00% | 2.94% | 6.06% | 6.45% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 4.35% | 0.00% | 0.00% | 0.00% | 4.55% | 9.52% | 0.00% | 0.00% |
| 1981 | 0.00% | 0.00% | 1.64% | 0.83% | 0.86% | 1.74% | 0.88% | 0.00% | 0.00% | 2.68% | 0.00% | 3.67% | 0.00% | 0.96% | 0.99% | 3.06% | 4.21% | 1.10% | 0.00% |
| 1982 | 0.00% | 0.00% | 1.45% | 1.61% | 3.28% | 1.75% | 1.79% | 3.77% | 0.00% | 8.00% | 0.00% | 2.22% | 4.88% | 7.69% | 8.82% | 3.23% | 3.45% | 10.71% | 0.00% |
| 1983 | 0.00% | 1.82% | 1.86% | 3.85% | 6.06% | 6.63% | 2.40% | 0.62% | 1.26% | 5.77% | 3.47% | 9.56% | 2.52% | 0.88% | 8.18% | 2.97% | 1.03% | 4.17% | 4.49% |
| 1984 | 0.00% | 1.50% | 1.53% | 4.03% | 4.27% | 6.25% | 1.92% | 0.99% | 4.04% | 4.21% | 7.78% | 2.53% | 2.60% | 2.70% | 4.35% | 1.54% | 6.25% | 1.72% | 7.02% |
| 1985 | 0.00% | 0.00% | 3.90% | 2.82% | 2.99% | 3.08% | 0.00% | 8.06% | 8.77% | 6.12% | 13.04% | 2.63% | 10.81% | 0.00% | 3.13% | 6.45% | 0.00% | 7.69% | 0.00% |
| 1986 | 0.00% | 2.50% | 2.74% | 2.99% | 0.00% | 3.23% | 11.67% | 9.80% | 11.36% | 8.11% | 6.06% | 6.45% | 17.86% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1987 | 0.00% | 2.25% | 6.02% | 5.13% | 4.23% | 16.42% | 12.96% | 13.64% | 15.79% | 12.90% | 15.38% | 9.52% | 5.26% | 5.56% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1988 | 1.61% | 4.03% | 3.42% | 2.70% | 11.11% | 20.00% | 12.16% | 28.33% | 16.28% | 0.00% | 14.29% | 17.24% | 4.17% | 4.55% | 10.00% | 5.56% | 0.00% | 6.25% | 0.00% |
| 1989 | 0.00% | 0.73% | 0.00% | 18.90% | 23.30% | 20.25% | 21.31% | 26.67% | 6.45% | 6.90% | 11.11% | 4.17% | 5.00% | 10.53% | 5.88% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1990 | 0.00% | 1.35% | 27.97% | 32.35% | 34.85% | 47.50% | 35.00% | 7.69% | 8.33% | 0.00% | 0.00% | 9.09% | 0.00% | 0.00% | 10.00% | 0.00% | 11.11% | 0.00% | 0.00% |
| 1991 | 0.00% | 20.10% | 34.59% | 34.62% | 37.31% | 36.59% | 4.17% | 17.39% | 5.26% | 0.00% | 0.00% | 5.88% | 0.00% | 6.25% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1992 | 1.18% | 22.94% | 25.19% | 37.76% | 31.58% | 10.53% | 24.24% | 0.00% | 12.00% | 0.00% | 4.55% | 4.76% | 0.00% | 5.00% | 0.00% | 10.53% | 0.00% | 0.00% | 0.00% |
| 1993 | 1.18% | 13.61% | 33.56% | 45.05% | 20.41% | 12.82% | 14.71% | 3.45% | 0.00% | 11.11% | 4.17% | 0.00% | 8.70% | 4.76% | 5.00% | 0.00% | 0.00% | 10.53% | 5.88% |
| 1994 | 2.63% | 27.19% | 42.17% | 29.17% | 18.18% | 14.81% | 4.35% | 0.00% | 4.55% | 0.00% | 0.00% | 0.00% | 5.00% | 5.26% | 0.00% | 0.00% | 5.56% | 0.00% | 0.00% |
| 1995 | 4.00% | 21.33% | 44.07% | 41.54% | 42.11% | 31.82% | 0.00% | 13.33% | 0.00% | 0.00% | 0.00% | 7.69% | 8.33% | 0.00% | 0.00% | 0.00% | 9.09% | 0.00% | 0.00% |
| 1996 | 3.08% | 33.85% | 38.37% | 47.17% | 37.04% | 47.06% | 0.00% | 0.00% | 0.00% | 0.00% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 20.00% | 0.00% | 0.00% |
| 1997 | 3.70% | 20.37% | 36.43% | 37.80% | 32.00% | 8.82% | 3.23% | 16.67% | 20.00% | 0.00% | 5.00% | 0.00% | 0.00% | 5.26% | 0.00% | 5.56% | 6.25% | 0.00% | 0.00% |
| 1998 | 7.45% | 31.06% | 47.75% | 43.10% | 40.63% | 11.11% | 18.75% | 9.09% | 30.00% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 16.67% |
| 1999 | 10.71% | 21.43% | 38.18% | 33.82% | 26.67% | 39.39% | 26.32% | 42.86% | 0.00% | 12.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 14.29% |
| 2000 | 3.42% | 19.66% | 29.79% | 40.91% | 39.47% | 34.78% | 26.67% | 18.18% | 11.11% | 28.57% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2001 | 4.80% | 27.20% | 27.47% | 46.97% | 31.43% | 17.39% | 23.53% | 30.77% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% |
| 2002 | 5.45% | 12.73% | 39.58% | 35.09% | 35.14% | 16.67% | 30.00% | 14.29% | 8.33% | 0.00% | 9.09% | 10.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2003 | 3.75% | 18.75% | 27.69% | 48.94% | 25.00% | 44.44% | 0.00% | 0.00% | 0.00% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% |
| 2004 | 7.14% | 22.22% | 23.47% | 53.33% | 45.71% | 31.58% | 0.00% | 15.38% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 18.18% | 0.00% | 0.00% | 0.00% |
| 2005 | 4.69% | 10.16% | 39.13% | 56.52% | 36.67% | 31.58% | 23.08% | 20.00% | 37.50% | 0.00% | 0.00% | 20.00% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2006 | 3.03% | 16.16% | 48.19% | 63.95% | 26.67% | 13.64% | 36.84% | 16.67% | 0.00% | 10.00% | 0.00% | 11.11% | 12.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2007 | 4.37% | 24.04% | 42.45% | 48.75% | 31.71% | 35.71% | 22.22% | 23.08% | 0.00% | 0.00% | 0.00% | 22.22% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2008 | 2.09% | 15.18% | 36.65% | 50.98% | 44.90% | 33.33% | 17.65% | 7.14% | 7.69% | 8.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2009 | 2.84% | 20.45% | 43.57% | 48.10% | 48.78% | 40.00% | 0.00% | 9.09% | 10.00% | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2010 | 2.80% | 13.29% | 49.19% | 49.21% | 28.13% | 13.04% | 20.00% | 18.75% | 0.00% | 7.69% | 18.18% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2011 | 0.59% | 8.24% | 39.10% | 53.68% | 29.55% | 45.16% | 23.53% | 46.15% | 14.29% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2012 | 0.00% | 12.96% | 46.81% | 38.67% | 32.61% | 16.13% | 34.62% | 11.76% | 30.77% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2013 | 2.27% | 18.94% | 32.71% | 44.44% | 20.00% | 31.25% | 4.55% | 0.00% | 10.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2014 | 3.57% | 20.24% | 49.25% | 32.35% | 39.13% | 28.57% | 20.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2015 | 4.48% | 22.39% | 36.54% | 48.48% | 29.41% | 9.09% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2016 | 6.67% | 20.00% | 41.67% | 35.71% | 11.11% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2017 | 6.98% | 13.95% | 54.05% | 47.06% | 22.22% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2018 | 1.75% | 26.32% | 54.76% | 73.68% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2019 | 6.45% | 24.19% | 61.70% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2020 | 0.00% | 31.03% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 2021 | 5.71% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Wtd Avg | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 3.92% | 24.00% | 100.00% | 46.15% | 25.51% | 22.92% | 18.82% | 14.67% | 12.70% | 6.52% | 4.76% | 6.67% | 8.33% | 0.00% | 0.00% | 5.41% | 2.94% | 3.13% | 3.33% |
| 10 Yr | 2.88% | 17.57% | 81.14% | 46.91% | 33.55% | 29.33% | 19.88% | 14.81% | 10.53% | 4.44% | 4.60% | 5.81% | 3.95% | 0.00% | 3.85% | 4.23% | 1.35% | 2.47% | 0.00% |
| 15 Yr | 2.70% | 17.77% | 77.22% | 50.38% | 33.62% | 28.44% | 19.26% | 15.38% | 9.32% | 5.34% | 4.51% | 3.88% | 3.17% | 1.50% | 0.72% | 2.00% | 4.61% | 2.68% | 2.03% |
| All Yr | 2.56% | 14.89% | 40.54% | 29.38% | 19.15% | 15.38% | 9.34% | 8.74% | 6.00% | 4.80% | 6.33% | 4.91% | 4.78% | 2.17% | 3.57% | 2.72% | 3.02% | 3.66% | 3.01% |
| All Avg Rolling | 2.56% | 10.79% | 32.10% | 45.50% | 48.63% | 31.73% | 22.93% | 18.08% | 13.29% | 9.44% | 6.65% | 5.21% | 5.14% | 3.76% | 2.35% | | | | |

Other
Percent Released

| Issue Year | 240 | 252 | 264 | 276 | 288 | 300 | 312 | 324 | 336 | 348 | 360 | 372 | 384 | 396 | 408 | 420 | 432 | 444 | 456 | 468 |
|-----------------|--------|--------|--------|---------|--------|--------|--------|--------|-------|--------|---------|--------|-------|--------|--------|---------|-------|--------|-------|--------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 33.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 25.00% | 33.33% | 0.00% | 50.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 25.00% | 33.33% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 50.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 33.33% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 16.67% | 0.00% | 0.00% | 0.00% | 20.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 10.00% | 0.00% | 22.22% | 14.29% | 0.00% | 0.00% | 16.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 11.11% | 25.00% | 0.00% | 0.00% | 33.33% | 0.00% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 33.33% | 0.00% | 0.00% |
| 1979 | 0.00% | 14.29% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1980 | 0.00% | 0.00% | 0.00% | 5.26% | 5.66% | 0.00% | 5.88% | 0.00% | 0.00% | 0.00% | 0.00% | 6.25% | 0.00% | 0.00% | 20.00% | 8.33% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1981 | 2.22% | 4.60% | 2.44% | 5.00% | 1.32% | 1.35% | 4.23% | 0.00% | 1.47% | 0.00% | 2.99% | 1.54% | 0.00% | 1.56% | 1.61% | 1.64% | 1.67% | 1.69% | 0.00% | 1.72% |
| 1982 | 8.70% | 4.76% | 0.00% | 0.00% | 5.00% | 0.00% | 5.26% | 5.66% | 0.00% | 0.00% | 0.00% | 5.88% | 0.00% | 0.00% | 6.67% | 21.43% | 0.00% | 0.00% | 9.09% | 10.00% |
| 1983 | 3.61% | 5.00% | 2.63% | 1.35% | 5.48% | 2.90% | 5.97% | 3.17% | 0.00% | 1.69% | 1.72% | 1.75% | 0.00% | 1.79% | 0.00% | 3.64% | 3.77% | 1.96% | 2.00% | 4.17% |
| 1984 | 1.89% | 0.00% | 1.96% | 0.00% | 2.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 2.13% | 2.17% | 0.00% | 0.00% | 0.00% | 0.00% | 2.27% | |
| 1985 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 4.55% | 0.00% | 0.00% | 0.00% | 5.00% | 0.00% | 0.00% | 0.00% | 5.26% | 0.00% | 0.00% | | |
| 1986 | 4.76% | 0.00% | 10.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.56% | 0.00% | 0.00% | 5.88% | 12.50% | 0.00% | 7.14% | 0.00% | | | |
| 1987 | 0.00% | 6.25% | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 8.33% | 9.09% | 0.00% | | | | |
| 1988 | 0.00% | 6.67% | 0.00% | 0.00% | 7.14% | 0.00% | 15.38% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | |
| 1989 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | |
| 1990 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | |
| 1991 | 9.09% | 0.00% | 10.00% | 0.00% | 0.00% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 12.50% | 0.00% | | | | | | | | |
| 1992 | 5.88% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 6.25% | 0.00% | | | | | | | | | |
| 1993 | 0.00% | 6.25% | 0.00% | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | |
| 1994 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | |
| 1995 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | |
| 1996 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | | |
| 1997 | 0.00% | 6.67% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | | | |
| 1998 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | | | | |
| 1999 | 0.00% | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | | | | | |
| 2000 | 0.00% | 0.00% | 0.00% | | | | | | | | | | | | | | | | | |
| 2001 | 0.00% | 0.00% | | | | | | | | | | | | | | | | | | |
| 2002 | 0.00% | | | | | | | | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | | | | | | | | | |
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| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |
| Wtd Avg | | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 0.00% | 2.86% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 1.61% | 1.69% | 1.82% | 0.00% | 1.61% | 4.17% | 1.01% | 2.82% | 1.44% | 1.09% | 1.72% | 3.03% |
| 10 Yr | 0.00% | 2.06% | 1.01% | 0.00% | 0.90% | 0.85% | 1.72% | 0.00% | 0.72% | 1.18% | 0.95% | 1.43% | 0.76% | 2.24% | 2.39% | 3.80% | 1.35% | 1.43% | 1.57% | 2.76% |
| 15 Yr | 1.30% | 2.50% | 1.76% | 0.53% | 1.31% | 1.04% | 2.41% | 1.15% | 0.57% | 0.90% | 1.26% | 1.65% | 0.68% | 2.43% | 2.26% | 3.57% | 1.28% | 1.83% | 1.53% | 2.68% |
| All Yr | 2.42% | 3.11% | 2.04% | 2.10% | 2.83% | 1.59% | 3.36% | 1.50% | 0.79% | 1.39% | 1.18% | 1.56% | 0.97% | 2.36% | 2.21% | 3.94% | 1.28% | 1.83% | 1.53% | 2.68% |
| All Avg Rolling | 2.11% | 2.09% | 1.59% | 1.50% | 1.04% | 0.93% | 1.33% | 1.13% | 1.15% | 0.96% | 1.17% | 1.25% | 1.16% | 1.66% | 1.92% | 2.77% | 2.28% | 2.14% | 1.49% | 1.98% |
| Linear Smoothed | 2.57% | 2.33% | 2.10% | 1.86% | 1.62% | 1.39% | 1.15% | 0.91% | 0.68% | 0.44% | 2.04% | 2.07% | 2.10% | 2.13% | 2.15% | 2.18% | 2.21% | 2.24% | 2.27% | 2.30% |
| Prior Sel | 2.45% | 2.27% | 2.09% | 1.91% | 1.73% | 1.55% | 1.37% | 1.19% | 1.01% | 0.83% | 1.50% | 1.61% | 1.72% | 1.83% | 1.93% | 2.04% | 2.15% | 2.26% | 2.36% | 2.47% |
| Selected | 2.57% | 2.33% | 2.10% | 1.86% | 1.62% | 1.39% | 1.15% | 0.91% | 0.68% | 0.44% | 2.04% | 2.07% | 2.10% | 2.13% | 2.15% | 2.18% | 2.21% | 2.24% | 2.27% | 2.30% |
| Active | 2.06% | 1.87% | 1.68% | 1.49% | 1.30% | 1.11% | 0.92% | 0.73% | 0.54% | 0.35% | 1.63% | 1.65% | 1.68% | 1.70% | 1.72% | 1.75% | 1.77% | 1.79% | 1.81% | 1.84% |
| Inactive | 1.29% | 1.17% | 1.05% | 0.93% | 0.81% | 0.69% | 0.57% | 0.46% | 0.34% | 0.22% | 1.02% | 1.03% | 1.05% | 1.06% | 1.08% | 1.09% | 1.11% | 1.12% | 1.13% | 1.15% |
| Phased Release | 6.17% | 5.60% | 5.03% | 4.46% | 3.90% | 3.33% | 2.76% | 2.19% | 1.62% | 1.05% | 4.90% | 4.96% | 5.03% | 5.10% | 5.17% | 5.24% | 5.31% | 5.37% | 5.44% | 5.51% |

Other
Percent Released

| Issue Year | 480 | 492 | 504 | 516 | 528 | 540 | 552 | 564 | 576 | 588 | 600 | 612 | 624 | 636 | 648 | 660 | 672 | 684 | 696 | 708 |
|-----------------|-------|--------|--------|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1963 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1964 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1965 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1966 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1967 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1968 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1969 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1970 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1971 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1972 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1973 | 0.00% | 0.00% | 33.33% | 0.00% | 0.00% | 0.00% | 50.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1974 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1975 | 0.00% | 0.00% | 0.00% | 0.00% | 50.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1976 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1977 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1978 | 0.00% | 50.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1979 | 0.00% | 0.00% | 0.00% | 20.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1980 | 0.00% | 9.09% | 10.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1981 | 5.26% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1982 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 1983 | | | | | | | | | | | | | | | | | | | | |
| 1984 | | | | | | | | | | | | | | | | | | | | |
| 1985 | | | | | | | | | | | | | | | | | | | | |
| 1986 | | | | | | | | | | | | | | | | | | | | |
| 1987 | | | | | | | | | | | | | | | | | | | | |
| 1988 | | | | | | | | | | | | | | | | | | | | |
| 1989 | | | | | | | | | | | | | | | | | | | | |
| 1990 | | | | | | | | | | | | | | | | | | | | |
| 1991 | | | | | | | | | | | | | | | | | | | | |
| 1992 | | | | | | | | | | | | | | | | | | | | |
| 1993 | | | | | | | | | | | | | | | | | | | | |
| 1994 | | | | | | | | | | | | | | | | | | | | |
| 1995 | | | | | | | | | | | | | | | | | | | | |
| 1996 | | | | | | | | | | | | | | | | | | | | |
| 1997 | | | | | | | | | | | | | | | | | | | | |
| 1998 | | | | | | | | | | | | | | | | | | | | |
| 1999 | | | | | | | | | | | | | | | | | | | | |
| 2000 | | | | | | | | | | | | | | | | | | | | |
| 2001 | | | | | | | | | | | | | | | | | | | | |
| 2002 | | | | | | | | | | | | | | | | | | | | |
| 2003 | | | | | | | | | | | | | | | | | | | | |
| 2004 | | | | | | | | | | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | | | | | | | | | |
| 2006 | | | | | | | | | | | | | | | | | | | | |
| 2007 | | | | | | | | | | | | | | | | | | | | |
| 2008 | | | | | | | | | | | | | | | | | | | | |
| 2009 | | | | | | | | | | | | | | | | | | | | |
| 2010 | | | | | | | | | | | | | | | | | | | | |
| 2011 | | | | | | | | | | | | | | | | | | | | |
| 2012 | | | | | | | | | | | | | | | | | | | | |
| 2013 | | | | | | | | | | | | | | | | | | | | |
| 2014 | | | | | | | | | | | | | | | | | | | | |
| 2015 | | | | | | | | | | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | | | | | | | | | |
| 2017 | | | | | | | | | | | | | | | | | | | | |
| 2018 | | | | | | | | | | | | | | | | | | | | |
| 2019 | | | | | | | | | | | | | | | | | | | | |
| 2020 | | | | | | | | | | | | | | | | | | | | |
| 2021 | | | | | | | | | | | | | | | | | | | | |
| Wtd Avg | | | | | | | | | | | | | | | | | | | | |
| 5 Yr | 3.57% | 2.67% | 4.17% | 6.25% | 8.33% | 0.00% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 10 Yr | 3.06% | 2.33% | 6.45% | 5.00% | 6.67% | 0.00% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 Yr | 3.03% | 2.33% | 6.45% | 5.00% | 6.67% | 0.00% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Yr | 3.03% | 2.33% | 6.45% | 5.00% | 6.67% | 0.00% | 11.11% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| All Avg Rolling | 2.52% | 2.79% | 3.82% | 4.53% | 6.09% | 4.13% | 6.06% | 3.70% | 3.70% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Linear Smoothed | 2.32% | 2.35% | 2.38% | 2.41% | 2.44% | 2.47% | 2.50% | 2.52% | 2.55% | 2.58% | 2.61% | 2.64% | 2.67% | 2.69% | 2.72% | 2.75% | 2.78% | 2.81% | 2.84% | 2.87% |
| Prior Sel | 2.58% | 2.69% | 2.79% | 2.90% | 3.01% | 3.12% | 3.22% | 3.33% | 3.44% | 3.55% | 3.65% | 3.76% | 3.87% | 3.98% | 4.08% | 4.19% | 4.30% | 4.41% | | |
| Selected | 2.32% | 2.35% | 2.38% | 2.41% | 2.44% | 2.47% | 2.50% | 2.52% | 2.55% | 2.58% | 2.61% | 2.64% | 2.67% | 2.69% | 2.72% | 2.75% | 2.78% | 2.81% | 2.84% | 2.87% |
| Active | 1.86% | 1.88% | 1.91% | 1.93% | 1.95% | 1.97% | 2.00% | 2.02% | 2.04% | 2.06% | 2.09% | 2.11% | 2.13% | 2.16% | 2.18% | 2.20% | 2.22% | 2.25% | 2.27% | 2.29% |
| Inactive | 1.16% | 1.18% | 1.19% | 1.20% | 1.22% | 1.23% | 1.25% | 1.26% | 1.28% | 1.29% | 1.30% | 1.32% | 1.33% | 1.35% | 1.36% | 1.38% | 1.39% | 1.40% | 1.42% | 1.43% |
| Phased Release | 5.58% | 5.65% | 5.72% | 5.78% | 5.85% | 5.92% | 5.99% | 6.06% | 6.13% | 6.19% | 6.26% | 6.33% | 6.40% | 6.47% | 6.54% | 6.60% | 6.67% | 6.74% | 6.81% | 6.88% |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Remaining Acres Projections
 All Mine Types

| Fiscal Year Ending 6/30 | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|----------------------------|------------------------|--------------------|----------------------|----------|----------------------|---------|-------------|
| | Deterministic Model | Stochastic Mean | Stochastic Median | Selected | % Remaining In Force | | |
| | | | | | Total | Surface | Underground |
| 2021 | 329,024 | 329,024 | 329,024 | 329,024 | 100% | 100% | 100% |
| 2022 | 319,817 | 301,101 | 301,230 | 310,523 | 94% | 95% | 95% |
| 2023 | 311,287 | 274,725 | 274,783 | 293,035 | 89% | 90% | 89% |
| 2024 | 303,242 | 249,270 | 249,356 | 276,299 | 84% | 84% | 84% |
| 2025 | 295,595 | 226,484 | 226,676 | 261,136 | 79% | 80% | 80% |
| 2026 | 288,342 | 206,173 | 206,278 | 247,310 | 75% | 76% | 76% |
| 2027 | 281,415 | 187,976 | 188,186 | 234,801 | 71% | 72% | 73% |
| 2028 | 274,765 | 171,456 | 171,663 | 223,214 | 68% | 68% | 69% |
| 2029 | 268,382 | 156,432 | 156,465 | 212,423 | 65% | 65% | 66% |
| 2030 | 262,261 | 142,832 | 142,917 | 202,589 | 62% | 62% | 64% |
| 2031 | 256,394 | 130,312 | 130,453 | 193,423 | 59% | 59% | 61% |
| 2032 | 250,772 | 118,867 | 118,993 | 184,882 | 56% | 56% | 59% |
| 2033 | 245,385 | 108,306 | 108,396 | 176,891 | 54% | 54% | 57% |
| 2034 | 240,224 | 98,662 | 98,694 | 169,459 | 52% | 51% | 55% |
| 2035 | 235,298 | 89,809 | 89,964 | 162,631 | 49% | 49% | 53% |
| 2036 | 230,587 | 81,689 | 81,685 | 156,136 | 47% | 47% | 52% |
| 2037 | 226,084 | 74,232 | 74,249 | 150,166 | 46% | 45% | 50% |
| 2038 | 221,777 | 67,351 | 67,396 | 144,586 | 44% | 44% | 49% |
| 2039 | 217,656 | 61,030 | 61,029 | 139,342 | 42% | 42% | 48% |
| 2040 | 213,707 | 55,343 | 55,409 | 134,558 | 41% | 41% | 47% |
| 2041 | 209,921 | 50,253 | 50,221 | 130,071 | 40% | 39% | 46% |

Notes: Col (1) from Exhibit E-86, Col (20), (35), (50), etc.
 Col (2) from Exhibit E-139, Col (16)
 Col (3) from Exhibit E-139, Col (14)
 Col (5) = Col (4) / [Col (4) 2019 Total]
 Col (6) and (7) based on Col (5), Distributed according to Exhibit E-86

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Bond Forfeiture Projections
 All Mine Types

| Fiscal Year Ending 6/30 | (1) | (2) | (3) | (4) |
|----------------------------|----------------------------|--------------------|----------------------|-------------------|
| | Bond Forfeiture Recoveries | | | |
| | Deterministic Model | Stochastic Mean | Stochastic Median | Selected |
| 2022 | 2,675,265 | 11,077,445 | 9,572,696 | 2,675,265 |
| 2023 | 2,604,576 | 7,564,943 | 5,994,468 | 2,604,576 |
| 2024 | 2,545,991 | 6,914,358 | 5,545,980 | 2,545,991 |
| 2025 | 2,473,609 | 6,397,015 | 4,930,476 | 2,473,609 |
| 2026 | 2,381,918 | 5,926,918 | 4,481,824 | 2,381,918 |
| 2027 | 2,292,362 | 5,311,966 | 3,684,996 | 2,292,362 |
| 2028 | 2,205,105 | 4,879,956 | 3,261,230 | 2,205,105 |
| 2029 | 2,124,771 | 4,337,187 | 2,741,080 | 2,124,771 |
| 2030 | 2,047,172 | 3,975,465 | 2,360,382 | 2,047,172 |
| 2031 | 1,957,115 | 3,650,182 | 1,918,350 | 1,957,115 |
| 2032 | 1,854,024 | 3,127,389 | 1,588,323 | 1,854,024 |
| 2033 | 1,754,954 | 2,847,424 | 1,385,637 | 1,754,954 |
| 2034 | 1,663,524 | 2,535,582 | 1,108,968 | 1,663,524 |
| 2035 | 1,578,753 | 2,110,219 | 756,290 | 1,578,753 |
| 2036 | 1,498,700 | 1,929,457 | 556,340 | 1,498,700 |
| 2037 | 1,413,353 | 1,675,308 | 429,440 | 1,413,353 |
| 2038 | 1,337,305 | 1,473,916 | 299,040 | 1,337,305 |
| 2039 | 1,264,288 | 1,241,337 | 192,000 | 1,264,288 |
| 2040 | 1,193,973 | 1,096,928 | 123,000 | 1,193,973 |
| 2041 | 1,132,168 | 928,606 | 75,000 | 1,132,168 |
| Total | 37,998,926 | 79,001,605 | 51,005,520 | 37,998,926 |

Notes: Col (1) from Exhibit E-77, Col (17), (32), etc.
 Col (2) from Exhibit E-139, Col (8)
 Col (3) from Exhibit E-139, Col (6)

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Cost Projections
 All Mine Types

| Fiscal Year Ending 6/30 | (1) (2) (3) (4) (5) Land Reclamation Costs | | | | | (6) (7) (8) (9) (10) Water Capital Costs | | | | | (11) (12) (13) (14) (15) Water O&M Costs | | | | | | | | | | |
|----------------------------|---|------------|------------|------------|------------|---|------------|---------------|------------|------------|---|------------|------------|------------|---------------|-------|------------|------------|----------|------------|--|
| | Deterministic | | Stochastic | Stochastic | | Three-Year | | Deterministic | | Stochastic | Stochastic | | Three-Year | | Deterministic | | Stochastic | Stochastic | | Three-Year | |
| | Model | Mean | Median | Selected | Delay | Model | Mean | Median | Selected | Delay | Model | Mean | Median | Selected | Delay | Model | Mean | Median | Selected | Delay | |
| 2022 | 4,935,566 | 8,985,560 | 8,124,823 | 7,348,650 | 0 | 4,974,121 | 11,679,555 | 10,560,757 | 9,071,478 | 0 | 111,877 | 301,192 | 272,340 | 228,470 | 0 | | | | | | |
| 2023 | 4,739,829 | 6,814,520 | 6,088,452 | 5,880,934 | 0 | 4,782,140 | 8,857,607 | 7,913,854 | 7,184,533 | 0 | 219,766 | 529,612 | 476,423 | 408,600 | 0 | | | | | | |
| 2024 | 4,549,421 | 6,165,041 | 5,460,928 | 5,391,797 | 0 | 4,598,301 | 8,013,406 | 7,098,189 | 6,569,965 | 0 | 323,902 | 736,261 | 659,470 | 573,211 | 0 | | | | | | |
| 2025 | 4,370,070 | 5,462,624 | 4,708,335 | 4,847,010 | 3,674,325 | 4,424,133 | 7,100,394 | 6,119,959 | 5,881,495 | 4,535,739 | 424,427 | 919,366 | 817,292 | 720,361 | 114,235 | | | | | | |
| 2026 | 4,176,519 | 4,838,465 | 4,187,996 | 4,400,993 | 6,614,792 | 4,233,444 | 6,289,104 | 5,443,615 | 5,322,054 | 8,128,006 | 520,964 | 1,081,549 | 957,672 | 853,395 | 318,535 | | | | | | |
| 2027 | 3,977,372 | 4,242,458 | 3,412,299 | 3,877,377 | 5,636,365 | 4,033,851 | 5,514,406 | 4,435,354 | 4,661,203 | 6,877,249 | 613,272 | 1,223,754 | 1,072,050 | 969,692 | 490,906 | | | | | | |
| 2028 | 3,794,250 | 3,798,764 | 2,992,204 | 3,528,406 | 5,119,403 | 3,848,839 | 4,937,686 | 3,889,308 | 4,225,278 | 6,225,730 | 701,587 | 1,351,087 | 1,172,348 | 1,075,007 | 646,786 | | | | | | |
| 2029 | 3,619,996 | 3,298,423 | 2,515,684 | 3,144,701 | 6,824,498 | 3,670,107 | 4,287,335 | 3,269,921 | 3,742,454 | 8,262,802 | 785,970 | 1,461,649 | 1,256,672 | 1,168,097 | 1,213,575 | | | | | | |
| 2030 | 3,466,633 | 2,975,639 | 2,181,495 | 2,874,589 | 3,877,377 | 3,512,759 | 3,867,776 | 2,835,538 | 3,405,358 | 4,661,203 | 866,870 | 1,561,391 | 1,329,795 | 1,252,685 | 969,692 | | | | | | |
| 2031 | 3,300,470 | 2,672,241 | 1,814,899 | 2,595,870 | 3,528,406 | 3,336,578 | 3,473,415 | 2,359,031 | 3,056,341 | 4,225,278 | 943,774 | 1,650,963 | 1,390,630 | 1,328,456 | 1,075,007 | | | | | | |
| 2032 | 3,134,833 | 2,292,108 | 1,497,666 | 2,308,202 | 3,144,701 | 3,157,728 | 2,979,314 | 1,946,687 | 2,694,576 | 3,742,454 | 1,014,319 | 1,727,794 | 1,440,831 | 1,394,314 | 1,168,097 | | | | | | |
| 2033 | 2,970,864 | 2,073,074 | 1,319,718 | 2,121,219 | 2,874,589 | 2,978,267 | 2,694,610 | 1,715,387 | 2,462,755 | 3,405,358 | 1,078,569 | 1,797,282 | 1,485,067 | 1,453,640 | 1,252,685 | | | | | | |
| 2034 | 2,824,859 | 1,815,553 | 1,140,481 | 1,926,964 | 2,595,870 | 2,819,060 | 2,359,881 | 1,482,412 | 2,220,451 | 3,056,341 | 1,137,109 | 1,858,139 | 1,523,295 | 1,506,181 | 1,328,456 | | | | | | |
| 2035 | 2,686,143 | 1,522,662 | 897,220 | 1,702,008 | 2,308,202 | 2,667,435 | 1,979,176 | 1,166,218 | 1,937,610 | 2,694,576 | 1,190,219 | 1,909,178 | 1,553,370 | 1,550,922 | 1,394,314 | | | | | | |
| 2036 | 2,560,973 | 1,376,541 | 718,748 | 1,552,087 | 2,121,219 | 2,530,260 | 1,789,248 | 934,238 | 1,751,248 | 2,462,755 | 1,238,333 | 1,955,319 | 1,577,462 | 1,590,371 | 1,453,640 | | | | | | |
| 2037 | 2,432,578 | 1,190,718 | 602,138 | 1,408,478 | 1,926,964 | 2,387,296 | 1,547,712 | 782,667 | 1,572,559 | 2,220,451 | 1,281,397 | 1,995,231 | 1,597,645 | 1,624,758 | 1,506,181 | | | | | | |
| 2038 | 2,303,607 | 1,062,176 | 447,133 | 1,270,972 | 1,702,008 | 2,242,140 | 1,380,631 | 581,190 | 1,401,320 | 1,937,610 | 1,319,451 | 2,030,835 | 1,612,633 | 1,654,306 | 1,550,922 | | | | | | |
| 2039 | 2,188,878 | 884,047 | 309,446 | 1,127,457 | 1,552,087 | 2,111,804 | 1,149,097 | 402,223 | 1,221,041 | 1,751,248 | 1,352,915 | 2,060,468 | 1,623,006 | 1,678,796 | 1,590,371 | | | | | | |
| 2040 | 2,076,780 | 798,118 | 216,411 | 1,030,436 | 1,408,478 | 1,983,766 | 1,037,404 | 281,294 | 1,100,822 | 1,572,559 | 1,381,936 | 2,087,220 | 1,630,260 | 1,699,805 | 1,624,758 | | | | | | |
| 2041 | 1,981,002 | 684,302 | 135,243 | 933,516 | 1,270,972 | 1,875,101 | 889,466 | 175,791 | 980,119 | 1,401,320 | 1,407,094 | 2,110,158 | 1,634,793 | 1,717,348 | 1,654,306 | | | | | | |
| Total | 66,090,642 | 62,953,034 | 48,771,320 | 59,271,665 | 56,180,256 | 66,167,129 | 81,827,221 | 63,393,634 | 70,462,661 | 67,160,680 | 17,913,752 | 30,348,445 | 25,083,053 | 24,448,417 | 19,352,467 | | | | | | |

Notes:
 Col (1) from Exhibit E-73, Col (4)
 Col (2) from Exhibit E-142, Col (16)
 Col (3) from Exhibit E-142, Col (14)
 Col (6) from Exhibit E-95, Col (4)
 Col (7) from Exhibit E-143, Col (16)
 Col (8) from Exhibit E-143, Col (14)
 Col (11) from Exhibit E-117, Col (12)
 Col (12) from Exhibit E-144, Col (16)
 Col (13) from Exhibit E-144, Col (14)
 Col (5), (10), and (15) based on (4), (9), and (14), respectively, with a three-year delay on payments

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Land Reclamation Cost Projection - Deterministic Model
 Land Total - All Mine Types

| Fiscal Year Ending 6/30 | (1) Gross Liability | | | | (2) Gross Liability - Three Year Delay | | | | (3) Net Liability | | | | (4) Net Liability - Three Year Delay | | | |
|----------------------------|---------------------|-----------|----------------|-----------|--|-----------|----------------|-----------|-------------------|----------|----------------|-----------|--------------------------------------|----------|----------------|-----------|
| | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total |
| 2022 | 3,793,805 | 1,141,761 | 0 | 4,935,566 | 0 | 0 | 0 | 0 | 1,639,987 | 620,313 | 0 | 2,260,301 | 0 | 0 | 0 | 0 |
| 2023 | 3,647,879 | 1,091,950 | 0 | 4,739,829 | 0 | 0 | 0 | 0 | 1,548,019 | 587,235 | 0 | 2,135,253 | 0 | 0 | 0 | 0 |
| 2024 | 3,492,015 | 1,057,406 | 0 | 4,549,421 | 0 | 0 | 0 | 0 | 1,440,354 | 563,076 | 0 | 2,003,431 | 0 | 0 | 0 | 0 |
| 2025 | 3,346,404 | 1,023,665 | 0 | 4,370,070 | 1,896,902 | 570,881 | 0 | 2,467,783 | 1,355,343 | 541,118 | 0 | 1,896,461 | 819,994 | 310,157 | 0 | 1,130,150 |
| 2026 | 3,187,331 | 989,189 | 0 | 4,176,519 | 3,720,842 | 1,116,855 | 0 | 4,837,697 | 1,277,437 | 517,165 | 0 | 1,794,601 | 1,594,003 | 603,774 | 0 | 2,197,777 |
| 2027 | 3,023,626 | 953,746 | 0 | 3,977,372 | 3,569,947 | 1,074,678 | 0 | 4,644,625 | 1,190,482 | 494,527 | 0 | 1,685,010 | 1,494,186 | 575,156 | 0 | 2,069,342 |
| 2028 | 2,870,528 | 923,722 | 0 | 3,794,250 | 3,419,210 | 1,040,536 | 0 | 4,459,745 | 1,112,380 | 476,765 | 0 | 1,589,145 | 1,397,849 | 552,097 | 0 | 1,949,946 |
| 2029 | 2,721,882 | 898,114 | 0 | 3,619,996 | 4,860,533 | 1,501,021 | 0 | 6,361,554 | 1,034,604 | 460,620 | 0 | 1,495,224 | 1,955,108 | 787,724 | 0 | 2,742,832 |
| 2030 | 2,594,780 | 871,853 | 0 | 3,466,633 | 3,023,626 | 953,746 | 0 | 3,977,372 | 973,405 | 446,056 | 0 | 1,419,462 | 1,190,482 | 494,527 | 0 | 1,685,010 |
| 2031 | 2,454,359 | 846,111 | 0 | 3,300,470 | 2,870,528 | 923,722 | 0 | 3,794,250 | 910,457 | 432,897 | 0 | 1,343,354 | 1,112,380 | 476,765 | 0 | 1,589,145 |
| 2032 | 2,311,989 | 822,844 | 0 | 3,134,833 | 2,721,882 | 898,114 | 0 | 3,619,996 | 860,647 | 420,162 | 0 | 1,280,809 | 1,034,604 | 460,620 | 0 | 1,495,224 |
| 2033 | 2,188,459 | 782,405 | 0 | 2,970,864 | 2,594,780 | 871,853 | 0 | 3,466,633 | 814,323 | 401,587 | 0 | 1,215,910 | 973,405 | 446,056 | 0 | 1,419,462 |
| 2034 | 2,071,275 | 753,585 | 0 | 2,824,859 | 2,454,359 | 846,111 | 0 | 3,300,470 | 773,564 | 387,771 | 0 | 1,161,335 | 910,457 | 432,897 | 0 | 1,343,354 |
| 2035 | 1,960,350 | 725,793 | 0 | 2,686,143 | 2,311,989 | 822,844 | 0 | 3,134,833 | 734,328 | 373,063 | 0 | 1,107,390 | 860,647 | 420,162 | 0 | 1,280,809 |
| 2036 | 1,860,562 | 700,411 | 0 | 2,560,973 | 2,188,459 | 782,405 | 0 | 2,970,864 | 701,842 | 360,431 | 0 | 1,062,273 | 814,323 | 401,587 | 0 | 1,215,910 |
| 2037 | 1,758,195 | 674,383 | 0 | 2,432,578 | 2,071,275 | 753,585 | 0 | 2,824,859 | 672,338 | 346,887 | 0 | 1,019,225 | 773,564 | 387,771 | 0 | 1,161,335 |
| 2038 | 1,657,713 | 645,894 | 0 | 2,303,607 | 1,960,350 | 725,793 | 0 | 2,686,143 | 635,937 | 330,365 | 0 | 966,302 | 734,328 | 373,063 | 0 | 1,107,390 |
| 2039 | 1,566,173 | 622,705 | 0 | 2,188,878 | 1,860,562 | 700,411 | 0 | 2,560,973 | 606,043 | 318,547 | 0 | 924,590 | 701,842 | 360,431 | 0 | 1,062,273 |
| 2040 | 1,476,049 | 600,731 | 0 | 2,076,780 | 1,758,195 | 674,383 | 0 | 2,432,578 | 575,507 | 307,300 | 0 | 882,807 | 672,338 | 346,887 | 0 | 1,019,225 |
| 2041 | 1,401,175 | 579,827 | 0 | 1,981,002 | 1,657,713 | 645,894 | 0 | 2,303,607 | 552,144 | 296,690 | 0 | 848,834 | 635,937 | 330,365 | 0 | 966,302 |

Notes: Col (1) - (3) from Exhibit E-77, Col (15), (30), etc.
 Col (4) = (1) + (2) + (3)
 Col (9) - (11) from Exhibit E-77, Col (18), (33), etc.
 Col (12) = (9) + (10) + (11)
 Col (5) - (8) and (13) - (16) based on (1) - (4) and (9) - (12), with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
Actuarial Reserve Study as of June 30, 2021
Land Reclamation Cost Projection - Deterministic Model
Surface Mines

| Fiscal Year Ending 6/30 | (1) Gross Liability | | | | (2) Gross Liability - Three Year Delay | | | | (3) Net Liability | | | | (4) Net Liability - Three Year Delay | | | |
|----------------------------|---------------------|----------|----------------|-----------|--|----------|----------------|-----------|-------------------|----------|----------------|---------|--------------------------------------|----------|----------------|---------|
| | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total |
| 2022 | 1,737,930 | 412,007 | 0 | 2,149,937 | 0 | 0 | 0 | 0 | 160,143 | 126,008 | 0 | 286,151 | 0 | 0 | 0 | 0 |
| 2023 | 1,700,108 | 391,235 | 0 | 2,091,343 | 0 | 0 | 0 | 0 | 171,789 | 116,773 | 0 | 288,562 | 0 | 0 | 0 | 0 |
| 2024 | 1,656,592 | 384,510 | 0 | 2,041,102 | 0 | 0 | 0 | 0 | 172,301 | 114,955 | 0 | 287,256 | 0 | 0 | 0 | 0 |
| 2025 | 1,612,422 | 376,868 | 0 | 1,989,290 | 868,965 | 206,004 | 0 | 1,074,969 | 171,693 | 113,761 | 0 | 285,455 | 80,072 | 63,004 | 0 | 143,075 |
| 2026 | 1,560,704 | 368,171 | 0 | 1,928,874 | 1,719,019 | 401,621 | 0 | 2,120,640 | 169,319 | 111,045 | 0 | 280,363 | 165,966 | 121,390 | 0 | 287,356 |
| 2027 | 1,505,258 | 354,859 | 0 | 1,860,117 | 1,678,350 | 387,872 | 0 | 2,066,222 | 163,883 | 106,438 | 0 | 270,321 | 172,045 | 115,864 | 0 | 287,909 |
| 2028 | 1,447,775 | 343,095 | 0 | 1,790,869 | 1,634,507 | 380,689 | 0 | 2,015,196 | 160,269 | 104,031 | 0 | 264,300 | 171,997 | 114,358 | 0 | 286,355 |
| 2029 | 1,383,754 | 333,820 | 0 | 1,717,574 | 2,366,914 | 556,605 | 0 | 2,923,519 | 149,054 | 101,626 | 0 | 250,680 | 255,165 | 167,925 | 0 | 423,091 |
| 2030 | 1,329,485 | 322,231 | 0 | 1,651,715 | 1,505,258 | 354,859 | 0 | 1,860,117 | 143,720 | 99,203 | 0 | 242,923 | 163,883 | 106,438 | 0 | 270,321 |
| 2031 | 1,258,897 | 309,697 | 0 | 1,568,594 | 1,447,775 | 343,095 | 0 | 1,790,869 | 133,467 | 96,761 | 0 | 230,228 | 160,269 | 104,031 | 0 | 264,300 |
| 2032 | 1,179,231 | 299,135 | 0 | 1,478,366 | 1,383,754 | 333,820 | 0 | 1,717,574 | 130,206 | 94,289 | 0 | 224,495 | 149,054 | 101,626 | 0 | 250,680 |
| 2033 | 1,112,632 | 270,960 | 0 | 1,383,592 | 1,329,485 | 322,231 | 0 | 1,651,715 | 126,693 | 85,586 | 0 | 212,280 | 143,720 | 99,203 | 0 | 242,923 |
| 2034 | 1,045,582 | 253,904 | 0 | 1,299,486 | 1,258,897 | 309,697 | 0 | 1,568,594 | 123,033 | 81,209 | 0 | 204,243 | 133,467 | 96,761 | 0 | 230,228 |
| 2035 | 981,163 | 237,471 | 0 | 1,218,633 | 1,179,231 | 299,135 | 0 | 1,478,366 | 119,069 | 75,577 | 0 | 194,646 | 130,206 | 94,289 | 0 | 224,495 |
| 2036 | 920,819 | 223,045 | 0 | 1,143,863 | 1,112,632 | 270,960 | 0 | 1,383,592 | 115,644 | 71,667 | 0 | 187,311 | 126,693 | 85,586 | 0 | 212,280 |
| 2037 | 854,911 | 207,606 | 0 | 1,062,516 | 1,045,582 | 253,904 | 0 | 1,299,486 | 112,730 | 66,516 | 0 | 179,246 | 123,033 | 81,209 | 0 | 204,243 |
| 2038 | 788,564 | 189,053 | 0 | 977,617 | 981,163 | 237,471 | 0 | 1,218,633 | 101,724 | 57,940 | 0 | 159,664 | 119,069 | 75,577 | 0 | 194,646 |
| 2039 | 723,163 | 174,946 | 0 | 898,109 | 920,819 | 223,045 | 0 | 1,143,863 | 90,070 | 53,333 | 0 | 143,402 | 115,644 | 71,667 | 0 | 187,311 |
| 2040 | 657,274 | 161,781 | 0 | 819,055 | 854,911 | 207,606 | 0 | 1,062,516 | 76,932 | 49,012 | 0 | 125,944 | 112,730 | 66,516 | 0 | 179,246 |
| 2041 | 603,087 | 149,362 | 0 | 752,449 | 788,564 | 189,053 | 0 | 977,617 | 70,314 | 44,968 | 0 | 115,282 | 101,724 | 57,940 | 0 | 159,664 |

Notes: Col (1) - (3) from Exhibit E-77, Col (15), (30), etc.
Col (4) = (1) + (2) + (3)
Col (9) - (11) from Exhibit E-77, Col (18), (33), etc.
Col (12) = (9) + (10) + (11)
Col (5) - (8) and (13) - (16) based on (1) - (4) and (9) - (12), with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
Actuarial Reserve Study as of June 30, 2021
Land Reclamation Cost Projection - Deterministic Model
Underground Mines

| Fiscal Year Ending 6/30 | (1) Gross Liability | | | | (2) Gross Liability - Three Year Delay | | | | (3) Net Liability | | | | (4) Net Liability - Three Year Delay | | | |
|----------------------------|---------------------|----------|----------------|---------|--|----------|----------------|-----------|-------------------|----------|----------------|---------|--------------------------------------|----------|----------------|---------|
| | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total |
| 2022 | 607,019 | 298,317 | 0 | 905,336 | 0 | 0 | 0 | 0 | 399,652 | 220,821 | 0 | 620,473 | 0 | 0 | 0 | 0 |
| 2023 | 590,280 | 289,605 | 0 | 879,885 | 0 | 0 | 0 | 0 | 385,343 | 213,464 | 0 | 598,806 | 0 | 0 | 0 | 0 |
| 2024 | 572,811 | 281,424 | 0 | 854,235 | 0 | 0 | 0 | 0 | 370,633 | 206,593 | 0 | 577,225 | 0 | 0 | 0 | 0 |
| 2025 | 555,046 | 273,525 | 0 | 828,571 | 303,509 | 149,159 | 0 | 452,668 | 355,552 | 199,961 | 0 | 555,513 | 199,826 | 110,411 | 0 | 310,237 |
| 2026 | 538,867 | 264,378 | 0 | 803,246 | 598,649 | 293,961 | 0 | 892,610 | 342,023 | 192,221 | 0 | 534,244 | 392,497 | 217,143 | 0 | 609,640 |
| 2027 | 522,897 | 256,385 | 0 | 779,282 | 581,545 | 285,514 | 0 | 867,060 | 328,709 | 185,500 | 0 | 514,209 | 377,988 | 210,028 | 0 | 588,016 |
| 2028 | 506,808 | 248,720 | 0 | 755,528 | 563,928 | 277,475 | 0 | 841,403 | 315,313 | 179,068 | 0 | 494,381 | 363,092 | 203,277 | 0 | 566,369 |
| 2029 | 491,376 | 241,373 | 0 | 732,749 | 816,390 | 401,141 | 0 | 1,217,531 | 302,600 | 172,918 | 0 | 475,519 | 519,799 | 292,202 | 0 | 812,001 |
| 2030 | 477,367 | 234,304 | 0 | 711,671 | 522,897 | 256,385 | 0 | 779,282 | 291,182 | 167,011 | 0 | 458,193 | 328,709 | 185,500 | 0 | 514,209 |
| 2031 | 464,210 | 227,575 | 0 | 691,785 | 506,808 | 248,720 | 0 | 755,528 | 280,571 | 161,410 | 0 | 441,982 | 315,313 | 179,068 | 0 | 494,381 |
| 2032 | 451,854 | 221,188 | 0 | 673,042 | 491,376 | 241,373 | 0 | 732,749 | 270,721 | 156,120 | 0 | 426,840 | 302,600 | 172,918 | 0 | 475,519 |
| 2033 | 440,205 | 215,137 | 0 | 655,342 | 477,367 | 234,304 | 0 | 711,671 | 261,581 | 151,134 | 0 | 412,715 | 291,182 | 167,011 | 0 | 458,193 |
| 2034 | 429,080 | 209,408 | 0 | 638,488 | 464,210 | 227,575 | 0 | 691,785 | 252,978 | 146,441 | 0 | 399,419 | 280,571 | 161,410 | 0 | 441,982 |
| 2035 | 418,523 | 203,980 | 0 | 622,502 | 451,854 | 221,188 | 0 | 673,042 | 244,899 | 142,020 | 0 | 386,919 | 270,721 | 156,120 | 0 | 426,840 |
| 2036 | 408,504 | 198,861 | 0 | 607,365 | 440,205 | 215,137 | 0 | 655,342 | 237,315 | 137,875 | 0 | 375,190 | 261,581 | 151,134 | 0 | 412,715 |
| 2037 | 398,997 | 194,009 | 0 | 593,006 | 429,080 | 209,408 | 0 | 638,488 | 230,201 | 133,971 | 0 | 364,172 | 252,978 | 146,441 | 0 | 399,419 |
| 2038 | 389,999 | 189,400 | 0 | 579,400 | 418,523 | 203,980 | 0 | 622,502 | 223,556 | 130,286 | 0 | 353,842 | 244,899 | 142,020 | 0 | 386,919 |
| 2039 | 381,649 | 185,030 | 0 | 566,678 | 408,504 | 198,861 | 0 | 607,365 | 217,419 | 126,819 | 0 | 344,238 | 237,315 | 137,875 | 0 | 375,190 |
| 2040 | 373,771 | 180,879 | 0 | 554,650 | 398,997 | 194,009 | 0 | 593,006 | 211,712 | 123,555 | 0 | 335,267 | 230,201 | 133,971 | 0 | 364,172 |
| 2041 | 366,515 | 177,002 | 0 | 543,517 | 389,999 | 189,400 | 0 | 579,400 | 206,475 | 120,541 | 0 | 327,017 | 223,556 | 130,286 | 0 | 353,842 |

Notes: Col (1) - (3) from Exhibit E-77, Col (15), (30), etc.
Col (4) = (1) + (2) + (3)
Col (9) - (11) from Exhibit E-77, Col (18), (33), etc.
Col (12) = (9) + (10) + (11)
Col (5) - (8) and (13) - (16) based on (1) - (4) and (9) - (12), with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Land Reclamation Cost Projection - Deterministic Model
 Other

| Fiscal Year Ending 6/30 | (1) Gross Liability | | | | (2) Gross Liability - Three Year Delay | | | | (3) Net Liability | | | | (4) Net Liability - Three Year Delay | | | |
|----------------------------|---------------------|----------|----------------|-----------|--|----------|----------------|-----------|-------------------|----------|----------------|-----------|--------------------------------------|----------|----------------|-----------|
| | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total |
| 2022 | 1,448,856 | 431,436 | 0 | 1,880,292 | 0 | 0 | 0 | 0 | 1,080,192 | 273,484 | 0 | 1,353,677 | 0 | 0 | 0 | 0 |
| 2023 | 1,357,491 | 411,110 | 0 | 1,768,601 | 0 | 0 | 0 | 0 | 990,887 | 256,998 | 0 | 1,247,885 | 0 | 0 | 0 | 0 |
| 2024 | 1,262,613 | 391,472 | 0 | 1,654,085 | 0 | 0 | 0 | 0 | 897,421 | 241,529 | 0 | 1,138,949 | 0 | 0 | 0 | 0 |
| 2025 | 1,178,937 | 373,272 | 0 | 1,552,209 | 724,428 | 215,718 | 0 | 940,146 | 828,097 | 227,395 | 0 | 1,055,492 | 540,096 | 136,742 | 0 | 676,838 |
| 2026 | 1,087,760 | 356,640 | 0 | 1,444,400 | 1,403,174 | 421,273 | 0 | 1,824,447 | 766,095 | 213,899 | 0 | 979,994 | 1,035,540 | 265,241 | 0 | 1,300,781 |
| 2027 | 995,472 | 342,501 | 0 | 1,337,973 | 1,310,052 | 401,291 | 0 | 1,711,343 | 697,890 | 202,589 | 0 | 900,479 | 944,154 | 249,263 | 0 | 1,193,417 |
| 2028 | 915,945 | 331,908 | 0 | 1,247,853 | 1,220,775 | 382,372 | 0 | 1,603,147 | 636,797 | 193,666 | 0 | 830,463 | 862,759 | 234,462 | 0 | 1,097,221 |
| 2029 | 846,752 | 322,921 | 0 | 1,169,673 | 1,677,228 | 543,276 | 0 | 2,220,504 | 582,951 | 186,075 | 0 | 769,026 | 1,180,143 | 327,597 | 0 | 1,507,740 |
| 2030 | 787,928 | 315,319 | 0 | 1,103,247 | 995,472 | 342,501 | 0 | 1,337,973 | 538,503 | 179,842 | 0 | 718,345 | 697,890 | 202,589 | 0 | 900,479 |
| 2031 | 731,252 | 308,838 | 0 | 1,040,091 | 915,945 | 331,908 | 0 | 1,247,853 | 496,418 | 174,727 | 0 | 671,145 | 636,797 | 193,666 | 0 | 830,463 |
| 2032 | 680,904 | 302,520 | 0 | 983,424 | 846,752 | 322,921 | 0 | 1,169,673 | 459,720 | 169,753 | 0 | 629,473 | 582,951 | 186,075 | 0 | 769,026 |
| 2033 | 635,622 | 296,308 | 0 | 931,931 | 787,928 | 315,319 | 0 | 1,103,247 | 426,049 | 164,867 | 0 | 590,915 | 538,503 | 179,842 | 0 | 718,345 |
| 2034 | 596,613 | 290,273 | 0 | 886,886 | 731,252 | 308,838 | 0 | 1,040,091 | 397,553 | 160,121 | 0 | 557,674 | 496,418 | 174,727 | 0 | 671,145 |
| 2035 | 560,665 | 284,343 | 0 | 845,008 | 680,904 | 302,520 | 0 | 983,424 | 370,360 | 155,465 | 0 | 525,825 | 459,720 | 169,753 | 0 | 629,473 |
| 2036 | 531,239 | 278,506 | 0 | 809,745 | 635,622 | 296,308 | 0 | 931,931 | 348,883 | 150,889 | 0 | 499,772 | 426,049 | 164,867 | 0 | 590,915 |
| 2037 | 504,287 | 272,768 | 0 | 777,055 | 596,613 | 290,273 | 0 | 886,886 | 329,406 | 146,400 | 0 | 475,806 | 397,553 | 160,121 | 0 | 557,674 |
| 2038 | 479,149 | 267,441 | 0 | 746,590 | 560,665 | 284,343 | 0 | 845,008 | 310,657 | 142,140 | 0 | 452,797 | 370,360 | 155,465 | 0 | 525,825 |
| 2039 | 461,361 | 262,730 | 0 | 724,091 | 531,239 | 278,506 | 0 | 809,745 | 298,555 | 138,395 | 0 | 436,950 | 348,883 | 150,889 | 0 | 499,772 |
| 2040 | 445,005 | 258,070 | 0 | 703,075 | 504,287 | 272,768 | 0 | 777,055 | 286,864 | 134,733 | 0 | 421,596 | 329,406 | 146,400 | 0 | 475,806 |
| 2041 | 431,572 | 253,463 | 0 | 685,036 | 479,149 | 267,441 | 0 | 746,590 | 275,354 | 131,181 | 0 | 406,535 | 310,657 | 142,140 | 0 | 452,797 |

Notes: Col (1) - (3) from Exhibit E-77, Col (15), (30), etc.
 Col (4) = (1) + (2) + (3)
 Col (9) - (11) from Exhibit E-77, Col (18), (33), etc.
 Col (12) = (9) + (10) + (11)
 Col (5) - (8) and (13) - (16) based on (1) - (4) and (9) - (12), with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Land Reclamation Cost Projection - Deterministic Model

| | | | | | | | | | | | | | | | | 2022 | | | | | |
|-------------------|-----------|-------------|------------------|------------------|---------------------|----------------------|------------------|-------------------------------|-------------------------------|---------------------|----------------------|-----------------------------|--------------------------------------|-----------------|------------------------------|--------------------------------|---------------|--|--|--|--|
| Permit Issue Year | Mine Type | Mine Status | Permit Count (4) | Current | | Adjustment Factor | | Released Permitted Count (10) | Forfeited Permitted Count (9) | Released Acres (11) | Forfeited Acres (12) | Avg Recl Cost per Acre (13) | Adjustment Factor Permit Status (14) | Gross Cost (15) | Current Security Amount (16) | Forfeited Security Amount (17) | Net Cost (18) | | | | |
| | | | | Bonded Acres (5) | Forfeiture Rate (6) | Permit Bond Size (7) | Release Rate (8) | | | | | | | | | | | | | | |
| 1963 | Surface | Active | - | - | 0.000% | 0.00 | 1.069% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1964 | Surface | Active | - | - | 0.000% | 0.00 | 1.090% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1965 | Surface | Active | - | - | 0.000% | 0.00 | 1.113% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1966 | Surface | Active | - | - | 0.000% | 0.00 | 1.135% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1967 | Surface | Active | - | - | 0.000% | 0.00 | 1.159% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1968 | Surface | Active | - | - | 0.000% | 0.00 | 1.182% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1969 | Surface | Active | - | - | 0.000% | 0.00 | 1.206% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1970 | Surface | Active | - | - | 0.000% | 0.00 | 1.231% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1971 | Surface | Active | - | - | 0.005% | 0.00 | 1.256% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1972 | Surface | Active | 1 | 400.00 | 0.021% | 1.50 | 1.282% | 0.00 | 0.01 | 0.13 | 5.13 | 2,685.00 | 1.00 | 344.94 | 32,250.00 | 10.36 | 334.58 | | | | |
| 1973 | Surface | Active | - | - | 0.038% | 0.00 | 1.308% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1974 | Surface | Active | - | - | 0.054% | 0.00 | 1.335% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1975 | Surface | Active | - | - | 0.071% | 0.00 | 1.362% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1976 | Surface | Active | - | - | 0.087% | 0.00 | 1.390% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - | | | | |
| 1977 | Surface | Active | 6 | 1,933.27 | 0.103% | 0.67 | 1.418% | 0.01 | 0.09 | 1.33 | 27.41 | 2,685.00 | 1.00 | 3,577.04 | 4,954,814.00 | 3,414.40 | 162.64 | | | | |
| 1978 | Surface | Active | 4 | 2,280.93 | 0.120% | 0.50 | 1.447% | 0.00 | 0.06 | 1.37 | 33.00 | 2,685.00 | 1.00 | 3,667.14 | 3,663,488.00 | 2,193.64 | 1,473.50 | | | | |
| 1979 | Surface | Active | 2 | 180.00 | 0.136% | 1.00 | 1.476% | 0.00 | 0.03 | 0.25 | 2.66 | 2,685.00 | 1.00 | 658.00 | 1,800,000.00 | 245.07 | 412.94 | | | | |
| 1980 | Surface | Active | 1 | 455.76 | 0.153% | 0.50 | 1.507% | 0.00 | 0.02 | 0.35 | 6.87 | 2,685.00 | 1.00 | 933.32 | 5,032,494.00 | 3,838.25 | - | | | | |
| 1981 | Surface | Active | 9 | 1,661.03 | 0.169% | 1.06 | 1.537% | 0.02 | 0.14 | 2.96 | 25.54 | 2,685.00 | 1.00 | 7,952.60 | 4,659,920.00 | 8,309.33 | - | | | | |
| 1982 | Surface | Active | 2 | 620.00 | 0.185% | 1.00 | 1.569% | 0.00 | 0.03 | 1.15 | 9.73 | 2,685.00 | 1.00 | 3,085.03 | 2,605,934.00 | 4,829.34 | - | | | | |
| 1983 | Surface | Active | 2 | 1,704.33 | 0.202% | 0.50 | 1.601% | 0.00 | 0.03 | 1.72 | 27.28 | 2,685.00 | 1.00 | 4,615.29 | 7,445,894.00 | 7,509.62 | - | | | | |
| 1984 | Surface | Active | - | - | 0.218% | 0.00 | 1.633% | - | - | - | - | 2,685.00 | 1.00 | - | 3,108,294.00 | - | - | | | | |
| 1985 | Surface | Active | 5 | 2,405.91 | 0.234% | 0.70 | 1.667% | 0.01 | 0.08 | 3.95 | 40.10 | 2,685.00 | 1.00 | 10,603.58 | 6,463,272.00 | 10,609.17 | - | | | | |
| 1986 | Surface | Active | 7 | 2,331.92 | 0.251% | 1.07 | 1.701% | 0.02 | 0.12 | 6.27 | 39.66 | 2,685.00 | 1.00 | 16,830.42 | 4,528,320.00 | 17,172.34 | 4,658.08 | | | | |
| 1987 | Surface | Active | 3 | 1,371.12 | 0.267% | 0.83 | 1.736% | 0.01 | 0.05 | 3.05 | 23.80 | 2,685.00 | 1.00 | 8,199.69 | 4,025,040.00 | 8,964.95 | - | | | | |
| 1988 | Surface | Active | 8 | 1,898.10 | 0.284% | 0.88 | 1.771% | 0.02 | 0.14 | 4.71 | 33.61 | 2,685.00 | 1.00 | 12,649.67 | 2,064,680.00 | 5,124.70 | 7,524.97 | | | | |
| 1989 | Surface | Active | 7 | 2,959.93 | 0.300% | 0.64 | 1.807% | 0.02 | 0.13 | 5.71 | 53.49 | 2,685.00 | 1.00 | 15,330.08 | 5,897,004.00 | 11,374.96 | 3,955.11 | | | | |
| 1990 | Surface | Active | 12 | 2,801.20 | 0.316% | 0.75 | 1.844% | 0.04 | 0.22 | 6.65 | 51.65 | 2,685.00 | 1.00 | 17,850.58 | 5,059,180.00 | 12,007.26 | 5,843.32 | | | | |
| 1991 | Surface | Active | 9 | 2,094.19 | 0.333% | 0.94 | 1.882% | 0.03 | 0.17 | 6.58 | 39.40 | 2,685.00 | 1.00 | 17,675.48 | 10,240,611.00 | 32,191.16 | - | | | | |
| 1992 | Surface | Active | 6 | 4,639.40 | 0.349% | 0.50 | 1.920% | 0.02 | 0.12 | 8.10 | 89.08 | 2,685.00 | 1.00 | 21,751.43 | 19,515,400.00 | 34,076.82 | - | | | | |
| 1993 | Surface | Active | 12 | 4,377.78 | 0.366% | 0.83 | 1.959% | 0.04 | 0.24 | 13.34 | 85.77 | 2,685.00 | 1.00 | 35,813.61 | 11,329,722.00 | 34,519.87 | 1,293.74 | | | | |
| 1994 | Surface | Active | 7 | 2,054.59 | 0.382% | 0.50 | 1.999% | 0.03 | 0.14 | 3.92 | 41.07 | 2,685.00 | 1.00 | 10,536.99 | 7,896,575.00 | 15,082.93 | - | | | | |
| 1995 | Surface | Active | 12 | 6,620.84 | 0.398% | 0.92 | 2.040% | 0.05 | 0.24 | 24.18 | 135.06 | 2,685.00 | 1.00 | 64,921.91 | 25,580,598.88 | 93,421.02 | - | | | | |
| 1996 | Surface | Active | 12 | 6,830.47 | 0.415% | 0.83 | 2.082% | 0.05 | 0.25 | 23.61 | 142.18 | 2,685.00 | 1.00 | 63,393.67 | 18,396,480.00 | 63,589.55 | - | | | | |
| 1997 | Surface | Active | 24 | 13,199.94 | 0.431% | 0.79 | 2.124% | 0.10 | 0.51 | 45.06 | 280.37 | 2,685.00 | 1.00 | 120,982.34 | 56,796,023.00 | 193,882.65 | - | | | | |
| 1998 | Surface | Active | 19 | 11,029.10 | 0.448% | 0.66 | 2.167% | 0.09 | 0.41 | 32.48 | 239.04 | 2,685.00 | 1.00 | 87,198.14 | 45,372,480.00 | 133,602.74 | - | | | | |
| 1999 | Surface | Active | 4 | 2,072.61 | 0.464% | 0.50 | 2.212% | 0.02 | 0.09 | 4.81 | 45.84 | 2,685.00 | 1.00 | 12,909.77 | 7,201,000.00 | 16,705.12 | - | | | | |
| 2000 | Surface | Active | 6 | 4,526.19 | 0.480% | 0.50 | 2.257% | 0.03 | 0.14 | 10.87 | 102.15 | 2,685.00 | 1.00 | 29,188.49 | 19,207,060.00 | 46,131.28 | - | | | | |
| 2001 | Surface | Active | 19 | 6,826.55 | 0.497% | 0.87 | 2.303% | 0.09 | 0.44 | 29.45 | 157.20 | 2,685.00 | 1.00 | 79,070.13 | 32,109,664.48 | 138,516.86 | - | | | | |
| 2002 | Surface | Active | 15 | 6,499.09 | 0.513% | 0.63 | 2.350% | 0.08 | 0.35 | 21.12 | 152.72 | 2,685.00 | 1.00 | 56,710.64 | 25,567,500.00 | 83,091.38 | - | | | | |
| 2003 | Surface | Active | 16 | 6,916.12 | 0.530% | 0.81 | 2.398% | 0.08 | 0.38 | 29.76 | 165.83 | 2,685.00 | 1.00 | 79,895.26 | 40,397,928.00 | 173,809.41 | - | | | | |
| 2004 | Surface | Active | 21 | 11,573.91 | 0.574% | 0.79 | 2.447% | 0.14 | 0.51 | 61.25 | 283.18 | 2,685.00 | 1.00 | 164,468.84 | 49,951,983.00 | 264,369.89 | - | | | | |
| 2005 | Surface | Active | 15 | 5,236.53 | 0.642% | 1.03 | 2.497% | 0.10 | 0.37 | 34.74 | 130.74 | 2,685.00 | 1.00 | 93,281.54 | 14,496,391.33 | 96,176.22 | - | | | | |
| 2006 | Surface | Active | 10 | 4,862.21 | 0.611% | 0.90 | 2.548% | 0.06 | 0.25 | 26.72 | 123.87 | 2,685.00 | 1.00 | 71,731.73 | 17,744,470.00 | 97,498.14 | - | | | | |
| 2007 | Surface | Active | 22 | 6,382.38 | 0.579% | 0.82 | 2.600% | 0.13 | 0.57 | 30.23 | 165.92 | 2,685.00 | 1.00 | 81,176.49 | 17,696,714.00 | 83,829.32 | - | | | | |
| 2008 | Surface | Active | 12 | 8,631.88 | 0.547% | 0.58 | 2.653% | 0.07 | 0.32 | 27.56 | 228.97 | 2,685.00 | 1.00 | 74,010.25 | 18,544,344.00 | 59,217.99 | 14,792.26 | | | | |
| 2009 | Surface | Active | 16 | 6,181.98 | 0.516% | 0.75 | 2.707% | 0.08 | 0.43 | 23.92 | 167.33 | 2,685.00 | 1.00 | 64,222.38 | 20,632,776.50 | 79,831.11 | - | | | | |
| 2010 | Surface | Active | 12 | 6,203.98 | 0.484% | 0.92 | 2.438% | 0.06 | 0.29 | 27.54 | 151.23 | 2,685.00 | 1.00 | 73,957.25 | 9,213,726.00 | 40,907.35 | 33,049.90 | | | | |
| 2011 | Surface | Active | 17 | 2,986.04 | 0.453% | 0.74 | 2.168% | 0.08 | 0.37 | 9.94 | 64.75 | 2,685.00 | 1.00 | 26,693.86 | 6,759,620.00 | 22,505.77 | 4,188.10 | | | | |
| 2012 | Surface | Active | 22 | 7,650.01 | 0.421% | 0.86 | 1.899% | 0.09 | 0.42 | 27.83 | 145.29 | 2,685.00 | 1.00 | 74,729.33 | 11,505,876.51 | 41,860.51 | 32,868.82 | | | | |
| 2013 | Surface | Active | 22 | 8,508.13 | 0.390% | 0.95 | 1.630% | 0.09 | 0.36 | 31.65 | 138.69 | 2,685.00 | 1.00 | 84,982.80 | 18,838,560.00 | 70,081.00 | 14,901.79 | | | | |
| 2014 | Surface | Active | 16 | 4,153.44 | 0.358% | 0.75 | 1.361% | 0.06 | 0.22 | 11.16 | 56.52 | 2,685.00 | 1.00 | 29,958.34 | 14,762,600.00 | 39,657.77 | - | | | | |
| 2015 | Surface | Active | 13 | 4,371.03 | 0.327% | 0.73 | 1.092% | 0.04 | 0.14 | 10.43 | 47.72 | 2,685.00 | 1.00 | 28,014.32 | 10,767,800.00 | 25,702.71 | 2,311.61 | | | | |
| 2016 | Surface | Active | 10 | 3,389.17 | 0.295% | 0.70 | 0.823% | 0.03 | 0.08 | 7.00 | 27.88 | 2,685.00 | 1.00 | 18,797.78 | 6,702,080.00 | 13,844.54 | 4,953.24 | | | | |
| 2017 | Surface | Active | 6 | 1,324.50 | 0.264% | 1.00 | 0.553% | 0.02 | 0.03 | 3.49 | 7.33 | 2,685.00 | 1.00 | 9,372.96 | 3,369,999.35 | 8,881.99 | 490.97 | | | | |
| 2018 | Surface | Active | 8 | 3,466.31 | 0.232% | 1.00 | 0.284% | 0.02 | 0.02 | 8.04 | 9.85 | 2,685.00 | 1.00 | 21,594.19 | 9,065,440.00 | 21,033.63 | 560.57 | | | | |
| 2019 | Surface | Active | 8 | 4,158.88 | 0.200% | 0.88 | 0.190% | 0.02 | 0.02 | 7.30 | 7.90 | 2,685.00 | 1.00 | 19,588.37 | 2,559,920.00 | 4,490.60 | 15,097.78 | | | | |
| 2020 | Surface | Active | 11 | 3,830.10 | 0.169% | 0.86 | 0.096% | 0.02 | 0.01 | 5.59 | 3.67 | 2,685.00 | 1.00 | 15,004.26 | 2,559,920.00 | 3,734.97 | 11,269.29 | | | | |
| 2021 | Surface | Active | 7 | 3,770.84 | 0.000% | 0.93 | 0.082% | - | 0.01 | - | 3.09 | 2,685.00 | 1.00 | - | 2,559,920.00 | - | - | | | | |

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 Land Reclamation Cost Projection - Deterministic Model

| 2022 | | | | | | | | | | | | | | | | | |
|-------------------|-----------|-------------|------------------|------------------|---------------------|------------------|----------------------------|----------------------------|----------------------|---------------------|-----------------------------|--------------------------------------|-----------------|------------------------------|--------------------------------|---------------|-----------|
| Permit Issue Year | Mine Type | Mine Status | Current | | Adjustment Factor | | Forfeited Permit Count (9) | Released Permit Count (10) | Forfeited Acres (11) | Released Acres (12) | Avg Recl Cost per Acre (13) | Adjustment Factor Permit Status (14) | Gross Cost (15) | Current Security Amount (16) | Forfeited Security Amount (17) | Net Cost (18) | |
| | | | Permit Count (4) | Bonded Acres (5) | Forfeiture Rate (6) | Release Rate (8) | | | | | | | | | | | |
| 1963 | Surface | Inactive | - | - | 0.000% | 0.00 | 0.668% | - | - | - | - | 2,685.00 | 1.00 | - | 50 | - | - |
| 1964 | Surface | Inactive | - | - | 0.000% | 0.00 | 0.682% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1965 | Surface | Inactive | - | - | 0.000% | 0.00 | 0.695% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1966 | Surface | Inactive | - | - | 0.000% | 0.00 | 0.710% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1967 | Surface | Inactive | - | - | 0.000% | 0.00 | 0.724% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1968 | Surface | Inactive | - | - | 0.000% | 0.00 | 0.739% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1969 | Surface | Inactive | - | - | 0.000% | 0.00 | 0.754% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1970 | Surface | Inactive | - | - | 0.000% | 0.00 | 0.769% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1971 | Surface | Inactive | - | - | 0.011% | 0.00 | 0.785% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1972 | Surface | Inactive | - | - | 0.048% | 0.00 | 0.801% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1973 | Surface | Inactive | - | - | 0.085% | 0.00 | 0.817% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1974 | Surface | Inactive | - | - | 0.122% | 0.00 | 0.834% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1975 | Surface | Inactive | - | - | 0.159% | 0.00 | 0.851% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1976 | Surface | Inactive | 1 | 438.80 | 0.196% | 0.50 | 0.869% | 0.00 | 0.01 | 0.43 | 3.81 | 2,685.00 | 1.00 | 1,152.81 | 442,000.00 | 432.48 | 720.33 |
| 1977 | Surface | Inactive | - | - | 0.233% | 0.00 | 0.886% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1978 | Surface | Inactive | - | - | 0.269% | 0.00 | 0.904% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1979 | Surface | Inactive | - | - | 0.306% | 0.00 | 0.923% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1980 | Surface | Inactive | - | - | 0.343% | 0.00 | 0.942% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1981 | Surface | Inactive | 1 | 4.47 | 0.380% | 0.50 | 0.961% | 0.00 | 0.01 | 0.01 | 0.04 | 2,685.00 | 1.00 | 22.81 | - | - | 22.81 |
| 1982 | Surface | Inactive | - | - | 0.417% | 0.00 | 0.980% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1983 | Surface | Inactive | - | - | 0.454% | 0.00 | 1.000% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1984 | Surface | Inactive | - | - | 0.491% | 0.00 | 1.021% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1985 | Surface | Inactive | - | - | 0.528% | 0.00 | 1.042% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1986 | Surface | Inactive | 1 | 411.07 | 0.564% | 0.50 | 1.063% | 0.01 | 0.01 | 1.16 | 4.37 | 2,685.00 | 1.00 | 3,115.20 | 759,360.00 | 2,143.26 | 971.95 |
| 1987 | Surface | Inactive | 2 | 415.61 | 0.601% | 1.00 | 1.085% | 0.01 | 0.02 | 2.50 | 4.51 | 2,685.00 | 1.00 | 6,710.76 | 1,218,200.00 | 7,325.88 | - |
| 1988 | Surface | Inactive | 1 | 1,304.38 | 0.638% | 0.50 | 1.107% | 0.01 | 0.01 | 4.16 | 14.44 | 2,685.00 | 1.00 | 11,176.57 | 3,589,760.00 | 11,455.81 | - |
| 1989 | Surface | Inactive | 2 | 273.00 | 0.675% | 1.00 | 1.129% | 0.01 | 0.02 | 1.84 | 3.08 | 2,685.00 | 1.00 | 4,948.73 | 577,400.00 | 3,898.19 | 1,050.53 |
| 1990 | Surface | Inactive | 1 | 81.70 | 0.712% | 0.50 | 1.152% | 0.01 | 0.01 | 0.29 | 0.94 | 2,685.00 | 1.00 | 780.95 | 474,203.73 | 1,688.19 | - |
| 1991 | Surface | Inactive | - | - | 0.749% | 0.00 | 1.176% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1992 | Surface | Inactive | - | - | 0.786% | 0.00 | 1.200% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1993 | Surface | Inactive | - | - | 0.823% | 0.00 | 1.224% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1994 | Surface | Inactive | - | - | 0.860% | 0.00 | 1.249% | - | - | - | - | 2,685.00 | 1.00 | - | 2,316,000.00 | - | - |
| 1995 | Surface | Inactive | 3 | 3,503.18 | 0.896% | 0.50 | 1.275% | 0.03 | 0.04 | 15.70 | 44.66 | 2,685.00 | 1.00 | 42,158.17 | 7,211,120.00 | 32,320.47 | 9,837.69 |
| 1996 | Surface | Inactive | 1 | 193.90 | 0.933% | 0.50 | 1.301% | 0.01 | 0.01 | 0.90 | 2.52 | 2,685.00 | 1.00 | 2,429.44 | 5,826,934.00 | 27,190.98 | - |
| 1997 | Surface | Inactive | - | - | 0.970% | 0.00 | 1.328% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 1998 | Surface | Inactive | 1 | 846.89 | 1.007% | 0.50 | 1.355% | 0.01 | 0.01 | 4.26 | 11.47 | 2,685.00 | 1.00 | 11,449.60 | 4,109,160.00 | 20,690.55 | - |
| 1999 | Surface | Inactive | 1 | 2,264.80 | 1.044% | 0.50 | 1.382% | 0.01 | 0.01 | 11.82 | 31.31 | 2,685.00 | 1.00 | 31,740.47 | 2,605,000.00 | 13,597.12 | 18,143.35 |
| 2000 | Surface | Inactive | - | - | 1.081% | 0.00 | 1.410% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 2001 | Surface | Inactive | 1 | 596.67 | 1.118% | 0.50 | 1.439% | 0.01 | 0.01 | 3.33 | 8.59 | 2,685.00 | 1.00 | 8,952.98 | 1,955,000.00 | 10,925.36 | - |
| 2002 | Surface | Inactive | 2 | 765.87 | 1.155% | 0.50 | 1.469% | 0.02 | 0.03 | 4.42 | 11.25 | 2,685.00 | 1.00 | 11,871.00 | 7,564,320.00 | 43,667.44 | - |
| 2003 | Surface | Inactive | 4 | 4,249.33 | 1.191% | 0.50 | 1.499% | 0.05 | 0.06 | 25.31 | 63.68 | 2,685.00 | 1.00 | 67,988.55 | 11,163,242.00 | 66,501.94 | 1,466.72 |
| 2004 | Surface | Inactive | 3 | 3,700.97 | 1.516% | 0.50 | 1.529% | 0.05 | 0.05 | 28.05 | 56.59 | 2,685.00 | 1.00 | 75,302.08 | 4,993,320.00 | 37,838.73 | 37,463.35 |
| 2005 | Surface | Inactive | 1 | 25.99 | 1.445% | 1.50 | 1.560% | 0.01 | 0.02 | 0.56 | 0.41 | 2,685.00 | 1.00 | 1,512.14 | 26,000.00 | 563.40 | 948.74 |
| 2006 | Surface | Inactive | 1 | 244.59 | 1.374% | 0.50 | 1.592% | 0.01 | 0.02 | 1.68 | 3.89 | 2,685.00 | 1.00 | 4,510.52 | 823,360.00 | 5,655.01 | - |
| 2007 | Surface | Inactive | 2 | 399.20 | 1.303% | 0.50 | 1.625% | 0.03 | 0.03 | 2.60 | 6.49 | 2,685.00 | 1.00 | 6,981.37 | 298,320.00 | 1,943.07 | 5,038.30 |
| 2008 | Surface | Inactive | 4 | 864.07 | 1.232% | 0.75 | 1.658% | 0.05 | 0.07 | 7.98 | 14.33 | 2,685.00 | 1.00 | 21,431.99 | 1,122,068.69 | 10,365.46 | 11,066.52 |
| 2009 | Surface | Inactive | 3 | 680.43 | 1.161% | 0.50 | 1.692% | 0.03 | 0.05 | 3.95 | 11.51 | 2,685.00 | 1.00 | 10,603.12 | 1,762,440.00 | 10,228.69 | 374.42 |
| 2010 | Surface | Inactive | 1 | 5.11 | 1.090% | 1.50 | 1.523% | 0.01 | 0.02 | 0.08 | 0.08 | 2,685.00 | 1.00 | 224.28 | 11,040.00 | 180.47 | 43.81 |
| 2011 | Surface | Inactive | 1 | 560.86 | 1.019% | 0.50 | 1.355% | 0.01 | 0.01 | 2.86 | 7.60 | 2,685.00 | 1.00 | 7,671.17 | 5,008,760.00 | 25,514.86 | - |
| 2012 | Surface | Inactive | 2 | 676.78 | 0.948% | 0.50 | 1.187% | 0.02 | 0.02 | 3.21 | 8.03 | 2,685.00 | 1.00 | 8,611.89 | 1,705,920.00 | 8,084.72 | 527.16 |
| 2013 | Surface | Inactive | 1 | 93.44 | 0.877% | 0.50 | 1.019% | 0.01 | 0.01 | 0.41 | 0.95 | 2,685.00 | 1.00 | 1,099.98 | 1,057,160.00 | 4,634.99 | - |
| 2014 | Surface | Inactive | 4 | 2,929.61 | 0.806% | 0.75 | 0.851% | 0.03 | 0.03 | 17.71 | 24.92 | 2,685.00 | 1.00 | 47,544.70 | 4,406,040.00 | 26,693.55 | 20,913.15 |
| 2015 | Surface | Inactive | 2 | 704.80 | 0.735% | 0.50 | 0.682% | 0.01 | 0.01 | 2.59 | 4.81 | 2,685.00 | 1.00 | 6,954.00 | 1,230,000.00 | 4,519.91 | 2,434.09 |
| 2016 | Surface | Inactive | 1 | 494.54 | 0.664% | 0.50 | 0.514% | 0.01 | 0.01 | 1.64 | 2.54 | 2,685.00 | 1.00 | 4,408.28 | 29,400.00 | 97.60 | 4,310.67 |
| 2017 | Surface | Inactive | - | - | 0.593% | 0.00 | 0.346% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 2018 | Surface | Inactive | 1 | 351.08 | 0.522% | 0.50 | 0.178% | 0.01 | 0.00 | 0.92 | 0.62 | 2,685.00 | 1.00 | 2,460.53 | - | - | 2,460.53 |
| 2019 | Surface | Inactive | 1 | 452.10 | 0.451% | 1.50 | 0.119% | 0.00 | 0.00 | 3.06 | 0.54 | 2,685.00 | 1.00 | 8,213.39 | - | - | 8,213.39 |
| 2020 | Surface | Inactive | - | - | 0.380% | 0.00 | 0.060% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |
| 2021 | Surface | Inactive | - | - | 0.000% | 0.00 | 0.051% | - | - | - | - | 2,685.00 | 1.00 | - | - | - | - |

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| Permit Issue Year | Mine Type | Mine Status | Permit Count | Current Bonded Acres | Forfeiture Rate | Adjustment | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost | Current Security Amount | Forfeited Security Amount | Net Cost |
|-------------------|-----------|-----------------|--------------|----------------------|-----------------|------------------|--------------|------------------------|-----------------------|-----------------|----------------|------------------------|---------------------------------|------------|-------------------------|---------------------------|----------|
| | | | | | | Permit Bond Size | Release Rate | Forfeited Permit Count | Released Permit Count | Forfeited Acres | Released Acres | | | | | | |
| 1963 | Surface | Phased Released | - | - | 0.000% | 0.00 | 3.206% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1964 | Surface | Phased Released | - | - | 0.000% | 0.00 | 3.271% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1965 | Surface | Phased Released | - | - | 0.000% | 0.00 | 3.338% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1966 | Surface | Phased Released | - | - | 0.000% | 0.00 | 3.406% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1967 | Surface | Phased Released | - | - | 0.000% | 0.00 | 3.476% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1968 | Surface | Phased Released | - | - | 0.000% | 0.00 | 3.547% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1969 | Surface | Phased Released | - | - | 0.000% | 0.00 | 3.619% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1970 | Surface | Phased Released | - | - | 0.000% | 0.00 | 3.693% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1971 | Surface | Phased Released | - | - | 0.020% | 0.00 | 3.768% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1972 | Surface | Phased Released | - | - | 0.084% | 0.00 | 3.845% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1973 | Surface | Phased Released | - | - | 0.148% | 0.00 | 3.924% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1974 | Surface | Phased Released | 2 | 189.60 | 0.212% | 0.00 | 4.004% | 0.00 | 0.08 | - | 7.59 | 2,685.00 | 0.50 | - | 98,250.00 | - | - |
| 1975 | Surface | Phased Released | 2 | 8.30 | 0.276% | 0.00 | 4.086% | 0.01 | 0.08 | - | 0.34 | 2,685.00 | 0.50 | - | 30,600.00 | - | - |
| 1976 | Surface | Phased Released | 5 | 626.17 | 0.341% | 0.00 | 4.169% | 0.02 | 0.21 | - | 26.11 | 2,685.00 | 0.50 | - | 112,250.00 | - | - |
| 1977 | Surface | Phased Released | 2 | 48.00 | 0.405% | 0.00 | 4.254% | 0.01 | 0.09 | - | 2.04 | 2,685.00 | 0.50 | - | 14,750.00 | - | - |
| 1978 | Surface | Phased Released | 2 | 158.81 | 0.469% | 0.00 | 4.341% | 0.01 | 0.09 | - | 6.89 | 2,685.00 | 0.50 | - | 115,400.00 | - | - |
| 1979 | Surface | Phased Released | 2 | 358.00 | 0.533% | 0.00 | 4.429% | 0.01 | 0.09 | - | 15.86 | 2,685.00 | 0.50 | - | 122,400.00 | - | - |
| 1980 | Surface | Phased Released | 2 | 621.75 | 0.597% | 0.00 | 4.520% | 0.01 | 0.09 | - | 28.10 | 2,685.00 | 0.50 | - | 401,500.00 | - | - |
| 1981 | Surface | Phased Released | 9 | 1,821.81 | 0.662% | 0.00 | 4.612% | 0.06 | 0.42 | - | 84.02 | 2,685.00 | 0.50 | - | 1,675,720.00 | - | - |
| 1982 | Surface | Phased Released | - | - | 0.726% | 0.00 | 4.706% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 1983 | Surface | Phased Released | 5 | 302.61 | 0.790% | 0.00 | 4.802% | 0.04 | 0.24 | - | 14.53 | 2,685.00 | 0.50 | - | 179,802.37 | - | - |
| 1984 | Surface | Phased Released | 4 | 2,603.39 | 0.854% | 0.00 | 4.900% | 0.03 | 0.20 | - | 127.57 | 2,685.00 | 0.50 | - | 2,263,360.00 | - | - |
| 1985 | Surface | Phased Released | 2 | 1,270.29 | 0.918% | 0.00 | 5.000% | 0.02 | 0.10 | - | 63.52 | 2,685.00 | 0.50 | - | 80,750.00 | - | - |
| 1986 | Surface | Phased Released | 5 | 1,212.46 | 0.983% | 0.00 | 5.102% | 0.05 | 0.26 | - | 61.86 | 2,685.00 | 0.50 | - | 639,708.00 | - | - |
| 1987 | Surface | Phased Released | 4 | 760.81 | 1.047% | 0.00 | 5.207% | 0.04 | 0.21 | - | 39.61 | 2,685.00 | 0.50 | - | 442,636.00 | - | - |
| 1988 | Surface | Phased Released | 5 | 478.00 | 1.111% | 0.00 | 5.313% | 0.06 | 0.27 | - | 25.39 | 2,685.00 | 0.50 | - | 111,000.00 | - | - |
| 1989 | Surface | Phased Released | 6 | 1,688.64 | 1.175% | 0.00 | 5.421% | 0.07 | 0.33 | - | 91.54 | 2,685.00 | 0.50 | - | 386,550.00 | - | - |
| 1990 | Surface | Phased Released | 3 | 662.34 | 1.239% | 0.00 | 5.532% | 0.04 | 0.17 | - | 36.64 | 2,685.00 | 0.50 | - | 506,608.00 | - | - |
| 1991 | Surface | Phased Released | 5 | 1,006.45 | 1.304% | 0.00 | 5.645% | 0.07 | 0.28 | - | 56.81 | 2,685.00 | 0.50 | - | 537,148.00 | - | - |
| 1992 | Surface | Phased Released | - | - | 1.368% | 0.00 | 5.760% | - | - | - | - | 2,685.00 | 0.50 | - | 29,800.00 | - | - |
| 1993 | Surface | Phased Released | 1 | 562.59 | 1.432% | 0.00 | 5.877% | 0.01 | 0.06 | - | 33.07 | 2,685.00 | 0.50 | - | 37,838.98 | - | - |
| 1994 | Surface | Phased Released | 6 | 2,470.42 | 1.496% | 0.00 | 5.997% | 0.09 | 0.36 | - | 148.16 | 2,685.00 | 0.50 | - | 1,520,619.00 | - | - |
| 1995 | Surface | Phased Released | 4 | 498.93 | 1.560% | 0.00 | 6.120% | 0.06 | 0.24 | - | 30.53 | 2,685.00 | 0.50 | - | 536,443.26 | - | - |
| 1996 | Surface | Phased Released | 4 | 563.71 | 1.625% | 0.00 | 6.245% | 0.06 | 0.25 | - | 35.20 | 2,685.00 | 0.50 | - | 717,833.00 | - | - |
| 1997 | Surface | Phased Released | 2 | 969.50 | 1.689% | 0.00 | 6.372% | 0.03 | 0.13 | - | 61.78 | 2,685.00 | 0.50 | - | 1,659,760.00 | - | - |
| 1998 | Surface | Phased Released | 3 | 511.73 | 1.753% | 0.00 | 6.502% | 0.05 | 0.20 | - | 33.27 | 2,685.00 | 0.50 | - | 581,056.00 | - | - |
| 1999 | Surface | Phased Released | 1 | 14.87 | 1.817% | 0.00 | 6.635% | 0.02 | 0.07 | - | 0.99 | 2,685.00 | 0.50 | - | - | - | - |
| 2000 | Surface | Phased Released | 1 | 19.70 | 1.881% | 0.00 | 6.770% | 0.02 | 0.07 | - | 1.33 | 2,685.00 | 0.50 | - | - | - | - |
| 2001 | Surface | Phased Released | 3 | 491.55 | 1.946% | 0.00 | 6.908% | 0.06 | 0.21 | - | 33.96 | 2,685.00 | 0.50 | - | 493,244.06 | - | - |
| 2002 | Surface | Phased Released | 1 | 106.29 | 2.010% | 0.00 | 7.049% | 0.02 | 0.07 | - | 7.49 | 2,685.00 | 0.50 | - | 76,950.00 | - | - |
| 2003 | Surface | Phased Released | 1 | - | 2.074% | 0.00 | 7.193% | 0.02 | 0.07 | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 2004 | Surface | Phased Released | 2 | 470.13 | 2.638% | 0.00 | 7.340% | 0.05 | 0.15 | - | 34.51 | 2,685.00 | 0.50 | - | 116,250.00 | - | - |
| 2005 | Surface | Phased Released | 1 | 51.50 | 2.515% | 0.00 | 7.490% | 0.03 | 0.07 | - | 3.86 | 2,685.00 | 0.50 | - | 29,520.00 | - | - |
| 2006 | Surface | Phased Released | 1 | 60.78 | 2.391% | 0.00 | 7.643% | 0.02 | 0.08 | - | 4.65 | 2,685.00 | 0.50 | - | 49,200.00 | - | - |
| 2007 | Surface | Phased Released | - | - | 2.268% | 0.00 | 7.799% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 2008 | Surface | Phased Released | - | - | 2.144% | 0.00 | 7.958% | - | - | - | - | 2,685.00 | 0.50 | - | 143,500.00 | - | - |
| 2009 | Surface | Phased Released | 2 | 220.84 | 2.021% | 0.00 | 8.120% | 0.04 | 0.16 | - | 17.93 | 2,685.00 | 0.50 | - | 257,086.00 | - | - |
| 2010 | Surface | Phased Released | - | - | 1.897% | 0.00 | 7.313% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 2011 | Surface | Phased Released | 1 | 55.50 | 1.773% | 0.00 | 6.505% | 0.02 | 0.07 | - | 3.61 | 2,685.00 | 0.50 | - | 45,728.00 | - | - |
| 2012 | Surface | Phased Released | - | - | 1.650% | 0.00 | 5.698% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 2013 | Surface | Phased Released | - | - | 1.526% | 0.00 | 4.890% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 2014 | Surface | Phased Released | 1 | 27.91 | 1.403% | 0.00 | 4.083% | 0.01 | 0.04 | - | 1.14 | 2,685.00 | 0.50 | - | 20,800.00 | - | - |
| 2015 | Surface | Phased Released | - | - | 1.279% | 0.00 | 3.275% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 2016 | Surface | Phased Released | - | - | 1.156% | 0.00 | 2.468% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 2017 | Surface | Phased Released | - | - | 1.032% | 0.00 | 1.660% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 2018 | Surface | Phased Released | - | - | 0.909% | 0.00 | 0.852% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 2019 | Surface | Phased Released | - | - | 0.785% | 0.00 | 0.570% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 2020 | Surface | Phased Released | - | - | 0.662% | 0.00 | 0.287% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |
| 2021 | Surface | Phased Released | - | - | 0.000% | 0.00 | 0.246% | - | - | - | - | 2,685.00 | 0.50 | - | - | - | - |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Land Reclamation Cost Projection - Deterministic Model

| 2022 | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------|-----------------|------------------|--------------------------|---------------------|----------------------|------------------|------------------|----------------------------|----------------------------|----------------------|---------------------|-----------------------------|--------------------------------------|-----------------|------------------------------|--------------------------------|---------------|
| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current Bonded Acres (5) | Forfeiture Rate (6) | Adjustment Factor | | Release Rate (8) | Forfeited Permit Count (9) | Released Permit Count (10) | Forfeited Acres (11) | Released Acres (12) | Avg Recl Cost per Acre (13) | Adjustment Factor Permit Status (14) | Gross Cost (15) | Current Security Amount (16) | Forfeited Security Amount (17) | Net Cost (18) |
| | | | | | | Permit Bond Size (7) | Release Rate (8) | | | | | | | | | | | |
| 1963 | Underground | Active | - | - | 0.152% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1964 | Underground | Active | - | - | 0.154% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1965 | Underground | Active | - | - | 0.156% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1966 | Underground | Active | - | - | 0.157% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1967 | Underground | Active | - | - | 0.159% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1968 | Underground | Active | - | - | 0.161% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1969 | Underground | Active | - | - | 0.163% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1970 | Underground | Active | - | - | 0.165% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1971 | Underground | Active | - | - | 0.167% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1972 | Underground | Active | - | - | 0.169% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1973 | Underground | Active | - | - | 0.171% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1974 | Underground | Active | - | - | 0.173% | 0.00 | 0.120% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1975 | Underground | Active | - | - | 0.175% | 0.00 | 0.261% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1976 | Underground | Active | - | - | 0.177% | 0.00 | 0.401% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - | |
| 1977 | Underground | Active | 1 | 22.53 | 0.178% | 1.50 | 0.541% | 0.00 | 0.01 | 0.06 | 0.12 | 11,610.00 | 1.00 | 700.05 | 72,960.00 | 195.26 | 504.79 | |
| 1978 | Underground | Active | 1 | 94.87 | 0.180% | 0.50 | 0.881% | 0.01 | 0.01 | 0.09 | 0.65 | 11,610.00 | 1.00 | 993.09 | 266,720.00 | 240.48 | 752.61 | |
| 1979 | Underground | Active | 7 | 745.26 | 0.182% | 1.21 | 0.821% | 0.01 | 0.06 | 1.65 | 6.12 | 11,610.00 | 1.00 | 19,146.25 | 4,610,235.00 | 10,201.56 | 8,944.69 | |
| 1980 | Underground | Active | 5 | 222.16 | 0.184% | 1.10 | 0.961% | 0.01 | 0.05 | 0.45 | 2.14 | 11,610.00 | 1.00 | 5,224.33 | 467,040.00 | 945.99 | 4,278.34 | |
| 1981 | Underground | Active | 17 | 891.30 | 0.186% | 1.21 | 1.101% | 0.03 | 0.19 | 2.00 | 9.82 | 11,610.00 | 1.00 | 23,215.15 | 5,410,370.00 | 12,137.87 | 11,077.29 | |
| 1982 | Underground | Active | 2 | 33.93 | 0.188% | 1.50 | 1.241% | 0.00 | 0.02 | 0.10 | 0.42 | 11,610.00 | 1.00 | 1,110.56 | 1,618,334.00 | 4,562.42 | - | |
| 1983 | Underground | Active | 29 | 6,929.70 | 0.190% | 0.88 | 1.382% | 0.06 | 0.40 | 11.57 | 95.74 | 11,610.00 | 1.00 | 134,308.90 | 23,291,846.47 | 38,883.20 | 95,425.69 | |
| 1984 | Underground | Active | 16 | 2,706.46 | 0.192% | 1.00 | 1.522% | 0.03 | 0.24 | 5.19 | 41.18 | 11,610.00 | 1.00 | 60,254.08 | 13,955,020.00 | 25,628.44 | 34,625.63 | |
| 1985 | Underground | Active | 3 | 49.00 | 0.194% | 1.50 | 1.662% | 0.01 | 0.05 | 0.14 | 0.81 | 11,610.00 | 1.00 | 1,652.59 | 138,280.00 | 401.70 | 1,250.90 | |
| 1986 | Underground | Active | 5 | 252.11 | 0.196% | 1.10 | 1.802% | 0.01 | 0.09 | 0.54 | 4.54 | 11,610.00 | 1.00 | 6,296.70 | 681,920.00 | 1,468.98 | 4,829.72 | |
| 1987 | Underground | Active | 5 | 198.36 | 0.197% | 1.10 | 1.942% | 0.01 | 0.10 | 0.43 | 3.85 | 11,610.00 | 1.00 | 5,002.51 | 694,520.00 | 1,508.64 | 3,493.86 | |
| 1988 | Underground | Active | 4 | 157.83 | 0.199% | 1.25 | 2.082% | 0.01 | 0.08 | 0.39 | 3.29 | 11,610.00 | 1.00 | 4,566.78 | 615,280.00 | 1,533.42 | 3,033.36 | |
| 1989 | Underground | Active | 9 | 124.08 | 0.201% | 1.50 | 2.222% | 0.02 | 0.20 | 0.37 | 2.76 | 11,610.00 | 1.00 | 4,349.45 | 585,402.31 | 1,767.48 | 2,581.97 | |
| 1990 | Underground | Active | 5 | 136.22 | 0.203% | 1.30 | 2.363% | 0.01 | 0.12 | 0.36 | 3.22 | 11,610.00 | 1.00 | 4,177.51 | 462,200.00 | 1,220.88 | 2,956.62 | |
| 1991 | Underground | Active | 5 | 240.32 | 0.205% | 1.30 | 2.503% | 0.01 | 0.13 | 0.64 | 6.01 | 11,610.00 | 1.00 | 7,439.09 | 688,120.00 | 1,834.69 | 5,604.40 | |
| 1992 | Underground | Active | 12 | 1,027.11 | 0.207% | 1.08 | 2.643% | 0.02 | 0.32 | 2.30 | 27.14 | 11,610.00 | 1.00 | 26,741.22 | 5,221,728.00 | 11,709.71 | 15,031.51 | |
| 1993 | Underground | Active | 9 | 724.45 | 0.209% | 1.17 | 2.783% | 0.02 | 0.25 | 1.77 | 20.16 | 11,610.00 | 1.00 | 20,499.18 | 2,540,269.66 | 6,191.21 | 14,307.97 | |
| 1994 | Underground | Active | 13 | 610.69 | 0.211% | 1.04 | 2.923% | 0.03 | 0.38 | 1.34 | 17.85 | 11,610.00 | 1.00 | 15,521.56 | 1,656,784.00 | 3,627.01 | 11,894.55 | |
| 1995 | Underground | Active | 9 | 334.05 | 0.213% | 1.17 | 3.063% | 0.02 | 0.28 | 0.83 | 10.23 | 11,610.00 | 1.00 | 9,624.76 | 966,240.00 | 1,405.23 | 8,219.53 | |
| 1996 | Underground | Active | 10 | 244.18 | 0.215% | 1.20 | 3.203% | 0.02 | 0.32 | 0.63 | 7.82 | 11,610.00 | 1.00 | 7,301.22 | 302,160.00 | 778.20 | 6,523.02 | |
| 1997 | Underground | Active | 13 | 234.02 | 0.217% | 1.35 | 3.343% | 0.03 | 0.43 | 0.68 | 7.82 | 11,610.00 | 1.00 | 7,919.36 | 2,038,575.53 | 5,941.99 | 1,977.37 | |
| 1998 | Underground | Active | 10 | 523.54 | 0.218% | 1.00 | 3.484% | 0.02 | 0.35 | 1.14 | 18.24 | 11,610.00 | 1.00 | 13,276.92 | 2,273,844.00 | 4,966.79 | 8,310.13 | |
| 1999 | Underground | Active | 10 | 359.47 | 0.220% | 1.40 | 3.624% | 0.02 | 0.36 | 1.11 | 13.03 | 11,610.00 | 1.00 | 12,873.89 | 2,161,420.00 | 6,667.36 | 6,206.53 | |
| 2000 | Underground | Active | 10 | 461.64 | 0.222% | 1.20 | 3.764% | 0.02 | 0.38 | 1.23 | 17.38 | 11,610.00 | 1.00 | 14,293.65 | 1,767,320.00 | 4,713.27 | 9,580.37 | |
| 2001 | Underground | Active | 5 | 224.71 | 0.224% | 0.90 | 3.904% | 0.01 | 0.20 | 0.45 | 8.77 | 11,610.00 | 1.00 | 5,262.29 | 505,680.00 | 1,020.12 | 4,242.84 | |
| 2002 | Underground | Active | 8 | 288.53 | 0.226% | 1.38 | 4.044% | 0.02 | 0.32 | 0.90 | 11.67 | 11,610.00 | 1.00 | 10,412.03 | 895,560.00 | 2,783.60 | 7,628.43 | |
| 2003 | Underground | Active | 11 | 969.45 | 0.228% | 1.23 | 4.184% | 0.03 | 0.46 | 2.71 | 40.56 | 11,610.00 | 1.00 | 31,488.59 | 4,399,200.00 | 12,307.48 | 19,181.10 | |
| 2004 | Underground | Active | 8 | 445.92 | 0.230% | 1.13 | 3.383% | 0.02 | 0.27 | 1.15 | 15.09 | 11,610.00 | 1.00 | 13,387.85 | 9,500,339.00 | 24,567.49 | - | |
| 2005 | Underground | Active | 8 | 360.91 | 0.232% | 1.13 | 3.249% | 0.02 | 0.26 | 0.94 | 11.73 | 11,610.00 | 1.00 | 10,925.41 | 1,029,400.00 | 2,684.05 | 8,241.36 | |
| 2006 | Underground | Active | 9 | 427.71 | 0.234% | 0.83 | 3.116% | 0.02 | 0.28 | 0.83 | 13.33 | 11,610.00 | 1.00 | 9,669.63 | 1,311,600.00 | 2,554.05 | 7,115.58 | |
| 2007 | Underground | Active | 11 | 482.68 | 0.236% | 1.23 | 2.982% | 0.03 | 0.33 | 1.40 | 14.39 | 11,610.00 | 1.00 | 16,202.01 | 1,483,560.00 | 4,289.26 | 11,912.75 | |
| 2008 | Underground | Active | 5 | 111.00 | 0.237% | 1.50 | 2.848% | 0.01 | 0.14 | 0.40 | 3.16 | 11,610.00 | 1.00 | 4,590.72 | 485,160.00 | 1,728.27 | 2,862.46 | |
| 2009 | Underground | Active | 7 | 320.63 | 0.239% | 1.07 | 2.714% | 0.02 | 0.19 | 0.82 | 8.70 | 11,610.00 | 1.00 | 9,547.83 | 753,663.49 | 1,933.06 | 7,614.77 | |
| 2010 | Underground | Active | 11 | 269.59 | 0.241% | 1.41 | 2.580% | 0.03 | 0.28 | 0.92 | 6.96 | 11,610.00 | 1.00 | 10,641.99 | 405,087.88 | 1,377.32 | 9,264.67 | |
| 2011 | Underground | Active | 7 | 192.99 | 0.243% | 1.36 | 2.447% | 0.02 | 0.17 | 0.64 | 4.72 | 11,610.00 | 1.00 | 7,395.31 | 606,480.00 | 2,001.73 | 5,393.58 | |
| 2012 | Underground | Active | 6 | 171.01 | 0.245% | 1.33 | 2.313% | 0.01 | 0.14 | 0.56 | 3.96 | 11,610.00 | 1.00 | 6,488.51 | 641,320.00 | 2,095.88 | 4,392.63 | |
| 2013 | Underground | Active | 13 | 398.29 | 0.247% | 1.42 | 2.179% | 0.03 | 0.28 | 1.40 | 8.68 | 11,610.00 | 1.00 | 16,254.57 | 1,262,995.57 | 4,439.62 | 11,814.95 | |
| 2014 | Underground | Active | 22 | 686.91 | 0.249% | 1.27 | 2.045% | 0.05 | 0.45 | 2.18 | 14.05 | 11,610.00 | 1.00 | 25,265.03 | 1,806,000.00 | 5,721.44 | 19,543.59 | |
| 2015 | Underground | Active | 7 | 132.11 | 0.297% | 1.50 | 1.911% | 0.02 | 0.13 | 0.59 | 2.53 | 11,610.00 | 1.00 | 6,831.03 | 361,080.00 | 1,608.13 | 5,222.90 | |
| 2016 | Underground | Active | 6 | 137.58 | 0.255% | 1.50 | 1.778% | 0.02 | 0.11 | 0.53 | 2.45 | 11,610.00 | 1.00 | 6,109.65 | 324,560.00 | 1,241.44 | 4,868.22 | |
| 2017 | Underground | Active | 7 | 155.37 | 0.213% | 1.50 | 1.644% | 0.01 | 0.12 | 0.50 | 2.55 | 11,610.00 | 1.00 | 5,765.60 | 159,520.00 | 509.87 | 5,255.73 | |
| 2018 | Underground | Active | 3 | 37.52 | 0.171% | 1.50 | 1.510% | 0.01 | 0.05 | 0.10 | 0.57 | 11,610.00 | 1.00 | 1,118.46 | 100,760.00 | 258.71 | 859.75 | |
| 2019 | Underground | Active | 4 | 79.46 | 0.125% | 1.25 | 1.376% | 0.01 | 0.06 | 0.13 | 1.09 | 11,610.00 | 1.00 | 1,490.57 | 118,540.00 | 191.69 | 1,298.88 | |
| 2020 | Underground | Active | 7 | 110.58 | 0.087% | 1.50 | 1.242% | 0.01 | 0.09 | 0.14 | 1.37 | 11,610.00 | 1.00 | 1,682.08 | 118,640.00 | 155.44 | 1,526.64 | |
| 2021 | Underground | Active | 7 | 76.19 | 0.000% | 1.50 | 1.105% | 0.08 | - | - | 0.84 | 11,610.00 | 1.00 | - | - | - | - | |

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| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current Bonded Acres (5) | Forfeiture Rate (6) | Adjustment Factor | | Released Permit Count (9) | Released Permit Count (10) | Forfeited Acres (11) | Released Acres (12) | Avg Recl Cost per Acre (13) | Adjustment Factor Permit Status (14) | Gross Cost (15) | Current Security Amount (16) | Forfeited Security Amount (17) | Net Cost (18) |
|-----------------------|---------------|-----------------|------------------|--------------------------|---------------------|----------------------|------------------|---------------------------|----------------------------|----------------------|---------------------|-----------------------------|--------------------------------------|-----------------|------------------------------|--------------------------------|---------------|
| | | | | | | Permit Bond Size (7) | Release Rate (8) | | | | | | | | | | |
| 1963 | Underground | Inactive | - | - | 0.341% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | 50 | - | - |
| 1964 | Underground | Inactive | - | - | 0.346% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1965 | Underground | Inactive | - | - | 0.350% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1966 | Underground | Inactive | - | - | 0.354% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1967 | Underground | Inactive | - | - | 0.359% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1968 | Underground | Inactive | - | - | 0.363% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1969 | Underground | Inactive | - | - | 0.367% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1970 | Underground | Inactive | - | - | 0.371% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1971 | Underground | Inactive | - | - | 0.376% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1972 | Underground | Inactive | - | - | 0.380% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1973 | Underground | Inactive | - | - | 0.384% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1974 | Underground | Inactive | - | - | 0.389% | 0.00 | 0.075% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1975 | Underground | Inactive | - | - | 0.393% | 0.00 | 0.163% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1976 | Underground | Inactive | 1 | 103.30 | 0.397% | 0.50 | 0.250% | 0.00 | 0.00 | 0.21 | 0.26 | 11,610.00 | 1.00 | 2,381.59 | 345,280.00 | 685.66 | 1,695.94 |
| 1977 | Underground | Inactive | - | - | 0.401% | 0.00 | 0.338% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1978 | Underground | Inactive | 1 | 23.02 | 0.406% | 0.50 | 0.426% | 0.00 | 0.00 | 0.05 | 0.10 | 11,610.00 | 1.00 | 542.19 | - | - | 542.19 |
| 1979 | Underground | Inactive | 1 | 6.60 | 0.410% | 0.50 | 0.513% | 0.00 | 0.01 | 0.01 | 0.03 | 11,610.00 | 1.00 | 157.09 | 145,877.00 | 299.06 | - |
| 1980 | Underground | Inactive | - | - | 0.414% | 0.00 | 0.601% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 1981 | Underground | Inactive | 4 | 149.03 | 0.419% | 1.00 | 0.688% | 0.02 | 0.03 | 0.62 | 1.03 | 11,610.00 | 1.00 | 7,242.67 | 172,000.00 | 719.98 | 6,522.69 |
| 1982 | Underground | Inactive | 2 | 128.47 | 0.423% | 0.50 | 0.776% | 0.01 | 0.02 | 0.27 | 1.00 | 11,610.00 | 1.00 | 3,153.71 | 329,800.00 | 697.33 | 2,456.38 |
| 1983 | Underground | Inactive | 8 | 500.86 | 0.427% | 0.75 | 0.863% | 0.03 | 0.07 | 1.60 | 4.32 | 11,610.00 | 1.00 | 18,629.80 | 1,326,719.00 | 4,250.49 | 14,379.32 |
| 1984 | Underground | Inactive | 1 | 300.00 | 0.431% | 0.50 | 0.951% | 0.00 | 0.01 | 0.65 | 2.85 | 11,610.00 | 1.00 | 7,513.78 | 315,400.00 | 680.40 | 6,833.38 |
| 1985 | Underground | Inactive | 1 | 220.21 | 0.436% | 0.50 | 1.039% | 0.00 | 0.01 | 0.48 | 2.29 | 11,610.00 | 1.00 | 5,570.17 | 593,520.00 | 1,293.11 | 4,277.06 |
| 1986 | Underground | Inactive | 1 | 43.54 | 0.440% | 0.50 | 1.126% | 0.00 | 0.01 | 0.10 | 0.49 | 11,610.00 | 1.00 | 1,112.17 | 110,880.00 | 243.95 | 868.22 |
| 1987 | Underground | Inactive | 1 | 40.89 | 0.444% | 1.50 | 1.214% | 0.00 | 0.01 | 0.27 | 0.50 | 11,610.00 | 1.00 | 3,163.97 | 73,800.00 | 491.86 | 2,672.11 |
| 1988 | Underground | Inactive | 7 | 154.89 | 0.449% | 1.21 | 1.301% | 0.03 | 0.09 | 0.84 | 2.02 | 11,610.00 | 1.00 | 9,795.75 | 2,638,353.00 | 14,371.93 | - |
| 1989 | Underground | Inactive | 2 | 193.50 | 0.453% | 0.50 | 1.389% | 0.01 | 0.03 | 0.44 | 2.69 | 11,610.00 | 1.00 | 5,087.15 | 122,688.00 | 277.82 | 4,809.33 |
| 1990 | Underground | Inactive | 3 | 36.13 | 0.457% | 1.17 | 1.477% | 0.01 | 0.04 | 0.19 | 0.53 | 11,610.00 | 1.00 | 2,237.33 | 82,480.00 | 439.93 | 1,797.41 |
| 1991 | Underground | Inactive | 2 | 141.42 | 0.461% | 1.00 | 1.564% | 0.01 | 0.03 | 0.65 | 2.21 | 11,610.00 | 1.00 | 7,576.69 | 5,492,013.00 | 25,343.59 | - |
| 1992 | Underground | Inactive | 1 | 9.00 | 0.466% | 1.50 | 1.652% | 0.00 | 0.02 | 0.06 | 0.15 | 11,610.00 | 1.00 | 729.99 | 1,240.00 | 148.39 | 581.60 |
| 1993 | Underground | Inactive | 6 | 294.11 | 0.470% | 1.00 | 1.739% | 0.03 | 0.10 | 1.38 | 5.12 | 11,610.00 | 1.00 | 16,049.94 | 661,873.00 | 3,111.04 | 12,938.90 |
| 1994 | Underground | Inactive | 1 | 247.11 | 0.474% | 0.50 | 1.827% | 0.00 | 0.02 | 0.59 | 4.51 | 11,610.00 | 1.00 | 6,804.04 | 644,800.00 | 1,529.22 | 5,274.82 |
| 1995 | Underground | Inactive | 4 | 131.50 | 0.479% | 1.00 | 1.914% | 0.02 | 0.08 | 0.63 | 2.52 | 11,610.00 | 1.00 | 7,307.01 | 972,263.00 | 4,653.35 | 2,653.66 |
| 1996 | Underground | Inactive | 2 | 45.38 | 0.483% | 1.50 | 2.002% | 0.01 | 0.04 | 0.33 | 0.91 | 11,610.00 | 1.00 | 3,816.30 | 547,360.00 | 3,964.78 | - |
| 1997 | Underground | Inactive | 7 | 294.76 | 0.487% | 1.07 | 2.090% | 0.03 | 0.15 | 1.54 | 6.16 | 11,610.00 | 1.00 | 17,863.10 | 191,920.00 | 1,001.79 | 16,861.31 |
| 1998 | Underground | Inactive | 3 | 93.26 | 0.491% | 1.17 | 2.177% | 0.01 | 0.07 | 0.53 | 2.03 | 11,610.00 | 1.00 | 6,208.29 | 228,992.06 | 1,313.00 | 4,895.29 |
| 1999 | Underground | Inactive | 9 | 618.15 | 0.496% | 1.06 | 2.265% | 0.04 | 0.20 | 3.23 | 14.00 | 11,610.00 | 1.00 | 37,555.76 | 444,920.00 | 2,328.26 | 35,227.50 |
| 2000 | Underground | Inactive | 6 | 76.39 | 0.500% | 1.50 | 2.352% | 0.03 | 0.14 | 0.57 | 1.80 | 11,610.00 | 1.00 | 6,652.25 | 238,721.02 | 1,790.57 | 4,861.68 |
| 2001 | Underground | Inactive | 2 | 6.00 | 0.504% | 1.50 | 2.440% | 0.01 | 0.05 | 0.05 | 0.15 | 11,610.00 | 1.00 | 526.98 | 312,880.00 | 2,366.93 | - |
| 2002 | Underground | Inactive | 1 | 47.21 | 0.509% | 0.50 | 2.528% | 0.01 | 0.03 | 0.12 | 1.19 | 11,610.00 | 1.00 | 1,393.89 | 132,480.00 | 336.91 | 1,056.98 |
| 2003 | Underground | Inactive | 6 | 229.90 | 0.513% | 1.00 | 2.615% | 0.03 | 0.16 | 1.18 | 6.01 | 11,610.00 | 1.00 | 13,690.15 | 1,410,984.00 | 7,237.01 | 6,453.14 |
| 2004 | Underground | Inactive | 3 | 181.69 | 0.517% | 0.50 | 2.703% | 0.02 | 0.06 | 0.47 | 3.84 | 11,610.00 | 1.00 | 5,454.88 | 103,680.00 | 268.11 | 5,186.77 |
| 2005 | Underground | Inactive | 6 | 121.31 | 0.521% | 1.50 | 2.791% | 0.03 | 0.12 | 0.95 | 2.46 | 11,610.00 | 1.00 | 11,016.83 | 392,180.00 | 3,067.70 | 7,949.13 |
| 2006 | Underground | Inactive | 6 | 145.55 | 0.526% | 1.17 | 2.879% | 0.03 | 0.12 | 0.89 | 2.83 | 11,610.00 | 1.00 | 10,365.34 | 425,440.00 | 2,609.62 | 7,755.72 |
| 2007 | Underground | Inactive | 4 | 80.93 | 0.530% | 1.25 | 2.966% | 0.02 | 0.07 | 0.54 | 1.51 | 11,610.00 | 1.00 | 6,225.45 | 412,480.00 | 2,732.95 | 3,492.50 |
| 2008 | Underground | Inactive | 6 | 95.14 | 0.534% | 1.50 | 3.054% | 0.03 | 0.11 | 0.76 | 1.69 | 11,610.00 | 1.00 | 8,853.27 | 203,840.00 | 1,633.80 | 7,219.48 |
| 2009 | Underground | Inactive | 8 | 127.40 | 0.539% | 1.38 | 3.142% | 0.04 | 0.14 | 0.94 | 2.16 | 11,610.00 | 1.00 | 10,954.48 | 316,280.00 | 2,342.40 | 8,612.08 |
| 2010 | Underground | Inactive | 9 | 296.02 | 0.543% | 1.28 | 3.230% | 0.05 | 0.15 | 2.05 | 4.77 | 11,610.00 | 1.00 | 23,841.79 | 724,960.00 | 5,029.21 | 18,812.59 |
| 2011 | Underground | Inactive | 6 | 113.07 | 0.547% | 1.50 | 3.318% | 0.03 | 0.09 | 0.93 | 1.73 | 11,610.00 | 1.00 | 10,774.99 | 399,840.00 | 3,281.89 | 7,493.11 |
| 2012 | Underground | Inactive | 3 | 95.72 | 0.551% | 1.17 | 3.406% | 0.02 | 0.04 | 0.62 | 1.38 | 11,610.00 | 1.00 | 7,150.18 | 84,720.00 | 545.09 | 6,605.09 |
| 2013 | Underground | Inactive | 3 | 53.70 | 0.556% | 1.50 | 3.494% | 0.02 | 0.04 | 0.45 | 0.73 | 11,610.00 | 1.00 | 5,197.52 | 63,320.00 | 527.87 | 4,669.64 |
| 2014 | Underground | Inactive | 1 | 12.00 | 0.560% | 1.50 | 3.582% | 0.01 | 0.01 | 0.10 | 0.15 | 11,610.00 | 1.00 | 1,170.41 | - | - | 1,170.41 |
| 2015 | Underground | Inactive | 1 | 12.04 | 0.668% | 1.50 | 1.195% | 0.01 | 0.01 | 0.12 | 0.14 | 11,610.00 | 1.00 | 1,400.75 | - | - | 1,400.75 |
| 2016 | Underground | Inactive | - | - | 0.574% | 0.00 | 1.111% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 2017 | Underground | Inactive | - | - | 0.479% | 0.00 | 1.027% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 2018 | Underground | Inactive | 2 | 46.96 | 0.385% | 1.50 | 0.944% | 0.01 | 0.02 | 0.27 | 0.44 | 11,610.00 | 1.00 | 3,149.69 | 61,360.00 | 354.48 | 2,795.21 |
| 2019 | Underground | Inactive | - | - | 0.291% | 0.00 | 0.860% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 2020 | Underground | Inactive | - | - | 0.197% | 0.00 | 0.777% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |
| 2021 | Underground | Inactive | - | - | 0.000% | 0.00 | 0.693% | - | - | - | - | 11,610.00 | 1.00 | - | - | - | - |

West Virginia Department of Environmental Protection Office of Special Reclamation
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 Land Reclamation Cost Projection - Deterministic Model

| 2022 | | | | | | | | | | | | | | | | | |
|-----------------------|---------------|-----------------|------------------|--------------------------|---------------------|----------------------|------------------|----------------------------|-------------|-----------------------------|----------------------|---------------------|-----------------------------|-----------------|------------------------------|---------------|--------------------------------|
| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current Bonded Acres (5) | Forfeiture Rate (6) | Adjustment | | | | Released Permits Count (10) | Forfeited Acres (11) | Released Acres (12) | Avg Recl Cost per Acre (13) | Adjustment | | Net Cost (18) | |
| | | | | | | Permit Bond Size (7) | Release Rate (8) | Forfeited Permit Count (9) | Factor (14) | | | | | Gross Cost (15) | Current Security Amount (16) | | Forfeited Security Amount (17) |
| 1963 | Underground | Phased Released | - | - | 0.594% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1964 | Underground | Phased Released | - | - | 0.602% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1965 | Underground | Phased Released | - | - | 0.609% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1966 | Underground | Phased Released | - | - | 0.617% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1967 | Underground | Phased Released | - | - | 0.624% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1968 | Underground | Phased Released | - | - | 0.632% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1969 | Underground | Phased Released | - | - | 0.639% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1970 | Underground | Phased Released | - | - | 0.647% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1971 | Underground | Phased Released | - | - | 0.654% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1972 | Underground | Phased Released | - | - | 0.662% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1973 | Underground | Phased Released | - | - | 0.669% | 0.00 | 0.000% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1974 | Underground | Phased Released | - | - | 0.676% | 0.00 | 0.361% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1975 | Underground | Phased Released | - | - | 0.684% | 0.00 | 0.782% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1976 | Underground | Phased Released | - | - | 0.691% | 0.00 | 1.202% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1977 | Underground | Phased Released | - | - | 0.699% | 0.00 | 1.622% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 1978 | Underground | Phased Released | 4 | 23.13 | 0.706% | 0.00 | 2.043% | 0.03 | 0.08 | - | 0.47 | 11,610.00 | 0.50 | - | 38,588.00 | - | |
| 1979 | Underground | Phased Released | 2 | 59.68 | 0.714% | 0.00 | 2.463% | 0.01 | 0.05 | - | 1.47 | 11,610.00 | 0.50 | - | 101,728.00 | - | |
| 1980 | Underground | Phased Released | 5 | 87.19 | 0.721% | 0.00 | 2.884% | 0.04 | 0.14 | - | 2.51 | 11,610.00 | 0.50 | - | 50,000.00 | - | |
| 1981 | Underground | Phased Released | 8 | 85.14 | 0.729% | 0.00 | 3.304% | 0.06 | 0.26 | - | 2.81 | 11,610.00 | 0.50 | - | 212,120.00 | - | |
| 1982 | Underground | Phased Released | 4 | 199.06 | 0.736% | 0.00 | 3.724% | 0.03 | 0.15 | - | 7.41 | 11,610.00 | 0.50 | - | 90,296.00 | - | |
| 1983 | Underground | Phased Released | 4 | 57.47 | 0.744% | 0.00 | 4.145% | 0.03 | 0.17 | - | 2.38 | 11,610.00 | 0.50 | - | 81,440.00 | - | |
| 1984 | Underground | Phased Released | 2 | 95.60 | 0.751% | 0.00 | 4.565% | 0.02 | 0.09 | - | 4.36 | 11,610.00 | 0.50 | - | 10,000.00 | - | |
| 1985 | Underground | Phased Released | 3 | 17.24 | 0.759% | 0.00 | 4.986% | 0.02 | 0.15 | - | 0.86 | 11,610.00 | 0.50 | - | 30,720.00 | - | |
| 1986 | Underground | Phased Released | 3 | 118.96 | 0.766% | 0.00 | 5.406% | 0.02 | 0.16 | - | 6.43 | 11,610.00 | 0.50 | - | 107,280.00 | - | |
| 1987 | Underground | Phased Released | 4 | 77.09 | 0.773% | 0.00 | 5.826% | 0.03 | 0.23 | - | 4.49 | 11,610.00 | 0.50 | - | 106,360.00 | - | |
| 1988 | Underground | Phased Released | 5 | 129.44 | 0.781% | 0.00 | 6.247% | 0.04 | 0.31 | - | 8.09 | 11,610.00 | 0.50 | - | 165,576.00 | - | |
| 1989 | Underground | Phased Released | 6 | 119.44 | 0.788% | 0.00 | 6.667% | 0.05 | 0.40 | - | 7.96 | 11,610.00 | 0.50 | - | 103,096.00 | - | |
| 1990 | Underground | Phased Released | 2 | 18.31 | 0.796% | 0.00 | 7.088% | 0.02 | 0.14 | - | 1.30 | 11,610.00 | 0.50 | - | 20,000.00 | - | |
| 1991 | Underground | Phased Released | 2 | 18.20 | 0.803% | 0.00 | 7.508% | 0.02 | 0.15 | - | 1.37 | 11,610.00 | 0.50 | - | 40,000.00 | - | |
| 1992 | Underground | Phased Released | 2 | 39.95 | 0.811% | 0.00 | 7.928% | 0.02 | 0.16 | - | 3.17 | 11,610.00 | 0.50 | - | 16,640.00 | - | |
| 1993 | Underground | Phased Released | 3 | 30.79 | 0.818% | 0.00 | 8.349% | 0.02 | 0.25 | - | 2.57 | 11,610.00 | 0.50 | - | 31,548.00 | - | |
| 1994 | Underground | Phased Released | 3 | 26.14 | 0.826% | 0.00 | 8.769% | 0.02 | 0.26 | - | 2.29 | 11,610.00 | 0.50 | - | 30,624.00 | - | |
| 1995 | Underground | Phased Released | 4 | 65.62 | 0.833% | 0.00 | 9.190% | 0.03 | 0.37 | - | 6.03 | 11,610.00 | 0.50 | - | 83,832.00 | - | |
| 1996 | Underground | Phased Released | 4 | 133.37 | 0.841% | 0.00 | 9.610% | 0.03 | 0.38 | - | 12.82 | 11,610.00 | 0.50 | - | 105,442.00 | - | |
| 1997 | Underground | Phased Released | 5 | 149.46 | 0.848% | 0.00 | 10.030% | 0.04 | 0.50 | - | 14.99 | 11,610.00 | 0.50 | - | 115,842.75 | - | |
| 1998 | Underground | Phased Released | 3 | 70.67 | 0.856% | 0.00 | 10.451% | 0.03 | 0.31 | - | 7.39 | 11,610.00 | 0.50 | - | 75,384.00 | - | |
| 1999 | Underground | Phased Released | 1 | 10.68 | 0.863% | 0.00 | 10.871% | 0.01 | 0.11 | - | 1.16 | 11,610.00 | 0.50 | - | 10,000.00 | - | |
| 2000 | Underground | Phased Released | 2 | 59.65 | 0.870% | 0.00 | 11.292% | 0.02 | 0.23 | - | 6.74 | 11,610.00 | 0.50 | - | 49,536.19 | - | |
| 2001 | Underground | Phased Released | 4 | 36.60 | 0.878% | 0.00 | 11.712% | 0.04 | 0.47 | - | 4.29 | 11,610.00 | 0.50 | - | 52,072.00 | - | |
| 2002 | Underground | Phased Released | 1 | 48.55 | 0.885% | 0.00 | 12.132% | 0.01 | 0.12 | - | 5.89 | 11,610.00 | 0.50 | - | 92,530.00 | - | |
| 2003 | Underground | Phased Released | 3 | 78.20 | 0.893% | 0.00 | 12.553% | 0.03 | 0.38 | - | 9.82 | 11,610.00 | 0.50 | - | 60,200.00 | - | |
| 2004 | Underground | Phased Released | 1 | 16.25 | 0.900% | 0.00 | 10.149% | 0.01 | 0.10 | - | 1.65 | 11,610.00 | 0.50 | - | 20,160.00 | - | |
| 2005 | Underground | Phased Released | - | - | 0.908% | 0.00 | 9.748% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2006 | Underground | Phased Released | - | - | 0.915% | 0.00 | 9.347% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2007 | Underground | Phased Released | - | - | 0.923% | 0.00 | 8.945% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2008 | Underground | Phased Released | 2 | 43.07 | 0.930% | 0.00 | 8.544% | 0.02 | 0.17 | - | 3.68 | 11,610.00 | 0.50 | - | 44,304.00 | - | |
| 2009 | Underground | Phased Released | 2 | 54.60 | 0.938% | 0.00 | 8.143% | 0.02 | 0.16 | - | 4.45 | 11,610.00 | 0.50 | - | 72,624.00 | - | |
| 2010 | Underground | Phased Released | - | - | 0.945% | 0.00 | 7.741% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2011 | Underground | Phased Released | 1 | 25.60 | 0.953% | 0.00 | 7.340% | 0.01 | 0.07 | - | 1.88 | 11,610.00 | 0.50 | - | - | - | |
| 2012 | Underground | Phased Released | - | - | 0.960% | 0.00 | 6.938% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2013 | Underground | Phased Released | - | - | 0.967% | 0.00 | 6.537% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2014 | Underground | Phased Released | - | - | 0.975% | 0.00 | 6.136% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2015 | Underground | Phased Released | - | - | 1.163% | 0.00 | 5.734% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2016 | Underground | Phased Released | - | - | 0.999% | 0.00 | 5.333% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2017 | Underground | Phased Released | - | - | 0.835% | 0.00 | 4.932% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2018 | Underground | Phased Released | - | - | 0.670% | 0.00 | 4.530% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2019 | Underground | Phased Released | - | - | 0.506% | 0.00 | 4.129% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2020 | Underground | Phased Released | - | - | 0.342% | 0.00 | 3.727% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |
| 2021 | Underground | Phased Released | - | - | 0.000% | 0.00 | 3.326% | - | - | - | - | 11,610.00 | 0.50 | - | - | - | |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Land Reclamation Cost Projection - Deterministic Model

| 2022 | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------|-----------------|------------------|--------------------------|---------------------|----------------------|------------------|----------------------------|-----------------------------|---------------------|-----------------------------|-----------------|----------------------|---------------|---------------|------------|------------|---|
| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current Bonded Acres (5) | Forfeiture Rate (6) | Adjustment Factor | | Released Permit Count (10) | Forfeited Permit Count (11) | Released Acres (12) | Avg Recl Cost per Acre (13) | Adjustment | | Net Cost (18) | | | | |
| | | | | | | Permit Bond Size (7) | Release Rate (8) | | | | | Gross Cost (15) | Security Amount (16) | | | | | |
| 1963 | Other | Active | - | - | 0.207% | 0.00 | 2.292% | - | - | - | 8,785.00 | 1.00 | - | - | | | | |
| 1964 | Other | Active | - | - | 0.207% | 0.00 | 2.269% | - | - | - | 8,785.00 | 1.00 | - | - | | | | |
| 1965 | Other | Active | - | - | 0.207% | 0.00 | 2.247% | - | - | - | 8,785.00 | 1.00 | - | - | | | | |
| 1966 | Other | Active | - | - | 0.207% | 0.00 | 2.224% | - | - | - | 8,785.00 | 1.00 | - | - | | | | |
| 1967 | Other | Active | - | - | 0.207% | 0.00 | 2.201% | - | - | - | 8,785.00 | 1.00 | - | - | | | | |
| 1968 | Other | Active | - | - | 0.207% | 0.00 | 2.178% | - | - | - | 8,785.00 | 1.00 | - | - | | | | |
| 1969 | Other | Active | - | - | 0.207% | 0.00 | 2.156% | - | - | - | 8,785.00 | 1.00 | - | - | | | | |
| 1970 | Other | Active | - | - | 0.207% | 0.00 | 2.133% | - | - | - | 8,785.00 | 1.00 | - | - | | | | |
| 1971 | Other | Active | - | - | 0.207% | 0.00 | 2.110% | - | - | - | 8,785.00 | 1.00 | - | - | | | | |
| 1972 | Other | Active | 1 | 20.00 | 0.207% | 1.50 | 2.087% | 0.00 | 0.02 | 0.06 | 0.42 | 8,785.00 | 1.00 | 545.60 | - | | | |
| 1973 | Other | Active | - | - | 0.207% | 0.00 | 2.064% | - | - | - | 8,785.00 | 1.00 | - | 29,000.00 | 545.60 | | | |
| 1974 | Other | Active | 1 | 28.52 | 0.207% | 1.50 | 2.042% | 0.00 | 0.02 | 0.09 | 0.58 | 8,785.00 | 1.00 | 778.02 | 10,500.00 | 32.61 | 745.41 | |
| 1975 | Other | Active | 1 | 6.20 | 0.207% | 1.50 | 2.019% | 0.00 | 0.02 | 0.02 | 0.13 | 8,785.00 | 1.00 | 169.13 | 75,000.00 | 232.90 | - | |
| 1976 | Other | Active | 1 | 75.00 | 0.207% | 1.50 | 1.996% | 0.00 | 0.02 | 0.23 | 1.50 | 8,785.00 | 1.00 | 2,045.99 | 308,000.00 | 956.42 | 1,089.56 | |
| 1977 | Other | Active | 2 | 307.70 | 0.207% | 1.00 | 1.973% | 0.00 | 0.04 | 0.64 | 6.07 | 8,785.00 | 1.00 | 5,596.00 | 18,200.00 | 37.68 | 5,558.32 | |
| 1978 | Other | Active | - | - | 0.207% | 0.00 | 1.951% | - | - | - | - | 8,785.00 | 1.00 | - | 65,000.00 | - | - | |
| 1979 | Other | Active | 1 | 65.00 | 0.207% | 1.50 | 1.928% | 0.00 | 0.02 | 0.20 | 1.25 | 8,785.00 | 1.00 | 1,773.19 | 530,240.00 | 1,646.54 | 126.65 | |
| 1980 | Other | Active | 7 | 370.67 | 0.207% | 1.21 | 1.905% | 0.01 | 0.13 | 0.93 | 7.06 | 8,785.00 | 1.00 | 8,185.75 | 20,503,795.00 | 51,542.25 | - | |
| 1981 | Other | Active | 34 | 4,857.33 | 0.207% | 0.94 | 1.882% | 0.07 | 0.64 | 9.46 | 91.43 | 8,785.00 | 1.00 | 83,141.66 | 1,973,080.00 | 3,844.36 | 79,297.30 | |
| 1982 | Other | Active | 4 | 554.75 | 0.207% | 0.75 | 1.860% | 0.01 | 0.07 | 0.86 | 10.32 | 8,785.00 | 1.00 | 7,566.74 | 12,036,424.00 | 18,688.18 | - | |
| 1983 | Other | Active | 35 | 3,438.58 | 0.207% | 0.87 | 1.837% | 0.07 | 0.64 | 6.20 | 63.16 | 8,785.00 | 1.00 | 54,495.54 | 12,667,940.00 | 22,853.15 | 31,642.39 | |
| 1984 | Other | Active | 32 | 4,454.39 | 0.207% | 0.69 | 1.814% | 0.07 | 0.58 | 6.35 | 80.98 | 8,785.00 | 1.00 | 55,819.36 | 4,711,104.00 | 6,705.08 | 49,114.28 | |
| 1985 | Other | Active | 14 | 2,329.11 | 0.207% | 1.00 | 1.791% | 0.03 | 0.25 | 4.82 | 41.72 | 8,785.00 | 1.00 | 42,338.45 | 4,958,480.00 | 10,264.95 | 32,093.50 | |
| 1986 | Other | Active | 13 | 1,411.57 | 0.207% | 0.96 | 1.768% | 0.03 | 0.23 | 2.81 | 24.96 | 8,785.00 | 1.00 | 24,684.20 | 1,074,720.00 | 2,139.29 | 22,544.91 | |
| 1987 | Other | Active | 7 | 486.71 | 0.207% | 1.07 | 1.746% | 0.01 | 0.12 | 1.08 | 8.50 | 8,785.00 | 1.00 | 9,483.82 | 1,050,280.00 | 2,329.57 | 7,154.25 | |
| 1988 | Other | Active | 7 | 479.98 | 0.207% | 1.21 | 1.723% | 0.01 | 0.12 | 1.21 | 8.27 | 8,785.00 | 1.00 | 10,599.71 | 1,137,800.00 | 2,860.19 | 7,739.52 | |
| 1989 | Other | Active | 7 | 290.43 | 0.207% | 1.36 | 1.700% | 0.01 | 0.12 | 0.82 | 4.94 | 8,785.00 | 1.00 | 7,168.31 | 294,600.00 | 827.69 | 6,340.63 | |
| 1990 | Other | Active | 5 | 254.35 | 0.207% | 1.30 | 1.677% | 0.01 | 0.08 | 0.71 | 4.43 | 8,785.00 | 1.00 | 6,249.89 | 55,000.00 | 148.02 | 6,101.88 | |
| 1991 | Other | Active | 7 | 431.34 | 0.207% | 1.36 | 1.655% | 0.01 | 0.12 | 1.21 | 7.14 | 8,785.00 | 1.00 | 10,646.22 | 1,594,600.00 | 4,480.08 | 6,166.14 | |
| 1992 | Other | Active | 9 | 554.74 | 0.207% | 1.06 | 1.632% | 0.02 | 0.15 | 1.21 | 9.05 | 8,785.00 | 1.00 | 10,649.29 | 1,674,360.00 | 3,658.80 | 6,990.49 | |
| 1993 | Other | Active | 8 | 879.50 | 0.207% | 0.75 | 0.350% | 0.02 | 0.03 | 1.37 | 3.08 | 8,785.00 | 1.00 | 11,996.29 | 5,372,060.00 | 8,340.85 | 3,655.44 | |
| 1994 | Other | Active | 12 | 1,837.84 | 0.207% | 0.83 | 0.540% | 0.02 | 0.06 | 3.17 | 9.93 | 8,785.00 | 1.00 | 27,853.29 | 3,965,472.00 | 6,841.04 | 21,012.25 | |
| 1995 | Other | Active | 6 | 939.93 | 0.207% | 1.00 | 0.730% | 0.01 | 0.04 | 1.95 | 6.86 | 8,785.00 | 1.00 | 17,094.07 | 10,134,530.00 | 20,980.31 | - | |
| 1996 | Other | Active | 3 | 1,971.02 | 0.207% | 0.50 | 0.919% | 0.01 | 0.03 | 2.04 | 18.12 | 8,785.00 | 1.00 | 17,923.01 | 2,562,640.00 | 2,652.56 | 15,270.45 | |
| 1997 | Other | Active | 10 | 1,267.92 | 0.207% | 1.00 | 1.109% | 0.02 | 0.11 | 2.62 | 14.06 | 8,785.00 | 1.00 | 23,059.07 | 3,491,120.00 | 7,227.25 | 15,831.83 | |
| 1998 | Other | Active | 3 | 1,054.49 | 0.283% | 0.83 | 1.298% | 0.01 | 0.04 | 2.48 | 13.69 | 8,785.00 | 1.00 | 21,816.68 | 960,360.00 | 2,261.72 | 19,554.96 | |
| 1999 | Other | Active | 5 | 404.95 | 0.358% | 1.10 | 1.488% | 0.02 | 0.07 | 1.60 | 6.03 | 8,785.00 | 1.00 | 14,017.18 | 33,000.00 | 130.03 | 13,887.16 | |
| 2000 | Other | Active | 2 | 255.10 | 0.434% | 1.00 | 1.678% | 0.01 | 0.03 | 1.11 | 4.28 | 8,785.00 | 1.00 | 9,721.47 | 803,360.00 | 3,484.90 | 6,236.57 | |
| 2001 | Other | Active | 5 | 860.44 | 0.509% | 0.90 | 1.867% | 0.03 | 0.09 | 1.65 | 6.73 | 8,785.00 | 1.00 | 14,516.43 | 1,688,586.66 | 7,741.20 | 6,775.23 | |
| 2002 | Other | Active | 6 | 559.59 | 0.585% | 1.33 | 2.057% | 0.04 | 0.12 | 4.44 | 11.72 | 8,785.00 | 1.00 | 39,028.12 | 4,537,054.00 | 35,387.30 | 3,640.82 | |
| 2003 | Other | Active | 3 | 810.10 | 0.661% | 0.83 | 2.246% | 0.02 | 0.07 | 4.46 | 18.20 | 8,785.00 | 1.00 | 39,175.35 | 3,605,872.00 | 19,849.19 | 19,326.16 | |
| 2004 | Other | Active | 7 | 1,049.09 | 0.736% | 0.93 | 2.436% | 0.05 | 0.17 | 7.17 | 25.56 | 8,785.00 | 1.00 | 62,999.61 | 238,600.00 | 1,631.00 | 61,368.61 | |
| 2005 | Other | Active | 2 | 22.99 | 0.812% | 1.00 | 2.626% | 0.02 | 0.05 | 0.19 | 0.60 | 8,785.00 | 1.00 | 1,639.46 | 1,338,300.00 | 10,863.56 | - | |
| 2006 | Other | Active | 7 | 491.96 | 0.887% | 1.07 | 2.815% | 0.06 | 0.20 | 4.68 | 13.85 | 8,785.00 | 1.00 | 41,088.67 | 1,056,480.00 | 10,044.12 | 31,044.55 | |
| 2007 | Other | Active | 5 | 868.47 | 0.963% | 1.10 | 3.005% | 0.05 | 0.15 | 3.90 | 11.07 | 8,785.00 | 1.00 | 34,286.97 | 1,650,520.00 | 17,482.60 | 16,804.37 | |
| 2008 | Other | Active | 9 | 649.47 | 1.039% | 1.28 | 3.194% | 0.09 | 0.29 | 8.62 | 20.75 | 8,785.00 | 1.00 | 75,712.79 | 468,600.00 | 6,218.29 | 69,494.51 | |
| 2009 | Other | Active | 6 | 202.62 | 1.114% | 1.33 | 3.384% | 0.07 | 0.20 | 3.01 | 6.86 | 8,785.00 | 1.00 | 26,441.71 | 4,295,120.00 | 63,802.94 | - | |
| 2010 | Other | Active | 9 | 1,059.98 | 1.190% | 1.06 | 3.574% | 0.11 | 0.32 | 13.31 | 37.88 | 8,785.00 | 1.00 | 116,938.34 | 491,500.00 | 6,172.21 | 110,766.13 | |
| 2011 | Other | Active | 3 | 350.69 | 1.265% | 0.83 | 4.298% | 0.04 | 0.13 | 3.70 | 15.07 | 8,785.00 | 1.00 | 32,484.28 | 146,500.00 | 1,544.71 | 30,939.57 | |
| 2012 | Other | Active | 7 | 147.31 | 1.331% | 1.50 | 8.818% | 0.09 | 0.62 | 2.94 | 12.99 | 8,785.00 | 1.00 | 25,830.02 | 3,844,980.00 | 76,744.07 | - | |
| 2013 | Other | Active | 17 | 2,047.67 | 1.142% | 1.03 | 15.337% | 0.19 | 2.27 | 24.07 | 273.11 | 8,785.00 | 1.00 | 211,465.00 | 659,352.25 | 7,750.94 | 203,714.06 | |
| 2014 | Other | Active | 8 | 259.86 | 0.953% | 1.38 | 17.857% | 0.08 | 1.43 | 3.41 | 46.40 | 8,785.00 | 1.00 | 29,922.51 | 1,201,800.00 | 15,749.60 | 14,172.91 | |
| 2015 | Other | Active | 10 | 1,229.64 | 0.765% | 1.10 | 22.376% | 0.08 | 2.24 | 10.34 | 275.15 | 8,785.00 | 1.00 | 90,852.30 | 6,558,600.00 | 55,160.39 | 35,691.91 | |
| 2016 | Other | Active | 6 | 1,513.50 | 0.576% | 1.33 | 26.896% | 0.03 | 1.61 | 11.62 | 407.07 | 8,785.00 | 1.00 | 102,095.55 | 262,620.00 | 2,016.56 | 100,078.99 | |
| 2017 | Other | Active | 7 | 388.02 | 0.387% | 1.36 | 38.903% | 0.03 | 2.72 | 2.04 | 150.95 | 8,785.00 | 1.00 | 17,913.01 | 149,500.00 | 785.62 | 17,127.39 | |
| 2018 | Other | Active | 4 | 36.77 | 0.199% | 1.50 | 32.479% | 0.01 | 1.30 | 0.11 | 11.94 | 8,785.00 | 1.00 | 961.93 | 151,500.00 | 451.15 | 510.78 | |
| 2019 | Other | Active | 14 | 50.90 | 0.010% | 1.50 | 22.332% | 0.00 | 3.13 | 0.01 | 11.37 | 8,785.00 | 1.00 | 66.00 | 197,260.00 | 29.12 | 36.88 | |
| 2020 | Other | Active | 35 | 777.21 | 0.000% | 1.47 | 12.185% | - | - | 4.26 | - | 94.70 | 8,785.00 | 1.00 | - | 197,260.00 | - | - |
| 2021 | Other | Active | 35 | 175.63 | 0.000% | 1.50 | 2.037% | - | 0.71 | - | 3.58 | 8,785.00 | 1.00 | - | 197,260.00 | - | - | |

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| Permit Issue Year | Mine Type | Mine Status | Permit Count (4) | Current Bonded Acres (5) | Forfeiture Rate (6) | Adjustment | | | | Avg Recl Cost per Acre (13) | Adjustment Factor Permit Status (14) | Gross Cost (15) | Current Security Amount (16) | Forfeited Security Amount (17) | Net Cost (18) | | |
|-------------------|-----------|-------------|------------------|--------------------------|---------------------|----------------------|------------------|----------------------------|----------------------------|-----------------------------|--------------------------------------|-----------------|------------------------------|--------------------------------|---------------|----------------------|---------------------|
| | | | | | | Permit Bond Size (7) | Release Rate (8) | Forfeited Permit Count (9) | Released Permit Count (10) | | | | | | | Forfeited Acres (11) | Released Acres (12) |
| 1963 | Other | Inactive | - | - | 0.466% | 0.00 | 1.433% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1964 | Other | Inactive | - | - | 0.466% | 0.00 | 1.418% | - | - | - | - | 8,785.00 | 1.00 | 50 | - | | |
| 1965 | Other | Inactive | - | - | 0.466% | 0.00 | 1.404% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1966 | Other | Inactive | - | - | 0.466% | 0.00 | 1.390% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1967 | Other | Inactive | - | - | 0.466% | 0.00 | 1.376% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1968 | Other | Inactive | - | - | 0.466% | 0.00 | 1.361% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1969 | Other | Inactive | - | - | 0.466% | 0.00 | 1.347% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1970 | Other | Inactive | - | - | 0.466% | 0.00 | 1.333% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1971 | Other | Inactive | - | - | 0.466% | 0.00 | 1.319% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1972 | Other | Inactive | - | - | 0.466% | 0.00 | 1.305% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1973 | Other | Inactive | - | - | 0.466% | 0.00 | 1.290% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1974 | Other | Inactive | - | - | 0.466% | 0.00 | 1.276% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1975 | Other | Inactive | - | - | 0.466% | 0.00 | 1.262% | - | - | - | - | 8,785.00 | 1.00 | - | - | | |
| 1976 | Other | Inactive | 1 | 14.48 | 0.466% | 1.50 | 1.248% | 0.00 | 0.01 | 0.10 | 0.18 | 8,785.00 | 1.00 | 888.78 | 15,000.00 | 104.80 | 783.97 |
| 1977 | Other | Inactive | 2 | 61.00 | 0.466% | 1.50 | 1.233% | 0.01 | 0.02 | 0.43 | 0.75 | 8,785.00 | 1.00 | 3,744.15 | 62,000.00 | 433.19 | 3,310.97 |
| 1978 | Other | Inactive | - | - | 0.466% | 0.00 | 1.219% | - | - | - | - | 8,785.00 | 1.00 | - | - | - | - |
| 1979 | Other | Inactive | 1 | 7.25 | 0.466% | 1.50 | 1.205% | 0.00 | 0.01 | 0.05 | 0.09 | 8,785.00 | 1.00 | 445.00 | 10,000.00 | 69.87 | 375.13 |
| 1980 | Other | Inactive | 1 | 114.75 | 0.466% | 0.50 | 1.191% | 0.00 | 0.01 | 0.27 | 1.37 | 8,785.00 | 1.00 | 2,347.77 | 340,400.00 | 792.78 | 1,554.99 |
| 1981 | Other | Inactive | 13 | 1,477.93 | 0.466% | 0.96 | 1.176% | 0.06 | 0.15 | 6.62 | 17.39 | 8,785.00 | 1.00 | 58,150.45 | 3,551,200.00 | 15,904.96 | 42,245.49 |
| 1982 | Other | Inactive | 3 | 148.70 | 0.466% | 1.17 | 1.162% | 0.01 | 0.03 | 0.81 | 1.73 | 8,785.00 | 1.00 | 7,098.89 | 68,000.00 | 369.53 | 6,729.36 |
| 1983 | Other | Inactive | 8 | 1,739.30 | 0.466% | 0.75 | 1.148% | 0.04 | 0.09 | 6.08 | 19.97 | 8,785.00 | 1.00 | 53,378.74 | 6,709,953.00 | 23,440.75 | 29,937.99 |
| 1984 | Other | Inactive | 7 | 440.78 | 0.466% | 0.93 | 1.134% | 0.03 | 0.08 | 1.91 | 5.00 | 8,785.00 | 1.00 | 16,748.26 | 6,695,522.00 | 28,959.46 | - |
| 1985 | Other | Inactive | 3 | 364.25 | 0.466% | 0.83 | 1.120% | 0.01 | 0.03 | 1.41 | 4.08 | 8,785.00 | 1.00 | 12,420.84 | 3,391,820.00 | 13,165.65 | - |
| 1986 | Other | Inactive | - | - | 0.466% | 0.00 | 1.105% | - | - | - | - | 8,785.00 | 1.00 | - | 10,000.00 | - | - |
| 1987 | Other | Inactive | 1 | 484.64 | 0.466% | 0.50 | 1.091% | 0.00 | 0.01 | 1.13 | 5.29 | 8,785.00 | 1.00 | 9,915.66 | 3,433,360.00 | 7,996.13 | 1,919.53 |
| 1988 | Other | Inactive | 3 | 167.79 | 0.466% | 1.17 | 1.077% | 0.01 | 0.03 | 0.91 | 1.81 | 8,785.00 | 1.00 | 8,010.24 | 183,000.00 | 994.46 | 7,015.77 |
| 1989 | Other | Inactive | 5 | 438.61 | 0.466% | 0.90 | 1.063% | 0.02 | 0.05 | 1.84 | 4.66 | 8,785.00 | 1.00 | 16,153.01 | 1,760,000.00 | 737.81 | 15,415.20 |
| 1990 | Other | Inactive | 3 | 481.66 | 0.466% | 1.17 | 1.049% | 0.01 | 0.03 | 2.62 | 5.05 | 8,785.00 | 1.00 | 22,994.28 | 1,961,360.00 | 10,658.47 | 12,335.81 |
| 1991 | Other | Inactive | - | - | 0.466% | 0.00 | 1.034% | - | - | - | - | 8,785.00 | 1.00 | - | 1,298,480.00 | - | - |
| 1992 | Other | Inactive | 5 | 433.18 | 0.466% | 1.30 | 1.020% | 0.02 | 0.05 | 2.62 | 4.42 | 8,785.00 | 1.00 | 23,043.28 | 1,239,200.00 | 7,503.70 | 15,539.58 |
| 1993 | Other | Inactive | 5 | 273.92 | 0.466% | 0.90 | 1.021% | 0.02 | 0.01 | 1.15 | 0.60 | 8,785.00 | 1.00 | 10,087.85 | 2,854,375.45 | 11,965.87 | - |
| 1994 | Other | Inactive | 4 | 545.08 | 0.466% | 1.00 | 1.038% | 0.02 | 0.01 | 2.54 | 1.84 | 8,785.00 | 1.00 | 22,304.51 | 1,111,360.00 | 5,176.61 | 17,127.90 |
| 1995 | Other | Inactive | 3 | 641.22 | 0.466% | 1.17 | 1.046% | 0.01 | 0.01 | 3.48 | 2.92 | 8,785.00 | 1.00 | 30,611.62 | 3,222,200.00 | 17,510.16 | 13,101.47 |
| 1996 | Other | Inactive | 1 | 152.16 | 0.466% | 0.50 | 1.075% | 0.00 | 0.01 | 0.35 | 0.87 | 8,785.00 | 1.00 | 3,113.17 | 508,280.00 | 1,183.76 | 1,929.41 |
| 1997 | Other | Inactive | 3 | 158.04 | 0.466% | 0.83 | 1.069% | 0.01 | 0.02 | 0.61 | 1.10 | 8,785.00 | 1.00 | 5,389.13 | 338,000.00 | 1,311.98 | 4,077.15 |
| 1998 | Other | Inactive | 2 | 206.29 | 0.636% | 1.00 | 0.812% | 0.01 | 0.02 | 1.31 | 1.67 | 8,785.00 | 1.00 | 11,523.60 | 90,000.00 | 572.28 | 10,951.31 |
| 1999 | Other | Inactive | - | - | 0.806% | 0.00 | 0.930% | - | - | - | - | 8,785.00 | 1.00 | - | - | - | - |
| 2000 | Other | Inactive | 1 | 116.73 | 0.976% | 0.50 | 1.049% | 0.01 | 0.01 | 0.57 | 1.22 | 8,785.00 | 1.00 | 5,004.45 | 1,044,680.00 | 5,098.18 | - |
| 2001 | Other | Inactive | 1 | 250.00 | 1.146% | 0.50 | 1.167% | 0.01 | 0.01 | 1.43 | 2.92 | 8,785.00 | 1.00 | 12,585.69 | 284,000.00 | 1,627.47 | 10,958.21 |
| 2002 | Other | Inactive | 2 | 222.64 | 1.316% | 1.00 | 1.286% | 0.03 | 0.03 | 2.93 | 2.86 | 8,785.00 | 1.00 | 25,743.18 | 682,700.00 | 8,985.60 | 16,757.58 |
| 2003 | Other | Inactive | 2 | 78.29 | 1.486% | 1.50 | 1.404% | 0.03 | 0.03 | 1.75 | 1.10 | 8,785.00 | 1.00 | 15,333.30 | 104,000.00 | 2,318.57 | 13,014.72 |
| 2004 | Other | Inactive | 1 | 56.00 | 1.656% | 1.50 | 1.523% | 0.02 | 0.02 | 1.39 | 0.85 | 8,785.00 | 1.00 | 12,222.83 | - | - | 12,222.83 |
| 2005 | Other | Inactive | 1 | 50.69 | 1.826% | 1.50 | 1.641% | 0.02 | 0.02 | 1.39 | 0.83 | 8,785.00 | 1.00 | 12,199.91 | - | - | 12,199.91 |
| 2006 | Other | Inactive | - | - | 1.997% | 0.00 | 1.760% | - | - | - | - | 8,785.00 | 1.00 | - | - | - | - |
| 2007 | Other | Inactive | - | - | 2.167% | 0.00 | 1.878% | - | - | - | - | 8,785.00 | 1.00 | - | 26,000.00 | - | - |
| 2008 | Other | Inactive | 1 | 4.11 | 2.337% | 1.50 | 1.997% | 0.02 | 0.02 | 0.14 | 0.08 | 8,785.00 | 1.00 | 1,265.52 | 10,000.00 | 350.50 | 915.03 |
| 2009 | Other | Inactive | - | - | 2.507% | 0.00 | 2.115% | - | - | - | - | 8,785.00 | 1.00 | - | - | - | - |
| 2010 | Other | Inactive | - | - | 2.677% | 0.00 | 2.234% | - | - | - | - | 8,785.00 | 1.00 | - | 134,000.00 | - | - |
| 2011 | Other | Inactive | - | - | 2.847% | 0.00 | 2.687% | - | - | - | - | 8,785.00 | 1.00 | - | 16,000.00 | - | - |
| 2012 | Other | Inactive | 1 | 66.26 | 2.994% | 0.50 | 5.511% | 0.03 | 0.06 | 0.99 | 3.65 | 8,785.00 | 1.00 | 8,713.75 | 230,480.00 | 3,450.21 | 5,263.54 |
| 2013 | Other | Inactive | 1 | 57.00 | 2.569% | 1.50 | 8.336% | 0.03 | 0.08 | 2.20 | 4.75 | 8,785.00 | 1.00 | 19,299.14 | 57,000.00 | 2,196.83 | 17,102.31 |
| 2014 | Other | Inactive | - | - | 2.145% | 0.00 | 11.161% | - | - | - | - | 8,785.00 | 1.00 | - | - | - | - |
| 2015 | Other | Inactive | - | - | 1.720% | 0.00 | 13.985% | - | - | - | - | 8,785.00 | 1.00 | - | - | - | - |
| 2016 | Other | Inactive | - | - | 1.296% | 0.00 | 16.810% | - | - | - | - | 8,785.00 | 1.00 | - | - | - | - |
| 2017 | Other | Inactive | - | - | 0.871% | 0.00 | 24.315% | - | - | - | - | 8,785.00 | 1.00 | - | - | - | - |
| 2018 | Other | Inactive | 1 | 11.88 | 0.447% | 1.50 | 20.299% | 0.00 | 0.20 | 0.08 | 2.41 | 8,785.00 | 1.00 | 699.27 | - | - | 699.27 |
| 2019 | Other | Inactive | - | - | 0.022% | 0.00 | 13.957% | - | - | - | - | 8,785.00 | 1.00 | - | - | - | - |
| 2020 | Other | Inactive | - | - | 0.000% | 0.00 | 7.615% | - | - | - | - | 8,785.00 | 1.00 | - | - | - | - |
| 2021 | Other | Inactive | - | - | 0.000% | 0.00 | 1.273% | - | - | - | - | 8,785.00 | 1.00 | - | - | - | - |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Land Reclamation Cost Projection - Deterministic Model

| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current Bonded Acres (5) | Forfeiture Rate (6) | Adjustment | | | | | | Avg Recl Cost per Acre (13) | Adjustment Factor Permit Status (14) | Gross Cost (15) | Current Security Amount (16) | Forfeited Security Amount (17) | Net Cost (18) |
|-----------------------|---------------|-----------------|------------------|--------------------------|---------------------|----------------------|------------------|----------------------------|----------------------------|----------------------|---------------------|-----------------------------|--------------------------------------|-----------------|------------------------------|--------------------------------|---------------|
| | | | | | | Permit Bond Size (7) | Release Rate (8) | Forfeited Permit Count (9) | Released Permit Count (10) | Forfeited Acres (11) | Released Acres (12) | | | | | | |
| 1963 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.877% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1964 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.808% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1965 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.740% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1966 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.672% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1967 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.603% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1968 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.535% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1969 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.467% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1970 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.398% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1971 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.330% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1972 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.262% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1973 | Other | Phased Released | 1 | 9.00 | 0.811% | 0.00 | 6.193% | 0.01 | 0.06 | - | 0.56 | 8,785.00 | 0.50 | - | 10,000.00 | - | - |
| 1974 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.125% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1975 | Other | Phased Released | - | - | 0.811% | 0.00 | 6.057% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1976 | Other | Phased Released | 2 | 27.88 | 0.811% | 0.00 | 5.989% | 0.02 | 0.12 | - | 1.67 | 8,785.00 | 0.50 | - | 10,000.00 | - | - |
| 1977 | Other | Phased Released | - | - | 0.811% | 0.00 | 5.920% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1978 | Other | Phased Released | 1 | 12.76 | 0.811% | 0.00 | 5.852% | 0.01 | 0.06 | - | 0.75 | 8,785.00 | 0.50 | - | - | - | - |
| 1979 | Other | Phased Released | 2 | 58.69 | 0.811% | 0.00 | 5.784% | 0.02 | 0.12 | - | 3.39 | 8,785.00 | 0.50 | - | 58,000.00 | - | - |
| 1980 | Other | Phased Released | 1 | 7.91 | 0.811% | 0.00 | 5.715% | 0.01 | 0.06 | - | 0.45 | 8,785.00 | 0.50 | - | 10,000.00 | - | - |
| 1981 | Other | Phased Released | 4 | 475.54 | 0.811% | 0.00 | 5.647% | 0.03 | 0.23 | - | 26.85 | 8,785.00 | 0.50 | - | 204,860.00 | - | - |
| 1982 | Other | Phased Released | 2 | 201.26 | 0.811% | 0.00 | 5.579% | 0.02 | 0.11 | - | 11.23 | 8,785.00 | 0.50 | - | 69,200.00 | - | - |
| 1983 | Other | Phased Released | 3 | 158.90 | 0.811% | 0.00 | 5.510% | 0.02 | 0.17 | - | 8.76 | 8,785.00 | 0.50 | - | 141,200.00 | - | - |
| 1984 | Other | Phased Released | 4 | 75.79 | 0.811% | 0.00 | 5.442% | 0.03 | 0.22 | - | 4.12 | 8,785.00 | 0.50 | - | 84,200.00 | - | - |
| 1985 | Other | Phased Released | 1 | 43.00 | 0.811% | 0.00 | 5.374% | 0.01 | 0.05 | - | 2.31 | 8,785.00 | 0.50 | - | 17,200.00 | - | - |
| 1986 | Other | Phased Released | - | - | 0.811% | 0.00 | 5.305% | - | - | - | - | 8,785.00 | 0.50 | - | 10,000.00 | - | - |
| 1987 | Other | Phased Released | 1 | 50.95 | 0.811% | 0.00 | 5.237% | 0.01 | 0.05 | - | 2.67 | 8,785.00 | 0.50 | - | 52,300.00 | - | - |
| 1988 | Other | Phased Released | - | - | 0.811% | 0.00 | 5.169% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1989 | Other | Phased Released | 2 | 38.00 | 0.811% | 0.00 | 5.100% | 0.02 | 0.10 | - | 1.94 | 8,785.00 | 0.50 | - | - | - | - |
| 1990 | Other | Phased Released | - | - | 0.811% | 0.00 | 5.032% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1991 | Other | Phased Released | - | - | 0.811% | 0.00 | 4.964% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1992 | Other | Phased Released | - | - | 0.811% | 0.00 | 4.895% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1993 | Other | Phased Released | 1 | 48.00 | 0.811% | 0.00 | 1.051% | 0.01 | 0.01 | - | 0.50 | 8,785.00 | 0.50 | - | - | - | - |
| 1994 | Other | Phased Released | - | - | 0.811% | 0.00 | 1.620% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1995 | Other | Phased Released | - | - | 0.811% | 0.00 | 2.189% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1996 | Other | Phased Released | - | - | 0.811% | 0.00 | 2.758% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1997 | Other | Phased Released | 1 | 31.16 | 0.811% | 0.00 | 3.327% | 0.01 | 0.03 | - | 1.04 | 8,785.00 | 0.50 | - | - | - | - |
| 1998 | Other | Phased Released | - | - | 1.107% | 0.00 | 3.895% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 1999 | Other | Phased Released | 1 | 179.00 | 1.403% | 0.00 | 4.464% | 0.01 | 0.04 | - | 7.99 | 8,785.00 | 0.50 | - | 249,600.00 | - | - |
| 2000 | Other | Phased Released | - | - | 1.699% | 0.00 | 5.033% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2001 | Other | Phased Released | - | - | 1.995% | 0.00 | 5.602% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2002 | Other | Phased Released | - | - | 2.291% | 0.00 | 6.171% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2003 | Other | Phased Released | - | - | 2.587% | 0.00 | 6.739% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2004 | Other | Phased Released | - | - | 2.883% | 0.00 | 7.308% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2005 | Other | Phased Released | - | - | 3.179% | 0.00 | 7.877% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2006 | Other | Phased Released | - | - | 3.475% | 0.00 | 8.446% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2007 | Other | Phased Released | - | - | 3.771% | 0.00 | 9.015% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2008 | Other | Phased Released | - | - | 4.068% | 0.00 | 9.583% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2009 | Other | Phased Released | - | - | 4.364% | 0.00 | 10.152% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2010 | Other | Phased Released | - | - | 4.660% | 0.00 | 10.721% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2011 | Other | Phased Released | - | - | 4.956% | 0.00 | 12.895% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2012 | Other | Phased Released | - | - | 5.212% | 0.00 | 26.454% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2013 | Other | Phased Released | - | - | 4.473% | 0.00 | 40.012% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2014 | Other | Phased Released | - | - | 3.734% | 0.00 | 53.571% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2015 | Other | Phased Released | - | - | 2.995% | 0.00 | 67.129% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2016 | Other | Phased Released | - | - | 2.256% | 0.00 | 80.688% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2017 | Other | Phased Released | - | - | 1.517% | 0.00 | 116.710% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2018 | Other | Phased Released | - | - | 0.778% | 0.00 | 97.437% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2019 | Other | Phased Released | - | - | 0.039% | 0.00 | 66.996% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2020 | Other | Phased Released | - | - | 0.000% | 0.00 | 36.554% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |
| 2021 | Other | Phased Released | - | - | 0.000% | 0.00 | 6.112% | - | - | - | - | 8,785.00 | 0.50 | - | - | - | - |

West Virginia Department of Environmental Protection Office of Special Reclam
 Actuarial Reserve Study as of June 30, 2021
 Land Reclamation Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | Current Permit Count (4) | 2023 | | | | | | | | | | | | | | Gross Cost (30) | Adjustment Current Security Amount (31) | Forfeited Security Amount (32) | Net Cost (33) | Adjusted Permit Count (34) |
|-------------------|-----------|-------------|--------------------------|----------------------------|---------------------|----------------------|---|-------------------|-----------------------------|----------------------------|----------------------|---------------------|-----------------------------|--------------------------------------|---|------------|---------------|-----------------|---|--------------------------------|---------------|----------------------------|
| | | | | Current Adjusted Acres (5) | Adjusted Acres (19) | Forfeiture Rate (20) | Adjustment Factor Permit Bond Size (21) | Release Rate (22) | Forfeited Permit Count (24) | Released Permit Count (25) | Forfeited Acres (26) | Released Acres (27) | Avg recl Cost per Acre (28) | Adjustment Factor Permit Status (29) | | | | | | | | |
| 1963 | Surface | Active | - | - | - | 0.00% | - | 1.07% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1964 | Surface | Active | - | - | - | 0.00% | - | 1.07% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1965 | Surface | Active | - | - | - | 0.00% | - | 1.09% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1966 | Surface | Active | - | - | - | 0.00% | - | 1.11% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1967 | Surface | Active | - | - | - | 0.00% | - | 1.14% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1968 | Surface | Active | - | - | - | 0.00% | - | 1.16% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1969 | Surface | Active | - | - | - | 0.00% | - | 1.18% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1970 | Surface | Active | - | - | - | 0.00% | - | 1.21% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1971 | Surface | Active | - | - | - | 0.00% | - | 1.23% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1972 | Surface | Active | 1 | 400.00 | 0.99 | 394.74 | 0.01% | 1.50 | 1.26% | 0.00 | 0.01 | 0.03 | 4.96 | 2,685.00 | 1 | 79.82 | 32,239.64 | 2,427,873 | 77.39 | 0.97 | | |
| 1973 | Surface | Active | - | - | - | 0.02% | - | 1.28% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1974 | Surface | Active | - | - | - | 0.04% | - | 1.31% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1975 | Surface | Active | - | - | - | 0.05% | - | 1.33% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1976 | Surface | Active | - | - | - | 0.07% | - | 1.36% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 0 | - | - | |
| 1977 | Surface | Active | 6 | 1,933.27 | 5.91 | 1,904.52 | 0.09% | 0.67 | 1.39% | 0.01 | 0.08 | 1.10 | 26.47 | 2,685.00 | 1 | 2,965.07 | 4,951,399.60 | 2870.991 | 94.08 | 5.82 | | |
| 1978 | Surface | Active | 4 | 2,280.93 | 3.94 | 2,246.56 | 0.10% | 0.50 | 1.42% | 0.00 | 0.06 | 1.16 | 31.86 | 2,685.00 | 1 | 3,117.53 | 3,661,294.36 | 1892.268 | 1,225.26 | 3.88 | | |
| 1979 | Surface | Active | 2 | 180.00 | 1.97 | 177.20 | 0.12% | 1.00 | 1.45% | 0.00 | 0.03 | 0.21 | 2.56 | 2,685.00 | 1 | 569.45 | 179,754.93 | 215.2691 | 354.18 | 1.94 | | |
| 1980 | Surface | Active | 1 | 455.76 | 0.98 | 448.55 | 0.14% | 0.50 | 1.48% | 0.00 | 0.01 | 0.31 | 6.62 | 2,685.00 | 1 | 819.85 | 5,028,655.75 | 3423.205 | - | 0.97 | | |
| 1981 | Surface | Active | 9 | 1,661.03 | 8.85 | 1,632.53 | 0.15% | 1.06 | 1.51% | 0.01 | 0.13 | 2.63 | 24.60 | 2,685.00 | 1 | 7,057.77 | 4,651,610.67 | 7489.709 | - | 8.70 | | |
| 1982 | Surface | Active | 2 | 620.00 | 1.96 | 609.12 | 0.17% | 1.00 | 1.54% | 0.00 | 0.03 | 1.03 | 9.36 | 2,685.00 | 1 | 2,762.85 | 2,601,104.66 | 4394.041 | - | 1.93 | | |
| 1983 | Surface | Active | 2 | 1,704.33 | 1.96 | 1,675.33 | 0.19% | 0.50 | 1.57% | 0.00 | 0.03 | 1.55 | 26.28 | 2,685.00 | 1 | 4,168.10 | 7,438,384.38 | 6892.434 | - | 1.93 | | |
| 1984 | Surface | Active | - | - | - | 0.20% | - | 1.60% | - | - | - | - | - | - | - | 2,685.00 | 1 | - | 3,108,294.00 | 0 | - | - |
| 1985 | Surface | Active | 5 | 2,405.91 | 4.90 | 2,361.86 | 0.22% | 0.70 | 1.63% | 0.01 | 0.08 | 3.61 | 38.58 | 2,685.00 | 1 | 9,681.83 | 6,452,662.83 | 9851.398 | - | 4.81 | | |
| 1986 | Surface | Active | 7 | 2,331.92 | 6.86 | 2,285.99 | 0.23% | 1.07 | 1.67% | 0.02 | 0.11 | 5.74 | 38.10 | 2,685.00 | 1 | 15,421.01 | 4,516,147.66 | 11346.51 | 4,074.50 | 6.73 | | |
| 1987 | Surface | Active | 3 | 1,371.12 | 2.94 | 1,344.27 | 0.25% | 0.83 | 1.70% | 0.01 | 0.05 | 2.81 | 22.86 | 2,685.00 | 1 | 7,546.11 | 4,016,075.05 | 8396.423 | - | 2.88 | | |
| 1988 | Surface | Active | 8 | 1,898.10 | 7.84 | 1,859.77 | 0.27% | 0.88 | 1.74% | 0.02 | 0.14 | 4.35 | 32.28 | 2,685.00 | 1 | 11,678.09 | 2,059,555.30 | 4816.599 | 6,861.49 | 7.68 | | |
| 1989 | Surface | Active | 7 | 2,959.93 | 6.85 | 2,900.73 | 0.28% | 0.64 | 1.77% | 0.02 | 0.12 | 5.29 | 51.37 | 2,685.00 | 1 | 14,202.81 | 5,885,629.04 | 10732.85 | 3,469.96 | 6.71 | | |
| 1990 | Surface | Active | 12 | 2,801.20 | 11.74 | 2,742.90 | 0.30% | 0.75 | 1.81% | 0.04 | 0.21 | 6.17 | 49.57 | 2,685.00 | 1 | 16,573.70 | 5,047,172.74 | 11358.31 | 5,215.40 | 11.49 | | |
| 1991 | Surface | Active | 9 | 2,094.19 | 8.80 | 2,048.20 | 0.32% | 0.94 | 1.84% | 0.03 | 0.16 | 6.12 | 37.77 | 2,685.00 | 1 | 16,936.01 | 10,208,419.84 | 30500.67 | - | 8.61 | | |
| 1992 | Surface | Active | 6 | 4,639.40 | 5.86 | 4,542.22 | 0.33% | 0.50 | 1.88% | 0.02 | 0.11 | 7.56 | 85.47 | 2,685.00 | 1 | 20,296.32 | 19,481,323.18 | 32420.73 | - | 5.73 | | |
| 1993 | Surface | Active | 12 | 4,377.78 | 11.72 | 4,278.67 | 0.35% | 0.83 | 1.92% | 0.04 | 0.23 | 12.45 | 82.15 | 2,685.00 | 1 | 33,433.66 | 11,295,202.13 | 32871.87 | 561.79 | 11.46 | | |
| 1994 | Surface | Active | 7 | 2,054.59 | 6.83 | 2,009.59 | 0.37% | 0.50 | 1.96% | 0.02 | 0.13 | 3.67 | 39.37 | 2,685.00 | 1 | 9,864.00 | 7,881,492.07 | 14408.19 | - | 6.67 | | |
| 1995 | Surface | Active | 12 | 6,620.84 | 11.71 | 6,461.60 | 0.38% | 0.92 | 2.00% | 0.04 | 0.23 | 22.63 | 129.18 | 2,685.00 | 1 | 60,753.70 | 25,487,177.86 | 89250.39 | - | 11.43 | | |
| 1996 | Surface | Active | 12 | 6,830.47 | 11.70 | 6,664.68 | 0.40% | 0.83 | 2.04% | 0.05 | 0.24 | 22.13 | 135.96 | 2,685.00 | 1 | 59,410.71 | 18,332,890.45 | 60865.63 | - | 11.42 | | |
| 1997 | Surface | Active | 24 | 13,199.94 | 23.39 | 12,874.51 | 0.41% | 0.79 | 2.08% | 0.10 | 0.49 | 42.28 | 267.99 | 2,685.00 | 1 | 113,514.03 | 56,604,140.35 | 185875.8 | - | 22.80 | | |
| 1998 | Surface | Active | 19 | 11,029.10 | 18.50 | 10,757.58 | 0.43% | 0.66 | 2.12% | 0.08 | 0.39 | 30.52 | 228.50 | 2,685.00 | 1 | 81,936.73 | 45,238,877.26 | 128331 | - | 18.03 | | |
| 1999 | Surface | Active | 4 | 2,072.61 | 3.89 | 2,021.96 | 0.45% | 0.50 | 2.17% | 0.02 | 0.08 | 4.52 | 43.82 | 2,685.00 | 1 | 12,149.38 | 7,184,294.88 | 16077.58 | - | 3.79 | | |
| 2000 | Surface | Active | 6 | 4,526.19 | 5.84 | 4,413.17 | 0.46% | 0.50 | 2.21% | 0.03 | 0.13 | 10.24 | 97.60 | 2,685.00 | 1 | 27,488.56 | 19,160,928.72 | 44450.15 | - | 5.68 | | |
| 2001 | Surface | Active | 19 | 6,826.55 | 18.47 | 6,639.90 | 0.48% | 0.87 | 2.26% | 0.09 | 0.42 | 27.70 | 149.85 | 2,685.00 | 1 | 74,370.49 | 31,971,147.62 | 133368.5 | - | 17.96 | | |
| 2002 | Surface | Active | 15 | 6,499.09 | 14.57 | 6,325.25 | 0.50% | 0.63 | 2.30% | 0.07 | 0.34 | 19.90 | 145.66 | 2,685.00 | 1 | 53,430.72 | 25,484,408.62 | 80175.82 | - | 14.16 | | |
| 2003 | Surface | Active | 16 | 6,916.12 | 15.53 | 6,720.53 | 0.51% | 0.81 | 2.35% | 0.08 | 0.36 | 28.02 | 157.92 | 2,685.00 | 1 | 75,232.69 | 40,234,118.59 | 167704.7 | - | 15.09 | | |
| 2004 | Surface | Active | 21 | 11,573.91 | 20.34 | 11,229.48 | 0.53% | 0.79 | 2.40% | 0.11 | 0.49 | 46.72 | 269.26 | 2,685.00 | 1 | 125,446.70 | 49,687,613.11 | 206730 | - | 19.75 | | |
| 2005 | Surface | Active | 15 | 5,236.53 | 14.53 | 5,071.05 | 0.67% | 1.03 | 2.45% | 0.10 | 0.36 | 35.30 | 124.07 | 2,685.00 | 1 | 94,771.41 | 14,400,215.11 | 100231.5 | - | 14.08 | | |
| 2006 | Surface | Active | 10 | 4,862.21 | 9.68 | 4,711.63 | 0.64% | 0.90 | 2.50% | 0.06 | 0.24 | 27.23 | 117.63 | 2,685.00 | 1 | 73,101.27 | 17,646,971.86 | 101971.8 | - | 9.38 | | |
| 2007 | Surface | Active | 22 | 6,382.38 | 21.30 | 6,186.23 | 0.61% | 0.82 | 2.55% | 0.13 | 0.54 | 30.90 | 157.60 | 2,685.00 | 1 | 82,968.09 | 17,612,884.68 | 87977.4 | - | 20.63 | | |
| 2008 | Surface | Active | 12 | 8,631.88 | 11.62 | 8,375.34 | 0.58% | 0.58 | 2.60% | 0.07 | 0.30 | 28.29 | 217.72 | 2,685.00 | 1 | 75,948.15 | 18,485,126.01 | 62429.91 | 13,518.24 | 11.25 | | |
| 2009 | Surface | Active | 16 | 6,181.98 | 15.48 | 5,990.73 | 0.55% | 0.75 | 2.65% | 0.08 | 0.41 | 24.60 | 158.91 | 2,685.00 | 1 | 66,040.55 | 20,552,945.39 | 84384.12 | - | 14.99 | | |
| 2010 | Surface | Active | 12 | 6,203.98 | 11.65 | 6,025.21 | 0.52% | 0.92 | 2.71% | 0.06 | 0.32 | 28.49 | 163.09 | 2,685.00 | 1 | 76,503.44 | 9,172,818.65 | 43377.79 | 33,125.65 | 11.27 | | |
| 2011 | Surface | Active | 17 | 2,986.04 | 16.55 | 2,911.35 | 0.48% | 0.74 | 2.44% | 0.08 | 0.40 | 10.37 | 70.97 | 2,685.00 | 1 | 27,839.04 | 6,737,114.23 | 23993.28 | 3,845.76 | 16.07 | | |
| 2012 | Surface | Active | 22 | 7,650.01 | 21.49 | 7,476.89 | 0.45% | 0.86 | 2.17% | 0.10 | 0.47 | 29.24 | 162.13 | 2,685.00 | 1 | 78,506.65 | 11,464,016.00 | 44830.97 | 33,675.68 | 20.93 | | |
| 2013 | Surface | Active | 22 | 8,508.13 | 21.56 | 8,337.79 | 0.42% | 0.95 | 1.90% | 0.09 | 0.41 | 33.53 | 158.35 | 2,685.00 | 1 | 90,021.43 | 18,768,479.00 | 75470.91 | 14,550.51 | 21.06 | | |
| 2014 | Surface | Active | 16 | 4,158.44 | 15.72 | 4,085.76 | 0.39% | 0.75 | 1.63% | 0.06 | 0.26 | 11.94 | 66.60 | 2,685.00 | 1 | 32,065.23 | 14,722,942.23 | 43034.01 | - | 15.41 | | |
| 2015 | Surface | Active | 13 | 4,371.03 | 12.82 | 4,312.88 | 0.36% | 0.73 | 1.36% | 0.05 | 0.17 | 11.29 | 58.69 | 2,685.00 | 1 | 30,310.70 | 10,742,097.29 | 28117.29 | 2,193.40 | 12.60 | | |
| 2016 | Surface | Active | 10 | 3,389.17 | 9.89 | 3,354.29 | 0.33% | 0.70 | 1.09% | 0.03 | 0.11 | 7.67 | 36.62 | 2,685.00 | 1 | 20,592.78 | 6,688,235.46 | 15292.6 | 5,300.18 | 9.75 | | |
| 2017 | Surface | Active | 6 | 1,324.50 | 5.95 | 1,313.68 | 0.30% | 1.00 | 0.82% | 0.02 | 0.05 | 3.88 | 10.81 | 2,685.00 | 1 | 10,408.90 | 3,361,117.36 | 9918.696 | 490.21 | 5.88 | | |
| 2018 | Surface | Active | 8 | 3,466.31 | 7.96 | 3,448.42 | 0.26% | 1.00 | 0.55% | 0.02 | 0.04 | 9.09 | 19.08 | 2,685.00 | 1 | 24,403.08 | 9,044,406.37 | 23837.49 | 565.59 | 7.89 | | |
| 2019 | Surface | Active | 8 | 4,158.88 | 7.97 | 4,143.68 | 0.23% | 0.88 | 0.28% | 0.02 | 0.02 | 8.41 | 11.77 | 2,685.00 | 1 | 22,587.29 | 2,555,429.40 | 5187.968 | 17,399.33 | 7.93 | | |
| 2020 | Surface | Active | 11 | 3,830.10 | 10.97 | 3,820.84 | 0.20% | 0.86 | 0.49% | 0.02 | 0.02 | 6.62 | 7.26 | 2,685.00 | 1 | 17,762.49 | 2,556,185.03 | 4425.811 | 13,336.68 | 10.93 | | |
| 2021 | Surface | Active | 7 | 3,770.84 | 6.99 | 3,767.75 | 0.17% | 0.93 | 0.10% | 0.01 | 0.01 | 5.91 | 3.61 | 2,685.00 | 1 | 15,869.78 | 2,559,920.00 | 4015.789 | 11,853.99 | 6.98 | | |

West Virginia Department of Environmental Protection Office of Special Reclam
Actuarial Reserve Study as of June 30, 2021
Land Reclamation Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | Permit Count (4) | Current | | Adjusted | | Forfeiture Rate (21) | Adjustment Factor | | Release Rate (22) | Forfeited Permit Count (24) | Released Permit Count (25) | Forfeited Acres (26) | Released Acres (27) | Avg recl Cost per Acre (28) | Adjustment Factor | | Gross Cost (30) | Adjustment Current Security Amount (31) | Forfeited Security Amount (32) | Net Cost (33) | Adjusted Permit Count (34) |
|-------------------|-----------|-------------|------------------|------------------|----------------------------|---------------------|-----------------------|----------------------|-------------------|--------------------|-------------------|-----------------------------|----------------------------|----------------------|---------------------|-----------------------------|--------------------|----------|-----------------|---|--------------------------------|---------------|----------------------------|
| | | | | Bonded Acres (5) | Adjusted Permit Count (18) | Adjusted Acres (19) | Permit Bond Size (22) | | Release Rate (22) | Permit Status (29) | | | | | | | Permit Status (29) | | | | | | |
| 1963 | Surface | Inactive | - | - | - | - | 0.00% | - | 0.67% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1964 | Surface | Inactive | - | - | - | - | 0.00% | - | 0.67% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1965 | Surface | Inactive | - | - | - | - | 0.00% | - | 0.68% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1966 | Surface | Inactive | - | - | - | - | 0.00% | - | 0.70% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1967 | Surface | Inactive | - | - | - | - | 0.00% | - | 0.71% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1968 | Surface | Inactive | - | - | - | - | 0.00% | - | 0.72% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1969 | Surface | Inactive | - | - | - | - | 0.00% | - | 0.74% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1970 | Surface | Inactive | - | - | - | - | 0.00% | - | 0.75% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1971 | Surface | Inactive | - | - | - | - | 0.00% | - | 0.77% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1972 | Surface | Inactive | - | - | - | - | 0.01% | - | 0.79% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1973 | Surface | Inactive | - | - | - | - | 0.05% | - | 0.80% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1974 | Surface | Inactive | - | - | - | - | 0.09% | - | 0.82% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1975 | Surface | Inactive | - | - | - | - | 0.12% | - | 0.83% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1976 | Surface | Inactive | 1 | 438.80 | 0.99 | 434.56 | 0.16% | 0.50 | 0.85% | 0.00 | 0.01 | 0.35 | 3.70 | 2,685.00 | 1 | 926.52 | 441,567.52 | 350.6365 | 575.88 | 0.98 | - | - | - |
| 1977 | Surface | Inactive | - | - | - | - | 0.20% | - | 0.87% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1978 | Surface | Inactive | - | - | - | - | 0.23% | - | 0.89% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1979 | Surface | Inactive | - | - | - | - | 0.27% | - | 0.90% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1980 | Surface | Inactive | - | - | - | - | 0.31% | - | 0.92% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1981 | Surface | Inactive | 1 | 4.47 | 0.99 | 4.42 | 0.34% | 0.50 | 0.94% | 0.00 | 0.01 | 0.01 | 0.04 | 2,685.00 | 1 | 20.36 | - | - | 0 | 20.36 | 0.97 | - | - |
| 1982 | Surface | Inactive | - | - | - | - | 0.38% | - | 0.96% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1983 | Surface | Inactive | - | - | - | - | 0.42% | - | 0.98% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1984 | Surface | Inactive | - | - | - | - | 0.45% | - | 1.00% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1985 | Surface | Inactive | - | - | - | - | 0.49% | - | 1.02% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1986 | Surface | Inactive | 1 | 411.07 | 0.98 | 405.54 | 0.53% | 0.50 | 1.04% | 0.01 | 0.01 | 1.07 | 4.22 | 2,685.00 | 1 | 2,872.51 | 757,216.74 | 1997.577 | 874.93 | 0.97 | - | - | |
| 1987 | Surface | Inactive | 2 | 415.61 | 1.97 | 408.60 | 0.56% | 1.00 | 1.06% | 0.01 | 0.02 | 2.31 | 4.34 | 2,685.00 | 1 | 6,193.01 | 1,210,874.12 | 6835.264 | - | 1.93 | - | - | |
| 1988 | Surface | Inactive | 1 | 1,304.38 | 0.98 | 1,285.78 | 0.60% | 0.50 | 1.08% | 0.01 | 0.01 | 3.87 | 13.95 | 2,685.00 | 1 | 10,380.60 | 3,578,304.19 | 10759.42 | - | 0.97 | - | - | |
| 1989 | Surface | Inactive | 2 | 273.00 | 1.96 | 268.07 | 0.64% | 1.00 | 1.11% | 0.01 | 0.02 | 1.71 | 2.97 | 2,685.00 | 1 | 4,593.98 | 573,501.81 | 3660.371 | 933.60 | 1.93 | - | - | |
| 1990 | Surface | Inactive | 1 | 81.70 | 0.98 | 80.47 | 0.68% | 0.50 | 1.13% | 0.01 | 0.01 | 0.27 | 0.91 | 2,685.00 | 1 | 729.33 | 472,515.54 | 1595.044 | - | 0.96 | - | - | |
| 1991 | Surface | Inactive | - | - | - | - | 0.71% | - | 1.15% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1992 | Surface | Inactive | - | - | - | - | 0.75% | - | 1.18% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1993 | Surface | Inactive | - | - | - | - | 0.79% | - | 1.20% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1994 | Surface | Inactive | - | - | - | - | 0.82% | - | 1.02% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | 2,316,000.00 | 0 | - | - |
| 1995 | Surface | Inactive | 3 | 3,503.18 | 2.93 | 3,442.81 | 0.86% | 0.50 | 1.25% | 0.03 | 0.04 | 14.80 | 43.02 | 2,685.00 | 1 | 39,727.14 | 7,178,799.53 | 30851.85 | 8,875.29 | 2.87 | - | - | |
| 1996 | Surface | Inactive | 1 | 193.90 | 0.98 | 190.47 | 0.90% | 0.50 | 1.27% | 0.01 | 0.01 | 0.85 | 2.43 | 2,685.00 | 1 | 2,292.20 | 5,799,743.02 | 25994.63 | - | 0.96 | - | - | |
| 1997 | Surface | Inactive | - | - | - | - | 0.93% | - | 1.30% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 1998 | Surface | Inactive | 1 | 846.89 | 0.98 | 831.15 | 0.97% | 0.50 | 1.33% | 0.01 | 0.01 | 4.03 | 11.03 | 2,685.00 | 1 | 10,825.34 | 4,088,469.45 | 19832.46 | - | 0.95 | - | - | |
| 1999 | Surface | Inactive | 1 | 2,264.80 | 0.98 | 2,221.67 | 1.01% | 0.50 | 1.35% | 0.01 | 0.01 | 11.19 | 30.10 | 2,685.00 | 1 | 30,036.09 | 2,591,402.88 | 13048.3 | 16,987.79 | 0.95 | - | - | |
| 2000 | Surface | Inactive | - | - | - | - | 1.04% | - | 1.38% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 2001 | Surface | Inactive | 1 | 596.67 | 0.97 | 584.75 | 1.08% | 0.50 | 1.41% | 0.01 | 0.01 | 3.16 | 8.25 | 2,685.00 | 1 | 8,484.57 | 1,944,074.64 | 10505.82 | - | 0.95 | - | - | |
| 2002 | Surface | Inactive | 2 | 765.87 | 1.95 | 750.20 | 1.12% | 0.50 | 1.44% | 0.02 | 0.03 | 4.19 | 10.80 | 2,685.00 | 1 | 11,256.70 | 7,520,652.56 | 42028.57 | - | 1.90 | - | - | |
| 2003 | Surface | Inactive | 4 | 4,249.33 | 3.89 | 4,160.34 | 1.15% | 0.50 | 1.47% | 0.04 | 0.05 | 24.02 | 61.10 | 2,685.00 | 1 | 64,485.26 | 11,096,740.16 | 64059.46 | 425.80 | 3.79 | - | - | |
| 2004 | Surface | Inactive | 3 | 3,700.97 | 2.91 | 3,616.33 | 1.19% | 0.50 | 1.50% | 0.03 | 0.04 | 21.54 | 54.19 | 2,685.00 | 1 | 57,843.65 | 4,955,481.27 | 29520.87 | 28,322.77 | 2.83 | - | - | |
| 2005 | Surface | Inactive | 1 | 25.99 | 0.97 | 25.02 | 1.52% | 1.50 | 1.53% | 0.01 | 0.01 | 0.57 | 0.38 | 2,685.00 | 1 | 1,527.29 | 25,436.90 | 578.2658 | 949.03 | 0.94 | - | - | |
| 2006 | Surface | Inactive | 1 | 244.59 | 0.97 | 239.02 | 1.44% | 0.50 | 1.56% | 0.01 | 0.02 | 1.73 | 3.73 | 2,685.00 | 1 | 4,635.43 | 817,704.99 | 5906.314 | - | 0.94 | - | - | |
| 2007 | Surface | Inactive | 2 | 399.20 | 1.94 | 390.11 | 1.37% | 0.50 | 1.59% | 0.03 | 0.03 | 2.68 | 6.21 | 2,685.00 | 1 | 7,194.14 | 296,376.93 | 2035.578 | 5,158.56 | 1.88 | - | - | |
| 2008 | Surface | Inactive | 4 | 864.07 | 3.88 | 841.76 | 1.30% | 0.75 | 1.62% | 0.05 | 0.06 | 8.22 | 19.68 | 2,685.00 | 1 | 22,081.63 | 1,111,703.23 | 10861.41 | 11,220.22 | 3.77 | - | - | |
| 2009 | Surface | Inactive | 3 | 680.43 | 2.91 | 664.97 | 1.23% | 0.50 | 1.66% | 0.04 | 0.05 | 4.10 | 11.02 | 2,685.00 | 1 | 10,995.73 | 1,752,211.31 | 10791.07 | 204.67 | 2.83 | - | - | |
| 2010 | Surface | Inactive | 1 | 5.11 | 0.97 | 4.95 | 1.16% | 1.50 | 1.69% | 0.01 | 0.02 | 0.09 | 0.08 | 2,685.00 | 1 | 231.34 | 10,859.53 | 189.0768 | 42.27 | 0.95 | - | - | |
| 2011 | Surface | Inactive | 1 | 560.86 | 0.98 | 550.40 | 1.09% | 0.50 | 1.52% | 0.01 | 0.01 | 3.00 | 8.39 | 2,685.00 | 1 | 8,052.51 | 4,983,245.14 | 27153.1 | - | 0.95 | - | - | |
| 2012 | Surface | Inactive | 2 | 676.78 | 1.96 | 665.54 | 1.02% | 0.50 | 1.36% | 0.02 | 0.03 | 3.39 | 9.02 | 2,685.00 | 1 | 9,102.92 | 1,697,835.28 | 8648.853 | 454.07 | 1.91 | - | - | |
| 2013 | Surface | Inactive | 1 | 93.44 | 0.98 | 92.08 | 0.95% | 0.50 | 1.19% | 0.01 | 0.01 | 0.44 | 1.09 | 2,685.00 | 1 | 1,171.68 | 1,052,525.01 | 4988.142 | - | 0.96 | - | - | |
| 2014 | Surface | Inactive | 4 | 2,929.61 | 3.93 | 2,886.98 | 0.88% | 0.75 | 1.02% | 0.03 | 0.04 | 18.99 | 29.41 | 2,685.00 | 1 | 50,978.68 | 4,379,408.45 | 28801.51 | 22,177.17 | 3.86 | - | - | |
| 2015 | Surface | Inactive | 2 | 704.80 | 1.97 | 697.40 | 0.81% | 0.50 | 0.85% | 0.02 | 0.02 | 2.81 | 5.93 | 2,685.00 | 1 | 7,545.42 | 1,225,480.09 | 4938.135 | 2,607.29 | 1.94 | - | - | |
| 2016 | Surface | Inactive | 1 | 494.54 | 0.99 | 490.36 | 0.73% | 0.50 | 0.68% | 0.01 | 0.01 | 1.80 | 3.35 | 2,685.00 | 1 | 4,838.16 | 29,302.40 | 107.6781 | 4,730.48 | 0.97 | - | - | |
| 2017 | Surface | Inactive | - | - | - | - | 0.66% | - | 0.51% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 2018 | Surface | Inactive | 1 | 351.08 | 0.99 | 349.54 | 0.59% | 0.50 | 0.35% | 0.01 | 0.00 | 1.04 | 1.21 | 2,685.00 | 1 | 2,782.75 | - | - | 0 | 2,782.75 | 0.98 | - | - |
| 2019 | Surface | Inactive | 1 | 452.10 | 0.99 | 448.50 | 0.52% | 1.50 | 0.18% | 0.01 | 0.00 | 3.51 | 0.80 | 2,685.00 | 1 | 9,429.96 | - | - | 0 | 9,429.96 | 0.99 | - | - |
| 2020 | Surface | Inactive | - | - | - | - | 0.45% | - | 0.12% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |
| 2021 | Surface | Inactive | - | - | - | - | 0.38% | - | 0.06% | - | - | - | - | - | - | 2,685.00 | 1 | - | - | - | 0 | - | - |

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| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current Bonded Acres (5) | Adjusted Permit Count (19) | Adjusted Acres (20) | Forfeiture Rate (21) | Adjustment Factor Permit Bond Size (22) | | | | Released Permit Count (24) | Released Permit Count (25) | Forfeited Acres (26) | Released Acres (27) | Avg recl Cost per Acre (28) | Adjustment Factor Permit Status (29) | Gross Cost (30) | Adjustment Current Security Amount (31) | Forfeited Security Amount (32) | Net Cost (33) | Adjusted Permit Count (34) |
|--------------------------------|---------------------|-----------------------|------------------------|-----------------------------------|----------------------------------|---------------------------|----------------------------|---|----------------------------|---------------------------|----------------------------|----------------------------------|----------------------------------|----------------------------|---------------------------|--------------------------------------|--|-----------------------|---|---|---------------------|----------------------------------|
| | | | | | | | | Release Rate (23) | Forfeited Count (24) | Released Count (25) | Forfeited Acres (26) | | | | | | | | | | | |
| 1963 | Surface | Phased Released | - | - | - | - | 0.00% | - | 3.21% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1964 | Surface | Phased Released | - | - | - | - | 0.00% | - | 3.21% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1965 | Surface | Phased Released | - | - | - | - | 0.00% | - | 3.27% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1966 | Surface | Phased Released | - | - | - | - | 0.00% | - | 3.34% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1967 | Surface | Phased Released | - | - | - | - | 0.00% | - | 3.41% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1968 | Surface | Phased Released | - | - | - | - | 0.00% | - | 3.48% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1969 | Surface | Phased Released | - | - | - | - | 0.00% | - | 3.55% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1970 | Surface | Phased Released | - | - | - | - | 0.00% | - | 3.62% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1971 | Surface | Phased Released | - | - | - | - | 0.00% | - | 3.69% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1972 | Surface | Phased Released | - | - | - | - | 0.02% | - | 3.77% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1973 | Surface | Phased Released | - | - | - | - | 0.08% | - | 3.85% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1974 | Surface | Phased Released | 2 | 189.60 | 1.92 | 182.01 | 0.15% | - | 3.92% | 0.00 | 0.08 | - | 7.14 | 2,685.00 | 0.5 | - | - | 98,250.00 | 0 | - | 1.84 | |
| 1975 | Surface | Phased Released | 2 | 8.30 | 1.91 | 7.96 | 0.21% | - | 4.00% | 0.00 | 0.08 | - | 0.32 | 2,685.00 | 0.5 | - | - | 30,600.00 | 0 | - | 1.83 | |
| 1976 | Surface | Phased Released | 5 | 626.17 | 4.77 | 600.06 | 0.28% | - | 4.09% | 0.01 | 0.20 | - | 24.52 | 2,685.00 | 0.5 | - | - | 112,250.00 | 0 | - | 4.57 | |
| 1977 | Surface | Phased Released | 2 | 48.00 | 1.91 | 45.96 | 0.34% | - | 4.17% | 0.01 | 0.08 | - | 1.92 | 2,685.00 | 0.5 | - | - | 14,750.00 | 0 | - | 1.82 | |
| 1978 | Surface | Phased Released | 2 | 158.81 | 1.90 | 151.92 | 0.40% | - | 4.25% | 0.01 | 0.08 | - | 6.46 | 2,685.00 | 0.5 | - | - | 115,400.00 | 0 | - | 1.82 | |
| 1979 | Surface | Phased Released | 2 | 358.00 | 1.90 | 342.14 | 0.47% | - | 4.34% | 0.01 | 0.08 | - | 14.85 | 2,685.00 | 0.5 | - | - | 122,400.00 | 0 | - | 1.81 | |
| 1980 | Surface | Phased Released | 2 | 621.75 | 1.90 | 593.65 | 0.53% | - | 4.43% | 0.01 | 0.08 | - | 26.30 | 2,685.00 | 0.5 | - | - | 401,500.00 | 0 | - | 1.80 | |
| 1981 | Surface | Phased Released | 9 | 1,821.81 | 8.53 | 1,737.79 | 0.60% | - | 4.52% | 0.05 | 0.39 | - | 78.55 | 2,685.00 | 0.5 | - | - | 1,675,720.00 | 0 | - | 8.09 | |
| 1982 | Surface | Phased Released | - | - | - | - | 0.66% | - | 4.61% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 1983 | Surface | Phased Released | 5 | 302.61 | 4.72 | 288.08 | 0.73% | - | 4.71% | 0.03 | 0.22 | - | 13.56 | 2,685.00 | 0.5 | - | - | 179,802.37 | 0 | - | 4.46 | |
| 1984 | Surface | Phased Released | 4 | 2,603.39 | 3.77 | 2,475.82 | 0.79% | - | 4.80% | 0.03 | 0.18 | - | 118.90 | 2,685.00 | 0.5 | - | - | 2,263,360.00 | 0 | - | 3.56 | |
| 1985 | Surface | Phased Released | 2 | 1,270.29 | 1.88 | 1,206.77 | 0.85% | - | 4.90% | 0.02 | 0.09 | - | 59.14 | 2,685.00 | 0.5 | - | - | 80,750.00 | 0 | - | 1.77 | |
| 1986 | Surface | Phased Released | 5 | 1,212.46 | 4.70 | 1,150.60 | 0.92% | - | 5.00% | 0.04 | 0.23 | - | 57.53 | 2,685.00 | 0.5 | - | - | 639,708.00 | 0 | - | 4.42 | |
| 1987 | Surface | Phased Released | 4 | 760.81 | 3.75 | 721.20 | 0.98% | - | 5.10% | 0.04 | 0.19 | - | 36.80 | 2,685.00 | 0.5 | - | - | 442,636.00 | 0 | - | 3.52 | |
| 1988 | Surface | Phased Released | 5 | 478.00 | 4.68 | 452.61 | 1.05% | - | 5.21% | 0.05 | 0.24 | - | 23.56 | 2,685.00 | 0.5 | - | - | 111,000.00 | 0 | - | 4.39 | |
| 1989 | Surface | Phased Released | 6 | 1,688.64 | 5.60 | 1,597.10 | 1.11% | - | 5.31% | 0.06 | 0.30 | - | 84.85 | 2,685.00 | 0.5 | - | - | 386,550.00 | 0 | - | 5.24 | |
| 1990 | Surface | Phased Released | 3 | 662.34 | 2.80 | 625.70 | 1.18% | - | 5.42% | 0.03 | 0.15 | - | 33.92 | 2,685.00 | 0.5 | - | - | 506,608.00 | 0 | - | 2.61 | |
| 1991 | Surface | Phased Released | 5 | 1,006.45 | 4.65 | 949.64 | 1.24% | - | 5.53% | 0.06 | 0.26 | - | 52.53 | 2,685.00 | 0.5 | - | - | 537,148.00 | 0 | - | 4.34 | |
| 1992 | Surface | Phased Released | - | - | - | - | 1.30% | - | 5.64% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 29,800.00 | 0 | - | - |
| 1993 | Surface | Phased Released | 1 | 562.59 | 0.93 | 529.52 | 1.37% | - | 5.76% | 0.01 | 0.05 | - | 30.50 | 2,685.00 | 0.5 | - | - | 37,838.98 | 0 | - | 0.86 | |
| 1994 | Surface | Phased Released | 6 | 2,470.42 | 5.55 | 2,322.26 | 1.43% | - | 5.88% | 0.08 | 0.33 | - | 136.49 | 2,685.00 | 0.5 | - | - | 1,520,619.00 | 0 | - | 5.14 | |
| 1995 | Surface | Phased Released | 4 | 498.93 | 3.69 | 468.40 | 1.50% | - | 6.00% | 0.06 | 0.22 | - | 28.09 | 2,685.00 | 0.5 | - | - | 536,443.26 | 0 | - | 3.42 | |
| 1996 | Surface | Phased Released | 4 | 563.71 | 3.69 | 528.51 | 1.56% | - | 6.12% | 0.06 | 0.23 | - | 32.34 | 2,685.00 | 0.5 | - | - | 717,833.00 | 0 | - | 3.40 | |
| 1997 | Surface | Phased Released | 2 | 969.50 | 1.84 | 907.72 | 1.62% | - | 6.24% | 0.03 | 0.11 | - | 56.68 | 2,685.00 | 0.5 | - | - | 1,659,760.00 | 0 | - | 1.69 | |
| 1998 | Surface | Phased Released | 3 | 511.73 | 2.75 | 478.46 | 1.69% | - | 6.37% | 0.05 | 0.18 | - | 30.49 | 2,685.00 | 0.5 | - | - | 581,056.00 | 0 | - | 2.53 | |
| 1999 | Surface | Phased Released | 1 | 14.87 | 0.92 | 13.88 | 1.75% | - | 6.50% | 0.02 | 0.06 | - | 0.90 | 2,685.00 | 0.5 | - | - | - | 0 | - | 0.84 | |
| 2000 | Surface | Phased Released | 1 | 19.70 | 0.91 | 18.37 | 1.82% | - | 6.63% | 0.02 | 0.06 | - | 1.22 | 2,685.00 | 0.5 | - | - | - | 0 | - | 0.84 | |
| 2001 | Surface | Phased Released | 3 | 491.55 | 2.73 | 457.59 | 1.88% | - | 6.77% | 0.05 | 0.19 | - | 30.98 | 2,685.00 | 0.5 | - | - | 493,244.06 | 0 | - | 2.50 | |
| 2002 | Surface | Phased Released | 1 | 106.29 | 0.91 | 98.80 | 1.95% | - | 6.91% | 0.02 | 0.06 | - | 6.83 | 2,685.00 | 0.5 | - | - | 76,950.00 | 0 | - | 0.83 | |
| 2003 | Surface | Phased Released | 1 | - | 0.91 | - | 2.01% | - | 7.05% | 0.02 | 0.06 | - | - | 2,685.00 | 0.5 | - | - | - | 0 | - | 0.83 | |
| 2004 | Surface | Phased Released | 2 | 470.13 | 1.80 | 435.62 | 2.07% | - | 7.19% | 0.04 | 0.13 | - | 31.34 | 2,685.00 | 0.5 | - | - | 116,250.00 | 0 | - | 1.63 | |
| 2005 | Surface | Phased Released | 1 | 515.50 | 0.90 | 47.64 | 2.64% | - | 7.34% | 0.02 | 0.07 | - | 3.50 | 2,685.00 | 0.5 | - | - | 29,520.00 | 0 | - | 0.81 | |
| 2006 | Surface | Phased Released | 1 | 60.78 | 0.90 | 56.13 | 2.51% | - | 7.49% | 0.02 | 0.07 | - | 4.20 | 2,685.00 | 0.5 | - | - | 49,200.00 | 0 | - | 0.81 | |
| 2007 | Surface | Phased Released | - | - | - | - | 2.39% | - | 7.64% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 2008 | Surface | Phased Released | - | - | - | - | 2.27% | - | 7.80% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 143,500.00 | 0 | - | - |
| 2009 | Surface | Phased Released | 2 | 220.84 | 1.80 | 202.91 | 2.14% | - | 7.96% | 0.04 | 0.14 | - | 16.15 | 2,685.00 | 0.5 | - | - | 257,086.00 | 0 | - | 1.62 | |
| 2010 | Surface | Phased Released | - | - | - | - | 2.02% | - | 8.12% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 2011 | Surface | Phased Released | 1 | 55.50 | 0.92 | 51.89 | 1.90% | - | 7.31% | 0.02 | 0.07 | - | 3.79 | 2,685.00 | 0.5 | - | - | 45,728.00 | 0 | - | 0.83 | |
| 2012 | Surface | Phased Released | - | - | - | - | 1.77% | - | 6.51% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 2013 | Surface | Phased Released | - | - | - | - | 1.65% | - | 5.70% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 2014 | Surface | Phased Released | 1 | 27.91 | 0.95 | 26.77 | 1.53% | - | 4.89% | 0.01 | 0.05 | - | 1.31 | 2,685.00 | 0.5 | - | - | 20,800.00 | 0 | - | 0.88 | |
| 2015 | Surface | Phased Released | - | - | - | - | 1.40% | - | 4.08% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 2016 | Surface | Phased Released | - | - | - | - | 1.28% | - | 3.28% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 2017 | Surface | Phased Released | - | - | - | - | 1.16% | - | 2.47% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 2018 | Surface | Phased Released | - | - | - | - | 1.03% | - | 1.66% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 2019 | Surface | Phased Released | - | - | - | - | 0.91% | - | 0.85% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 2020 | Surface | Phased Released | - | - | - | - | 0.79% | - | 0.57% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |
| 2021 | Surface | Phased Released | - | - | - | - | 0.66% | - | 0.29% | - | - | - | - | - | 2,685.00 | 0.5 | - | - | 0 | - | - | |

West Virginia Department of Environmental Protection Office of Special Reclam
Actuarial Reserve Study as of June 30, 2021
Land Reclamation Cost Projection - Deterministic Model

| 2023 | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------|-----------------|------------------|------------------|----------------------------|---------------------|----------------------|-----------------------|-------------------|--------------------|-------------------|----------------------|-----------------------------|--------------------|-----------------|----------------------|---------------|---|-----------|---------------|-------------------|
| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current | | | | Adjustment Factor | | | | | Avg recl Cost per Acre (28) | | | Adjustment Factor | | Adjustment Current Security Amount (31) | | Net Cost (33) | Adjusted Cou (34) |
| | | | | Bonded Acres (5) | Adjusted 'Permit Coun (19) | Adjusted Acres (20) | Forfeiture Rate (21) | Permit Bond Size (22) | Release Rate (23) | Forfeited Cou (24) | Released Cou (25) | Forfeited Acres (26) | Released Acres (27) | Permit Status (29) | Gross Cost (30) | Security Amount (32) | | | | | |
| 1963 | Underground | Active | - | - | - | - | 0.15% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1964 | Underground | Active | - | - | - | - | 0.15% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1965 | Underground | Active | - | - | - | - | 0.15% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1966 | Underground | Active | - | - | - | - | 0.16% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1967 | Underground | Active | - | - | - | - | 0.16% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1968 | Underground | Active | - | - | - | - | 0.16% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1969 | Underground | Active | - | - | - | - | 0.16% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1970 | Underground | Active | - | - | - | - | 0.16% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1971 | Underground | Active | - | - | - | - | 0.17% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1972 | Underground | Active | - | - | - | - | 0.17% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1973 | Underground | Active | - | - | - | - | 0.17% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1974 | Underground | Active | - | - | - | - | 0.17% | - | 0.00% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1975 | Underground | Active | - | - | - | - | 0.17% | - | 0.12% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1976 | Underground | Active | - | - | - | - | 0.17% | - | 0.26% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - | |
| 1977 | Underground | Active | 1 | 22.53 | 0.99 | 22.35 | 0.18% | 1.50 | 0.40% | 0.00 | 0.00 | 0.06 | 0.09 | 11,610.00 | 1 | 686.98 | 72,764.74 | 192,6615 | 494.32 | 0.99 | |
| 1978 | Underground | Active | 1 | 94.87 | 0.99 | 94.14 | 0.18% | 0.50 | 0.54% | 0.00 | 0.01 | 0.08 | 0.51 | 11,610.00 | 1 | 975.02 | 266,479.52 | 237,2273 | 737.30 | 0.98 | |
| 1979 | Underground | Active | 7 | 745.26 | 6.93 | 737.49 | 0.18% | 1.21 | 0.68% | 0.01 | 0.05 | 1.61 | 5.02 | 11,610.00 | 1 | 18,748.59 | 4,600,033.44 | 10072.57 | 8,676.03 | 6.87 | |
| 1980 | Underground | Active | 5 | 222.16 | 4.94 | 219.57 | 0.18% | 1.10 | 0.82% | 0.01 | 0.04 | 0.44 | 1.80 | 11,610.00 | 1 | 5,110.11 | 466,094.01 | 934.3058 | 4,175.80 | 4.89 | |
| 1981 | Underground | Active | 17 | 891.30 | 16.78 | 879.48 | 0.18% | 1.21 | 0.96% | 0.03 | 0.16 | 1.95 | 8.45 | 11,610.00 | 1 | 22,672.81 | 5,398,232.13 | 11986.61 | 10,688.19 | 16.59 | |
| 1982 | Underground | Active | 2 | 33.93 | 1.97 | 33.41 | 0.19% | 1.50 | 1.10% | 0.00 | 0.02 | 0.09 | 0.37 | 11,610.00 | 1 | 1,082.56 | 1,613,771.58 | 4503.434 | - | 1.95 | |
| 1983 | Underground | Active | 29 | 6,929.70 | 28.54 | 6,822.39 | 0.19% | 0.88 | 1.24% | 0.05 | 0.35 | 11.27 | 84.70 | 11,610.00 | 1 | 130,902.11 | 23,252,963.27 | 38428.73 | 92,478.38 | 28.14 | |
| 1984 | Underground | Active | 16 | 2,706.46 | 15.73 | 2,660.09 | 0.19% | 1.00 | 1.38% | 0.03 | 0.22 | 5.05 | 36.75 | 11,610.00 | 1 | 58,633.23 | 13,339,391.56 | 25325.15 | 33,308.08 | 15.48 | |
| 1985 | Underground | Active | 3 | 49.00 | 2.94 | 48.04 | 0.19% | 1.50 | 1.52% | 0.01 | 0.04 | 0.14 | 0.73 | 11,610.00 | 1 | 1,604.39 | 137,878.30 | 396.5882 | 1,207.80 | 2.89 | |
| 1986 | Underground | Active | 5 | 252.11 | 4.90 | 247.02 | 0.19% | 1.10 | 1.66% | 0.01 | 0.08 | 0.53 | 4.11 | 11,610.00 | 1 | 6,109.58 | 680,453.02 | 1449.563 | 4,660.02 | 4.81 | |
| 1987 | Underground | Active | 5 | 198.36 | 4.89 | 194.08 | 0.20% | 1.10 | 1.80% | 0.01 | 0.09 | 0.42 | 3.50 | 11,610.00 | 1 | 4,847.26 | 693,011.36 | 1490.84 | 3,356.42 | 4.80 | |
| 1988 | Underground | Active | 4 | 157.83 | 3.91 | 154.15 | 0.20% | 1.25 | 1.94% | 0.01 | 0.08 | 0.38 | 2.99 | 11,610.00 | 1 | 4,417.69 | 613,746.58 | 1514.983 | 2,902.71 | 3.83 | |
| 1989 | Underground | Active | 9 | 124.08 | 8.78 | 120.95 | 0.20% | 1.50 | 2.08% | 0.02 | 0.18 | 0.36 | 2.52 | 11,610.00 | 1 | 4,199.53 | 583,634.83 | 1745.465 | 2,454.06 | 8.58 | |
| 1990 | Underground | Active | 5 | 136.22 | 4.87 | 132.64 | 0.20% | 1.30 | 2.22% | 0.01 | 0.11 | 0.35 | 2.95 | 11,610.00 | 1 | 4,029.64 | 460,979.12 | 1206.24 | 2,821.40 | 4.75 | |
| 1991 | Underground | Active | 5 | 240.32 | 4.86 | 233.66 | 0.20% | 1.30 | 2.36% | 0.01 | 0.11 | 0.62 | 5.52 | 11,610.00 | 1 | 7,165.88 | 686,285.31 | 1812.795 | 5,353.09 | 4.74 | |
| 1992 | Underground | Active | 12 | 1,027.11 | 11.66 | 997.66 | 0.21% | 1.08 | 2.50% | 0.02 | 0.29 | 2.22 | 24.97 | 11,610.00 | 1 | 25,735.47 | 5,210,018.29 | 11575.92 | 14,159.55 | 11.34 | |
| 1993 | Underground | Active | 9 | 724.45 | 8.73 | 702.52 | 0.21% | 1.17 | 2.64% | 0.02 | 0.23 | 1.70 | 18.57 | 11,610.00 | 1 | 19,697.44 | 2,534,078.45 | 6119.793 | 13,577.65 | 8.48 | |
| 1994 | Underground | Active | 13 | 610.69 | 12.59 | 591.50 | 0.21% | 1.04 | 2.78% | 0.03 | 0.35 | 1.28 | 16.46 | 11,610.00 | 1 | 14,898.00 | 1,653,156.99 | 3586.357 | 11,311.65 | 12.22 | |
| 1995 | Underground | Active | 9 | 334.05 | 8.71 | 322.99 | 0.21% | 1.17 | 2.92% | 0.02 | 0.25 | 0.79 | 9.44 | 11,610.00 | 1 | 9,222.70 | 564,834.77 | 1389.185 | 7,833.51 | 8.43 | |
| 1996 | Underground | Active | 10 | 244.18 | 9.66 | 235.73 | 0.21% | 1.20 | 3.06% | 0.02 | 0.30 | 0.60 | 7.22 | 11,610.00 | 1 | 6,905.96 | 301,381.80 | 769.3034 | 6,216.66 | 9.34 | |
| 1997 | Underground | Active | 13 | 234.02 | 12.54 | 225.51 | 0.21% | 1.35 | 3.20% | 0.03 | 0.40 | 0.65 | 7.22 | 11,610.00 | 1 | 7,564.35 | 2,032,633.54 | 5872.537 | 1,691.81 | 12.11 | |
| 1998 | Underground | Active | 10 | 523.54 | 9.63 | 504.16 | 0.22% | 1.00 | 3.34% | 0.02 | 0.32 | 1.09 | 16.86 | 11,610.00 | 1 | 12,673.88 | 2,268,877.21 | 4912.713 | 7,761.17 | 9.29 | |
| 1999 | Underground | Active | 10 | 359.47 | 9.62 | 345.33 | 0.22% | 1.40 | 3.48% | 0.02 | 0.33 | 1.06 | 12.03 | 11,610.00 | 1 | 12,260.72 | 2,154,752.64 | 6589.32 | 5,671.40 | 9.26 | |
| 2000 | Underground | Active | 10 | 461.64 | 9.60 | 443.03 | 0.22% | 1.20 | 3.62% | 0.02 | 0.35 | 1.17 | 16.05 | 11,610.00 | 1 | 13,599.93 | 1,762,606.73 | 4660.04 | 8,939.53 | 9.23 | |
| 2001 | Underground | Active | 5 | 224.71 | 4.79 | 215.48 | 0.22% | 0.90 | 3.76% | 0.01 | 0.18 | 0.43 | 8.11 | 11,610.00 | 1 | 5,003.98 | 504,659.88 | 1009.41 | 3,994.58 | 4.60 | |
| 2002 | Underground | Active | 8 | 288.53 | 7.65 | 275.96 | 0.22% | 1.38 | 3.90% | 0.03 | 0.30 | 0.85 | 10.77 | 11,610.00 | 1 | 9,874.65 | 892,776.40 | 2751.559 | 7,123.09 | 7.34 | |
| 2003 | Underground | Active | 11 | 969.45 | 10.51 | 926.17 | 0.23% | 1.23 | 4.04% | 0.02 | 0.43 | 2.57 | 37.46 | 11,610.00 | 1 | 29,831.50 | 4,386,892.52 | 12170.47 | 17,661.03 | 10.07 | |
| 2004 | Underground | Active | 8 | 445.92 | 7.71 | 429.68 | 0.23% | 1.13 | 4.18% | 0.02 | 0.32 | 1.10 | 17.98 | 11,610.00 | 1 | 12,793.37 | 9,475,771.51 | 24300.86 | - | 7.37 | |
| 2005 | Underground | Active | 8 | 360.91 | 7.72 | 348.24 | 0.23% | 1.13 | 3.88% | 0.02 | 0.26 | 0.90 | 11.78 | 11,610.00 | 1 | 10,455.26 | 1,026,715.95 | 2655.046 | 7,800.21 | 7.44 | |
| 2006 | Underground | Active | 9 | 427.71 | 8.70 | 413.55 | 0.23% | 0.83 | 3.25% | 0.02 | 0.28 | 0.80 | 13.44 | 11,610.00 | 1 | 9,273.31 | 1,309,045.95 | 2528.295 | 6,745.01 | 8.40 | |
| 2007 | Underground | Active | 11 | 481.68 | 10.65 | 466.89 | 0.23% | 1.23 | 3.12% | 0.02 | 0.33 | 1.34 | 14.55 | 11,610.00 | 1 | 15,545.31 | 1,479,270.74 | 4242.271 | 11,308.04 | 10.29 | |
| 2008 | Underground | Active | 5 | 111.00 | 4.85 | 107.44 | 0.24% | 1.50 | 2.98% | 0.01 | 0.14 | 0.38 | 3.20 | 11,610.00 | 1 | 4,407.98 | 483,431.73 | 1708.295 | 2,699.68 | 4.69 | |
| 2009 | Underground | Active | 7 | 320.63 | 6.79 | 311.11 | 0.24% | 1.07 | 2.85% | 0.02 | 0.19 | 0.79 | 8.86 | 11,610.00 | 1 | 9,190.46 | 751,730.43 | 1912.758 | 7,277.70 | 6.58 | |
| 2010 | Underground | Active | 11 | 269.59 | 10.69 | 261.72 | 0.24% | 1.41 | 2.71% | 0.03 | 0.29 | 0.88 | 7.10 | 11,610.00 | 1 | 10,249.62 | 403,710.56 | 1361.802 | 8,887.82 | 10.37 | |
| 2011 | Underground | Active | 7 | 192.99 | 6.81 | 187.63 | 0.24% | 1.36 | 2.58% | 0.02 | 0.18 | 0.61 | 4.84 | 11,610.00 | 1 | 7,133.64 | 604,478.27 | 1979.493 | 5,154.14 | 6.62 | |
| 2012 | Underground | Active | 6 | 171.01 | 5.85 | 166.50 | 0.24% | 1.33 | 2.45% | 0.01 | 0.14 | 0.54 | 4.07 | 11,610.00 | 1 | 6,268.13 | 639,224.12 | 2072.791 | 4,195.34 | 5.69 | |
| 2013 | Underground | Active | 13 | 398.29 | 12.68 | 388.21 | 0.25% | 1.42 | 2.31% | 0.03 | 0.29 | 1.35 | 8.98 | 11,610.00 | 1 | 15,721.04 | 1,258,555.95 | 4389.889 | 11,311.15 | 12.36 | |
| 2014 | Underground | Active | 22 | 685.91 | 21.50 | 670.68 | 0.25% | 1.27 | 2.18% | 0.05 | 0.47 | 2.11 | 14.61 | 11,610.00 | 1 | 24,479.45 | 1,800,278.56 | 5659.663 | 18,819.78 | 20.97 | |
| 2015 | Underground | Active | 7 | 132.11 | 6.85 | 129.00 | 0.25% | 1.50 | 2.05% | 0.02 | 0.14 | 0.48 | 2.64 | 11,610.00 | 1 | 5,591.83 | 359,471.87 | 1342.173 | 4,249.65 | 6.69 | |
| 2016 | Underground | Active | 6 | 137.58 | 5.88 | 134.61 | 0.30% | 1.50 | 1.91% | 0.02 | 0.11 | 0.60 | 2.57 | 11,610.00 | 1 | 6,960.20 | 323,318.56 | 1439.956 | 5,520.24 | 6.75 | |
| 2017 | Underground | Active | 7 | 155.37 | 6.87 | 152.32 | 0.25% | 1.50 | 1.78% | 0.02 | 0.12 | 0.58 | 2.71 | 11,610.00 | 1 | 6,764.20 | 159,010.13 | 608.2105 | 6,155.99 | 6.73 | |
| 2018 | Underground | Active | 3 | 37.52 | 2.95 | 36.86 | 0.21% | 1.50 | 1.64% | 0.01 | 0.05 | 0.12 | 0.61 | 11,610.00 | 1 | 1,367.72 | 100,501.29 | 321.2307 | 1,046.49 | 2.89 | |
| 2019 | Underground | Active | 4 | 79.46 | 3.94 | 78.24 | 0.17% | 1.25 | 1.51% | 0.01 | 0.06 | 0.17 | 1.18 | 11,610.00 | 1 | 1,943.54 | 118,448.31 | 253.8389 | 1,690.11 | 3.87 | |
| 2020 | Underground | Active | 7 | 110.58 | 6.91 | 109.06 | 0.13% | 1.50 | 1.38% | 0.01 | 0.10 | 0.21 | 1.50 | 11,610.00 | 1 | 2,455.03 | 118,484.56 | 229.7291 | 2,225.30 | 6.80 | |
| 2021 | Underground | Active | 7 | 76.19 | 6.92 | 75.35 | 0.09% | 1.50 | 1.24% | 0.01 | 0.09 | 0.10 | 0.94 | 11,610.00 | 1 | 1,146.11 | 118,640.00 | 155.4422 | 990.67 | 6.83 | |

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 Land Reclamation Cost Projection - Deterministic Model

| 2023 | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------|-----------------|------------------|------------------|----------------------------|---------------------|----------------------|-----------------------|-------------------|--------------------|-------------------|----------------------|---------------------|-----------------------------|--------------------|-----------------|---|--------------------------------|---------------|-------------------|
| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current | | | | Adjustment Factor | | | | Adjustment | | | | Gross Cost (30) | Adjustment Current Security Amount (31) | Forfeited Security Amount (32) | Net Cost (33) | Adjusted Cou (34) |
| | | | | Bonded Acres (5) | Adjusted Permit Count (19) | Adjusted Acres (20) | Forfeiture Rate (21) | Permit Bond Size (22) | Release Rate (23) | Forfeited Cou (24) | Released Cou (25) | Forfeited Acres (26) | Released Acres (27) | Avg recl Cost per Acre (28) | Permit Status (29) | | | | | |
| 1963 | Underground | Inactive | - | - | - | - | 0.34% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1964 | Underground | Inactive | - | - | - | - | 0.34% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1965 | Underground | Inactive | - | - | - | - | 0.35% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1966 | Underground | Inactive | - | - | - | - | 0.35% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1967 | Underground | Inactive | - | - | - | - | 0.35% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1968 | Underground | Inactive | - | - | - | - | 0.36% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1969 | Underground | Inactive | - | - | - | - | 0.36% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1970 | Underground | Inactive | - | - | - | - | 0.37% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1971 | Underground | Inactive | - | - | - | - | 0.37% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1972 | Underground | Inactive | - | - | - | - | 0.38% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1973 | Underground | Inactive | - | - | - | - | 0.38% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1974 | Underground | Inactive | - | - | - | - | 0.38% | - | 0.00% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1975 | Underground | Inactive | - | - | - | - | 0.39% | - | 0.08% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1976 | Underground | Inactive | 1 | 103.30 | 0.99 | 102.84 | 0.39% | 0.50 | 0.16% | 0.00 | 0.00 | 0.20 | 0.17 | 11,610.00 | 1 | 2,345.31 | 344,594.34 | 676,908.8 | 1,668.40 | 0.99 |
| 1977 | Underground | Inactive | - | - | - | - | 0.40% | - | 0.25% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1978 | Underground | Inactive | 1 | 23.02 | 0.99 | 22.88 | 0.40% | 0.50 | 0.34% | 0.00 | 0.00 | 0.05 | 0.08 | 11,610.00 | 1 | 533.09 | - | 0 | 533.09 | 0.98 |
| 1979 | Underground | Inactive | 1 | 6.60 | 0.99 | 6.55 | 0.41% | 0.50 | 0.43% | 0.00 | 0.00 | 0.01 | 0.03 | 11,610.00 | 1 | 154.33 | 145,577.94 | 295.3292 | - | 0.98 |
| 1980 | Underground | Inactive | - | - | - | - | 0.41% | - | 0.51% | - | - | - | - | - | 11,610.00 | 1 | - | 0 | - | - |
| 1981 | Underground | Inactive | 4 | 149.03 | 3.96 | 147.38 | 0.41% | 1.00 | 0.60% | 0.02 | 0.02 | 0.61 | 0.89 | 11,610.00 | 1 | 7,089.15 | 171,280.02 | 709,625.4 | 6,379.53 | 3.92 |
| 1982 | Underground | Inactive | 2 | 128.47 | 1.98 | 127.20 | 0.42% | 0.50 | 0.69% | 0.01 | 0.01 | 0.27 | 0.88 | 11,610.00 | 1 | 3,090.92 | 329,102.67 | 688.8021 | 2,402.12 | 1.95 |
| 1983 | Underground | Inactive | 8 | 500.86 | 7.90 | 494.93 | 0.42% | 0.75 | 0.78% | 0.03 | 0.06 | 1.57 | 3.84 | 11,610.00 | 1 | 18,224.51 | 1,322,468.51 | 4194.35 | 14,030.16 | 7.80 |
| 1984 | Underground | Inactive | 1 | 300.00 | 0.99 | 296.50 | 0.43% | 0.50 | 0.86% | 0.00 | 0.01 | 0.63 | 2.56 | 11,610.00 | 1 | 7,352.33 | 314,719.60 | 672,190.3 | 6,680.14 | 0.97 |
| 1985 | Underground | Inactive | 1 | 220.21 | 0.99 | 217.44 | 0.43% | 0.50 | 0.95% | 0.00 | 0.01 | 0.47 | 2.07 | 11,610.00 | 1 | 5,446.06 | 592,226.89 | 1277.595 | 4,168.47 | 0.97 |
| 1986 | Underground | Inactive | 1 | 43.54 | 0.98 | 42.95 | 0.44% | 0.50 | 1.04% | 0.00 | 0.01 | 0.09 | 0.45 | 11,610.00 | 1 | 1,086.51 | 110,636.05 | 241,043.6 | 845.47 | 0.97 |
| 1987 | Underground | Inactive | 1 | 40.89 | 0.98 | 40.12 | 0.44% | 1.50 | 1.13% | 0.00 | 0.01 | 0.26 | 0.45 | 11,610.00 | 1 | 3,074.52 | 73,308.14 | 483,864.9 | 2,590.66 | 0.97 |
| 1988 | Underground | Inactive | 7 | 154.89 | 6.88 | 152.03 | 0.44% | 1.21 | 1.21% | 0.03 | 0.08 | 0.82 | 1.85 | 11,610.00 | 1 | 9,523.03 | 2,623,981.07 | 14157.05 | - | 6.76 |
| 1989 | Underground | Inactive | 2 | 193.50 | 1.96 | 190.37 | 0.45% | 0.50 | 1.30% | 0.01 | 0.03 | 0.43 | 2.48 | 11,610.00 | 1 | 4,957.60 | 122,410.18 | 274,567.3 | 4,683.03 | 1.93 |
| 1990 | Underground | Inactive | 3 | 36.13 | 2.94 | 35.40 | 0.45% | 1.17 | 1.39% | 0.01 | 0.04 | 0.19 | 0.49 | 11,610.00 | 1 | 2,171.80 | 82,040.07 | 433,475.5 | 1,738.33 | 2.89 |
| 1991 | Underground | Inactive | 2 | 141.42 | 1.96 | 138.56 | 0.46% | 1.00 | 1.48% | 0.01 | 0.03 | 0.63 | 2.05 | 11,610.00 | 1 | 7,354.26 | 5,466,669.41 | 24992.29 | - | 1.92 |
| 1992 | Underground | Inactive | 1 | 9.00 | 0.98 | 8.79 | 0.46% | 1.50 | 1.56% | 0.00 | 0.02 | 0.06 | 0.14 | 11,610.00 | 1 | 706.27 | 21,091.61 | 145,994.9 | 560.28 | 0.96 |
| 1993 | Underground | Inactive | 6 | 294.11 | 5.87 | 287.61 | 0.47% | 1.00 | 1.65% | 0.03 | 0.10 | 1.34 | 4.75 | 11,610.00 | 1 | 15,552.20 | 658,761.96 | 3068.181 | 12,484.02 | 5.74 |
| 1994 | Underground | Inactive | 1 | 247.11 | 0.98 | 242.01 | 0.47% | 0.50 | 1.74% | 0.00 | 0.02 | 0.57 | 4.21 | 11,610.00 | 1 | 6,603.38 | 643,270.78 | 1511.803 | 5,091.57 | 0.96 |
| 1995 | Underground | Inactive | 4 | 131.50 | 3.90 | 128.35 | 0.47% | 1.00 | 1.83% | 0.02 | 0.07 | 0.61 | 2.34 | 11,610.00 | 1 | 7,068.27 | 967,609.65 | 4589.598 | 2,478.67 | 3.81 |
| 1996 | Underground | Inactive | 2 | 45.38 | 1.95 | 44.14 | 0.48% | 1.50 | 1.91% | 0.01 | 0.04 | 0.32 | 0.85 | 11,610.00 | 1 | 3,679.30 | 543,395.22 | 3901.117 | - | 1.90 |
| 1997 | Underground | Inactive | 7 | 294.76 | 6.82 | 287.06 | 0.48% | 1.07 | 2.00% | 0.03 | 0.14 | 1.49 | 5.75 | 11,610.00 | 1 | 17,243.51 | 190,918.21 | 987,791.1 | 16,255.71 | 6.65 |
| 1998 | Underground | Inactive | 3 | 93.26 | 2.92 | 90.69 | 0.49% | 1.17 | 2.09% | 0.01 | 0.06 | 0.52 | 1.90 | 11,610.00 | 1 | 5,984.86 | 227,679.06 | 1294.085 | 4,690.78 | 2.84 |
| 1999 | Underground | Inactive | 9 | 618.15 | 8.75 | 600.92 | 0.49% | 1.06 | 2.18% | 0.04 | 0.19 | 3.12 | 13.08 | 11,610.00 | 1 | 36,192.97 | 442,591.74 | 2296.054 | 33,896.91 | 8.52 |
| 2000 | Underground | Inactive | 6 | 76.39 | 5.83 | 74.02 | 0.50% | 1.50 | 2.26% | 0.03 | 0.13 | 0.55 | 1.68 | 11,610.00 | 1 | 6,390.61 | 236,930.45 | 1761.901 | 4,628.71 | 5.67 |
| 2001 | Underground | Inactive | 2 | 6.00 | 1.94 | 5.81 | 0.50% | 1.50 | 2.35% | 0.01 | 0.05 | 0.04 | 0.14 | 11,610.00 | 1 | 505.79 | 310,513.07 | 2329.055 | - | 1.89 |
| 2002 | Underground | Inactive | 1 | 47.21 | 0.97 | 45.90 | 0.50% | 0.50 | 2.44% | 0.00 | 0.02 | 0.12 | 1.12 | 11,610.00 | 1 | 1,343.69 | 132,143.09 | 333,219.5 | 1,010.47 | 0.94 |
| 2003 | Underground | Inactive | 6 | 229.90 | 5.81 | 222.71 | 0.51% | 1.00 | 2.53% | 0.03 | 0.15 | 1.13 | 5.63 | 11,610.00 | 1 | 13,151.07 | 1,403,746.99 | 7139.713 | 6,011.36 | 5.64 |
| 2004 | Underground | Inactive | 3 | 181.69 | 2.92 | 177.38 | 0.51% | 0.50 | 2.62% | 0.01 | 0.08 | 0.45 | 4.64 | 11,610.00 | 1 | 5,281.29 | 103,411.89 | 265,202.4 | 5,016.09 | 2.83 |
| 2005 | Underground | Inactive | 6 | 121.31 | 5.85 | 117.90 | 0.52% | 1.50 | 2.11% | 0.03 | 0.12 | 0.91 | 2.49 | 11,610.00 | 1 | 10,618.90 | 389,112.30 | 3018.686 | 7,600.22 | 5.69 |
| 2006 | Underground | Inactive | 6 | 145.55 | 5.85 | 141.82 | 0.52% | 1.17 | 2.03% | 0.03 | 0.12 | 0.86 | 2.88 | 11,610.00 | 1 | 10,017.57 | 422,830.38 | 2572.466 | 7,445.10 | 5.70 |
| 2007 | Underground | Inactive | 4 | 80.93 | 3.90 | 78.89 | 0.53% | 1.25 | 1.95% | 0.02 | 0.08 | 0.52 | 1.54 | 11,610.00 | 1 | 6,019.11 | 409,747.05 | 2692.887 | 3,326.22 | 3.81 |
| 2008 | Underground | Inactive | 6 | 95.14 | 5.86 | 92.68 | 0.53% | 1.50 | 1.86% | 0.03 | 0.11 | 0.74 | 1.73 | 11,610.00 | 1 | 8,555.53 | 202,206.20 | 1607.699 | 6,947.83 | 5.72 |
| 2009 | Underground | Inactive | 8 | 127.40 | 7.82 | 124.30 | 0.53% | 1.38 | 1.78% | 0.04 | 0.14 | 0.91 | 2.21 | 11,610.00 | 1 | 10,602.46 | 313,937.60 | 2306.552 | 8,295.91 | 7.64 |
| 2010 | Underground | Inactive | 9 | 296.02 | 8.81 | 289.19 | 0.54% | 1.28 | 1.70% | 0.05 | 0.15 | 1.99 | 4.91 | 11,610.00 | 1 | 23,107.98 | 719,930.79 | 4954.885 | 18,153.09 | 8.61 |
| 2011 | Underground | Inactive | 6 | 113.07 | 5.88 | 110.41 | 0.54% | 1.50 | 1.61% | 0.03 | 0.09 | 0.90 | 1.78 | 11,610.00 | 1 | 10,439.36 | 396,558.11 | 3229.449 | 7,209.91 | 5.75 |
| 2012 | Underground | Inactive | 3 | 95.72 | 2.94 | 93.72 | 0.55% | 1.17 | 1.53% | 0.02 | 0.04 | 0.60 | 1.43 | 11,610.00 | 1 | 6,946.40 | 84,174.91 | 537.376 | 6,409.03 | 2.88 |
| 2013 | Underground | Inactive | 3 | 53.70 | 2.94 | 52.52 | 0.55% | 1.50 | 1.45% | 0.02 | 0.04 | 0.43 | 0.76 | 11,610.00 | 1 | 5,044.19 | 62,792.13 | 519,435.5 | 4,524.76 | 2.88 |
| 2014 | Underground | Inactive | 1 | 12.00 | 0.98 | 11.75 | 0.56% | 1.50 | 1.36% | 0.01 | 0.01 | 0.10 | 0.16 | 11,610.00 | 1 | 1,136.85 | - | 0 | 1,136.85 | 0.96 |
| 2015 | Underground | Inactive | 1 | 12.04 | 0.98 | 11.78 | 0.56% | 1.50 | 1.28% | 0.01 | 0.01 | 0.10 | 0.15 | 11,610.00 | 1 | 1,148.52 | - | 0 | 1,148.52 | 0.96 |
| 2016 | Underground | Inactive | - | - | - | - | 0.67% | - | 1.19% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - |
| 2017 | Underground | Inactive | - | - | - | - | 0.57% | - | 1.11% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - |
| 2018 | Underground | Inactive | 2 | 46.96 | 1.97 | 46.25 | 0.48% | 1.50 | 1.03% | 0.01 | 0.02 | 0.33 | 0.48 | 11,610.00 | 1 | 3,861.27 | 61,005.52 | 438,7297 | 3,422.54 | 1.94 |
| 2019 | Underground | Inactive | - | - | - | - | 0.39% | - | 0.94% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - |
| 2020 | Underground | Inactive | - | - | - | - | 0.29% | - | 0.86% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - |
| 2021 | Underground | Inactive | - | - | - | - | 0.20% | - | 0.78% | - | - | - | - | 11,610.00 | 1 | - | - | 0 | - | - |

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| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current Bonded Acres (5) | Adjusted 'Permit Count (19) | Adjusted Acres (20) | Forfeiture Rate (21) | Adjustment Factor (22) | | Released Rate (23) | Forfeited 'Permit Count (24) | Released 'Permit Count (25) | Forfeited Acres (26) | Released Acres (27) | Avg recl Cost per Acre (28) | Adjustment Factor Permit Status (29) | Gross Cost (30) | Adjustment Current Security Amount (31) | Forfeited Security Amount (32) | Net Cost (33) | Adjusted 'Permit Count (34) |
|-----------------------|---------------|-----------------|------------------|--------------------------|-----------------------------|---------------------|----------------------|------------------------|---------|--------------------|------------------------------|-----------------------------|----------------------|---------------------|-----------------------------|--------------------------------------|-----------------|---|--------------------------------|---------------|-----------------------------|
| | | | | | | | | Permit Bond Size | Release | | | | | | | | | | | | |
| 1963 | Underground | Phased Released | - | - | - | - | 0.59% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1964 | Underground | Phased Released | - | - | - | - | 0.59% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1965 | Underground | Phased Released | - | - | - | - | 0.60% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1966 | Underground | Phased Released | - | - | - | - | 0.61% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1967 | Underground | Phased Released | - | - | - | - | 0.62% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1968 | Underground | Phased Released | - | - | - | - | 0.62% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1969 | Underground | Phased Released | - | - | - | - | 0.63% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1970 | Underground | Phased Released | - | - | - | - | 0.64% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1971 | Underground | Phased Released | - | - | - | - | 0.65% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1972 | Underground | Phased Released | - | - | - | - | 0.65% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1973 | Underground | Phased Released | - | - | - | - | 0.66% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1974 | Underground | Phased Released | - | - | - | - | 0.67% | - | 0.00% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1975 | Underground | Phased Released | - | - | - | - | 0.68% | - | 0.36% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1976 | Underground | Phased Released | - | - | - | - | 0.68% | - | 0.78% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1977 | Underground | Phased Released | - | - | - | - | 0.69% | - | 1.20% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 1978 | Underground | Phased Released | 4 | 23.13 | 3.89 | 22.66 | 0.70% | - | 1.62% | 0.03 | 0.06 | - | - | 0.37 | 11,610.00 | 0.5 | - | 38,588.00 | 0 | - | 3.80 |
| 1979 | Underground | Phased Released | 2 | 59.68 | 1.94 | 58.21 | 0.71% | - | 2.04% | 0.01 | 0.04 | - | - | 1.19 | 11,610.00 | 0.5 | - | 101,728.00 | 0 | - | 1.88 |
| 1980 | Underground | Phased Released | 5 | 87.19 | 4.82 | 84.68 | 0.71% | - | 2.46% | 0.03 | 0.12 | - | - | 2.09 | 11,610.00 | 0.5 | - | 50,000.00 | 0 | - | 4.67 |
| 1981 | Underground | Phased Released | 8 | 85.14 | 7.68 | 82.33 | 0.72% | - | 2.88% | 0.06 | 0.22 | - | - | 2.37 | 11,610.00 | 0.5 | - | 212,120.00 | 0 | - | 7.40 |
| 1982 | Underground | Phased Released | 4 | 199.06 | 3.82 | 191.65 | 0.73% | - | 3.30% | 0.03 | 0.13 | - | - | 6.33 | 11,610.00 | 0.5 | - | 90,296.00 | 0 | - | 3.67 |
| 1983 | Underground | Phased Released | 4 | 57.47 | 3.80 | 55.09 | 0.74% | - | 3.72% | 0.03 | 0.14 | - | - | 2.05 | 11,610.00 | 0.5 | - | 81,440.00 | 0 | - | 3.63 |
| 1984 | Underground | Phased Released | 2 | 95.60 | 1.89 | 91.24 | 0.74% | - | 4.14% | 0.01 | 0.08 | - | - | 3.78 | 11,610.00 | 0.5 | - | 10,000.00 | 0 | - | 1.80 |
| 1985 | Underground | Phased Released | 3 | 17.24 | 2.83 | 16.38 | 0.75% | - | 4.57% | 0.02 | 0.13 | - | - | 0.75 | 11,610.00 | 0.5 | - | 30,720.00 | 0 | - | 2.68 |
| 1986 | Underground | Phased Released | 3 | 118.96 | 2.81 | 112.53 | 0.76% | - | 4.99% | 0.02 | 0.14 | - | - | 5.61 | 11,610.00 | 0.5 | - | 107,280.00 | 0 | - | 2.65 |
| 1987 | Underground | Phased Released | 4 | 77.09 | 3.74 | 72.60 | 0.77% | - | 5.41% | 0.03 | 0.20 | - | - | 3.92 | 11,610.00 | 0.5 | - | 106,360.00 | 0 | - | 3.51 |
| 1988 | Underground | Phased Released | 5 | 129.44 | 4.65 | 121.35 | 0.77% | - | 5.83% | 0.04 | 0.27 | - | - | 7.07 | 11,610.00 | 0.5 | - | 165,576.00 | 0 | - | 4.34 |
| 1989 | Underground | Phased Released | 6 | 119.44 | 5.55 | 111.48 | 0.78% | - | 6.25% | 0.04 | 0.35 | - | - | 6.96 | 11,610.00 | 0.5 | - | 103,096.00 | 0 | - | 5.16 |
| 1990 | Underground | Phased Released | 2 | 18.31 | 1.94 | 17.01 | 0.79% | - | 6.67% | 0.01 | 0.11 | - | - | 1.13 | 11,610.00 | 0.5 | - | 20,000.00 | 0 | - | 1.70 |
| 1991 | Underground | Phased Released | 2 | 18.20 | 1.83 | 16.83 | 0.80% | - | 7.09% | 0.01 | 0.13 | - | - | 1.19 | 11,610.00 | 0.5 | - | 40,000.00 | 0 | - | 1.69 |
| 1992 | Underground | Phased Released | 2 | 39.95 | 1.83 | 36.78 | 0.80% | - | 7.51% | 0.01 | 0.14 | - | - | 2.76 | 11,610.00 | 0.5 | - | 16,640.00 | 0 | - | 1.67 |
| 1993 | Underground | Phased Released | 3 | 30.79 | 2.72 | 28.22 | 0.81% | - | 7.93% | 0.02 | 0.22 | - | - | 2.24 | 11,610.00 | 0.5 | - | 31,548.00 | 0 | - | 2.49 |
| 1994 | Underground | Phased Released | 3 | 26.14 | 2.71 | 23.85 | 0.82% | - | 8.35% | 0.02 | 0.23 | - | - | 1.99 | 11,610.00 | 0.5 | - | 30,624.00 | 0 | - | 2.46 |
| 1995 | Underground | Phased Released | 4 | 65.62 | 3.60 | 59.59 | 0.83% | - | 8.77% | 0.03 | 0.32 | - | - | 5.23 | 11,610.00 | 0.5 | - | 83,832.00 | 0 | - | 3.25 |
| 1996 | Underground | Phased Released | 4 | 133.37 | 3.58 | 130.55 | 0.83% | - | 9.19% | 0.03 | 0.33 | - | - | 11.08 | 11,610.00 | 0.5 | - | 105,442.00 | 0 | - | 3.22 |
| 1997 | Underground | Phased Released | 5 | 149.46 | 4.46 | 134.47 | 0.84% | - | 9.61% | 0.04 | 0.43 | - | - | 12.92 | 11,610.00 | 0.5 | - | 115,842.75 | 0 | - | 3.99 |
| 1998 | Underground | Phased Released | 3 | 70.67 | 2.66 | 63.28 | 0.85% | - | 10.03% | 0.02 | 0.27 | - | - | 6.35 | 11,610.00 | 0.5 | - | 75,384.00 | 0 | - | 2.37 |
| 1999 | Underground | Phased Released | 1 | 10.68 | 0.88 | 9.52 | 0.86% | - | 10.45% | 0.01 | 0.09 | - | - | 0.99 | 11,610.00 | 0.5 | - | 10,000.00 | 0 | - | 0.78 |
| 2000 | Underground | Phased Released | 2 | 59.65 | 1.76 | 52.91 | 0.86% | - | 10.87% | 0.02 | 0.19 | - | - | 5.75 | 11,610.00 | 0.5 | - | 49,536.19 | 0 | - | 1.55 |
| 2001 | Underground | Phased Released | 4 | 36.60 | 3.50 | 32.31 | 0.87% | - | 11.29% | 0.03 | 0.39 | - | - | 3.65 | 11,610.00 | 0.5 | - | 52,072.00 | 0 | - | 3.07 |
| 2002 | Underground | Phased Released | 1 | 48.55 | 0.87 | 42.66 | 0.88% | - | 11.71% | 0.01 | 0.10 | - | - | 5.00 | 11,610.00 | 0.5 | - | 92,530.00 | 0 | - | 0.76 |
| 2003 | Underground | Phased Released | 3 | 78.20 | 2.60 | 68.38 | 0.89% | - | 12.13% | 0.02 | 0.32 | - | - | 8.30 | 11,610.00 | 0.5 | - | 60,200.00 | 0 | - | 2.26 |
| 2004 | Underground | Phased Released | 1 | 16.25 | 0.89 | 14.60 | 0.89% | - | 12.55% | 0.01 | 0.11 | - | - | 1.83 | 11,610.00 | 0.5 | - | 20,160.00 | 0 | - | 0.77 |
| 2005 | Underground | Phased Released | - | - | - | - | 0.90% | - | 10.15% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2006 | Underground | Phased Released | - | - | - | - | 0.91% | - | 9.75% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2007 | Underground | Phased Released | - | - | - | - | 0.92% | - | 9.35% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2008 | Underground | Phased Released | 2 | 43.07 | 1.81 | 39.39 | 0.92% | - | 8.95% | 0.02 | 0.16 | - | - | 3.52 | 11,610.00 | 0.5 | - | 44,304.00 | 0 | - | 1.63 |
| 2009 | Underground | Phased Released | 2 | 54.60 | 1.82 | 50.15 | 0.93% | - | 8.54% | 0.02 | 0.16 | - | - | 4.29 | 11,610.00 | 0.5 | - | 72,624.00 | 0 | - | 1.65 |
| 2010 | Underground | Phased Released | - | - | - | - | 0.94% | - | 8.14% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2011 | Underground | Phased Released | 1 | 25.60 | 0.92 | 23.72 | 0.95% | - | 7.74% | 0.01 | 0.07 | - | - | 1.84 | 11,610.00 | 0.5 | - | - | 0 | - | 0.84 |
| 2012 | Underground | Phased Released | - | - | - | - | 0.95% | - | 7.34% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2013 | Underground | Phased Released | - | - | - | - | 0.96% | - | 6.94% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2014 | Underground | Phased Released | - | - | - | - | 0.97% | - | 6.54% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2015 | Underground | Phased Released | - | - | - | - | 0.97% | - | 6.14% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2016 | Underground | Phased Released | - | - | - | - | 1.16% | - | 5.73% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2017 | Underground | Phased Released | - | - | - | - | 1.00% | - | 5.33% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2018 | Underground | Phased Released | - | - | - | - | 0.83% | - | 4.93% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2019 | Underground | Phased Released | - | - | - | - | 0.67% | - | 4.53% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2020 | Underground | Phased Released | - | - | - | - | 0.51% | - | 4.13% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |
| 2021 | Underground | Phased Released | - | - | - | - | 0.34% | - | 3.73% | - | - | - | - | - | 11,610.00 | 0.5 | - | - | 0 | - | - |

West Virginia Department of Environmental Protection Office of Special Reclam
Actuarial Reserve Study as of June 30, 2021
Land Reclamation Cost Projection - Deterministic Model

| | | 2023 | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------|-----------------|------------------|------------------|----------------------------|---------------------|----------------------|-----------------------|-------------------|-------------------------------|------------------------------|----------------------|---------------------|----------|----------|-----------------------------|--------------------|-----------------|---|--------------------------------|---------------|--------------------|
| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current | | | | Adjustment Factor | | | | Adjustment | | | | Avg recl Cost per Acre (28) | Permit Status (29) | Gross Cost (30) | Adjustment Current Security Amount (31) | Forfeited Security Amount (32) | Net Cost (33) | Adjusted Cost (34) |
| | | | | Bonded Acres (5) | Adjusted Permit Count (19) | Adjusted Acres (20) | Forfeiture Rate (21) | Permit Bond Size (22) | Release Rate (23) | Forfeited Courment Count (24) | Released Courment Count (25) | Forfeited Acres (26) | Released Acres (27) | | | | | | | | | |
| 1963 | Other | Active | - | - | - | - | 0.21% | - | 2.29% | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - | | |
| 1964 | Other | Active | - | - | - | - | 0.21% | - | 2.29% | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - | | | |
| 1965 | Other | Active | - | - | - | - | 0.21% | - | 2.27% | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - | | | |
| 1966 | Other | Active | - | - | - | - | 0.21% | - | 2.25% | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - | | | |
| 1967 | Other | Active | - | - | - | - | 0.21% | - | 2.22% | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - | | | |
| 1968 | Other | Active | - | - | - | - | 0.21% | - | 2.20% | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - | | | |
| 1969 | Other | Active | - | - | - | - | 0.21% | - | 2.18% | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - | | | |
| 1970 | Other | Active | - | - | - | - | 0.21% | - | 2.16% | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - | | | |
| 1971 | Other | Active | - | - | - | - | 0.21% | - | 2.13% | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - | | | |
| 1972 | Other | Active | 1 | 20.00 | 0.98 | 19.52 | 0.21% | 1.50 | 2.11% | - | 0.00 | 0.02 | 0.06 | 0.41 | 8,785.00 | 1 | 532.51 | 20,000.00 | 0 | 532.51 | 0.95 | |
| 1973 | Other | Active | - | - | - | - | 0.21% | - | 2.09% | - | - | - | 8,785.00 | 1 | - | - | 29,000.00 | 0 | - | - | | |
| 1974 | Other | Active | 1 | 28.52 | 0.98 | 27.85 | 0.21% | 1.50 | 2.06% | 0.00 | 0.02 | 0.09 | 0.57 | 8,785.00 | 1 | 759.72 | 10,467.39 | 32,504.1 | 727.22 | 0.96 | | |
| 1975 | Other | Active | 1 | 6.20 | 0.98 | 6.06 | 0.21% | 1.50 | 2.04% | 0.00 | 0.02 | 0.02 | 0.12 | 8,785.00 | 1 | 165.19 | 74,767.10 | 232.1721 | - | 0.96 | | |
| 1976 | Other | Active | 1 | 75.00 | 0.98 | 73.27 | 0.21% | 1.50 | 2.02% | 0.00 | 0.02 | 0.23 | 1.48 | 8,785.00 | 1 | 1,998.79 | 307,043.58 | 953.4535 | 1,045.34 | 0.96 | | |
| 1977 | Other | Active | 2 | 307.70 | 1.96 | 300.99 | 0.21% | 1.00 | 2.00% | 0.00 | 0.04 | 0.62 | 6.01 | 8,785.00 | 1 | 5,473.98 | 18,162.32 | 37,599.29 | 5,436.38 | 1.91 | | |
| 1978 | Other | Active | - | - | - | - | 0.21% | - | 1.97% | - | - | - | 8,785.00 | 1 | - | - | 65,000.00 | 0 | - | - | | |
| 1979 | Other | Active | 1 | 65.00 | 0.98 | 63.55 | 0.21% | 1.50 | 1.95% | 0.00 | 0.02 | 0.20 | 1.24 | 8,785.00 | 1 | 1,733.50 | 528,593.46 | 1641.426 | 92.07 | 0.96 | | |
| 1980 | Other | Active | 7 | 370.67 | 6.85 | 362.68 | 0.21% | 1.21 | 1.93% | 0.01 | 0.13 | 0.91 | 6.99 | 8,785.00 | 1 | 8,009.22 | 20,452,252.75 | 51412.69 | - | 6.71 | | |
| 1981 | Other | Active | 34 | 4,857.33 | 33.29 | 4,756.44 | 0.21% | 0.94 | 1.91% | 0.07 | 0.63 | 9.27 | 90.61 | 8,785.00 | 1 | 81,414.68 | 1,969,235.64 | 3836.869 | 77,577.81 | 32.59 | | |
| 1982 | Other | Active | 4 | 554.75 | 3.92 | 543.57 | 0.21% | 0.75 | 1.88% | 0.01 | 0.07 | 0.84 | 10.23 | 8,785.00 | 1 | 7,414.28 | 12,017,735.82 | 18659.16 | - | 3.84 | | |
| 1983 | Other | Active | 35 | 3,438.58 | 34.28 | 3,369.22 | 0.21% | 0.87 | 1.86% | 0.07 | 0.64 | 6.08 | 62.65 | 8,785.00 | 1 | 53,396.27 | 12,645,086.85 | 2281.192 | 30,584.35 | 33.58 | | |
| 1984 | Other | Active | 32 | 4,464.39 | 31.35 | 4,377.05 | 0.21% | 0.69 | 1.84% | 0.06 | 0.58 | 6.23 | 80.40 | 8,785.00 | 1 | 54,727.35 | 4,704,398.92 | 6695.532 | 48,031.82 | 30.71 | | |
| 1985 | Other | Active | 14 | 2,329.11 | 13.72 | 2,282.57 | 0.21% | 1.00 | 1.81% | 0.03 | 0.25 | 4.73 | 41.41 | 8,785.00 | 1 | 41,512.02 | 4,948,215.05 | 10243.7 | 31,268.32 | 13.44 | | |
| 1986 | Other | Active | 13 | 1,411.57 | 12.74 | 1,383.80 | 0.21% | 0.96 | 1.79% | 0.03 | 0.23 | 2.75 | 24.79 | 8,785.00 | 1 | 24,198.54 | 1,072,580.71 | 2135.034 | 22,063.50 | 12.49 | | |
| 1987 | Other | Active | 7 | 486.71 | 6.86 | 477.13 | 0.21% | 1.07 | 1.77% | 0.01 | 0.12 | 1.06 | 8.44 | 8,785.00 | 1 | 9,297.23 | 1,047,950.43 | 2324.407 | 6,972.82 | 6.73 | | |
| 1988 | Other | Active | 7 | 479.98 | 6.86 | 470.50 | 0.21% | 1.21 | 1.75% | 0.01 | 0.12 | 1.18 | 8.21 | 8,785.00 | 1 | 10,390.44 | 1,134,939.81 | 2853.001 | 7,537.44 | 6.73 | | |
| 1989 | Other | Active | 7 | 290.43 | 6.87 | 284.68 | 0.21% | 1.36 | 1.72% | 0.01 | 0.12 | 0.80 | 4.90 | 8,785.00 | 1 | 7,026.30 | 293,772.31 | 825.3624 | 6,200.94 | 6.73 | | |
| 1990 | Other | Active | 5 | 264.35 | 4.91 | 259.20 | 0.21% | 1.30 | 1.70% | 0.01 | 0.08 | 0.70 | 4.41 | 8,785.00 | 1 | 6,128.24 | 54,851.98 | 147.6196 | 5,980.62 | 4.81 | | |
| 1991 | Other | Active | 7 | 431.34 | 6.87 | 422.99 | 0.21% | 1.36 | 1.68% | 0.01 | 0.12 | 1.19 | 7.10 | 8,785.00 | 1 | 10,440.15 | 1,590,119.92 | 4467.491 | 5,972.66 | 6.74 | | |
| 1992 | Other | Active | 9 | 554.74 | 8.83 | 544.48 | 0.21% | 1.06 | 1.65% | 0.02 | 0.15 | 1.19 | 9.01 | 8,785.00 | 1 | 10,452.24 | 1,670,701.20 | 3650.801 | 6,801.44 | 8.67 | | |
| 1993 | Other | Active | 8 | 879.50 | 7.96 | 875.05 | 0.21% | 0.75 | 1.63% | 0.02 | 0.13 | 1.36 | 14.28 | 8,785.00 | 1 | 11,935.63 | 5,363,719.15 | 8327.901 | 3,607.73 | 7.81 | | |
| 1994 | Other | Active | 12 | 1,837.84 | 11.91 | 1,824.74 | 0.21% | 0.83 | 1.63% | 0.02 | 0.04 | 3.15 | 6.39 | 8,785.00 | 1 | 27,654.82 | 3,958,630.96 | 6829.234 | 20,825.58 | 11.84 | | |
| 1995 | Other | Active | 6 | 939.93 | 5.94 | 931.13 | 0.21% | 1.00 | 1.54% | 0.01 | 0.03 | 1.93 | 5.03 | 8,785.00 | 1 | 16,933.96 | 10,113,549.69 | 20936.88 | - | 5.90 | | |
| 1996 | Other | Active | 3 | 1,971.02 | 2.97 | 1,950.86 | 0.21% | 0.50 | 1.73% | 0.01 | 0.02 | 2.02 | 14.23 | 8,785.00 | 1 | 17,399.71 | 2,559,987.44 | 2649.818 | 15,089.89 | 2.94 | | |
| 1997 | Other | Active | 10 | 1,267.92 | 9.87 | 1,251.24 | 0.21% | 1.00 | 1.92% | 0.02 | 0.09 | 2.59 | 11.50 | 8,785.00 | 1 | 22,755.65 | 3,483,892.75 | 7212.287 | 15,543.36 | 9.76 | | |
| 1998 | Other | Active | 3 | 1,054.49 | 2.95 | 1,038.31 | 0.21% | 0.83 | 1.11% | 0.01 | 0.03 | 1.79 | 11.51 | 8,785.00 | 1 | 15,736.12 | 958,098.28 | 1652.864 | 14,083.26 | 2.91 | | |
| 1999 | Other | Active | 5 | 404.95 | 4.91 | 397.33 | 0.28% | 1.10 | 1.30% | 0.01 | 0.06 | 1.24 | 5.16 | 8,785.00 | 1 | 10,851.00 | 32,869.97 | 102.1828 | 10,748.82 | 4.83 | | |
| 2000 | Other | Active | 2 | 255.10 | 1.96 | 249.71 | 0.36% | 1.00 | 1.49% | 0.01 | 0.03 | 0.89 | 3.72 | 8,785.00 | 1 | 7,857.95 | 799,875.10 | 2865.148 | 4,992.80 | 1.92 | | |
| 2001 | Other | Active | 5 | 360.44 | 4.88 | 352.06 | 0.43% | 0.90 | 1.68% | 0.02 | 0.08 | 1.37 | 5.91 | 8,785.00 | 1 | 12,074.73 | 1,680,845.46 | 6562.208 | 5,512.52 | 4.78 | | |
| 2002 | Other | Active | 6 | 569.59 | 5.84 | 553.43 | 0.51% | 1.33 | 1.87% | 0.03 | 0.11 | 3.76 | 10.33 | 8,785.00 | 1 | 38,020.77 | 4,501,665.70 | 30574.17 | 2,446.60 | 5.70 | | |
| 2003 | Other | Active | 3 | 810.10 | 2.91 | 787.44 | 0.58% | 0.83 | 2.06% | 0.02 | 0.06 | 3.84 | 16.20 | 8,785.00 | 1 | 33,722.05 | 3,586,022.81 | 17481.01 | 16,241.04 | 2.84 | | |
| 2004 | Other | Active | 7 | 1,049.09 | 6.78 | 1,016.36 | 0.66% | 0.93 | 2.25% | 0.04 | 0.15 | 6.23 | 22.83 | 8,785.00 | 1 | 54,767.06 | 236,969.00 | 1453.519 | 53,313.54 | 6.58 | | |
| 2005 | Other | Active | 2 | 22.99 | 1.93 | 22.20 | 0.74% | 1.00 | 2.44% | 0.01 | 0.05 | 0.16 | 0.54 | 8,785.00 | 1 | 1,435.68 | 1,327,436.44 | 9771.962 | - | 1.87 | | |
| 2006 | Other | Active | 7 | 491.96 | 6.74 | 473.43 | 0.81% | 1.07 | 2.63% | 0.05 | 0.18 | 4.12 | 12.43 | 8,785.00 | 1 | 36,172.82 | 1,046,435.88 | 9101.118 | 27,071.70 | 6.51 | | |
| 2007 | Other | Active | 5 | 368.47 | 4.80 | 353.50 | 0.89% | 1.10 | 2.82% | 0.04 | 0.14 | 3.45 | 9.95 | 8,785.00 | 1 | 30,317.94 | 1,633,037.40 | 15939.55 | 14,371.79 | 4.62 | | |
| 2008 | Other | Active | 9 | 649.47 | 8.62 | 620.10 | 0.96% | 1.28 | 3.00% | 0.08 | 0.26 | 7.63 | 18.63 | 8,785.00 | 1 | 67,027.73 | 462,381.71 | 5689.164 | 61,338.56 | 8.28 | | |
| 2009 | Other | Active | 6 | 202.62 | 5.73 | 192.75 | 1.04% | 1.33 | 3.19% | 0.06 | 0.18 | 2.67 | 6.16 | 8,785.00 | 1 | 23,447.45 | 4,231,317.06 | 58950.52 | - | 5.49 | | |
| 2010 | Other | Active | 9 | 1,059.98 | 8.57 | 1,008.79 | 1.11% | 1.06 | 3.38% | 0.10 | 0.29 | 11.86 | 34.14 | 8,785.00 | 1 | 104,219.70 | 485,327.79 | 5707.461 | 98,512.23 | 8.19 | | |
| 2011 | Other | Active | 3 | 350.69 | 2.83 | 331.92 | 1.19% | 0.83 | 3.57% | 0.03 | 0.10 | 3.29 | 11.86 | 8,785.00 | 1 | 28,908.64 | 144,955.29 | 1437.107 | 27,471.53 | 2.70 | | |
| 2012 | Other | Active | 7 | 147.31 | 6.29 | 131.38 | 1.27% | 1.50 | 4.30% | 0.08 | 0.27 | 2.49 | 5.65 | 8,785.00 | 1 | 21,905.42 | 3,768,235.93 | 71518.54 | - | 5.94 | | |
| 2013 | Other | Active | 17 | 2,047.67 | 14.54 | 1,750.49 | 1.33% | 1.03 | 8.82% | 0.19 | 1.28 | 23.98 | 154.36 | 8,785.00 | 1 | 210,644.62 | 651,601.31 | 8925.459 | 201,718.17 | 13.06 | | |
| 2014 | Other | Active | 8 | 259.86 | 6.50 | 210.05 | 1.14% | 1.38 | 13.34% | 0.07 | 0.87 | 3.30 | 28.02 | 8,785.00 | 1 | 28,974.54 | 1,185,830.40 | 18619.71 | 10,354.83 | 5.55 | | |
| 2015 | Other | Active | 10 | 1,229.64 | 7.69 | 944.15 | 0.95% | 1.10 | 17.86% | 0.07 | 1.37 | 9.90 | 168.60 | 8,785.00 | 1 | 86,973.91 | 6,503,439.61 | 68194.6 | 18,779.31 | 6.24 | | |
| 2016 | Other | Active | 6 | 1,513.50 | 4.35 | 1,094.81 | 0.76% | 1.33 | 22.38% | 0.03 | 0.97 | 11.16 | 244.98 | 8,785.00 | 1 | 98,048.78 | 260,603.44 | 2656.699 | 95,392.08 | 3.34 | | |
| 2017 | Other | Active | 7 | 388.02 | 4.25 | 235.03 | 0.58% | 1.36 | 26.90% | 0.02 | 1.14 | 1.84 | 63.21 | 8,785.00 | 1 | 16,137.32 | 148,714.38 | 1162.311 | 14,975.00 | 3.08 | | |
| 2018 | Other | Active | 4 | 36.77 | 2.69 | 24.72 | 0.39% | 1.50 | 38.90% | 0.01 | 1.05 | 0.14 | 9.62 | 8,785.00 | 1 | 1,261.22 | 151,048.85 | 877.3156 | 383.91 | 1.63 | | |
| 2019 | Other | Active | 14 | 50.90 | 10.87 | 39.52 | 0.20% | 1.50 | 32.48% | 0.02 | 3.53 | 0.12 | 12.84 | 8,785.00 | 1 | 1,033.97 | 197,230.88 | 567.3299 | 446.64 | 7.32 | | |
| 2020 | Other | Active | 35 | 777.21 | 30.74 | 682.51 | 0.01% | 1.47 | 22.33% | 0.00 | 6.86 | 0.10 | 152.42 | 8,785.00 | 1 | 868.14 | 197,260.00 | 28,561.27 | 839.58 | 23.87 | | |
| 2021 | Other | Active | 35 | 175.63 | 34.29 | 172.05 | 0.00% | 1.50 | 12.18% | - | 4.18 | - | 20.96 | 8,785.00 | 1 | - | 197,260.00 | 0 | - | 30.11 | | |

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| | | 2023 | | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------|-----------------|------------------|--------------------------|----------------------------|---------------------|----------------------|------------------------|------------------|--------------------|-----------------------------|----------------------------|----------------------|---------------------|-----------------------------|-------------------------------|-----------------|---|--------------------------------|---------------|----------------------------|
| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current Bonded Acres (5) | Adjusted Permit Count (19) | Adjusted Acres (20) | Forfeiture Rate (21) | Adjustment Factor (22) | | Released Rate (23) | Forfeited Permit Count (24) | Released Permit Count (25) | Forfeited Acres (26) | Released Acres (27) | Avg recl Cost per Acre (28) | Adjustment Factor Status (29) | Gross Cost (30) | Adjustment Current Security Amount (31) | Forfeited Security Amount (32) | Net Cost (33) | Adjusted Permit Count (34) |
| | | | | | | | | Permit Bond Size | Permit Bond Size | | | | | | | | | | | | |
| 1963 | Other | Inactive | - | - | - | - | 0.47% | - | 1.43% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1964 | Other | Inactive | - | - | - | - | 0.47% | - | 1.43% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1965 | Other | Inactive | - | - | - | - | 0.47% | - | 1.42% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1966 | Other | Inactive | - | - | - | - | 0.47% | - | 1.40% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1967 | Other | Inactive | - | - | - | - | 0.47% | - | 1.39% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1968 | Other | Inactive | - | - | - | - | 0.47% | - | 1.38% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1969 | Other | Inactive | - | - | - | - | 0.47% | - | 1.36% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1970 | Other | Inactive | - | - | - | - | 0.47% | - | 1.35% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1971 | Other | Inactive | - | - | - | - | 0.47% | - | 1.33% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1972 | Other | Inactive | - | - | - | - | 0.47% | - | 1.32% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1973 | Other | Inactive | - | - | - | - | 0.47% | - | 1.30% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1974 | Other | Inactive | - | - | - | - | 0.47% | - | 1.29% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1975 | Other | Inactive | - | - | - | - | 0.47% | - | 1.28% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1976 | Other | Inactive | 1 | 14.48 | 0.98 | 14.20 | 0.47% | 1.50 | 1.26% | 0.00 | 0.01 | 0.10 | 0.18 | 8,785.00 | 1 | 871.48 | 14,895.20 | 104,070.7 | 767.41 | 0.97 | |
| 1977 | Other | Inactive | 2 | 61.00 | 1.97 | 59.82 | 0.47% | 1.50 | 1.25% | 0.01 | 0.02 | 0.42 | 0.75 | 8,785.00 | 1 | 3,671.81 | 61,566.81 | 430,158.7 | 3,241.66 | 1.93 | |
| 1978 | Other | Inactive | - | - | - | - | 0.47% | - | 1.23% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 1979 | Other | Inactive | 1 | 7.25 | 0.98 | 7.11 | 0.47% | 1.50 | 1.22% | 0.00 | 0.01 | 0.05 | 0.09 | 8,785.00 | 1 | 436.53 | 9,930.13 | 69,380.44 | 367.15 | 0.97 | |
| 1980 | Other | Inactive | 1 | 114.75 | 0.98 | 113.12 | 0.47% | 0.50 | 1.20% | 0.00 | 0.01 | 0.26 | 1.36 | 8,785.00 | 1 | 2,314.35 | 339,607.22 | 790,929.4 | 1,523.42 | 0.97 | |
| 1981 | Other | Inactive | 13 | 1,477.93 | 12.79 | 1,453.92 | 0.47% | 0.96 | 1.19% | 0.06 | 0.15 | 6.51 | 17.31 | 8,785.00 | 1 | 57,205.90 | 3,535,295.04 | 15,833.72 | 41,372.17 | 12.57 | |
| 1982 | Other | Inactive | 3 | 148.70 | 2.95 | 146.16 | 0.47% | 1.17 | 1.18% | 0.01 | 0.03 | 0.79 | 1.72 | 8,785.00 | 1 | 6,977.81 | 67,630.47 | 367,519.2 | 6,610.29 | 2.90 | |
| 1983 | Other | Inactive | 8 | 1,739.30 | 7.87 | 1,715.26 | 0.47% | 0.75 | 1.16% | 0.04 | 0.09 | 5.99 | 19.91 | 8,785.00 | 1 | 52,579.48 | 6,686,512.25 | 23,358.86 | 29,220.62 | 7.74 | |
| 1984 | Other | Inactive | 7 | 440.78 | 6.89 | 433.88 | 0.47% | 0.93 | 1.15% | 0.03 | 0.08 | 1.88 | 4.98 | 8,785.00 | 1 | 16,405.94 | 6,666,562.54 | 28834.21 | - | 6.78 | |
| 1985 | Other | Inactive | 3 | 364.25 | 2.95 | 358.76 | 0.47% | 0.83 | 1.13% | 0.01 | 0.03 | 1.39 | 4.07 | 8,785.00 | 1 | 12,233.57 | 3,378,654.35 | 13,114.55 | - | 2.91 | |
| 1986 | Other | Inactive | - | - | - | - | 0.47% | - | 1.12% | - | - | - | - | - | 8,785.00 | 1 | - | 10,000.00 | 0 | - | - |
| 1987 | Other | Inactive | 1 | 484.64 | 0.98 | 478.22 | 0.47% | 0.50 | 1.11% | 0.00 | 0.01 | 1.11 | 5.29 | 8,785.00 | 1 | 9,784.39 | 3,425,363.87 | 7977.512 | 1,806.87 | 0.97 | |
| 1988 | Other | Inactive | 3 | 167.79 | 2.95 | 165.07 | 0.47% | 1.17 | 1.09% | 0.01 | 0.03 | 0.90 | 1.80 | 8,785.00 | 1 | 7,880.45 | 182,005.54 | 989,058.9 | 6,891.39 | 2.91 | |
| 1989 | Other | Inactive | 5 | 438.61 | 4.92 | 432.11 | 0.47% | 0.90 | 1.08% | 0.02 | 0.05 | 1.81 | 4.65 | 8,785.00 | 1 | 15,913.66 | 175,261.19 | 734,719.4 | 15,178.94 | 4.85 | |
| 1990 | Other | Inactive | 3 | 481.66 | 2.95 | 473.99 | 0.47% | 1.17 | 1.06% | 0.01 | 0.03 | 2.58 | 5.04 | 8,785.00 | 1 | 22,628.27 | 1,950,701.53 | 10,600.55 | 12,027.72 | 2.91 | |
| 1991 | Other | Inactive | - | - | - | - | 0.47% | - | 1.05% | - | - | - | - | - | 8,785.00 | 1 | - | 1,298,480.00 | 0 | - | - |
| 1992 | Other | Inactive | 5 | 433.18 | 4.93 | 426.14 | 0.47% | 1.30 | 1.03% | 0.02 | 0.05 | 2.58 | 4.41 | 8,785.00 | 1 | 22,668.73 | 1,231,696.30 | 7458.264 | 15,210.46 | 4.85 | |
| 1993 | Other | Inactive | 5 | 273.92 | 4.97 | 272.17 | 0.47% | 0.90 | 1.02% | 0.02 | 0.05 | 1.14 | 2.78 | 8,785.00 | 1 | 10,023.47 | 2,842,409.58 | 11,915.71 | - | 4.89 | |
| 1994 | Other | Inactive | 4 | 545.08 | 3.97 | 540.70 | 0.47% | 1.00 | 1.02% | 0.02 | 0.01 | 2.52 | 1.18 | 8,785.00 | 1 | 22,125.34 | 1,106,183.39 | 5,152.499 | 16,972.84 | 3.94 | |
| 1995 | Other | Inactive | 3 | 641.22 | 2.97 | 634.81 | 0.47% | 1.17 | 0.94% | 0.01 | 0.01 | 3.45 | 2.14 | 8,785.00 | 1 | 30,305.68 | 3,204,689.84 | 17,415 | 12,890.67 | 2.95 | |
| 1996 | Other | Inactive | 1 | 152.16 | 0.99 | 150.93 | 0.47% | 0.50 | 0.46% | 0.00 | 0.00 | 0.35 | 0.69 | 8,785.00 | 1 | 3,088.03 | 507,096.24 | 11,811.003 | 1,907.03 | 0.98 | |
| 1997 | Other | Inactive | 3 | 158.04 | 2.97 | 156.33 | 0.47% | 0.83 | 0.57% | 0.01 | 0.02 | 0.61 | 0.90 | 8,785.00 | 1 | 5,330.86 | 336,688.02 | 1,306.884 | 4,023.97 | 2.93 | |
| 1998 | Other | Inactive | 2 | 206.29 | 1.97 | 203.30 | 0.47% | 1.00 | 0.69% | 0.01 | 0.01 | 0.95 | 1.41 | 8,785.00 | 1 | 8,319.15 | 89,427.72 | 416,545.9 | 7,902.60 | 1.95 | |
| 1999 | Other | Inactive | - | - | - | - | 0.81% | - | 0.81% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 2000 | Other | Inactive | 1 | 116.73 | 0.98 | 114.94 | 0.81% | 0.50 | 0.93% | 0.01 | 0.01 | 0.46 | 1.07 | 8,785.00 | 1 | 4,068.90 | 1,039,581.82 | 4189.248 | - | 0.96 | |
| 2001 | Other | Inactive | 1 | 250.00 | 0.98 | 245.65 | 0.98% | 0.50 | 1.05% | 0.01 | 0.01 | 1.20 | 2.58 | 8,785.00 | 1 | 10,531.50 | 282,372.53 | 13,780.17 | 9,153.49 | 0.96 | |
| 2002 | Other | Inactive | 2 | 222.64 | 1.95 | 216.85 | 1.15% | 1.00 | 1.17% | 0.03 | 0.02 | 2.49 | 2.53 | 8,785.00 | 1 | 21,833.40 | 673,714.40 | 7,721.487 | 14,111.91 | 1.90 | |
| 2003 | Other | Inactive | 2 | 78.29 | 1.94 | 75.45 | 1.32% | 1.50 | 1.29% | 0.03 | 0.02 | 1.49 | 0.97 | 8,785.00 | 1 | 13,085.28 | 101,681.43 | 2,007.475 | 11,077.80 | 1.89 | |
| 2004 | Other | Inactive | 1 | 56.00 | 0.97 | 53.76 | 1.49% | 1.50 | 1.40% | 0.01 | 0.01 | 1.20 | 0.75 | 8,785.00 | 1 | 10,528.26 | - | 0 | 10,528.26 | 0.94 | |
| 2005 | Other | Inactive | 1 | 50.69 | 0.97 | 48.47 | 1.66% | 1.50 | 1.52% | 0.02 | 0.01 | 1.20 | 0.74 | 8,785.00 | 1 | 10,579.17 | - | 0 | 10,579.17 | 0.93 | |
| 2006 | Other | Inactive | - | - | - | - | 1.83% | - | 1.64% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 2007 | Other | Inactive | - | - | - | - | 2.00% | - | 1.76% | - | - | - | - | - | 8,785.00 | 1 | - | 26,000.00 | 0 | - | - |
| 2008 | Other | Inactive | 1 | 4.11 | 0.96 | 3.88 | 2.17% | 1.50 | 1.88% | 0.02 | 0.02 | 0.13 | 0.07 | 8,785.00 | 1 | 1,108.85 | 9,649.50 | 313,596.4 | 795.26 | 0.92 | |
| 2009 | Other | Inactive | - | - | - | - | 2.34% | - | 2.00% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 2010 | Other | Inactive | - | - | - | - | 2.51% | - | 2.12% | - | - | - | - | - | 8,785.00 | 1 | - | 134,000.00 | 0 | - | - |
| 2011 | Other | Inactive | - | - | - | - | 2.68% | - | 2.23% | - | - | - | - | - | 8,785.00 | 1 | - | 16,000.00 | 0 | - | - |
| 2012 | Other | Inactive | 1 | 66.26 | 0.91 | 61.62 | 2.85% | 0.50 | 2.69% | 0.03 | 0.02 | 0.88 | 1.66 | 8,785.00 | 1 | 7,705.12 | 227,029.79 | 3231.653 | 4,473.47 | 0.86 | |
| 2013 | Other | Inactive | 1 | 57.00 | 0.89 | 50.05 | 2.99% | 1.50 | 5.51% | 0.03 | 0.05 | 2.25 | 2.76 | 8,785.00 | 1 | 19,746.67 | 54,803.17 | 2461.155 | 17,285.51 | 0.82 | |
| 2014 | Other | Inactive | - | - | - | - | 2.57% | - | 8.94% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 2015 | Other | Inactive | - | - | - | - | 2.14% | - | 11.16% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 2016 | Other | Inactive | - | - | - | - | 1.72% | - | 13.99% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 2017 | Other | Inactive | - | - | - | - | 1.30% | - | 16.81% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 2018 | Other | Inactive | 1 | 11.88 | 0.79 | 9.39 | 0.87% | 1.50 | 24.31% | 0.01 | 0.19 | 0.12 | 2.28 | 8,785.00 | 1 | 1,077.89 | - | 0 | 1,077.89 | 0.59 | |
| 2019 | Other | Inactive | - | - | - | - | 0.45% | - | 20.30% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 2020 | Other | Inactive | - | - | - | - | 0.02% | - | 13.96% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |
| 2021 | Other | Inactive | - | - | - | - | 0.00% | - | 7.62% | - | - | - | - | - | 8,785.00 | 1 | - | - | 0 | - | - |

| | | 2023 | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------|-----------------|------------------|--------------------------|----------------------------|---------------------|----------------------|-----------------------|--------------------|--------------------|-----------------------------|----------------------------|----------------------|---------------------|-----------------------------|--------------------|--------------------|-----------------|---|--------------------------------|---------------|----------------------------|
| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Permit Count (4) | Current Bonded Acres (5) | Adjusted Permit Count (19) | Adjusted Acres (20) | Forfeiture Rate (21) | Adjustment Factor | | Released Rate (23) | Forfeited Permit Count (24) | Released Permit Count (25) | Forfeited Acres (26) | Released Acres (27) | Avg recl Cost per Acre (28) | Adjustment Factor | | Gross Cost (30) | Adjustment Current Security Amount (31) | Forfeited Security Amount (32) | Net Cost (33) | Adjusted Permit Count (34) |
| | | | | | | | | Permit Bond Size (22) | Permit Status (29) | | | | | | | Permit Status (29) | Permit Status (29) | | | | | |
| 1963 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.88% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1964 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.88% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1965 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.81% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1966 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.74% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1967 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.67% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1968 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.60% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1969 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.54% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1970 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.47% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1971 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.40% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1972 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.33% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1973 | Other | Phased Released | 1 | 9.00 | 0.93 | 8.44 | 0.81% | - | 6.26% | 0.01 | 0.06 | - | 0.53 | 8,785.00 | 0.5 | - | - | 10,000.00 | 0 | - | - | 0.86 |
| 1974 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.19% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1975 | Other | Phased Released | - | - | - | - | 0.81% | - | 6.13% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1976 | Other | Phased Released | 2 | 27.88 | 1.86 | 26.21 | 0.81% | - | 6.06% | 0.02 | 0.11 | - | 1.59 | 8,785.00 | 0.5 | - | - | 10,000.00 | 0 | - | - | 1.74 |
| 1977 | Other | Phased Released | - | - | - | - | 0.81% | - | 5.99% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1978 | Other | Phased Released | 1 | 12.76 | 0.93 | 12.01 | 0.81% | - | 5.92% | 0.01 | 0.06 | - | 0.71 | 8,785.00 | 0.5 | - | - | - | 0 | - | - | 0.87 |
| 1979 | Other | Phased Released | 2 | 58.69 | 1.87 | 55.30 | 0.81% | - | 5.85% | 0.02 | 0.11 | - | 3.24 | 8,785.00 | 0.5 | - | - | 58,000.00 | 0 | - | - | 1.74 |
| 1980 | Other | Phased Released | 1 | 7.91 | 0.93 | 7.46 | 0.81% | - | 5.78% | 0.01 | 0.05 | - | 0.43 | 8,785.00 | 0.5 | - | - | 10,000.00 | 0 | - | - | 0.87 |
| 1981 | Other | Phased Released | 4 | 475.54 | 3.74 | 448.69 | 0.81% | - | 5.72% | 0.03 | 0.21 | - | 25.64 | 8,785.00 | 0.5 | - | - | 204,860.00 | 0 | - | - | 3.50 |
| 1982 | Other | Phased Released | 2 | 201.26 | 1.87 | 190.03 | 0.81% | - | 5.65% | 0.02 | 0.11 | - | 10.73 | 8,785.00 | 0.5 | - | - | 69,200.00 | 0 | - | - | 1.75 |
| 1983 | Other | Phased Released | 3 | 158.90 | 2.81 | 150.14 | 0.81% | - | 5.58% | 0.02 | 0.16 | - | 8.38 | 8,785.00 | 0.5 | - | - | 141,200.00 | 0 | - | - | 2.63 |
| 1984 | Other | Phased Released | 4 | 75.79 | 3.75 | 71.67 | 0.81% | - | 5.51% | 0.03 | 0.21 | - | 3.95 | 8,785.00 | 0.5 | - | - | 84,200.00 | 0 | - | - | 3.51 |
| 1985 | Other | Phased Released | 1 | 43.00 | 0.94 | 40.69 | 0.81% | - | 5.44% | 0.01 | 0.05 | - | 2.21 | 8,785.00 | 0.5 | - | - | 17,200.00 | 0 | - | - | 0.88 |
| 1986 | Other | Phased Released | - | - | - | - | 0.81% | - | 5.37% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | 10,000.00 | 0 | - | - |
| 1987 | Other | Phased Released | 1 | 50.95 | 0.94 | 48.28 | 0.81% | - | 5.31% | 0.01 | 0.05 | - | 2.56 | 8,785.00 | 0.5 | - | - | 52,300.00 | 0 | - | - | 0.88 |
| 1988 | Other | Phased Released | - | - | - | - | 0.81% | - | 5.24% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1989 | Other | Phased Released | 2 | 38.00 | 1.88 | 36.06 | 0.81% | - | 5.17% | 0.02 | 0.10 | - | 1.86 | 8,785.00 | 0.5 | - | - | - | 0 | - | - | 1.77 |
| 1990 | Other | Phased Released | - | - | - | - | 0.81% | - | 5.10% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1991 | Other | Phased Released | - | - | - | - | 0.81% | - | 5.03% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1992 | Other | Phased Released | - | - | - | - | 0.81% | - | 4.96% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1993 | Other | Phased Released | 1 | 48.00 | 0.98 | 47.50 | 0.81% | - | 4.90% | 0.01 | 0.05 | - | 2.33 | 8,785.00 | 0.5 | - | - | - | 0 | - | - | 0.93 |
| 1994 | Other | Phased Released | - | - | - | - | 0.81% | - | 1.05% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1995 | Other | Phased Released | - | - | - | - | 0.81% | - | 1.62% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1996 | Other | Phased Released | - | - | - | - | 0.81% | - | 2.19% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1997 | Other | Phased Released | 1 | 31.16 | 0.96 | 30.12 | 0.81% | - | 2.76% | 0.01 | 0.03 | - | 0.83 | 8,785.00 | 0.5 | - | - | - | 0 | - | - | 0.92 |
| 1998 | Other | Phased Released | - | - | - | - | 0.81% | - | 3.33% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 1999 | Other | Phased Released | 1 | 179.00 | 0.94 | 171.01 | 1.11% | - | 3.90% | 0.01 | 0.04 | - | 6.66 | 8,785.00 | 0.5 | - | - | 249,600.00 | 0 | - | - | 0.89 |
| 2000 | Other | Phased Released | - | - | - | - | 1.40% | - | 4.46% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2001 | Other | Phased Released | - | - | - | - | 1.70% | - | 5.03% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2002 | Other | Phased Released | - | - | - | - | 2.00% | - | 5.60% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2003 | Other | Phased Released | - | - | - | - | 2.29% | - | 6.17% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2004 | Other | Phased Released | - | - | - | - | 2.59% | - | 6.74% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2005 | Other | Phased Released | - | - | - | - | 2.88% | - | 7.31% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2006 | Other | Phased Released | - | - | - | - | 3.18% | - | 7.88% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2007 | Other | Phased Released | - | - | - | - | 3.48% | - | 8.45% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2008 | Other | Phased Released | - | - | - | - | 3.77% | - | 9.01% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2009 | Other | Phased Released | - | - | - | - | 4.07% | - | 9.58% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2010 | Other | Phased Released | - | - | - | - | 4.36% | - | 10.15% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2011 | Other | Phased Released | - | - | - | - | 4.66% | - | 10.72% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2012 | Other | Phased Released | - | - | - | - | 4.96% | - | 12.90% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2013 | Other | Phased Released | - | - | - | - | 5.21% | - | 26.45% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2014 | Other | Phased Released | - | - | - | - | 4.47% | - | 40.01% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2015 | Other | Phased Released | - | - | - | - | 3.73% | - | 53.57% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2016 | Other | Phased Released | - | - | - | - | 2.99% | - | 67.13% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2017 | Other | Phased Released | - | - | - | - | 2.26% | - | 80.69% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2018 | Other | Phased Released | - | - | - | - | 1.52% | - | 116.71% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2019 | Other | Phased Released | - | - | - | - | 0.78% | - | 97.44% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2020 | Other | Phased Released | - | - | - | - | 0.04% | - | 67.00% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |
| 2021 | Other | Phased Released | - | - | - | - | 0.00% | - | 36.55% | - | - | - | - | - | 8,785.00 | 0.5 | - | - | - | 0 | - | - |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Capital Cost Projection - Deterministic Model
 Water Capital Total - All Mine Types

| Fiscal Year Ending 6/30 | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|----------------------------|-----------------|-----------|----------------|-----------|------------------------------------|-----------|----------------|-----------|
| | Gross Liability | | | | Gross Liability - Three Year Delay | | | |
| | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total |
| 2022 | 3,894,820 | 1,079,301 | 0 | 4,974,121 | 0 | 0 | 0 | 0 |
| 2023 | 3,752,883 | 1,029,257 | 0 | 4,782,140 | 0 | 0 | 0 | 0 |
| 2024 | 3,599,935 | 998,366 | 0 | 4,598,301 | 0 | 0 | 0 | 0 |
| 2025 | 3,456,381 | 967,752 | 0 | 4,424,133 | 1,947,410 | 539,651 | 0 | 2,487,060 |
| 2026 | 3,296,825 | 936,618 | 0 | 4,233,444 | 3,823,851 | 1,054,279 | 0 | 4,878,130 |
| 2027 | 3,131,495 | 902,356 | 0 | 4,033,851 | 3,676,409 | 1,013,811 | 0 | 4,690,220 |
| 2028 | 2,975,291 | 873,548 | 0 | 3,848,839 | 3,528,158 | 983,059 | 0 | 4,511,217 |
| 2029 | 2,820,487 | 849,620 | 0 | 3,670,107 | 5,025,016 | 1,420,494 | 0 | 6,445,510 |
| 2030 | 2,688,658 | 824,101 | 0 | 3,512,759 | 3,131,495 | 902,356 | 0 | 4,033,851 |
| 2031 | 2,538,019 | 798,559 | 0 | 3,336,578 | 2,975,291 | 873,548 | 0 | 3,848,839 |
| 2032 | 2,381,834 | 775,894 | 0 | 3,157,728 | 2,820,487 | 849,620 | 0 | 3,670,107 |
| 2033 | 2,247,670 | 730,596 | 0 | 2,978,267 | 2,688,658 | 824,101 | 0 | 3,512,759 |
| 2034 | 2,118,990 | 700,070 | 0 | 2,819,060 | 2,538,019 | 798,559 | 0 | 3,336,578 |
| 2035 | 1,996,839 | 670,596 | 0 | 2,667,435 | 2,381,834 | 775,894 | 0 | 3,157,728 |
| 2036 | 1,886,293 | 643,966 | 0 | 2,530,260 | 2,247,670 | 730,596 | 0 | 2,978,267 |
| 2037 | 1,771,055 | 616,241 | 0 | 2,387,296 | 2,118,990 | 700,070 | 0 | 2,819,060 |
| 2038 | 1,657,175 | 584,965 | 0 | 2,242,140 | 1,996,839 | 670,596 | 0 | 2,667,435 |
| 2039 | 1,551,649 | 560,155 | 0 | 2,111,804 | 1,886,293 | 643,966 | 0 | 2,530,260 |
| 2040 | 1,447,043 | 536,723 | 0 | 1,983,766 | 1,771,055 | 616,241 | 0 | 2,387,296 |
| 2041 | 1,360,661 | 514,440 | 0 | 1,875,101 | 1,657,175 | 584,965 | 0 | 2,242,140 |

Notes: Cols (1) - (3) from Exhibit E-99, Col (12), (21), etc.
 Col (4) = (1) + (2) + (3)
 Cols (5) - (8) based on (1) - (4) with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Capital Cost Projection - Deterministic Model
 Surface Mines

| Fiscal Year Ending 6/30 | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|----------------------------|-----------------|----------|----------------|-----------|------------------------------------|----------|----------------|-----------|
| | Gross Liability | | | | Gross Liability - Three Year Delay | | | |
| | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total |
| 2022 | 2,258,985 | 535,533 | 0 | 2,794,518 | 0 | 0 | 0 | 0 |
| 2023 | 2,209,824 | 508,533 | 0 | 2,718,356 | 0 | 0 | 0 | 0 |
| 2024 | 2,153,261 | 499,791 | 0 | 2,653,052 | 0 | 0 | 0 | 0 |
| 2025 | 2,095,848 | 489,858 | 0 | 2,585,706 | 1,129,493 | 267,766 | 0 | 1,397,259 |
| 2026 | 2,028,624 | 478,553 | 0 | 2,507,177 | 2,234,404 | 522,033 | 0 | 2,756,437 |
| 2027 | 1,956,555 | 461,251 | 0 | 2,417,806 | 2,181,542 | 504,162 | 0 | 2,685,704 |
| 2028 | 1,881,837 | 445,959 | 0 | 2,327,797 | 2,124,555 | 494,825 | 0 | 2,619,379 |
| 2029 | 1,798,622 | 433,904 | 0 | 2,232,526 | 3,076,548 | 723,482 | 0 | 3,800,030 |
| 2030 | 1,728,083 | 418,840 | 0 | 2,146,922 | 1,956,555 | 461,251 | 0 | 2,417,806 |
| 2031 | 1,636,331 | 402,549 | 0 | 2,038,880 | 1,881,837 | 445,959 | 0 | 2,327,797 |
| 2032 | 1,532,781 | 388,820 | 0 | 1,921,601 | 1,798,622 | 433,904 | 0 | 2,232,526 |
| 2033 | 1,446,214 | 352,198 | 0 | 1,798,411 | 1,728,083 | 418,840 | 0 | 2,146,922 |
| 2034 | 1,359,062 | 330,027 | 0 | 1,689,090 | 1,636,331 | 402,549 | 0 | 2,038,880 |
| 2035 | 1,275,329 | 308,668 | 0 | 1,583,996 | 1,532,781 | 388,820 | 0 | 1,921,601 |
| 2036 | 1,196,893 | 289,917 | 0 | 1,486,809 | 1,446,214 | 352,198 | 0 | 1,798,411 |
| 2037 | 1,111,225 | 269,849 | 0 | 1,381,074 | 1,359,062 | 330,027 | 0 | 1,689,090 |
| 2038 | 1,024,987 | 245,733 | 0 | 1,270,720 | 1,275,329 | 308,668 | 0 | 1,583,996 |
| 2039 | 939,978 | 227,397 | 0 | 1,167,375 | 1,196,893 | 289,917 | 0 | 1,486,809 |
| 2040 | 854,333 | 210,286 | 0 | 1,064,619 | 1,111,225 | 269,849 | 0 | 1,381,074 |
| 2041 | 783,901 | 194,142 | 0 | 978,043 | 1,024,987 | 245,733 | 0 | 1,270,720 |

Notes: Cols (1) - (3) from Exhibit E-99, Col (12), (21), etc.
 Col (4) = (1) + (2) + (3)
 Cols (5) - (8) based on (1) - (4) with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Capital Cost Projection - Deterministic Model
 Underground Mines

| Fiscal Year <u>Ending 6/30</u> | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|-----------------------------------|------------------------|-----------------|-----------------------|--------------|---|-----------------|-----------------------|--------------|
| | <u>Gross Liability</u> | | | | <u>Gross Liability - Three Year Delay</u> | | | |
| | <u>Active</u> | <u>Inactive</u> | <u>Phase Released</u> | <u>Total</u> | <u>Active</u> | <u>Inactive</u> | <u>Phase Released</u> | <u>Total</u> |
| 2022 | 292,530 | 143,763 | 0 | 436,292 | 0 | 0 | 0 | 0 |
| 2023 | 284,463 | 139,564 | 0 | 424,027 | 0 | 0 | 0 | 0 |
| 2024 | 276,044 | 135,622 | 0 | 411,666 | 0 | 0 | 0 | 0 |
| 2025 | 267,483 | 131,815 | 0 | 399,298 | 146,265 | 71,881 | 0 | 218,146 |
| 2026 | 259,687 | 127,407 | 0 | 387,094 | 288,496 | 141,663 | 0 | 430,160 |
| 2027 | 251,990 | 123,555 | 0 | 375,545 | 280,254 | 137,593 | 0 | 417,847 |
| 2028 | 244,237 | 119,861 | 0 | 364,098 | 271,764 | 133,718 | 0 | 405,482 |
| 2029 | 236,800 | 116,321 | 0 | 353,121 | 393,428 | 193,315 | 0 | 586,743 |
| 2030 | 230,049 | 112,914 | 0 | 342,963 | 251,990 | 123,555 | 0 | 375,545 |
| 2031 | 223,708 | 109,671 | 0 | 333,379 | 244,237 | 119,861 | 0 | 364,098 |
| 2032 | 217,754 | 106,593 | 0 | 324,347 | 236,800 | 116,321 | 0 | 353,121 |
| 2033 | 212,140 | 103,677 | 0 | 315,817 | 230,049 | 112,914 | 0 | 342,963 |
| 2034 | 206,779 | 100,916 | 0 | 307,695 | 223,708 | 109,671 | 0 | 333,379 |
| 2035 | 201,691 | 98,300 | 0 | 299,991 | 217,754 | 106,593 | 0 | 324,347 |
| 2036 | 196,863 | 95,833 | 0 | 292,696 | 212,140 | 103,677 | 0 | 315,817 |
| 2037 | 192,282 | 93,495 | 0 | 285,777 | 206,779 | 100,916 | 0 | 307,695 |
| 2038 | 187,945 | 91,274 | 0 | 279,220 | 201,691 | 98,300 | 0 | 299,991 |
| 2039 | 183,921 | 89,168 | 0 | 273,089 | 196,863 | 95,833 | 0 | 292,696 |
| 2040 | 180,125 | 87,168 | 0 | 267,293 | 192,282 | 93,495 | 0 | 285,777 |
| 2041 | 176,628 | 85,299 | 0 | 261,928 | 187,945 | 91,274 | 0 | 279,220 |

Notes: Cols (1) - (3) from Exhibit E-99, Col (12), (21), etc.
 Col (4) = (1) + (2) + (3)
 Cols (5) - (8) based on (1) - (4) with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Capital Cost Projection - Deterministic Model
 Other

| Fiscal Year <u>Ending 6/30</u> | (1) (2) (3) (4) Gross Liability | | | | (5) (6) (7) (8) Gross Liability - Three Year Delay | | | |
|-----------------------------------|------------------------------------|-----------------|-----------------------|--------------|---|-----------------|-----------------------|--------------|
| | <u>Active</u> | <u>Inactive</u> | <u>Phase Released</u> | <u>Total</u> | <u>Active</u> | <u>Inactive</u> | <u>Phase Released</u> | <u>Total</u> |
| 2022 | 1,343,305 | 400,006 | 0 | 1,743,310 | 0 | 0 | 0 | 0 |
| 2023 | 1,258,596 | 381,160 | 0 | 1,639,756 | 0 | 0 | 0 | 0 |
| 2024 | 1,170,629 | 362,953 | 0 | 1,533,583 | 0 | 0 | 0 | 0 |
| 2025 | 1,093,050 | 346,078 | 0 | 1,439,128 | 671,652 | 200,003 | 0 | 871,655 |
| 2026 | 1,008,515 | 330,658 | 0 | 1,339,173 | 1,300,950 | 390,583 | 0 | 1,691,533 |
| 2027 | 922,950 | 317,550 | 0 | 1,240,500 | 1,214,613 | 372,057 | 0 | 1,586,669 |
| 2028 | 849,217 | 307,728 | 0 | 1,156,945 | 1,131,840 | 354,516 | 0 | 1,486,355 |
| 2029 | 785,065 | 299,396 | 0 | 1,084,461 | 1,555,040 | 503,697 | 0 | 2,058,737 |
| 2030 | 730,527 | 292,347 | 0 | 1,022,874 | 922,950 | 317,550 | 0 | 1,240,500 |
| 2031 | 677,980 | 286,339 | 0 | 964,319 | 849,217 | 307,728 | 0 | 1,156,945 |
| 2032 | 631,299 | 280,481 | 0 | 911,780 | 785,065 | 299,396 | 0 | 1,084,461 |
| 2033 | 589,316 | 274,722 | 0 | 864,038 | 730,527 | 292,347 | 0 | 1,022,874 |
| 2034 | 553,149 | 269,126 | 0 | 822,275 | 677,980 | 286,339 | 0 | 964,319 |
| 2035 | 519,819 | 263,628 | 0 | 783,448 | 631,299 | 280,481 | 0 | 911,780 |
| 2036 | 492,538 | 258,216 | 0 | 750,754 | 589,316 | 274,722 | 0 | 864,038 |
| 2037 | 467,549 | 252,897 | 0 | 720,446 | 553,149 | 269,126 | 0 | 822,275 |
| 2038 | 444,243 | 247,957 | 0 | 692,200 | 519,819 | 263,628 | 0 | 783,448 |
| 2039 | 427,750 | 243,589 | 0 | 671,340 | 492,538 | 258,216 | 0 | 750,754 |
| 2040 | 412,585 | 239,270 | 0 | 651,855 | 467,549 | 252,897 | 0 | 720,446 |
| 2041 | 400,132 | 234,998 | 0 | 635,130 | 444,243 | 247,957 | 0 | 692,200 |

Notes: Cols (1) - (3) from Exhibit E-99, Col (12), (21), etc.
 Col (4) = (1) + (2) + (3)
 Cols (5) - (8) based on (1) - (4) with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Capital Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | 2022 | | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|-----------------|--------------------|---------------------|-----------------|--------------------|-------------------|------------------|------------------------------|--|---------------|
| | | | Current | Adjustment | | Adjustment | | | | | | |
| | | | Bonded Acres | Forfeiture Rate | Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | Cost per Acre | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | |
| 1963 | Surface | Active | - | 0.000% | 0.00 | 1.069% | - | - | 3,490.00 | 1.00 | - | |
| 1964 | Surface | Active | - | 0.000% | 0.00 | 1.090% | - | - | 3,490.00 | 1.00 | - | |
| 1965 | Surface | Active | - | 0.000% | 0.00 | 1.113% | - | - | 3,490.00 | 1.00 | - | |
| 1966 | Surface | Active | - | 0.000% | 0.00 | 1.135% | - | - | 3,490.00 | 1.00 | - | |
| 1967 | Surface | Active | - | 0.000% | 0.00 | 1.159% | - | - | 3,490.00 | 1.00 | - | |
| 1968 | Surface | Active | - | 0.000% | 0.00 | 1.182% | - | - | 3,490.00 | 1.00 | - | |
| 1969 | Surface | Active | - | 0.000% | 0.00 | 1.206% | - | - | 3,490.00 | 1.00 | - | |
| 1970 | Surface | Active | - | 0.000% | 0.00 | 1.231% | - | - | 3,490.00 | 1.00 | - | |
| 1971 | Surface | Active | - | 0.005% | 0.00 | 1.256% | - | - | 3,490.00 | 1.00 | - | |
| 1972 | Surface | Active | 400.00 | 0.021% | 1.50 | 1.282% | 0.13 | 5.13 | 3,490.00 | 1.00 | 448.35 | |
| 1973 | Surface | Active | - | 0.038% | 0.00 | 1.308% | - | - | 3,490.00 | 1.00 | - | |
| 1974 | Surface | Active | - | 0.054% | 0.00 | 1.335% | - | - | 3,490.00 | 1.00 | - | |
| 1975 | Surface | Active | - | 0.071% | 0.00 | 1.362% | - | - | 3,490.00 | 1.00 | - | |
| 1976 | Surface | Active | - | 0.087% | 0.00 | 1.390% | - | - | 3,490.00 | 1.00 | - | |
| 1977 | Surface | Active | 1,933.27 | 0.103% | 0.67 | 1.418% | 1.33 | 27.41 | 3,490.00 | 1.00 | 4,649.48 | |
| 1978 | Surface | Active | 2,280.93 | 0.120% | 0.50 | 1.447% | 1.37 | 33.00 | 3,490.00 | 1.00 | 4,766.60 | |
| 1979 | Surface | Active | 180.00 | 0.136% | 1.00 | 1.476% | 0.25 | 2.66 | 3,490.00 | 1.00 | 855.28 | |
| 1980 | Surface | Active | 455.76 | 0.153% | 0.50 | 1.507% | 0.35 | 6.87 | 3,490.00 | 1.00 | 1,213.14 | |
| 1981 | Surface | Active | 1,661.03 | 0.169% | 1.06 | 1.537% | 2.96 | 25.54 | 3,490.00 | 1.00 | 10,336.90 | |
| 1982 | Surface | Active | 620.00 | 0.185% | 1.00 | 1.569% | 1.15 | 9.73 | 3,490.00 | 1.00 | 4,009.97 | |
| 1983 | Surface | Active | 1,704.33 | 0.202% | 0.50 | 1.601% | 1.72 | 27.28 | 3,490.00 | 1.00 | 5,999.02 | |
| 1984 | Surface | Active | - | 0.218% | 0.00 | 1.633% | - | - | 3,490.00 | 1.00 | - | |
| 1985 | Surface | Active | 2,405.91 | 0.234% | 0.70 | 1.667% | 3.95 | 40.10 | 3,490.00 | 1.00 | 13,782.68 | |
| 1986 | Surface | Active | 2,331.92 | 0.251% | 1.07 | 1.701% | 6.27 | 39.66 | 3,490.00 | 1.00 | 21,876.41 | |
| 1987 | Surface | Active | 1,371.12 | 0.267% | 0.83 | 1.736% | 3.05 | 23.80 | 3,490.00 | 1.00 | 10,658.07 | |
| 1988 | Surface | Active | 1,898.10 | 0.284% | 0.88 | 1.771% | 4.71 | 33.61 | 3,490.00 | 1.00 | 16,442.22 | |
| 1989 | Surface | Active | 2,959.93 | 0.300% | 0.64 | 1.807% | 5.71 | 53.49 | 3,490.00 | 1.00 | 19,926.25 | |
| 1990 | Surface | Active | 2,801.20 | 0.316% | 0.75 | 1.844% | 6.65 | 51.65 | 3,490.00 | 1.00 | 23,202.43 | |
| 1991 | Surface | Active | 2,094.19 | 0.333% | 0.94 | 1.882% | 6.58 | 39.40 | 3,490.00 | 1.00 | 22,974.83 | |
| 1992 | Surface | Active | 4,639.40 | 0.349% | 0.50 | 1.920% | 8.10 | 89.08 | 3,490.00 | 1.00 | 28,272.80 | |
| 1993 | Surface | Active | 4,377.78 | 0.366% | 0.83 | 1.959% | 13.34 | 85.77 | 3,490.00 | 1.00 | 46,551.02 | |
| 1994 | Surface | Active | 2,054.59 | 0.382% | 0.50 | 1.999% | 3.92 | 41.07 | 3,490.00 | 1.00 | 13,696.12 | |
| 1995 | Surface | Active | 6,620.84 | 0.398% | 0.92 | 2.040% | 24.18 | 135.06 | 3,490.00 | 1.00 | 84,386.39 | |
| 1996 | Surface | Active | 6,830.47 | 0.415% | 0.83 | 2.082% | 23.61 | 142.18 | 3,490.00 | 1.00 | 82,399.96 | |
| 1997 | Surface | Active | 13,199.94 | 0.431% | 0.79 | 2.124% | 45.06 | 280.37 | 3,490.00 | 1.00 | 157,254.51 | |
| 1998 | Surface | Active | 11,029.10 | 0.448% | 0.66 | 2.167% | 32.48 | 239.04 | 3,490.00 | 1.00 | 113,341.35 | |
| 1999 | Surface | Active | 2,072.61 | 0.464% | 0.50 | 2.212% | 4.81 | 45.84 | 3,490.00 | 1.00 | 16,780.30 | |
| 2000 | Surface | Active | 4,526.19 | 0.480% | 0.50 | 2.257% | 10.87 | 102.15 | 3,490.00 | 1.00 | 37,939.60 | |
| 2001 | Surface | Active | 6,826.55 | 0.497% | 0.87 | 2.303% | 29.45 | 157.20 | 3,490.00 | 1.00 | 102,776.44 | |
| 2002 | Surface | Active | 6,499.09 | 0.513% | 0.63 | 2.350% | 21.12 | 152.72 | 3,490.00 | 1.00 | 73,713.27 | |
| 2003 | Surface | Active | 6,916.12 | 0.530% | 0.81 | 2.398% | 29.76 | 165.83 | 3,490.00 | 1.00 | 103,848.96 | |
| 2004 | Surface | Active | 11,573.91 | 0.674% | 0.79 | 2.447% | 61.25 | 283.18 | 3,490.00 | 1.00 | 213,778.87 | |
| 2005 | Surface | Active | 5,236.53 | 0.642% | 1.03 | 2.497% | 34.74 | 130.74 | 3,490.00 | 1.00 | 121,248.62 | |
| 2006 | Surface | Active | 4,862.21 | 0.611% | 0.90 | 2.548% | 26.72 | 123.87 | 3,490.00 | 1.00 | 93,237.89 | |
| 2007 | Surface | Active | 6,382.38 | 0.579% | 0.82 | 2.600% | 30.23 | 165.92 | 3,490.00 | 1.00 | 105,514.32 | |
| 2008 | Surface | Active | 8,631.88 | 0.547% | 0.58 | 2.653% | 27.56 | 228.97 | 3,490.00 | 1.00 | 96,199.55 | |
| 2009 | Surface | Active | 6,181.98 | 0.516% | 0.75 | 2.707% | 23.92 | 167.33 | 3,490.00 | 1.00 | 83,477.13 | |
| 2010 | Surface | Active | 6,203.98 | 0.484% | 0.92 | 2.438% | 27.54 | 151.23 | 3,490.00 | 1.00 | 96,130.65 | |
| 2011 | Surface | Active | 2,986.04 | 0.453% | 0.74 | 2.168% | 9.94 | 64.75 | 3,490.00 | 1.00 | 34,697.05 | |
| 2012 | Surface | Active | 7,650.01 | 0.421% | 0.86 | 1.899% | 27.83 | 145.29 | 3,490.00 | 1.00 | 97,134.22 | |
| 2013 | Surface | Active | 8,508.13 | 0.390% | 0.95 | 1.630% | 31.65 | 138.69 | 3,490.00 | 1.00 | 110,461.81 | |
| 2014 | Surface | Active | 4,153.44 | 0.358% | 0.75 | 1.361% | 11.16 | 56.52 | 3,490.00 | 1.00 | 38,940.26 | |
| 2015 | Surface | Active | 4,371.03 | 0.327% | 0.73 | 1.092% | 10.43 | 47.72 | 3,490.00 | 1.00 | 36,413.39 | |
| 2016 | Surface | Active | 3,389.17 | 0.295% | 0.70 | 0.823% | 7.00 | 27.88 | 3,490.00 | 1.00 | 24,433.61 | |
| 2017 | Surface | Active | 1,324.50 | 0.264% | 1.00 | 0.553% | 3.49 | 7.33 | 3,490.00 | 1.00 | 12,183.10 | |
| 2018 | Surface | Active | 3,466.31 | 0.232% | 1.00 | 0.284% | 8.04 | 9.85 | 3,490.00 | 1.00 | 28,068.43 | |
| 2019 | Surface | Active | 4,158.88 | 0.200% | 0.88 | 0.190% | 7.30 | 7.90 | 3,490.00 | 1.00 | 25,461.24 | |
| 2020 | Surface | Active | 3,830.10 | 0.169% | 0.86 | 0.096% | 5.59 | 3.67 | 3,490.00 | 1.00 | 19,502.74 | |
| 2021 | Surface | Active | 3,770.84 | 0.000% | 0.93 | 0.082% | - | 3.09 | 3,490.00 | 1.00 | - | |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Capital Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | 2022 | | | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------|-----------|-------------|----------------------|-----------------|-------------------|--------|-----------------|----------------|------------------|--------------|------------------------|---------------------------------|------------|
| | | | Current Bonded Acres | Forfeiture Rate | Adjustment Factor | | Forfeited Acres | Released Acres | Permit Bond Size | Release Rate | | | |
| | | | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | | | |
| 1963 | Surface | Inactive | - | 0.000% | 0.00 | 0.668% | - | - | 3,490.00 | 1.00 | - | | |
| 1964 | Surface | Inactive | - | 0.000% | 0.00 | 0.682% | - | - | 3,490.00 | 1.00 | - | | |
| 1965 | Surface | Inactive | - | 0.000% | 0.00 | 0.695% | - | - | 3,490.00 | 1.00 | - | | |
| 1966 | Surface | Inactive | - | 0.000% | 0.00 | 0.710% | - | - | 3,490.00 | 1.00 | - | | |
| 1967 | Surface | Inactive | - | 0.000% | 0.00 | 0.724% | - | - | 3,490.00 | 1.00 | - | | |
| 1968 | Surface | Inactive | - | 0.000% | 0.00 | 0.739% | - | - | 3,490.00 | 1.00 | - | | |
| 1969 | Surface | Inactive | - | 0.000% | 0.00 | 0.754% | - | - | 3,490.00 | 1.00 | - | | |
| 1970 | Surface | Inactive | - | 0.000% | 0.00 | 0.769% | - | - | 3,490.00 | 1.00 | - | | |
| 1971 | Surface | Inactive | - | 0.011% | 0.00 | 0.785% | - | - | 3,490.00 | 1.00 | - | | |
| 1972 | Surface | Inactive | - | 0.048% | 0.00 | 0.801% | - | - | 3,490.00 | 1.00 | - | | |
| 1973 | Surface | Inactive | - | 0.085% | 0.00 | 0.817% | - | - | 3,490.00 | 1.00 | - | | |
| 1974 | Surface | Inactive | - | 0.122% | 0.00 | 0.834% | - | - | 3,490.00 | 1.00 | - | | |
| 1975 | Surface | Inactive | - | 0.159% | 0.00 | 0.851% | - | - | 3,490.00 | 1.00 | - | | |
| 1976 | Surface | Inactive | 438.80 | 0.196% | 0.50 | 0.869% | 0.43 | 3.81 | 3,490.00 | 1.00 | 1,498.44 | | |
| 1977 | Surface | Inactive | - | 0.233% | 0.00 | 0.886% | - | - | 3,490.00 | 1.00 | - | | |
| 1978 | Surface | Inactive | - | 0.269% | 0.00 | 0.904% | - | - | 3,490.00 | 1.00 | - | | |
| 1979 | Surface | Inactive | - | 0.306% | 0.00 | 0.923% | - | - | 3,490.00 | 1.00 | - | | |
| 1980 | Surface | Inactive | - | 0.343% | 0.00 | 0.942% | - | - | 3,490.00 | 1.00 | - | | |
| 1981 | Surface | Inactive | 4.47 | 0.380% | 0.50 | 0.961% | 0.01 | 0.04 | 3,490.00 | 1.00 | 29.65 | | |
| 1982 | Surface | Inactive | - | 0.417% | 0.00 | 0.980% | - | - | 3,490.00 | 1.00 | - | | |
| 1983 | Surface | Inactive | - | 0.454% | 0.00 | 1.000% | - | - | 3,490.00 | 1.00 | - | | |
| 1984 | Surface | Inactive | - | 0.491% | 0.00 | 1.021% | - | - | 3,490.00 | 1.00 | - | | |
| 1985 | Surface | Inactive | - | 0.528% | 0.00 | 1.042% | - | - | 3,490.00 | 1.00 | - | | |
| 1986 | Surface | Inactive | 411.07 | 0.564% | 0.50 | 1.063% | 1.16 | 4.37 | 3,490.00 | 1.00 | 4,049.18 | | |
| 1987 | Surface | Inactive | 415.61 | 0.601% | 1.00 | 1.085% | 2.50 | 4.51 | 3,490.00 | 1.00 | 8,722.74 | | |
| 1988 | Surface | Inactive | 1,304.38 | 0.638% | 0.50 | 1.107% | 4.16 | 14.44 | 3,490.00 | 1.00 | 14,527.47 | | |
| 1989 | Surface | Inactive | 273.00 | 0.675% | 1.00 | 1.129% | 1.84 | 3.08 | 3,490.00 | 1.00 | 6,432.42 | | |
| 1990 | Surface | Inactive | 81.70 | 0.712% | 0.50 | 1.152% | 0.29 | 0.94 | 3,490.00 | 1.00 | 1,015.09 | | |
| 1991 | Surface | Inactive | - | 0.749% | 0.00 | 1.176% | - | - | 3,490.00 | 1.00 | - | | |
| 1992 | Surface | Inactive | - | 0.786% | 0.00 | 1.200% | - | - | 3,490.00 | 1.00 | - | | |
| 1993 | Surface | Inactive | - | 0.823% | 0.00 | 1.224% | - | - | 3,490.00 | 1.00 | - | | |
| 1994 | Surface | Inactive | - | 0.860% | 0.00 | 1.249% | - | - | 3,490.00 | 1.00 | - | | |
| 1995 | Surface | Inactive | 3,503.18 | 0.896% | 0.50 | 1.275% | 15.70 | 44.66 | 3,490.00 | 1.00 | 54,797.76 | | |
| 1996 | Surface | Inactive | 193.90 | 0.933% | 0.50 | 1.301% | 0.90 | 2.52 | 3,490.00 | 1.00 | 3,157.82 | | |
| 1997 | Surface | Inactive | - | 0.970% | 0.00 | 1.328% | - | - | 3,490.00 | 1.00 | - | | |
| 1998 | Surface | Inactive | 846.89 | 1.007% | 0.50 | 1.355% | 4.26 | 11.47 | 3,490.00 | 1.00 | 14,882.35 | | |
| 1999 | Surface | Inactive | 2,264.80 | 1.044% | 0.50 | 1.382% | 11.82 | 31.31 | 3,490.00 | 1.00 | 41,256.70 | | |
| 2000 | Surface | Inactive | - | 1.081% | 0.00 | 1.410% | - | - | 3,490.00 | 1.00 | - | | |
| 2001 | Surface | Inactive | 596.67 | 1.118% | 0.50 | 1.439% | 3.33 | 8.59 | 3,490.00 | 1.00 | 11,637.20 | | |
| 2002 | Surface | Inactive | 765.87 | 1.155% | 0.50 | 1.469% | 4.42 | 11.25 | 3,490.00 | 1.00 | 15,430.09 | | |
| 2003 | Surface | Inactive | 4,249.33 | 1.191% | 0.50 | 1.499% | 25.31 | 63.68 | 3,490.00 | 1.00 | 88,346.48 | | |
| 2004 | Surface | Inactive | 3,700.97 | 1.516% | 0.50 | 1.529% | 28.05 | 56.59 | 3,490.00 | 1.00 | 97,878.68 | | |
| 2005 | Surface | Inactive | 25.99 | 1.445% | 1.50 | 1.560% | 0.56 | 0.41 | 3,490.00 | 1.00 | 1,965.50 | | |
| 2006 | Surface | Inactive | 244.59 | 1.374% | 0.50 | 1.592% | 1.68 | 3.89 | 3,490.00 | 1.00 | 5,862.83 | | |
| 2007 | Surface | Inactive | 399.20 | 1.303% | 0.50 | 1.625% | 2.60 | 6.49 | 3,490.00 | 1.00 | 9,074.48 | | |
| 2008 | Surface | Inactive | 864.07 | 1.232% | 0.75 | 1.658% | 7.98 | 14.33 | 3,490.00 | 1.00 | 27,857.59 | | |
| 2009 | Surface | Inactive | 680.43 | 1.161% | 0.50 | 1.692% | 3.95 | 11.51 | 3,490.00 | 1.00 | 13,782.08 | | |
| 2010 | Surface | Inactive | 5.11 | 1.090% | 1.50 | 1.523% | 0.08 | 0.08 | 3,490.00 | 1.00 | 291.52 | | |
| 2011 | Surface | Inactive | 560.86 | 1.019% | 0.50 | 1.355% | 2.86 | 7.60 | 3,490.00 | 1.00 | 9,971.09 | | |
| 2012 | Surface | Inactive | 676.78 | 0.948% | 0.50 | 1.187% | 3.21 | 8.03 | 3,490.00 | 1.00 | 11,193.85 | | |
| 2013 | Surface | Inactive | 93.44 | 0.877% | 0.50 | 1.019% | 0.41 | 0.95 | 3,490.00 | 1.00 | 1,429.77 | | |
| 2014 | Surface | Inactive | 2,929.61 | 0.806% | 0.75 | 0.851% | 17.71 | 24.92 | 3,490.00 | 1.00 | 61,799.25 | | |
| 2015 | Surface | Inactive | 704.80 | 0.735% | 0.50 | 0.682% | 2.59 | 4.81 | 3,490.00 | 1.00 | 9,038.90 | | |
| 2016 | Surface | Inactive | 494.54 | 0.664% | 0.50 | 0.514% | 1.64 | 2.54 | 3,490.00 | 1.00 | 5,729.94 | | |
| 2017 | Surface | Inactive | - | 0.593% | 0.00 | 0.346% | - | - | 3,490.00 | 1.00 | - | | |
| 2018 | Surface | Inactive | 351.08 | 0.522% | 0.50 | 0.178% | 0.92 | 0.62 | 3,490.00 | 1.00 | 3,198.23 | | |
| 2019 | Surface | Inactive | 452.10 | 0.451% | 1.50 | 0.119% | 3.06 | 0.54 | 3,490.00 | 1.00 | 10,675.87 | | |
| 2020 | Surface | Inactive | - | 0.380% | 0.00 | 0.060% | - | - | 3,490.00 | 1.00 | - | | |
| 2021 | Surface | Inactive | - | 0.000% | 0.00 | 0.051% | - | - | 3,490.00 | 1.00 | - | | |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Capital Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | 2022 | | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|-----------------|----------------------------|--------------------|----------------------|-----------------|--------------------|-------------------|----------|------------------------------|--|---------------|
| | | | Current Bonded Acres | Forfeiture Rate | Adjustment Factor | | Forfeited Acres | Released Acres | | | | |
| | | | (4) | (5) | Permit Bond Size | Release Rate | (8) | (9) | (10) | | | |
| 1963 | Surface | Phased Released | - | 0.000% | 0.00 | 3.206% | - | - | 3,490.00 | 0.50 | - | |
| 1964 | Surface | Phased Released | - | 0.000% | 0.00 | 3.271% | - | - | 3,490.00 | 0.50 | - | |
| 1965 | Surface | Phased Released | - | 0.000% | 0.00 | 3.338% | - | - | 3,490.00 | 0.50 | - | |
| 1966 | Surface | Phased Released | - | 0.000% | 0.00 | 3.406% | - | - | 3,490.00 | 0.50 | - | |
| 1967 | Surface | Phased Released | - | 0.000% | 0.00 | 3.476% | - | - | 3,490.00 | 0.50 | - | |
| 1968 | Surface | Phased Released | - | 0.000% | 0.00 | 3.547% | - | - | 3,490.00 | 0.50 | - | |
| 1969 | Surface | Phased Released | - | 0.000% | 0.00 | 3.619% | - | - | 3,490.00 | 0.50 | - | |
| 1970 | Surface | Phased Released | - | 0.000% | 0.00 | 3.693% | - | - | 3,490.00 | 0.50 | - | |
| 1971 | Surface | Phased Released | - | 0.020% | 0.00 | 3.768% | - | - | 3,490.00 | 0.50 | - | |
| 1972 | Surface | Phased Released | - | 0.084% | 0.00 | 3.845% | - | - | 3,490.00 | 0.50 | - | |
| 1973 | Surface | Phased Released | - | 0.148% | 0.00 | 3.924% | - | - | 3,490.00 | 0.50 | - | |
| 1974 | Surface | Phased Released | 189.60 | 0.212% | 0.00 | 4.004% | - | 7.59 | 3,490.00 | 0.50 | - | |
| 1975 | Surface | Phased Released | 8.30 | 0.276% | 0.00 | 4.086% | - | 0.34 | 3,490.00 | 0.50 | - | |
| 1976 | Surface | Phased Released | 626.17 | 0.341% | 0.00 | 4.169% | - | 26.11 | 3,490.00 | 0.50 | - | |
| 1977 | Surface | Phased Released | 48.00 | 0.405% | 0.00 | 4.254% | - | 2.04 | 3,490.00 | 0.50 | - | |
| 1978 | Surface | Phased Released | 158.81 | 0.469% | 0.00 | 4.341% | - | 6.89 | 3,490.00 | 0.50 | - | |
| 1979 | Surface | Phased Released | 358.00 | 0.533% | 0.00 | 4.429% | - | 15.86 | 3,490.00 | 0.50 | - | |
| 1980 | Surface | Phased Released | 621.75 | 0.597% | 0.00 | 4.520% | - | 28.10 | 3,490.00 | 0.50 | - | |
| 1981 | Surface | Phased Released | 1,821.81 | 0.662% | 0.00 | 4.612% | - | 84.02 | 3,490.00 | 0.50 | - | |
| 1982 | Surface | Phased Released | - | 0.726% | 0.00 | 4.706% | - | - | 3,490.00 | 0.50 | - | |
| 1983 | Surface | Phased Released | 302.61 | 0.790% | 0.00 | 4.802% | - | 14.53 | 3,490.00 | 0.50 | - | |
| 1984 | Surface | Phased Released | 2,603.39 | 0.854% | 0.00 | 4.900% | - | 127.57 | 3,490.00 | 0.50 | - | |
| 1985 | Surface | Phased Released | 1,270.29 | 0.918% | 0.00 | 5.000% | - | 63.52 | 3,490.00 | 0.50 | - | |
| 1986 | Surface | Phased Released | 1,212.46 | 0.983% | 0.00 | 5.102% | - | 61.86 | 3,490.00 | 0.50 | - | |
| 1987 | Surface | Phased Released | 760.81 | 1.047% | 0.00 | 5.207% | - | 39.61 | 3,490.00 | 0.50 | - | |
| 1988 | Surface | Phased Released | 478.00 | 1.111% | 0.00 | 5.313% | - | 25.39 | 3,490.00 | 0.50 | - | |
| 1989 | Surface | Phased Released | 1,688.64 | 1.175% | 0.00 | 5.421% | - | 91.54 | 3,490.00 | 0.50 | - | |
| 1990 | Surface | Phased Released | 662.34 | 1.239% | 0.00 | 5.532% | - | 36.64 | 3,490.00 | 0.50 | - | |
| 1991 | Surface | Phased Released | 1,006.45 | 1.304% | 0.00 | 5.645% | - | 56.81 | 3,490.00 | 0.50 | - | |
| 1992 | Surface | Phased Released | - | 1.368% | 0.00 | 5.760% | - | - | 3,490.00 | 0.50 | - | |
| 1993 | Surface | Phased Released | 562.59 | 1.432% | 0.00 | 5.877% | - | 33.07 | 3,490.00 | 0.50 | - | |
| 1994 | Surface | Phased Released | 2,470.42 | 1.496% | 0.00 | 5.997% | - | 148.16 | 3,490.00 | 0.50 | - | |
| 1995 | Surface | Phased Released | 498.93 | 1.560% | 0.00 | 6.120% | - | 30.53 | 3,490.00 | 0.50 | - | |
| 1996 | Surface | Phased Released | 563.71 | 1.625% | 0.00 | 6.245% | - | 35.20 | 3,490.00 | 0.50 | - | |
| 1997 | Surface | Phased Released | 969.50 | 1.689% | 0.00 | 6.372% | - | 61.78 | 3,490.00 | 0.50 | - | |
| 1998 | Surface | Phased Released | 511.73 | 1.753% | 0.00 | 6.502% | - | 33.27 | 3,490.00 | 0.50 | - | |
| 1999 | Surface | Phased Released | 14.87 | 1.817% | 0.00 | 6.635% | - | 0.99 | 3,490.00 | 0.50 | - | |
| 2000 | Surface | Phased Released | 19.70 | 1.881% | 0.00 | 6.770% | - | 1.33 | 3,490.00 | 0.50 | - | |
| 2001 | Surface | Phased Released | 491.55 | 1.946% | 0.00 | 6.908% | - | 33.96 | 3,490.00 | 0.50 | - | |
| 2002 | Surface | Phased Released | 106.29 | 2.010% | 0.00 | 7.049% | - | 7.49 | 3,490.00 | 0.50 | - | |
| 2003 | Surface | Phased Released | - | 2.074% | 0.00 | 7.193% | - | - | 3,490.00 | 0.50 | - | |
| 2004 | Surface | Phased Released | 470.13 | 2.638% | 0.00 | 7.340% | - | 34.51 | 3,490.00 | 0.50 | - | |
| 2005 | Surface | Phased Released | 51.50 | 2.515% | 0.00 | 7.490% | - | 3.86 | 3,490.00 | 0.50 | - | |
| 2006 | Surface | Phased Released | 60.78 | 2.391% | 0.00 | 7.643% | - | 4.65 | 3,490.00 | 0.50 | - | |
| 2007 | Surface | Phased Released | - | 2.268% | 0.00 | 7.799% | - | - | 3,490.00 | 0.50 | - | |
| 2008 | Surface | Phased Released | - | 2.144% | 0.00 | 7.958% | - | - | 3,490.00 | 0.50 | - | |
| 2009 | Surface | Phased Released | 220.84 | 2.021% | 0.00 | 8.120% | - | 17.93 | 3,490.00 | 0.50 | - | |
| 2010 | Surface | Phased Released | - | 1.897% | 0.00 | 7.313% | - | - | 3,490.00 | 0.50 | - | |
| 2011 | Surface | Phased Released | 55.50 | 1.773% | 0.00 | 6.505% | - | 3.61 | 3,490.00 | 0.50 | - | |
| 2012 | Surface | Phased Released | - | 1.650% | 0.00 | 5.698% | - | - | 3,490.00 | 0.50 | - | |
| 2013 | Surface | Phased Released | - | 1.526% | 0.00 | 4.890% | - | - | 3,490.00 | 0.50 | - | |
| 2014 | Surface | Phased Released | 27.91 | 1.403% | 0.00 | 4.083% | - | 1.14 | 3,490.00 | 0.50 | - | |
| 2015 | Surface | Phased Released | - | 1.279% | 0.00 | 3.275% | - | - | 3,490.00 | 0.50 | - | |
| 2016 | Surface | Phased Released | - | 1.156% | 0.00 | 2.468% | - | - | 3,490.00 | 0.50 | - | |
| 2017 | Surface | Phased Released | - | 1.032% | 0.00 | 1.660% | - | - | 3,490.00 | 0.50 | - | |
| 2018 | Surface | Phased Released | - | 0.909% | 0.00 | 0.852% | - | - | 3,490.00 | 0.50 | - | |
| 2019 | Surface | Phased Released | - | 0.785% | 0.00 | 0.570% | - | - | 3,490.00 | 0.50 | - | |
| 2020 | Surface | Phased Released | - | 0.662% | 0.00 | 0.287% | - | - | 3,490.00 | 0.50 | - | |
| 2021 | Surface | Phased Released | - | 0.000% | 0.00 | 0.246% | - | - | 3,490.00 | 0.50 | - | |

West Virginia Department of Environmental Protection Office of Special Reclamation
Actuarial Reserve Study as of June 30, 2021
Water Capital Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | 2022 | | | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|--------------------|----------------------|-----------------|-------------------|--------------------|-------------------|------------------|------------------------------|--|---------------|
| | | | Current Bonded Acres | Forfeiture Rate | Adjustment Factor | | Released Acres | Forfeited Acres | Released Acres | Permit Status | | | |
| | | | (4) | (5) | Permit Bond Size | Release Rate | (8) | (9) | (10) | (11) | | | |
| 1963 | Underground | Active | - | 0.152% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - | | |
| 1964 | Underground | Active | - | 0.154% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - | | |
| 1965 | Underground | Active | - | 0.156% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - | | |
| 1966 | Underground | Active | - | 0.157% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - | | |
| 1967 | Underground | Active | - | 0.159% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - | | |
| 1968 | Underground | Active | - | 0.161% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - | | |
| 1969 | Underground | Active | - | 0.163% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - | | |
| 1970 | Underground | Active | - | 0.165% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - | | |
| 1971 | Underground | Active | - | 0.167% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - | | |
| 1972 | Underground | Active | - | 0.169% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - | | |
| 1973 | Underground | Active | - | 0.171% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - | | |
| 1974 | Underground | Active | - | 0.173% | 0.00 | 0.120% | - | - | 5,595.00 | 1.00 | - | | |
| 1975 | Underground | Active | - | 0.175% | 0.00 | 0.261% | - | - | 5,595.00 | 1.00 | - | | |
| 1976 | Underground | Active | - | 0.177% | 0.00 | 0.401% | - | - | 5,595.00 | 1.00 | - | | |
| 1977 | Underground | Active | 22.53 | 0.178% | 1.50 | 0.541% | 0.06 | 0.12 | 5,595.00 | 1.00 | 337.36 | | |
| 1978 | Underground | Active | 94.87 | 0.180% | 0.50 | 0.681% | 0.09 | 0.65 | 5,595.00 | 1.00 | 478.58 | | |
| 1979 | Underground | Active | 745.26 | 0.182% | 1.21 | 0.821% | 1.65 | 6.12 | 5,595.00 | 1.00 | 9,226.81 | | |
| 1980 | Underground | Active | 222.16 | 0.184% | 1.10 | 0.961% | 0.45 | 2.14 | 5,595.00 | 1.00 | 2,517.67 | | |
| 1981 | Underground | Active | 891.30 | 0.186% | 1.21 | 1.101% | 2.00 | 9.82 | 5,595.00 | 1.00 | 11,187.66 | | |
| 1982 | Underground | Active | 33.93 | 0.188% | 1.50 | 1.241% | 0.10 | 0.42 | 5,595.00 | 1.00 | 535.19 | | |
| 1983 | Underground | Active | 6,929.70 | 0.190% | 0.88 | 1.382% | 11.57 | 95.74 | 5,595.00 | 1.00 | 64,725.09 | | |
| 1984 | Underground | Active | 2,706.46 | 0.192% | 1.00 | 1.522% | 5.19 | 41.18 | 5,595.00 | 1.00 | 29,037.17 | | |
| 1985 | Underground | Active | 49.00 | 0.194% | 1.50 | 1.662% | 0.14 | 0.81 | 5,595.00 | 1.00 | 796.40 | | |
| 1986 | Underground | Active | 252.11 | 0.196% | 1.10 | 1.802% | 0.54 | 4.54 | 5,595.00 | 1.00 | 3,034.46 | | |
| 1987 | Underground | Active | 198.36 | 0.197% | 1.10 | 1.942% | 0.43 | 3.85 | 5,595.00 | 1.00 | 2,410.77 | | |
| 1988 | Underground | Active | 157.83 | 0.199% | 1.25 | 2.082% | 0.39 | 3.29 | 5,595.00 | 1.00 | 2,200.79 | | |
| 1989 | Underground | Active | 124.08 | 0.201% | 1.50 | 2.222% | 0.37 | 2.76 | 5,595.00 | 1.00 | 2,096.05 | | |
| 1990 | Underground | Active | 136.22 | 0.203% | 1.30 | 2.363% | 0.36 | 3.22 | 5,595.00 | 1.00 | 2,013.19 | | |
| 1991 | Underground | Active | 240.32 | 0.205% | 1.30 | 2.503% | 0.64 | 6.01 | 5,595.00 | 1.00 | 3,584.99 | | |
| 1992 | Underground | Active | 1,027.11 | 0.207% | 1.08 | 2.643% | 2.30 | 27.14 | 5,595.00 | 1.00 | 12,886.92 | | |
| 1993 | Underground | Active | 724.45 | 0.209% | 1.17 | 2.783% | 1.77 | 20.16 | 5,595.00 | 1.00 | 9,878.80 | | |
| 1994 | Underground | Active | 610.69 | 0.211% | 1.04 | 2.923% | 1.34 | 17.85 | 5,595.00 | 1.00 | 7,480.03 | | |
| 1995 | Underground | Active | 334.05 | 0.213% | 1.17 | 3.063% | 0.83 | 10.23 | 5,595.00 | 1.00 | 4,638.29 | | |
| 1996 | Underground | Active | 244.18 | 0.215% | 1.20 | 3.203% | 0.63 | 7.82 | 5,595.00 | 1.00 | 3,518.55 | | |
| 1997 | Underground | Active | 234.02 | 0.217% | 1.35 | 3.343% | 0.68 | 7.82 | 5,595.00 | 1.00 | 3,816.44 | | |
| 1998 | Underground | Active | 523.54 | 0.218% | 1.00 | 3.484% | 1.14 | 18.24 | 5,595.00 | 1.00 | 6,398.31 | | |
| 1999 | Underground | Active | 359.47 | 0.220% | 1.40 | 3.624% | 1.11 | 13.03 | 5,595.00 | 1.00 | 6,204.08 | | |
| 2000 | Underground | Active | 461.64 | 0.222% | 1.20 | 3.764% | 1.23 | 17.38 | 5,595.00 | 1.00 | 6,888.28 | | |
| 2001 | Underground | Active | 224.71 | 0.224% | 0.90 | 3.904% | 0.45 | 8.77 | 5,595.00 | 1.00 | 2,536.29 | | |
| 2002 | Underground | Active | 288.53 | 0.226% | 1.38 | 4.044% | 0.90 | 11.67 | 5,595.00 | 1.00 | 5,017.68 | | |
| 2003 | Underground | Active | 969.45 | 0.228% | 1.23 | 4.184% | 2.71 | 40.56 | 5,595.00 | 1.00 | 15,174.73 | | |
| 2004 | Underground | Active | 445.92 | 0.230% | 1.13 | 3.383% | 1.15 | 15.09 | 5,595.00 | 1.00 | 6,451.77 | | |
| 2005 | Underground | Active | 360.91 | 0.232% | 1.13 | 3.249% | 0.94 | 11.73 | 5,595.00 | 1.00 | 5,265.09 | | |
| 2006 | Underground | Active | 427.71 | 0.234% | 0.83 | 3.116% | 0.83 | 13.33 | 5,595.00 | 1.00 | 4,659.91 | | |
| 2007 | Underground | Active | 482.68 | 0.236% | 1.23 | 2.982% | 1.40 | 14.39 | 5,595.00 | 1.00 | 7,807.95 | | |
| 2008 | Underground | Active | 111.00 | 0.237% | 1.50 | 2.848% | 0.40 | 3.16 | 5,595.00 | 1.00 | 2,212.33 | | |
| 2009 | Underground | Active | 320.63 | 0.239% | 1.07 | 2.714% | 0.82 | 8.70 | 5,595.00 | 1.00 | 4,601.21 | | |
| 2010 | Underground | Active | 269.59 | 0.241% | 1.41 | 2.580% | 0.92 | 6.96 | 5,595.00 | 1.00 | 5,128.50 | | |
| 2011 | Underground | Active | 192.99 | 0.243% | 1.36 | 2.447% | 0.64 | 4.72 | 5,595.00 | 1.00 | 3,563.89 | | |
| 2012 | Underground | Active | 171.01 | 0.245% | 1.33 | 2.313% | 0.56 | 3.96 | 5,595.00 | 1.00 | 3,126.89 | | |
| 2013 | Underground | Active | 398.29 | 0.247% | 1.42 | 2.179% | 1.40 | 8.68 | 5,595.00 | 1.00 | 7,833.27 | | |
| 2014 | Underground | Active | 686.91 | 0.249% | 1.27 | 2.045% | 2.18 | 14.05 | 5,595.00 | 1.00 | 12,175.53 | | |
| 2015 | Underground | Active | 132.11 | 0.297% | 1.50 | 1.911% | 0.59 | 2.53 | 5,595.00 | 1.00 | 3,291.96 | | |
| 2016 | Underground | Active | 137.58 | 0.255% | 1.50 | 1.778% | 0.53 | 2.45 | 5,595.00 | 1.00 | 2,944.32 | | |
| 2017 | Underground | Active | 155.37 | 0.213% | 1.50 | 1.644% | 0.50 | 2.55 | 5,595.00 | 1.00 | 2,778.51 | | |
| 2018 | Underground | Active | 37.52 | 0.171% | 1.50 | 1.510% | 0.10 | 0.57 | 5,595.00 | 1.00 | 539.00 | | |
| 2019 | Underground | Active | 79.46 | 0.129% | 1.25 | 1.376% | 0.13 | 1.09 | 5,595.00 | 1.00 | 718.33 | | |
| 2020 | Underground | Active | 110.58 | 0.087% | 1.50 | 1.242% | 0.14 | 1.37 | 5,595.00 | 1.00 | 810.61 | | |
| 2021 | Underground | Active | 76.19 | 0.000% | 1.50 | 1.109% | - | 0.84 | 5,595.00 | 1.00 | - | | |

| Permit Issue Year | Mine Type | Mine Status | 2022 | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|--------------------|---------------------|-----------------|--------------------|-------------------|------------------------------|--|---------------|
| | | | Current Bonded Acres | Forfeiture Rate | Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| 1963 | Underground | Inactive | - | 0.341% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - |
| 1964 | Underground | Inactive | - | 0.346% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - |
| 1965 | Underground | Inactive | - | 0.350% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - |
| 1966 | Underground | Inactive | - | 0.354% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - |
| 1967 | Underground | Inactive | - | 0.359% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - |
| 1968 | Underground | Inactive | - | 0.363% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - |
| 1969 | Underground | Inactive | - | 0.367% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - |
| 1970 | Underground | Inactive | - | 0.371% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - |
| 1971 | Underground | Inactive | - | 0.376% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - |
| 1972 | Underground | Inactive | - | 0.380% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - |
| 1973 | Underground | Inactive | - | 0.384% | 0.00 | 0.000% | - | - | 5,595.00 | 1.00 | - |
| 1974 | Underground | Inactive | - | 0.389% | 0.00 | 0.075% | - | - | 5,595.00 | 1.00 | - |
| 1975 | Underground | Inactive | - | 0.393% | 0.00 | 0.163% | - | - | 5,595.00 | 1.00 | - |
| 1976 | Underground | Inactive | 103.30 | 0.397% | 0.50 | 0.250% | 0.21 | 0.26 | 5,595.00 | 1.00 | 1,147.72 |
| 1977 | Underground | Inactive | - | 0.401% | 0.00 | 0.338% | - | - | 5,595.00 | 1.00 | - |
| 1978 | Underground | Inactive | 23.02 | 0.406% | 0.50 | 0.426% | 0.05 | 0.10 | 5,595.00 | 1.00 | 261.29 |
| 1979 | Underground | Inactive | 6.60 | 0.410% | 0.50 | 0.513% | 0.01 | 0.03 | 5,595.00 | 1.00 | 75.70 |
| 1980 | Underground | Inactive | - | 0.414% | 0.00 | 0.601% | - | - | 5,595.00 | 1.00 | - |
| 1981 | Underground | Inactive | 149.03 | 0.419% | 1.00 | 0.688% | 0.62 | 1.03 | 5,595.00 | 1.00 | 3,490.33 |
| 1982 | Underground | Inactive | 128.47 | 0.423% | 0.50 | 0.776% | 0.27 | 1.00 | 5,595.00 | 1.00 | 1,519.81 |
| 1983 | Underground | Inactive | 500.86 | 0.427% | 0.75 | 0.863% | 1.60 | 4.32 | 5,595.00 | 1.00 | 8,977.93 |
| 1984 | Underground | Inactive | 300.00 | 0.431% | 0.50 | 0.951% | 0.65 | 2.85 | 5,595.00 | 1.00 | 3,620.98 |
| 1985 | Underground | Inactive | 220.21 | 0.436% | 0.50 | 1.039% | 0.48 | 2.29 | 5,595.00 | 1.00 | 2,684.33 |
| 1986 | Underground | Inactive | 43.54 | 0.440% | 0.50 | 1.126% | 0.10 | 0.49 | 5,595.00 | 1.00 | 535.97 |
| 1987 | Underground | Inactive | 40.89 | 0.444% | 1.50 | 1.214% | 0.27 | 0.50 | 5,595.00 | 1.00 | 1,524.75 |
| 1988 | Underground | Inactive | 154.89 | 0.449% | 1.21 | 1.301% | 0.84 | 2.02 | 5,595.00 | 1.00 | 4,720.69 |
| 1989 | Underground | Inactive | 193.50 | 0.453% | 0.50 | 1.389% | 0.44 | 2.69 | 5,595.00 | 1.00 | 2,451.56 |
| 1990 | Underground | Inactive | 36.13 | 0.457% | 1.17 | 1.477% | 0.19 | 0.53 | 5,595.00 | 1.00 | 1,078.20 |
| 1991 | Underground | Inactive | 141.42 | 0.461% | 1.00 | 1.564% | 0.65 | 2.21 | 5,595.00 | 1.00 | 3,651.30 |
| 1992 | Underground | Inactive | 9.00 | 0.466% | 1.50 | 1.652% | 0.06 | 0.15 | 5,595.00 | 1.00 | 351.79 |
| 1993 | Underground | Inactive | 294.11 | 0.470% | 1.00 | 1.739% | 1.38 | 5.12 | 5,595.00 | 1.00 | 7,734.66 |
| 1994 | Underground | Inactive | 247.11 | 0.474% | 0.50 | 1.827% | 0.59 | 4.51 | 5,595.00 | 1.00 | 3,278.95 |
| 1995 | Underground | Inactive | 131.50 | 0.479% | 1.00 | 1.914% | 0.63 | 2.52 | 5,595.00 | 1.00 | 3,521.34 |
| 1996 | Underground | Inactive | 45.38 | 0.483% | 1.50 | 2.002% | 0.33 | 0.91 | 5,595.00 | 1.00 | 1,839.12 |
| 1997 | Underground | Inactive | 294.76 | 0.487% | 1.07 | 2.090% | 1.54 | 6.16 | 5,595.00 | 1.00 | 8,608.45 |
| 1998 | Underground | Inactive | 93.26 | 0.491% | 1.17 | 2.177% | 0.53 | 2.03 | 5,595.00 | 1.00 | 2,991.85 |
| 1999 | Underground | Inactive | 618.15 | 0.496% | 1.06 | 2.265% | 3.23 | 14.00 | 5,595.00 | 1.00 | 18,098.58 |
| 2000 | Underground | Inactive | 76.39 | 0.500% | 1.50 | 2.352% | 0.57 | 1.80 | 5,595.00 | 1.00 | 3,205.80 |
| 2001 | Underground | Inactive | 6.00 | 0.504% | 1.50 | 2.440% | 0.05 | 0.15 | 5,595.00 | 1.00 | 253.96 |
| 2002 | Underground | Inactive | 47.21 | 0.509% | 0.50 | 2.528% | 0.12 | 1.19 | 5,595.00 | 1.00 | 671.73 |
| 2003 | Underground | Inactive | 229.90 | 0.513% | 1.00 | 2.615% | 1.18 | 6.01 | 5,595.00 | 1.00 | 6,597.45 |
| 2004 | Underground | Inactive | 181.69 | 0.517% | 0.50 | 2.703% | 0.47 | 3.84 | 5,595.00 | 1.00 | 2,628.77 |
| 2005 | Underground | Inactive | 121.31 | 0.521% | 1.50 | 2.791% | 0.95 | 2.46 | 5,595.00 | 1.00 | 5,309.15 |
| 2006 | Underground | Inactive | 145.55 | 0.526% | 1.17 | 2.879% | 0.89 | 2.83 | 5,595.00 | 1.00 | 4,995.18 |
| 2007 | Underground | Inactive | 80.93 | 0.530% | 1.25 | 2.967% | 0.54 | 1.51 | 5,595.00 | 1.00 | 3,000.12 |
| 2008 | Underground | Inactive | 95.14 | 0.534% | 1.50 | 3.055% | 0.76 | 1.69 | 5,595.00 | 1.00 | 4,266.50 |
| 2009 | Underground | Inactive | 127.40 | 0.539% | 1.38 | 3.143% | 0.94 | 2.16 | 5,595.00 | 1.00 | 5,279.10 |
| 2010 | Underground | Inactive | 296.02 | 0.543% | 1.28 | 3.231% | 2.05 | 4.77 | 5,595.00 | 1.00 | 11,489.65 |
| 2011 | Underground | Inactive | 113.07 | 0.547% | 1.50 | 3.319% | 0.93 | 1.73 | 5,595.00 | 1.00 | 5,192.60 |
| 2012 | Underground | Inactive | 95.72 | 0.551% | 1.17 | 3.407% | 0.62 | 1.38 | 5,595.00 | 1.00 | 3,445.76 |
| 2013 | Underground | Inactive | 53.70 | 0.556% | 1.50 | 3.495% | 0.45 | 0.73 | 5,595.00 | 1.00 | 2,504.75 |
| 2014 | Underground | Inactive | 12.00 | 0.560% | 1.50 | 3.583% | 0.10 | 0.15 | 5,595.00 | 1.00 | 564.04 |
| 2015 | Underground | Inactive | 12.04 | 0.568% | 1.50 | 3.671% | 0.12 | 0.14 | 5,595.00 | 1.00 | 675.04 |
| 2016 | Underground | Inactive | - | 0.574% | 0.00 | 3.759% | - | - | 5,595.00 | 1.00 | - |
| 2017 | Underground | Inactive | - | 0.479% | 0.00 | 3.847% | - | - | 5,595.00 | 1.00 | - |
| 2018 | Underground | Inactive | 46.96 | 0.385% | 1.50 | 3.935% | 0.27 | 0.44 | 5,595.00 | 1.00 | 1,517.88 |
| 2019 | Underground | Inactive | - | 0.291% | 0.00 | 4.023% | - | - | 5,595.00 | 1.00 | - |
| 2020 | Underground | Inactive | - | 0.197% | 0.00 | 4.111% | - | - | 5,595.00 | 1.00 | - |
| 2021 | Underground | Inactive | - | 0.000% | 0.00 | 4.199% | - | - | 5,595.00 | 1.00 | - |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Capital Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | 2022 | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------|-------------|-----------------|----------------------|-----------------|------------------|--------------|-----------------|----------------|----------|------------------------|---------------------------------|------------|
| | | | | Forfeiture Rate | Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | Factor | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | |
| 1963 | Underground | Phased Released | - | 0.594% | 0.00 | 0.000% | - | - | 5,595.00 | 0.50 | - | |
| 1964 | Underground | Phased Released | - | 0.602% | 0.00 | 0.000% | - | - | 5,595.00 | 0.50 | - | |
| 1965 | Underground | Phased Released | - | 0.609% | 0.00 | 0.000% | - | - | 5,595.00 | 0.50 | - | |
| 1966 | Underground | Phased Released | - | 0.617% | 0.00 | 0.000% | - | - | 5,595.00 | 0.50 | - | |
| 1967 | Underground | Phased Released | - | 0.624% | 0.00 | 0.000% | - | - | 5,595.00 | 0.50 | - | |
| 1968 | Underground | Phased Released | - | 0.632% | 0.00 | 0.000% | - | - | 5,595.00 | 0.50 | - | |
| 1969 | Underground | Phased Released | - | 0.639% | 0.00 | 0.000% | - | - | 5,595.00 | 0.50 | - | |
| 1970 | Underground | Phased Released | - | 0.647% | 0.00 | 0.000% | - | - | 5,595.00 | 0.50 | - | |
| 1971 | Underground | Phased Released | - | 0.654% | 0.00 | 0.000% | - | - | 5,595.00 | 0.50 | - | |
| 1972 | Underground | Phased Released | - | 0.662% | 0.00 | 0.000% | - | - | 5,595.00 | 0.50 | - | |
| 1973 | Underground | Phased Released | - | 0.669% | 0.00 | 0.000% | - | - | 5,595.00 | 0.50 | - | |
| 1974 | Underground | Phased Released | - | 0.676% | 0.00 | 0.361% | - | - | 5,595.00 | 0.50 | - | |
| 1975 | Underground | Phased Released | - | 0.684% | 0.00 | 0.782% | - | - | 5,595.00 | 0.50 | - | |
| 1976 | Underground | Phased Released | - | 0.691% | 0.00 | 1.202% | - | - | 5,595.00 | 0.50 | - | |
| 1977 | Underground | Phased Released | - | 0.699% | 0.00 | 1.622% | - | - | 5,595.00 | 0.50 | - | |
| 1978 | Underground | Phased Released | 23.13 | 0.706% | 0.00 | 2.043% | - | 0.47 | 5,595.00 | 0.50 | - | |
| 1979 | Underground | Phased Released | 59.68 | 0.714% | 0.00 | 2.463% | - | 1.47 | 5,595.00 | 0.50 | - | |
| 1980 | Underground | Phased Released | 87.19 | 0.721% | 0.00 | 2.884% | - | 2.51 | 5,595.00 | 0.50 | - | |
| 1981 | Underground | Phased Released | 85.14 | 0.729% | 0.00 | 3.304% | - | 2.81 | 5,595.00 | 0.50 | - | |
| 1982 | Underground | Phased Released | 199.06 | 0.736% | 0.00 | 3.724% | - | 7.41 | 5,595.00 | 0.50 | - | |
| 1983 | Underground | Phased Released | 57.47 | 0.744% | 0.00 | 4.145% | - | 2.38 | 5,595.00 | 0.50 | - | |
| 1984 | Underground | Phased Released | 95.60 | 0.751% | 0.00 | 4.565% | - | 4.36 | 5,595.00 | 0.50 | - | |
| 1985 | Underground | Phased Released | 17.24 | 0.759% | 0.00 | 4.986% | - | 0.86 | 5,595.00 | 0.50 | - | |
| 1986 | Underground | Phased Released | 118.96 | 0.766% | 0.00 | 5.406% | - | 6.43 | 5,595.00 | 0.50 | - | |
| 1987 | Underground | Phased Released | 77.09 | 0.773% | 0.00 | 5.826% | - | 4.49 | 5,595.00 | 0.50 | - | |
| 1988 | Underground | Phased Released | 129.44 | 0.781% | 0.00 | 6.247% | - | 8.09 | 5,595.00 | 0.50 | - | |
| 1989 | Underground | Phased Released | 119.44 | 0.788% | 0.00 | 6.667% | - | 7.96 | 5,595.00 | 0.50 | - | |
| 1990 | Underground | Phased Released | 18.31 | 0.796% | 0.00 | 7.088% | - | 1.30 | 5,595.00 | 0.50 | - | |
| 1991 | Underground | Phased Released | 18.20 | 0.803% | 0.00 | 7.508% | - | 1.37 | 5,595.00 | 0.50 | - | |
| 1992 | Underground | Phased Released | 39.95 | 0.811% | 0.00 | 7.928% | - | 3.17 | 5,595.00 | 0.50 | - | |
| 1993 | Underground | Phased Released | 30.79 | 0.818% | 0.00 | 8.349% | - | 2.57 | 5,595.00 | 0.50 | - | |
| 1994 | Underground | Phased Released | 26.14 | 0.826% | 0.00 | 8.769% | - | 2.29 | 5,595.00 | 0.50 | - | |
| 1995 | Underground | Phased Released | 65.62 | 0.833% | 0.00 | 9.190% | - | 6.03 | 5,595.00 | 0.50 | - | |
| 1996 | Underground | Phased Released | 133.37 | 0.841% | 0.00 | 9.610% | - | 12.82 | 5,595.00 | 0.50 | - | |
| 1997 | Underground | Phased Released | 149.46 | 0.848% | 0.00 | 10.030% | - | 14.99 | 5,595.00 | 0.50 | - | |
| 1998 | Underground | Phased Released | 70.67 | 0.856% | 0.00 | 10.451% | - | 7.39 | 5,595.00 | 0.50 | - | |
| 1999 | Underground | Phased Released | 10.68 | 0.863% | 0.00 | 10.871% | - | 1.16 | 5,595.00 | 0.50 | - | |
| 2000 | Underground | Phased Released | 59.65 | 0.870% | 0.00 | 11.292% | - | 6.74 | 5,595.00 | 0.50 | - | |
| 2001 | Underground | Phased Released | 36.60 | 0.878% | 0.00 | 11.712% | - | 4.29 | 5,595.00 | 0.50 | - | |
| 2002 | Underground | Phased Released | 48.55 | 0.885% | 0.00 | 12.132% | - | 5.89 | 5,595.00 | 0.50 | - | |
| 2003 | Underground | Phased Released | 78.20 | 0.893% | 0.00 | 12.553% | - | 9.82 | 5,595.00 | 0.50 | - | |
| 2004 | Underground | Phased Released | 16.25 | 0.900% | 0.00 | 10.149% | - | 1.65 | 5,595.00 | 0.50 | - | |
| 2005 | Underground | Phased Released | - | 0.908% | 0.00 | 9.748% | - | - | 5,595.00 | 0.50 | - | |
| 2006 | Underground | Phased Released | - | 0.915% | 0.00 | 9.347% | - | - | 5,595.00 | 0.50 | - | |
| 2007 | Underground | Phased Released | - | 0.923% | 0.00 | 8.945% | - | - | 5,595.00 | 0.50 | - | |
| 2008 | Underground | Phased Released | 43.07 | 0.930% | 0.00 | 8.544% | - | 3.68 | 5,595.00 | 0.50 | - | |
| 2009 | Underground | Phased Released | 54.60 | 0.938% | 0.00 | 8.143% | - | 4.45 | 5,595.00 | 0.50 | - | |
| 2010 | Underground | Phased Released | - | 0.945% | 0.00 | 7.741% | - | - | 5,595.00 | 0.50 | - | |
| 2011 | Underground | Phased Released | 25.60 | 0.953% | 0.00 | 7.340% | - | 1.88 | 5,595.00 | 0.50 | - | |
| 2012 | Underground | Phased Released | - | 0.960% | 0.00 | 6.938% | - | - | 5,595.00 | 0.50 | - | |
| 2013 | Underground | Phased Released | - | 0.967% | 0.00 | 6.537% | - | - | 5,595.00 | 0.50 | - | |
| 2014 | Underground | Phased Released | - | 0.975% | 0.00 | 6.136% | - | - | 5,595.00 | 0.50 | - | |
| 2015 | Underground | Phased Released | - | 1.163% | 0.00 | 5.734% | - | - | 5,595.00 | 0.50 | - | |
| 2016 | Underground | Phased Released | - | 0.999% | 0.00 | 5.333% | - | - | 5,595.00 | 0.50 | - | |
| 2017 | Underground | Phased Released | - | 0.835% | 0.00 | 4.932% | - | - | 5,595.00 | 0.50 | - | |
| 2018 | Underground | Phased Released | - | 0.670% | 0.00 | 4.530% | - | - | 5,595.00 | 0.50 | - | |
| 2019 | Underground | Phased Released | - | 0.506% | 0.00 | 4.129% | - | - | 5,595.00 | 0.50 | - | |
| 2020 | Underground | Phased Released | - | 0.342% | 0.00 | 3.727% | - | - | 5,595.00 | 0.50 | - | |
| 2021 | Underground | Phased Released | - | 0.000% | 0.00 | 3.326% | - | - | 5,595.00 | 0.50 | - | |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Capital Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | Forfeiture Rate | Adjustment | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|--------------------|---------------------|-----------------|--------------------|-------------------|------------------------------|--|---------------|
| | | | | | Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| 1963 | Other | Active | - | 0.207% | 0.00 | 2.292% | - | - | 8,145.00 | 1.00 | - |
| 1964 | Other | Active | - | 0.207% | 0.00 | 2.269% | - | - | 8,145.00 | 1.00 | - |
| 1965 | Other | Active | - | 0.207% | 0.00 | 2.247% | - | - | 8,145.00 | 1.00 | - |
| 1966 | Other | Active | - | 0.207% | 0.00 | 2.224% | - | - | 8,145.00 | 1.00 | - |
| 1967 | Other | Active | - | 0.207% | 0.00 | 2.201% | - | - | 8,145.00 | 1.00 | - |
| 1968 | Other | Active | - | 0.207% | 0.00 | 2.178% | - | - | 8,145.00 | 1.00 | - |
| 1969 | Other | Active | - | 0.207% | 0.00 | 2.156% | - | - | 8,145.00 | 1.00 | - |
| 1970 | Other | Active | - | 0.207% | 0.00 | 2.133% | - | - | 8,145.00 | 1.00 | - |
| 1971 | Other | Active | - | 0.207% | 0.00 | 2.110% | - | - | 8,145.00 | 1.00 | - |
| 1972 | Other | Active | 20.00 | 0.207% | 1.50 | 2.087% | 0.06 | 0.42 | 8,145.00 | 1.00 | 505.85 |
| 1973 | Other | Active | - | 0.207% | 0.00 | 2.064% | - | - | 8,145.00 | 1.00 | - |
| 1974 | Other | Active | 28.52 | 0.207% | 1.50 | 2.042% | 0.09 | 0.58 | 8,145.00 | 1.00 | 721.34 |
| 1975 | Other | Active | 6.20 | 0.207% | 1.50 | 2.019% | 0.02 | 0.13 | 8,145.00 | 1.00 | 156.81 |
| 1976 | Other | Active | 75.00 | 0.207% | 1.50 | 1.996% | 0.23 | 1.50 | 8,145.00 | 1.00 | 1,896.93 |
| 1977 | Other | Active | 307.70 | 0.207% | 1.00 | 1.973% | 0.64 | 6.07 | 8,145.00 | 1.00 | 5,188.32 |
| 1978 | Other | Active | - | 0.207% | 0.00 | 1.951% | - | - | 8,145.00 | 1.00 | - |
| 1979 | Other | Active | 65.00 | 0.207% | 1.50 | 1.928% | 0.20 | 1.25 | 8,145.00 | 1.00 | 1,644.01 |
| 1980 | Other | Active | 370.67 | 0.207% | 1.21 | 1.905% | 0.93 | 7.06 | 8,145.00 | 1.00 | 7,589.40 |
| 1981 | Other | Active | 4,857.33 | 0.207% | 0.94 | 1.882% | 9.46 | 91.43 | 8,145.00 | 1.00 | 77,084.67 |
| 1982 | Other | Active | 554.75 | 0.207% | 0.75 | 1.860% | 0.86 | 10.32 | 8,145.00 | 1.00 | 7,015.49 |
| 1983 | Other | Active | 3,438.58 | 0.207% | 0.87 | 1.837% | 6.20 | 63.16 | 8,145.00 | 1.00 | 50,525.46 |
| 1984 | Other | Active | 4,464.39 | 0.207% | 0.69 | 1.814% | 6.35 | 80.98 | 8,145.00 | 1.00 | 51,752.84 |
| 1985 | Other | Active | 2,329.11 | 0.207% | 1.00 | 1.791% | 4.82 | 41.72 | 8,145.00 | 1.00 | 39,272.57 |
| 1986 | Other | Active | 1,411.57 | 0.207% | 0.96 | 1.768% | 2.81 | 24.96 | 8,145.00 | 1.00 | 22,885.92 |
| 1987 | Other | Active | 486.71 | 0.207% | 1.07 | 1.746% | 1.08 | 8.50 | 8,145.00 | 1.00 | 8,792.91 |
| 1988 | Other | Active | 479.98 | 0.207% | 1.21 | 1.723% | 1.21 | 8.27 | 8,145.00 | 1.00 | 9,827.51 |
| 1989 | Other | Active | 290.43 | 0.207% | 1.36 | 1.700% | 0.82 | 4.94 | 8,145.00 | 1.00 | 6,646.09 |
| 1990 | Other | Active | 264.35 | 0.207% | 1.30 | 1.677% | 0.71 | 4.43 | 8,145.00 | 1.00 | 5,794.58 |
| 1991 | Other | Active | 431.34 | 0.207% | 1.36 | 1.655% | 1.21 | 7.14 | 8,145.00 | 1.00 | 9,870.62 |
| 1992 | Other | Active | 554.74 | 0.207% | 1.06 | 1.632% | 1.21 | 9.05 | 8,145.00 | 1.00 | 9,873.47 |
| 1993 | Other | Active | 879.50 | 0.207% | 0.75 | 0.350% | 1.37 | 3.08 | 8,145.00 | 1.00 | 11,122.35 |
| 1994 | Other | Active | 1,837.84 | 0.207% | 0.83 | 0.540% | 3.17 | 9.93 | 8,145.00 | 1.00 | 25,824.14 |
| 1995 | Other | Active | 939.93 | 0.207% | 1.00 | 0.730% | 1.95 | 6.86 | 8,145.00 | 1.00 | 15,848.74 |
| 1996 | Other | Active | 1,971.02 | 0.207% | 0.50 | 0.919% | 2.04 | 18.12 | 8,145.00 | 1.00 | 16,617.30 |
| 1997 | Other | Active | 1,267.92 | 0.207% | 1.00 | 1.109% | 2.62 | 14.06 | 8,145.00 | 1.00 | 21,379.19 |
| 1998 | Other | Active | 1,054.49 | 0.283% | 0.83 | 1.298% | 2.48 | 13.69 | 8,145.00 | 1.00 | 20,227.30 |
| 1999 | Other | Active | 404.95 | 0.358% | 1.10 | 1.488% | 1.60 | 6.03 | 8,145.00 | 1.00 | 12,996.01 |
| 2000 | Other | Active | 255.10 | 0.434% | 1.00 | 1.678% | 1.11 | 4.28 | 8,145.00 | 1.00 | 9,013.25 |
| 2001 | Other | Active | 360.44 | 0.509% | 0.90 | 1.867% | 1.65 | 6.73 | 8,145.00 | 1.00 | 13,458.89 |
| 2002 | Other | Active | 569.59 | 0.585% | 1.33 | 2.057% | 4.44 | 11.72 | 8,145.00 | 1.00 | 36,184.86 |
| 2003 | Other | Active | 810.10 | 0.661% | 0.83 | 2.246% | 4.46 | 18.20 | 8,145.00 | 1.00 | 36,321.37 |
| 2004 | Other | Active | 1,049.09 | 0.736% | 0.93 | 2.436% | 7.17 | 25.56 | 8,145.00 | 1.00 | 58,410.00 |
| 2005 | Other | Active | 22.99 | 0.812% | 1.00 | 2.626% | 0.19 | 0.60 | 8,145.00 | 1.00 | 1,520.02 |
| 2006 | Other | Active | 491.96 | 0.887% | 1.07 | 2.815% | 4.68 | 13.85 | 8,145.00 | 1.00 | 38,095.30 |
| 2007 | Other | Active | 368.47 | 0.963% | 1.10 | 3.005% | 3.90 | 11.07 | 8,145.00 | 1.00 | 31,789.11 |
| 2008 | Other | Active | 649.47 | 1.039% | 1.28 | 3.194% | 8.62 | 20.75 | 8,145.00 | 1.00 | 70,197.01 |
| 2009 | Other | Active | 202.62 | 1.114% | 1.33 | 3.384% | 3.01 | 6.86 | 8,145.00 | 1.00 | 24,515.39 |
| 2010 | Other | Active | 1,059.98 | 1.190% | 1.06 | 3.574% | 13.31 | 37.88 | 8,145.00 | 1.00 | 108,419.22 |
| 2011 | Other | Active | 350.69 | 1.265% | 0.83 | 4.298% | 3.70 | 15.07 | 8,145.00 | 1.00 | 30,117.75 |
| 2012 | Other | Active | 147.31 | 1.331% | 1.50 | 8.818% | 2.94 | 12.99 | 8,145.00 | 1.00 | 23,948.26 |
| 2013 | Other | Active | 2,047.67 | 1.142% | 1.03 | 13.337% | 24.07 | 273.11 | 8,145.00 | 1.00 | 196,059.46 |
| 2014 | Other | Active | 259.86 | 0.953% | 1.38 | 17.857% | 3.41 | 46.40 | 8,145.00 | 1.00 | 27,742.62 |
| 2015 | Other | Active | 1,229.64 | 0.765% | 1.10 | 22.376% | 10.34 | 275.15 | 8,145.00 | 1.00 | 84,233.58 |
| 2016 | Other | Active | 1,513.50 | 0.576% | 1.33 | 26.896% | 11.62 | 407.07 | 8,145.00 | 1.00 | 94,657.74 |
| 2017 | Other | Active | 388.02 | 0.387% | 1.36 | 38.903% | 2.04 | 150.95 | 8,145.00 | 1.00 | 16,608.02 |
| 2018 | Other | Active | 36.77 | 0.199% | 1.50 | 32.479% | 0.11 | 11.94 | 8,145.00 | 1.00 | 891.85 |
| 2019 | Other | Active | 50.90 | 0.010% | 1.50 | 22.332% | 0.01 | 11.37 | 8,145.00 | 1.00 | 61.19 |
| 2020 | Other | Active | 777.21 | 0.000% | 1.47 | 12.185% | - | 94.70 | 8,145.00 | 1.00 | - |
| 2021 | Other | Active | 175.63 | 0.000% | 1.50 | 2.037% | - | 3.58 | 8,145.00 | 1.00 | - |

| Permit Issue Year | Mine Type | Mine Status | 2022 | | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------|-----------|-------------|----------------------|-----------------|-------------------|--------------|-----------------|----------------|-------------------|------------------------|---------------------------------|------------|
| | | | Current Bonded Acres | Forfeiture Rate | Adjustment Factor | | Forfeited Acres | Released Acres | Adjustment Factor | | | |
| | | | (4) | (5) | Permit Bond Size | Release Rate | (8) | (9) | (11) | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | |
| 1963 | Other | Inactive | - | 0.466% | 0.00 | 1.433% | - | - | 8,145.00 | 1.00 | - | |
| 1964 | Other | Inactive | - | 0.466% | 0.00 | 1.418% | - | - | 8,145.00 | 1.00 | - | |
| 1965 | Other | Inactive | - | 0.466% | 0.00 | 1.404% | - | - | 8,145.00 | 1.00 | - | |
| 1966 | Other | Inactive | - | 0.466% | 0.00 | 1.390% | - | - | 8,145.00 | 1.00 | - | |
| 1967 | Other | Inactive | - | 0.466% | 0.00 | 1.376% | - | - | 8,145.00 | 1.00 | - | |
| 1968 | Other | Inactive | - | 0.466% | 0.00 | 1.361% | - | - | 8,145.00 | 1.00 | - | |
| 1969 | Other | Inactive | - | 0.466% | 0.00 | 1.347% | - | - | 8,145.00 | 1.00 | - | |
| 1970 | Other | Inactive | - | 0.466% | 0.00 | 1.333% | - | - | 8,145.00 | 1.00 | - | |
| 1971 | Other | Inactive | - | 0.466% | 0.00 | 1.319% | - | - | 8,145.00 | 1.00 | - | |
| 1972 | Other | Inactive | - | 0.466% | 0.00 | 1.305% | - | - | 8,145.00 | 1.00 | - | |
| 1973 | Other | Inactive | - | 0.466% | 0.00 | 1.290% | - | - | 8,145.00 | 1.00 | - | |
| 1974 | Other | Inactive | - | 0.466% | 0.00 | 1.276% | - | - | 8,145.00 | 1.00 | - | |
| 1975 | Other | Inactive | - | 0.466% | 0.00 | 1.262% | - | - | 8,145.00 | 1.00 | - | |
| 1976 | Other | Inactive | 14.48 | 0.466% | 1.50 | 1.248% | 0.10 | 0.18 | 8,145.00 | 1.00 | 824.03 | |
| 1977 | Other | Inactive | 61.00 | 0.466% | 1.50 | 1.233% | 0.43 | 0.75 | 8,145.00 | 1.00 | 3,471.39 | |
| 1978 | Other | Inactive | - | 0.466% | 0.00 | 1.219% | - | - | 8,145.00 | 1.00 | - | |
| 1979 | Other | Inactive | 7.25 | 0.466% | 1.50 | 1.205% | 0.05 | 0.09 | 8,145.00 | 1.00 | 412.58 | |
| 1980 | Other | Inactive | 114.75 | 0.466% | 0.50 | 1.191% | 0.27 | 1.37 | 8,145.00 | 1.00 | 2,176.73 | |
| 1981 | Other | Inactive | 1,477.93 | 0.466% | 0.96 | 1.176% | 6.62 | 17.39 | 8,145.00 | 1.00 | 53,914.10 | |
| 1982 | Other | Inactive | 148.70 | 0.466% | 1.17 | 1.162% | 0.81 | 1.73 | 8,145.00 | 1.00 | 6,581.72 | |
| 1983 | Other | Inactive | 1,739.30 | 0.466% | 0.75 | 1.148% | 6.08 | 19.97 | 8,145.00 | 1.00 | 49,490.02 | |
| 1984 | Other | Inactive | 440.78 | 0.466% | 0.93 | 1.134% | 1.91 | 5.00 | 8,145.00 | 1.00 | 15,528.13 | |
| 1985 | Other | Inactive | 364.25 | 0.466% | 0.83 | 1.120% | 1.41 | 4.08 | 8,145.00 | 1.00 | 11,515.96 | |
| 1986 | Other | Inactive | - | 0.466% | 0.00 | 1.105% | - | - | 8,145.00 | 1.00 | - | |
| 1987 | Other | Inactive | 484.64 | 0.466% | 0.50 | 1.091% | 1.13 | 5.29 | 8,145.00 | 1.00 | 9,193.29 | |
| 1988 | Other | Inactive | 167.79 | 0.466% | 1.17 | 1.077% | 0.91 | 1.81 | 8,145.00 | 1.00 | 7,426.68 | |
| 1989 | Other | Inactive | 438.61 | 0.466% | 0.90 | 1.063% | 1.84 | 4.66 | 8,145.00 | 1.00 | 14,976.24 | |
| 1990 | Other | Inactive | 481.66 | 0.466% | 1.17 | 1.048% | 2.62 | 5.05 | 8,145.00 | 1.00 | 21,319.12 | |
| 1991 | Other | Inactive | - | 0.466% | 0.00 | 1.034% | - | - | 8,145.00 | 1.00 | - | |
| 1992 | Other | Inactive | 433.18 | 0.466% | 1.30 | 1.020% | 2.62 | 4.42 | 8,145.00 | 1.00 | 21,364.54 | |
| 1993 | Other | Inactive | 273.92 | 0.466% | 0.90 | 0.219% | 1.15 | 0.60 | 8,145.00 | 1.00 | 9,352.94 | |
| 1994 | Other | Inactive | 545.08 | 0.466% | 1.00 | 0.338% | 2.54 | 1.84 | 8,145.00 | 1.00 | 20,679.60 | |
| 1995 | Other | Inactive | 641.22 | 0.466% | 1.17 | 0.456% | 3.48 | 2.92 | 8,145.00 | 1.00 | 28,381.52 | |
| 1996 | Other | Inactive | 152.16 | 0.466% | 0.50 | 0.575% | 0.35 | 0.87 | 8,145.00 | 1.00 | 2,886.37 | |
| 1997 | Other | Inactive | 158.04 | 0.466% | 0.83 | 0.693% | 0.61 | 1.10 | 8,145.00 | 1.00 | 4,996.52 | |
| 1998 | Other | Inactive | 206.29 | 0.636% | 1.00 | 0.812% | 1.31 | 1.67 | 8,145.00 | 1.00 | 10,684.09 | |
| 1999 | Other | Inactive | - | 0.806% | 0.00 | 0.930% | - | - | 8,145.00 | 1.00 | - | |
| 2000 | Other | Inactive | 116.73 | 0.976% | 0.50 | 1.049% | 0.57 | 1.22 | 8,145.00 | 1.00 | 4,639.87 | |
| 2001 | Other | Inactive | 250.00 | 1.146% | 0.50 | 1.167% | 1.43 | 2.92 | 8,145.00 | 1.00 | 11,668.80 | |
| 2002 | Other | Inactive | 222.64 | 1.316% | 1.00 | 1.286% | 2.93 | 2.86 | 8,145.00 | 1.00 | 23,867.75 | |
| 2003 | Other | Inactive | 78.29 | 1.486% | 1.50 | 1.404% | 1.75 | 1.10 | 8,145.00 | 1.00 | 14,216.25 | |
| 2004 | Other | Inactive | 56.00 | 1.656% | 1.50 | 1.523% | 1.39 | 0.85 | 8,145.00 | 1.00 | 11,332.38 | |
| 2005 | Other | Inactive | 50.69 | 1.826% | 1.50 | 1.641% | 1.39 | 0.83 | 8,145.00 | 1.00 | 11,311.13 | |
| 2006 | Other | Inactive | - | 1.997% | 0.00 | 1.760% | - | - | 8,145.00 | 1.00 | - | |
| 2007 | Other | Inactive | - | 2.167% | 0.00 | 1.878% | - | - | 8,145.00 | 1.00 | - | |
| 2008 | Other | Inactive | 4.11 | 2.337% | 1.50 | 1.997% | 0.14 | 0.08 | 8,145.00 | 1.00 | 1,173.33 | |
| 2009 | Other | Inactive | - | 2.507% | 0.00 | 2.115% | - | - | 8,145.00 | 1.00 | - | |
| 2010 | Other | Inactive | - | 2.677% | 0.00 | 2.234% | - | - | 8,145.00 | 1.00 | - | |
| 2011 | Other | Inactive | - | 2.847% | 0.00 | 2.687% | - | - | 8,145.00 | 1.00 | - | |
| 2012 | Other | Inactive | 66.26 | 2.994% | 0.50 | 5.511% | 0.99 | 3.65 | 8,145.00 | 1.00 | 8,078.94 | |
| 2013 | Other | Inactive | 57.00 | 2.569% | 1.50 | 8.336% | 2.20 | 4.75 | 8,145.00 | 1.00 | 17,893.17 | |
| 2014 | Other | Inactive | - | 2.145% | 0.00 | 11.161% | - | - | 8,145.00 | 1.00 | - | |
| 2015 | Other | Inactive | - | 1.720% | 0.00 | 13.985% | - | - | 8,145.00 | 1.00 | - | |
| 2016 | Other | Inactive | - | 1.296% | 0.00 | 16.810% | - | - | 8,145.00 | 1.00 | - | |
| 2017 | Other | Inactive | - | 0.871% | 0.00 | 24.315% | - | - | 8,145.00 | 1.00 | - | |
| 2018 | Other | Inactive | 11.88 | 0.447% | 1.50 | 20.299% | 0.08 | 2.41 | 8,145.00 | 1.00 | 648.33 | |
| 2019 | Other | Inactive | - | 0.022% | 0.00 | 13.957% | - | - | 8,145.00 | 1.00 | - | |
| 2020 | Other | Inactive | - | 0.000% | 0.00 | 7.615% | - | - | 8,145.00 | 1.00 | - | |
| 2021 | Other | Inactive | - | 0.000% | 0.00 | 1.273% | - | - | 8,145.00 | 1.00 | - | |

West Virginia Department of Environmental Protection Office of Special Reclamation
Actuarial Reserve Study as of June 30, 2021
Water Capital Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | 2022 | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|-----------------|----------------------------|--------------------|---------------------|-----------------|--------------------|-------------------|----------|------------------------------|--|---------------|
| | | | | Forfeiture Rate | Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | Factor | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | |
| 1963 | Other | Phased Released | - | 0.811% | 0.00 | 6.877% | - | - | 8,145.00 | 0.50 | - | |
| 1964 | Other | Phased Released | - | 0.811% | 0.00 | 6.808% | - | - | 8,145.00 | 0.50 | - | |
| 1965 | Other | Phased Released | - | 0.811% | 0.00 | 6.740% | - | - | 8,145.00 | 0.50 | - | |
| 1966 | Other | Phased Released | - | 0.811% | 0.00 | 6.672% | - | - | 8,145.00 | 0.50 | - | |
| 1967 | Other | Phased Released | - | 0.811% | 0.00 | 6.603% | - | - | 8,145.00 | 0.50 | - | |
| 1968 | Other | Phased Released | - | 0.811% | 0.00 | 6.535% | - | - | 8,145.00 | 0.50 | - | |
| 1969 | Other | Phased Released | - | 0.811% | 0.00 | 6.467% | - | - | 8,145.00 | 0.50 | - | |
| 1970 | Other | Phased Released | - | 0.811% | 0.00 | 6.398% | - | - | 8,145.00 | 0.50 | - | |
| 1971 | Other | Phased Released | - | 0.811% | 0.00 | 6.330% | - | - | 8,145.00 | 0.50 | - | |
| 1972 | Other | Phased Released | - | 0.811% | 0.00 | 6.262% | - | - | 8,145.00 | 0.50 | - | |
| 1973 | Other | Phased Released | 9.00 | 0.811% | 0.00 | 6.193% | - | 0.56 | 8,145.00 | 0.50 | - | |
| 1974 | Other | Phased Released | - | 0.811% | 0.00 | 6.125% | - | - | 8,145.00 | 0.50 | - | |
| 1975 | Other | Phased Released | - | 0.811% | 0.00 | 6.057% | - | - | 8,145.00 | 0.50 | - | |
| 1976 | Other | Phased Released | 27.88 | 0.811% | 0.00 | 5.989% | - | 1.67 | 8,145.00 | 0.50 | - | |
| 1977 | Other | Phased Released | - | 0.811% | 0.00 | 5.920% | - | - | 8,145.00 | 0.50 | - | |
| 1978 | Other | Phased Released | 12.76 | 0.811% | 0.00 | 5.852% | - | 0.75 | 8,145.00 | 0.50 | - | |
| 1979 | Other | Phased Released | 58.69 | 0.811% | 0.00 | 5.784% | - | 3.39 | 8,145.00 | 0.50 | - | |
| 1980 | Other | Phased Released | 7.91 | 0.811% | 0.00 | 5.715% | - | 0.45 | 8,145.00 | 0.50 | - | |
| 1981 | Other | Phased Released | 475.54 | 0.811% | 0.00 | 5.647% | - | 26.85 | 8,145.00 | 0.50 | - | |
| 1982 | Other | Phased Released | 201.26 | 0.811% | 0.00 | 5.579% | - | 11.23 | 8,145.00 | 0.50 | - | |
| 1983 | Other | Phased Released | 158.90 | 0.811% | 0.00 | 5.510% | - | 8.76 | 8,145.00 | 0.50 | - | |
| 1984 | Other | Phased Released | 75.79 | 0.811% | 0.00 | 5.442% | - | 4.12 | 8,145.00 | 0.50 | - | |
| 1985 | Other | Phased Released | 43.00 | 0.811% | 0.00 | 5.374% | - | 2.31 | 8,145.00 | 0.50 | - | |
| 1986 | Other | Phased Released | - | 0.811% | 0.00 | 5.305% | - | - | 8,145.00 | 0.50 | - | |
| 1987 | Other | Phased Released | 50.95 | 0.811% | 0.00 | 5.237% | - | 2.67 | 8,145.00 | 0.50 | - | |
| 1988 | Other | Phased Released | - | 0.811% | 0.00 | 5.169% | - | - | 8,145.00 | 0.50 | - | |
| 1989 | Other | Phased Released | 38.00 | 0.811% | 0.00 | 5.100% | - | 1.94 | 8,145.00 | 0.50 | - | |
| 1990 | Other | Phased Released | - | 0.811% | 0.00 | 5.032% | - | - | 8,145.00 | 0.50 | - | |
| 1991 | Other | Phased Released | - | 0.811% | 0.00 | 4.964% | - | - | 8,145.00 | 0.50 | - | |
| 1992 | Other | Phased Released | - | 0.811% | 0.00 | 4.895% | - | - | 8,145.00 | 0.50 | - | |
| 1993 | Other | Phased Released | 48.00 | 0.811% | 0.00 | 1.051% | - | 0.50 | 8,145.00 | 0.50 | - | |
| 1994 | Other | Phased Released | - | 0.811% | 0.00 | 1.620% | - | - | 8,145.00 | 0.50 | - | |
| 1995 | Other | Phased Released | - | 0.811% | 0.00 | 2.189% | - | - | 8,145.00 | 0.50 | - | |
| 1996 | Other | Phased Released | - | 0.811% | 0.00 | 2.758% | - | - | 8,145.00 | 0.50 | - | |
| 1997 | Other | Phased Released | 31.16 | 0.811% | 0.00 | 3.327% | - | 1.04 | 8,145.00 | 0.50 | - | |
| 1998 | Other | Phased Released | - | 1.107% | 0.00 | 3.895% | - | - | 8,145.00 | 0.50 | - | |
| 1999 | Other | Phased Released | 179.00 | 1.403% | 0.00 | 4.464% | - | 7.99 | 8,145.00 | 0.50 | - | |
| 2000 | Other | Phased Released | - | 1.699% | 0.00 | 5.033% | - | - | 8,145.00 | 0.50 | - | |
| 2001 | Other | Phased Released | - | 1.995% | 0.00 | 5.602% | - | - | 8,145.00 | 0.50 | - | |
| 2002 | Other | Phased Released | - | 2.291% | 0.00 | 6.171% | - | - | 8,145.00 | 0.50 | - | |
| 2003 | Other | Phased Released | - | 2.587% | 0.00 | 6.739% | - | - | 8,145.00 | 0.50 | - | |
| 2004 | Other | Phased Released | - | 2.883% | 0.00 | 7.308% | - | - | 8,145.00 | 0.50 | - | |
| 2005 | Other | Phased Released | - | 3.179% | 0.00 | 7.877% | - | - | 8,145.00 | 0.50 | - | |
| 2006 | Other | Phased Released | - | 3.475% | 0.00 | 8.446% | - | - | 8,145.00 | 0.50 | - | |
| 2007 | Other | Phased Released | - | 3.771% | 0.00 | 9.015% | - | - | 8,145.00 | 0.50 | - | |
| 2008 | Other | Phased Released | - | 4.068% | 0.00 | 9.583% | - | - | 8,145.00 | 0.50 | - | |
| 2009 | Other | Phased Released | - | 4.364% | 0.00 | 10.152% | - | - | 8,145.00 | 0.50 | - | |
| 2010 | Other | Phased Released | - | 4.660% | 0.00 | 10.721% | - | - | 8,145.00 | 0.50 | - | |
| 2011 | Other | Phased Released | - | 4.956% | 0.00 | 12.895% | - | - | 8,145.00 | 0.50 | - | |
| 2012 | Other | Phased Released | - | 5.212% | 0.00 | 26.454% | - | - | 8,145.00 | 0.50 | - | |
| 2013 | Other | Phased Released | - | 4.473% | 0.00 | 40.012% | - | - | 8,145.00 | 0.50 | - | |
| 2014 | Other | Phased Released | - | 3.734% | 0.00 | 53.571% | - | - | 8,145.00 | 0.50 | - | |
| 2015 | Other | Phased Released | - | 2.995% | 0.00 | 67.129% | - | - | 8,145.00 | 0.50 | - | |
| 2016 | Other | Phased Released | - | 2.256% | 0.00 | 80.688% | - | - | 8,145.00 | 0.50 | - | |
| 2017 | Other | Phased Released | - | 1.517% | 0.00 | 116.710% | - | - | 8,145.00 | 0.50 | - | |
| 2018 | Other | Phased Released | - | 0.778% | 0.00 | 97.437% | - | - | 8,145.00 | 0.50 | - | |
| 2019 | Other | Phased Released | - | 0.039% | 0.00 | 66.996% | - | - | 8,145.00 | 0.50 | - | |

West Virginia Department of Environmental Protection Office of Sp
Actuarial Reserve Study as of June 30, 2021
Water Capital Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | Adjustment | | | | | | Avg recl Cost per Acres | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|-------------------|--------------------|---------------------|-----------------|--------------------|-------------------|-------------------------------|--|---------------|
| | | | | Adjusted Acres | Forfeiture Rate | Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | | | |
| (1) | (2) | (3) | (4) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) |
| 1963 | Surface | Active | - | - | 0.00% | - | 1.07% | - | - | 3,490.00 | 1 | - |
| 1964 | Surface | Active | - | - | 0.00% | - | 1.07% | - | - | 3,490.00 | 1 | - |
| 1965 | Surface | Active | - | - | 0.00% | - | 1.09% | - | - | 3,490.00 | 1 | - |
| 1966 | Surface | Active | - | - | 0.00% | - | 1.11% | - | - | 3,490.00 | 1 | - |
| 1967 | Surface | Active | - | - | 0.00% | - | 1.14% | - | - | 3,490.00 | 1 | - |
| 1968 | Surface | Active | - | - | 0.00% | - | 1.16% | - | - | 3,490.00 | 1 | - |
| 1969 | Surface | Active | - | - | 0.00% | - | 1.18% | - | - | 3,490.00 | 1 | - |
| 1970 | Surface | Active | - | - | 0.00% | - | 1.21% | - | - | 3,490.00 | 1 | - |
| 1971 | Surface | Active | - | - | 0.00% | - | 1.23% | - | - | 3,490.00 | 1 | - |
| 1972 | Surface | Active | 400.00 | 394.74 | 0.01% | 1.50 | 1.26% | 0.03 | 4.96 | 3,490.00 | 1 | 103.75 |
| 1973 | Surface | Active | - | - | 0.02% | - | 1.28% | - | - | 3,490.00 | 1 | - |
| 1974 | Surface | Active | - | - | 0.04% | - | 1.31% | - | - | 3,490.00 | 1 | - |
| 1975 | Surface | Active | - | - | 0.05% | - | 1.33% | - | - | 3,490.00 | 1 | - |
| 1976 | Surface | Active | - | - | 0.07% | - | 1.36% | - | - | 3,490.00 | 1 | - |
| 1977 | Surface | Active | 1,933.27 | 1,904.52 | 0.09% | 0.67 | 1.39% | 1.10 | 26.47 | 3,490.00 | 1 | 3,854.03 |
| 1978 | Surface | Active | 2,280.93 | 2,246.56 | 0.10% | 0.50 | 1.42% | 1.16 | 31.86 | 3,490.00 | 1 | 4,052.21 |
| 1979 | Surface | Active | 180.00 | 177.10 | 0.12% | 1.00 | 1.45% | 0.21 | 2.56 | 3,490.00 | 1 | 740.18 |
| 1980 | Surface | Active | 455.76 | 448.55 | 0.14% | 0.50 | 1.48% | 0.31 | 6.62 | 3,490.00 | 1 | 1,065.65 |
| 1981 | Surface | Active | 1,661.03 | 1,632.53 | 0.15% | 1.06 | 1.51% | 2.63 | 24.60 | 3,490.00 | 1 | 9,173.79 |
| 1982 | Surface | Active | 620.00 | 609.12 | 0.17% | 1.00 | 1.54% | 1.03 | 9.36 | 3,490.00 | 1 | 3,591.19 |
| 1983 | Surface | Active | 1,704.33 | 1,675.33 | 0.19% | 0.50 | 1.57% | 1.55 | 26.28 | 3,490.00 | 1 | 5,417.76 |
| 1984 | Surface | Active | - | - | 0.20% | - | 1.60% | - | - | 3,490.00 | 1 | - |
| 1985 | Surface | Active | 2,405.91 | 2,361.86 | 0.22% | 0.70 | 1.63% | 3.61 | 38.58 | 3,490.00 | 1 | 12,584.57 |
| 1986 | Surface | Active | 2,331.92 | 2,285.99 | 0.23% | 1.07 | 1.67% | 5.74 | 38.10 | 3,490.00 | 1 | 20,044.44 |
| 1987 | Surface | Active | 1,371.12 | 1,344.27 | 0.25% | 0.83 | 1.70% | 2.81 | 22.86 | 3,490.00 | 1 | 9,808.54 |
| 1988 | Surface | Active | 1,898.10 | 1,859.77 | 0.27% | 0.88 | 1.74% | 4.35 | 32.28 | 3,490.00 | 1 | 15,179.34 |
| 1989 | Surface | Active | 2,959.93 | 2,900.73 | 0.28% | 0.64 | 1.77% | 5.29 | 51.37 | 3,490.00 | 1 | 18,461.01 |
| 1990 | Surface | Active | 2,801.20 | 2,742.90 | 0.30% | 0.75 | 1.81% | 6.17 | 49.57 | 3,490.00 | 1 | 21,542.73 |
| 1991 | Surface | Active | 2,094.19 | 2,048.20 | 0.32% | 0.94 | 1.84% | 6.12 | 37.77 | 3,490.00 | 1 | 21,363.75 |
| 1992 | Surface | Active | 4,639.40 | 4,542.22 | 0.33% | 0.50 | 1.88% | 7.56 | 85.47 | 3,490.00 | 1 | 26,381.43 |
| 1993 | Surface | Active | 4,377.78 | 4,278.67 | 0.35% | 0.83 | 1.92% | 12.45 | 82.15 | 3,490.00 | 1 | 43,457.53 |
| 1994 | Surface | Active | 2,054.59 | 2,009.59 | 0.37% | 0.50 | 1.96% | 3.67 | 39.37 | 3,490.00 | 1 | 12,821.37 |
| 1995 | Surface | Active | 6,620.84 | 6,461.60 | 0.38% | 0.92 | 2.00% | 22.63 | 129.18 | 3,490.00 | 1 | 78,968.49 |
| 1996 | Surface | Active | 6,830.47 | 6,664.68 | 0.40% | 0.83 | 2.04% | 22.13 | 135.96 | 3,490.00 | 1 | 77,222.86 |
| 1997 | Surface | Active | 13,199.94 | 12,874.51 | 0.41% | 0.79 | 2.08% | 42.28 | 267.99 | 3,490.00 | 1 | 147,547.10 |
| 1998 | Surface | Active | 11,029.10 | 10,757.58 | 0.43% | 0.66 | 2.12% | 30.52 | 228.50 | 3,490.00 | 1 | 106,502.49 |
| 1999 | Surface | Active | 2,072.61 | 2,021.96 | 0.45% | 0.50 | 2.17% | 4.52 | 43.82 | 3,490.00 | 1 | 15,791.93 |
| 2000 | Surface | Active | 4,526.19 | 4,413.17 | 0.46% | 0.50 | 2.21% | 10.24 | 97.60 | 3,490.00 | 1 | 35,730.01 |
| 2001 | Surface | Active | 6,826.55 | 6,639.90 | 0.48% | 0.87 | 2.26% | 27.70 | 149.85 | 3,490.00 | 1 | 96,667.79 |
| 2002 | Surface | Active | 6,499.09 | 6,325.25 | 0.50% | 0.63 | 2.30% | 19.90 | 145.66 | 3,490.00 | 1 | 69,449.98 |
| 2003 | Surface | Active | 6,916.12 | 6,720.53 | 0.51% | 0.81 | 2.35% | 28.02 | 157.92 | 3,490.00 | 1 | 97,788.49 |
| 2004 | Surface | Active | 11,573.91 | 11,229.48 | 0.53% | 0.79 | 2.40% | 46.72 | 269.26 | 3,490.00 | 1 | 163,057.36 |
| 2005 | Surface | Active | 5,236.53 | 5,071.05 | 0.67% | 1.03 | 2.45% | 35.30 | 124.07 | 3,490.00 | 1 | 123,185.18 |
| 2006 | Surface | Active | 4,862.21 | 4,711.63 | 0.64% | 0.90 | 2.50% | 27.23 | 117.63 | 3,490.00 | 1 | 95,018.03 |
| 2007 | Surface | Active | 6,382.38 | 6,186.23 | 0.61% | 0.82 | 2.55% | 30.90 | 157.60 | 3,490.00 | 1 | 107,843.06 |
| 2008 | Surface | Active | 8,631.88 | 8,375.34 | 0.58% | 0.58 | 2.60% | 28.29 | 217.72 | 3,490.00 | 1 | 98,718.46 |
| 2009 | Surface | Active | 6,181.98 | 5,990.73 | 0.55% | 0.75 | 2.65% | 24.60 | 158.91 | 3,490.00 | 1 | 85,840.41 |
| 2010 | Surface | Active | 6,203.98 | 6,025.21 | 0.52% | 0.92 | 2.71% | 28.49 | 163.09 | 3,490.00 | 1 | 99,440.23 |
| 2011 | Surface | Active | 2,986.04 | 2,911.35 | 0.48% | 0.74 | 2.44% | 10.37 | 70.97 | 3,490.00 | 1 | 36,185.56 |
| 2012 | Surface | Active | 7,650.01 | 7,476.89 | 0.45% | 0.86 | 2.17% | 29.24 | 162.13 | 3,490.00 | 1 | 102,044.02 |
| 2013 | Surface | Active | 8,508.13 | 8,337.79 | 0.42% | 0.95 | 1.90% | 33.53 | 158.35 | 3,490.00 | 1 | 117,011.09 |
| 2014 | Surface | Active | 4,153.44 | 4,085.76 | 0.39% | 0.75 | 1.63% | 11.94 | 66.60 | 3,490.00 | 1 | 41,678.83 |
| 2015 | Surface | Active | 4,371.03 | 4,312.88 | 0.36% | 0.73 | 1.36% | 11.29 | 58.69 | 3,490.00 | 1 | 39,398.26 |
| 2016 | Surface | Active | 3,389.17 | 3,354.29 | 0.33% | 0.70 | 1.09% | 7.67 | 36.62 | 3,490.00 | 1 | 26,766.78 |
| 2017 | Surface | Active | 1,324.50 | 1,313.68 | 0.30% | 1.00 | 0.82% | 3.88 | 10.81 | 3,490.00 | 1 | 13,529.63 |
| 2018 | Surface | Active | 3,466.31 | 3,448.42 | 0.26% | 1.00 | 0.55% | 9.09 | 19.08 | 3,490.00 | 1 | 31,719.46 |
| 2019 | Surface | Active | 4,158.88 | 4,143.68 | 0.23% | 0.88 | 0.28% | 8.41 | 11.77 | 3,490.00 | 1 | 29,359.27 |
| 2020 | Surface | Active | 3,830.10 | 3,820.84 | 0.20% | 0.86 | 0.19% | 6.62 | 7.26 | 3,490.00 | 1 | 23,087.93 |
| 2021 | Surface | Active | 3,770.84 | 3,767.75 | 0.17% | 0.93 | 0.10% | 5.91 | 3.61 | 3,490.00 | 1 | 20,627.75 |

| Permit Issue Year | Mine Type | Mine Status | 2023 | | | | | | | | Avg recl Cost per Acce | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|-------------------|--------------------|---|-----------------|--------------------|-------------------|----------------------------|------------------------------|--|---------------|
| | | | Current Bonded Acres | Adjusted Acres | Forfeiture Rate | Adjustment Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | Factor Permit Status | | | |
| (1) | (2) | (3) | (4) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | |
| 1963 | Surface | Inactive | - | - | 0.00% | - | 0.67% | - | - | 3,490.00 | 1 | - | |
| 1964 | Surface | Inactive | - | - | 0.00% | - | 0.67% | - | - | 3,490.00 | 1 | - | |
| 1965 | Surface | Inactive | - | - | 0.00% | - | 0.68% | - | - | 3,490.00 | 1 | - | |
| 1966 | Surface | Inactive | - | - | 0.00% | - | 0.70% | - | - | 3,490.00 | 1 | - | |
| 1967 | Surface | Inactive | - | - | 0.00% | - | 0.71% | - | - | 3,490.00 | 1 | - | |
| 1968 | Surface | Inactive | - | - | 0.00% | - | 0.72% | - | - | 3,490.00 | 1 | - | |
| 1969 | Surface | Inactive | - | - | 0.00% | - | 0.74% | - | - | 3,490.00 | 1 | - | |
| 1970 | Surface | Inactive | - | - | 0.00% | - | 0.75% | - | - | 3,490.00 | 1 | - | |
| 1971 | Surface | Inactive | - | - | 0.00% | - | 0.77% | - | - | 3,490.00 | 1 | - | |
| 1972 | Surface | Inactive | - | - | 0.01% | - | 0.79% | - | - | 3,490.00 | 1 | - | |
| 1973 | Surface | Inactive | - | - | 0.05% | - | 0.80% | - | - | 3,490.00 | 1 | - | |
| 1974 | Surface | Inactive | - | - | 0.09% | - | 0.82% | - | - | 3,490.00 | 1 | - | |
| 1975 | Surface | Inactive | - | - | 0.12% | - | 0.83% | - | - | 3,490.00 | 1 | - | |
| 1976 | Surface | Inactive | 438.80 | 434.56 | 0.16% | 0.50 | 0.85% | 0.35 | 3.70 | 3,490.00 | 1 | 1,204.30 | |
| 1977 | Surface | Inactive | - | - | 0.20% | - | 0.87% | - | - | 3,490.00 | 1 | - | |
| 1978 | Surface | Inactive | - | - | 0.23% | - | 0.89% | - | - | 3,490.00 | 1 | - | |
| 1979 | Surface | Inactive | - | - | 0.27% | - | 0.90% | - | - | 3,490.00 | 1 | - | |
| 1980 | Surface | Inactive | - | - | 0.31% | - | 0.92% | - | - | 3,490.00 | 1 | - | |
| 1981 | Surface | Inactive | 4.47 | 4.42 | 0.34% | 0.50 | 0.94% | 0.01 | 0.04 | 3,490.00 | 1 | 26.46 | |
| 1982 | Surface | Inactive | - | - | 0.38% | - | 0.96% | - | - | 3,490.00 | 1 | - | |
| 1983 | Surface | Inactive | - | - | 0.42% | - | 0.98% | - | - | 3,490.00 | 1 | - | |
| 1984 | Surface | Inactive | - | - | 0.45% | - | 1.00% | - | - | 3,490.00 | 1 | - | |
| 1985 | Surface | Inactive | - | - | 0.49% | - | 1.02% | - | - | 3,490.00 | 1 | - | |
| 1986 | Surface | Inactive | 411.07 | 405.54 | 0.53% | 0.50 | 1.04% | 1.07 | 4.22 | 3,490.00 | 1 | 3,733.73 | |
| 1987 | Surface | Inactive | 415.61 | 408.60 | 0.56% | 1.00 | 1.06% | 2.31 | 4.34 | 3,490.00 | 1 | 8,049.76 | |
| 1988 | Surface | Inactive | 1,304.38 | 1,285.78 | 0.60% | 0.50 | 1.08% | 3.87 | 13.95 | 3,490.00 | 1 | 13,492.85 | |
| 1989 | Surface | Inactive | 273.00 | 268.07 | 0.64% | 1.00 | 1.11% | 1.71 | 2.97 | 3,490.00 | 1 | 5,971.31 | |
| 1990 | Surface | Inactive | 81.70 | 80.47 | 0.68% | 0.50 | 1.13% | 0.27 | 0.91 | 3,490.00 | 1 | 947.99 | |
| 1991 | Surface | Inactive | - | - | 0.71% | - | 1.15% | - | - | 3,490.00 | 1 | - | |
| 1992 | Surface | Inactive | - | - | 0.75% | - | 1.18% | - | - | 3,490.00 | 1 | - | |
| 1993 | Surface | Inactive | - | - | 0.79% | - | 1.20% | - | - | 3,490.00 | 1 | - | |
| 1994 | Surface | Inactive | - | - | 0.82% | - | 1.22% | - | - | 3,490.00 | 1 | - | |
| 1995 | Surface | Inactive | 3,503.18 | 3,442.81 | 0.86% | 0.50 | 1.25% | 14.80 | 43.02 | 3,490.00 | 1 | 51,637.89 | |
| 1996 | Surface | Inactive | 193.90 | 190.47 | 0.90% | 0.50 | 1.27% | 0.85 | 2.43 | 3,490.00 | 1 | 2,979.43 | |
| 1997 | Surface | Inactive | - | - | 0.93% | - | 1.30% | - | - | 3,490.00 | 1 | - | |
| 1998 | Surface | Inactive | 846.89 | 831.15 | 0.97% | 0.50 | 1.33% | 4.03 | 11.03 | 3,490.00 | 1 | 14,070.92 | |
| 1999 | Surface | Inactive | 2,264.80 | 2,221.67 | 1.01% | 0.50 | 1.35% | 11.19 | 30.10 | 3,490.00 | 1 | 39,041.32 | |
| 2000 | Surface | Inactive | - | - | 1.04% | - | 1.38% | - | - | 3,490.00 | 1 | - | |
| 2001 | Surface | Inactive | 596.67 | 584.75 | 1.08% | 0.50 | 1.41% | 3.16 | 8.25 | 3,490.00 | 1 | 11,028.37 | |
| 2002 | Surface | Inactive | 765.87 | 750.20 | 1.12% | 0.50 | 1.44% | 4.19 | 10.80 | 3,490.00 | 1 | 14,631.61 | |
| 2003 | Surface | Inactive | 4,249.33 | 4,160.34 | 1.15% | 0.50 | 1.47% | 24.02 | 61.10 | 3,490.00 | 1 | 83,818.83 | |
| 2004 | Surface | Inactive | 3,700.97 | 3,616.33 | 1.19% | 0.50 | 1.50% | 21.54 | 54.19 | 3,490.00 | 1 | 75,185.97 | |
| 2005 | Surface | Inactive | 25.99 | 25.02 | 1.52% | 1.50 | 1.53% | 0.57 | 0.38 | 3,490.00 | 1 | 1,985.20 | |
| 2006 | Surface | Inactive | 244.59 | 239.02 | 1.44% | 0.50 | 1.56% | 1.73 | 3.73 | 3,490.00 | 1 | 6,025.20 | |
| 2007 | Surface | Inactive | 399.20 | 390.11 | 1.37% | 0.50 | 1.59% | 2.68 | 6.21 | 3,490.00 | 1 | 9,351.05 | |
| 2008 | Surface | Inactive | 864.07 | 841.76 | 1.30% | 0.75 | 1.62% | 8.22 | 13.68 | 3,490.00 | 1 | 28,702.01 | |
| 2009 | Surface | Inactive | 680.43 | 664.97 | 1.23% | 0.50 | 1.66% | 4.10 | 11.02 | 3,490.00 | 1 | 14,292.41 | |
| 2010 | Surface | Inactive | 5.11 | 4.95 | 1.16% | 1.50 | 1.69% | 0.09 | 0.08 | 3,490.00 | 1 | 300.70 | |
| 2011 | Surface | Inactive | 560.86 | 550.40 | 1.09% | 0.50 | 1.52% | 3.00 | 8.39 | 3,490.00 | 1 | 10,466.76 | |
| 2012 | Surface | Inactive | 676.78 | 665.54 | 1.02% | 0.50 | 1.36% | 3.39 | 9.02 | 3,490.00 | 1 | 11,832.10 | |
| 2013 | Surface | Inactive | 93.44 | 92.08 | 0.95% | 0.50 | 1.19% | 0.44 | 1.09 | 3,490.00 | 1 | 1,522.96 | |
| 2014 | Surface | Inactive | 2,929.61 | 2,886.98 | 0.88% | 0.75 | 1.02% | 18.99 | 29.41 | 3,490.00 | 1 | 66,262.79 | |
| 2015 | Surface | Inactive | 704.80 | 697.40 | 0.81% | 0.50 | 0.85% | 2.81 | 5.93 | 3,490.00 | 1 | 9,807.65 | |
| 2016 | Surface | Inactive | 494.54 | 490.36 | 0.73% | 0.50 | 0.68% | 1.80 | 3.35 | 3,490.00 | 1 | 6,288.70 | |
| 2017 | Surface | Inactive | - | - | 0.66% | - | 0.51% | - | - | 3,490.00 | 1 | - | |
| 2018 | Surface | Inactive | 351.08 | 349.54 | 0.59% | 0.50 | 0.35% | 1.04 | 1.21 | 3,490.00 | 1 | 3,617.06 | |
| 2019 | Surface | Inactive | 452.10 | 448.50 | 0.52% | 1.50 | 0.18% | 3.51 | 0.80 | 3,490.00 | 1 | 12,257.19 | |
| 2020 | Surface | Inactive | - | - | 0.45% | - | 0.12% | - | - | 3,490.00 | 1 | - | |
| 2021 | Surface | Inactive | - | - | 0.38% | - | 0.06% | - | - | 3,490.00 | 1 | - | |

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | Adjustment | | | | | | | Avg recl Cost per Acres | Adjustment | | Gross Cost |
|-------------------------|--------------|-----------------|----------------------------|-------------------|--------------------|---------------------|-----------------|--------------------|-------------------|----------------------------|-------------------------------|----------------------------|--|---------------|
| | | | | Adjusted Acres | Forfeiture Rate | Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | Factor Permit Status | | Factor Permit Status | | |
| (1) | (2) | (3) | (4) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | | |
| 1963 | Surface | Phased Released | - | - | 0.00% | - | 3.21% | - | - | 3,490.00 | 0.5 | - | | |
| 1964 | Surface | Phased Released | - | - | 0.00% | - | 3.21% | - | - | 3,490.00 | 0.5 | - | | |
| 1965 | Surface | Phased Released | - | - | 0.00% | - | 3.27% | - | - | 3,490.00 | 0.5 | - | | |
| 1966 | Surface | Phased Released | - | - | 0.00% | - | 3.34% | - | - | 3,490.00 | 0.5 | - | | |
| 1967 | Surface | Phased Released | - | - | 0.00% | - | 3.41% | - | - | 3,490.00 | 0.5 | - | | |
| 1968 | Surface | Phased Released | - | - | 0.00% | - | 3.48% | - | - | 3,490.00 | 0.5 | - | | |
| 1969 | Surface | Phased Released | - | - | 0.00% | - | 3.55% | - | - | 3,490.00 | 0.5 | - | | |
| 1970 | Surface | Phased Released | - | - | 0.00% | - | 3.62% | - | - | 3,490.00 | 0.5 | - | | |
| 1971 | Surface | Phased Released | - | - | 0.00% | - | 3.69% | - | - | 3,490.00 | 0.5 | - | | |
| 1972 | Surface | Phased Released | - | - | 0.02% | - | 3.77% | - | - | 3,490.00 | 0.5 | - | | |
| 1973 | Surface | Phased Released | - | - | 0.08% | - | 3.85% | - | - | 3,490.00 | 0.5 | - | | |
| 1974 | Surface | Phased Released | 189.60 | 182.01 | 0.15% | - | 3.92% | - | 7.14 | 3,490.00 | 0.5 | - | | |
| 1975 | Surface | Phased Released | 8.30 | 7.96 | 0.21% | - | 4.00% | - | 0.32 | 3,490.00 | 0.5 | - | | |
| 1976 | Surface | Phased Released | 626.17 | 600.06 | 0.28% | - | 4.09% | - | 24.52 | 3,490.00 | 0.5 | - | | |
| 1977 | Surface | Phased Released | 48.00 | 45.96 | 0.34% | - | 4.17% | - | 1.92 | 3,490.00 | 0.5 | - | | |
| 1978 | Surface | Phased Released | 158.81 | 151.92 | 0.40% | - | 4.25% | - | 6.46 | 3,490.00 | 0.5 | - | | |
| 1979 | Surface | Phased Released | 358.00 | 342.14 | 0.47% | - | 4.34% | - | 14.85 | 3,490.00 | 0.5 | - | | |
| 1980 | Surface | Phased Released | 621.75 | 593.65 | 0.53% | - | 4.43% | - | 26.30 | 3,490.00 | 0.5 | - | | |
| 1981 | Surface | Phased Released | 1,821.81 | 1,737.79 | 0.60% | - | 4.52% | - | 78.55 | 3,490.00 | 0.5 | - | | |
| 1982 | Surface | Phased Released | - | - | 0.66% | - | 4.61% | - | - | 3,490.00 | 0.5 | - | | |
| 1983 | Surface | Phased Released | 302.61 | 288.08 | 0.73% | - | 4.71% | - | 13.56 | 3,490.00 | 0.5 | - | | |
| 1984 | Surface | Phased Released | 2,603.39 | 2,475.82 | 0.79% | - | 4.80% | - | 118.90 | 3,490.00 | 0.5 | - | | |
| 1985 | Surface | Phased Released | 1,270.29 | 1,206.77 | 0.85% | - | 4.90% | - | 59.14 | 3,490.00 | 0.5 | - | | |
| 1986 | Surface | Phased Released | 1,212.46 | 1,150.60 | 0.92% | - | 5.00% | - | 57.53 | 3,490.00 | 0.5 | - | | |
| 1987 | Surface | Phased Released | 760.81 | 721.20 | 0.98% | - | 5.10% | - | 36.80 | 3,490.00 | 0.5 | - | | |
| 1988 | Surface | Phased Released | 478.00 | 452.61 | 1.05% | - | 5.21% | - | 23.56 | 3,490.00 | 0.5 | - | | |
| 1989 | Surface | Phased Released | 1,688.64 | 1,597.10 | 1.11% | - | 5.31% | - | 84.85 | 3,490.00 | 0.5 | - | | |
| 1990 | Surface | Phased Released | 662.34 | 625.70 | 1.18% | - | 5.42% | - | 33.92 | 3,490.00 | 0.5 | - | | |
| 1991 | Surface | Phased Released | 1,006.45 | 949.64 | 1.24% | - | 5.53% | - | 52.53 | 3,490.00 | 0.5 | - | | |
| 1992 | Surface | Phased Released | - | - | 1.30% | - | 5.64% | - | - | 3,490.00 | 0.5 | - | | |
| 1993 | Surface | Phased Released | 562.59 | 529.52 | 1.37% | - | 5.76% | - | 30.50 | 3,490.00 | 0.5 | - | | |
| 1994 | Surface | Phased Released | 2,470.42 | 2,322.26 | 1.43% | - | 5.88% | - | 136.49 | 3,490.00 | 0.5 | - | | |
| 1995 | Surface | Phased Released | 498.93 | 468.40 | 1.50% | - | 6.00% | - | 28.09 | 3,490.00 | 0.5 | - | | |
| 1996 | Surface | Phased Released | 563.71 | 528.51 | 1.56% | - | 6.12% | - | 32.34 | 3,490.00 | 0.5 | - | | |
| 1997 | Surface | Phased Released | 969.50 | 907.72 | 1.62% | - | 6.24% | - | 56.68 | 3,490.00 | 0.5 | - | | |
| 1998 | Surface | Phased Released | 511.73 | 478.46 | 1.69% | - | 6.37% | - | 30.49 | 3,490.00 | 0.5 | - | | |
| 1999 | Surface | Phased Released | 14.87 | 13.88 | 1.75% | - | 6.50% | - | 0.90 | 3,490.00 | 0.5 | - | | |
| 2000 | Surface | Phased Released | 19.70 | 18.37 | 1.82% | - | 6.63% | - | 1.22 | 3,490.00 | 0.5 | - | | |
| 2001 | Surface | Phased Released | 491.55 | 457.59 | 1.88% | - | 6.77% | - | 30.98 | 3,490.00 | 0.5 | - | | |
| 2002 | Surface | Phased Released | 106.29 | 98.80 | 1.95% | - | 6.91% | - | 6.83 | 3,490.00 | 0.5 | - | | |
| 2003 | Surface | Phased Released | - | - | 2.01% | - | 7.05% | - | - | 3,490.00 | 0.5 | - | | |
| 2004 | Surface | Phased Released | 470.13 | 435.62 | 2.07% | - | 7.19% | - | 31.34 | 3,490.00 | 0.5 | - | | |
| 2005 | Surface | Phased Released | 51.50 | 47.64 | 2.64% | - | 7.34% | - | 3.50 | 3,490.00 | 0.5 | - | | |
| 2006 | Surface | Phased Released | 60.78 | 56.13 | 2.51% | - | 7.49% | - | 4.20 | 3,490.00 | 0.5 | - | | |
| 2007 | Surface | Phased Released | - | - | 2.39% | - | 7.64% | - | - | 3,490.00 | 0.5 | - | | |
| 2008 | Surface | Phased Released | - | - | 2.27% | - | 7.80% | - | - | 3,490.00 | 0.5 | - | | |
| 2009 | Surface | Phased Released | 220.84 | 202.91 | 2.14% | - | 7.96% | - | 16.15 | 3,490.00 | 0.5 | - | | |
| 2010 | Surface | Phased Released | - | - | 2.02% | - | 8.12% | - | - | 3,490.00 | 0.5 | - | | |
| 2011 | Surface | Phased Released | 55.50 | 51.89 | 1.90% | - | 7.31% | - | 3.79 | 3,490.00 | 0.5 | - | | |
| 2012 | Surface | Phased Released | - | - | 1.77% | - | 6.51% | - | - | 3,490.00 | 0.5 | - | | |
| 2013 | Surface | Phased Released | - | - | 1.65% | - | 5.70% | - | - | 3,490.00 | 0.5 | - | | |
| 2014 | Surface | Phased Released | 27.91 | 26.77 | 1.53% | - | 4.89% | - | 1.31 | 3,490.00 | 0.5 | - | | |
| 2015 | Surface | Phased Released | - | - | 1.40% | - | 4.08% | - | - | 3,490.00 | 0.5 | - | | |
| 2016 | Surface | Phased Released | - | - | 1.28% | - | 3.28% | - | - | 3,490.00 | 0.5 | - | | |
| 2017 | Surface | Phased Released | - | - | 1.16% | - | 2.47% | - | - | 3,490.00 | 0.5 | - | | |
| 2018 | Surface | Phased Released | - | - | 1.03% | - | 1.66% | - | - | 3,490.00 | 0.5 | - | | |
| 2019 | Surface | Phased Released | - | - | 0.91% | - | 0.85% | - | - | 3,490.00 | 0.5 | - | | |
| 2020 | Surface | Phased Released | - | - | 0.79% | - | 0.57% | - | - | 3,490.00 | 0.5 | - | | |
| 2021 | Surface | Phased Released | - | - | 0.66% | - | 0.29% | - | - | 3,490.00 | 0.5 | - | | |

| Permit Issue Year | Mine Type | Mine Status | 2023 | | | | | | | | | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|-------------------|--------------------|---------------------|-----------------|--------------------|-------------------------------|--|-------------------|---------------|
| | | | Current Bonded Acres | Adjustment | | | | | Avg recl Cost per Acres | Adjustment Factor Permit Status | | |
| | | | | Adjusted Acres | Forfeiture Rate | Permit Bond Size | Release Rate | Forfeited Acres | | | Released Acres | |
| (1) | (2) | (3) | (4) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) |
| 1963 | Underground | Active | - | - | 0.15% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1964 | Underground | Active | - | - | 0.15% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1965 | Underground | Active | - | - | 0.15% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1966 | Underground | Active | - | - | 0.16% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1967 | Underground | Active | - | - | 0.16% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1968 | Underground | Active | - | - | 0.16% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1969 | Underground | Active | - | - | 0.16% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1970 | Underground | Active | - | - | 0.16% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1971 | Underground | Active | - | - | 0.17% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1972 | Underground | Active | - | - | 0.17% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1973 | Underground | Active | - | - | 0.17% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1974 | Underground | Active | - | - | 0.17% | - | 0.00% | - | - | 5,595.00 | 1 | - |
| 1975 | Underground | Active | - | - | 0.17% | - | 0.12% | - | - | 5,595.00 | 1 | - |
| 1976 | Underground | Active | - | - | 0.17% | - | 0.26% | - | - | 5,595.00 | 1 | - |
| 1977 | Underground | Active | 22.53 | 22.35 | 0.18% | 1.50 | 0.40% | 0.06 | 0.09 | 5,595.00 | 1 | 331.06 |
| 1978 | Underground | Active | 94.87 | 94.14 | 0.18% | 0.50 | 0.54% | 0.08 | 0.51 | 5,595.00 | 1 | 469.88 |
| 1979 | Underground | Active | 745.26 | 737.49 | 0.18% | 1.21 | 0.68% | 1.61 | 5.02 | 5,595.00 | 1 | 9,035.18 |
| 1980 | Underground | Active | 222.16 | 219.57 | 0.18% | 1.10 | 0.82% | 0.44 | 1.80 | 5,595.00 | 1 | 2,462.62 |
| 1981 | Underground | Active | 891.30 | 879.48 | 0.18% | 1.21 | 0.96% | 1.95 | 8.45 | 5,595.00 | 1 | 10,926.30 |
| 1982 | Underground | Active | 33.93 | 33.41 | 0.19% | 1.50 | 1.10% | 0.09 | 0.37 | 5,595.00 | 1 | 521.70 |
| 1983 | Underground | Active | 6,929.70 | 6,822.39 | 0.19% | 0.88 | 1.24% | 11.27 | 84.70 | 5,595.00 | 1 | 63,083.32 |
| 1984 | Underground | Active | 2,706.46 | 2,660.09 | 0.19% | 1.00 | 1.38% | 5.05 | 36.75 | 5,595.00 | 1 | 28,256.06 |
| 1985 | Underground | Active | 49.00 | 48.04 | 0.19% | 1.50 | 1.52% | 0.14 | 0.73 | 5,595.00 | 1 | 773.17 |
| 1986 | Underground | Active | 252.11 | 247.02 | 0.19% | 1.10 | 1.66% | 0.53 | 4.11 | 5,595.00 | 1 | 2,944.28 |
| 1987 | Underground | Active | 198.36 | 194.08 | 0.20% | 1.10 | 1.80% | 0.42 | 3.50 | 5,595.00 | 1 | 2,335.95 |
| 1988 | Underground | Active | 157.83 | 154.15 | 0.20% | 1.25 | 1.94% | 0.38 | 2.99 | 5,595.00 | 1 | 2,128.94 |
| 1989 | Underground | Active | 124.08 | 120.95 | 0.20% | 1.50 | 2.08% | 0.36 | 2.52 | 5,595.00 | 1 | 2,023.80 |
| 1990 | Underground | Active | 136.22 | 132.64 | 0.20% | 1.30 | 2.22% | 0.35 | 2.95 | 5,595.00 | 1 | 1,941.93 |
| 1991 | Underground | Active | 240.32 | 233.66 | 0.20% | 1.30 | 2.36% | 0.62 | 5.52 | 5,595.00 | 1 | 3,453.33 |
| 1992 | Underground | Active | 1,027.11 | 997.66 | 0.21% | 1.08 | 2.50% | 2.22 | 24.97 | 5,595.00 | 1 | 12,402.23 |
| 1993 | Underground | Active | 724.45 | 702.52 | 0.21% | 1.17 | 2.64% | 1.70 | 18.57 | 5,595.00 | 1 | 9,492.44 |
| 1994 | Underground | Active | 610.69 | 591.50 | 0.21% | 1.04 | 2.78% | 1.28 | 16.46 | 5,595.00 | 1 | 7,179.53 |
| 1995 | Underground | Active | 334.05 | 322.99 | 0.21% | 1.17 | 2.92% | 0.79 | 9.44 | 5,595.00 | 1 | 4,444.53 |
| 1996 | Underground | Active | 244.18 | 235.73 | 0.21% | 1.20 | 3.06% | 0.60 | 7.22 | 5,595.00 | 1 | 3,366.62 |
| 1997 | Underground | Active | 234.02 | 225.51 | 0.21% | 1.35 | 3.20% | 0.65 | 7.22 | 5,595.00 | 1 | 3,645.35 |
| 1998 | Underground | Active | 523.54 | 504.16 | 0.22% | 1.00 | 3.34% | 1.09 | 16.86 | 5,595.00 | 1 | 6,107.70 |
| 1999 | Underground | Active | 359.47 | 345.33 | 0.22% | 1.40 | 3.48% | 1.06 | 12.03 | 5,595.00 | 1 | 5,908.59 |
| 2000 | Underground | Active | 461.64 | 443.03 | 0.22% | 1.20 | 3.62% | 1.17 | 16.05 | 5,595.00 | 1 | 6,553.97 |
| 2001 | Underground | Active | 224.71 | 215.48 | 0.22% | 0.90 | 3.76% | 0.43 | 8.11 | 5,595.00 | 1 | 2,411.48 |
| 2002 | Underground | Active | 288.53 | 275.96 | 0.22% | 1.38 | 3.90% | 0.85 | 10.77 | 5,595.00 | 1 | 4,758.72 |
| 2003 | Underground | Active | 969.45 | 926.17 | 0.23% | 1.23 | 4.04% | 2.57 | 37.46 | 5,595.00 | 1 | 14,376.16 |
| 2004 | Underground | Active | 445.92 | 429.68 | 0.23% | 1.13 | 4.18% | 1.10 | 17.98 | 5,595.00 | 1 | 6,165.28 |
| 2005 | Underground | Active | 360.91 | 348.24 | 0.23% | 1.13 | 3.38% | 0.90 | 11.78 | 5,595.00 | 1 | 5,038.52 |
| 2006 | Underground | Active | 427.71 | 413.55 | 0.23% | 0.83 | 3.25% | 0.80 | 13.44 | 5,595.00 | 1 | 4,468.92 |
| 2007 | Underground | Active | 482.68 | 466.89 | 0.23% | 1.23 | 3.12% | 1.34 | 14.55 | 5,595.00 | 1 | 7,491.48 |
| 2008 | Underground | Active | 111.00 | 107.44 | 0.24% | 1.50 | 2.98% | 0.38 | 3.20 | 5,595.00 | 1 | 2,124.26 |
| 2009 | Underground | Active | 320.63 | 311.11 | 0.24% | 1.07 | 2.85% | 0.79 | 8.86 | 5,595.00 | 1 | 4,428.99 |
| 2010 | Underground | Active | 269.59 | 261.72 | 0.24% | 1.41 | 2.71% | 0.88 | 7.10 | 5,595.00 | 1 | 4,939.42 |
| 2011 | Underground | Active | 192.99 | 187.63 | 0.24% | 1.36 | 2.58% | 0.61 | 4.84 | 5,595.00 | 1 | 3,437.79 |
| 2012 | Underground | Active | 171.01 | 166.50 | 0.24% | 1.33 | 2.45% | 0.54 | 4.07 | 5,595.00 | 1 | 3,020.69 |
| 2013 | Underground | Active | 398.29 | 388.21 | 0.25% | 1.42 | 2.31% | 1.35 | 8.98 | 5,595.00 | 1 | 7,576.16 |
| 2014 | Underground | Active | 686.91 | 670.68 | 0.25% | 1.27 | 2.18% | 2.11 | 14.61 | 5,595.00 | 1 | 11,796.94 |
| 2015 | Underground | Active | 132.11 | 129.00 | 0.25% | 1.50 | 2.05% | 0.48 | 2.64 | 5,595.00 | 1 | 2,694.77 |
| 2016 | Underground | Active | 137.58 | 134.61 | 0.30% | 1.50 | 1.91% | 0.60 | 2.57 | 5,595.00 | 1 | 3,354.20 |
| 2017 | Underground | Active | 155.37 | 152.32 | 0.25% | 1.50 | 1.78% | 0.58 | 2.71 | 5,595.00 | 1 | 3,259.75 |
| 2018 | Underground | Active | 37.52 | 36.86 | 0.21% | 1.50 | 1.64% | 0.12 | 0.61 | 5,595.00 | 1 | 659.12 |
| 2019 | Underground | Active | 79.46 | 78.24 | 0.17% | 1.25 | 1.51% | 0.17 | 1.18 | 5,595.00 | 1 | 936.62 |
| 2020 | Underground | Active | 110.58 | 109.06 | 0.13% | 1.50 | 1.38% | 0.21 | 1.50 | 5,595.00 | 1 | 1,183.11 |
| 2021 | Underground | Active | 76.19 | 75.35 | 0.09% | 1.50 | 1.24% | 0.10 | 0.94 | 5,595.00 | 1 | 552.32 |

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | Adjustment | | | | | | | Avg recl Cost per Acres | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|-------------------|--------------------|---------------------|-----------------|--------------------|-------------------|----------|-------------------------------|--|---------------|
| | | | | Adjusted Acres | Forfeiture Rate | Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | (19) | | | |
| (1) | (2) | (3) | (4) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | |
| 1963 | Underground | Inactive | - | - | 0.34% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1964 | Underground | Inactive | - | - | 0.34% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1965 | Underground | Inactive | - | - | 0.35% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1966 | Underground | Inactive | - | - | 0.35% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1967 | Underground | Inactive | - | - | 0.35% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1968 | Underground | Inactive | - | - | 0.36% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1969 | Underground | Inactive | - | - | 0.36% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1970 | Underground | Inactive | - | - | 0.37% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1971 | Underground | Inactive | - | - | 0.37% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1972 | Underground | Inactive | - | - | 0.38% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1973 | Underground | Inactive | - | - | 0.38% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1974 | Underground | Inactive | - | - | 0.38% | - | 0.00% | - | - | 5,595.00 | 1 | - | |
| 1975 | Underground | Inactive | - | - | 0.39% | - | 0.08% | - | - | 5,595.00 | 1 | - | |
| 1976 | Underground | Inactive | 103.30 | 102.84 | 0.39% | 0.50 | 0.16% | 0.20 | 0.17 | 5,595.00 | 1 | 1,130.23 | |
| 1977 | Underground | Inactive | - | - | 0.40% | - | 0.25% | - | - | 5,595.00 | 1 | - | |
| 1978 | Underground | Inactive | 23.02 | 22.88 | 0.40% | 0.50 | 0.34% | 0.05 | 0.08 | 5,595.00 | 1 | 256.90 | |
| 1979 | Underground | Inactive | 6.60 | 6.55 | 0.41% | 0.50 | 0.43% | 0.01 | 0.03 | 5,595.00 | 1 | 74.37 | |
| 1980 | Underground | Inactive | - | - | 0.41% | - | 0.51% | - | - | 5,595.00 | 1 | - | |
| 1981 | Underground | Inactive | 149.03 | 147.38 | 0.41% | 1.00 | 0.60% | 0.61 | 0.89 | 5,595.00 | 1 | 3,416.35 | |
| 1982 | Underground | Inactive | 128.47 | 127.20 | 0.42% | 0.50 | 0.69% | 0.27 | 0.88 | 5,595.00 | 1 | 1,489.55 | |
| 1983 | Underground | Inactive | 500.86 | 494.93 | 0.42% | 0.75 | 0.78% | 1.57 | 3.84 | 5,595.00 | 1 | 8,782.61 | |
| 1984 | Underground | Inactive | 300.00 | 296.50 | 0.43% | 0.50 | 0.86% | 0.63 | 2.56 | 5,595.00 | 1 | 3,543.18 | |
| 1985 | Underground | Inactive | 220.21 | 217.44 | 0.43% | 0.50 | 0.95% | 0.47 | 2.07 | 5,595.00 | 1 | 2,624.52 | |
| 1986 | Underground | Inactive | 43.54 | 42.95 | 0.44% | 0.50 | 1.04% | 0.09 | 0.45 | 5,595.00 | 1 | 523.60 | |
| 1987 | Underground | Inactive | 40.89 | 40.12 | 0.44% | 1.50 | 1.13% | 0.26 | 0.45 | 5,595.00 | 1 | 1,481.65 | |
| 1988 | Underground | Inactive | 154.89 | 152.03 | 0.44% | 1.21 | 1.21% | 0.82 | 1.85 | 5,595.00 | 1 | 4,589.26 | |
| 1989 | Underground | Inactive | 193.50 | 190.37 | 0.45% | 0.50 | 1.30% | 0.43 | 2.48 | 5,595.00 | 1 | 2,389.13 | |
| 1990 | Underground | Inactive | 36.13 | 35.40 | 0.45% | 1.17 | 1.39% | 0.19 | 0.49 | 5,595.00 | 1 | 1,046.62 | |
| 1991 | Underground | Inactive | 141.42 | 138.56 | 0.46% | 1.00 | 1.48% | 0.63 | 2.05 | 5,595.00 | 1 | 3,544.11 | |
| 1992 | Underground | Inactive | 9.00 | 8.79 | 0.46% | 1.50 | 1.56% | 0.06 | 0.14 | 5,595.00 | 1 | 340.36 | |
| 1993 | Underground | Inactive | 294.11 | 287.61 | 0.47% | 1.00 | 1.65% | 1.34 | 4.75 | 5,595.00 | 1 | 7,494.79 | |
| 1994 | Underground | Inactive | 247.11 | 242.01 | 0.47% | 0.50 | 1.74% | 0.57 | 4.21 | 5,595.00 | 1 | 3,182.25 | |
| 1995 | Underground | Inactive | 131.50 | 128.35 | 0.47% | 1.00 | 1.83% | 0.61 | 2.34 | 5,595.00 | 1 | 3,406.28 | |
| 1996 | Underground | Inactive | 45.38 | 44.14 | 0.48% | 1.50 | 1.91% | 0.32 | 0.85 | 5,595.00 | 1 | 1,773.10 | |
| 1997 | Underground | Inactive | 294.76 | 287.06 | 0.48% | 1.07 | 2.00% | 1.49 | 5.75 | 5,595.00 | 1 | 8,309.85 | |
| 1998 | Underground | Inactive | 93.26 | 90.69 | 0.49% | 1.17 | 2.09% | 0.52 | 1.90 | 5,595.00 | 1 | 2,884.18 | |
| 1999 | Underground | Inactive | 618.15 | 600.92 | 0.49% | 1.06 | 2.18% | 3.12 | 13.08 | 5,595.00 | 1 | 17,441.83 | |
| 2000 | Underground | Inactive | 76.39 | 74.02 | 0.50% | 1.50 | 2.26% | 0.55 | 1.68 | 5,595.00 | 1 | 3,079.71 | |
| 2001 | Underground | Inactive | 6.00 | 5.81 | 0.50% | 1.50 | 2.35% | 0.04 | 0.14 | 5,595.00 | 1 | 243.75 | |
| 2002 | Underground | Inactive | 47.21 | 45.90 | 0.50% | 0.50 | 2.44% | 0.12 | 1.12 | 5,595.00 | 1 | 647.54 | |
| 2003 | Underground | Inactive | 229.90 | 222.71 | 0.51% | 1.00 | 2.53% | 1.13 | 5.63 | 5,595.00 | 1 | 6,337.66 | |
| 2004 | Underground | Inactive | 181.69 | 177.38 | 0.51% | 0.50 | 2.62% | 0.45 | 4.64 | 5,595.00 | 1 | 2,545.12 | |
| 2005 | Underground | Inactive | 121.31 | 117.90 | 0.52% | 1.50 | 2.11% | 0.91 | 2.49 | 5,595.00 | 1 | 5,117.38 | |
| 2006 | Underground | Inactive | 145.55 | 141.82 | 0.52% | 1.17 | 2.03% | 0.86 | 2.88 | 5,595.00 | 1 | 4,827.59 | |
| 2007 | Underground | Inactive | 80.93 | 78.89 | 0.53% | 1.25 | 1.95% | 0.52 | 1.54 | 5,595.00 | 1 | 2,900.68 | |
| 2008 | Underground | Inactive | 95.14 | 92.68 | 0.53% | 1.50 | 1.86% | 0.74 | 1.73 | 5,595.00 | 1 | 4,123.01 | |
| 2009 | Underground | Inactive | 127.40 | 124.30 | 0.53% | 1.38 | 1.78% | 0.91 | 2.21 | 5,595.00 | 1 | 5,109.46 | |
| 2010 | Underground | Inactive | 296.02 | 289.19 | 0.54% | 1.28 | 1.70% | 1.99 | 4.91 | 5,595.00 | 1 | 11,136.01 | |
| 2011 | Underground | Inactive | 113.07 | 110.41 | 0.54% | 1.50 | 1.61% | 0.90 | 1.78 | 5,595.00 | 1 | 5,030.85 | |
| 2012 | Underground | Inactive | 95.72 | 93.72 | 0.55% | 1.17 | 1.53% | 0.60 | 1.43 | 5,595.00 | 1 | 3,347.55 | |
| 2013 | Underground | Inactive | 53.70 | 52.52 | 0.55% | 1.50 | 1.45% | 0.43 | 0.76 | 5,595.00 | 1 | 2,430.86 | |
| 2014 | Underground | Inactive | 12.00 | 11.75 | 0.56% | 1.50 | 1.36% | 0.10 | 0.16 | 5,595.00 | 1 | 547.86 | |
| 2015 | Underground | Inactive | 12.04 | 11.78 | 0.56% | 1.50 | 1.28% | 0.10 | 0.15 | 5,595.00 | 1 | 553.49 | |
| 2016 | Underground | Inactive | - | - | 0.67% | - | 1.19% | - | - | 5,595.00 | 1 | - | |
| 2017 | Underground | Inactive | - | - | 0.57% | - | 1.11% | - | - | 5,595.00 | 1 | - | |
| 2018 | Underground | Inactive | 46.96 | 46.25 | 0.48% | 1.50 | 1.03% | 0.33 | 0.48 | 5,595.00 | 1 | 1,860.79 | |
| 2019 | Underground | Inactive | - | - | 0.39% | - | 0.94% | - | - | 5,595.00 | 1 | - | |
| 2020 | Underground | Inactive | - | - | 0.29% | - | 0.86% | - | - | 5,595.00 | 1 | - | |
| 2021 | Underground | Inactive | - | - | 0.20% | - | 0.78% | - | - | 5,595.00 | 1 | - | |

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | 2023 | | | | | | | Avg recl Cost per Acres | Adjustment Factor Permit Status | Gross Cost | |
|-------------------------|--------------|-----------------|----------------------------|-------------------|--------------------|---|-----------------|--------------------|-------------------|----------|-------------------------------|--|---------------|------|
| | | | | Adjusted Acres | Forfeiture Rate | Adjustment Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | (13) | | | | (14) |
| 1963 | Underground | Phased Released | - | - | 0.59% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1964 | Underground | Phased Released | - | - | 0.59% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1965 | Underground | Phased Released | - | - | 0.60% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1966 | Underground | Phased Released | - | - | 0.61% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1967 | Underground | Phased Released | - | - | 0.62% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1968 | Underground | Phased Released | - | - | 0.62% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1969 | Underground | Phased Released | - | - | 0.63% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1970 | Underground | Phased Released | - | - | 0.64% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1971 | Underground | Phased Released | - | - | 0.65% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1972 | Underground | Phased Released | - | - | 0.65% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1973 | Underground | Phased Released | - | - | 0.66% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1974 | Underground | Phased Released | - | - | 0.67% | - | 0.00% | - | - | 5,595.00 | 0.5 | - | | |
| 1975 | Underground | Phased Released | - | - | 0.68% | - | 0.36% | - | - | 5,595.00 | 0.5 | - | | |
| 1976 | Underground | Phased Released | - | - | 0.68% | - | 0.78% | - | - | 5,595.00 | 0.5 | - | | |
| 1977 | Underground | Phased Released | - | - | 0.69% | - | 1.20% | - | - | 5,595.00 | 0.5 | - | | |
| 1978 | Underground | Phased Released | 23.13 | 22.66 | 0.70% | - | 1.62% | - | 0.37 | 5,595.00 | 0.5 | - | | |
| 1979 | Underground | Phased Released | 59.68 | 58.21 | 0.71% | - | 2.04% | - | 1.19 | 5,595.00 | 0.5 | - | | |
| 1980 | Underground | Phased Released | 87.19 | 84.68 | 0.71% | - | 2.46% | - | 2.09 | 5,595.00 | 0.5 | - | | |
| 1981 | Underground | Phased Released | 85.14 | 82.33 | 0.72% | - | 2.88% | - | 2.37 | 5,595.00 | 0.5 | - | | |
| 1982 | Underground | Phased Released | 199.06 | 191.65 | 0.73% | - | 3.30% | - | 6.33 | 5,595.00 | 0.5 | - | | |
| 1983 | Underground | Phased Released | 57.47 | 55.09 | 0.74% | - | 3.72% | - | 2.05 | 5,595.00 | 0.5 | - | | |
| 1984 | Underground | Phased Released | 95.60 | 91.24 | 0.74% | - | 4.14% | - | 3.78 | 5,595.00 | 0.5 | - | | |
| 1985 | Underground | Phased Released | 17.24 | 16.38 | 0.75% | - | 4.57% | - | 0.75 | 5,595.00 | 0.5 | - | | |
| 1986 | Underground | Phased Released | 118.96 | 112.53 | 0.76% | - | 4.99% | - | 5.61 | 5,595.00 | 0.5 | - | | |
| 1987 | Underground | Phased Released | 77.09 | 72.60 | 0.77% | - | 5.41% | - | 3.92 | 5,595.00 | 0.5 | - | | |
| 1988 | Underground | Phased Released | 129.44 | 121.35 | 0.77% | - | 5.83% | - | 7.07 | 5,595.00 | 0.5 | - | | |
| 1989 | Underground | Phased Released | 119.44 | 111.48 | 0.78% | - | 6.25% | - | 6.96 | 5,595.00 | 0.5 | - | | |
| 1990 | Underground | Phased Released | 18.31 | 17.01 | 0.79% | - | 6.67% | - | 1.13 | 5,595.00 | 0.5 | - | | |
| 1991 | Underground | Phased Released | 18.20 | 16.83 | 0.80% | - | 7.09% | - | 1.19 | 5,595.00 | 0.5 | - | | |
| 1992 | Underground | Phased Released | 39.95 | 36.78 | 0.80% | - | 7.51% | - | 2.76 | 5,595.00 | 0.5 | - | | |
| 1993 | Underground | Phased Released | 30.79 | 28.22 | 0.81% | - | 7.93% | - | 2.24 | 5,595.00 | 0.5 | - | | |
| 1994 | Underground | Phased Released | 26.14 | 23.85 | 0.82% | - | 8.35% | - | 1.99 | 5,595.00 | 0.5 | - | | |
| 1995 | Underground | Phased Released | 65.62 | 59.59 | 0.83% | - | 8.77% | - | 5.23 | 5,595.00 | 0.5 | - | | |
| 1996 | Underground | Phased Released | 133.37 | 120.55 | 0.83% | - | 9.19% | - | 11.08 | 5,595.00 | 0.5 | - | | |
| 1997 | Underground | Phased Released | 149.46 | 134.47 | 0.84% | - | 9.61% | - | 12.92 | 5,595.00 | 0.5 | - | | |
| 1998 | Underground | Phased Released | 70.67 | 63.28 | 0.85% | - | 10.03% | - | 6.35 | 5,595.00 | 0.5 | - | | |
| 1999 | Underground | Phased Released | 10.68 | 9.52 | 0.86% | - | 10.45% | - | 0.99 | 5,595.00 | 0.5 | - | | |
| 2000 | Underground | Phased Released | 59.65 | 52.91 | 0.86% | - | 10.87% | - | 5.75 | 5,595.00 | 0.5 | - | | |
| 2001 | Underground | Phased Released | 36.60 | 32.31 | 0.87% | - | 11.29% | - | 3.65 | 5,595.00 | 0.5 | - | | |
| 2002 | Underground | Phased Released | 48.55 | 42.66 | 0.88% | - | 11.71% | - | 5.00 | 5,595.00 | 0.5 | - | | |
| 2003 | Underground | Phased Released | 78.20 | 68.38 | 0.89% | - | 12.13% | - | 8.30 | 5,595.00 | 0.5 | - | | |
| 2004 | Underground | Phased Released | 16.25 | 14.60 | 0.89% | - | 12.55% | - | 1.83 | 5,595.00 | 0.5 | - | | |
| 2005 | Underground | Phased Released | - | - | 0.90% | - | 10.15% | - | - | 5,595.00 | 0.5 | - | | |
| 2006 | Underground | Phased Released | - | - | 0.91% | - | 9.75% | - | - | 5,595.00 | 0.5 | - | | |
| 2007 | Underground | Phased Released | - | - | 0.92% | - | 9.35% | - | - | 5,595.00 | 0.5 | - | | |
| 2008 | Underground | Phased Released | 43.07 | 39.39 | 0.92% | - | 8.95% | - | 3.52 | 5,595.00 | 0.5 | - | | |
| 2009 | Underground | Phased Released | 54.60 | 50.15 | 0.93% | - | 8.54% | - | 4.29 | 5,595.00 | 0.5 | - | | |
| 2010 | Underground | Phased Released | - | - | 0.94% | - | 8.14% | - | - | 5,595.00 | 0.5 | - | | |
| 2011 | Underground | Phased Released | 25.60 | 23.72 | 0.95% | - | 7.74% | - | 1.84 | 5,595.00 | 0.5 | - | | |
| 2012 | Underground | Phased Released | - | - | 0.95% | - | 7.34% | - | - | 5,595.00 | 0.5 | - | | |
| 2013 | Underground | Phased Released | - | - | 0.96% | - | 6.94% | - | - | 5,595.00 | 0.5 | - | | |
| 2014 | Underground | Phased Released | - | - | 0.97% | - | 6.54% | - | - | 5,595.00 | 0.5 | - | | |
| 2015 | Underground | Phased Released | - | - | 0.97% | - | 6.14% | - | - | 5,595.00 | 0.5 | - | | |
| 2016 | Underground | Phased Released | - | - | 1.16% | - | 5.73% | - | - | 5,595.00 | 0.5 | - | | |
| 2017 | Underground | Phased Released | - | - | 1.00% | - | 5.33% | - | - | 5,595.00 | 0.5 | - | | |
| 2018 | Underground | Phased Released | - | - | 0.83% | - | 4.93% | - | - | 5,595.00 | 0.5 | - | | |
| 2019 | Underground | Phased Released | - | - | 0.67% | - | 4.53% | - | - | 5,595.00 | 0.5 | - | | |
| 2020 | Underground | Phased Released | - | - | 0.51% | - | 4.13% | - | - | 5,595.00 | 0.5 | - | | |
| 2021 | Underground | Phased Released | - | - | 0.34% | - | 3.73% | - | - | 5,595.00 | 0.5 | - | | |

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | Adjustment | | | | | | | Avg recl Cost per Acres | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|-------------------|--------------------|-------------------------------|-----------------|--------------------|-------------------|----------|-------------------------------|--|---------------|
| | | | | Adjusted Acres | Forfeiture Rate | Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | (19) | | | |
| (1) | (2) | (3) | (4) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | |
| 1963 | Other | Active | - | - | 0.21% | - | 2.29% | - | - | 8,145.00 | 1 | - | |
| 1964 | Other | Active | - | - | 0.21% | - | 2.29% | - | - | 8,145.00 | 1 | - | |
| 1965 | Other | Active | - | - | 0.21% | - | 2.27% | - | - | 8,145.00 | 1 | - | |
| 1966 | Other | Active | - | - | 0.21% | - | 2.25% | - | - | 8,145.00 | 1 | - | |
| 1967 | Other | Active | - | - | 0.21% | - | 2.22% | - | - | 8,145.00 | 1 | - | |
| 1968 | Other | Active | - | - | 0.21% | - | 2.20% | - | - | 8,145.00 | 1 | - | |
| 1969 | Other | Active | - | - | 0.21% | - | 2.18% | - | - | 8,145.00 | 1 | - | |
| 1970 | Other | Active | - | - | 0.21% | - | 2.16% | - | - | 8,145.00 | 1 | - | |
| 1971 | Other | Active | - | - | 0.21% | - | 2.13% | - | - | 8,145.00 | 1 | - | |
| 1972 | Other | Active | 20.00 | 19.52 | 0.21% | 1.50 | 2.11% | 0.06 | 0.41 | 8,145.00 | 1 | 493.72 | |
| 1973 | Other | Active | - | - | 0.21% | - | 2.09% | - | - | 8,145.00 | 1 | - | |
| 1974 | Other | Active | 28.52 | 27.85 | 0.21% | 1.50 | 2.06% | 0.09 | 0.57 | 8,145.00 | 1 | 704.37 | |
| 1975 | Other | Active | 6.20 | 6.06 | 0.21% | 1.50 | 2.04% | 0.02 | 0.12 | 8,145.00 | 1 | 153.16 | |
| 1976 | Other | Active | 75.00 | 73.27 | 0.21% | 1.50 | 2.02% | 0.23 | 1.48 | 8,145.00 | 1 | 1,853.18 | |
| 1977 | Other | Active | 307.70 | 300.99 | 0.21% | 1.00 | 2.00% | 0.62 | 6.01 | 8,145.00 | 1 | 5,075.19 | |
| 1978 | Other | Active | - | - | 0.21% | - | 1.97% | - | - | 8,145.00 | 1 | - | |
| 1979 | Other | Active | 65.00 | 63.55 | 0.21% | 1.50 | 1.95% | 0.20 | 1.24 | 8,145.00 | 1 | 1,607.21 | |
| 1980 | Other | Active | 370.67 | 362.68 | 0.21% | 1.21 | 1.93% | 0.91 | 6.99 | 8,145.00 | 1 | 7,425.74 | |
| 1981 | Other | Active | 4,857.33 | 4,756.44 | 0.21% | 0.94 | 1.91% | 9.27 | 90.61 | 8,145.00 | 1 | 75,483.50 | |
| 1982 | Other | Active | 554.75 | 543.57 | 0.21% | 0.75 | 1.88% | 0.84 | 10.23 | 8,145.00 | 1 | 6,874.14 | |
| 1983 | Other | Active | 3,438.58 | 3,369.22 | 0.21% | 0.87 | 1.86% | 6.08 | 62.65 | 8,145.00 | 1 | 49,506.27 | |
| 1984 | Other | Active | 4,464.39 | 4,377.05 | 0.21% | 0.69 | 1.84% | 6.23 | 80.40 | 8,145.00 | 1 | 50,740.38 | |
| 1985 | Other | Active | 2,329.11 | 2,282.57 | 0.21% | 1.00 | 1.81% | 4.73 | 41.41 | 8,145.00 | 1 | 38,487.81 | |
| 1986 | Other | Active | 1,411.57 | 1,383.80 | 0.21% | 0.96 | 1.79% | 2.75 | 24.79 | 8,145.00 | 1 | 22,435.64 | |
| 1987 | Other | Active | 486.71 | 477.13 | 0.21% | 1.07 | 1.77% | 1.06 | 8.44 | 8,145.00 | 1 | 8,619.91 | |
| 1988 | Other | Active | 479.98 | 470.50 | 0.21% | 1.21 | 1.75% | 1.18 | 8.21 | 8,145.00 | 1 | 9,633.48 | |
| 1989 | Other | Active | 290.43 | 284.68 | 0.21% | 1.36 | 1.72% | 0.80 | 4.90 | 8,145.00 | 1 | 6,514.43 | |
| 1990 | Other | Active | 264.35 | 259.20 | 0.21% | 1.30 | 1.70% | 0.70 | 4.41 | 8,145.00 | 1 | 5,681.79 | |
| 1991 | Other | Active | 431.34 | 422.99 | 0.21% | 1.36 | 1.68% | 1.19 | 7.10 | 8,145.00 | 1 | 9,679.57 | |
| 1992 | Other | Active | 554.74 | 544.48 | 0.21% | 1.06 | 1.65% | 1.19 | 9.01 | 8,145.00 | 1 | 9,690.78 | |
| 1993 | Other | Active | 879.50 | 875.05 | 0.21% | 0.75 | 1.63% | 1.36 | 14.28 | 8,145.00 | 1 | 11,066.10 | |
| 1994 | Other | Active | 1,837.84 | 1,824.74 | 0.21% | 0.83 | 0.35% | 3.15 | 6.39 | 8,145.00 | 1 | 25,640.12 | |
| 1995 | Other | Active | 939.93 | 931.13 | 0.21% | 1.00 | 0.54% | 1.93 | 5.03 | 8,145.00 | 1 | 15,700.29 | |
| 1996 | Other | Active | 1,971.02 | 1,950.86 | 0.21% | 0.50 | 0.73% | 2.02 | 14.23 | 8,145.00 | 1 | 16,447.34 | |
| 1997 | Other | Active | 1,267.92 | 1,251.24 | 0.21% | 1.00 | 0.92% | 2.59 | 11.50 | 8,145.00 | 1 | 21,097.87 | |
| 1998 | Other | Active | 1,054.49 | 1,038.31 | 0.21% | 0.83 | 1.11% | 1.79 | 11.51 | 8,145.00 | 1 | 14,589.72 | |
| 1999 | Other | Active | 404.95 | 397.33 | 0.28% | 1.10 | 1.30% | 1.24 | 5.16 | 8,145.00 | 1 | 10,060.49 | |
| 2000 | Other | Active | 255.10 | 249.71 | 0.36% | 1.00 | 1.49% | 0.89 | 3.72 | 8,145.00 | 1 | 7,285.48 | |
| 2001 | Other | Active | 360.44 | 352.06 | 0.43% | 0.90 | 1.68% | 1.37 | 5.91 | 8,145.00 | 1 | 11,195.06 | |
| 2002 | Other | Active | 569.59 | 553.43 | 0.51% | 1.33 | 1.87% | 3.76 | 10.33 | 8,145.00 | 1 | 30,615.16 | |
| 2003 | Other | Active | 810.10 | 787.44 | 0.58% | 0.83 | 2.06% | 3.84 | 16.20 | 8,145.00 | 1 | 31,265.35 | |
| 2004 | Other | Active | 1,049.09 | 1,016.36 | 0.66% | 0.93 | 2.25% | 6.23 | 22.83 | 8,145.00 | 1 | 50,777.20 | |
| 2005 | Other | Active | 22.99 | 22.20 | 0.74% | 1.00 | 2.44% | 0.16 | 0.54 | 8,145.00 | 1 | 1,331.09 | |
| 2006 | Other | Active | 491.96 | 473.43 | 0.81% | 1.07 | 2.63% | 4.12 | 12.43 | 8,145.00 | 1 | 33,537.58 | |
| 2007 | Other | Active | 368.47 | 353.50 | 0.89% | 1.10 | 2.82% | 3.45 | 9.95 | 8,145.00 | 1 | 28,103.12 | |
| 2008 | Other | Active | 649.47 | 620.10 | 0.96% | 1.28 | 3.00% | 7.63 | 18.63 | 8,145.00 | 1 | 62,144.66 | |
| 2009 | Other | Active | 202.62 | 192.75 | 1.04% | 1.33 | 3.19% | 2.67 | 6.16 | 8,145.00 | 1 | 21,739.26 | |
| 2010 | Other | Active | 1,059.98 | 1,008.79 | 1.11% | 1.06 | 3.38% | 11.86 | 34.14 | 8,145.00 | 1 | 96,627.14 | |
| 2011 | Other | Active | 350.69 | 331.92 | 1.19% | 0.83 | 3.57% | 3.29 | 11.86 | 8,145.00 | 1 | 26,802.60 | |
| 2012 | Other | Active | 147.31 | 131.38 | 1.27% | 1.50 | 4.30% | 2.49 | 5.65 | 8,145.00 | 1 | 20,309.58 | |
| 2013 | Other | Active | 2,047.67 | 1,750.49 | 1.33% | 1.03 | 8.82% | 23.98 | 154.36 | 8,145.00 | 1 | 195,298.86 | |
| 2014 | Other | Active | 259.86 | 210.05 | 1.14% | 1.38 | 13.34% | 3.30 | 28.02 | 8,145.00 | 1 | 26,863.70 | |
| 2015 | Other | Active | 1,229.64 | 944.15 | 0.95% | 1.10 | 17.86% | 9.90 | 168.60 | 8,145.00 | 1 | 80,637.74 | |
| 2016 | Other | Active | 1,513.50 | 1,094.81 | 0.76% | 1.33 | 22.38% | 11.16 | 244.98 | 8,145.00 | 1 | 90,905.79 | |
| 2017 | Other | Active | 388.02 | 235.03 | 0.58% | 1.36 | 26.90% | 1.84 | 63.21 | 8,145.00 | 1 | 14,961.69 | |
| 2018 | Other | Active | 36.77 | 24.72 | 0.39% | 1.50 | 38.90% | 0.14 | 9.62 | 8,145.00 | 1 | 1,169.34 | |
| 2019 | Other | Active | 50.90 | 39.52 | 0.20% | 1.50 | 32.48% | 0.12 | 12.84 | 8,145.00 | 1 | 958.65 | |
| 2020 | Other | Active | 777.21 | 682.51 | 0.01% | 1.47 | 22.33% | 0.10 | 152.42 | 8,145.00 | 1 | 804.89 | |
| 2021 | Other | Active | 175.63 | 172.05 | 0.00% | 1.50 | 12.18% | - | 20.96 | 8,145.00 | 1 | - | |

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | Adjustment | | | | | | Avg recl Cost per Acres | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|-------------------|--------------------|-------------------------------|-----------------|--------------------|-------------------|-------------------------------|--|---------------|
| | | | | Adjusted Acres | Forfeiture Rate | Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | | | |
| (1) | (2) | (3) | (4) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) |
| 1963 | Other | Inactive | - | - | 0.47% | - | 1.43% | - | - | 8,145.00 | 1 | - |
| 1964 | Other | Inactive | - | - | 0.47% | - | 1.43% | - | - | 8,145.00 | 1 | - |
| 1965 | Other | Inactive | - | - | 0.47% | - | 1.42% | - | - | 8,145.00 | 1 | - |
| 1966 | Other | Inactive | - | - | 0.47% | - | 1.40% | - | - | 8,145.00 | 1 | - |
| 1967 | Other | Inactive | - | - | 0.47% | - | 1.39% | - | - | 8,145.00 | 1 | - |
| 1968 | Other | Inactive | - | - | 0.47% | - | 1.38% | - | - | 8,145.00 | 1 | - |
| 1969 | Other | Inactive | - | - | 0.47% | - | 1.36% | - | - | 8,145.00 | 1 | - |
| 1970 | Other | Inactive | - | - | 0.47% | - | 1.35% | - | - | 8,145.00 | 1 | - |
| 1971 | Other | Inactive | - | - | 0.47% | - | 1.33% | - | - | 8,145.00 | 1 | - |
| 1972 | Other | Inactive | - | - | 0.47% | - | 1.32% | - | - | 8,145.00 | 1 | - |
| 1973 | Other | Inactive | - | - | 0.47% | - | 1.30% | - | - | 8,145.00 | 1 | - |
| 1974 | Other | Inactive | - | - | 0.47% | - | 1.29% | - | - | 8,145.00 | 1 | - |
| 1975 | Other | Inactive | - | - | 0.47% | - | 1.28% | - | - | 8,145.00 | 1 | - |
| 1976 | Other | Inactive | 14.48 | 14.20 | 0.47% | 1.50 | 1.26% | 0.10 | 0.18 | 8,145.00 | 1 | 807.99 |
| 1977 | Other | Inactive | 61.00 | 59.82 | 0.47% | 1.50 | 1.25% | 0.42 | 0.75 | 8,145.00 | 1 | 3,404.32 |
| 1978 | Other | Inactive | - | - | 0.47% | - | 1.23% | - | - | 8,145.00 | 1 | - |
| 1979 | Other | Inactive | 7.25 | 7.11 | 0.47% | 1.50 | 1.22% | 0.05 | 0.09 | 8,145.00 | 1 | 404.73 |
| 1980 | Other | Inactive | 114.75 | 113.12 | 0.47% | 0.50 | 1.20% | 0.26 | 1.36 | 8,145.00 | 1 | 2,145.74 |
| 1981 | Other | Inactive | 1,477.93 | 1,453.92 | 0.47% | 0.96 | 1.19% | 6.51 | 17.31 | 8,145.00 | 1 | 53,038.36 |
| 1982 | Other | Inactive | 148.70 | 146.16 | 0.47% | 1.17 | 1.18% | 0.79 | 1.72 | 8,145.00 | 1 | 6,469.46 |
| 1983 | Other | Inactive | 1,739.30 | 1,713.26 | 0.47% | 0.75 | 1.16% | 5.99 | 19.91 | 8,145.00 | 1 | 48,748.99 |
| 1984 | Other | Inactive | 440.78 | 433.88 | 0.47% | 0.93 | 1.15% | 1.88 | 4.98 | 8,145.00 | 1 | 15,284.91 |
| 1985 | Other | Inactive | 364.25 | 358.76 | 0.47% | 0.83 | 1.13% | 1.39 | 4.07 | 8,145.00 | 1 | 11,342.34 |
| 1986 | Other | Inactive | - | - | 0.47% | - | 1.12% | - | - | 8,145.00 | 1 | - |
| 1987 | Other | Inactive | 484.64 | 478.22 | 0.47% | 0.50 | 1.11% | 1.11 | 5.29 | 8,145.00 | 1 | 9,071.58 |
| 1988 | Other | Inactive | 167.79 | 165.07 | 0.47% | 1.17 | 1.09% | 0.90 | 1.80 | 8,145.00 | 1 | 7,306.35 |
| 1989 | Other | Inactive | 438.61 | 432.11 | 0.47% | 0.90 | 1.08% | 1.81 | 4.65 | 8,145.00 | 1 | 14,754.33 |
| 1990 | Other | Inactive | 481.66 | 473.99 | 0.47% | 1.17 | 1.06% | 2.58 | 5.04 | 8,145.00 | 1 | 20,979.76 |
| 1991 | Other | Inactive | - | - | 0.47% | - | 1.05% | - | - | 8,145.00 | 1 | - |
| 1992 | Other | Inactive | 433.18 | 426.14 | 0.47% | 1.30 | 1.03% | 2.58 | 4.41 | 8,145.00 | 1 | 21,017.28 |
| 1993 | Other | Inactive | 273.92 | 272.17 | 0.47% | 0.90 | 1.02% | 1.14 | 2.78 | 8,145.00 | 1 | 9,293.25 |
| 1994 | Other | Inactive | 545.08 | 540.70 | 0.47% | 1.00 | 0.22% | 2.52 | 1.18 | 8,145.00 | 1 | 20,513.48 |
| 1995 | Other | Inactive | 641.22 | 634.81 | 0.47% | 1.17 | 0.34% | 3.45 | 2.14 | 8,145.00 | 1 | 28,097.86 |
| 1996 | Other | Inactive | 152.16 | 150.93 | 0.47% | 0.50 | 0.46% | 0.35 | 0.69 | 8,145.00 | 1 | 2,863.07 |
| 1997 | Other | Inactive | 158.04 | 156.33 | 0.47% | 0.83 | 0.57% | 0.61 | 0.90 | 8,145.00 | 1 | 4,942.50 |
| 1998 | Other | Inactive | 206.29 | 203.30 | 0.47% | 1.00 | 0.69% | 0.95 | 1.41 | 8,145.00 | 1 | 7,713.09 |
| 1999 | Other | Inactive | - | - | 0.64% | - | 0.81% | - | - | 8,145.00 | 1 | - |
| 2000 | Other | Inactive | 116.73 | 114.94 | 0.81% | 0.50 | 0.93% | 0.46 | 1.07 | 8,145.00 | 1 | 3,772.47 |
| 2001 | Other | Inactive | 250.00 | 245.65 | 0.98% | 0.50 | 1.05% | 1.20 | 2.58 | 8,145.00 | 1 | 9,764.27 |
| 2002 | Other | Inactive | 222.64 | 216.85 | 1.15% | 1.00 | 1.17% | 2.49 | 2.53 | 8,145.00 | 1 | 20,242.81 |
| 2003 | Other | Inactive | 78.29 | 75.45 | 1.32% | 1.50 | 1.29% | 1.49 | 0.97 | 8,145.00 | 1 | 12,132.00 |
| 2004 | Other | Inactive | 56.00 | 53.76 | 1.49% | 1.50 | 1.40% | 1.20 | 0.75 | 8,145.00 | 1 | 9,761.26 |
| 2005 | Other | Inactive | 50.69 | 48.47 | 1.66% | 1.50 | 1.52% | 1.20 | 0.74 | 8,145.00 | 1 | 9,808.46 |
| 2006 | Other | Inactive | - | - | 1.83% | - | 1.64% | - | - | 8,145.00 | 1 | - |
| 2007 | Other | Inactive | - | - | 2.00% | - | 1.76% | - | - | 8,145.00 | 1 | - |
| 2008 | Other | Inactive | 4.11 | 3.88 | 2.17% | 1.50 | 1.88% | 0.13 | 0.07 | 8,145.00 | 1 | 1,028.07 |
| 2009 | Other | Inactive | - | - | 2.34% | - | 2.00% | - | - | 8,145.00 | 1 | - |
| 2010 | Other | Inactive | - | - | 2.51% | - | 2.12% | - | - | 8,145.00 | 1 | - |
| 2011 | Other | Inactive | - | - | 2.68% | - | 2.23% | - | - | 8,145.00 | 1 | - |
| 2012 | Other | Inactive | 66.26 | 61.62 | 2.85% | 0.50 | 2.69% | 0.88 | 1.66 | 8,145.00 | 1 | 7,143.80 |
| 2013 | Other | Inactive | 57.00 | 50.05 | 2.99% | 1.50 | 5.51% | 2.25 | 2.76 | 8,145.00 | 1 | 18,308.09 |
| 2014 | Other | Inactive | - | - | 2.57% | - | 8.34% | - | - | 8,145.00 | 1 | - |
| 2015 | Other | Inactive | - | - | 2.14% | - | 11.16% | - | - | 8,145.00 | 1 | - |
| 2016 | Other | Inactive | - | - | 1.72% | - | 13.99% | - | - | 8,145.00 | 1 | - |
| 2017 | Other | Inactive | - | - | 1.30% | - | 16.81% | - | - | 8,145.00 | 1 | - |
| 2018 | Other | Inactive | 11.88 | 9.39 | 0.87% | 1.50 | 24.31% | 0.12 | 2.28 | 8,145.00 | 1 | 999.36 |
| 2019 | Other | Inactive | - | - | 0.45% | - | 20.30% | - | - | 8,145.00 | 1 | - |
| 2020 | Other | Inactive | - | - | 0.02% | - | 13.96% | - | - | 8,145.00 | 1 | - |
| 2021 | Other | Inactive | - | - | 0.00% | - | 7.62% | - | - | 8,145.00 | 1 | - |

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | 2023 | | | | | | | Avg recl Cost per Acres | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|-----------------|----------------------------|----------|------------|------------|---------|-----------|------------|----------|-------------------------------|--|---------------|
| | | | | Adjusted | Forfeiture | Adjustment | | Released | Adjustment | | | | |
| | | | | Acres | Rate | Permit | Release | Forfeited | Released | Factor | | | |
| (1) | (2) | (3) | (4) | (13) | (14) | Bond Size | Rate | Acres | Acres | (19) | (20) | (21) | |
| 1963 | Other | Phased Released | - | - | 0.81% | - | 6.88% | - | - | 8,145.00 | 0.5 | - | |
| 1964 | Other | Phased Released | - | - | 0.81% | - | 6.88% | - | - | 8,145.00 | 0.5 | - | |
| 1965 | Other | Phased Released | - | - | 0.81% | - | 6.81% | - | - | 8,145.00 | 0.5 | - | |
| 1966 | Other | Phased Released | - | - | 0.81% | - | 6.74% | - | - | 8,145.00 | 0.5 | - | |
| 1967 | Other | Phased Released | - | - | 0.81% | - | 6.67% | - | - | 8,145.00 | 0.5 | - | |
| 1968 | Other | Phased Released | - | - | 0.81% | - | 6.60% | - | - | 8,145.00 | 0.5 | - | |
| 1969 | Other | Phased Released | - | - | 0.81% | - | 6.54% | - | - | 8,145.00 | 0.5 | - | |
| 1970 | Other | Phased Released | - | - | 0.81% | - | 6.47% | - | - | 8,145.00 | 0.5 | - | |
| 1971 | Other | Phased Released | - | - | 0.81% | - | 6.40% | - | - | 8,145.00 | 0.5 | - | |
| 1972 | Other | Phased Released | - | - | 0.81% | - | 6.33% | - | - | 8,145.00 | 0.5 | - | |
| 1973 | Other | Phased Released | 9.00 | 8.44 | 0.81% | - | 6.26% | - | 0.53 | 8,145.00 | 0.5 | - | |
| 1974 | Other | Phased Released | - | - | 0.81% | - | 6.19% | - | - | 8,145.00 | 0.5 | - | |
| 1975 | Other | Phased Released | - | - | 0.81% | - | 6.13% | - | - | 8,145.00 | 0.5 | - | |
| 1976 | Other | Phased Released | 27.88 | 26.21 | 0.81% | - | 6.06% | - | 1.59 | 8,145.00 | 0.5 | - | |
| 1977 | Other | Phased Released | - | - | 0.81% | - | 5.99% | - | - | 8,145.00 | 0.5 | - | |
| 1978 | Other | Phased Released | 12.76 | 12.01 | 0.81% | - | 5.92% | - | 0.71 | 8,145.00 | 0.5 | - | |
| 1979 | Other | Phased Released | 58.69 | 55.30 | 0.81% | - | 5.85% | - | 3.24 | 8,145.00 | 0.5 | - | |
| 1980 | Other | Phased Released | 7.91 | 7.46 | 0.81% | - | 5.78% | - | 0.43 | 8,145.00 | 0.5 | - | |
| 1981 | Other | Phased Released | 475.54 | 448.69 | 0.81% | - | 5.72% | - | 25.64 | 8,145.00 | 0.5 | - | |
| 1982 | Other | Phased Released | 201.26 | 190.03 | 0.81% | - | 5.65% | - | 10.73 | 8,145.00 | 0.5 | - | |
| 1983 | Other | Phased Released | 158.90 | 150.14 | 0.81% | - | 5.58% | - | 8.38 | 8,145.00 | 0.5 | - | |
| 1984 | Other | Phased Released | 75.79 | 71.67 | 0.81% | - | 5.51% | - | 3.95 | 8,145.00 | 0.5 | - | |
| 1985 | Other | Phased Released | 43.00 | 40.69 | 0.81% | - | 5.44% | - | 2.21 | 8,145.00 | 0.5 | - | |
| 1986 | Other | Phased Released | - | - | 0.81% | - | 5.37% | - | - | 8,145.00 | 0.5 | - | |
| 1987 | Other | Phased Released | 50.95 | 48.28 | 0.81% | - | 5.31% | - | 2.56 | 8,145.00 | 0.5 | - | |
| 1988 | Other | Phased Released | - | - | 0.81% | - | 5.24% | - | - | 8,145.00 | 0.5 | - | |
| 1989 | Other | Phased Released | 38.00 | 36.06 | 0.81% | - | 5.17% | - | 1.86 | 8,145.00 | 0.5 | - | |
| 1990 | Other | Phased Released | - | - | 0.81% | - | 5.10% | - | - | 8,145.00 | 0.5 | - | |
| 1991 | Other | Phased Released | - | - | 0.81% | - | 5.03% | - | - | 8,145.00 | 0.5 | - | |
| 1992 | Other | Phased Released | - | - | 0.81% | - | 4.96% | - | - | 8,145.00 | 0.5 | - | |
| 1993 | Other | Phased Released | 48.00 | 47.50 | 0.81% | - | 4.90% | - | 2.33 | 8,145.00 | 0.5 | - | |
| 1994 | Other | Phased Released | - | - | 0.81% | - | 1.05% | - | - | 8,145.00 | 0.5 | - | |
| 1995 | Other | Phased Released | - | - | 0.81% | - | 1.62% | - | - | 8,145.00 | 0.5 | - | |
| 1996 | Other | Phased Released | - | - | 0.81% | - | 2.19% | - | - | 8,145.00 | 0.5 | - | |
| 1997 | Other | Phased Released | 31.16 | 30.12 | 0.81% | - | 2.76% | - | 0.83 | 8,145.00 | 0.5 | - | |
| 1998 | Other | Phased Released | - | - | 0.81% | - | 3.33% | - | - | 8,145.00 | 0.5 | - | |
| 1999 | Other | Phased Released | 179.00 | 171.01 | 1.11% | - | 3.90% | - | 6.66 | 8,145.00 | 0.5 | - | |
| 2000 | Other | Phased Released | - | - | 1.40% | - | 4.46% | - | - | 8,145.00 | 0.5 | - | |
| 2001 | Other | Phased Released | - | - | 1.70% | - | 5.03% | - | - | 8,145.00 | 0.5 | - | |
| 2002 | Other | Phased Released | - | - | 2.00% | - | 5.60% | - | - | 8,145.00 | 0.5 | - | |
| 2003 | Other | Phased Released | - | - | 2.29% | - | 6.17% | - | - | 8,145.00 | 0.5 | - | |
| 2004 | Other | Phased Released | - | - | 2.59% | - | 6.74% | - | - | 8,145.00 | 0.5 | - | |
| 2005 | Other | Phased Released | - | - | 2.88% | - | 7.31% | - | - | 8,145.00 | 0.5 | - | |
| 2006 | Other | Phased Released | - | - | 3.18% | - | 7.88% | - | - | 8,145.00 | 0.5 | - | |
| 2007 | Other | Phased Released | - | - | 3.48% | - | 8.45% | - | - | 8,145.00 | 0.5 | - | |
| 2008 | Other | Phased Released | - | - | 3.77% | - | 9.01% | - | - | 8,145.00 | 0.5 | - | |
| 2009 | Other | Phased Released | - | - | 4.07% | - | 9.58% | - | - | 8,145.00 | 0.5 | - | |
| 2010 | Other | Phased Released | - | - | 4.36% | - | 10.15% | - | - | 8,145.00 | 0.5 | - | |
| 2011 | Other | Phased Released | - | - | 4.66% | - | 10.72% | - | - | 8,145.00 | 0.5 | - | |
| 2012 | Other | Phased Released | - | - | 4.96% | - | 12.90% | - | - | 8,145.00 | 0.5 | - | |
| 2013 | Other | Phased Released | - | - | 5.21% | - | 26.45% | - | - | 8,145.00 | 0.5 | - | |
| 2014 | Other | Phased Released | - | - | 4.47% | - | 40.01% | - | - | 8,145.00 | 0.5 | - | |
| 2015 | Other | Phased Released | - | - | 3.73% | - | 53.57% | - | - | 8,145.00 | 0.5 | - | |
| 2016 | Other | Phased Released | - | - | 2.99% | - | 67.13% | - | - | 8,145.00 | 0.5 | - | |
| 2017 | Other | Phased Released | - | - | 2.26% | - | 80.69% | - | - | 8,145.00 | 0.5 | - | |
| 2018 | Other | Phased Released | - | - | 1.52% | - | 116.71% | - | - | 8,145.00 | 0.5 | - | |
| 2019 | Other | Phased Released | - | - | 0.78% | - | 97.44% | - | - | 8,145.00 | 0.5 | - | |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water O&M Cost Projection - Deterministic Model
 Water O&M Total - All Mine Types

| Fiscal Year <u>Ending 6/30</u> | (1) - (4) Incremental Yearly Liability | | | | (5) - (8) Incremental Yearly Liability - Three Year Delay | | | |
|-----------------------------------|---|-----------------|-----------------------|--------------|--|-----------------|-----------------------|--------------|
| | <u>Active</u> | <u>Inactive</u> | <u>Phase Released</u> | <u>Total</u> | <u>Active</u> | <u>Inactive</u> | <u>Phase Released</u> | <u>Total</u> |
| 2022 | 87,839 | 24,038 | 0 | 111,877 | 0 | 0 | 0 | 0 |
| 2023 | 84,966 | 22,924 | 0 | 107,889 | 0 | 0 | 0 | 0 |
| 2024 | 81,838 | 22,298 | 0 | 104,136 | 0 | 0 | 0 | 0 |
| 2025 | 78,858 | 21,667 | 0 | 100,524 | 43,920 | 12,019 | 0 | 55,938 |
| 2026 | 75,528 | 21,009 | 0 | 96,537 | 86,402 | 23,481 | 0 | 109,883 |
| 2027 | 72,058 | 20,250 | 0 | 92,308 | 83,402 | 22,611 | 0 | 106,013 |
| 2028 | 68,716 | 19,600 | 0 | 88,316 | 80,348 | 21,982 | 0 | 102,330 |
| 2029 | 65,320 | 19,062 | 0 | 84,383 | 114,957 | 31,843 | 0 | 146,799 |
| 2030 | 62,428 | 18,472 | 0 | 80,900 | 72,058 | 20,250 | 0 | 92,308 |
| 2031 | 59,033 | 17,871 | 0 | 76,904 | 68,716 | 19,600 | 0 | 88,316 |
| 2032 | 55,440 | 17,343 | 0 | 72,782 | 65,320 | 19,062 | 0 | 84,383 |
| 2033 | 52,371 | 16,230 | 0 | 68,601 | 62,428 | 18,472 | 0 | 80,900 |
| 2034 | 49,390 | 15,497 | 0 | 64,886 | 59,033 | 17,871 | 0 | 76,904 |
| 2035 | 46,551 | 14,789 | 0 | 61,340 | 55,440 | 17,343 | 0 | 72,782 |
| 2036 | 43,955 | 14,154 | 0 | 58,109 | 52,371 | 16,230 | 0 | 68,601 |
| 2037 | 41,217 | 13,490 | 0 | 54,707 | 49,390 | 15,497 | 0 | 64,886 |
| 2038 | 38,498 | 12,731 | 0 | 51,229 | 46,551 | 14,789 | 0 | 61,340 |
| 2039 | 35,932 | 12,133 | 0 | 48,065 | 43,955 | 14,154 | 0 | 58,109 |
| 2040 | 33,377 | 11,570 | 0 | 44,947 | 41,217 | 13,490 | 0 | 54,707 |
| 2041 | 31,267 | 11,036 | 0 | 42,303 | 38,498 | 12,731 | 0 | 51,229 |

Notes: Col (1) - (3) from Exhibit E-121, Col (12), (21), etc.
 Col (4) = (1) + (2) + (3)
 Col (5) - (8) based on (1) - (4) with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water O&M Cost Projection - Deterministic Model
 Surface Mines

| Fiscal Year <u>Ending 6/30</u> | <u>Incremental Yearly Liability</u> | | | | <u>Incremental Yearly Liability - Three Year Delay</u> | | | |
|-----------------------------------|-------------------------------------|-----------------|-----------------------|--------------|--|-----------------|-----------------------|--------------|
| | <u>Active</u> | <u>Inactive</u> | <u>Phase Released</u> | <u>Total</u> | <u>Active</u> | <u>Inactive</u> | <u>Phase Released</u> | <u>Total</u> |
| 2022 | 58,255 | 13,810 | 0 | 72,065 | 0 | 0 | 0 | 0 |
| 2023 | 56,987 | 13,114 | 0 | 70,101 | 0 | 0 | 0 | 0 |
| 2024 | 55,528 | 12,889 | 0 | 68,417 | 0 | 0 | 0 | 0 |
| 2025 | 54,048 | 12,632 | 0 | 66,680 | 29,127 | 6,905 | 0 | 36,032 |
| 2026 | 52,314 | 12,341 | 0 | 64,655 | 57,621 | 13,462 | 0 | 71,083 |
| 2027 | 50,456 | 11,895 | 0 | 62,350 | 56,258 | 13,001 | 0 | 69,259 |
| 2028 | 48,529 | 11,500 | 0 | 60,029 | 54,788 | 12,761 | 0 | 67,548 |
| 2029 | 46,383 | 11,189 | 0 | 57,572 | 79,338 | 18,657 | 0 | 97,995 |
| 2030 | 44,564 | 10,801 | 0 | 55,365 | 50,456 | 11,895 | 0 | 62,350 |
| 2031 | 42,198 | 10,381 | 0 | 52,579 | 48,529 | 11,500 | 0 | 60,029 |
| 2032 | 39,527 | 10,027 | 0 | 49,554 | 46,383 | 11,189 | 0 | 57,572 |
| 2033 | 37,295 | 9,082 | 0 | 46,377 | 44,564 | 10,801 | 0 | 55,365 |
| 2034 | 35,047 | 8,511 | 0 | 43,558 | 42,198 | 10,381 | 0 | 52,579 |
| 2035 | 32,888 | 7,960 | 0 | 40,848 | 39,527 | 10,027 | 0 | 49,554 |
| 2036 | 30,865 | 7,476 | 0 | 38,342 | 37,295 | 9,082 | 0 | 46,377 |
| 2037 | 28,656 | 6,959 | 0 | 35,615 | 35,047 | 8,511 | 0 | 43,558 |
| 2038 | 26,432 | 6,337 | 0 | 32,769 | 32,888 | 7,960 | 0 | 40,848 |
| 2039 | 24,240 | 5,864 | 0 | 30,104 | 30,865 | 7,476 | 0 | 38,342 |
| 2040 | 22,032 | 5,423 | 0 | 27,454 | 28,656 | 6,959 | 0 | 35,615 |
| 2041 | 20,215 | 5,007 | 0 | 25,222 | 26,432 | 6,337 | 0 | 32,769 |

Notes: Col (1) - (3) from Exhibit E-121, Col (12), (21), etc.
 Col (4) = (1) + (2) + (3)
 Col (5) - (8) based on (1) - (4) with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water O&M Cost Projection - Deterministic Model
 Underground Mines

| Fiscal Year Ending 6/30 | Incremental Yearly Liability | | | | Incremental Yearly Liability - Three Year Delay | | | |
|----------------------------|------------------------------|-----------------|-----------------------|--------------|---|-----------------|-----------------------|--------------|
| | (1) Active | (2) Inactive | (3) Phase Released | (4) Total | (5) Active | (6) Inactive | (7) Phase Released | (8) Total |
| 2022 | 7,320 | 3,597 | 0 | 10,917 | 0 | 0 | 0 | 0 |
| 2023 | 7,118 | 3,492 | 0 | 10,610 | 0 | 0 | 0 | 0 |
| 2024 | 6,907 | 3,394 | 0 | 10,301 | 0 | 0 | 0 | 0 |
| 2025 | 6,693 | 3,298 | 0 | 9,991 | 3,660 | 1,799 | 0 | 5,459 |
| 2026 | 6,498 | 3,188 | 0 | 9,686 | 7,219 | 3,545 | 0 | 10,764 |
| 2027 | 6,305 | 3,092 | 0 | 9,397 | 7,013 | 3,443 | 0 | 10,456 |
| 2028 | 6,111 | 2,999 | 0 | 9,111 | 6,800 | 3,346 | 0 | 10,146 |
| 2029 | 5,925 | 2,911 | 0 | 8,836 | 9,844 | 4,837 | 0 | 14,682 |
| 2030 | 5,756 | 2,825 | 0 | 8,582 | 6,305 | 3,092 | 0 | 9,397 |
| 2031 | 5,598 | 2,744 | 0 | 8,342 | 6,111 | 2,999 | 0 | 9,111 |
| 2032 | 5,449 | 2,667 | 0 | 8,116 | 5,925 | 2,911 | 0 | 8,836 |
| 2033 | 5,308 | 2,594 | 0 | 7,902 | 5,756 | 2,825 | 0 | 8,582 |
| 2034 | 5,174 | 2,525 | 0 | 7,699 | 5,598 | 2,744 | 0 | 8,342 |
| 2035 | 5,047 | 2,460 | 0 | 7,506 | 5,449 | 2,667 | 0 | 8,116 |
| 2036 | 4,926 | 2,398 | 0 | 7,324 | 5,308 | 2,594 | 0 | 7,902 |
| 2037 | 4,811 | 2,339 | 0 | 7,151 | 5,174 | 2,525 | 0 | 7,699 |
| 2038 | 4,703 | 2,284 | 0 | 6,987 | 5,047 | 2,460 | 0 | 7,506 |
| 2039 | 4,602 | 2,231 | 0 | 6,833 | 4,926 | 2,398 | 0 | 7,324 |
| 2040 | 4,507 | 2,181 | 0 | 6,688 | 4,811 | 2,339 | 0 | 7,151 |
| 2041 | 4,420 | 2,134 | 0 | 6,554 | 4,703 | 2,284 | 0 | 6,987 |

Notes: Col (1) - (3) from Exhibit E-121, Col (12), (21), etc.
 Col (4) = (1) + (2) + (3)
 Col (5) - (8) based on (1) - (4) with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water O&M Cost Projection - Deterministic Model
 Other

| Fiscal Year Ending 6/30 | (1) (2) (3) (4) Incremental Yearly Liability | | | | (5) (6) (7) (8) Incremental Yearly Liability - Three Year Delay | | | |
|----------------------------|---|----------|----------------|--------|--|----------|----------------|--------|
| | Active | Inactive | Phase Released | Total | Active | Inactive | Phase Released | Total |
| 2022 | 22,265 | 6,630 | 0 | 28,895 | 0 | 0 | 0 | 0 |
| 2023 | 20,861 | 6,318 | 0 | 27,178 | 0 | 0 | 0 | 0 |
| 2024 | 19,403 | 6,016 | 0 | 25,418 | 0 | 0 | 0 | 0 |
| 2025 | 18,117 | 5,736 | 0 | 23,853 | 11,132 | 3,315 | 0 | 14,447 |
| 2026 | 16,716 | 5,481 | 0 | 22,196 | 21,563 | 6,474 | 0 | 28,036 |
| 2027 | 15,298 | 5,263 | 0 | 20,561 | 20,132 | 6,167 | 0 | 26,298 |
| 2028 | 14,075 | 5,100 | 0 | 19,176 | 18,760 | 5,876 | 0 | 24,636 |
| 2029 | 13,012 | 4,962 | 0 | 17,974 | 25,774 | 8,349 | 0 | 34,123 |
| 2030 | 12,108 | 4,846 | 0 | 16,954 | 15,298 | 5,263 | 0 | 20,561 |
| 2031 | 11,237 | 4,746 | 0 | 15,983 | 14,075 | 5,100 | 0 | 19,176 |
| 2032 | 10,464 | 4,649 | 0 | 15,112 | 13,012 | 4,962 | 0 | 17,974 |
| 2033 | 9,768 | 4,553 | 0 | 14,321 | 12,108 | 4,846 | 0 | 16,954 |
| 2034 | 9,168 | 4,461 | 0 | 13,629 | 11,237 | 4,746 | 0 | 15,983 |
| 2035 | 8,616 | 4,370 | 0 | 12,985 | 10,464 | 4,649 | 0 | 15,112 |
| 2036 | 8,164 | 4,280 | 0 | 12,443 | 9,768 | 4,553 | 0 | 14,321 |
| 2037 | 7,749 | 4,192 | 0 | 11,941 | 9,168 | 4,461 | 0 | 13,629 |
| 2038 | 7,363 | 4,110 | 0 | 11,473 | 8,616 | 4,370 | 0 | 12,985 |
| 2039 | 7,090 | 4,037 | 0 | 11,127 | 8,164 | 4,280 | 0 | 12,443 |
| 2040 | 6,838 | 3,966 | 0 | 10,804 | 7,749 | 4,192 | 0 | 11,941 |
| 2041 | 6,632 | 3,895 | 0 | 10,527 | 7,363 | 4,110 | 0 | 11,473 |

Notes: Col (1) - (3) from Exhibit E-121, Col (12), (21), etc.
 Col (4) = (1) + (2) + (3)
 Col (5) - (8) based on (1) - (4) with a three-year delay

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Operations & Maintenance Cost Projection - Deterministic Model

| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | 2022 | | | | | | | Avg Recl Cost per Acre (10) | Adjustment Factor Permit Status (11) | Gross Cost (12) |
|--------------------------------|---------------------|-----------------------|-----------------------------------|---------------------------|--|------------------------|---------------------------|--------------------------|-------|--------------------------------------|--|-----------------------|
| | | | Current Bonded Acres (4) | Forfeiture Rate (5) | Adjustment Factor Permit Bond Size (6) | Release Rate (7) | Forfeited Acres (8) | Released Acres (9) | | | | |
| 1963 | Surface | Active | - | 0.000% | 0.00 | 1.069% | - | - | 90.00 | 1.00 | - | |
| 1964 | Surface | Active | - | 0.000% | 0.00 | 1.090% | - | - | 90.00 | 1.00 | - | |
| 1965 | Surface | Active | - | 0.000% | 0.00 | 1.113% | - | - | 90.00 | 1.00 | - | |
| 1966 | Surface | Active | - | 0.000% | 0.00 | 1.135% | - | - | 90.00 | 1.00 | - | |
| 1967 | Surface | Active | - | 0.000% | 0.00 | 1.159% | - | - | 90.00 | 1.00 | - | |
| 1968 | Surface | Active | - | 0.000% | 0.00 | 1.182% | - | - | 90.00 | 1.00 | - | |
| 1969 | Surface | Active | - | 0.000% | 0.00 | 1.206% | - | - | 90.00 | 1.00 | - | |
| 1970 | Surface | Active | - | 0.000% | 0.00 | 1.231% | - | - | 90.00 | 1.00 | - | |
| 1971 | Surface | Active | - | 0.005% | 0.00 | 1.256% | - | - | 90.00 | 1.00 | - | |
| 1972 | Surface | Active | 400.00 | 0.021% | 1.50 | 1.282% | 0.13 | 5.13 | 90.00 | 1.00 | 11.56 | |
| 1973 | Surface | Active | - | 0.038% | 0.00 | 1.308% | - | - | 90.00 | 1.00 | - | |
| 1974 | Surface | Active | - | 0.054% | 0.00 | 1.335% | - | - | 90.00 | 1.00 | - | |
| 1975 | Surface | Active | - | 0.071% | 0.00 | 1.362% | - | - | 90.00 | 1.00 | - | |
| 1976 | Surface | Active | - | 0.087% | 0.00 | 1.390% | - | - | 90.00 | 1.00 | - | |
| 1977 | Surface | Active | 1,933.27 | 0.103% | 0.67 | 1.418% | 1.33 | 27.41 | 90.00 | 1.00 | 119.90 | |
| 1978 | Surface | Active | 2,280.93 | 0.120% | 0.50 | 1.447% | 1.37 | 33.00 | 90.00 | 1.00 | 122.92 | |
| 1979 | Surface | Active | 180.00 | 0.136% | 1.00 | 1.476% | 0.25 | 2.66 | 90.00 | 1.00 | 22.06 | |
| 1980 | Surface | Active | 455.76 | 0.153% | 0.50 | 1.507% | 0.35 | 6.87 | 90.00 | 1.00 | 31.28 | |
| 1981 | Surface | Active | 1,661.03 | 0.169% | 1.06 | 1.537% | 2.96 | 25.54 | 90.00 | 1.00 | 266.57 | |
| 1982 | Surface | Active | 620.00 | 0.185% | 1.00 | 1.569% | 1.15 | 9.73 | 90.00 | 1.00 | 103.41 | |
| 1983 | Surface | Active | 1,704.33 | 0.202% | 0.50 | 1.601% | 1.72 | 27.28 | 90.00 | 1.00 | 154.70 | |
| 1984 | Surface | Active | - | 0.218% | 0.00 | 1.633% | - | - | 90.00 | 1.00 | - | |
| 1985 | Surface | Active | 2,405.91 | 0.234% | 0.70 | 1.667% | 3.95 | 40.10 | 90.00 | 1.00 | 355.43 | |
| 1986 | Surface | Active | 2,331.92 | 0.251% | 1.07 | 1.701% | 6.27 | 39.66 | 90.00 | 1.00 | 564.15 | |
| 1987 | Surface | Active | 1,371.12 | 0.267% | 0.83 | 1.736% | 3.05 | 23.80 | 90.00 | 1.00 | 274.85 | |
| 1988 | Surface | Active | 1,898.10 | 0.284% | 0.88 | 1.771% | 4.71 | 33.61 | 90.00 | 1.00 | 424.01 | |
| 1989 | Surface | Active | 2,959.93 | 0.300% | 0.64 | 1.807% | 5.71 | 53.49 | 90.00 | 1.00 | 513.86 | |
| 1990 | Surface | Active | 2,801.20 | 0.316% | 0.75 | 1.844% | 6.65 | 51.65 | 90.00 | 1.00 | 598.34 | |
| 1991 | Surface | Active | 2,094.19 | 0.333% | 0.94 | 1.882% | 6.58 | 39.40 | 90.00 | 1.00 | 592.47 | |
| 1992 | Surface | Active | 4,639.40 | 0.349% | 0.50 | 1.920% | 8.10 | 89.08 | 90.00 | 1.00 | 729.10 | |
| 1993 | Surface | Active | 4,377.78 | 0.366% | 0.83 | 1.959% | 13.34 | 85.77 | 90.00 | 1.00 | 1,200.46 | |
| 1994 | Surface | Active | 2,054.59 | 0.382% | 0.50 | 1.999% | 3.92 | 41.07 | 90.00 | 1.00 | 353.20 | |
| 1995 | Surface | Active | 6,620.84 | 0.398% | 0.92 | 2.040% | 24.18 | 135.06 | 90.00 | 1.00 | 2,176.15 | |
| 1996 | Surface | Active | 6,830.47 | 0.415% | 0.83 | 2.082% | 23.61 | 142.18 | 90.00 | 1.00 | 2,124.93 | |
| 1997 | Surface | Active | 13,199.94 | 0.431% | 0.79 | 2.124% | 45.06 | 280.37 | 90.00 | 1.00 | 4,055.27 | |
| 1998 | Surface | Active | 11,029.10 | 0.448% | 0.66 | 2.167% | 32.48 | 239.04 | 90.00 | 1.00 | 2,922.84 | |
| 1999 | Surface | Active | 2,072.61 | 0.464% | 0.50 | 2.212% | 4.81 | 45.84 | 90.00 | 1.00 | 432.73 | |
| 2000 | Surface | Active | 4,526.19 | 0.480% | 0.50 | 2.257% | 10.87 | 102.15 | 90.00 | 1.00 | 978.39 | |
| 2001 | Surface | Active | 6,826.55 | 0.497% | 0.87 | 2.303% | 29.45 | 157.20 | 90.00 | 1.00 | 2,650.40 | |
| 2002 | Surface | Active | 6,499.09 | 0.513% | 0.63 | 2.350% | 21.12 | 152.72 | 90.00 | 1.00 | 1,900.92 | |
| 2003 | Surface | Active | 6,916.12 | 0.530% | 0.81 | 2.398% | 29.76 | 165.83 | 90.00 | 1.00 | 2,678.05 | |
| 2004 | Surface | Active | 11,573.91 | 0.674% | 0.79 | 2.447% | 61.25 | 283.18 | 90.00 | 1.00 | 5,512.92 | |
| 2005 | Surface | Active | 5,236.53 | 0.642% | 1.03 | 2.497% | 34.74 | 130.74 | 90.00 | 1.00 | 3,126.76 | |
| 2006 | Surface | Active | 4,862.21 | 0.611% | 0.90 | 2.548% | 26.72 | 123.87 | 90.00 | 1.00 | 2,404.42 | |
| 2007 | Surface | Active | 6,382.38 | 0.579% | 0.82 | 2.600% | 30.23 | 165.92 | 90.00 | 1.00 | 2,721.00 | |
| 2008 | Surface | Active | 8,631.88 | 0.547% | 0.58 | 2.653% | 27.56 | 228.97 | 90.00 | 1.00 | 2,480.79 | |
| 2009 | Surface | Active | 6,181.98 | 0.516% | 0.75 | 2.707% | 23.92 | 167.33 | 90.00 | 1.00 | 2,152.71 | |
| 2010 | Surface | Active | 6,203.98 | 0.484% | 0.92 | 2.438% | 27.54 | 151.23 | 90.00 | 1.00 | 2,479.01 | |
| 2011 | Surface | Active | 2,986.04 | 0.453% | 0.74 | 2.168% | 9.94 | 64.75 | 90.00 | 1.00 | 894.77 | |
| 2012 | Surface | Active | 7,650.01 | 0.421% | 0.86 | 1.899% | 27.83 | 145.29 | 90.00 | 1.00 | 2,504.89 | |
| 2013 | Surface | Active | 8,508.13 | 0.390% | 0.95 | 1.630% | 31.65 | 138.69 | 90.00 | 1.00 | 2,848.59 | |
| 2014 | Surface | Active | 4,153.44 | 0.358% | 0.75 | 1.361% | 11.16 | 56.52 | 90.00 | 1.00 | 1,004.19 | |
| 2015 | Surface | Active | 4,371.03 | 0.327% | 0.73 | 1.092% | 10.43 | 47.72 | 90.00 | 1.00 | 939.03 | |
| 2016 | Surface | Active | 3,389.17 | 0.295% | 0.70 | 0.823% | 7.00 | 27.88 | 90.00 | 1.00 | 630.09 | |
| 2017 | Surface | Active | 1,324.50 | 0.264% | 1.00 | 0.553% | 3.49 | 7.33 | 90.00 | 1.00 | 314.18 | |
| 2018 | Surface | Active | 3,466.31 | 0.232% | 1.00 | 0.284% | 8.04 | 9.85 | 90.00 | 1.00 | 723.83 | |
| 2019 | Surface | Active | 4,158.88 | 0.200% | 0.88 | 0.190% | 7.30 | 7.90 | 90.00 | 1.00 | 656.59 | |
| 2020 | Surface | Active | 3,830.10 | 0.169% | 0.86 | 0.096% | 5.59 | 3.67 | 90.00 | 1.00 | 502.94 | |
| 2021 | Surface | Active | 3,770.84 | 0.000% | 0.93 | 0.082% | - | 3.09 | 90.00 | 1.00 | - | |

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| Permit Issue Year | Mine Type | Mine Status | 2022 | | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|--------------------|---|-----------------|--------------------|-------------------|-------|------------------------------|--|---------------|
| | | | Current Bonded Acres | Forfeiture Rate | Adjustment Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | |
| 1963 | Surface | Inactive | - | 0.000% | 0.00 | 0.668% | - | - | 90.00 | 1.00 | - | |
| 1964 | Surface | Inactive | - | 0.000% | 0.00 | 0.682% | - | - | 90.00 | 1.00 | - | |
| 1965 | Surface | Inactive | - | 0.000% | 0.00 | 0.695% | - | - | 90.00 | 1.00 | - | |
| 1966 | Surface | Inactive | - | 0.000% | 0.00 | 0.710% | - | - | 90.00 | 1.00 | - | |
| 1967 | Surface | Inactive | - | 0.000% | 0.00 | 0.724% | - | - | 90.00 | 1.00 | - | |
| 1968 | Surface | Inactive | - | 0.000% | 0.00 | 0.739% | - | - | 90.00 | 1.00 | - | |
| 1969 | Surface | Inactive | - | 0.000% | 0.00 | 0.754% | - | - | 90.00 | 1.00 | - | |
| 1970 | Surface | Inactive | - | 0.000% | 0.00 | 0.769% | - | - | 90.00 | 1.00 | - | |
| 1971 | Surface | Inactive | - | 0.011% | 0.00 | 0.785% | - | - | 90.00 | 1.00 | - | |
| 1972 | Surface | Inactive | - | 0.048% | 0.00 | 0.801% | - | - | 90.00 | 1.00 | - | |
| 1973 | Surface | Inactive | - | 0.085% | 0.00 | 0.817% | - | - | 90.00 | 1.00 | - | |
| 1974 | Surface | Inactive | - | 0.122% | 0.00 | 0.834% | - | - | 90.00 | 1.00 | - | |
| 1975 | Surface | Inactive | - | 0.159% | 0.00 | 0.851% | - | - | 90.00 | 1.00 | - | |
| 1976 | Surface | Inactive | 438.80 | 0.196% | 0.50 | 0.869% | 0.43 | 3.81 | 90.00 | 1.00 | 38.64 | |
| 1977 | Surface | Inactive | - | 0.233% | 0.00 | 0.886% | - | - | 90.00 | 1.00 | - | |
| 1978 | Surface | Inactive | - | 0.269% | 0.00 | 0.904% | - | - | 90.00 | 1.00 | - | |
| 1979 | Surface | Inactive | - | 0.306% | 0.00 | 0.923% | - | - | 90.00 | 1.00 | - | |
| 1980 | Surface | Inactive | - | 0.343% | 0.00 | 0.942% | - | - | 90.00 | 1.00 | - | |
| 1981 | Surface | Inactive | 4.47 | 0.380% | 0.50 | 0.961% | 0.01 | 0.04 | 90.00 | 1.00 | 0.76 | |
| 1982 | Surface | Inactive | - | 0.417% | 0.00 | 0.980% | - | - | 90.00 | 1.00 | - | |
| 1983 | Surface | Inactive | - | 0.454% | 0.00 | 1.000% | - | - | 90.00 | 1.00 | - | |
| 1984 | Surface | Inactive | - | 0.491% | 0.00 | 1.021% | - | - | 90.00 | 1.00 | - | |
| 1985 | Surface | Inactive | - | 0.528% | 0.00 | 1.042% | - | - | 90.00 | 1.00 | - | |
| 1986 | Surface | Inactive | 411.07 | 0.564% | 0.50 | 1.063% | 1.16 | 4.37 | 90.00 | 1.00 | 104.42 | |
| 1987 | Surface | Inactive | 415.61 | 0.601% | 1.00 | 1.085% | 2.50 | 4.51 | 90.00 | 1.00 | 224.94 | |
| 1988 | Surface | Inactive | 1,304.38 | 0.638% | 0.50 | 1.107% | 4.16 | 14.44 | 90.00 | 1.00 | 374.63 | |
| 1989 | Surface | Inactive | 273.00 | 0.675% | 1.00 | 1.129% | 1.84 | 3.08 | 90.00 | 1.00 | 165.88 | |
| 1990 | Surface | Inactive | 81.70 | 0.712% | 0.50 | 1.152% | 0.29 | 0.94 | 90.00 | 1.00 | 26.18 | |
| 1991 | Surface | Inactive | - | 0.749% | 0.00 | 1.176% | - | - | 90.00 | 1.00 | - | |
| 1992 | Surface | Inactive | - | 0.786% | 0.00 | 1.200% | - | - | 90.00 | 1.00 | - | |
| 1993 | Surface | Inactive | - | 0.823% | 0.00 | 1.224% | - | - | 90.00 | 1.00 | - | |
| 1994 | Surface | Inactive | - | 0.860% | 0.00 | 1.249% | - | - | 90.00 | 1.00 | - | |
| 1995 | Surface | Inactive | 3,503.18 | 0.896% | 0.50 | 1.275% | 15.70 | 44.66 | 90.00 | 1.00 | 1,413.12 | |
| 1996 | Surface | Inactive | 193.90 | 0.933% | 0.50 | 1.301% | 0.90 | 2.52 | 90.00 | 1.00 | 81.43 | |
| 1997 | Surface | Inactive | - | 0.970% | 0.00 | 1.328% | - | - | 90.00 | 1.00 | - | |
| 1998 | Surface | Inactive | 846.89 | 1.007% | 0.50 | 1.355% | 4.26 | 11.47 | 90.00 | 1.00 | 383.79 | |
| 1999 | Surface | Inactive | 2,264.80 | 1.044% | 0.50 | 1.382% | 11.82 | 31.31 | 90.00 | 1.00 | 1,063.93 | |
| 2000 | Surface | Inactive | - | 1.081% | 0.00 | 1.410% | - | - | 90.00 | 1.00 | - | |
| 2001 | Surface | Inactive | 596.67 | 1.118% | 0.50 | 1.439% | 3.33 | 8.59 | 90.00 | 1.00 | 300.10 | |
| 2002 | Surface | Inactive | 765.87 | 1.155% | 0.50 | 1.469% | 4.42 | 11.25 | 90.00 | 1.00 | 397.91 | |
| 2003 | Surface | Inactive | 4,249.33 | 1.191% | 0.50 | 1.499% | 25.31 | 63.68 | 90.00 | 1.00 | 2,278.28 | |
| 2004 | Surface | Inactive | 3,700.97 | 1.516% | 0.50 | 1.529% | 28.05 | 56.59 | 90.00 | 1.00 | 2,524.09 | |
| 2005 | Surface | Inactive | 25.99 | 1.445% | 1.50 | 1.560% | 0.56 | 0.41 | 90.00 | 1.00 | 50.69 | |
| 2006 | Surface | Inactive | 244.59 | 1.374% | 0.50 | 1.592% | 1.68 | 3.89 | 90.00 | 1.00 | 151.19 | |
| 2007 | Surface | Inactive | 399.20 | 1.303% | 0.50 | 1.625% | 2.60 | 6.49 | 90.00 | 1.00 | 234.01 | |
| 2008 | Surface | Inactive | 864.07 | 1.232% | 0.75 | 1.658% | 7.98 | 14.33 | 90.00 | 1.00 | 718.39 | |
| 2009 | Surface | Inactive | 680.43 | 1.161% | 0.50 | 1.692% | 3.95 | 11.51 | 90.00 | 1.00 | 355.41 | |
| 2010 | Surface | Inactive | 5.11 | 1.090% | 1.50 | 1.523% | 0.08 | 0.08 | 90.00 | 1.00 | 7.52 | |
| 2011 | Surface | Inactive | 560.86 | 1.019% | 0.50 | 1.355% | 2.86 | 7.60 | 90.00 | 1.00 | 257.13 | |
| 2012 | Surface | Inactive | 676.78 | 0.948% | 0.50 | 1.187% | 3.21 | 8.03 | 90.00 | 1.00 | 288.67 | |
| 2013 | Surface | Inactive | 93.44 | 0.877% | 0.50 | 1.019% | 0.41 | 0.95 | 90.00 | 1.00 | 36.87 | |
| 2014 | Surface | Inactive | 2,929.61 | 0.806% | 0.75 | 0.851% | 17.71 | 24.92 | 90.00 | 1.00 | 1,593.68 | |
| 2015 | Surface | Inactive | 704.80 | 0.735% | 0.50 | 0.682% | 2.59 | 4.81 | 90.00 | 1.00 | 233.09 | |
| 2016 | Surface | Inactive | 494.54 | 0.664% | 0.50 | 0.514% | 1.64 | 2.54 | 90.00 | 1.00 | 147.76 | |
| 2017 | Surface | Inactive | - | 0.593% | 0.00 | 0.346% | - | - | 90.00 | 1.00 | - | |
| 2018 | Surface | Inactive | 351.08 | 0.522% | 0.50 | 0.178% | 0.92 | 0.62 | 90.00 | 1.00 | 82.48 | |
| 2019 | Surface | Inactive | 452.10 | 0.451% | 1.50 | 0.119% | 3.06 | 0.54 | 90.00 | 1.00 | 275.31 | |
| 2020 | Surface | Inactive | - | 0.380% | 0.00 | 0.060% | - | - | 90.00 | 1.00 | - | |
| 2021 | Surface | Inactive | - | 0.000% | 0.00 | 0.051% | - | - | 90.00 | 1.00 | - | |

West Virginia Department of Environmental Protection Office of Special Reclamation
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 Water Operations & Maintenance Cost Projection - Deterministic Model

| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | 2022 | | | | | | | Avg Recl Cost per Acre (10) | Adjustment Factor Permit Status (11) | Gross Cost (12) |
|--------------------------------|---------------------|-----------------------|-----------------------------------|---------------------------|--|------------------------|---------------------------|--------------------------|-------|--------------------------------------|--|-----------------------|
| | | | Current Bonded Acres (4) | Forfeiture Rate (5) | Adjustment Factor Permit Bond Size (6) | Release Rate (7) | Forfeited Acres (8) | Released Acres (9) | | | | |
| 1963 | Surface | Phased Released | - | 0.000% | 0.00 | 3.206% | - | - | 90.00 | 1.00 | - | |
| 1964 | Surface | Phased Released | - | 0.000% | 0.00 | 3.271% | - | - | 90.00 | 1.00 | - | |
| 1965 | Surface | Phased Released | - | 0.000% | 0.00 | 3.338% | - | - | 90.00 | 1.00 | - | |
| 1966 | Surface | Phased Released | - | 0.000% | 0.00 | 3.406% | - | - | 90.00 | 1.00 | - | |
| 1967 | Surface | Phased Released | - | 0.000% | 0.00 | 3.476% | - | - | 90.00 | 1.00 | - | |
| 1968 | Surface | Phased Released | - | 0.000% | 0.00 | 3.547% | - | - | 90.00 | 1.00 | - | |
| 1969 | Surface | Phased Released | - | 0.000% | 0.00 | 3.619% | - | - | 90.00 | 1.00 | - | |
| 1970 | Surface | Phased Released | - | 0.000% | 0.00 | 3.693% | - | - | 90.00 | 1.00 | - | |
| 1971 | Surface | Phased Released | - | 0.020% | 0.00 | 3.768% | - | - | 90.00 | 1.00 | - | |
| 1972 | Surface | Phased Released | - | 0.084% | 0.00 | 3.845% | - | - | 90.00 | 1.00 | - | |
| 1973 | Surface | Phased Released | - | 0.148% | 0.00 | 3.924% | - | - | 90.00 | 1.00 | - | |
| 1974 | Surface | Phased Released | 189.60 | 0.212% | 0.00 | 4.004% | - | 7.59 | 90.00 | 1.00 | - | |
| 1975 | Surface | Phased Released | 8.30 | 0.276% | 0.00 | 4.086% | - | 0.34 | 90.00 | 1.00 | - | |
| 1976 | Surface | Phased Released | 626.17 | 0.341% | 0.00 | 4.169% | - | 26.11 | 90.00 | 1.00 | - | |
| 1977 | Surface | Phased Released | 48.00 | 0.405% | 0.00 | 4.254% | - | 2.04 | 90.00 | 1.00 | - | |
| 1978 | Surface | Phased Released | 158.81 | 0.469% | 0.00 | 4.341% | - | 6.89 | 90.00 | 1.00 | - | |
| 1979 | Surface | Phased Released | 358.00 | 0.533% | 0.00 | 4.429% | - | 15.86 | 90.00 | 1.00 | - | |
| 1980 | Surface | Phased Released | 621.75 | 0.597% | 0.00 | 4.520% | - | 28.10 | 90.00 | 1.00 | - | |
| 1981 | Surface | Phased Released | 1,821.81 | 0.662% | 0.00 | 4.612% | - | 84.02 | 90.00 | 1.00 | - | |
| 1982 | Surface | Phased Released | - | 0.726% | 0.00 | 4.706% | - | - | 90.00 | 1.00 | - | |
| 1983 | Surface | Phased Released | 302.61 | 0.790% | 0.00 | 4.802% | - | 14.53 | 90.00 | 1.00 | - | |
| 1984 | Surface | Phased Released | 2,603.39 | 0.854% | 0.00 | 4.900% | - | 127.57 | 90.00 | 1.00 | - | |
| 1985 | Surface | Phased Released | 1,270.29 | 0.918% | 0.00 | 5.000% | - | 63.52 | 90.00 | 1.00 | - | |
| 1986 | Surface | Phased Released | 1,212.46 | 0.983% | 0.00 | 5.102% | - | 61.86 | 90.00 | 1.00 | - | |
| 1987 | Surface | Phased Released | 760.81 | 1.047% | 0.00 | 5.207% | - | 39.61 | 90.00 | 1.00 | - | |
| 1988 | Surface | Phased Released | 478.00 | 1.111% | 0.00 | 5.313% | - | 25.39 | 90.00 | 1.00 | - | |
| 1989 | Surface | Phased Released | 1,688.64 | 1.175% | 0.00 | 5.421% | - | 91.54 | 90.00 | 1.00 | - | |
| 1990 | Surface | Phased Released | 662.34 | 1.239% | 0.00 | 5.532% | - | 36.64 | 90.00 | 1.00 | - | |
| 1991 | Surface | Phased Released | 1,006.45 | 1.304% | 0.00 | 5.645% | - | 56.81 | 90.00 | 1.00 | - | |
| 1992 | Surface | Phased Released | - | 1.368% | 0.00 | 5.760% | - | - | 90.00 | 1.00 | - | |
| 1993 | Surface | Phased Released | 562.59 | 1.432% | 0.00 | 5.877% | - | 33.07 | 90.00 | 1.00 | - | |
| 1994 | Surface | Phased Released | 2,470.42 | 1.496% | 0.00 | 5.997% | - | 148.16 | 90.00 | 1.00 | - | |
| 1995 | Surface | Phased Released | 498.93 | 1.560% | 0.00 | 6.120% | - | 30.53 | 90.00 | 1.00 | - | |
| 1996 | Surface | Phased Released | 563.71 | 1.625% | 0.00 | 6.245% | - | 35.20 | 90.00 | 1.00 | - | |
| 1997 | Surface | Phased Released | 969.50 | 1.689% | 0.00 | 6.372% | - | 61.78 | 90.00 | 1.00 | - | |
| 1998 | Surface | Phased Released | 511.73 | 1.753% | 0.00 | 6.502% | - | 33.27 | 90.00 | 1.00 | - | |
| 1999 | Surface | Phased Released | 14.87 | 1.817% | 0.00 | 6.635% | - | 0.99 | 90.00 | 1.00 | - | |
| 2000 | Surface | Phased Released | 19.70 | 1.881% | 0.00 | 6.770% | - | 1.33 | 90.00 | 1.00 | - | |
| 2001 | Surface | Phased Released | 491.55 | 1.946% | 0.00 | 6.908% | - | 33.96 | 90.00 | 1.00 | - | |
| 2002 | Surface | Phased Released | 106.29 | 2.010% | 0.00 | 7.049% | - | 7.49 | 90.00 | 1.00 | - | |
| 2003 | Surface | Phased Released | - | 2.074% | 0.00 | 7.193% | - | - | 90.00 | 1.00 | - | |
| 2004 | Surface | Phased Released | 470.13 | 2.638% | 0.00 | 7.340% | - | 34.51 | 90.00 | 1.00 | - | |
| 2005 | Surface | Phased Released | 51.50 | 2.515% | 0.00 | 7.490% | - | 3.86 | 90.00 | 1.00 | - | |
| 2006 | Surface | Phased Released | 60.78 | 2.391% | 0.00 | 7.643% | - | 4.65 | 90.00 | 1.00 | - | |
| 2007 | Surface | Phased Released | - | 2.268% | 0.00 | 7.799% | - | - | 90.00 | 1.00 | - | |
| 2008 | Surface | Phased Released | - | 2.144% | 0.00 | 7.958% | - | - | 90.00 | 1.00 | - | |
| 2009 | Surface | Phased Released | 220.84 | 2.021% | 0.00 | 8.120% | - | 17.93 | 90.00 | 1.00 | - | |
| 2010 | Surface | Phased Released | - | 1.897% | 0.00 | 7.313% | - | - | 90.00 | 1.00 | - | |
| 2011 | Surface | Phased Released | 55.50 | 1.773% | 0.00 | 6.505% | - | 3.61 | 90.00 | 1.00 | - | |
| 2012 | Surface | Phased Released | - | 1.650% | 0.00 | 5.698% | - | - | 90.00 | 1.00 | - | |
| 2013 | Surface | Phased Released | - | 1.526% | 0.00 | 4.890% | - | - | 90.00 | 1.00 | - | |
| 2014 | Surface | Phased Released | 27.91 | 1.403% | 0.00 | 4.083% | - | 1.14 | 90.00 | 1.00 | - | |
| 2015 | Surface | Phased Released | - | 1.279% | 0.00 | 3.275% | - | - | 90.00 | 1.00 | - | |
| 2016 | Surface | Phased Released | - | 1.156% | 0.00 | 2.468% | - | - | 90.00 | 1.00 | - | |
| 2017 | Surface | Phased Released | - | 1.032% | 0.00 | 1.660% | - | - | 90.00 | 1.00 | - | |
| 2018 | Surface | Phased Released | - | 0.909% | 0.00 | 0.852% | - | - | 90.00 | 1.00 | - | |
| 2019 | Surface | Phased Released | - | 0.785% | 0.00 | 0.570% | - | - | 90.00 | 1.00 | - | |
| 2020 | Surface | Phased Released | - | 0.662% | 0.00 | 0.287% | - | - | 90.00 | 1.00 | - | |
| 2021 | Surface | Phased Released | - | 0.000% | 0.00 | 0.246% | - | - | 90.00 | 1.00 | - | |

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Actuarial Reserve Study as of June 30, 2021
Water Operations & Maintenance Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | 2022 | | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|--------------------|---|-----------------|--------------------|-------------------|------------------|------------------------------|--|---------------|
| | | | Current Bonded Acres | Forfeiture Rate | Adjustment Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | Permit Status | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | |
| 1963 | Underground | Active | - | 0.152% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1964 | Underground | Active | - | 0.154% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1965 | Underground | Active | - | 0.156% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1966 | Underground | Active | - | 0.157% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1967 | Underground | Active | - | 0.159% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1968 | Underground | Active | - | 0.161% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1969 | Underground | Active | - | 0.163% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1970 | Underground | Active | - | 0.165% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1971 | Underground | Active | - | 0.167% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1972 | Underground | Active | - | 0.169% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1973 | Underground | Active | - | 0.171% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1974 | Underground | Active | - | 0.173% | 0.00 | 0.120% | - | - | 140.00 | 1.00 | - | |
| 1975 | Underground | Active | - | 0.175% | 0.00 | 0.261% | - | - | 140.00 | 1.00 | - | |
| 1976 | Underground | Active | - | 0.177% | 0.00 | 0.401% | - | - | 140.00 | 1.00 | - | |
| 1977 | Underground | Active | 22.53 | 0.178% | 1.50 | 0.541% | 0.06 | 0.12 | 140.00 | 1.00 | 8.44 | |
| 1978 | Underground | Active | 94.87 | 0.180% | 0.50 | 0.681% | 0.09 | 0.65 | 140.00 | 1.00 | 11.98 | |
| 1979 | Underground | Active | 745.26 | 0.182% | 1.21 | 0.821% | 1.65 | 6.12 | 140.00 | 1.00 | 230.88 | |
| 1980 | Underground | Active | 222.16 | 0.184% | 1.10 | 0.961% | 0.45 | 2.14 | 140.00 | 1.00 | 63.00 | |
| 1981 | Underground | Active | 891.30 | 0.186% | 1.21 | 1.101% | 2.00 | 9.82 | 140.00 | 1.00 | 279.94 | |
| 1982 | Underground | Active | 33.93 | 0.188% | 1.50 | 1.241% | 0.10 | 0.42 | 140.00 | 1.00 | 13.39 | |
| 1983 | Underground | Active | 6,929.70 | 0.190% | 0.88 | 1.382% | 11.57 | 95.74 | 140.00 | 1.00 | 1,619.57 | |
| 1984 | Underground | Active | 2,706.46 | 0.192% | 1.00 | 1.522% | 5.19 | 41.18 | 140.00 | 1.00 | 726.58 | |
| 1985 | Underground | Active | 49.00 | 0.194% | 1.50 | 1.662% | 0.14 | 0.81 | 140.00 | 1.00 | 19.93 | |
| 1986 | Underground | Active | 252.11 | 0.196% | 1.10 | 1.802% | 0.54 | 4.54 | 140.00 | 1.00 | 75.93 | |
| 1987 | Underground | Active | 198.36 | 0.197% | 1.10 | 1.942% | 0.43 | 3.85 | 140.00 | 1.00 | 60.32 | |
| 1988 | Underground | Active | 157.83 | 0.199% | 1.25 | 2.082% | 0.39 | 3.29 | 140.00 | 1.00 | 55.07 | |
| 1989 | Underground | Active | 124.08 | 0.201% | 1.50 | 2.222% | 0.37 | 2.76 | 140.00 | 1.00 | 52.45 | |
| 1990 | Underground | Active | 136.22 | 0.203% | 1.30 | 2.363% | 0.36 | 3.22 | 140.00 | 1.00 | 50.37 | |
| 1991 | Underground | Active | 240.32 | 0.205% | 1.30 | 2.503% | 0.64 | 6.01 | 140.00 | 1.00 | 89.70 | |
| 1992 | Underground | Active | 1,027.11 | 0.207% | 1.08 | 2.643% | 2.30 | 27.14 | 140.00 | 1.00 | 322.46 | |
| 1993 | Underground | Active | 724.45 | 0.209% | 1.17 | 2.783% | 1.77 | 20.16 | 140.00 | 1.00 | 247.19 | |
| 1994 | Underground | Active | 610.69 | 0.211% | 1.04 | 2.923% | 1.34 | 17.85 | 140.00 | 1.00 | 187.17 | |
| 1995 | Underground | Active | 334.05 | 0.213% | 1.17 | 3.063% | 0.83 | 10.23 | 140.00 | 1.00 | 116.06 | |
| 1996 | Underground | Active | 244.18 | 0.215% | 1.20 | 3.203% | 0.63 | 7.82 | 140.00 | 1.00 | 88.04 | |
| 1997 | Underground | Active | 234.02 | 0.217% | 1.35 | 3.343% | 0.68 | 7.82 | 140.00 | 1.00 | 95.50 | |
| 1998 | Underground | Active | 523.54 | 0.218% | 1.00 | 3.484% | 1.14 | 18.24 | 140.00 | 1.00 | 160.10 | |
| 1999 | Underground | Active | 359.47 | 0.220% | 1.40 | 3.624% | 1.11 | 13.03 | 140.00 | 1.00 | 155.24 | |
| 2000 | Underground | Active | 461.64 | 0.222% | 1.20 | 3.764% | 1.23 | 17.38 | 140.00 | 1.00 | 172.36 | |
| 2001 | Underground | Active | 224.71 | 0.224% | 0.90 | 3.904% | 0.45 | 8.77 | 140.00 | 1.00 | 63.46 | |
| 2002 | Underground | Active | 288.53 | 0.226% | 1.38 | 4.044% | 0.90 | 11.67 | 140.00 | 1.00 | 125.55 | |
| 2003 | Underground | Active | 969.45 | 0.228% | 1.23 | 4.184% | 2.71 | 40.56 | 140.00 | 1.00 | 379.71 | |
| 2004 | Underground | Active | 445.92 | 0.230% | 1.13 | 3.383% | 1.15 | 15.09 | 140.00 | 1.00 | 161.44 | |
| 2005 | Underground | Active | 360.91 | 0.232% | 1.13 | 3.249% | 0.94 | 11.73 | 140.00 | 1.00 | 131.74 | |
| 2006 | Underground | Active | 427.71 | 0.234% | 0.83 | 3.116% | 0.83 | 13.33 | 140.00 | 1.00 | 116.60 | |
| 2007 | Underground | Active | 482.68 | 0.236% | 1.23 | 2.982% | 1.40 | 14.39 | 140.00 | 1.00 | 195.37 | |
| 2008 | Underground | Active | 111.00 | 0.237% | 1.50 | 2.848% | 0.40 | 3.16 | 140.00 | 1.00 | 55.36 | |
| 2009 | Underground | Active | 320.63 | 0.239% | 1.07 | 2.714% | 0.82 | 8.70 | 140.00 | 1.00 | 115.13 | |
| 2010 | Underground | Active | 269.59 | 0.241% | 1.41 | 2.580% | 0.92 | 6.96 | 140.00 | 1.00 | 128.33 | |
| 2011 | Underground | Active | 192.99 | 0.243% | 1.36 | 2.447% | 0.64 | 4.72 | 140.00 | 1.00 | 89.18 | |
| 2012 | Underground | Active | 171.01 | 0.245% | 1.33 | 2.313% | 0.56 | 3.96 | 140.00 | 1.00 | 78.24 | |
| 2013 | Underground | Active | 398.29 | 0.247% | 1.42 | 2.179% | 1.40 | 8.68 | 140.00 | 1.00 | 196.01 | |
| 2014 | Underground | Active | 686.91 | 0.249% | 1.27 | 2.045% | 2.18 | 14.05 | 140.00 | 1.00 | 304.66 | |
| 2015 | Underground | Active | 132.11 | 0.297% | 1.50 | 1.911% | 0.59 | 2.53 | 140.00 | 1.00 | 82.37 | |
| 2016 | Underground | Active | 137.58 | 0.255% | 1.50 | 1.778% | 0.53 | 2.45 | 140.00 | 1.00 | 73.67 | |
| 2017 | Underground | Active | 155.37 | 0.213% | 1.50 | 1.644% | 0.50 | 2.55 | 140.00 | 1.00 | 69.52 | |
| 2018 | Underground | Active | 37.52 | 0.171% | 1.50 | 1.510% | 0.10 | 0.57 | 140.00 | 1.00 | 13.49 | |
| 2019 | Underground | Active | 79.46 | 0.129% | 1.25 | 1.376% | 0.13 | 1.09 | 140.00 | 1.00 | 17.97 | |
| 2020 | Underground | Active | 110.58 | 0.087% | 1.50 | 1.242% | 0.14 | 1.37 | 140.00 | 1.00 | 20.28 | |
| 2021 | Underground | Active | 76.19 | 0.000% | 1.50 | 1.109% | - | 0.84 | 140.00 | 1.00 | - | |

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Water Operations & Maintenance Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | 2022 | | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------|-------------|-------------|----------------------|-----------------|------------------------------------|--------------|-----------------|----------------|---------------------------------|------------------------|---------------------------------|------------|
| | | | Current Bonded Acres | Forfeiture Rate | Adjustment Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | Adjustment Factor Permit Status | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | |
| 1963 | Underground | Inactive | - | 0.341% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1964 | Underground | Inactive | - | 0.346% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1965 | Underground | Inactive | - | 0.350% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1966 | Underground | Inactive | - | 0.354% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1967 | Underground | Inactive | - | 0.359% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1968 | Underground | Inactive | - | 0.363% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1969 | Underground | Inactive | - | 0.367% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1970 | Underground | Inactive | - | 0.371% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1971 | Underground | Inactive | - | 0.376% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1972 | Underground | Inactive | - | 0.380% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1973 | Underground | Inactive | - | 0.384% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1974 | Underground | Inactive | - | 0.389% | 0.00 | 0.075% | - | - | 140.00 | 1.00 | - | |
| 1975 | Underground | Inactive | - | 0.393% | 0.00 | 0.163% | - | - | 140.00 | 1.00 | - | |
| 1976 | Underground | Inactive | 103.30 | 0.397% | 0.50 | 0.250% | 0.21 | 0.26 | 140.00 | 1.00 | 28.72 | |
| 1977 | Underground | Inactive | - | 0.401% | 0.00 | 0.338% | - | - | 140.00 | 1.00 | - | |
| 1978 | Underground | Inactive | 23.02 | 0.406% | 0.50 | 0.426% | 0.05 | 0.10 | 140.00 | 1.00 | 6.54 | |
| 1979 | Underground | Inactive | 6.60 | 0.410% | 0.50 | 0.513% | 0.01 | 0.03 | 140.00 | 1.00 | 1.89 | |
| 1980 | Underground | Inactive | - | 0.414% | 0.00 | 0.601% | - | - | 140.00 | 1.00 | - | |
| 1981 | Underground | Inactive | 149.03 | 0.419% | 1.00 | 0.688% | 0.62 | 1.03 | 140.00 | 1.00 | 87.34 | |
| 1982 | Underground | Inactive | 128.47 | 0.423% | 0.50 | 0.776% | 0.27 | 1.00 | 140.00 | 1.00 | 38.03 | |
| 1983 | Underground | Inactive | 500.86 | 0.427% | 0.75 | 0.863% | 1.60 | 4.32 | 140.00 | 1.00 | 224.65 | |
| 1984 | Underground | Inactive | 300.00 | 0.431% | 0.50 | 0.951% | 0.65 | 2.85 | 140.00 | 1.00 | 90.61 | |
| 1985 | Underground | Inactive | 220.21 | 0.436% | 0.50 | 1.039% | 0.48 | 2.29 | 140.00 | 1.00 | 67.17 | |
| 1986 | Underground | Inactive | 43.54 | 0.440% | 0.50 | 1.126% | 0.10 | 0.49 | 140.00 | 1.00 | 13.41 | |
| 1987 | Underground | Inactive | 40.89 | 0.444% | 1.50 | 1.214% | 0.27 | 0.50 | 140.00 | 1.00 | 38.15 | |
| 1988 | Underground | Inactive | 154.89 | 0.449% | 1.21 | 1.301% | 0.84 | 2.02 | 140.00 | 1.00 | 118.12 | |
| 1989 | Underground | Inactive | 193.50 | 0.453% | 0.50 | 1.389% | 0.44 | 2.69 | 140.00 | 1.00 | 61.34 | |
| 1990 | Underground | Inactive | 36.13 | 0.457% | 1.17 | 1.477% | 0.19 | 0.53 | 140.00 | 1.00 | 26.98 | |
| 1991 | Underground | Inactive | 141.42 | 0.461% | 1.00 | 1.564% | 0.65 | 2.21 | 140.00 | 1.00 | 91.36 | |
| 1992 | Underground | Inactive | 9.00 | 0.466% | 1.50 | 1.652% | 0.06 | 0.15 | 140.00 | 1.00 | 8.80 | |
| 1993 | Underground | Inactive | 294.11 | 0.470% | 1.00 | 1.739% | 1.38 | 5.12 | 140.00 | 1.00 | 193.54 | |
| 1994 | Underground | Inactive | 247.11 | 0.474% | 0.50 | 1.827% | 0.59 | 4.51 | 140.00 | 1.00 | 82.05 | |
| 1995 | Underground | Inactive | 131.50 | 0.479% | 1.00 | 1.914% | 0.63 | 2.52 | 140.00 | 1.00 | 88.11 | |
| 1996 | Underground | Inactive | 45.38 | 0.483% | 1.50 | 2.002% | 0.33 | 0.91 | 140.00 | 1.00 | 46.02 | |
| 1997 | Underground | Inactive | 294.76 | 0.487% | 1.07 | 2.090% | 1.54 | 6.16 | 140.00 | 1.00 | 215.40 | |
| 1998 | Underground | Inactive | 93.26 | 0.491% | 1.17 | 2.177% | 0.53 | 2.03 | 140.00 | 1.00 | 74.86 | |
| 1999 | Underground | Inactive | 618.15 | 0.496% | 1.06 | 2.265% | 3.23 | 14.00 | 140.00 | 1.00 | 452.87 | |
| 2000 | Underground | Inactive | 76.39 | 0.500% | 1.50 | 2.352% | 0.57 | 1.80 | 140.00 | 1.00 | 80.22 | |
| 2001 | Underground | Inactive | 6.00 | 0.504% | 1.50 | 2.440% | 0.05 | 0.15 | 140.00 | 1.00 | 6.35 | |
| 2002 | Underground | Inactive | 47.21 | 0.509% | 0.50 | 2.528% | 0.12 | 1.19 | 140.00 | 1.00 | 16.81 | |
| 2003 | Underground | Inactive | 229.90 | 0.513% | 1.00 | 2.615% | 1.18 | 6.01 | 140.00 | 1.00 | 165.08 | |
| 2004 | Underground | Inactive | 181.69 | 0.517% | 0.50 | 2.703% | 0.47 | 3.84 | 140.00 | 1.00 | 65.78 | |
| 2005 | Underground | Inactive | 121.31 | 0.521% | 1.50 | 2.791% | 0.95 | 2.46 | 140.00 | 1.00 | 132.85 | |
| 2006 | Underground | Inactive | 145.55 | 0.526% | 1.17 | 2.879% | 0.89 | 2.83 | 140.00 | 1.00 | 124.99 | |
| 2007 | Underground | Inactive | 80.93 | 0.530% | 1.25 | 2.967% | 0.54 | 1.51 | 140.00 | 1.00 | 75.07 | |
| 2008 | Underground | Inactive | 95.14 | 0.534% | 1.50 | 3.055% | 0.76 | 1.69 | 140.00 | 1.00 | 106.76 | |
| 2009 | Underground | Inactive | 127.40 | 0.539% | 1.38 | 3.143% | 0.94 | 2.16 | 140.00 | 1.00 | 132.10 | |
| 2010 | Underground | Inactive | 296.02 | 0.543% | 1.28 | 3.231% | 2.05 | 4.77 | 140.00 | 1.00 | 287.50 | |
| 2011 | Underground | Inactive | 113.07 | 0.547% | 1.50 | 3.319% | 0.93 | 1.73 | 140.00 | 1.00 | 129.93 | |
| 2012 | Underground | Inactive | 95.72 | 0.551% | 1.17 | 3.407% | 0.62 | 1.38 | 140.00 | 1.00 | 86.22 | |
| 2013 | Underground | Inactive | 53.70 | 0.556% | 1.50 | 3.495% | 0.45 | 0.73 | 140.00 | 1.00 | 62.67 | |
| 2014 | Underground | Inactive | 12.00 | 0.560% | 1.50 | 3.583% | 0.10 | 0.15 | 140.00 | 1.00 | 14.11 | |
| 2015 | Underground | Inactive | 12.04 | 0.568% | 1.50 | 3.671% | 0.12 | 0.14 | 140.00 | 1.00 | 16.89 | |
| 2016 | Underground | Inactive | - | 0.574% | 0.00 | 3.759% | - | - | 140.00 | 1.00 | - | |
| 2017 | Underground | Inactive | - | 0.479% | 0.00 | 3.847% | - | - | 140.00 | 1.00 | - | |
| 2018 | Underground | Inactive | 46.96 | 0.385% | 1.50 | 3.935% | 0.27 | 0.44 | 140.00 | 1.00 | 37.98 | |
| 2019 | Underground | Inactive | - | 0.291% | 0.00 | 4.023% | - | - | 140.00 | 1.00 | - | |
| 2020 | Underground | Inactive | - | 0.197% | 0.00 | 4.111% | - | - | 140.00 | 1.00 | - | |
| 2021 | Underground | Inactive | - | 0.000% | 0.00 | 4.199% | - | - | 140.00 | 1.00 | - | |

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| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | 2022 | | | | | | | Avg Recl Cost per Acre (10) | Adjustment Factor Permit Status (11) | Gross Cost (12) |
|--------------------------------|---------------------|-----------------------|-----------------------------------|---------------------------|--|------------------------|---------------------------|--------------------------|--------|--------------------------------------|--|-----------------------|
| | | | Current Bonded Acres (4) | Forfeiture Rate (5) | Adjustment Factor Permit Bond Size (6) | Release Rate (7) | Forfeited Acres (8) | Released Acres (9) | | | | |
| | | | | | | | | | | | | |
| 1963 | Underground | Phased Released | - | 0.594% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1964 | Underground | Phased Released | - | 0.602% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1965 | Underground | Phased Released | - | 0.609% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1966 | Underground | Phased Released | - | 0.617% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1967 | Underground | Phased Released | - | 0.624% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1968 | Underground | Phased Released | - | 0.632% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1969 | Underground | Phased Released | - | 0.639% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1970 | Underground | Phased Released | - | 0.647% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1971 | Underground | Phased Released | - | 0.654% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1972 | Underground | Phased Released | - | 0.662% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1973 | Underground | Phased Released | - | 0.669% | 0.00 | 0.000% | - | - | 140.00 | 1.00 | - | |
| 1974 | Underground | Phased Released | - | 0.676% | 0.00 | 0.361% | - | - | 140.00 | 1.00 | - | |
| 1975 | Underground | Phased Released | - | 0.684% | 0.00 | 0.782% | - | - | 140.00 | 1.00 | - | |
| 1976 | Underground | Phased Released | - | 0.691% | 0.00 | 1.202% | - | - | 140.00 | 1.00 | - | |
| 1977 | Underground | Phased Released | - | 0.699% | 0.00 | 1.622% | - | - | 140.00 | 1.00 | - | |
| 1978 | Underground | Phased Released | 23.13 | 0.706% | 0.00 | 2.043% | - | 0.47 | 140.00 | 1.00 | - | |
| 1979 | Underground | Phased Released | 59.68 | 0.714% | 0.00 | 2.463% | - | 1.47 | 140.00 | 1.00 | - | |
| 1980 | Underground | Phased Released | 87.19 | 0.721% | 0.00 | 2.884% | - | 2.51 | 140.00 | 1.00 | - | |
| 1981 | Underground | Phased Released | 85.14 | 0.729% | 0.00 | 3.304% | - | 2.81 | 140.00 | 1.00 | - | |
| 1982 | Underground | Phased Released | 199.06 | 0.736% | 0.00 | 3.724% | - | 7.41 | 140.00 | 1.00 | - | |
| 1983 | Underground | Phased Released | 57.47 | 0.744% | 0.00 | 4.145% | - | 2.38 | 140.00 | 1.00 | - | |
| 1984 | Underground | Phased Released | 95.60 | 0.751% | 0.00 | 4.565% | - | 4.36 | 140.00 | 1.00 | - | |
| 1985 | Underground | Phased Released | 17.24 | 0.759% | 0.00 | 4.986% | - | 0.86 | 140.00 | 1.00 | - | |
| 1986 | Underground | Phased Released | 118.96 | 0.766% | 0.00 | 5.406% | - | 6.43 | 140.00 | 1.00 | - | |
| 1987 | Underground | Phased Released | 77.09 | 0.773% | 0.00 | 5.826% | - | 4.49 | 140.00 | 1.00 | - | |
| 1988 | Underground | Phased Released | 129.44 | 0.781% | 0.00 | 6.247% | - | 8.09 | 140.00 | 1.00 | - | |
| 1989 | Underground | Phased Released | 119.44 | 0.788% | 0.00 | 6.667% | - | 7.96 | 140.00 | 1.00 | - | |
| 1990 | Underground | Phased Released | 18.31 | 0.796% | 0.00 | 7.088% | - | 1.30 | 140.00 | 1.00 | - | |
| 1991 | Underground | Phased Released | 18.20 | 0.803% | 0.00 | 7.508% | - | 1.37 | 140.00 | 1.00 | - | |
| 1992 | Underground | Phased Released | 39.95 | 0.811% | 0.00 | 7.928% | - | 3.17 | 140.00 | 1.00 | - | |
| 1993 | Underground | Phased Released | 30.79 | 0.818% | 0.00 | 8.349% | - | 2.57 | 140.00 | 1.00 | - | |
| 1994 | Underground | Phased Released | 26.14 | 0.826% | 0.00 | 8.769% | - | 2.29 | 140.00 | 1.00 | - | |
| 1995 | Underground | Phased Released | 65.62 | 0.833% | 0.00 | 9.190% | - | 6.03 | 140.00 | 1.00 | - | |
| 1996 | Underground | Phased Released | 133.37 | 0.841% | 0.00 | 9.610% | - | 12.82 | 140.00 | 1.00 | - | |
| 1997 | Underground | Phased Released | 149.46 | 0.848% | 0.00 | 10.030% | - | 14.99 | 140.00 | 1.00 | - | |
| 1998 | Underground | Phased Released | 70.67 | 0.856% | 0.00 | 10.451% | - | 7.39 | 140.00 | 1.00 | - | |
| 1999 | Underground | Phased Released | 10.68 | 0.863% | 0.00 | 10.871% | - | 1.16 | 140.00 | 1.00 | - | |
| 2000 | Underground | Phased Released | 59.65 | 0.870% | 0.00 | 11.292% | - | 6.74 | 140.00 | 1.00 | - | |
| 2001 | Underground | Phased Released | 36.60 | 0.878% | 0.00 | 11.712% | - | 4.29 | 140.00 | 1.00 | - | |
| 2002 | Underground | Phased Released | 48.55 | 0.885% | 0.00 | 12.132% | - | 5.89 | 140.00 | 1.00 | - | |
| 2003 | Underground | Phased Released | 78.20 | 0.893% | 0.00 | 12.553% | - | 9.82 | 140.00 | 1.00 | - | |
| 2004 | Underground | Phased Released | 16.25 | 0.900% | 0.00 | 10.149% | - | 1.65 | 140.00 | 1.00 | - | |
| 2005 | Underground | Phased Released | - | 0.908% | 0.00 | 9.748% | - | - | 140.00 | 1.00 | - | |
| 2006 | Underground | Phased Released | - | 0.915% | 0.00 | 9.347% | - | - | 140.00 | 1.00 | - | |
| 2007 | Underground | Phased Released | - | 0.923% | 0.00 | 8.945% | - | - | 140.00 | 1.00 | - | |
| 2008 | Underground | Phased Released | 43.07 | 0.930% | 0.00 | 8.544% | - | 3.68 | 140.00 | 1.00 | - | |
| 2009 | Underground | Phased Released | 54.60 | 0.938% | 0.00 | 8.143% | - | 4.45 | 140.00 | 1.00 | - | |
| 2010 | Underground | Phased Released | - | 0.945% | 0.00 | 7.741% | - | - | 140.00 | 1.00 | - | |
| 2011 | Underground | Phased Released | 25.60 | 0.953% | 0.00 | 7.340% | - | 1.88 | 140.00 | 1.00 | - | |
| 2012 | Underground | Phased Released | - | 0.960% | 0.00 | 6.938% | - | - | 140.00 | 1.00 | - | |
| 2013 | Underground | Phased Released | - | 0.967% | 0.00 | 6.537% | - | - | 140.00 | 1.00 | - | |
| 2014 | Underground | Phased Released | - | 0.975% | 0.00 | 6.136% | - | - | 140.00 | 1.00 | - | |
| 2015 | Underground | Phased Released | - | 1.163% | 0.00 | 5.734% | - | - | 140.00 | 1.00 | - | |
| 2016 | Underground | Phased Released | - | 0.999% | 0.00 | 5.333% | - | - | 140.00 | 1.00 | - | |
| 2017 | Underground | Phased Released | - | 0.835% | 0.00 | 4.932% | - | - | 140.00 | 1.00 | - | |
| 2018 | Underground | Phased Released | - | 0.670% | 0.00 | 4.530% | - | - | 140.00 | 1.00 | - | |
| 2019 | Underground | Phased Released | - | 0.506% | 0.00 | 4.129% | - | - | 140.00 | 1.00 | - | |
| 2020 | Underground | Phased Released | - | 0.342% | 0.00 | 3.727% | - | - | 140.00 | 1.00 | - | |
| 2021 | Underground | Phased Released | - | 0.000% | 0.00 | 3.326% | - | - | 140.00 | 1.00 | - | |

West Virginia Department of Environmental Protection Office of Special Reclamation
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 Water Operations & Maintenance Cost Projection - Deterministic Model

| Permit Issue Year | Mine Type | Mine Status | 2022 | | | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|-----------------|------------|---------------------|---------|-----------|----------|--------|------|------------------------------|--|---------------|
| | | | Current | Forfeiture | Adjustment | Release | Forfeited | Released | | | | | |
| | | | Bonded Acres | Rate | Permit Bond Size | Rate | Acres | Acres | | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | | |
| 1963 | Other | Active | - | 0.207% | 0.00 | 2.292% | - | - | 135.00 | 1.00 | - | | |
| 1964 | Other | Active | - | 0.207% | 0.00 | 2.269% | - | - | 135.00 | 1.00 | - | | |
| 1965 | Other | Active | - | 0.207% | 0.00 | 2.247% | - | - | 135.00 | 1.00 | - | | |
| 1966 | Other | Active | - | 0.207% | 0.00 | 2.224% | - | - | 135.00 | 1.00 | - | | |
| 1967 | Other | Active | - | 0.207% | 0.00 | 2.201% | - | - | 135.00 | 1.00 | - | | |
| 1968 | Other | Active | - | 0.207% | 0.00 | 2.178% | - | - | 135.00 | 1.00 | - | | |
| 1969 | Other | Active | - | 0.207% | 0.00 | 2.156% | - | - | 135.00 | 1.00 | - | | |
| 1970 | Other | Active | - | 0.207% | 0.00 | 2.133% | - | - | 135.00 | 1.00 | - | | |
| 1971 | Other | Active | - | 0.207% | 0.00 | 2.110% | - | - | 135.00 | 1.00 | - | | |
| 1972 | Other | Active | 20.00 | 0.207% | 1.50 | 2.087% | 0.06 | 0.42 | 135.00 | 1.00 | 8.38 | | |
| 1973 | Other | Active | - | 0.207% | 0.00 | 2.064% | - | - | 135.00 | 1.00 | - | | |
| 1974 | Other | Active | 28.52 | 0.207% | 1.50 | 2.042% | 0.09 | 0.58 | 135.00 | 1.00 | 11.96 | | |
| 1975 | Other | Active | 6.20 | 0.207% | 1.50 | 2.019% | 0.02 | 0.13 | 135.00 | 1.00 | 2.60 | | |
| 1976 | Other | Active | 75.00 | 0.207% | 1.50 | 1.996% | 0.23 | 1.50 | 135.00 | 1.00 | 31.44 | | |
| 1977 | Other | Active | 307.70 | 0.207% | 1.50 | 1.973% | 0.64 | 6.07 | 135.00 | 1.00 | 85.99 | | |
| 1978 | Other | Active | - | 0.207% | 0.00 | 1.951% | - | - | 135.00 | 1.00 | - | | |
| 1979 | Other | Active | 65.00 | 0.207% | 1.50 | 1.928% | 0.20 | 1.25 | 135.00 | 1.00 | 27.25 | | |
| 1980 | Other | Active | 370.67 | 0.207% | 1.21 | 1.905% | 0.93 | 7.06 | 135.00 | 1.00 | 125.79 | | |
| 1981 | Other | Active | 4,857.33 | 0.207% | 0.94 | 1.882% | 9.46 | 91.43 | 135.00 | 1.00 | 1,277.65 | | |
| 1982 | Other | Active | 554.75 | 0.207% | 0.75 | 1.860% | 0.86 | 10.32 | 135.00 | 1.00 | 116.28 | | |
| 1983 | Other | Active | 3,438.58 | 0.207% | 0.87 | 1.837% | 6.20 | 63.16 | 135.00 | 1.00 | 837.44 | | |
| 1984 | Other | Active | 4,464.39 | 0.207% | 0.69 | 1.814% | 6.35 | 80.98 | 135.00 | 1.00 | 857.78 | | |
| 1985 | Other | Active | 2,329.11 | 0.207% | 1.00 | 1.791% | 4.82 | 41.72 | 135.00 | 1.00 | 650.93 | | |
| 1986 | Other | Active | 1,411.57 | 0.207% | 0.96 | 1.768% | 2.81 | 24.96 | 135.00 | 1.00 | 379.32 | | |
| 1987 | Other | Active | 486.71 | 0.207% | 1.07 | 1.746% | 1.08 | 8.50 | 135.00 | 1.00 | 145.74 | | |
| 1988 | Other | Active | 479.98 | 0.207% | 1.21 | 1.723% | 1.21 | 8.27 | 135.00 | 1.00 | 162.89 | | |
| 1989 | Other | Active | 290.43 | 0.207% | 1.36 | 1.700% | 0.82 | 4.94 | 135.00 | 1.00 | 110.16 | | |
| 1990 | Other | Active | 264.35 | 0.207% | 1.30 | 1.677% | 0.71 | 4.43 | 135.00 | 1.00 | 96.04 | | |
| 1991 | Other | Active | 431.34 | 0.207% | 1.36 | 1.655% | 1.21 | 7.14 | 135.00 | 1.00 | 163.60 | | |
| 1992 | Other | Active | 554.74 | 0.207% | 1.06 | 1.632% | 1.21 | 9.05 | 135.00 | 1.00 | 163.65 | | |
| 1993 | Other | Active | 879.50 | 0.207% | 0.75 | 0.350% | 1.37 | 3.08 | 135.00 | 1.00 | 184.35 | | |
| 1994 | Other | Active | 1,837.84 | 0.207% | 0.83 | 0.540% | 3.17 | 9.93 | 135.00 | 1.00 | 428.02 | | |
| 1995 | Other | Active | 939.93 | 0.207% | 1.00 | 0.730% | 1.95 | 6.86 | 135.00 | 1.00 | 262.69 | | |
| 1996 | Other | Active | 1,971.02 | 0.207% | 0.50 | 0.919% | 2.04 | 18.12 | 135.00 | 1.00 | 275.42 | | |
| 1997 | Other | Active | 1,267.92 | 0.207% | 1.00 | 1.109% | 2.62 | 14.06 | 135.00 | 1.00 | 354.35 | | |
| 1998 | Other | Active | 1,054.49 | 0.283% | 0.83 | 1.298% | 2.48 | 13.69 | 135.00 | 1.00 | 335.26 | | |
| 1999 | Other | Active | 404.95 | 0.358% | 1.10 | 1.488% | 1.60 | 6.03 | 135.00 | 1.00 | 215.40 | | |
| 2000 | Other | Active | 255.10 | 0.434% | 1.00 | 1.678% | 1.11 | 4.28 | 135.00 | 1.00 | 149.39 | | |
| 2001 | Other | Active | 360.44 | 0.509% | 0.90 | 1.867% | 1.65 | 6.73 | 135.00 | 1.00 | 223.08 | | |
| 2002 | Other | Active | 569.59 | 0.585% | 1.33 | 2.057% | 4.44 | 11.72 | 135.00 | 1.00 | 599.75 | | |
| 2003 | Other | Active | 810.10 | 0.661% | 0.83 | 2.246% | 4.46 | 18.20 | 135.00 | 1.00 | 602.01 | | |
| 2004 | Other | Active | 1,049.09 | 0.736% | 0.93 | 2.436% | 7.17 | 25.56 | 135.00 | 1.00 | 968.12 | | |
| 2005 | Other | Active | 22.99 | 0.812% | 1.00 | 2.626% | 0.19 | 0.60 | 135.00 | 1.00 | 25.19 | | |
| 2006 | Other | Active | 491.96 | 0.887% | 1.07 | 2.815% | 4.68 | 13.85 | 135.00 | 1.00 | 631.41 | | |
| 2007 | Other | Active | 368.47 | 0.963% | 1.10 | 3.005% | 3.90 | 11.07 | 135.00 | 1.00 | 526.89 | | |
| 2008 | Other | Active | 649.47 | 1.039% | 1.28 | 3.194% | 8.62 | 20.75 | 135.00 | 1.00 | 1,163.49 | | |
| 2009 | Other | Active | 202.62 | 1.114% | 1.33 | 3.384% | 3.01 | 6.86 | 135.00 | 1.00 | 406.33 | | |
| 2010 | Other | Active | 1,059.98 | 1.190% | 1.06 | 3.574% | 13.31 | 37.88 | 135.00 | 1.00 | 1,797.00 | | |
| 2011 | Other | Active | 350.69 | 1.265% | 0.83 | 4.298% | 3.70 | 15.07 | 135.00 | 1.00 | 499.19 | | |
| 2012 | Other | Active | 147.31 | 1.331% | 1.50 | 8.818% | 2.94 | 12.99 | 135.00 | 1.00 | 396.93 | | |
| 2013 | Other | Active | 2,047.67 | 1.142% | 1.03 | 13.337% | 24.07 | 273.11 | 135.00 | 1.00 | 3,249.60 | | |
| 2014 | Other | Active | 259.86 | 0.953% | 1.38 | 17.857% | 3.41 | 46.40 | 135.00 | 1.00 | 459.82 | | |
| 2015 | Other | Active | 1,229.64 | 0.765% | 1.10 | 22.376% | 10.34 | 275.15 | 135.00 | 1.00 | 1,396.14 | | |
| 2016 | Other | Active | 1,513.50 | 0.576% | 1.33 | 26.896% | 11.62 | 407.07 | 135.00 | 1.00 | 1,568.91 | | |
| 2017 | Other | Active | 388.02 | 0.387% | 1.36 | 38.903% | 2.04 | 150.95 | 135.00 | 1.00 | 275.27 | | |
| 2018 | Other | Active | 36.77 | 0.199% | 1.50 | 32.479% | 0.11 | 11.94 | 135.00 | 1.00 | 14.78 | | |
| 2019 | Other | Active | 50.90 | 0.010% | 1.50 | 22.332% | 0.01 | 11.37 | 135.00 | 1.00 | 1.01 | | |
| 2020 | Other | Active | 777.21 | 0.000% | 1.47 | 12.185% | - | 94.70 | 135.00 | 1.00 | - | | |
| 2021 | Other | Active | 175.63 | 0.000% | 1.50 | 2.037% | - | 3.58 | 135.00 | 1.00 | - | | |

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| Permit Issue Year | Mine Type | Mine Status | 2022 | | | | | | | Avg Recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------|-----------|-------------|----------------------|-----------------|------------------------------------|--------------|-----------------|----------------|---------------|------------------------|---------------------------------|------------|
| | | | Current Bonded Acres | Forfeiture Rate | Adjustment Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | Permit Status | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | |
| 1963 | Other | Inactive | - | 0.466% | 0.00 | 1.433% | - | - | 135.00 | 1.00 | - | |
| 1964 | Other | Inactive | - | 0.466% | 0.00 | 1.418% | - | - | 135.00 | 1.00 | - | |
| 1965 | Other | Inactive | - | 0.466% | 0.00 | 1.404% | - | - | 135.00 | 1.00 | - | |
| 1966 | Other | Inactive | - | 0.466% | 0.00 | 1.390% | - | - | 135.00 | 1.00 | - | |
| 1967 | Other | Inactive | - | 0.466% | 0.00 | 1.376% | - | - | 135.00 | 1.00 | - | |
| 1968 | Other | Inactive | - | 0.466% | 0.00 | 1.361% | - | - | 135.00 | 1.00 | - | |
| 1969 | Other | Inactive | - | 0.466% | 0.00 | 1.347% | - | - | 135.00 | 1.00 | - | |
| 1970 | Other | Inactive | - | 0.466% | 0.00 | 1.333% | - | - | 135.00 | 1.00 | - | |
| 1971 | Other | Inactive | - | 0.466% | 0.00 | 1.319% | - | - | 135.00 | 1.00 | - | |
| 1972 | Other | Inactive | - | 0.466% | 0.00 | 1.305% | - | - | 135.00 | 1.00 | - | |
| 1973 | Other | Inactive | - | 0.466% | 0.00 | 1.290% | - | - | 135.00 | 1.00 | - | |
| 1974 | Other | Inactive | - | 0.466% | 0.00 | 1.276% | - | - | 135.00 | 1.00 | - | |
| 1975 | Other | Inactive | - | 0.466% | 0.00 | 1.262% | - | - | 135.00 | 1.00 | - | |
| 1976 | Other | Inactive | 14.48 | 0.466% | 1.50 | 1.248% | 0.10 | 0.18 | 135.00 | 1.00 | 13.66 | |
| 1977 | Other | Inactive | 61.00 | 0.466% | 1.50 | 1.233% | 0.43 | 0.75 | 135.00 | 1.00 | 57.54 | |
| 1978 | Other | Inactive | - | 0.466% | 0.00 | 1.219% | - | - | 135.00 | 1.00 | - | |
| 1979 | Other | Inactive | 7.25 | 0.466% | 1.50 | 1.205% | 0.05 | 0.09 | 135.00 | 1.00 | 6.84 | |
| 1980 | Other | Inactive | 114.75 | 0.466% | 0.50 | 1.191% | 0.27 | 1.37 | 135.00 | 1.00 | 36.08 | |
| 1981 | Other | Inactive | 1,477.93 | 0.466% | 0.96 | 1.176% | 6.62 | 17.39 | 135.00 | 1.00 | 893.60 | |
| 1982 | Other | Inactive | 148.70 | 0.466% | 1.17 | 1.162% | 0.81 | 1.73 | 135.00 | 1.00 | 109.09 | |
| 1983 | Other | Inactive | 1,739.30 | 0.466% | 0.75 | 1.148% | 6.08 | 19.97 | 135.00 | 1.00 | 820.28 | |
| 1984 | Other | Inactive | 440.78 | 0.466% | 0.93 | 1.134% | 1.91 | 5.00 | 135.00 | 1.00 | 257.37 | |
| 1985 | Other | Inactive | 364.25 | 0.466% | 0.83 | 1.120% | 1.41 | 4.08 | 135.00 | 1.00 | 190.87 | |
| 1986 | Other | Inactive | - | 0.466% | 0.00 | 1.105% | - | - | 135.00 | 1.00 | - | |
| 1987 | Other | Inactive | 484.64 | 0.466% | 0.50 | 1.091% | 1.13 | 5.29 | 135.00 | 1.00 | 152.38 | |
| 1988 | Other | Inactive | 167.79 | 0.466% | 1.17 | 1.077% | 0.91 | 1.81 | 135.00 | 1.00 | 123.09 | |
| 1989 | Other | Inactive | 438.61 | 0.466% | 0.90 | 1.063% | 1.84 | 4.66 | 135.00 | 1.00 | 248.23 | |
| 1990 | Other | Inactive | 481.66 | 0.466% | 1.17 | 1.048% | 2.62 | 5.05 | 135.00 | 1.00 | 353.36 | |
| 1991 | Other | Inactive | - | 0.466% | 0.00 | 1.034% | - | - | 135.00 | 1.00 | - | |
| 1992 | Other | Inactive | 433.18 | 0.466% | 1.30 | 1.020% | 2.62 | 4.42 | 135.00 | 1.00 | 354.11 | |
| 1993 | Other | Inactive | 273.92 | 0.466% | 0.90 | 0.219% | 1.15 | 0.60 | 135.00 | 1.00 | 155.02 | |
| 1994 | Other | Inactive | 545.08 | 0.466% | 1.00 | 0.338% | 2.54 | 1.84 | 135.00 | 1.00 | 342.76 | |
| 1995 | Other | Inactive | 641.22 | 0.466% | 1.17 | 0.456% | 3.48 | 2.92 | 135.00 | 1.00 | 470.41 | |
| 1996 | Other | Inactive | 152.16 | 0.466% | 0.50 | 0.575% | 0.35 | 0.87 | 135.00 | 1.00 | 47.84 | |
| 1997 | Other | Inactive | 158.04 | 0.466% | 0.83 | 0.693% | 0.61 | 1.10 | 135.00 | 1.00 | 82.82 | |
| 1998 | Other | Inactive | 206.29 | 0.636% | 1.00 | 0.812% | 1.31 | 1.67 | 135.00 | 1.00 | 177.08 | |
| 1999 | Other | Inactive | - | 0.806% | 0.00 | 0.930% | - | - | 135.00 | 1.00 | - | |
| 2000 | Other | Inactive | 116.73 | 0.976% | 0.50 | 1.049% | 0.57 | 1.22 | 135.00 | 1.00 | 76.90 | |
| 2001 | Other | Inactive | 250.00 | 1.146% | 0.50 | 1.167% | 1.43 | 2.92 | 135.00 | 1.00 | 193.41 | |
| 2002 | Other | Inactive | 222.64 | 1.316% | 1.00 | 1.286% | 2.93 | 2.86 | 135.00 | 1.00 | 395.60 | |
| 2003 | Other | Inactive | 78.29 | 1.486% | 1.50 | 1.404% | 1.75 | 1.10 | 135.00 | 1.00 | 235.63 | |
| 2004 | Other | Inactive | 56.00 | 1.656% | 1.50 | 1.523% | 1.39 | 0.85 | 135.00 | 1.00 | 187.83 | |
| 2005 | Other | Inactive | 50.69 | 1.826% | 1.50 | 1.641% | 1.39 | 0.83 | 135.00 | 1.00 | 187.48 | |
| 2006 | Other | Inactive | - | 1.997% | 0.00 | 1.760% | - | - | 135.00 | 1.00 | - | |
| 2007 | Other | Inactive | - | 2.167% | 0.00 | 1.878% | - | - | 135.00 | 1.00 | - | |
| 2008 | Other | Inactive | 4.11 | 2.337% | 1.50 | 1.997% | 0.14 | 0.08 | 135.00 | 1.00 | 19.45 | |
| 2009 | Other | Inactive | - | 2.507% | 0.00 | 2.115% | - | - | 135.00 | 1.00 | - | |
| 2010 | Other | Inactive | - | 2.677% | 0.00 | 2.234% | - | - | 135.00 | 1.00 | - | |
| 2011 | Other | Inactive | - | 2.847% | 0.00 | 2.687% | - | - | 135.00 | 1.00 | - | |
| 2012 | Other | Inactive | 66.26 | 2.994% | 0.50 | 5.511% | 0.99 | 3.65 | 135.00 | 1.00 | 133.91 | |
| 2013 | Other | Inactive | 57.00 | 2.569% | 1.50 | 8.336% | 2.20 | 4.75 | 135.00 | 1.00 | 296.57 | |
| 2014 | Other | Inactive | - | 2.145% | 0.00 | 11.161% | - | - | 135.00 | 1.00 | - | |
| 2015 | Other | Inactive | - | 1.720% | 0.00 | 13.985% | - | - | 135.00 | 1.00 | - | |
| 2016 | Other | Inactive | - | 1.296% | 0.00 | 16.810% | - | - | 135.00 | 1.00 | - | |
| 2017 | Other | Inactive | - | 0.871% | 0.00 | 24.315% | - | - | 135.00 | 1.00 | - | |
| 2018 | Other | Inactive | 11.88 | 0.447% | 1.50 | 20.299% | 0.08 | 2.41 | 135.00 | 1.00 | 10.75 | |
| 2019 | Other | Inactive | - | 0.022% | 0.00 | 13.957% | - | - | 135.00 | 1.00 | - | |
| 2020 | Other | Inactive | - | 0.000% | 0.00 | 7.615% | - | - | 135.00 | 1.00 | - | |
| 2021 | Other | Inactive | - | 0.000% | 0.00 | 1.273% | - | - | 135.00 | 1.00 | - | |

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| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | 2022 | | | | | | | | Gross Cost (12) |
|--------------------------------|---------------------|-----------------------|-----------------------------------|---------------------------|----------------------------|------------------------|--------------------------|--------------------------------------|---------------------------|------------------------------------|-----------------------|
| | | | Current Bonded Acres (4) | Forfeiture Rate (5) | Adjustment | | Released Acres (9) | Avg Recl Cost per Acre (10) | Adjustment | | |
| | | | | | Permit Bond Size (6) | Release Rate (7) | | | Forfeited Acres (8) | Factor Permit Status (11) | |
| 1963 | Other | Phased Released | - | 0.811% | 0.00 | 6.877% | - | - | 135.00 | 1.00 | - |
| 1964 | Other | Phased Released | - | 0.811% | 0.00 | 6.808% | - | - | 135.00 | 1.00 | - |
| 1965 | Other | Phased Released | - | 0.811% | 0.00 | 6.740% | - | - | 135.00 | 1.00 | - |
| 1966 | Other | Phased Released | - | 0.811% | 0.00 | 6.672% | - | - | 135.00 | 1.00 | - |
| 1967 | Other | Phased Released | - | 0.811% | 0.00 | 6.603% | - | - | 135.00 | 1.00 | - |
| 1968 | Other | Phased Released | - | 0.811% | 0.00 | 6.535% | - | - | 135.00 | 1.00 | - |
| 1969 | Other | Phased Released | - | 0.811% | 0.00 | 6.467% | - | - | 135.00 | 1.00 | - |
| 1970 | Other | Phased Released | - | 0.811% | 0.00 | 6.398% | - | - | 135.00 | 1.00 | - |
| 1971 | Other | Phased Released | - | 0.811% | 0.00 | 6.330% | - | - | 135.00 | 1.00 | - |
| 1972 | Other | Phased Released | - | 0.811% | 0.00 | 6.262% | - | - | 135.00 | 1.00 | - |
| 1973 | Other | Phased Released | 9.00 | 0.811% | 0.00 | 6.193% | - | 0.56 | 135.00 | 1.00 | - |
| 1974 | Other | Phased Released | - | 0.811% | 0.00 | 6.125% | - | - | 135.00 | 1.00 | - |
| 1975 | Other | Phased Released | - | 0.811% | 0.00 | 6.057% | - | - | 135.00 | 1.00 | - |
| 1976 | Other | Phased Released | 27.88 | 0.811% | 0.00 | 5.989% | - | 1.67 | 135.00 | 1.00 | - |
| 1977 | Other | Phased Released | - | 0.811% | 0.00 | 5.920% | - | - | 135.00 | 1.00 | - |
| 1978 | Other | Phased Released | 12.76 | 0.811% | 0.00 | 5.852% | - | 0.75 | 135.00 | 1.00 | - |
| 1979 | Other | Phased Released | 58.69 | 0.811% | 0.00 | 5.784% | - | 3.39 | 135.00 | 1.00 | - |
| 1980 | Other | Phased Released | 7.91 | 0.811% | 0.00 | 5.715% | - | 0.45 | 135.00 | 1.00 | - |
| 1981 | Other | Phased Released | 475.54 | 0.811% | 0.00 | 5.647% | - | 26.85 | 135.00 | 1.00 | - |
| 1982 | Other | Phased Released | 201.26 | 0.811% | 0.00 | 5.579% | - | 11.23 | 135.00 | 1.00 | - |
| 1983 | Other | Phased Released | 158.90 | 0.811% | 0.00 | 5.510% | - | 8.76 | 135.00 | 1.00 | - |
| 1984 | Other | Phased Released | 75.79 | 0.811% | 0.00 | 5.442% | - | 4.12 | 135.00 | 1.00 | - |
| 1985 | Other | Phased Released | 43.00 | 0.811% | 0.00 | 5.374% | - | 2.31 | 135.00 | 1.00 | - |
| 1986 | Other | Phased Released | - | 0.811% | 0.00 | 5.305% | - | - | 135.00 | 1.00 | - |
| 1987 | Other | Phased Released | 50.95 | 0.811% | 0.00 | 5.237% | - | 2.67 | 135.00 | 1.00 | - |
| 1988 | Other | Phased Released | - | 0.811% | 0.00 | 5.169% | - | - | 135.00 | 1.00 | - |
| 1989 | Other | Phased Released | 38.00 | 0.811% | 0.00 | 5.100% | - | 1.94 | 135.00 | 1.00 | - |
| 1990 | Other | Phased Released | - | 0.811% | 0.00 | 5.032% | - | - | 135.00 | 1.00 | - |
| 1991 | Other | Phased Released | - | 0.811% | 0.00 | 4.964% | - | - | 135.00 | 1.00 | - |
| 1992 | Other | Phased Released | - | 0.811% | 0.00 | 4.895% | - | - | 135.00 | 1.00 | - |
| 1993 | Other | Phased Released | 48.00 | 0.811% | 0.00 | 4.827% | - | 0.50 | 135.00 | 1.00 | - |
| 1994 | Other | Phased Released | - | 0.811% | 0.00 | 4.759% | - | - | 135.00 | 1.00 | - |
| 1995 | Other | Phased Released | - | 0.811% | 0.00 | 4.691% | - | - | 135.00 | 1.00 | - |
| 1996 | Other | Phased Released | - | 0.811% | 0.00 | 4.623% | - | - | 135.00 | 1.00 | - |
| 1997 | Other | Phased Released | 31.16 | 0.811% | 0.00 | 4.555% | - | 1.04 | 135.00 | 1.00 | - |
| 1998 | Other | Phased Released | - | 1.107% | 0.00 | 3.895% | - | - | 135.00 | 1.00 | - |
| 1999 | Other | Phased Released | 179.00 | 1.403% | 0.00 | 4.464% | - | 7.99 | 135.00 | 1.00 | - |
| 2000 | Other | Phased Released | - | 1.699% | 0.00 | 5.033% | - | - | 135.00 | 1.00 | - |
| 2001 | Other | Phased Released | - | 1.995% | 0.00 | 5.602% | - | - | 135.00 | 1.00 | - |
| 2002 | Other | Phased Released | - | 2.291% | 0.00 | 6.171% | - | - | 135.00 | 1.00 | - |
| 2003 | Other | Phased Released | - | 2.587% | 0.00 | 6.739% | - | - | 135.00 | 1.00 | - |
| 2004 | Other | Phased Released | - | 2.883% | 0.00 | 7.308% | - | - | 135.00 | 1.00 | - |
| 2005 | Other | Phased Released | - | 3.179% | 0.00 | 7.877% | - | - | 135.00 | 1.00 | - |
| 2006 | Other | Phased Released | - | 3.475% | 0.00 | 8.446% | - | - | 135.00 | 1.00 | - |
| 2007 | Other | Phased Released | - | 3.771% | 0.00 | 9.015% | - | - | 135.00 | 1.00 | - |
| 2008 | Other | Phased Released | - | 4.068% | 0.00 | 9.583% | - | - | 135.00 | 1.00 | - |
| 2009 | Other | Phased Released | - | 4.364% | 0.00 | 10.152% | - | - | 135.00 | 1.00 | - |
| 2010 | Other | Phased Released | - | 4.660% | 0.00 | 10.721% | - | - | 135.00 | 1.00 | - |
| 2011 | Other | Phased Released | - | 4.956% | 0.00 | 12.895% | - | - | 135.00 | 1.00 | - |
| 2012 | Other | Phased Released | - | 5.212% | 0.00 | 26.454% | - | - | 135.00 | 1.00 | - |
| 2013 | Other | Phased Released | - | 4.473% | 0.00 | 40.012% | - | - | 135.00 | 1.00 | - |
| 2014 | Other | Phased Released | - | 3.734% | 0.00 | 53.571% | - | - | 135.00 | 1.00 | - |
| 2015 | Other | Phased Released | - | 2.995% | 0.00 | 67.129% | - | - | 135.00 | 1.00 | - |
| 2016 | Other | Phased Released | - | 2.256% | 0.00 | 80.688% | - | - | 135.00 | 1.00 | - |
| 2017 | Other | Phased Released | - | 1.517% | 0.00 | 116.710% | - | - | 135.00 | 1.00 | - |
| 2018 | Other | Phased Released | - | 0.778% | 0.00 | 97.437% | - | - | 135.00 | 1.00 | - |
| 2019 | Other | Phased Released | - | 0.039% | 0.00 | 66.996% | - | - | 135.00 | 1.00 | - |

| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | 2023 | | | | | | | | Avg recl Cost per Acre (19) | Adjustment Factor Permit Status (20) | Gross Cost (21) |
|--------------------------------|---------------------|-----------------------|-----------------------------------|---------------------------|----------------------------|---|-------------------------|----------------------------|---------------------------|-------|--------------------------------------|--|-----------------------|
| | | | Current Bonded Acres (4) | Adjusted Acres (13) | Forfeiture Rate (14) | Adjustment Factor Permit Bond Size (15) | Release Rate (16) | Forfeited Acres (17) | Released Acres (18) | | | | |
| 1963 | Surface | Active | - | - | 0.00% | - | 1.07% | - | - | 90.00 | 1 | - | |
| 1964 | Surface | Active | - | - | 0.00% | - | 1.07% | - | - | 90.00 | 1 | - | |
| 1965 | Surface | Active | - | - | 0.00% | - | 1.09% | - | - | 90.00 | 1 | - | |
| 1966 | Surface | Active | - | - | 0.00% | - | 1.11% | - | - | 90.00 | 1 | - | |
| 1967 | Surface | Active | - | - | 0.00% | - | 1.14% | - | - | 90.00 | 1 | - | |
| 1968 | Surface | Active | - | - | 0.00% | - | 1.16% | - | - | 90.00 | 1 | - | |
| 1969 | Surface | Active | - | - | 0.00% | - | 1.18% | - | - | 90.00 | 1 | - | |
| 1970 | Surface | Active | - | - | 0.00% | - | 1.21% | - | - | 90.00 | 1 | - | |
| 1971 | Surface | Active | - | - | 0.00% | - | 1.23% | - | - | 90.00 | 1 | - | |
| 1972 | Surface | Active | 400.00 | 394.74 | 0.01% | 1.50 | 1.26% | 0.03 | 4.96 | 90.00 | 1 | 2.68 | |
| 1973 | Surface | Active | - | - | 0.02% | - | 1.28% | - | - | 90.00 | 1 | - | |
| 1974 | Surface | Active | - | - | 0.04% | - | 1.31% | - | - | 90.00 | 1 | - | |
| 1975 | Surface | Active | - | - | 0.05% | - | 1.33% | - | - | 90.00 | 1 | - | |
| 1976 | Surface | Active | - | - | 0.07% | - | 1.36% | - | - | 90.00 | 1 | - | |
| 1977 | Surface | Active | 1,933.27 | 1,904.52 | 0.09% | 0.67 | 1.39% | 1.10 | 26.47 | 90.00 | 1 | 99.39 | |
| 1978 | Surface | Active | 2,280.93 | 2,246.56 | 0.10% | 0.50 | 1.42% | 1.16 | 31.86 | 90.00 | 1 | 104.50 | |
| 1979 | Surface | Active | 180.00 | 177.10 | 0.12% | 1.00 | 1.45% | 0.21 | 2.56 | 90.00 | 1 | 19.09 | |
| 1980 | Surface | Active | 455.76 | 448.55 | 0.14% | 0.50 | 1.48% | 0.31 | 6.62 | 90.00 | 1 | 27.48 | |
| 1981 | Surface | Active | 1,661.03 | 1,632.53 | 0.15% | 1.06 | 1.51% | 2.63 | 24.60 | 90.00 | 1 | 236.57 | |
| 1982 | Surface | Active | 620.00 | 609.12 | 0.17% | 1.00 | 1.54% | 1.03 | 9.36 | 90.00 | 1 | 92.61 | |
| 1983 | Surface | Active | 1,704.33 | 1,675.33 | 0.19% | 0.50 | 1.57% | 1.55 | 26.28 | 90.00 | 1 | 139.71 | |
| 1984 | Surface | Active | - | - | 0.20% | - | 1.60% | - | - | 90.00 | 1 | - | |
| 1985 | Surface | Active | 2,405.91 | 2,361.86 | 0.22% | 0.70 | 1.63% | 3.61 | 38.58 | 90.00 | 1 | 324.53 | |
| 1986 | Surface | Active | 2,331.92 | 2,285.99 | 0.23% | 1.07 | 1.67% | 5.74 | 38.10 | 90.00 | 1 | 516.91 | |
| 1987 | Surface | Active | 1,371.12 | 1,344.27 | 0.25% | 0.83 | 1.70% | 2.81 | 22.86 | 90.00 | 1 | 252.94 | |
| 1988 | Surface | Active | 1,898.10 | 1,859.77 | 0.27% | 0.88 | 1.74% | 4.35 | 32.28 | 90.00 | 1 | 391.44 | |
| 1989 | Surface | Active | 2,959.93 | 2,900.73 | 0.28% | 0.64 | 1.77% | 5.29 | 51.37 | 90.00 | 1 | 476.07 | |
| 1990 | Surface | Active | 2,801.20 | 2,742.90 | 0.30% | 0.75 | 1.81% | 6.17 | 49.57 | 90.00 | 1 | 555.54 | |
| 1991 | Surface | Active | 2,094.19 | 2,048.20 | 0.32% | 0.94 | 1.84% | 6.12 | 37.77 | 90.00 | 1 | 550.93 | |
| 1992 | Surface | Active | 4,639.40 | 4,542.22 | 0.33% | 0.50 | 1.88% | 7.56 | 85.47 | 90.00 | 1 | 680.32 | |
| 1993 | Surface | Active | 4,377.78 | 4,278.67 | 0.35% | 0.83 | 1.92% | 12.45 | 82.15 | 90.00 | 1 | 1,120.68 | |
| 1994 | Surface | Active | 2,054.59 | 2,009.59 | 0.37% | 0.50 | 1.96% | 3.67 | 39.37 | 90.00 | 1 | 330.64 | |
| 1995 | Surface | Active | 6,620.84 | 6,461.60 | 0.38% | 0.92 | 2.00% | 22.63 | 129.18 | 90.00 | 1 | 2,036.44 | |
| 1996 | Surface | Active | 6,830.47 | 6,664.68 | 0.40% | 0.83 | 2.04% | 22.13 | 135.96 | 90.00 | 1 | 1,991.42 | |
| 1997 | Surface | Active | 13,199.94 | 12,874.51 | 0.41% | 0.79 | 2.08% | 42.28 | 267.99 | 90.00 | 1 | 3,804.94 | |
| 1998 | Surface | Active | 11,029.10 | 10,757.58 | 0.43% | 0.66 | 2.12% | 30.52 | 228.50 | 90.00 | 1 | 2,746.48 | |
| 1999 | Surface | Active | 2,072.61 | 2,021.96 | 0.45% | 0.50 | 2.17% | 4.52 | 43.82 | 90.00 | 1 | 407.24 | |
| 2000 | Surface | Active | 4,526.19 | 4,413.17 | 0.46% | 0.50 | 2.21% | 10.24 | 97.60 | 90.00 | 1 | 921.40 | |
| 2001 | Surface | Active | 6,826.55 | 6,639.90 | 0.48% | 0.87 | 2.26% | 27.70 | 149.85 | 90.00 | 1 | 2,492.87 | |
| 2002 | Surface | Active | 6,499.09 | 6,325.25 | 0.50% | 0.63 | 2.30% | 19.90 | 145.66 | 90.00 | 1 | 1,790.97 | |
| 2003 | Surface | Active | 6,916.12 | 6,720.53 | 0.51% | 0.81 | 2.35% | 28.02 | 157.92 | 90.00 | 1 | 2,521.77 | |
| 2004 | Surface | Active | 11,573.91 | 11,229.48 | 0.53% | 0.79 | 2.40% | 46.72 | 269.26 | 90.00 | 1 | 4,204.92 | |
| 2005 | Surface | Active | 5,236.53 | 5,071.05 | 0.67% | 1.03 | 2.45% | 35.30 | 124.07 | 90.00 | 1 | 3,176.70 | |
| 2006 | Surface | Active | 4,862.21 | 4,711.63 | 0.64% | 0.90 | 2.50% | 27.23 | 117.63 | 90.00 | 1 | 2,450.32 | |
| 2007 | Surface | Active | 6,382.38 | 6,186.23 | 0.61% | 0.82 | 2.55% | 30.90 | 157.60 | 90.00 | 1 | 2,781.05 | |
| 2008 | Surface | Active | 8,631.88 | 8,375.34 | 0.58% | 0.58 | 2.60% | 28.29 | 217.72 | 90.00 | 1 | 2,545.75 | |
| 2009 | Surface | Active | 6,181.98 | 5,990.73 | 0.55% | 0.75 | 2.65% | 24.60 | 158.91 | 90.00 | 1 | 2,213.65 | |
| 2010 | Surface | Active | 6,203.98 | 6,025.21 | 0.52% | 0.92 | 2.71% | 28.49 | 163.09 | 90.00 | 1 | 2,564.36 | |
| 2011 | Surface | Active | 2,986.04 | 2,911.35 | 0.48% | 0.74 | 2.44% | 10.37 | 70.97 | 90.00 | 1 | 933.15 | |
| 2012 | Surface | Active | 7,650.01 | 7,476.89 | 0.45% | 0.86 | 2.17% | 29.24 | 162.13 | 90.00 | 1 | 2,631.51 | |
| 2013 | Surface | Active | 8,508.13 | 8,337.79 | 0.42% | 0.95 | 1.90% | 33.53 | 158.35 | 90.00 | 1 | 3,017.48 | |
| 2014 | Surface | Active | 4,153.44 | 4,085.76 | 0.39% | 0.75 | 1.63% | 11.94 | 66.60 | 90.00 | 1 | 1,074.81 | |
| 2015 | Surface | Active | 4,371.03 | 4,312.88 | 0.36% | 0.73 | 1.36% | 11.29 | 58.69 | 90.00 | 1 | 1,016.00 | |
| 2016 | Surface | Active | 3,389.17 | 3,354.29 | 0.33% | 0.70 | 1.09% | 7.67 | 36.62 | 90.00 | 1 | 690.26 | |
| 2017 | Surface | Active | 1,324.50 | 1,313.68 | 0.30% | 1.00 | 0.82% | 3.88 | 10.81 | 90.00 | 1 | 348.90 | |
| 2018 | Surface | Active | 3,466.31 | 3,448.42 | 0.26% | 1.00 | 0.55% | 9.09 | 19.08 | 90.00 | 1 | 817.98 | |
| 2019 | Surface | Active | 4,158.88 | 4,143.68 | 0.23% | 0.88 | 0.28% | 8.41 | 11.77 | 90.00 | 1 | 757.12 | |
| 2020 | Surface | Active | 3,830.10 | 3,820.84 | 0.20% | 0.86 | 0.19% | 6.62 | 7.26 | 90.00 | 1 | 595.39 | |
| 2021 | Surface | Active | 3,770.84 | 3,767.75 | 0.17% | 0.93 | 0.10% | 5.91 | 3.61 | 90.00 | 1 | 531.95 | |

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Water Operations & Maintenance Cost Projection - Deterministic N

| Permit Issue Year | Mine Type | Mine Status | 2023 | | | | | | | | Avg recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|-------------------|--------------------|---|-----------------|--------------------|-------------------|------------------|------------------------------|--|---------------|
| | | | Current Bonded Acres | Adjusted Acres | Forfeiture Rate | Adjustment Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | Cost per Acre | | | |
| (1) | (2) | (3) | (4) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | |
| 1963 | Surface | Inactive | - | - | 0.00% | - | 0.67% | - | - | 90.00 | 1 | - | |
| 1964 | Surface | Inactive | - | - | 0.00% | - | 0.67% | - | - | 90.00 | 1 | - | |
| 1965 | Surface | Inactive | - | - | 0.00% | - | 0.68% | - | - | 90.00 | 1 | - | |
| 1966 | Surface | Inactive | - | - | 0.00% | - | 0.70% | - | - | 90.00 | 1 | - | |
| 1967 | Surface | Inactive | - | - | 0.00% | - | 0.71% | - | - | 90.00 | 1 | - | |
| 1968 | Surface | Inactive | - | - | 0.00% | - | 0.72% | - | - | 90.00 | 1 | - | |
| 1969 | Surface | Inactive | - | - | 0.00% | - | 0.74% | - | - | 90.00 | 1 | - | |
| 1970 | Surface | Inactive | - | - | 0.00% | - | 0.75% | - | - | 90.00 | 1 | - | |
| 1971 | Surface | Inactive | - | - | 0.00% | - | 0.77% | - | - | 90.00 | 1 | - | |
| 1972 | Surface | Inactive | - | - | 0.01% | - | 0.79% | - | - | 90.00 | 1 | - | |
| 1973 | Surface | Inactive | - | - | 0.05% | - | 0.80% | - | - | 90.00 | 1 | - | |
| 1974 | Surface | Inactive | - | - | 0.09% | - | 0.82% | - | - | 90.00 | 1 | - | |
| 1975 | Surface | Inactive | - | - | 0.12% | - | 0.83% | - | - | 90.00 | 1 | - | |
| 1976 | Surface | Inactive | 438.80 | 434.56 | 0.16% | 0.50 | 0.85% | 0.35 | 3.70 | 90.00 | 1 | 31.06 | |
| 1977 | Surface | Inactive | - | - | 0.20% | - | 0.87% | - | - | 90.00 | 1 | - | |
| 1978 | Surface | Inactive | - | - | 0.23% | - | 0.89% | - | - | 90.00 | 1 | - | |
| 1979 | Surface | Inactive | - | - | 0.27% | - | 0.90% | - | - | 90.00 | 1 | - | |
| 1980 | Surface | Inactive | - | - | 0.31% | - | 0.92% | - | - | 90.00 | 1 | - | |
| 1981 | Surface | Inactive | 4.47 | 4.42 | 0.34% | 0.50 | 0.94% | 0.01 | 0.04 | 90.00 | 1 | 0.68 | |
| 1982 | Surface | Inactive | - | - | 0.38% | - | 0.96% | - | - | 90.00 | 1 | - | |
| 1983 | Surface | Inactive | - | - | 0.42% | - | 0.98% | - | - | 90.00 | 1 | - | |
| 1984 | Surface | Inactive | - | - | 0.45% | - | 1.00% | - | - | 90.00 | 1 | - | |
| 1985 | Surface | Inactive | - | - | 0.49% | - | 1.02% | - | - | 90.00 | 1 | - | |
| 1986 | Surface | Inactive | 411.07 | 405.54 | 0.53% | 0.50 | 1.04% | 1.07 | 4.22 | 90.00 | 1 | 96.29 | |
| 1987 | Surface | Inactive | 415.61 | 408.60 | 0.56% | 1.00 | 1.06% | 2.31 | 4.34 | 90.00 | 1 | 207.59 | |
| 1988 | Surface | Inactive | 1,304.38 | 1,285.78 | 0.60% | 0.50 | 1.08% | 3.87 | 13.95 | 90.00 | 1 | 347.95 | |
| 1989 | Surface | Inactive | 273.00 | 268.07 | 0.64% | 1.00 | 1.11% | 1.71 | 2.97 | 90.00 | 1 | 153.99 | |
| 1990 | Surface | Inactive | 81.70 | 80.47 | 0.68% | 0.50 | 1.13% | 0.27 | 0.91 | 90.00 | 1 | 24.45 | |
| 1991 | Surface | Inactive | - | - | 0.71% | - | 1.15% | - | - | 90.00 | 1 | - | |
| 1992 | Surface | Inactive | - | - | 0.75% | - | 1.18% | - | - | 90.00 | 1 | - | |
| 1993 | Surface | Inactive | - | - | 0.79% | - | 1.20% | - | - | 90.00 | 1 | - | |
| 1994 | Surface | Inactive | - | - | 0.82% | - | 1.22% | - | - | 90.00 | 1 | - | |
| 1995 | Surface | Inactive | 3,503.18 | 3,442.81 | 0.86% | 0.50 | 1.25% | 14.80 | 43.02 | 90.00 | 1 | 1,331.64 | |
| 1996 | Surface | Inactive | 193.90 | 190.47 | 0.90% | 0.50 | 1.27% | 0.85 | 2.43 | 90.00 | 1 | 76.83 | |
| 1997 | Surface | Inactive | - | - | 0.93% | - | 1.30% | - | - | 90.00 | 1 | - | |
| 1998 | Surface | Inactive | 846.89 | 831.15 | 0.97% | 0.50 | 1.33% | 4.03 | 11.03 | 90.00 | 1 | 362.86 | |
| 1999 | Surface | Inactive | 2,264.80 | 2,221.67 | 1.01% | 0.50 | 1.35% | 11.19 | 30.10 | 90.00 | 1 | 1,006.80 | |
| 2000 | Surface | Inactive | - | - | 1.04% | - | 1.38% | - | - | 90.00 | 1 | - | |
| 2001 | Surface | Inactive | 596.67 | 584.75 | 1.08% | 0.50 | 1.41% | 3.16 | 8.25 | 90.00 | 1 | 284.40 | |
| 2002 | Surface | Inactive | 765.87 | 750.20 | 1.12% | 0.50 | 1.44% | 4.19 | 10.80 | 90.00 | 1 | 377.32 | |
| 2003 | Surface | Inactive | 4,249.33 | 4,160.34 | 1.15% | 0.50 | 1.47% | 24.02 | 61.10 | 90.00 | 1 | 2,161.52 | |
| 2004 | Surface | Inactive | 3,700.97 | 3,616.33 | 1.19% | 0.50 | 1.50% | 21.54 | 54.19 | 90.00 | 1 | 1,938.89 | |
| 2005 | Surface | Inactive | 25.99 | 25.02 | 1.52% | 1.50 | 1.53% | 0.57 | 0.38 | 90.00 | 1 | 51.19 | |
| 2006 | Surface | Inactive | 244.59 | 239.02 | 1.44% | 0.50 | 1.56% | 1.73 | 3.73 | 90.00 | 1 | 155.38 | |
| 2007 | Surface | Inactive | 399.20 | 390.11 | 1.37% | 0.50 | 1.59% | 2.68 | 6.21 | 90.00 | 1 | 241.14 | |
| 2008 | Surface | Inactive | 864.07 | 841.76 | 1.30% | 0.75 | 1.62% | 8.22 | 13.68 | 90.00 | 1 | 740.17 | |
| 2009 | Surface | Inactive | 680.43 | 664.97 | 1.23% | 0.50 | 1.66% | 4.10 | 11.02 | 90.00 | 1 | 368.57 | |
| 2010 | Surface | Inactive | 5.11 | 4.95 | 1.16% | 1.50 | 1.69% | 0.09 | 0.08 | 90.00 | 1 | 7.75 | |
| 2011 | Surface | Inactive | 560.86 | 550.40 | 1.09% | 0.50 | 1.52% | 3.00 | 8.39 | 90.00 | 1 | 269.92 | |
| 2012 | Surface | Inactive | 676.78 | 665.54 | 1.02% | 0.50 | 1.36% | 3.39 | 9.02 | 90.00 | 1 | 305.13 | |
| 2013 | Surface | Inactive | 93.44 | 92.08 | 0.95% | 0.50 | 1.19% | 0.44 | 1.09 | 90.00 | 1 | 39.27 | |
| 2014 | Surface | Inactive | 2,929.61 | 2,886.98 | 0.88% | 0.75 | 1.02% | 18.99 | 29.41 | 90.00 | 1 | 1,708.78 | |
| 2015 | Surface | Inactive | 704.80 | 697.40 | 0.81% | 0.50 | 0.85% | 2.81 | 5.93 | 90.00 | 1 | 252.92 | |
| 2016 | Surface | Inactive | 494.54 | 490.36 | 0.73% | 0.50 | 0.68% | 1.80 | 3.35 | 90.00 | 1 | 162.17 | |
| 2017 | Surface | Inactive | - | - | 0.66% | - | 0.51% | - | - | 90.00 | 1 | - | |
| 2018 | Surface | Inactive | 351.08 | 349.54 | 0.59% | 0.50 | 0.35% | 1.04 | 1.21 | 90.00 | 1 | 93.28 | |
| 2019 | Surface | Inactive | 452.10 | 448.50 | 0.52% | 1.50 | 0.18% | 3.51 | 0.80 | 90.00 | 1 | 316.09 | |
| 2020 | Surface | Inactive | - | - | 0.45% | - | 0.12% | - | - | 90.00 | 1 | - | |
| 2021 | Surface | Inactive | - | - | 0.38% | - | 0.06% | - | - | 90.00 | 1 | - | |

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 Water Operations & Maintenance Cost Projection - Deterministic N

| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | 2023 | | | | | | | | | Avg recl Cost per Acre (19) | Adjustment Factor Permit Status (20) | Gross Cost (21) |
|--------------------------------|---------------------|-----------------------|-----------------------------------|---------------------------|----------------------------|---|-------------------------|----------------------------|---------------------------|-------|---|--------------------------------------|--|-----------------------|
| | | | Current Bonded Acres (4) | Adjusted Acres (13) | Forfeiture Rate (14) | Adjustment Factor Permit Bond Size (15) | Release Rate (16) | Forfeited Acres (17) | Released Acres (18) | | | | | |
| 1963 | Surface | Phased Released | - | - | 0.00% | - | 3.21% | - | - | 90.00 | 1 | - | | |
| 1964 | Surface | Phased Released | - | - | 0.00% | - | 3.21% | - | - | 90.00 | 1 | - | | |
| 1965 | Surface | Phased Released | - | - | 0.00% | - | 3.27% | - | - | 90.00 | 1 | - | | |
| 1966 | Surface | Phased Released | - | - | 0.00% | - | 3.34% | - | - | 90.00 | 1 | - | | |
| 1967 | Surface | Phased Released | - | - | 0.00% | - | 3.41% | - | - | 90.00 | 1 | - | | |
| 1968 | Surface | Phased Released | - | - | 0.00% | - | 3.48% | - | - | 90.00 | 1 | - | | |
| 1969 | Surface | Phased Released | - | - | 0.00% | - | 3.55% | - | - | 90.00 | 1 | - | | |
| 1970 | Surface | Phased Released | - | - | 0.00% | - | 3.62% | - | - | 90.00 | 1 | - | | |
| 1971 | Surface | Phased Released | - | - | 0.00% | - | 3.69% | - | - | 90.00 | 1 | - | | |
| 1972 | Surface | Phased Released | - | - | 0.02% | - | 3.77% | - | - | 90.00 | 1 | - | | |
| 1973 | Surface | Phased Released | - | - | 0.08% | - | 3.85% | - | - | 90.00 | 1 | - | | |
| 1974 | Surface | Phased Released | 189.60 | 182.01 | 0.15% | - | 3.92% | - | 7.14 | 90.00 | 1 | - | | |
| 1975 | Surface | Phased Released | 8.30 | 7.96 | 0.21% | - | 4.00% | - | 0.32 | 90.00 | 1 | - | | |
| 1976 | Surface | Phased Released | 626.17 | 600.06 | 0.28% | - | 4.09% | - | 24.52 | 90.00 | 1 | - | | |
| 1977 | Surface | Phased Released | 48.00 | 45.96 | 0.34% | - | 4.17% | - | 1.92 | 90.00 | 1 | - | | |
| 1978 | Surface | Phased Released | 158.81 | 151.92 | 0.40% | - | 4.25% | - | 6.46 | 90.00 | 1 | - | | |
| 1979 | Surface | Phased Released | 358.00 | 342.14 | 0.47% | - | 4.34% | - | 14.85 | 90.00 | 1 | - | | |
| 1980 | Surface | Phased Released | 621.75 | 593.65 | 0.53% | - | 4.43% | - | 26.30 | 90.00 | 1 | - | | |
| 1981 | Surface | Phased Released | 1,821.81 | 1,737.79 | 0.60% | - | 4.52% | - | 78.55 | 90.00 | 1 | - | | |
| 1982 | Surface | Phased Released | - | - | 0.66% | - | 4.61% | - | - | 90.00 | 1 | - | | |
| 1983 | Surface | Phased Released | 302.61 | 288.08 | 0.73% | - | 4.71% | - | 13.56 | 90.00 | 1 | - | | |
| 1984 | Surface | Phased Released | 2,603.39 | 2,475.82 | 0.79% | - | 4.80% | - | 118.90 | 90.00 | 1 | - | | |
| 1985 | Surface | Phased Released | 1,270.29 | 1,206.77 | 0.85% | - | 4.90% | - | 59.14 | 90.00 | 1 | - | | |
| 1986 | Surface | Phased Released | 1,212.46 | 1,150.60 | 0.92% | - | 5.00% | - | 57.53 | 90.00 | 1 | - | | |
| 1987 | Surface | Phased Released | 760.81 | 721.20 | 0.98% | - | 5.10% | - | 36.80 | 90.00 | 1 | - | | |
| 1988 | Surface | Phased Released | 478.00 | 452.61 | 1.05% | - | 5.21% | - | 23.56 | 90.00 | 1 | - | | |
| 1989 | Surface | Phased Released | 1,688.64 | 1,597.10 | 1.11% | - | 5.31% | - | 84.85 | 90.00 | 1 | - | | |
| 1990 | Surface | Phased Released | 662.34 | 625.70 | 1.18% | - | 5.42% | - | 33.92 | 90.00 | 1 | - | | |
| 1991 | Surface | Phased Released | 1,006.45 | 949.64 | 1.24% | - | 5.53% | - | 52.53 | 90.00 | 1 | - | | |
| 1992 | Surface | Phased Released | - | - | 1.30% | - | 5.64% | - | - | 90.00 | 1 | - | | |
| 1993 | Surface | Phased Released | 562.59 | 529.52 | 1.37% | - | 5.76% | - | 30.50 | 90.00 | 1 | - | | |
| 1994 | Surface | Phased Released | 2,470.42 | 2,322.26 | 1.43% | - | 5.88% | - | 136.49 | 90.00 | 1 | - | | |
| 1995 | Surface | Phased Released | 498.93 | 468.40 | 1.50% | - | 6.00% | - | 28.09 | 90.00 | 1 | - | | |
| 1996 | Surface | Phased Released | 563.71 | 528.51 | 1.56% | - | 6.12% | - | 32.34 | 90.00 | 1 | - | | |
| 1997 | Surface | Phased Released | 969.50 | 907.72 | 1.62% | - | 6.24% | - | 56.68 | 90.00 | 1 | - | | |
| 1998 | Surface | Phased Released | 511.73 | 478.46 | 1.69% | - | 6.37% | - | 30.49 | 90.00 | 1 | - | | |
| 1999 | Surface | Phased Released | 14.87 | 13.88 | 1.75% | - | 6.50% | - | 0.90 | 90.00 | 1 | - | | |
| 2000 | Surface | Phased Released | 19.70 | 18.37 | 1.82% | - | 6.63% | - | 1.22 | 90.00 | 1 | - | | |
| 2001 | Surface | Phased Released | 491.55 | 457.59 | 1.88% | - | 6.77% | - | 30.98 | 90.00 | 1 | - | | |
| 2002 | Surface | Phased Released | 106.29 | 98.80 | 1.95% | - | 6.91% | - | 6.83 | 90.00 | 1 | - | | |
| 2003 | Surface | Phased Released | - | - | 2.01% | - | 7.05% | - | - | 90.00 | 1 | - | | |
| 2004 | Surface | Phased Released | 470.13 | 435.62 | 2.07% | - | 7.19% | - | 31.34 | 90.00 | 1 | - | | |
| 2005 | Surface | Phased Released | 51.50 | 47.64 | 2.64% | - | 7.34% | - | 3.50 | 90.00 | 1 | - | | |
| 2006 | Surface | Phased Released | 60.78 | 56.13 | 2.51% | - | 7.49% | - | 4.20 | 90.00 | 1 | - | | |
| 2007 | Surface | Phased Released | - | - | 2.39% | - | 7.64% | - | - | 90.00 | 1 | - | | |
| 2008 | Surface | Phased Released | - | - | 2.27% | - | 7.80% | - | - | 90.00 | 1 | - | | |
| 2009 | Surface | Phased Released | 220.84 | 202.91 | 2.14% | - | 7.96% | - | 16.15 | 90.00 | 1 | - | | |
| 2010 | Surface | Phased Released | - | - | 2.02% | - | 8.12% | - | - | 90.00 | 1 | - | | |
| 2011 | Surface | Phased Released | 55.50 | 51.89 | 1.90% | - | 7.31% | - | 3.79 | 90.00 | 1 | - | | |
| 2012 | Surface | Phased Released | - | - | 1.77% | - | 6.51% | - | - | 90.00 | 1 | - | | |
| 2013 | Surface | Phased Released | - | - | 1.65% | - | 5.70% | - | - | 90.00 | 1 | - | | |
| 2014 | Surface | Phased Released | 27.91 | 26.77 | 1.53% | - | 4.89% | - | 1.31 | 90.00 | 1 | - | | |
| 2015 | Surface | Phased Released | - | - | 1.40% | - | 4.08% | - | - | 90.00 | 1 | - | | |
| 2016 | Surface | Phased Released | - | - | 1.28% | - | 3.28% | - | - | 90.00 | 1 | - | | |
| 2017 | Surface | Phased Released | - | - | 1.16% | - | 2.47% | - | - | 90.00 | 1 | - | | |
| 2018 | Surface | Phased Released | - | - | 1.03% | - | 1.66% | - | - | 90.00 | 1 | - | | |
| 2019 | Surface | Phased Released | - | - | 0.91% | - | 0.85% | - | - | 90.00 | 1 | - | | |
| 2020 | Surface | Phased Released | - | - | 0.79% | - | 0.57% | - | - | 90.00 | 1 | - | | |
| 2021 | Surface | Phased Released | - | - | 0.66% | - | 0.29% | - | - | 90.00 | 1 | - | | |

West Virginia Department of Environmental Protection Office of Sp
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Water Operations & Maintenance Cost Projection - Deterministic N

| Permit Issue Year | Mine Type | Mine Status | 2023 | | | | | | | | Avg recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost | |
|-------------------------|--------------|----------------|-----------------|-------------------|--------------------|-----------|----------------|-----------------|--------------------|-----------|------------------------------|--|---------------|----------|
| | | | Current | Adjustment | | Factor | | Release | | Forfeited | | | | Released |
| | | | Bonded Acres | Adjusted Acres | Forfeiture Rate | Bond Size | Permit Rate | Release Rate | Forfeited Acres | | | | | |
| (4) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | | | | | |
| 1963 | Underground | Active | - | - | 0.15% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1964 | Underground | Active | - | - | 0.15% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1965 | Underground | Active | - | - | 0.15% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1966 | Underground | Active | - | - | 0.16% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1967 | Underground | Active | - | - | 0.16% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1968 | Underground | Active | - | - | 0.16% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1969 | Underground | Active | - | - | 0.16% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1970 | Underground | Active | - | - | 0.16% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1971 | Underground | Active | - | - | 0.17% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1972 | Underground | Active | - | - | 0.17% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1973 | Underground | Active | - | - | 0.17% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1974 | Underground | Active | - | - | 0.17% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1975 | Underground | Active | - | - | 0.17% | - | 0.12% | - | - | 140.00 | 1 | - | | |
| 1976 | Underground | Active | - | - | 0.17% | - | 0.26% | - | - | 140.00 | 1 | - | | |
| 1977 | Underground | Active | 22.53 | 22.35 | 0.18% | 1.50 | 0.40% | 0.06 | 0.09 | 140.00 | 1 | 8.28 | | |
| 1978 | Underground | Active | 94.87 | 94.14 | 0.18% | 0.50 | 0.54% | 0.08 | 0.51 | 140.00 | 1 | 11.76 | | |
| 1979 | Underground | Active | 745.26 | 737.49 | 0.18% | 1.21 | 0.68% | 1.61 | 5.02 | 140.00 | 1 | 226.08 | | |
| 1980 | Underground | Active | 222.16 | 219.57 | 0.18% | 1.10 | 0.82% | 0.44 | 1.80 | 140.00 | 1 | 61.62 | | |
| 1981 | Underground | Active | 891.30 | 879.48 | 0.18% | 1.21 | 0.96% | 1.95 | 8.45 | 140.00 | 1 | 273.40 | | |
| 1982 | Underground | Active | 33.93 | 33.41 | 0.19% | 1.50 | 1.10% | 0.09 | 0.37 | 140.00 | 1 | 13.05 | | |
| 1983 | Underground | Active | 6,929.70 | 6,822.39 | 0.19% | 0.88 | 1.24% | 11.27 | 84.70 | 140.00 | 1 | 1,578.49 | | |
| 1984 | Underground | Active | 2,706.46 | 2,660.09 | 0.19% | 1.00 | 1.38% | 5.05 | 36.75 | 140.00 | 1 | 707.03 | | |
| 1985 | Underground | Active | 49.00 | 48.04 | 0.19% | 1.50 | 1.52% | 0.14 | 0.73 | 140.00 | 1 | 19.35 | | |
| 1986 | Underground | Active | 252.11 | 247.02 | 0.19% | 1.10 | 1.66% | 0.53 | 4.11 | 140.00 | 1 | 73.67 | | |
| 1987 | Underground | Active | 198.36 | 194.08 | 0.20% | 1.10 | 1.80% | 0.42 | 3.50 | 140.00 | 1 | 58.45 | | |
| 1988 | Underground | Active | 157.83 | 154.15 | 0.20% | 1.25 | 1.94% | 0.38 | 2.99 | 140.00 | 1 | 53.27 | | |
| 1989 | Underground | Active | 124.08 | 120.95 | 0.20% | 1.50 | 2.08% | 0.36 | 2.52 | 140.00 | 1 | 50.64 | | |
| 1990 | Underground | Active | 136.22 | 132.64 | 0.20% | 1.30 | 2.22% | 0.35 | 2.95 | 140.00 | 1 | 48.59 | | |
| 1991 | Underground | Active | 240.32 | 233.66 | 0.20% | 1.30 | 2.36% | 0.62 | 5.52 | 140.00 | 1 | 86.41 | | |
| 1992 | Underground | Active | 1,027.11 | 997.66 | 0.21% | 1.08 | 2.50% | 2.22 | 24.97 | 140.00 | 1 | 310.33 | | |
| 1993 | Underground | Active | 724.45 | 702.52 | 0.21% | 1.17 | 2.64% | 1.70 | 18.57 | 140.00 | 1 | 237.52 | | |
| 1994 | Underground | Active | 610.69 | 591.50 | 0.21% | 1.04 | 2.78% | 1.28 | 16.46 | 140.00 | 1 | 179.65 | | |
| 1995 | Underground | Active | 334.05 | 322.99 | 0.21% | 1.17 | 2.92% | 0.79 | 9.44 | 140.00 | 1 | 111.21 | | |
| 1996 | Underground | Active | 244.18 | 235.73 | 0.21% | 1.20 | 3.06% | 0.60 | 7.22 | 140.00 | 1 | 84.24 | | |
| 1997 | Underground | Active | 234.02 | 225.51 | 0.21% | 1.35 | 3.20% | 0.65 | 7.22 | 140.00 | 1 | 91.22 | | |
| 1998 | Underground | Active | 523.54 | 504.16 | 0.22% | 1.00 | 3.34% | 1.09 | 16.86 | 140.00 | 1 | 152.83 | | |
| 1999 | Underground | Active | 359.47 | 345.33 | 0.22% | 1.40 | 3.48% | 1.06 | 12.03 | 140.00 | 1 | 147.85 | | |
| 2000 | Underground | Active | 461.64 | 443.03 | 0.22% | 1.20 | 3.62% | 1.17 | 16.05 | 140.00 | 1 | 164.00 | | |
| 2001 | Underground | Active | 224.71 | 215.48 | 0.22% | 0.90 | 3.76% | 0.43 | 8.11 | 140.00 | 1 | 60.34 | | |
| 2002 | Underground | Active | 288.53 | 275.96 | 0.22% | 1.38 | 3.90% | 0.85 | 10.77 | 140.00 | 1 | 119.07 | | |
| 2003 | Underground | Active | 969.45 | 926.17 | 0.23% | 1.23 | 4.04% | 2.57 | 37.46 | 140.00 | 1 | 359.73 | | |
| 2004 | Underground | Active | 445.92 | 429.68 | 0.23% | 1.13 | 4.18% | 1.10 | 17.98 | 140.00 | 1 | 154.27 | | |
| 2005 | Underground | Active | 360.91 | 348.24 | 0.23% | 1.13 | 3.38% | 0.90 | 11.78 | 140.00 | 1 | 126.08 | | |
| 2006 | Underground | Active | 427.71 | 413.55 | 0.23% | 0.83 | 3.25% | 0.80 | 13.44 | 140.00 | 1 | 111.82 | | |
| 2007 | Underground | Active | 482.68 | 466.89 | 0.23% | 1.23 | 3.12% | 1.34 | 14.55 | 140.00 | 1 | 187.45 | | |
| 2008 | Underground | Active | 111.00 | 107.44 | 0.24% | 1.50 | 2.98% | 0.38 | 3.20 | 140.00 | 1 | 53.15 | | |
| 2009 | Underground | Active | 320.63 | 311.11 | 0.24% | 1.07 | 2.85% | 0.79 | 8.86 | 140.00 | 1 | 110.82 | | |
| 2010 | Underground | Active | 269.59 | 261.72 | 0.24% | 1.41 | 2.71% | 0.88 | 7.10 | 140.00 | 1 | 123.60 | | |
| 2011 | Underground | Active | 192.99 | 187.63 | 0.24% | 1.36 | 2.58% | 0.61 | 4.84 | 140.00 | 1 | 86.02 | | |
| 2012 | Underground | Active | 171.01 | 166.50 | 0.24% | 1.33 | 2.45% | 0.54 | 4.07 | 140.00 | 1 | 75.58 | | |
| 2013 | Underground | Active | 398.29 | 388.21 | 0.25% | 1.42 | 2.31% | 1.35 | 8.98 | 140.00 | 1 | 189.57 | | |
| 2014 | Underground | Active | 686.91 | 670.68 | 0.25% | 1.27 | 2.18% | 2.11 | 14.61 | 140.00 | 1 | 295.19 | | |
| 2015 | Underground | Active | 132.11 | 129.00 | 0.25% | 1.50 | 2.05% | 0.48 | 2.64 | 140.00 | 1 | 67.43 | | |
| 2016 | Underground | Active | 137.58 | 134.61 | 0.30% | 1.50 | 1.91% | 0.60 | 2.57 | 140.00 | 1 | 83.93 | | |
| 2017 | Underground | Active | 155.37 | 152.32 | 0.25% | 1.50 | 1.78% | 0.58 | 2.71 | 140.00 | 1 | 81.57 | | |
| 2018 | Underground | Active | 37.52 | 36.86 | 0.21% | 1.50 | 1.64% | 0.12 | 0.61 | 140.00 | 1 | 16.49 | | |
| 2019 | Underground | Active | 79.46 | 78.24 | 0.17% | 1.25 | 1.51% | 0.17 | 1.18 | 140.00 | 1 | 23.44 | | |
| 2020 | Underground | Active | 110.58 | 109.06 | 0.13% | 1.50 | 1.38% | 0.21 | 1.50 | 140.00 | 1 | 29.60 | | |
| 2021 | Underground | Active | 76.19 | 75.35 | 0.09% | 1.50 | 1.24% | 0.10 | 0.94 | 140.00 | 1 | 13.82 | | |

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Actuarial Reserve Study as of June 30, 2021
Water Operations & Maintenance Cost Projection - Deterministic N

| Permit Issue Year | Mine Type | Mine Status | 2023 | | | | | | | | Avg recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|----------------|----------------------------|-------------------|--------------------|---|-----------------|--------------------|-------------------|----------|------------------------------|--|---------------|
| | | | Current Bonded Acres | Adjusted Acres | Forfeiture Rate | Adjustment Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | Cost per | | | |
| (1) | (2) | (3) | (4) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | |
| 1963 | Underground | Inactive | - | - | 0.34% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1964 | Underground | Inactive | - | - | 0.34% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1965 | Underground | Inactive | - | - | 0.35% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1966 | Underground | Inactive | - | - | 0.35% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1967 | Underground | Inactive | - | - | 0.35% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1968 | Underground | Inactive | - | - | 0.36% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1969 | Underground | Inactive | - | - | 0.36% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1970 | Underground | Inactive | - | - | 0.37% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1971 | Underground | Inactive | - | - | 0.37% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1972 | Underground | Inactive | - | - | 0.38% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1973 | Underground | Inactive | - | - | 0.38% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1974 | Underground | Inactive | - | - | 0.38% | - | 0.00% | - | - | 140.00 | 1 | - | |
| 1975 | Underground | Inactive | - | - | 0.39% | - | 0.08% | - | - | 140.00 | 1 | - | |
| 1976 | Underground | Inactive | 103.30 | 102.84 | 0.39% | 0.50 | 0.16% | 0.20 | 0.17 | 140.00 | 1 | 28.28 | |
| 1977 | Underground | Inactive | - | - | 0.40% | - | 0.25% | - | - | 140.00 | 1 | - | |
| 1978 | Underground | Inactive | 23.02 | 22.88 | 0.40% | 0.50 | 0.34% | 0.05 | 0.08 | 140.00 | 1 | 6.43 | |
| 1979 | Underground | Inactive | 6.60 | 6.55 | 0.41% | 0.50 | 0.43% | 0.01 | 0.03 | 140.00 | 1 | 1.86 | |
| 1980 | Underground | Inactive | - | - | 0.41% | - | 0.51% | - | - | 140.00 | 1 | - | |
| 1981 | Underground | Inactive | 149.03 | 147.38 | 0.41% | 1.00 | 0.60% | 0.61 | 0.89 | 140.00 | 1 | 85.49 | |
| 1982 | Underground | Inactive | 128.47 | 127.20 | 0.42% | 0.50 | 0.69% | 0.27 | 0.88 | 140.00 | 1 | 37.27 | |
| 1983 | Underground | Inactive | 500.86 | 494.93 | 0.42% | 0.75 | 0.78% | 1.57 | 3.84 | 140.00 | 1 | 219.76 | |
| 1984 | Underground | Inactive | 300.00 | 296.50 | 0.43% | 0.50 | 0.86% | 0.63 | 2.56 | 140.00 | 1 | 88.66 | |
| 1985 | Underground | Inactive | 220.21 | 217.44 | 0.43% | 0.50 | 0.95% | 0.47 | 2.07 | 140.00 | 1 | 65.67 | |
| 1986 | Underground | Inactive | 43.54 | 42.95 | 0.44% | 0.50 | 1.04% | 0.09 | 0.45 | 140.00 | 1 | 13.10 | |
| 1987 | Underground | Inactive | 40.89 | 40.12 | 0.44% | 1.50 | 1.13% | 0.26 | 0.45 | 140.00 | 1 | 37.07 | |
| 1988 | Underground | Inactive | 154.89 | 152.03 | 0.44% | 1.21 | 1.21% | 0.82 | 1.85 | 140.00 | 1 | 114.83 | |
| 1989 | Underground | Inactive | 193.50 | 190.37 | 0.45% | 0.50 | 1.30% | 0.43 | 2.48 | 140.00 | 1 | 59.78 | |
| 1990 | Underground | Inactive | 36.13 | 35.40 | 0.45% | 1.17 | 1.39% | 0.19 | 0.49 | 140.00 | 1 | 26.19 | |
| 1991 | Underground | Inactive | 141.42 | 138.56 | 0.46% | 1.00 | 1.48% | 0.63 | 2.05 | 140.00 | 1 | 88.68 | |
| 1992 | Underground | Inactive | 9.00 | 8.79 | 0.46% | 1.50 | 1.56% | 0.06 | 0.14 | 140.00 | 1 | 8.52 | |
| 1993 | Underground | Inactive | 294.11 | 287.61 | 0.47% | 1.00 | 1.65% | 1.34 | 4.75 | 140.00 | 1 | 187.54 | |
| 1994 | Underground | Inactive | 247.11 | 242.01 | 0.47% | 0.50 | 1.74% | 0.57 | 4.21 | 140.00 | 1 | 79.63 | |
| 1995 | Underground | Inactive | 131.50 | 128.35 | 0.47% | 1.00 | 1.83% | 0.61 | 2.34 | 140.00 | 1 | 85.23 | |
| 1996 | Underground | Inactive | 45.38 | 44.14 | 0.48% | 1.50 | 1.91% | 0.32 | 0.85 | 140.00 | 1 | 44.37 | |
| 1997 | Underground | Inactive | 294.76 | 287.06 | 0.48% | 1.07 | 2.00% | 1.49 | 5.75 | 140.00 | 1 | 207.93 | |
| 1998 | Underground | Inactive | 93.26 | 90.69 | 0.49% | 1.17 | 2.09% | 0.52 | 1.90 | 140.00 | 1 | 72.17 | |
| 1999 | Underground | Inactive | 618.15 | 600.92 | 0.49% | 1.06 | 2.18% | 3.12 | 13.08 | 140.00 | 1 | 436.44 | |
| 2000 | Underground | Inactive | 76.39 | 74.02 | 0.50% | 1.50 | 2.26% | 0.55 | 1.68 | 140.00 | 1 | 77.06 | |
| 2001 | Underground | Inactive | 6.00 | 5.81 | 0.50% | 1.50 | 2.35% | 0.04 | 0.14 | 140.00 | 1 | 6.10 | |
| 2002 | Underground | Inactive | 47.21 | 45.90 | 0.50% | 0.50 | 2.44% | 0.12 | 1.12 | 140.00 | 1 | 16.20 | |
| 2003 | Underground | Inactive | 229.90 | 222.71 | 0.51% | 1.00 | 2.53% | 1.13 | 5.63 | 140.00 | 1 | 158.58 | |
| 2004 | Underground | Inactive | 181.69 | 177.38 | 0.51% | 0.50 | 2.62% | 0.45 | 4.64 | 140.00 | 1 | 63.68 | |
| 2005 | Underground | Inactive | 121.31 | 117.90 | 0.52% | 1.50 | 2.11% | 0.91 | 2.49 | 140.00 | 1 | 128.05 | |
| 2006 | Underground | Inactive | 145.55 | 141.82 | 0.52% | 1.17 | 2.03% | 0.86 | 2.88 | 140.00 | 1 | 120.80 | |
| 2007 | Underground | Inactive | 80.93 | 78.89 | 0.53% | 1.25 | 1.95% | 0.52 | 1.54 | 140.00 | 1 | 72.58 | |
| 2008 | Underground | Inactive | 95.14 | 92.68 | 0.53% | 1.50 | 1.86% | 0.74 | 1.73 | 140.00 | 1 | 103.17 | |
| 2009 | Underground | Inactive | 127.40 | 124.30 | 0.53% | 1.38 | 1.78% | 0.91 | 2.21 | 140.00 | 1 | 127.85 | |
| 2010 | Underground | Inactive | 296.02 | 289.19 | 0.54% | 1.28 | 1.70% | 1.99 | 4.91 | 140.00 | 1 | 278.65 | |
| 2011 | Underground | Inactive | 113.07 | 110.41 | 0.54% | 1.50 | 1.61% | 0.90 | 1.78 | 140.00 | 1 | 125.88 | |
| 2012 | Underground | Inactive | 95.72 | 93.72 | 0.55% | 1.17 | 1.53% | 0.60 | 1.43 | 140.00 | 1 | 83.76 | |
| 2013 | Underground | Inactive | 53.70 | 52.52 | 0.55% | 1.50 | 1.45% | 0.43 | 0.76 | 140.00 | 1 | 60.83 | |
| 2014 | Underground | Inactive | 12.00 | 11.75 | 0.56% | 1.50 | 1.36% | 0.10 | 0.16 | 140.00 | 1 | 13.71 | |
| 2015 | Underground | Inactive | 12.04 | 11.78 | 0.56% | 1.50 | 1.28% | 0.10 | 0.15 | 140.00 | 1 | 13.85 | |
| 2016 | Underground | Inactive | - | - | 0.67% | - | 1.19% | - | - | 140.00 | 1 | - | |
| 2017 | Underground | Inactive | - | - | 0.57% | - | 1.11% | - | - | 140.00 | 1 | - | |
| 2018 | Underground | Inactive | 46.96 | 46.25 | 0.48% | 1.50 | 1.03% | 0.33 | 0.48 | 140.00 | 1 | 46.56 | |
| 2019 | Underground | Inactive | - | - | 0.39% | - | 0.94% | - | - | 140.00 | 1 | - | |
| 2020 | Underground | Inactive | - | - | 0.29% | - | 0.86% | - | - | 140.00 | 1 | - | |
| 2021 | Underground | Inactive | - | - | 0.20% | - | 0.78% | - | - | 140.00 | 1 | - | |

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 Actuarial Reserve Study as of June 30, 2021
 Water Operations & Maintenance Cost Projection - Deterministic N

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | 2023 | | | | | | | Avg recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost | |
|-------------------------|--------------|-----------------|----------------------------|-------------------|--------------------|---|-----------------|--------------------|-------------------|--------|------------------------------|--|---------------|------|
| | | | | Adjusted Acres | Forfeiture Rate | Adjustment Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | (13) | | | | (14) |
| 1963 | Underground | Phased Released | - | - | 0.59% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1964 | Underground | Phased Released | - | - | 0.59% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1965 | Underground | Phased Released | - | - | 0.60% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1966 | Underground | Phased Released | - | - | 0.61% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1967 | Underground | Phased Released | - | - | 0.62% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1968 | Underground | Phased Released | - | - | 0.62% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1969 | Underground | Phased Released | - | - | 0.63% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1970 | Underground | Phased Released | - | - | 0.64% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1971 | Underground | Phased Released | - | - | 0.65% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1972 | Underground | Phased Released | - | - | 0.65% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1973 | Underground | Phased Released | - | - | 0.66% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1974 | Underground | Phased Released | - | - | 0.67% | - | 0.00% | - | - | 140.00 | 1 | - | | |
| 1975 | Underground | Phased Released | - | - | 0.68% | - | 0.36% | - | - | 140.00 | 1 | - | | |
| 1976 | Underground | Phased Released | - | - | 0.68% | - | 0.78% | - | - | 140.00 | 1 | - | | |
| 1977 | Underground | Phased Released | - | - | 0.69% | - | 1.20% | - | - | 140.00 | 1 | - | | |
| 1978 | Underground | Phased Released | 23.13 | 22.66 | 0.70% | - | 1.62% | - | 0.37 | 140.00 | 1 | - | | |
| 1979 | Underground | Phased Released | 59.68 | 58.21 | 0.71% | - | 2.04% | - | 1.19 | 140.00 | 1 | - | | |
| 1980 | Underground | Phased Released | 87.19 | 84.68 | 0.71% | - | 2.46% | - | 2.09 | 140.00 | 1 | - | | |
| 1981 | Underground | Phased Released | 85.14 | 82.33 | 0.72% | - | 2.88% | - | 2.37 | 140.00 | 1 | - | | |
| 1982 | Underground | Phased Released | 199.06 | 191.65 | 0.73% | - | 3.30% | - | 6.33 | 140.00 | 1 | - | | |
| 1983 | Underground | Phased Released | 57.47 | 55.09 | 0.74% | - | 3.72% | - | 2.05 | 140.00 | 1 | - | | |
| 1984 | Underground | Phased Released | 95.60 | 91.24 | 0.74% | - | 4.14% | - | 3.78 | 140.00 | 1 | - | | |
| 1985 | Underground | Phased Released | 17.24 | 16.38 | 0.75% | - | 4.57% | - | 0.75 | 140.00 | 1 | - | | |
| 1986 | Underground | Phased Released | 118.96 | 112.53 | 0.76% | - | 4.99% | - | 5.61 | 140.00 | 1 | - | | |
| 1987 | Underground | Phased Released | 77.09 | 72.60 | 0.77% | - | 5.41% | - | 3.92 | 140.00 | 1 | - | | |
| 1988 | Underground | Phased Released | 129.44 | 121.35 | 0.77% | - | 5.83% | - | 7.07 | 140.00 | 1 | - | | |
| 1989 | Underground | Phased Released | 119.44 | 111.48 | 0.78% | - | 6.25% | - | 6.96 | 140.00 | 1 | - | | |
| 1990 | Underground | Phased Released | 18.31 | 17.01 | 0.79% | - | 6.67% | - | 1.13 | 140.00 | 1 | - | | |
| 1991 | Underground | Phased Released | 18.20 | 16.83 | 0.80% | - | 7.09% | - | 1.19 | 140.00 | 1 | - | | |
| 1992 | Underground | Phased Released | 39.95 | 36.78 | 0.80% | - | 7.51% | - | 2.76 | 140.00 | 1 | - | | |
| 1993 | Underground | Phased Released | 30.79 | 28.22 | 0.81% | - | 7.93% | - | 2.24 | 140.00 | 1 | - | | |
| 1994 | Underground | Phased Released | 26.14 | 23.85 | 0.82% | - | 8.35% | - | 1.99 | 140.00 | 1 | - | | |
| 1995 | Underground | Phased Released | 65.62 | 59.59 | 0.83% | - | 8.77% | - | 5.23 | 140.00 | 1 | - | | |
| 1996 | Underground | Phased Released | 133.37 | 120.55 | 0.83% | - | 9.19% | - | 11.08 | 140.00 | 1 | - | | |
| 1997 | Underground | Phased Released | 149.46 | 134.47 | 0.84% | - | 9.61% | - | 12.92 | 140.00 | 1 | - | | |
| 1998 | Underground | Phased Released | 70.67 | 63.28 | 0.85% | - | 10.03% | - | 6.35 | 140.00 | 1 | - | | |
| 1999 | Underground | Phased Released | 10.68 | 9.52 | 0.86% | - | 10.45% | - | 0.99 | 140.00 | 1 | - | | |
| 2000 | Underground | Phased Released | 59.65 | 52.91 | 0.86% | - | 10.87% | - | 5.75 | 140.00 | 1 | - | | |
| 2001 | Underground | Phased Released | 36.60 | 32.31 | 0.87% | - | 11.29% | - | 3.65 | 140.00 | 1 | - | | |
| 2002 | Underground | Phased Released | 48.55 | 42.66 | 0.88% | - | 11.71% | - | 5.00 | 140.00 | 1 | - | | |
| 2003 | Underground | Phased Released | 78.20 | 68.38 | 0.89% | - | 12.13% | - | 8.30 | 140.00 | 1 | - | | |
| 2004 | Underground | Phased Released | 16.25 | 14.60 | 0.89% | - | 12.55% | - | 1.83 | 140.00 | 1 | - | | |
| 2005 | Underground | Phased Released | - | - | 0.90% | - | 10.15% | - | - | 140.00 | 1 | - | | |
| 2006 | Underground | Phased Released | - | - | 0.91% | - | 9.75% | - | - | 140.00 | 1 | - | | |
| 2007 | Underground | Phased Released | - | - | 0.92% | - | 9.35% | - | - | 140.00 | 1 | - | | |
| 2008 | Underground | Phased Released | 43.07 | 39.39 | 0.92% | - | 8.95% | - | 3.52 | 140.00 | 1 | - | | |
| 2009 | Underground | Phased Released | 54.60 | 50.15 | 0.93% | - | 8.54% | - | 4.29 | 140.00 | 1 | - | | |
| 2010 | Underground | Phased Released | - | - | 0.94% | - | 8.14% | - | - | 140.00 | 1 | - | | |
| 2011 | Underground | Phased Released | 25.60 | 23.72 | 0.95% | - | 7.74% | - | 1.84 | 140.00 | 1 | - | | |
| 2012 | Underground | Phased Released | - | - | 0.95% | - | 7.34% | - | - | 140.00 | 1 | - | | |
| 2013 | Underground | Phased Released | - | - | 0.96% | - | 6.94% | - | - | 140.00 | 1 | - | | |
| 2014 | Underground | Phased Released | - | - | 0.97% | - | 6.54% | - | - | 140.00 | 1 | - | | |
| 2015 | Underground | Phased Released | - | - | 0.97% | - | 6.14% | - | - | 140.00 | 1 | - | | |
| 2016 | Underground | Phased Released | - | - | 1.16% | - | 5.73% | - | - | 140.00 | 1 | - | | |
| 2017 | Underground | Phased Released | - | - | 1.00% | - | 5.33% | - | - | 140.00 | 1 | - | | |
| 2018 | Underground | Phased Released | - | - | 0.83% | - | 4.93% | - | - | 140.00 | 1 | - | | |
| 2019 | Underground | Phased Released | - | - | 0.67% | - | 4.53% | - | - | 140.00 | 1 | - | | |
| 2020 | Underground | Phased Released | - | - | 0.51% | - | 4.13% | - | - | 140.00 | 1 | - | | |
| 2021 | Underground | Phased Released | - | - | 0.34% | - | 3.73% | - | - | 140.00 | 1 | - | | |

West Virginia Department of Environmental Protection Office of Sp
Actuarial Reserve Study as of June 30, 2021
Water Operations & Maintenance Cost Projection - Deterministic N

| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | 2023 | | | | | | | | Avg recl Cost per Acre (19) | Adjustment Factor Permit Status (20) | Gross Cost (21) |
|--------------------------------|---------------------|-----------------------|-----------------------------------|---------------------------|----------------------------|---|-------------------------|----------------------------|---------------------------|--------|--------------------------------------|--|-----------------------|
| | | | Current Bonded Acres (4) | Adjusted Acres (13) | Forfeiture Rate (14) | Adjustment Factor Permit Bond Size (15) | Release Rate (16) | Forfeited Acres (17) | Released Acres (18) | | | | |
| 1963 | Other | Active | - | - | 0.21% | - | 2.29% | - | - | 135.00 | 1 | - | |
| 1964 | Other | Active | - | - | 0.21% | - | 2.29% | - | - | 135.00 | 1 | - | |
| 1965 | Other | Active | - | - | 0.21% | - | 2.27% | - | - | 135.00 | 1 | - | |
| 1966 | Other | Active | - | - | 0.21% | - | 2.25% | - | - | 135.00 | 1 | - | |
| 1967 | Other | Active | - | - | 0.21% | - | 2.22% | - | - | 135.00 | 1 | - | |
| 1968 | Other | Active | - | - | 0.21% | - | 2.20% | - | - | 135.00 | 1 | - | |
| 1969 | Other | Active | - | - | 0.21% | - | 2.18% | - | - | 135.00 | 1 | - | |
| 1970 | Other | Active | - | - | 0.21% | - | 2.16% | - | - | 135.00 | 1 | - | |
| 1971 | Other | Active | - | - | 0.21% | - | 2.13% | - | - | 135.00 | 1 | - | |
| 1972 | Other | Active | 20.00 | 19.52 | 0.21% | 1.50 | 2.11% | 0.06 | 0.41 | 135.00 | 1 | 8.18 | |
| 1973 | Other | Active | - | - | 0.21% | - | 2.09% | - | - | 135.00 | 1 | - | |
| 1974 | Other | Active | 28.52 | 27.85 | 0.21% | 1.50 | 2.06% | 0.09 | 0.57 | 135.00 | 1 | 11.67 | |
| 1975 | Other | Active | 6.20 | 6.06 | 0.21% | 1.50 | 2.04% | 0.02 | 0.12 | 135.00 | 1 | 2.54 | |
| 1976 | Other | Active | 75.00 | 73.27 | 0.21% | 1.50 | 2.02% | 0.23 | 1.48 | 135.00 | 1 | 30.72 | |
| 1977 | Other | Active | 307.70 | 300.99 | 0.21% | 1.00 | 2.00% | 0.62 | 6.01 | 135.00 | 1 | 84.12 | |
| 1978 | Other | Active | - | - | 0.21% | - | 1.97% | - | - | 135.00 | 1 | - | |
| 1979 | Other | Active | 65.00 | 63.55 | 0.21% | 1.50 | 1.95% | 0.20 | 1.24 | 135.00 | 1 | 26.64 | |
| 1980 | Other | Active | 370.67 | 362.68 | 0.21% | 1.21 | 1.93% | 0.91 | 6.99 | 135.00 | 1 | 123.08 | |
| 1981 | Other | Active | 4,857.33 | 4,756.44 | 0.21% | 0.94 | 1.91% | 9.27 | 90.61 | 135.00 | 1 | 1,251.11 | |
| 1982 | Other | Active | 554.75 | 543.57 | 0.21% | 0.75 | 1.88% | 0.84 | 10.23 | 135.00 | 1 | 113.94 | |
| 1983 | Other | Active | 3,438.58 | 3,369.22 | 0.21% | 0.87 | 1.86% | 6.08 | 62.65 | 135.00 | 1 | 820.55 | |
| 1984 | Other | Active | 4,464.39 | 4,377.05 | 0.21% | 0.69 | 1.84% | 6.23 | 80.40 | 135.00 | 1 | 841.00 | |
| 1985 | Other | Active | 2,329.11 | 2,282.57 | 0.21% | 1.00 | 1.81% | 4.73 | 41.41 | 135.00 | 1 | 637.92 | |
| 1986 | Other | Active | 1,411.57 | 1,383.80 | 0.21% | 0.96 | 1.79% | 2.75 | 24.79 | 135.00 | 1 | 371.86 | |
| 1987 | Other | Active | 486.71 | 477.13 | 0.21% | 1.07 | 1.77% | 1.06 | 8.44 | 135.00 | 1 | 142.87 | |
| 1988 | Other | Active | 479.98 | 470.50 | 0.21% | 1.21 | 1.75% | 1.18 | 8.21 | 135.00 | 1 | 159.67 | |
| 1989 | Other | Active | 290.43 | 284.68 | 0.21% | 1.36 | 1.72% | 0.80 | 4.90 | 135.00 | 1 | 107.97 | |
| 1990 | Other | Active | 264.35 | 259.20 | 0.21% | 1.30 | 1.70% | 0.70 | 4.41 | 135.00 | 1 | 94.17 | |
| 1991 | Other | Active | 431.34 | 422.99 | 0.21% | 1.36 | 1.68% | 1.19 | 7.10 | 135.00 | 1 | 160.43 | |
| 1992 | Other | Active | 554.74 | 544.48 | 0.21% | 1.06 | 1.65% | 1.19 | 9.01 | 135.00 | 1 | 160.62 | |
| 1993 | Other | Active | 879.50 | 875.05 | 0.21% | 0.75 | 1.63% | 1.36 | 14.28 | 135.00 | 1 | 183.42 | |
| 1994 | Other | Active | 1,837.84 | 1,824.74 | 0.21% | 0.83 | 1.63% | 3.15 | 6.39 | 135.00 | 1 | 424.97 | |
| 1995 | Other | Active | 939.93 | 931.13 | 0.21% | 1.00 | 1.63% | 1.93 | 5.03 | 135.00 | 1 | 260.23 | |
| 1996 | Other | Active | 1,971.02 | 1,950.86 | 0.21% | 0.50 | 1.63% | 2.02 | 14.23 | 135.00 | 1 | 272.61 | |
| 1997 | Other | Active | 1,267.92 | 1,251.24 | 0.21% | 1.00 | 1.63% | 2.59 | 11.50 | 135.00 | 1 | 349.69 | |
| 1998 | Other | Active | 1,054.49 | 1,038.31 | 0.21% | 0.83 | 1.63% | 1.79 | 11.51 | 135.00 | 1 | 241.82 | |
| 1999 | Other | Active | 404.95 | 397.33 | 0.28% | 1.10 | 1.30% | 1.24 | 5.16 | 135.00 | 1 | 166.75 | |
| 2000 | Other | Active | 255.10 | 249.71 | 0.36% | 1.00 | 1.49% | 0.89 | 3.72 | 135.00 | 1 | 120.75 | |
| 2001 | Other | Active | 360.44 | 352.06 | 0.43% | 0.90 | 1.68% | 1.37 | 5.91 | 135.00 | 1 | 185.55 | |
| 2002 | Other | Active | 569.59 | 553.43 | 0.51% | 1.33 | 1.87% | 3.76 | 10.33 | 135.00 | 1 | 507.43 | |
| 2003 | Other | Active | 810.10 | 787.44 | 0.58% | 0.83 | 2.06% | 3.84 | 16.20 | 135.00 | 1 | 518.21 | |
| 2004 | Other | Active | 1,049.09 | 1,016.36 | 0.66% | 0.93 | 2.25% | 6.23 | 22.83 | 135.00 | 1 | 841.61 | |
| 2005 | Other | Active | 22.99 | 22.20 | 0.74% | 1.00 | 2.44% | 0.16 | 0.54 | 135.00 | 1 | 22.06 | |
| 2006 | Other | Active | 491.96 | 473.43 | 0.81% | 1.07 | 2.63% | 4.12 | 12.43 | 135.00 | 1 | 555.87 | |
| 2007 | Other | Active | 368.47 | 353.50 | 0.89% | 1.10 | 2.82% | 3.45 | 9.95 | 135.00 | 1 | 465.80 | |
| 2008 | Other | Active | 649.47 | 620.10 | 0.96% | 1.28 | 3.00% | 7.63 | 18.63 | 135.00 | 1 | 1,030.02 | |
| 2009 | Other | Active | 202.62 | 192.75 | 1.04% | 1.33 | 3.19% | 2.67 | 6.16 | 135.00 | 1 | 360.32 | |
| 2010 | Other | Active | 1,059.98 | 1,008.79 | 1.11% | 1.06 | 3.38% | 11.86 | 34.14 | 135.00 | 1 | 1,601.55 | |
| 2011 | Other | Active | 350.69 | 331.92 | 1.19% | 0.83 | 3.57% | 3.29 | 11.86 | 135.00 | 1 | 444.24 | |
| 2012 | Other | Active | 147.31 | 131.38 | 1.27% | 1.50 | 4.30% | 2.49 | 5.65 | 135.00 | 1 | 336.62 | |
| 2013 | Other | Active | 2,047.67 | 1,750.49 | 1.33% | 1.03 | 8.82% | 23.98 | 154.36 | 135.00 | 1 | 3,237.00 | |
| 2014 | Other | Active | 259.86 | 210.05 | 1.14% | 1.38 | 13.34% | 3.30 | 28.02 | 135.00 | 1 | 445.25 | |
| 2015 | Other | Active | 1,229.64 | 944.15 | 0.95% | 1.10 | 17.86% | 9.90 | 168.60 | 135.00 | 1 | 1,336.54 | |
| 2016 | Other | Active | 1,513.50 | 1,094.81 | 0.76% | 1.33 | 22.38% | 11.16 | 244.98 | 135.00 | 1 | 1,506.73 | |
| 2017 | Other | Active | 388.02 | 235.03 | 0.58% | 1.36 | 26.90% | 1.84 | 63.21 | 135.00 | 1 | 247.98 | |
| 2018 | Other | Active | 36.77 | 24.72 | 0.39% | 1.50 | 38.90% | 0.14 | 9.62 | 135.00 | 1 | 19.38 | |
| 2019 | Other | Active | 50.90 | 39.52 | 0.20% | 1.50 | 32.48% | 0.12 | 12.84 | 135.00 | 1 | 15.89 | |
| 2020 | Other | Active | 777.21 | 682.51 | 0.01% | 1.47 | 22.33% | 0.10 | 152.42 | 135.00 | 1 | 13.34 | |
| 2021 | Other | Active | 175.63 | 172.05 | 0.00% | 1.50 | 12.18% | - | 20.96 | 135.00 | 1 | - | |

| Permit Issue Year (1) | Mine Type (2) | Mine Status (3) | Current Bonded Acres (4) | 2023 | | | | | | Avg recl Cost per Acre (19) | Adjustment Factor Permit Status (20) | Gross Cost (21) |
|--------------------------------|---------------------|-----------------------|-----------------------------------|---------------------------|----------------------------|---|-------------------------|----------------------------|---------------------------|--------------------------------------|--|-----------------------|
| | | | | Adjusted Acres (13) | Forfeiture Rate (14) | Adjustment Factor Permit Bond Size (15) | Release Rate (16) | Forfeited Acres (17) | Released Acres (18) | | | |
| 1963 | Other | Inactive | - | - | 0.47% | - | 1.43% | - | - | 135.00 | 1 | - |
| 1964 | Other | Inactive | - | - | 0.47% | - | 1.43% | - | - | 135.00 | 1 | - |
| 1965 | Other | Inactive | - | - | 0.47% | - | 1.42% | - | - | 135.00 | 1 | - |
| 1966 | Other | Inactive | - | - | 0.47% | - | 1.40% | - | - | 135.00 | 1 | - |
| 1967 | Other | Inactive | - | - | 0.47% | - | 1.39% | - | - | 135.00 | 1 | - |
| 1968 | Other | Inactive | - | - | 0.47% | - | 1.38% | - | - | 135.00 | 1 | - |
| 1969 | Other | Inactive | - | - | 0.47% | - | 1.36% | - | - | 135.00 | 1 | - |
| 1970 | Other | Inactive | - | - | 0.47% | - | 1.35% | - | - | 135.00 | 1 | - |
| 1971 | Other | Inactive | - | - | 0.47% | - | 1.33% | - | - | 135.00 | 1 | - |
| 1972 | Other | Inactive | - | - | 0.47% | - | 1.32% | - | - | 135.00 | 1 | - |
| 1973 | Other | Inactive | - | - | 0.47% | - | 1.30% | - | - | 135.00 | 1 | - |
| 1974 | Other | Inactive | - | - | 0.47% | - | 1.29% | - | - | 135.00 | 1 | - |
| 1975 | Other | Inactive | - | - | 0.47% | - | 1.28% | - | - | 135.00 | 1 | - |
| 1976 | Other | Inactive | 14.48 | 14.20 | 0.47% | 1.50 | 1.26% | 0.10 | 0.18 | 135.00 | 1 | 13.39 |
| 1977 | Other | Inactive | 61.00 | 59.82 | 0.47% | 1.50 | 1.25% | 0.42 | 0.75 | 135.00 | 1 | 56.43 |
| 1978 | Other | Inactive | - | - | 0.47% | - | 1.23% | - | - | 135.00 | 1 | - |
| 1979 | Other | Inactive | 7.25 | 7.11 | 0.47% | 1.50 | 1.22% | 0.05 | 0.09 | 135.00 | 1 | 6.71 |
| 1980 | Other | Inactive | 114.75 | 113.12 | 0.47% | 0.50 | 1.20% | 0.26 | 1.36 | 135.00 | 1 | 35.56 |
| 1981 | Other | Inactive | 1,477.93 | 1,453.92 | 0.47% | 0.96 | 1.19% | 6.51 | 17.31 | 135.00 | 1 | 879.09 |
| 1982 | Other | Inactive | 148.70 | 146.16 | 0.47% | 1.17 | 1.18% | 0.79 | 1.72 | 135.00 | 1 | 107.23 |
| 1983 | Other | Inactive | 1,739.30 | 1,713.26 | 0.47% | 0.75 | 1.16% | 5.99 | 19.91 | 135.00 | 1 | 807.99 |
| 1984 | Other | Inactive | 440.78 | 433.88 | 0.47% | 0.93 | 1.15% | 1.88 | 4.98 | 135.00 | 1 | 253.34 |
| 1985 | Other | Inactive | 364.25 | 358.76 | 0.47% | 0.83 | 1.13% | 1.39 | 4.07 | 135.00 | 1 | 187.99 |
| 1986 | Other | Inactive | - | - | 0.47% | - | 1.12% | - | - | 135.00 | 1 | - |
| 1987 | Other | Inactive | 484.64 | 478.22 | 0.47% | 0.50 | 1.11% | 1.11 | 5.29 | 135.00 | 1 | 150.36 |
| 1988 | Other | Inactive | 167.79 | 165.07 | 0.47% | 1.17 | 1.09% | 0.90 | 1.80 | 135.00 | 1 | 121.10 |
| 1989 | Other | Inactive | 438.61 | 432.11 | 0.47% | 0.90 | 1.08% | 1.81 | 4.65 | 135.00 | 1 | 244.55 |
| 1990 | Other | Inactive | 481.66 | 473.99 | 0.47% | 1.17 | 1.06% | 2.58 | 5.04 | 135.00 | 1 | 347.73 |
| 1991 | Other | Inactive | - | - | 0.47% | - | 1.05% | - | - | 135.00 | 1 | - |
| 1992 | Other | Inactive | 433.18 | 426.14 | 0.47% | 1.30 | 1.03% | 2.58 | 4.41 | 135.00 | 1 | 348.35 |
| 1993 | Other | Inactive | 273.92 | 272.17 | 0.47% | 0.90 | 1.02% | 1.14 | 2.78 | 135.00 | 1 | 154.03 |
| 1994 | Other | Inactive | 545.08 | 540.70 | 0.47% | 1.00 | 0.22% | 2.52 | 1.18 | 135.00 | 1 | 340.00 |
| 1995 | Other | Inactive | 641.22 | 634.81 | 0.47% | 1.17 | 0.34% | 3.45 | 2.14 | 135.00 | 1 | 465.71 |
| 1996 | Other | Inactive | 152.16 | 150.93 | 0.47% | 0.50 | 0.46% | 0.35 | 0.69 | 135.00 | 1 | 47.45 |
| 1997 | Other | Inactive | 158.04 | 156.33 | 0.47% | 0.83 | 0.57% | 0.61 | 0.90 | 135.00 | 1 | 81.92 |
| 1998 | Other | Inactive | 206.29 | 203.30 | 0.47% | 1.00 | 0.69% | 0.95 | 1.41 | 135.00 | 1 | 127.84 |
| 1999 | Other | Inactive | - | - | 0.64% | - | 0.81% | - | - | 135.00 | 1 | - |
| 2000 | Other | Inactive | 116.73 | 114.94 | 0.81% | 0.50 | 0.93% | 0.46 | 1.07 | 135.00 | 1 | 62.53 |
| 2001 | Other | Inactive | 250.00 | 245.65 | 0.98% | 0.50 | 1.05% | 1.20 | 2.58 | 135.00 | 1 | 161.84 |
| 2002 | Other | Inactive | 222.64 | 216.85 | 1.15% | 1.00 | 1.17% | 2.49 | 2.53 | 135.00 | 1 | 335.52 |
| 2003 | Other | Inactive | 78.29 | 75.45 | 1.32% | 1.50 | 1.29% | 1.49 | 0.97 | 135.00 | 1 | 201.08 |
| 2004 | Other | Inactive | 56.00 | 53.76 | 1.49% | 1.50 | 1.40% | 1.20 | 0.75 | 135.00 | 1 | 161.79 |
| 2005 | Other | Inactive | 50.69 | 48.47 | 1.66% | 1.50 | 1.52% | 1.20 | 0.74 | 135.00 | 1 | 162.57 |
| 2006 | Other | Inactive | - | - | 1.83% | - | 1.64% | - | - | 135.00 | 1 | - |
| 2007 | Other | Inactive | - | - | 2.00% | - | 1.76% | - | - | 135.00 | 1 | - |
| 2008 | Other | Inactive | 4.11 | 3.88 | 2.17% | 1.50 | 1.88% | 0.13 | 0.07 | 135.00 | 1 | 17.04 |
| 2009 | Other | Inactive | - | - | 2.34% | - | 2.00% | - | - | 135.00 | 1 | - |
| 2010 | Other | Inactive | - | - | 2.51% | - | 2.12% | - | - | 135.00 | 1 | - |
| 2011 | Other | Inactive | - | - | 2.68% | - | 2.23% | - | - | 135.00 | 1 | - |
| 2012 | Other | Inactive | 66.26 | 61.62 | 2.85% | 0.50 | 2.69% | 0.88 | 1.66 | 135.00 | 1 | 118.41 |
| 2013 | Other | Inactive | 57.00 | 50.05 | 2.99% | 1.50 | 5.51% | 2.25 | 2.76 | 135.00 | 1 | 303.45 |
| 2014 | Other | Inactive | - | - | 2.57% | - | 8.34% | - | - | 135.00 | 1 | - |
| 2015 | Other | Inactive | - | - | 2.14% | - | 11.16% | - | - | 135.00 | 1 | - |
| 2016 | Other | Inactive | - | - | 1.72% | - | 13.99% | - | - | 135.00 | 1 | - |
| 2017 | Other | Inactive | - | - | 1.30% | - | 16.81% | - | - | 135.00 | 1 | - |
| 2018 | Other | Inactive | 11.88 | 9.39 | 0.87% | 1.50 | 24.31% | 0.12 | 2.28 | 135.00 | 1 | 16.56 |
| 2019 | Other | Inactive | - | - | 0.45% | - | 20.30% | - | - | 135.00 | 1 | - |
| 2020 | Other | Inactive | - | - | 0.02% | - | 13.96% | - | - | 135.00 | 1 | - |
| 2021 | Other | Inactive | - | - | 0.00% | - | 7.62% | - | - | 135.00 | 1 | - |

| Permit Issue Year | Mine Type | Mine Status | Current Bonded Acres | 2023 | | | | | | Avg recl Cost per Acre | Adjustment Factor Permit Status | Gross Cost |
|-------------------------|--------------|-----------------|----------------------------|-------------------|--------------------|---|-----------------|--------------------|-------------------|------------------------------|--|---------------|
| | | | | Adjusted Acres | Forfeiture Rate | Adjustment Factor Permit Bond Size | Release Rate | Forfeited Acres | Released Acres | | | |
| (1) | (2) | (3) | (4) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) |
| 1963 | Other | Phased Released | - | - | 0.81% | - | 6.88% | - | - | 135.00 | 1 | - |
| 1964 | Other | Phased Released | - | - | 0.81% | - | 6.88% | - | - | 135.00 | 1 | - |
| 1965 | Other | Phased Released | - | - | 0.81% | - | 6.81% | - | - | 135.00 | 1 | - |
| 1966 | Other | Phased Released | - | - | 0.81% | - | 6.74% | - | - | 135.00 | 1 | - |
| 1967 | Other | Phased Released | - | - | 0.81% | - | 6.67% | - | - | 135.00 | 1 | - |
| 1968 | Other | Phased Released | - | - | 0.81% | - | 6.60% | - | - | 135.00 | 1 | - |
| 1969 | Other | Phased Released | - | - | 0.81% | - | 6.54% | - | - | 135.00 | 1 | - |
| 1970 | Other | Phased Released | - | - | 0.81% | - | 6.47% | - | - | 135.00 | 1 | - |
| 1971 | Other | Phased Released | - | - | 0.81% | - | 6.40% | - | - | 135.00 | 1 | - |
| 1972 | Other | Phased Released | - | - | 0.81% | - | 6.33% | - | - | 135.00 | 1 | - |
| 1973 | Other | Phased Released | 9.00 | 8.44 | 0.81% | - | 6.26% | - | 0.53 | 135.00 | 1 | - |
| 1974 | Other | Phased Released | - | - | 0.81% | - | 6.19% | - | - | 135.00 | 1 | - |
| 1975 | Other | Phased Released | - | - | 0.81% | - | 6.13% | - | - | 135.00 | 1 | - |
| 1976 | Other | Phased Released | 27.88 | 26.21 | 0.81% | - | 6.06% | - | 1.59 | 135.00 | 1 | - |
| 1977 | Other | Phased Released | - | - | 0.81% | - | 5.99% | - | - | 135.00 | 1 | - |
| 1978 | Other | Phased Released | 12.76 | 12.01 | 0.81% | - | 5.92% | - | 0.71 | 135.00 | 1 | - |
| 1979 | Other | Phased Released | 58.69 | 55.30 | 0.81% | - | 5.85% | - | 3.24 | 135.00 | 1 | - |
| 1980 | Other | Phased Released | 7.91 | 7.46 | 0.81% | - | 5.78% | - | 0.43 | 135.00 | 1 | - |
| 1981 | Other | Phased Released | 475.54 | 448.69 | 0.81% | - | 5.72% | - | 25.64 | 135.00 | 1 | - |
| 1982 | Other | Phased Released | 201.26 | 190.03 | 0.81% | - | 5.65% | - | 10.73 | 135.00 | 1 | - |
| 1983 | Other | Phased Released | 158.90 | 150.14 | 0.81% | - | 5.58% | - | 8.38 | 135.00 | 1 | - |
| 1984 | Other | Phased Released | 75.79 | 71.67 | 0.81% | - | 5.51% | - | 3.95 | 135.00 | 1 | - |
| 1985 | Other | Phased Released | 43.00 | 40.69 | 0.81% | - | 5.44% | - | 2.21 | 135.00 | 1 | - |
| 1986 | Other | Phased Released | - | - | 0.81% | - | 5.37% | - | - | 135.00 | 1 | - |
| 1987 | Other | Phased Released | 50.95 | 48.28 | 0.81% | - | 5.31% | - | 2.56 | 135.00 | 1 | - |
| 1988 | Other | Phased Released | - | - | 0.81% | - | 5.24% | - | - | 135.00 | 1 | - |
| 1989 | Other | Phased Released | 38.00 | 36.06 | 0.81% | - | 5.17% | - | 1.86 | 135.00 | 1 | - |
| 1990 | Other | Phased Released | - | - | 0.81% | - | 5.10% | - | - | 135.00 | 1 | - |
| 1991 | Other | Phased Released | - | - | 0.81% | - | 5.03% | - | - | 135.00 | 1 | - |
| 1992 | Other | Phased Released | - | - | 0.81% | - | 4.96% | - | - | 135.00 | 1 | - |
| 1993 | Other | Phased Released | 48.00 | 47.50 | 0.81% | - | 4.90% | - | 2.33 | 135.00 | 1 | - |
| 1994 | Other | Phased Released | - | - | 0.81% | - | 1.05% | - | - | 135.00 | 1 | - |
| 1995 | Other | Phased Released | - | - | 0.81% | - | 1.62% | - | - | 135.00 | 1 | - |
| 1996 | Other | Phased Released | - | - | 0.81% | - | 2.19% | - | - | 135.00 | 1 | - |
| 1997 | Other | Phased Released | 31.16 | 30.12 | 0.81% | - | 2.76% | - | 0.83 | 135.00 | 1 | - |
| 1998 | Other | Phased Released | - | - | 0.81% | - | 3.33% | - | - | 135.00 | 1 | - |
| 1999 | Other | Phased Released | 179.00 | 171.01 | 1.11% | - | 3.90% | - | 6.66 | 135.00 | 1 | - |
| 2000 | Other | Phased Released | - | - | 1.40% | - | 4.46% | - | - | 135.00 | 1 | - |
| 2001 | Other | Phased Released | - | - | 1.70% | - | 5.03% | - | - | 135.00 | 1 | - |
| 2002 | Other | Phased Released | - | - | 2.00% | - | 5.60% | - | - | 135.00 | 1 | - |
| 2003 | Other | Phased Released | - | - | 2.29% | - | 6.17% | - | - | 135.00 | 1 | - |
| 2004 | Other | Phased Released | - | - | 2.59% | - | 6.74% | - | - | 135.00 | 1 | - |
| 2005 | Other | Phased Released | - | - | 2.88% | - | 7.31% | - | - | 135.00 | 1 | - |
| 2006 | Other | Phased Released | - | - | 3.18% | - | 7.88% | - | - | 135.00 | 1 | - |
| 2007 | Other | Phased Released | - | - | 3.48% | - | 8.45% | - | - | 135.00 | 1 | - |
| 2008 | Other | Phased Released | - | - | 3.77% | - | 9.01% | - | - | 135.00 | 1 | - |
| 2009 | Other | Phased Released | - | - | 4.07% | - | 9.58% | - | - | 135.00 | 1 | - |
| 2010 | Other | Phased Released | - | - | 4.36% | - | 10.15% | - | - | 135.00 | 1 | - |
| 2011 | Other | Phased Released | - | - | 4.66% | - | 10.72% | - | - | 135.00 | 1 | - |
| 2012 | Other | Phased Released | - | - | 4.96% | - | 12.90% | - | - | 135.00 | 1 | - |
| 2013 | Other | Phased Released | - | - | 5.21% | - | 26.45% | - | - | 135.00 | 1 | - |
| 2014 | Other | Phased Released | - | - | 4.47% | - | 40.01% | - | - | 135.00 | 1 | - |
| 2015 | Other | Phased Released | - | - | 3.73% | - | 53.57% | - | - | 135.00 | 1 | - |
| 2016 | Other | Phased Released | - | - | 2.99% | - | 67.13% | - | - | 135.00 | 1 | - |
| 2017 | Other | Phased Released | - | - | 2.26% | - | 80.69% | - | - | 135.00 | 1 | - |
| 2018 | Other | Phased Released | - | - | 1.52% | - | 116.71% | - | - | 135.00 | 1 | - |
| 2019 | Other | Phased Released | - | - | 0.78% | - | 97.44% | - | - | 135.00 | 1 | - |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Results of Stochastic Forfeiture Model Simulations

| Year | (1) Forfeited Acres | | | | (2) Forfeited Bond Dollars | | | | (3) Forfeited Permits | | | | (4) Remaining Permitted Acres | | | |
|------|---------------------|------------|------------|-------------|----------------------------|------------|------------|-------------|-----------------------|------------|------------|-------------|-------------------------------|------------|------------|-------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| | <u>25%</u> | <u>50%</u> | <u>75%</u> | <u>Mean</u> | <u>25%</u> | <u>50%</u> | <u>75%</u> | <u>Mean</u> | <u>25%</u> | <u>50%</u> | <u>75%</u> | <u>Mean</u> | <u>25%</u> | <u>50%</u> | <u>75%</u> | <u>Mean</u> |
| 2022 | 2,220 | 3,026 | 4,005 | 3,347 | 6,680,021 | 9,572,696 | 13,979,095 | 11,077,445 | 23 | 26 | 29 | 26 | 298,523 | 301,230 | 303,856 | 301,101 |
| 2023 | 1,481 | 2,268 | 3,248 | 2,538 | 3,324,367 | 5,994,468 | 10,518,711 | 7,564,943 | 13 | 16 | 19 | 16 | 271,269 | 274,783 | 278,315 | 274,725 |
| 2024 | 1,300 | 2,034 | 2,978 | 2,296 | 2,865,442 | 5,545,980 | 9,651,370 | 6,914,358 | 11 | 13 | 16 | 14 | 245,445 | 249,356 | 253,310 | 249,270 |
| 2025 | 1,075 | 1,754 | 2,664 | 2,034 | 2,473,686 | 4,930,476 | 9,167,055 | 6,397,015 | 9 | 11 | 14 | 11 | 222,494 | 226,676 | 230,734 | 226,484 |
| 2026 | 909 | 1,560 | 2,401 | 1,802 | 2,135,217 | 4,481,824 | 8,639,922 | 5,926,918 | 7 | 9 | 12 | 10 | 201,887 | 206,278 | 210,584 | 206,173 |
| 2027 | 736 | 1,271 | 2,119 | 1,580 | 1,747,260 | 3,684,996 | 7,538,730 | 5,311,966 | 6 | 8 | 10 | 8 | 183,665 | 188,186 | 192,416 | 187,976 |
| 2028 | 634 | 1,114 | 1,898 | 1,415 | 1,433,562 | 3,261,230 | 7,086,031 | 4,879,956 | 5 | 7 | 9 | 7 | 166,920 | 171,663 | 176,043 | 171,456 |
| 2029 | 504 | 937 | 1,645 | 1,228 | 1,117,593 | 2,741,080 | 6,401,219 | 4,337,187 | 4 | 6 | 8 | 6 | 152,041 | 156,465 | 160,937 | 156,432 |
| 2030 | 395 | 812 | 1,513 | 1,108 | 849,570 | 2,360,382 | 5,828,008 | 3,975,465 | 4 | 5 | 7 | 6 | 138,328 | 142,917 | 147,327 | 142,832 |
| 2031 | 323 | 676 | 1,331 | 995 | 657,939 | 1,918,350 | 5,282,125 | 3,650,182 | 3 | 4 | 6 | 5 | 125,975 | 130,453 | 134,759 | 130,312 |
| 2032 | 242 | 558 | 1,125 | 854 | 464,970 | 1,588,323 | 4,508,720 | 3,127,389 | 2 | 4 | 5 | 4 | 114,563 | 118,993 | 123,250 | 118,867 |
| 2033 | 207 | 492 | 1,003 | 772 | 377,700 | 1,385,637 | 4,140,480 | 2,847,424 | 2 | 3 | 5 | 4 | 104,186 | 108,396 | 112,540 | 108,306 |
| 2034 | 137 | 425 | 870 | 676 | 257,300 | 1,108,968 | 3,560,562 | 2,535,582 | 2 | 3 | 4 | 3 | 94,753 | 98,694 | 102,686 | 98,662 |
| 2035 | 89 | 334 | 708 | 567 | 133,970 | 756,290 | 2,569,562 | 2,110,219 | 1 | 2 | 4 | 3 | 85,818 | 89,964 | 93,798 | 89,809 |
| 2036 | 54 | 268 | 631 | 513 | 79,000 | 556,340 | 2,255,290 | 1,929,457 | 1 | 2 | 3 | 2 | 77,894 | 81,685 | 85,585 | 81,689 |
| 2037 | 35 | 224 | 530 | 443 | 51,780 | 429,440 | 1,827,670 | 1,675,308 | 1 | 2 | 3 | 2 | 70,459 | 74,249 | 78,073 | 74,232 |
| 2038 | 17 | 167 | 458 | 396 | 24,700 | 299,040 | 1,510,260 | 1,473,916 | 1 | 1 | 2 | 2 | 63,666 | 67,396 | 70,966 | 67,351 |
| 2039 | 5 | 115 | 392 | 329 | 10,000 | 192,000 | 1,162,190 | 1,241,337 | 1 | 1 | 2 | 2 | 57,489 | 61,029 | 64,571 | 61,030 |
| 2040 | - | 81 | 351 | 297 | - | 123,000 | 917,042 | 1,096,928 | - | 1 | 2 | 1 | 51,976 | 55,409 | 58,687 | 55,343 |
| 2041 | - | 50 | 284 | 255 | - | 75,000 | 656,880 | 928,606 | - | 1 | 2 | 1 | 46,903 | 50,221 | 53,547 | 50,253 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Comparison of Stochastic Simulation to Deterministic Model

| Year | (1) Forfeited Acres | | | (4) Bond Revenue | | | (7) Forfeited Permits | | | (9) |
|-------|---------------------|-----------|---------------|------------------|------------|---------------|-----------------------|-----------|---------------|-----|
| | Simulated | Simulated | Deterministic | Simulated | Simulated | Deterministic | Simulated | Simulated | Deterministic | |
| | Mean | Median | Mean | Mean | Median | Mean | Mean | Median | Mean | |
| 2022 | 3,347 | 3,026 | 1,093 | 11,077,445 | 9,572,696 | 2,675,265 | 26 | 26 | | 7 |
| 2023 | 2,538 | 2,268 | 1,056 | 7,564,943 | 5,994,468 | 2,604,576 | 16 | 16 | | 7 |
| 2024 | 2,296 | 2,034 | 1,022 | 6,914,358 | 5,545,980 | 2,545,991 | 14 | 13 | | 7 |
| 2025 | 2,034 | 1,754 | 989 | 6,397,015 | 4,930,476 | 2,473,609 | 11 | 11 | | 6 |
| 2026 | 1,802 | 1,560 | 952 | 5,926,918 | 4,481,824 | 2,381,918 | 10 | 9 | | 6 |
| 2027 | 1,580 | 1,271 | 912 | 5,311,966 | 3,684,996 | 2,292,362 | 8 | 8 | | 6 |
| 2028 | 1,415 | 1,114 | 874 | 4,879,956 | 3,261,230 | 2,205,105 | 7 | 7 | | 5 |
| 2029 | 1,228 | 937 | 836 | 4,337,187 | 2,741,080 | 2,124,771 | 6 | 6 | | 5 |
| 2030 | 1,108 | 812 | 802 | 3,975,465 | 2,360,382 | 2,047,172 | 6 | 5 | | 5 |
| 2031 | 995 | 676 | 762 | 3,650,182 | 1,918,350 | 1,957,115 | 5 | 4 | | 4 |
| 2032 | 854 | 558 | 721 | 3,127,389 | 1,588,323 | 1,854,024 | 4 | 4 | | 4 |
| 2033 | 772 | 492 | 678 | 2,847,424 | 1,385,637 | 1,754,954 | 4 | 3 | | 4 |
| 2034 | 676 | 425 | 640 | 2,535,582 | 1,108,968 | 1,663,524 | 3 | 3 | | 4 |
| 2035 | 567 | 334 | 604 | 2,110,219 | 756,290 | 1,578,753 | 3 | 2 | | 4 |
| 2036 | 513 | 268 | 571 | 1,929,457 | 556,340 | 1,498,700 | 2 | 2 | | 3 |
| 2037 | 443 | 224 | 535 | 1,675,308 | 429,440 | 1,413,353 | 2 | 2 | | 3 |
| 2038 | 396 | 167 | 499 | 1,473,916 | 299,040 | 1,337,305 | 2 | 1 | | 3 |
| 2039 | 329 | 115 | 466 | 1,241,337 | 192,000 | 1,264,288 | 2 | 1 | | 3 |
| 2040 | 297 | 81 | 433 | 1,096,928 | 123,000 | 1,193,973 | 1 | 1 | | 3 |
| 2041 | 255 | 50 | 405 | 928,606 | 75,000 | 1,132,168 | 1 | 1 | | 3 |
| Total | 23,446 | 18,164 | 14,849 | 79,001,605 | 51,005,520 | 37,998,926 | 134 | 125 | | 92 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Simulated Forfeited Acres by Type

| Year | Surface | | | | Underground | | | | Other (Incl. Prospects) | | | | Total | | | |
|------|---------|-------|-------|-------|-------------|-----|-----|------|-------------------------|-----|-----|------|-------|-------|-------|-------|
| | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean |
| 2022 | 771 | 1,433 | 2,403 | 1,774 | 389 | 589 | 891 | 738 | 598 | 754 | 978 | 835 | 2,220 | 3,026 | 4,005 | 3,347 |
| 2023 | 665 | 1,256 | 2,122 | 1,560 | 185 | 401 | 701 | 562 | 148 | 325 | 580 | 416 | 1,481 | 2,268 | 3,248 | 2,538 |
| 2024 | 549 | 1,127 | 1,937 | 1,401 | 118 | 322 | 598 | 477 | 142 | 319 | 568 | 418 | 1,300 | 2,034 | 2,978 | 2,296 |
| 2025 | 401 | 904 | 1,670 | 1,187 | 89 | 281 | 563 | 457 | 117 | 285 | 544 | 390 | 1,075 | 1,754 | 2,664 | 2,034 |
| 2026 | 287 | 757 | 1,468 | 1,014 | 64 | 244 | 522 | 427 | 95 | 252 | 496 | 361 | 909 | 1,560 | 2,401 | 1,802 |
| 2027 | 190 | 566 | 1,195 | 861 | 46 | 211 | 482 | 380 | 82 | 236 | 467 | 339 | 736 | 1,271 | 2,119 | 1,580 |
| 2028 | 123 | 460 | 1,079 | 745 | 30 | 183 | 471 | 367 | 61 | 195 | 429 | 303 | 634 | 1,114 | 1,898 | 1,415 |
| 2029 | 52 | 315 | 875 | 613 | 22 | 146 | 435 | 335 | 50 | 177 | 390 | 280 | 504 | 937 | 1,645 | 1,228 |
| 2030 | 0 | 228 | 752 | 541 | 15 | 106 | 402 | 305 | 34 | 150 | 372 | 262 | 395 | 812 | 1,513 | 1,108 |
| 2031 | 0 | 179 | 647 | 488 | 8 | 78 | 365 | 269 | 23 | 129 | 343 | 238 | 323 | 676 | 1,331 | 995 |
| 2032 | 0 | 108 | 485 | 401 | 0 | 47 | 282 | 239 | 16 | 104 | 303 | 213 | 242 | 558 | 1,125 | 854 |
| 2033 | 0 | 60 | 424 | 355 | 0 | 37 | 274 | 222 | 6 | 93 | 285 | 195 | 207 | 492 | 1,003 | 772 |
| 2034 | 0 | 0 | 314 | 302 | 0 | 21 | 228 | 197 | 0 | 76 | 253 | 177 | 137 | 425 | 870 | 676 |
| 2035 | 0 | 0 | 228 | 246 | 0 | 13 | 183 | 170 | 0 | 51 | 205 | 151 | 89 | 334 | 708 | 567 |
| 2036 | 0 | 0 | 166 | 224 | 0 | 5 | 119 | 148 | 0 | 39 | 182 | 141 | 54 | 268 | 631 | 513 |
| 2037 | 0 | 0 | 123 | 183 | 0 | 0 | 99 | 137 | 0 | 23 | 152 | 124 | 35 | 224 | 530 | 443 |
| 2038 | 0 | 0 | 68 | 166 | 0 | 0 | 46 | 111 | 0 | 18 | 145 | 118 | 17 | 167 | 458 | 396 |
| 2039 | 0 | 0 | 0 | 129 | 0 | 0 | 33 | 98 | 0 | 5 | 114 | 101 | 5 | 115 | 392 | 329 |
| 2040 | 0 | 0 | 0 | 127 | 0 | 0 | 16 | 78 | 0 | 0 | 94 | 92 | 0 | 81 | 351 | 297 |
| 2041 | 0 | 0 | 0 | 110 | 0 | 0 | 11 | 67 | 0 | 0 | 75 | 78 | 0 | 50 | 284 | 255 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Land Reclamation Costs

| Year | Surface | | | | Underground | | | | Other (Incl. Prospects) | | | | Total | | | |
|------|-----------|-----------|-----------|-----------|-------------|-----------|-----------|-----------|-------------------------|-----------|-----------|-----------|-----------|-----------|------------|-----------|
| | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean |
| 2022 | 2,070,256 | 3,846,330 | 6,452,397 | 4,762,289 | 1,045,385 | 1,582,230 | 2,392,248 | 1,981,540 | 1,605,885 | 2,023,523 | 2,624,735 | 2,241,731 | 5,961,599 | 8,124,823 | 10,754,633 | 8,985,560 |
| 2023 | 1,786,022 | 3,372,749 | 5,696,684 | 4,188,504 | 497,094 | 1,077,262 | 1,880,876 | 1,507,900 | 398,407 | 873,511 | 1,558,468 | 1,118,116 | 3,976,633 | 6,088,452 | 8,719,544 | 6,814,520 |
| 2024 | 1,474,636 | 3,026,854 | 5,201,463 | 3,760,604 | 317,307 | 865,268 | 1,606,744 | 1,281,570 | 380,639 | 856,743 | 1,526,208 | 1,122,867 | 3,491,816 | 5,460,928 | 7,996,433 | 6,165,041 |
| 2025 | 1,076,262 | 2,427,039 | 4,484,004 | 3,187,045 | 239,522 | 754,713 | 1,511,944 | 1,227,152 | 315,145 | 765,077 | 1,460,808 | 1,048,426 | 2,885,751 | 4,708,335 | 7,151,524 | 5,462,624 |
| 2026 | 771,293 | 2,033,377 | 3,942,788 | 2,722,979 | 170,873 | 654,818 | 1,400,798 | 1,147,264 | 253,981 | 675,788 | 1,332,203 | 968,223 | 2,439,900 | 4,187,996 | 6,447,182 | 4,838,465 |
| 2027 | 511,170 | 1,518,368 | 3,208,441 | 2,310,728 | 124,799 | 566,642 | 1,293,552 | 1,020,997 | 218,928 | 634,707 | 1,252,586 | 910,733 | 1,975,334 | 3,412,299 | 5,689,663 | 4,242,458 |
| 2028 | 329,288 | 1,234,644 | 2,897,243 | 1,999,724 | 80,718 | 491,825 | 1,265,326 | 985,657 | 164,040 | 524,125 | 1,151,650 | 813,383 | 1,702,196 | 2,992,204 | 5,096,976 | 3,798,764 |
| 2029 | 138,848 | 845,520 | 2,350,691 | 1,647,110 | 60,198 | 391,648 | 1,168,029 | 900,092 | 134,317 | 474,614 | 1,047,150 | 751,221 | 1,353,005 | 2,515,684 | 4,417,933 | 3,298,423 |
| 2030 | 0 | 612,556 | 2,019,852 | 1,452,323 | 39,470 | 283,429 | 1,079,900 | 818,971 | 91,585 | 403,287 | 998,766 | 704,345 | 1,060,797 | 2,181,495 | 4,062,398 | 2,975,639 |
| 2031 | 0 | 480,776 | 1,737,920 | 1,309,815 | 20,755 | 209,967 | 979,240 | 723,221 | 60,896 | 345,841 | 920,364 | 639,205 | 866,537 | 1,814,899 | 3,572,775 | 2,672,241 |
| 2032 | 0 | 288,906 | 1,302,044 | 1,076,663 | 0 | 126,880 | 758,385 | 642,514 | 42,423 | 278,730 | 812,320 | 572,932 | 650,710 | 1,497,666 | 3,021,840 | 2,292,108 |
| 2033 | 0 | 160,858 | 1,137,124 | 953,898 | 0 | 99,654 | 736,952 | 596,638 | 16,647 | 249,906 | 765,547 | 522,538 | 555,365 | 1,319,718 | 2,692,088 | 2,073,074 |
| 2034 | 0 | 0 | 844,298 | 809,694 | 0 | 56,090 | 611,583 | 530,151 | 0 | 203,966 | 680,507 | 475,708 | 367,892 | 1,140,481 | 2,335,963 | 1,815,553 |
| 2035 | 0 | 0 | 612,556 | 661,718 | 0 | 34,663 | 490,281 | 455,731 | 0 | 137,660 | 550,203 | 405,212 | 239,556 | 897,220 | 1,900,785 | 1,522,662 |
| 2036 | 0 | 0 | 444,891 | 600,703 | 0 | 13,479 | 318,441 | 397,641 | 0 | 104,715 | 488,106 | 378,198 | 145,386 | 718,748 | 1,693,376 | 1,376,541 |
| 2037 | 0 | 0 | 329,288 | 490,417 | 0 | 0 | 264,929 | 367,038 | 0 | 60,681 | 408,523 | 333,262 | 94,069 | 602,138 | 1,422,896 | 1,190,718 |
| 2038 | 0 | 0 | 183,144 | 446,876 | 0 | 0 | 123,456 | 297,499 | 0 | 48,330 | 388,822 | 317,802 | 45,585 | 447,133 | 1,229,139 | 1,062,176 |
| 2039 | 0 | 0 | 0 | 347,651 | 0 | 0 | 87,605 | 264,231 | 0 | 12,620 | 306,090 | 272,164 | 13,344 | 309,446 | 1,051,580 | 884,047 |
| 2040 | 0 | 0 | 0 | 341,107 | 0 | 0 | 42,047 | 210,771 | 0 | 0 | 251,994 | 246,239 | 0 | 216,411 | 942,489 | 798,118 |
| 2041 | 0 | 0 | 0 | 294,762 | 0 | 0 | 29,535 | 181,233 | 0 | 0 | 200,959 | 208,307 | 0 | 135,243 | 763,104 | 684,302 |

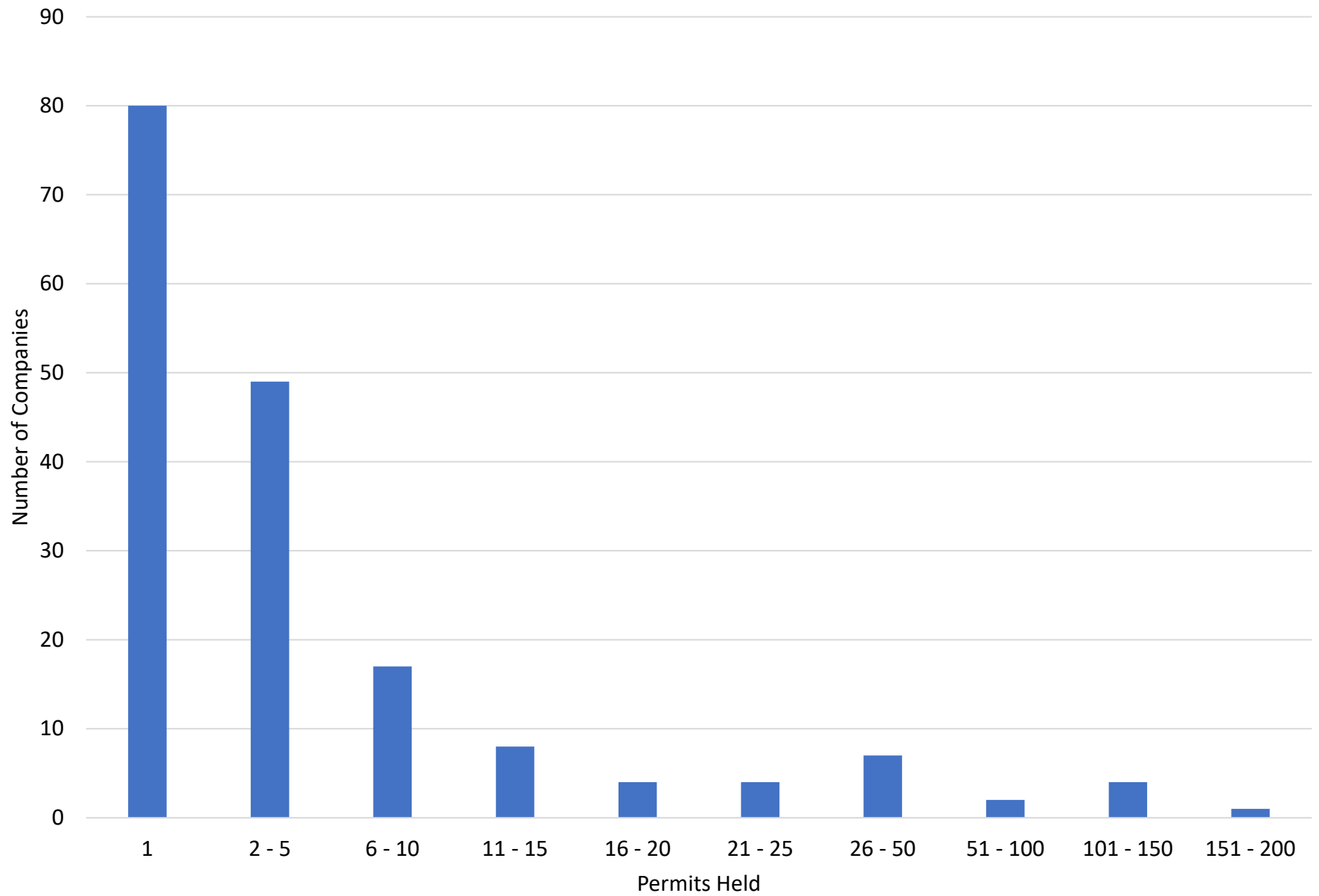
West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water Capital Costs

| Year | Surface | | | | Underground | | | | Other (Incl. Prospects) | | | | Total | | | |
|------|-----------|-----------|-----------|-----------|-------------|-----------|-----------|-----------|-------------------------|-----------|-----------|-----------|-----------|------------|------------|------------|
| | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean |
| 2022 | 2,690,947 | 4,999,512 | 8,386,915 | 6,190,089 | 1,358,805 | 2,056,605 | 3,109,477 | 2,575,633 | 2,087,352 | 2,630,204 | 3,411,667 | 2,913,833 | 7,748,969 | 10,560,757 | 13,979,021 | 11,679,555 |
| 2023 | 2,321,496 | 4,383,946 | 7,404,628 | 5,444,275 | 646,130 | 1,400,240 | 2,444,789 | 1,959,989 | 517,855 | 1,135,402 | 2,025,718 | 1,453,343 | 5,168,882 | 7,913,854 | 11,333,784 | 8,857,607 |
| 2024 | 1,916,752 | 3,934,347 | 6,760,933 | 4,888,085 | 412,439 | 1,124,687 | 2,088,468 | 1,665,802 | 494,760 | 1,113,607 | 1,983,786 | 1,459,518 | 4,538,710 | 7,098,189 | 10,393,874 | 8,013,406 |
| 2025 | 1,398,940 | 3,154,698 | 5,828,370 | 4,142,566 | 311,334 | 980,987 | 1,965,245 | 1,595,069 | 409,630 | 994,458 | 1,898,778 | 1,362,759 | 3,750,939 | 6,119,959 | 9,295,650 | 7,100,394 |
| 2026 | 1,002,537 | 2,643,012 | 5,124,891 | 3,539,365 | 222,104 | 851,141 | 1,820,777 | 1,491,229 | 330,128 | 878,398 | 1,731,616 | 1,258,510 | 3,171,415 | 5,443,615 | 8,380,136 | 6,289,104 |
| 2027 | 664,426 | 1,973,595 | 4,170,376 | 3,003,516 | 162,215 | 736,530 | 1,681,377 | 1,327,106 | 284,566 | 825,001 | 1,628,129 | 1,183,784 | 2,567,567 | 4,435,354 | 7,395,502 | 5,514,406 |
| 2028 | 428,014 | 1,604,807 | 3,765,876 | 2,599,269 | 104,918 | 639,281 | 1,644,689 | 1,281,171 | 213,222 | 681,265 | 1,496,931 | 1,057,246 | 2,212,538 | 3,889,308 | 6,625,119 | 4,937,686 |
| 2029 | 180,477 | 1,099,018 | 3,055,460 | 2,140,937 | 78,246 | 509,069 | 1,518,220 | 1,169,952 | 174,587 | 616,910 | 1,361,100 | 976,447 | 1,758,655 | 3,269,921 | 5,742,490 | 4,287,335 |
| 2030 | 0 | 796,209 | 2,625,431 | 1,887,749 | 51,303 | 368,404 | 1,403,669 | 1,064,510 | 119,044 | 524,198 | 1,298,210 | 915,517 | 1,378,838 | 2,835,538 | 5,280,361 | 3,867,776 |
| 2031 | 0 | 624,919 | 2,258,972 | 1,702,516 | 26,978 | 272,918 | 1,272,829 | 940,052 | 79,153 | 449,529 | 1,196,302 | 830,847 | 1,126,336 | 2,359,031 | 4,643,942 | 3,473,415 |
| 2032 | 0 | 375,524 | 1,692,414 | 1,399,462 | 0 | 164,920 | 985,759 | 835,148 | 55,142 | 362,297 | 1,055,865 | 744,704 | 845,802 | 1,946,687 | 3,927,829 | 2,979,314 |
| 2033 | 0 | 209,086 | 1,478,050 | 1,239,890 | 0 | 129,531 | 957,900 | 775,519 | 21,638 | 324,832 | 995,069 | 679,202 | 721,872 | 1,715,387 | 3,499,214 | 2,694,610 |
| 2034 | 0 | 0 | 1,097,431 | 1,052,452 | 0 | 72,906 | 794,943 | 689,098 | 0 | 265,118 | 884,532 | 618,331 | 478,191 | 1,482,412 | 3,036,317 | 2,359,881 |
| 2035 | 0 | 0 | 796,209 | 860,110 | 0 | 45,056 | 637,274 | 592,366 | 0 | 178,932 | 715,162 | 526,700 | 311,378 | 1,166,218 | 2,470,667 | 1,979,176 |
| 2036 | 0 | 0 | 578,276 | 780,802 | 0 | 17,520 | 413,914 | 516,859 | 0 | 136,110 | 634,447 | 491,586 | 188,975 | 934,238 | 2,201,073 | 1,789,248 |
| 2037 | 0 | 0 | 428,014 | 637,451 | 0 | 0 | 344,358 | 477,082 | 0 | 78,874 | 531,004 | 433,179 | 122,272 | 782,667 | 1,849,499 | 1,547,712 |
| 2038 | 0 | 0 | 238,053 | 580,856 | 0 | 0 | 160,470 | 386,693 | 0 | 62,820 | 505,396 | 413,083 | 59,251 | 581,190 | 1,597,652 | 1,380,631 |
| 2039 | 0 | 0 | 0 | 451,882 | 0 | 0 | 113,870 | 343,452 | 0 | 16,403 | 397,860 | 353,763 | 17,345 | 402,223 | 1,366,859 | 1,149,097 |
| 2040 | 0 | 0 | 0 | 443,376 | 0 | 0 | 54,653 | 273,963 | 0 | 0 | 327,545 | 320,065 | 0 | 281,294 | 1,225,060 | 1,037,404 |
| 2041 | 0 | 0 | 0 | 383,136 | 0 | 0 | 38,390 | 235,569 | 0 | 0 | 261,209 | 270,760 | 0 | 175,791 | 991,893 | 889,466 |

West Virginia Department of Environmental Protection Office of Special Reclamation
 Actuarial Reserve Study as of June 30, 2021
 Water O&M Costs

| Year | Surface | | | | Underground | | | | Other (Incl. Prospects) | | | | Total | | | |
|------|---------|---------|-----------|-----------|-------------|---------|---------|---------|-------------------------|---------|---------|---------|---------|-----------|-----------|-----------|
| | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean | 25% | 50% | 75% | Mean |
| 2022 | 69,394 | 128,927 | 216,281 | 159,630 | 35,041 | 53,036 | 80,187 | 66,420 | 53,829 | 67,828 | 87,980 | 75,142 | 199,830 | 272,340 | 360,490 | 301,192 |
| 2023 | 129,261 | 241,980 | 407,232 | 300,027 | 51,703 | 89,145 | 143,233 | 116,964 | 67,183 | 97,107 | 140,219 | 112,621 | 333,125 | 476,423 | 652,766 | 529,612 |
| 2024 | 178,690 | 343,439 | 581,582 | 426,080 | 62,339 | 118,148 | 197,091 | 159,922 | 79,942 | 125,825 | 191,377 | 150,259 | 450,169 | 659,470 | 920,803 | 736,261 |
| 2025 | 214,766 | 424,792 | 731,884 | 532,909 | 70,368 | 143,446 | 247,770 | 201,056 | 90,505 | 151,470 | 240,343 | 185,401 | 546,898 | 817,292 | 1,160,519 | 919,366 |
| 2026 | 240,619 | 492,950 | 864,045 | 624,182 | 76,095 | 165,395 | 294,724 | 239,511 | 99,019 | 174,122 | 284,997 | 217,856 | 628,683 | 957,672 | 1,376,625 | 1,081,549 |
| 2027 | 257,753 | 543,845 | 971,590 | 701,636 | 80,279 | 184,389 | 338,084 | 273,735 | 106,357 | 195,397 | 326,984 | 248,383 | 694,895 | 1,072,050 | 1,567,340 | 1,223,754 |
| 2028 | 268,791 | 585,230 | 1,068,705 | 768,666 | 82,984 | 200,875 | 380,497 | 306,774 | 111,856 | 212,966 | 365,586 | 275,647 | 751,952 | 1,172,348 | 1,738,188 | 1,351,087 |
| 2029 | 273,445 | 613,571 | 1,147,499 | 823,877 | 85,002 | 214,002 | 419,649 | 336,944 | 116,358 | 228,875 | 400,686 | 300,828 | 797,304 | 1,256,672 | 1,886,276 | 1,461,649 |
| 2030 | 273,445 | 634,104 | 1,215,203 | 872,558 | 86,325 | 223,503 | 455,846 | 364,396 | 119,428 | 242,393 | 434,165 | 324,437 | 832,861 | 1,329,795 | 2,022,445 | 1,561,391 |
| 2031 | 273,445 | 650,219 | 1,273,457 | 916,462 | 87,021 | 230,541 | 488,670 | 388,638 | 121,469 | 253,985 | 465,015 | 345,863 | 861,907 | 1,390,630 | 2,142,203 | 1,650,963 |
| 2032 | 273,445 | 659,903 | 1,317,101 | 952,551 | 87,021 | 234,794 | 514,091 | 410,175 | 122,891 | 263,328 | 492,243 | 365,068 | 883,719 | 1,440,831 | 2,243,494 | 1,727,794 |
| 2033 | 273,445 | 665,295 | 1,355,217 | 984,526 | 87,021 | 238,134 | 538,793 | 430,174 | 123,449 | 271,705 | 517,904 | 382,583 | 902,334 | 1,485,067 | 2,333,732 | 1,797,282 |
| 2034 | 273,445 | 665,295 | 1,383,518 | 1,011,666 | 87,021 | 240,014 | 559,293 | 447,944 | 123,449 | 278,541 | 540,714 | 398,528 | 914,666 | 1,523,295 | 2,412,032 | 1,858,139 |
| 2035 | 273,445 | 665,295 | 1,404,050 | 1,033,847 | 87,021 | 241,176 | 575,727 | 463,220 | 123,449 | 283,156 | 559,157 | 412,111 | 922,696 | 1,553,370 | 2,475,745 | 1,909,178 |
| 2036 | 273,445 | 665,295 | 1,418,963 | 1,053,982 | 87,021 | 241,628 | 586,401 | 476,549 | 123,449 | 286,666 | 575,518 | 424,788 | 927,569 | 1,577,462 | 2,532,507 | 1,955,319 |
| 2037 | 273,445 | 665,295 | 1,430,001 | 1,070,421 | 87,021 | 241,628 | 595,281 | 488,852 | 123,449 | 288,700 | 589,212 | 435,959 | 930,722 | 1,597,645 | 2,580,201 | 1,995,231 |
| 2038 | 273,445 | 665,295 | 1,436,139 | 1,085,400 | 87,021 | 241,628 | 599,420 | 498,824 | 123,449 | 290,320 | 602,245 | 446,611 | 932,250 | 1,612,633 | 2,621,402 | 2,030,835 |
| 2039 | 273,445 | 665,295 | 1,436,139 | 1,097,053 | 87,021 | 241,628 | 602,356 | 507,681 | 123,449 | 290,743 | 612,505 | 455,734 | 932,697 | 1,623,006 | 2,656,650 | 2,060,468 |
| 2040 | 273,445 | 665,295 | 1,436,139 | 1,108,487 | 87,021 | 241,628 | 603,765 | 514,746 | 123,449 | 290,743 | 620,951 | 463,988 | 932,697 | 1,630,260 | 2,688,242 | 2,087,220 |
| 2041 | 273,445 | 665,295 | 1,436,139 | 1,118,367 | 87,021 | 241,628 | 604,755 | 520,820 | 123,449 | 290,743 | 627,687 | 470,970 | 932,697 | 1,634,793 | 2,713,821 | 2,110,158 |

Histogram of Number of Permits Held by Individual Companies



Appendix E

REVOKED PERMIT INVENTORY
CURRENT WATER & LAND RECLAMATION (7/1/77-12/31/22)

| PERMIT NAME | PERMIT | DATE REVOKED | COUNTY |
|------------------------------|-----------|--------------|------------|
| A S & K, INC. | S-1011-89 | 8/23/1991 | MONONGALIA |
| ALAN BLOSSER | S-1010-87 | 1/2/2002 | MONONGALIA |
| AMANDA NICOLE FUELS, INC. | S-1018-88 | 6/12/1992 | PRESTON |
| APPALACHIAN FUELS, LLC | S-3041-88 | 7/25/2011 | CLAY |
| ASSET MINING, LLC. | S-5030-95 | 12/6/2013 | BOONE |
| B & S CONTRACTING, INC. | U-3055-87 | 4/24/1995 | NICHOLAS |
| B & S CONTRACTING, INC. | O-3086-87 | 4/24/1995 | NICHOLAS |
| BALDWIN MINING COMPANY | D-75-82 | 8/22/2001 | GILMER |
| BARRENSHE COAL CO. | UO-694 | 8/17/1993 | MCDOWELL |
| BARRETT FUEL CORP. | R-737 | 3/15/1996 | RALEIGH |
| BELLE CONTRACTING, INC. | S-6020-87 | 11/14/1989 | PUTNAM |
| BENHAM GROUP, LTD. | 120-79 | 1/1/1990 | BOONE |
| BJORKMAN MINING CO. | S-37-81 | 9/23/1992 | PRESTON |
| BOLINGREEN MINING COMPANY | S-1024-88 | 2/10/2000 | PRESTON |
| BOOMERANG COAL, INC. | S-2015-06 | 3/8/2011 | RANDOLPH |
| BORGMAN COAL CO. | EM-32 | 10/1/1991 | PRESTON |
| BRADY CLINE COAL CO. | EM-97 | 8/23/1994 | NICHOLAS |
| BUFFALO COAL COMPANY, INC. | S-2001-86 | 9/29/2006 | GRANT |
| BUFFALO COAL COMPANY, INC. | S-122-80 | 9/29/2006 | TUCKER |
| BUFFALO COAL COMPANY, INC. | S-52-80 | 9/29/2006 | GRANT |
| BUFFALO COAL COMPANY, INC. | S-2006-86 | 7/10/2008 | GRANT |
| BUFFALO COAL COMPANY, INC. | S-2011-92 | 7/10/2008 | GRANT |
| BUFFALO COAL COMPANY, INC. | S-2003-03 | 7/10/2008 | GRANT |
| C. C. CONLEY & SONS, INC. | S-3046-91 | 12/7/2000 | NICHOLAS |
| CARSON ONE MINING, LLC | O-4-84 | 10/1/2010 | UPSHUR |
| CHAFIN COAL CO. | O-69-82 | 7/11/1995 | LOGAN |
| CHESTNUT RIDGE COAL CORP. | S-28-83 | 11/15/1993 | MINERAL |
| CHEYENNE SALES CO., INC. | S-2009-96 | 9/22/2009 | UPSHUR |
| CHEYENNE SALES COMPANY, INC. | O-11-83 | 7/9/2009 | UPSHUR |
| CHICOPEE COAL COMPANY, INC. | O-6013-88 | 1/31/2003 | CLAY |
| CHICOPEE COAL COMPANY, INC. | S-3006-99 | 3/28/2006 | NICHOLAS |
| CHICOPEE COAL COMPANY, INC. | S-3002-98 | 6/23/2006 | NICHOLAS |
| CLASSIC RES., INC. | S-55-81 | 5/12/1986 | FAYETTE |
| CLASSIC RES., INC. | S-126-82 | 5/12/1986 | FAYETTE |
| COAL X, INC. | UO-396 | 1/1/1986 | LOGAN |
| COWACO, INC. | R-3022-87 | 1/22/1992 | CLAY |
| CRANE COAL CO., INC. | S-27-83 | 1/3/1992 | PRESTON |
| DAUGHERTY COAL COMPANY, INC. | 17-81 | 4/1/1989 | PRESTON |
| DAUGHERTY COAL COMPANY, INC. | 192-77 | 7/1/1989 | PRESTON |
| DAUGHERTY COAL COMPANY, INC. | 65-77 | 7/12/1989 | PRESTON |
| DAUGHERTY COAL COMPANY, INC. | S-1009-86 | 7/17/1989 | PRESTON |
| DAUGHERTY COAL COMPANY, INC. | 246-74 | 8/1/1989 | PRESTON |
| DAUGHERTY COAL COMPANY, INC. | 124-79 | 8/18/1989 | PRESTON |
| DECONDOR COAL CO. | U-147-82 | 11/25/2008 | PRESTON |

| PERMIT NAME | PERMIT | DATE REVOKED | COUNTY |
|------------------------------|-----------|--------------|------------|
| DEEPGREEN WV, INC. | O-164-83 | 10/5/2015 | MCDOWELL |
| DELTA MINING, INC. | U-2024-87 | 3/18/1993 | UPSHUR |
| DLM COAL CO. | 138-74 | 9/3/1985 | UPSHUR |
| DLM COAL CO. | 2-80 | 9/13/1985 | UPSHUR |
| DLM COAL CO. | P-426 | 9/16/1985 | UPSHUR |
| DLM COAL CO. | 12-78 | 9/16/1985 | UPSHUR |
| DLM COAL CO. | I-239 | 9/16/1985 | UPSHUR |
| DLM COAL CO. | 164-77 | 9/16/1985 | UPSHUR |
| DLM COAL CO. | R-423 | 9/16/1985 | UPSHUR |
| DLM COAL CO. | UO-231 | 9/16/1985 | UPSHUR |
| DLM COAL CO. | 187-77 | 9/16/1985 | UPSHUR |
| DLM COAL CO. | 1-78 | 9/16/1985 | UPSHUR |
| DLM COAL CO. | 135-78 | 9/16/1985 | UPSHUR |
| DLM COAL CO. | 58-77 | 9/16/1985 | UPSHUR |
| DLM COAL CO. | H-232 | 10/1/1985 | UPSHUR |
| DLM COAL CO. | 71-75 | 10/1/1985 | UPSHUR |
| DLM COAL CO. | 23-76 | 10/1/1985 | UPSHUR |
| DUSTY COALS, INC. | S-119-85 | 8/10/1987 | NICHOLAS |
| E. J. & L. CO., INC. | S-3041-87 | 5/9/1990 | RALEIGH |
| EASTERN ENERGY INVEST. | U-6012-88 | 1/28/1994 | BOONE |
| EASTERN ENERGY INVEST. | S-6029-86 | 5/2/1994 | KANAWHA |
| ED-E DEVELOPMENT CO., INC. | S-10-81 | 1/23/1993 | PRESTON |
| ED-E DEVELOPMENT CO., INC. | S-1032-86 | 3/29/1993 | PRESTON |
| EDWARD E. THOMPSON | S-1041-89 | 2/15/1994 | MONONGALIA |
| ENERGY MARKETING CO. INC. | U-72-83 | 2/27/2013 | BARBOUR |
| ENERGY MARKETING COMPANY INC | O-44-83 | 6/7/2010 | BARBOUR |
| F & M COAL CO. | S-1073-86 | 3/13/1992 | PRESTON |
| F & M COAL CO. | S-57-84 | 3/13/1992 | PRESTON |
| F & M COAL CO. | S-1044-87 | 4/30/1992 | PRESTON |
| F & M COAL CO. | S-1026-87 | 4/30/1992 | PRESTON |
| F & M COAL CO. | 46-79 | 9/24/1992 | PRESTON |
| FALCON LAND COMPANY, INC. | P-656 | 4/5/2005 | NICHOLAS |
| FARKAS COAL CO. | 34-81 | 7/1/1988 | MONONGALIA |
| FREEPORT MINING CORPORATION | S-1005-95 | 7/8/2003 | PRESTON |
| FRUSH ENTERPRISES, INC. | S-1008-89 | 11/10/1992 | HARRISON |
| GAULEY COAL SALES CO. | O-43-84 | 8/23/1994 | NICHOLAS |
| GLADE RUN MINING CO. | 3-72 | 10/3/1983 | GRANT |
| GLADY FORK MINING, INC. | D-35-82 | 6/7/2004 | UPSHUR |
| GLORY COAL CO., INC. | UO-744 | 12/1/1985 | HARRISON |
| GOLDEN PRODUCTS CO. | S-1009-88 | 3/1/1991 | MONONGALIA |
| GREEN MOUNTAIN ENERGY | U-4013-91 | 3/19/1997 | WYOMING |
| GREENDALE COALS, INC. | S-75-83 | 4/1/1987 | CLAY |
| HALLELUJAH MINING | 40-81 | 9/24/1992 | PRESTON |
| HARVEY ENERGY CORP. | S-11-82 | 9/16/1991 | FAYETTE |
| HARVEY ENERGY CORP. | S-35-81 | 9/16/1991 | FAYETTE |
| HAWKS NEST MINING CO. | O-1-81 | 12/7/1993 | KANAWHA |

| PERMIT NAME | PERMIT | DATE REVOKED | COUNTY |
|-------------------------------------|-----------|--------------|------------|
| HIDDEN VALLEY COAL CO. | S-60-84 | 8/29/1989 | PRESTON |
| HUNT COAL, INC. | U-5071-86 | 6/14/1989 | LOGAN |
| INTER-STATE LUMBER COMPANY, INC. | S-39-82 | 7/31/1995 | PRESTON |
| INTER-STATE LUMBER COMPANY, INC. | 176-77 | 7/31/1995 | PRESTON |
| INTER-STATE LUMBER COMPANY, INC. | S-52-83 | 7/31/1995 | PRESTON |
| INTER-STATE LUMBER COMPANY, INC. | S-112-80 | 7/31/1995 | PRESTON |
| INTER-STATE LUMBER COMPANY, INC. | S-96-82 | 7/31/1995 | PRESTON |
| J & N PROCESSING COMPANY, LLC | O-58-83 | 6/29/2001 | RALEIGH |
| J. E. B., INC. | S-1063-86 | 11/1/1991 | PRESTON |
| J. E. B., INC. | S-61-82 | 11/1/1991 | PRESTON |
| J.A.L. COAL CO., INC. | S-23-82 | 3/12/1997 | MONONGALIA |
| JINKS MINING COMPANY | U-3031-93 | 2/24/2000 | NICHOLAS |
| JOHN GALT | D-76-82 | 8/29/1991 | LOGAN |
| JONES COAL INC | S-1030-86 | 7/24/1992 | PRESTON |
| JONES COAL INC | S-9-83 | 11/17/1992 | PRESTON |
| KEISTER COAL COMPANY, INC. | 184-77 | 9/1/1983 | UPSHUR |
| KEYSTONE COAL, INC. | U-186-83 | 3/17/1998 | MINGO |
| KEYSTONE COAL, INC. | S-84-83 | 3/17/1998 | MINGO |
| KODIAK LAND CO., INC. | S-3052-87 | 5/19/1992 | FAYETTE |
| LAKEVIEW COAL COMPANY | S-55-84 | 1/23/1997 | MONONGALIA |
| LANDMARK CORPORATION | S-34-82 | 1/30/2001 | BOONE |
| LAROSA FUEL CO., INC. | S-1051-86 | 7/24/2009 | MARION |
| LEVEL LAND MINING CORPORATION | S-3031-90 | 11/8/2006 | FAYETTE |
| LILLYBROOK COAL CO. | S-86-85 | 6/1/1990 | RALEIGH |
| LOBO CAPITOL, INC. | UO-204 | 8/7/1985 | PRESTON |
| LODESTAR ENERGY, INC. | S-3083-86 | 1/21/2004 | NICHOLAS |
| LODESTAR ENERGY, INC. | S-19-85 | 1/21/2004 | NICHOLAS |
| LODESTAR ENERGY, INC. | S-3006-89 | 1/21/2004 | NICHOLAS |
| LODESTAR ENERGY, INC. | R-5-84 | 5/24/2004 | WYOMING |
| LOW ASH COAL CO. | UO-389 | 2/1/1985 | WYOMING |
| M & T MINING CO. | S-3026-89 | 2/9/1994 | NICHOLAS |
| MANGUS COAL, INC. | S-1036-91 | 3/14/2008 | PRESTON |
| MARY RUTH CORPORATION | S-1015-88 | 1/17/2013 | PRESTON |
| MAURICE JENNINGS | S-61-83 | 11/30/2004 | PRESTON |
| MAURICE JENNINGS | 53-78 | 12/10/2004 | PRESTON |
| MERIDAN OF VIRGINIA, INC. | S-4005-89 | 9/14/1992 | MCDOWELL |
| MOHIGAN MINING CO. | U-109-83 | 6/30/1992 | MONONGALIA |
| MORGANTOWN ENERGY EXPORT COMPANY | U-8-83 | 6/14/1994 | MONONGALIA |
| MOUNTAINEER FUELS, INC. | U-3083-87 | 1/30/1998 | MONONGALIA |
| NATIONAL CONSTRUCTION COMPANY, INC. | S-2004-86 | 12/7/1998 | BARBOUR |
| OMEGA MINING CO. INC. | D-79-82 | 10/7/1994 | MONONGALIA |
| PIERCE COAL & CONSTRUCTION, INC. | 71-80 | 12/1/1982 | UPSHUR |
| PINNACLE CREEK MINING CORP. | R-721 | 12/7/1994 | WYOMING |
| PRESTON ENERGY, INC. | UO-235 | 3/18/1994 | PRESTON |
| PRESTON ENERGY, INC. | O-1035-87 | 5/5/1994 | PRESTON |
| PRESTON ENERGY, INC. | O-43-85 | 5/24/1994 | PRESTON |

| PERMIT NAME | PERMIT | DATE REVOKED | COUNTY |
|-----------------------------------|-----------|--------------|------------|
| PRESTON ENERGY, INC. | O-86-82 | 5/25/1994 | PRESTON |
| PRIMROSE COAL, INC. | 7-81 | 3/23/2011 | PRESTON |
| PRINCESS CINDY MINING, INC. | 30-79 | 5/26/1987 | FAYETTE |
| PRINCESS SUSAN COAL CO. | S-6-85 | 12/7/1993 | KANAWHA |
| PUPS CREEK COALS, INC. | S-3006-94 | 12/6/1999 | RALEIGH |
| RALEIGH COMMERCIAL DEVELOPMENT | 149-79 | 1/21/1987 | FAYETTE |
| ROBLEE COAL COMPANY | U-2026-87 | 3/16/2010 | UPSHUR |
| ROBLEE COAL COMPANY | U-2001-00 | 4/22/2010 | UPSHUR |
| ROCKVILLE MINING CO. | 237-76 | 1/12/1994 | PRESTON |
| ROCKVILLE MINING CO. | S-65-82 | 1/12/1994 | PRESTON |
| ROCKVILLE MINING CO. | 65-78 | 1/12/1994 | PRESTON |
| ROCKVILLE MINING CO. | S-1035-86 | 1/12/1994 | PRESTON |
| ROCKVILLE MINING CO. | S-91-85 | 1/12/1994 | PRESTON |
| ROYAL COAL CO. | R-676 | 11/1/1989 | FAYETTE |
| ROYAL SCOT MINERALS, INC. | 31-72 | 4/28/1999 | GREENBRIER |
| ROYAL SCOT MINERALS, INC. | D-32-81 | 4/27/2000 | GREENBRIER |
| ROYAL SCOT MINERALS, INC. | S-99-83 | 4/27/2000 | GREENBRIER |
| ROYAL SCOT MINERALS, INC. | 56-81 | 4/27/2000 | GREENBRIER |
| ROYAL SCOT MINERALS, INC. | U-40-85 | 4/27/2000 | GREENBRIER |
| ROYAL SCOT MINERALS, INC. | S-90-82 | 4/27/2000 | GREENBRIER |
| ROYAL SCOT MINERALS, INC. | U-3046-88 | 4/27/2000 | GREENBRIER |
| ROYAL SCOT MINERALS, INC. | R-3078-86 | 4/27/2000 | GREENBRIER |
| S. KELLY INDUSTRIES | 51-78 | 6/13/1985 | MONONGALIA |
| SALYERS LEASING CORP. | U-5066-87 | 8/1/1989 | MINGO |
| SAN SUE COAL CO. | 19-75 | 1/13/1989 | NICHOLAS |
| SHARON COAL CO. | S-1028-87 | 3/23/2011 | PRESTON |
| SMITH & STOVER | EM-29 | 5/17/1984 | RALEIGH |
| SOLITAIRE COAL CORPORATION, INC. | S-87-85 | 6/23/1989 | WEBSTER |
| SOUTHERN EAGLE MINING CORPORATION | U-32-84 | 2/6/1985 | RANDOLPH |
| STAR INDUSTRIES, INC. | R-3-81 | 5/27/1987 | RALEIGH |
| STEWARTOWN COAL CORP. | 67-78 | 6/28/1988 | MONONGALIA |
| SUMMERSVILLE FIVE BLOCK | S-3051-88 | 11/1/1994 | NICHOLAS |
| T & J COAL, INC. | P-177-85 | 5/29/1987 | PRESTON |
| T & T FUELS, INC. | EM-113 | 10/31/1995 | PRESTON |
| T & T FUELS, INC. | U-125-83 | 12/4/1995 | PRESTON |
| TEMPLEMAN CONST. CO., INC. | 151-75 | 6/1/1988 | KANAWHA |
| THE MASTELLER COAL COMPANY | S-10-85 | 12/10/2003 | MINERAL |
| THE MASTELLER COAL COMPANY | S-125-82 | 5/3/2004 | MINERAL |
| TRIPLE A COALS, INC. | U-3046-87 | 12/17/1998 | NICHOLAS |
| TRIPLE A COALS, INC. | S-3028-87 | 12/17/1998 | NICHOLAS |
| TRIPLE A COALS, INC. | S-96-85 | 12/17/1998 | NICHOLAS |
| VALLEY MINING CO., INC. | S-64-83 | 6/12/1992 | MONONGALIA |
| VALLEY MINING CO., INC. | S-17-82 | 9/24/1992 | MONONGALIA |
| VICKIE ENERGY, INC. | U-53-85 | 1/11/1995 | POCAHONTAS |
| VIKING COAL COMPANY | UO-519 | 1/18/2001 | PRESTON |
| VMS, LTD. | S-1045-87 | 4/4/1994 | MONONGALIA |

| PERMIT NAME | PERMIT | DATE REVOKED | COUNTY |
|------------------------------------|-----------|--------------|------------|
| W & E LOGGING & COAL | S-20-82 | 5/5/1986 | NICHOLAS |
| WERNER MINING CO., INC. | S-2003-86 | 5/20/1992 | BARBOUR |
| WETER CO. | S-71-79 | 7/10/1995 | PRESTON |
| WINCHESTER COALS, INC. | D-23-81 | 12/7/1993 | LOGAN |
| WOCAP ENERGY RESOURCES, INC. | S-26-85 | 12/14/1993 | PRESTON |
| X W CORP. | S-6013-87 | 4/20/1989 | CLAY |
| Z & F DEVELOPMENT CO. | S-21-84 | 11/6/1985 | MONONGALIA |
| ZINN COAL CO. | 60-79 | 4/16/1991 | PRESTON |
| ASSET MINING, LLC. | S-5030-95 | 12/6/2013 | Boone |
| ASSET MINING, LLC. | S-5024-96 | 12/6/2013 | Boone |
| B. L. & S. COAL COMPANY | S-1017-86 | 3/29/2021 | Marion |
| BELVA COAL COMPANY | R-591 | 1/26/2001 | Logan |
| BLUE RIDGE MINING, LLC | U-4007-07 | 9/26/2022 | McDowell |
| BUCKEYE COAL COMPANY INC. | U-4007-90 | 4/24/2019 | McDowell |
| BUFFALO COAL COMPANY, INC. | S-53-80 | 9/29/2006 | Grant |
| BUFFALO COAL COMPANY, INC. | S-61-85 | 7/10/2008 | Tucker |
| BUFFALO COAL COMPANY, INC. | S-2007-96 | 7/10/2008 | Tucker |
| BUFFALO COAL COMPANY, INC. | S-74-76 | 7/10/2008 | Tucker |
| BUFFALO COAL COMPANY, INC. | S-2003-88 | 8/20/2008 | Tucker |
| CEDAR BRANCH MINING, LLC | S-3035-12 | 3/21/2022 | Wyoming |
| EAGLE RIDGE DEVELOPMENT GROUP, LLC | S-3035-07 | 6/22/2016 | Nicholas |
| EAGLE RIDGE DEVELOPMENT GROUP, LLC | S-3016-08 | 6/22/2016 | Fayette |
| ENERGY MARKETING CO. INC. | UO-885 | 2/27/2013 | Barbour |
| ENERGY MARKETING CO. INC. | UO-520 | 2/27/2013 | Barbour |
| ENERGY MARKETING CO. INC. | U-74-83 | 3/4/2013 | Barbour |
| ERUN COAL SALES, INC. | U-4010-08 | 9/21/2022 | McDowell |
| GOLD RESOURCES, LLC | S-1003-97 | 9/8/2014 | Harrison |
| GOLDEN FALCON RESOURCES, INC. | U-61-84 | 10/4/2002 | McDowell |
| J. C. B. MINING, INC. | U-2006-88 | 12/30/2002 | Lewis |
| KANAWHA DEVELOPMENT CORPORATION | O-38-84 | 1/17/2013 | Fayette |
| KANAWHA DEVELOPMENT CORPORATION | O-14-81 | 1/17/2013 | Fayette |
| LANDMARK CORPORATION | S-5069-88 | 1/30/2001 | Boone |
| POWDER MILL PROCESSING INC. | S-5027-08 | 10/12/2021 | Wayne |
| POWDER MILL PROCESSING INC. | O-5008-07 | 10/12/2021 | Wayne |
| POWDER MILL PROCESSING INC. | U-5017-08 | 10/12/2021 | Wayne |
| ROBLEE COAL COMPANY | O-1009-93 | 11/9/2009 | Upshur |
| ROBLEE COAL COMPANY | U-1001-91 | 1/11/2010 | Upshur |
| ROYAL COAL CO. | P-688 | 1/1/1990 | Fayette |
| ROYAL SCOT MINERALS, INC. | S-3076-86 | 4/26/2000 | Greenbrier |
| S & M ENERGY RESOURCES, LLC | U-4004-10 | 9/21/2022 | Wyoming |
| SHAHER BROTHER CONSTRUCTION, INC. | S-2011-10 | 5/11/2015 | Monongalia |
| SHAHER BROTHER CONSTRUCTION, INC. | S-2012-06 | 5/11/2015 | Monongalia |
| SHAHER BROTHER CONSTRUCTION, INC. | S-2002-12 | 5/11/2015 | Monongalia |
| WILLIAMS CONSTRUCTION | S-3061-88 | 4/6/1998 | Nicholas |

TOTAL AS OF 12/31/2022 = 226

PERMIT NAME

PERMIT

DATE REVOKED

COUNTY

WATER

LAND

*CURRENT LIST OF ALL PERMITS BEING TREATED OR NEED RECLAMATION

2022 AMD Inventory

| OFFICE | COMPANY | PERMIT | DATE REVOKED | WATER STATUS | CURRENT WATER OPERATING COST |
|--------|------------------------------|-----------|--------------|--------------|------------------------------|
| N | A S & K, INC. | S-1011-89 | 8/23/1991 | TBC | \$0.00 |
| N | ALAN BLOSSER | S-1010-87 | 1/2/2002 | TBC | \$0.00 |
| N | AMANDA NICOLE FUELS, INC. | S-1018-88 | 6/12/1992 | ACT | \$48,465.00 |
| C | APPALACHIAN FUELS, LLC | S-3041-88 | 7/25/2011 | P | \$0.00 |
| C | ASSET MINING, LLC. | S-5030-95 | 12/6/2013 | TBC | \$0.00 |
| S | B & S CONTRACTING, INC. | R-668 | 7/12/1995 | P | \$5,648.76 |
| C | B & S CONTRACTING, INC. | U-3055-87 | 4/24/1995 | TBRT | \$7,912.08 |
| S | B & S CONTRACTING, INC. | O-3086-87 | 4/24/1995 | NA | \$0.00 |
| N | BALDWIN MINING COMPANY | D-75-82 | 8/22/2001 | P | \$0.00 |
| S | BARRENSHE COAL CO. | UO-694 | 8/17/1993 | P | \$10,084.58 |
| S | BARRETT FUEL CORP. | R-737 | 3/15/1996 | P2 | \$3,901.07 |
| C | BELLE CONTRACTING, INC. | S-6020-87 | 11/14/1989 | P | \$11,719.14 |
| C | BENHAM GROUP, LTD. | 120-79 | 1/1/1990 | P | \$6,021.06 |
| N | BJORKMAN MINING CO. | S-37-81 | 9/23/1992 | P | \$3,634.99 |
| N | BOLINGREEN MINING COMPANY | S-1024-88 | 2/10/2000 | ACT | \$12,216.40 |
| N | BOOMERANG COAL, INC. | S-2015-06 | 3/8/2011 | P | \$0.00 |
| N | BORGMAN COAL CO. | EM-32 | 10/1/1991 | ACT2 | \$15,370.39 |
| C | BRADY CLINE COAL CO. | EM-97 | 8/23/1994 | TBRT | \$33,525.12 |
| S | BRENKEE COAL CO. | UO-435 | 11/12/1986 | NA | \$0.00 |
| N | BUFFALO COAL COMPANY, INC. | S-2003-88 | 8/20/2008 | ACT2 | \$544,218.09 |
| N | BUFFALO COAL COMPANY, INC. | S-2001-86 | 9/29/2006 | NA | \$0.00 |
| N | BUFFALO COAL COMPANY, INC. | S-122-80 | 9/29/2006 | TBRT | \$9,808.26 |
| N | BUFFALO COAL COMPANY, INC. | S-2006-86 | 7/10/2008 | P | \$57,400.00 |
| N | BUFFALO COAL COMPANY, INC. | S-2011-92 | 7/10/2008 | P | \$0.00 |
| N | BUFFALO COAL COMPANY, INC. | S-52-80 | 9/29/2006 | NA | \$0.00 |
| N | BUFFALO COAL COMPANY, INC. | S-2003-03 | 7/10/2008 | NA | \$0.00 |
| N | BUFFALO COAL COMPANY, INC. | S-53-80 | 9/29/2006 | NA | \$0.00 |
| C | C. C. CONLEY & SONS, INC. | S-3046-91 | 12/7/2000 | P | \$45,586.42 |
| N | CARSON ONE MINING, LLC | O-4-84 | 10/1/2010 | TBC | \$0.00 |
| C | CHAFIN COAL CO. | D-18-82 | 7/11/1995 | NA | \$0.00 |
| N | CHESTNUT RIDGE COAL CORP. | S-28-83 | 11/15/1993 | TBRT | \$64,517.26 |
| N | CHEYENNE SALES CO., INC. | S-2009-96 | 9/22/2009 | NA | \$0.00 |
| N | CHEYENNE SALES COMPANY, INC. | O-11-83 | 7/9/2009 | P | \$0.00 |
| C | CHICOPEE COAL COMPANY, INC. | O-6013-88 | 1/31/2003 | P | \$5,299.00 |
| C | CHICOPEE COAL COMPANY, INC. | O-6021-89 | 1/31/2003 | NA | \$0.00 |
| C | CHICOPEE COAL COMPANY, INC. | S-3002-98 | 6/23/2006 | P | \$0.00 |
| S | CLASSIC RES., INC. | S-126-82 | 5/12/1986 | NA | \$0.00 |
| C | COAL X, INC. | UO-396 | 1/1/1986 | ACT | \$3,657.21 |
| C | COWACO, INC. | R-3022-87 | 1/22/1992 | P | \$2,997.49 |
| N | CRANE COAL CO., INC. | S-27-83 | 1/3/1992 | P | \$3,309.59 |
| N | DAUGHERTY COAL COMPANY, INC. | 246-74 | 8/1/1989 | NA | \$0.00 |
| N | DAUGHERTY COAL COMPANY, INC. | 17-81 | 4/1/1989 | NA | \$0.00 |
| N | DAUGHERTY COAL COMPANY, INC. | 192-77 | 7/1/1989 | ACT | \$0.00 |
| N | DAUGHERTY COAL COMPANY, INC. | S-1009-86 | 7/17/1989 | ACT | \$22,961.51 |
| N | DAUGHERTY COAL COMPANY, INC. | 65-77 | 7/12/1989 | TBRT | \$75,622.00 |
| N | DAUGHERTY COAL COMPANY, INC. | S-73-83 | 7/17/1989 | NA | \$0.00 |
| N | DAUGHERTY COAL COMPANY, INC. | 124-79 | 8/18/1989 | NA | \$0.00 |
| N | DECONDOR COAL CO. | U-147-82 | 11/25/2008 | ACT | \$0.00 |
| S | DEEPGREEN WV, INC. | O-164-83 | 10/5/2015 | P | \$0.00 |

2022 AMD Inventory

| OFFICE | COMPANY | PERMIT | DATE REVOKED | WATER STATUS | CURRENT WATER OPERATING COST |
|--------|------------------------------------|-----------|--------------|--------------|------------------------------|
| N | DELTA MINING, INC. | U-2024-87 | 3/18/1993 | ACT | \$6,297.00 |
| N | DLM COAL CO. | P-426 | 9/16/1985 | NA | \$0.00 |
| N | DLM COAL CO. | 28825 | 9/16/1985 | ACT | \$33,771.76 |
| N | DLM COAL CO. | 29252 | 9/13/1985 | ACT | \$58,156.58 |
| N | DLM COAL CO. | UO-231 | 9/16/1985 | NA | \$0.00 |
| N | DLM COAL CO. | 187-77 | 9/16/1985 | NA | \$0.00 |
| N | DLM COAL CO. | 1-78 | 9/16/1985 | ACT | \$36,312.94 |
| N | DLM COAL CO. | 71-75 | 10/1/1985 | NA | \$28,633.13 |
| N | DLM COAL CO. | 138-74 | 9/3/1985 | RT | \$82,104.64 |
| N | DLM COAL CO. | 135-78 | 9/16/1985 | RT | \$45,498.70 |
| N | DLM COAL CO. | 23-76 | 10/1/1985 | RT | \$109,173.72 |
| N | DLM COAL CO. | 58-77 | 9/16/1985 | RT | \$44,174.23 |
| S | DUSTY COALS, INC. | S-119-85 | 8/10/1987 | TBRT | \$44,882.10 |
| S | E. J. & L. CO., INC. | S-3041-87 | 5/9/1990 | P | \$8,418.12 |
| C | EAGLE RIDGE DEVELOPMENT GROUP, LLC | S-3016-08 | 6/22/2016 | TBC | \$0.00 |
| C | EASTERN ENERGY INVEST. | S-6029-86 | 5/2/1994 | ACT | \$12,972.71 |
| C | EASTERN ENERGY INVEST. | U-6012-88 | 1/28/1994 | P | \$3,357.00 |
| N | ED-E DEVELOPMENT CO., INC. | S-10-81 | 1/23/1993 | ACT | \$99,949.21 |
| N | ED-E DEVELOPMENT CO., INC. | S-1032-86 | 3/29/1993 | ACT | \$17,714.28 |
| N | EDWARD E. THOMPSON | S-1041-89 | 2/15/1994 | ACT2 | \$61,140.00 |
| N | ENERGY MARKETING CO. INC. | U-72-83 | 2/27/2013 | P | \$0.00 |
| N | ENERGY MARKETING COMPANY INC | O-44-83 | 6/7/2010 | NA | \$0.00 |
| N | F & M COAL CO. | S-1073-86 | 3/13/1992 | NA | \$0.00 |
| N | F & M COAL CO. | S-1044-87 | 4/30/1992 | ACT2 | \$200,749.45 |
| N | F & M COAL CO. | S-57-84 | 3/13/1992 | ACT2 | \$105,816.55 |
| N | F & M COAL CO. | 46-79 | 9/24/1992 | P | \$3,608.85 |
| N | F & M COAL CO. | S-1026-87 | 4/30/1992 | P | \$3,077.22 |
| S | FALCON LAND COMPANY, INC. | P-656 | 4/5/2005 | ACT2 | \$62,483.77 |
| N | FARKAS COAL CO. | 34-81 | 7/1/1988 | ACT | \$23,673.13 |
| N | FREEMONT MINING CORPORATION | S-1005-95 | 7/8/2003 | ACT | \$135,042.00 |
| N | FRUSH ENTERPRISES, INC. | S-1008-89 | 11/10/1992 | ACT2 | \$23,702.00 |
| S | GAULEY COAL SALES CO. | O-43-84 | 8/23/1994 | P | \$4,502.48 |
| N | GLADE RUN MINING CO. | 3-72 | 10/3/1983 | P | \$3,115.53 |
| N | GLADY FORK MINING, INC. | D-35-82 | 6/7/2004 | ACT | \$24,312.00 |
| N | GLORY COAL CO., INC. | UO-744 | 12/1/1985 | P | \$3,128.60 |
| C | GOLD STAR MINING CORP. | S-121-85 | 7/15/1987 | NA | \$0.00 |
| N | GOLDEN PRODUCTS CO. | S-1009-88 | 3/1/1991 | P | \$4,156.94 |
| S | GREEN MOUNTAIN ENERGY | U-4013-91 | 3/19/1997 | P | \$3,422.94 |
| C | GREENDALE COALS, INC. | S-75-83 | 4/1/1987 | ACT | \$0.00 |
| N | HALLELUJAH MINING | 40-81 | 9/24/1992 | ACT | \$18,932.49 |
| S | HARVEY ENERGY CORP. | S-11-82 | 9/16/1991 | RT | \$7,174.52 |
| S | HARVEY ENERGY CORP. | S-35-81 | 9/16/1991 | TBRT | \$15,008.67 |
| C | HAWKS NEST MINING CO. | O-1-81 | 12/7/1993 | ACT | \$5,928.97 |
| N | HIDDEN VALLEY COAL CO. | S-60-84 | 8/29/1989 | ACT | \$12,392.98 |
| C | HUNT COAL, INC. | U-5071-86 | 6/14/1989 | ACT | \$10,651.64 |
| N | INTER-STATE LUMBER COMPANY, INC. | S-39-82 | 7/31/1995 | TBC | \$0.00 |
| N | INTER-STATE LUMBER COMPANY, INC. | 176-77 | 7/31/1995 | ACT | \$20,480.75 |
| N | INTER-STATE LUMBER COMPANY, INC. | S-52-83 | 7/31/1995 | ACT | \$3,772.83 |
| N | INTER-STATE LUMBER COMPANY, INC. | S-112-80 | 7/31/1995 | P | \$25,536.74 |

2022 AMD Inventory

| OFFICE | COMPANY | PERMIT | DATE REVOKED | WATER STATUS | CURRENT WATER OPERATING COST |
|--------|-------------------------------------|-----------|--------------|--------------|------------------------------|
| N | INTER-STATE LUMBER COMPANY, INC. | S-96-82 | 7/31/1995 | P | \$2,539.39 |
| S | J & N PROCESSING COMPANY, LLC | O-58-83 | 6/29/2001 | P | \$37,223.62 |
| N | J. C. B. MINING, INC. | U-2006-88 | 12/30/2002 | TBC | \$0.00 |
| N | J. E. B., INC. | S-1063-86 | 11/1/1991 | ACT | \$9,795.78 |
| N | J. E. B., INC. | S-61-82 | 11/1/1991 | ACT | \$8,881.06 |
| N | J.A.L. COAL CO., INC. | S-23-82 | 3/12/1997 | P | \$29,311.54 |
| S | JINKS MINING COMPANY | U-3031-93 | 2/24/2000 | P | \$5,579.41 |
| N | JONES COAL INC | S-1030-86 | 7/24/1992 | P | \$3,817.65 |
| N | JONES COAL INC | S-9-83 | 11/17/1992 | P | \$0.00 |
| N | KEISTER COAL COMPANY, INC. | 184-77 | 9/1/1983 | ACT | \$10,354.93 |
| C | KEYSTONE COAL, INC. | U-186-83 | 3/17/1998 | TBC | \$0.00 |
| C | KEYSTONE COAL, INC. | S-84-83 | 3/17/1998 | TBC | \$0.00 |
| S | KODIAK LAND CO., INC. | S-3052-87 | 5/19/1992 | P | \$9,313.24 |
| N | LAKEVIEW COAL COMPANY | S-55-84 | 1/23/1997 | P | \$6,065.44 |
| C | LANDMARK CORPORATION | S-34-82 | 1/30/2001 | P | \$0.00 |
| C | LANDMARK CORPORATION | S-5069-88 | 1/30/2001 | P | \$0.00 |
| N | LAROSA FUEL CO., INC. | S-1051-86 | 7/24/2009 | ACT | \$0.00 |
| S | LEVEL LAND MINING CORPORATION | S-3031-90 | 11/8/2006 | P | \$5,582.73 |
| S | LILLYBROOK COAL CO. | S-86-85 | 6/1/1990 | TBRT | \$20,732.50 |
| N | LOBO CAPITOL, INC. | UO-204 | 8/7/1985 | NA | \$0.00 |
| S | LODESTAR ENERGY, INC. | S-3016-92 | 1/13/2004 | NA | \$0.00 |
| S | LODESTAR ENERGY, INC. | R-5-84 | 5/24/2004 | TBRT | \$16,987.01 |
| S | LODESTAR ENERGY, INC. | S-19-85 | 1/21/2004 | P | \$4,968.06 |
| C | LODESTAR ENERGY, INC. | S-3006-89 | 1/21/2004 | P | \$0.00 |
| C | LO-MING COAL CORPORATION | U-5036-88 | 9/17/2002 | NA | \$0.00 |
| S | LOW ASH COAL CO. | UO-389 | 2/1/1985 | TBRT | \$5,666.99 |
| C | M & T MINING CO. | S-3026-89 | 2/9/1994 | P | \$18,577.06 |
| N | MANGUS COAL, INC. | S-1036-91 | 3/14/2008 | NA | \$0.00 |
| N | MARY RUTH CORPORATION | S-1015-88 | 1/17/2013 | NA | \$0.00 |
| N | MAURICE JENNINGS | 53-78 | 12/10/2004 | NA | \$0.00 |
| N | MAURICE JENNINGS | S-61-83 | 11/30/2004 | NA | \$0.00 |
| S | MERIDAN OF VIRGINIA, INC. | S-4005-89 | 9/14/1992 | TBC | \$0.00 |
| N | MOHIGAN MINING CO. | U-109-83 | 6/30/1992 | P | \$35,676.70 |
| N | MORGANTOWN ENERGY EXPORT COMPANY | U-8-83 | 6/14/1994 | P | \$5,332.33 |
| S | MOUNTAINEER FUELS, INC. | U-3083-87 | 1/30/1998 | P | \$6,723.61 |
| N | NATIONAL CONSTRUCTION COMPANY, INC. | S-2004-86 | 12/7/1998 | P | \$8,515.60 |
| N | OMEGA MINING CO. INC. | D-79-82 | 10/7/1994 | ACT2 | \$395,162.20 |
| S | PEACHTREE RIDGE MINING, INC. | U-18-83 | 1/29/2004 | NA | \$0.00 |
| N | PIERCE COAL & CONSTRUCTION, INC. | 71-80 | 12/1/1982 | ACT | \$3,171.88 |
| S | PINNACLE CREEK MINING CORP. | R-721 | 12/7/1994 | TBRT | \$6,054.25 |
| C | POWDER MILL PROCESSING INC. | S-5027-08 | 10/12/2021 | TBC | \$0.00 |
| C | POWDER MILL PROCESSING INC. | U-5017-08 | 10/12/2021 | TBC | \$0.00 |
| N | PRESTON ENERGY, INC. | O-1035-87 | 5/5/1994 | ACT | \$51,997.59 |
| N | PRESTON ENERGY, INC. | O-86-82 | 5/25/1994 | ACT | \$2,788.47 |
| N | PRESTON ENERGY, INC. | O-43-85 | 5/24/1994 | ACT | \$9,896.40 |
| N | PRESTON ENERGY, INC. | UO-235 | 3/18/1994 | NA | \$0.00 |
| N | PRIMROSE COAL, INC. | 7-81 | 3/23/2011 | TBRT | \$0.00 |
| S | PRINCESS CINDY MINING, INC. | 30-79 | 5/26/1987 | P2 | \$4,668.63 |
| C | PRINCESS SUSAN COAL CO. | S-6-85 | 12/7/1993 | P | \$6,492.64 |

2022 AMD Inventory

| OFFICE | COMPANY | PERMIT | DATE REVOKED | WATER STATUS | CURRENT WATER OPERATING COST |
|--------|-----------------------------------|-----------|--------------|--------------|------------------------------|
| S | PUPS CREEK COALS, INC. | S-3006-94 | 12/6/1999 | P | \$0.00 |
| S | RALEIGH COMMERCIAL DEVELOPMENT | 149-79 | 1/21/1987 | P | \$3,218.49 |
| N | ROBLEE COAL COMPANY | O-1009-93 | 11/9/2009 | P | \$0.00 |
| N | ROBLEE COAL COMPANY | U-2001-00 | 4/22/2010 | P | \$0.00 |
| N | ROBLEE COAL COMPANY | U-2026-87 | 3/16/2010 | P | \$0.00 |
| N | ROBLEE COAL COMPANY | U-1001-91 | 1/11/2010 | P | \$0.00 |
| N | ROCKVILLE MINING CO. | 237-76 | 1/12/1994 | ACT | \$18,192.14 |
| N | ROCKVILLE MINING CO. | S-65-82 | 1/12/1994 | ACT | \$52,736.00 |
| N | ROCKVILLE MINING CO. | 65-78 | 1/12/1994 | ACT | \$49,418.92 |
| N | ROCKVILLE MINING CO. | S-1035-86 | 1/12/1994 | ACT | \$13,902.35 |
| N | ROCKVILLE MINING CO. | S-91-85 | 1/12/1994 | NA | \$0.00 |
| S | ROYAL COAL CO. | P-688 | 1/1/1990 | TBC | \$0.00 |
| S | ROYAL COAL CO. | R-676 | 11/1/1989 | TBC | \$0.00 |
| S | ROYAL SCOT MINERALS, INC. | D-32-81 | 4/27/2000 | TBRT | \$11,360.00 |
| S | ROYAL SCOT MINERALS, INC. | S-99-83 | 4/27/2000 | TBRT | \$5,041.88 |
| S | ROYAL SCOT MINERALS, INC. | 56-81 | 4/27/2000 | RT | \$7,430.46 |
| S | ROYAL SCOT MINERALS, INC. | U-40-85 | 4/27/2000 | P | \$7,413.96 |
| S | ROYAL SCOT MINERALS, INC. | 31-72 | 4/28/1999 | RT | \$433,754.17 |
| S | ROYAL SCOT MINERALS, INC. | S-90-82 | 4/27/2000 | P2 | \$4,311.14 |
| S | ROYAL SCOT MINERALS, INC. | U-3046-88 | 4/27/2000 | TBC | \$0.00 |
| S | ROYAL SCOT MINERALS, INC. | R-3078-86 | 4/27/2000 | P | \$31,031.99 |
| N | S. KELLY INDUSTRIES | 51-78 | 6/13/1985 | RT | \$76,093.09 |
| C | SAN SUE COAL CO. | 19-75 | 1/13/1989 | P | \$6,007.63 |
| N | SHAFER BROTHER CONSTRUCTION, INC. | S-2002-12 | 5/11/2015 | TBC | \$0.00 |
| N | SHARON COAL CO. | S-1028-87 | 3/23/2011 | P | \$0.00 |
| S | SMITH & STOVER | EM-29 | 5/17/1984 | TBC | \$0.00 |
| S | SOLITAIRE COAL CORPORATION, INC. | S-87-85 | 6/23/1989 | P | \$0.00 |
| N | SOUTHERN EAGLE MINING CORPORATION | U-32-84 | 2/6/1985 | P | \$3,066.30 |
| S | STAR INDUSTRIES, INC. | R-3-81 | 5/27/1987 | ACT | \$43,999.65 |
| N | STEWARTOWN COAL CORP. | 67-78 | 6/28/1988 | ACT | \$5,016.55 |
| C | SUMMERSVILLE FIVE BLOCK | S-3051-88 | 11/1/1994 | UC | \$0.00 |
| N | T & J COAL, INC. | P-177-85 | 5/29/1987 | ACT | \$41,315.00 |
| N | T & T FUELS, INC. | EM-113 | 10/31/1995 | ACT | \$348,097.64 |
| N | T & T FUELS, INC. | U-125-83 | 12/4/1995 | ACT | \$25,101.32 |
| N | THE MASTELLER COAL COMPANY | S-125-82 | 5/3/2004 | ACT | \$0.00 |
| N | THE MASTELLER COAL COMPANY | S-10-85 | 12/10/2003 | P | \$0.00 |
| S | TRIPLE A COALS, INC. | U-3046-87 | 12/17/1998 | P | \$4,234.82 |
| S | TRIPLE A COALS, INC. | S-96-85 | 12/17/1998 | P | \$12,685.06 |
| S | TRIPLE A COALS, INC. | S-3028-87 | 12/17/1998 | P2 | \$9,771.52 |
| N | VALLEY MINING CO., INC. | S-64-83 | 6/12/1992 | ACT2 | \$32,145.05 |
| N | VALLEY MINING CO., INC. | S-17-82 | 9/24/1992 | ACT | \$9,061.44 |
| S | VICKIE ENERGY, INC. | U-53-85 | 1/11/1995 | TBRT | \$6,567.13 |
| N | VIKING COAL COMPANY | UO-519 | 1/18/2001 | NA | \$73,463.27 |
| N | VMS, LTD. | S-1045-87 | 4/4/1994 | TBRT | \$11,075.07 |
| S | W & E LOGGING & COAL | S-20-82 | 5/5/1986 | P | \$4,044.34 |
| N | WERNER MINING CO., INC. | S-2003-86 | 5/20/1992 | P | \$3,410.85 |
| N | WETER CO. | S-71-79 | 7/10/1995 | P | \$2,844.21 |
| N | WOCAP ENERGY RESOURCES, INC. | S-26-85 | 12/14/1993 | ACT3 | \$27,753.86 |
| C | X W CORP. | S-6013-87 | 4/20/1989 | P | \$3,589.26 |

2022 AMD Inventory

| OFFICE | COMPANY | PERMIT | DATE REVOKED | WATER STATUS | CURRENT WATER OPERATING COST |
|--------|-----------------------|---------|--------------|--------------|------------------------------|
| N | Z & F DEVELOPMENT CO. | S-21-84 | 11/6/1985 | ACT | \$61,096.40 |
| N | ZINN COAL CO. | 60-79 | 4/16/1991 | P | \$4,106.44 |

Mine Drainage Treatment Prioritization 2022

| COMPANY | PERMIT | Acid Loading TPY |
|------------------------------------|-----------|------------------|
| ASSET MINING, LLC. | S-5030-95 | 44.11 |
| ROYAL COAL CO. | P-688 | 32.035 |
| KEYSTONE COAL, INC. | U-186-83 | 21.98 |
| CARSON ONE MINING, LLC | O-4-84 | 17.53 |
| INTER-STATE LUMBER COMPANY, INC. | S-39-82 | 17.3 |
| SMITH & STOVER | EM-29 | 11.44 |
| LODESTAR ENERGY, INC. | S-3006-89 | 6.21 |
| SHAFFER BROTHER CONSTRUCTION, INC. | S-2002-12 | 2.97 |
| A S & K, INC. | S-1011-89 | 2.36 |
| MERIDAN OF VIRGINIA, INC. | S-4005-89 | 0.284 |
| CLASSIC RES., INC. | S-55-81 | 0.1836 |
| EAGLE RIDGE DEVELOPMENT GROUP, LLC | S-3016-08 | 0.155 |
| KEYSTONE COAL, INC. | S-84-83 | 0.08 |
| ROYAL COAL CO. | R-676 | 0.0189 |