

**In Response to the Final Report “Assessment of
Alternative Funding Mechanisms to Encourage
Environmental Compliance
and to Maintain Solvency of the
Special Reclamation Fund” (submitted February 13,
2006)**

August 3, 2006

FINAL RECONCILIATION REPORT

Prepared for:

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RECONCILIATION REPORT

This report describes methodological differences between the West Virginia Department of Environmental Protection's (DEP) internal projected balance of the Special Reclamation Fund (SRF) and that estimated by the Center for Business & Economic Research (CBER) at Marshall University in February 2006.¹ The DEP's projected balances cover the fiscal years 2006 to 2011. This report also presents alternative SRF balance projections over the forecast horizon 2006 to 2026 for four cases evaluated in the original CBER report that harmonize the assumptions of the DEP and CBER reports.

There are three primary methodological differences between the CBER and DEP results that cause CBER's fund balances to be higher than the DEP's. Opting for more conservative estimates of variables #1 and #2 significantly influences the projected balance of the fund and thus its viability:

1. Revenues from bond forfeitures and penalties - The CBER assumed a varying level of revenues based on projected forfeited acreage and inflation-adjusted average bond amounts. The DEP uses a simpler model that extrapolates the recent aggregate bond collections into a constant level of expected revenues in current dollars.
2. Revenues from coal production tax - The CBER report projected higher levels of coal production and higher rates of tax collection than the DEP.
3. Use of nominal liabilities and bond amounts for each year of the projection. In CBER's original report, all figures are presented in nominal dollars and thus for future years are inflated to reflect the future value of higher bond amounts. This reason alone causes CBER's FY 2010 figures to be 12.5% higher than the DEP's real figures for the same year.

Revenues from bond forfeitures and penalties. In CBER's original report, average bond amounts (\$/acre) for outstanding permits were used to represent revenues from forfeited permits. However, current forfeits are strongly weighted toward permits with below-average bond amounts. CBER's original analysis represents expected revenues under a uniform bond-pricing system where older permits have updated bond amounts, even in the interim period prior to implementation of full-scale full-cost bonding. This perhaps optimistic assumption was made in expectation of renewed bond amounts being revalued to equal average (partial) bond amounts over the five-year renewal cycle. Under-priced bond amounts are a disincentive to reclaim and also reduce the revenues from collection of forfeited bonds. In the absence of a full-cost bond system, this exasperates the inability to pay for expected liabilities. Under current circumstances, the fund relies on the production tax to support it. Until more bonds are renewed and forfeited permits cease to be matched with bonds that are disproportionately low, production taxes can not be reduced.

The mismatch between forfeited bonds and outstanding bonds is shown in charts R1 through R4. This effect is pronounced by forfeited surface mine bonds, which comprise the

¹ Hamilton, P., Calvin Kent and Christine Risch (2006). "Assessment of Alternative Funding Mechanisms to Encourage Environmental Compliance and to Maintain Solvency of the Special Reclamation Fund."

Figure R1

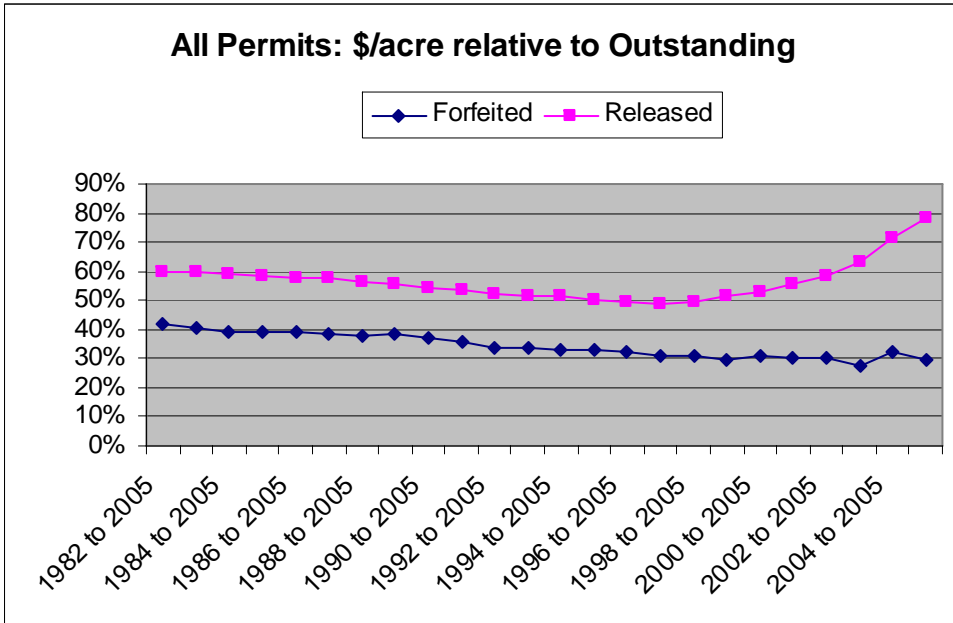


Figure R2

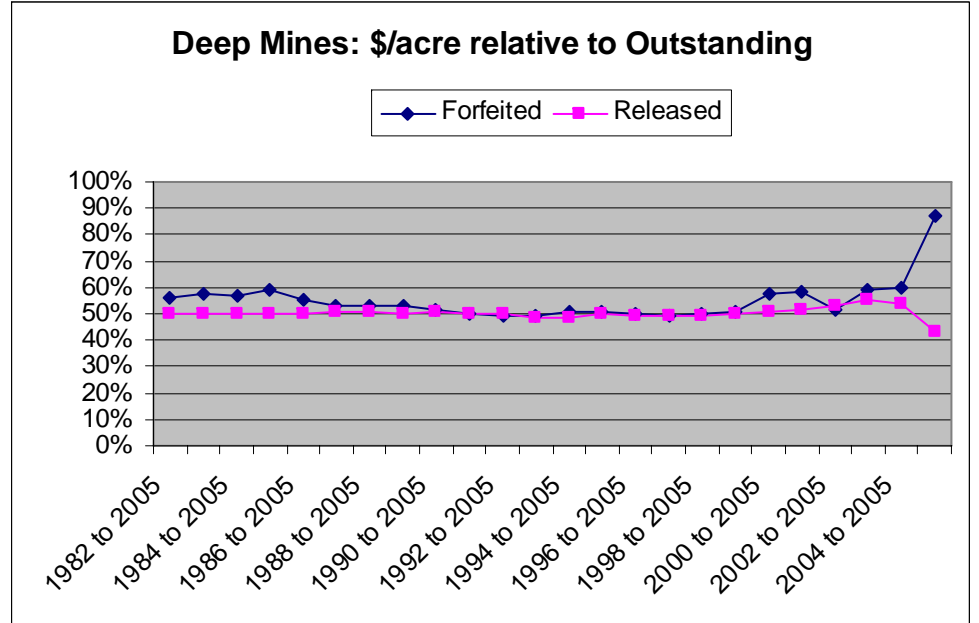


Figure R3

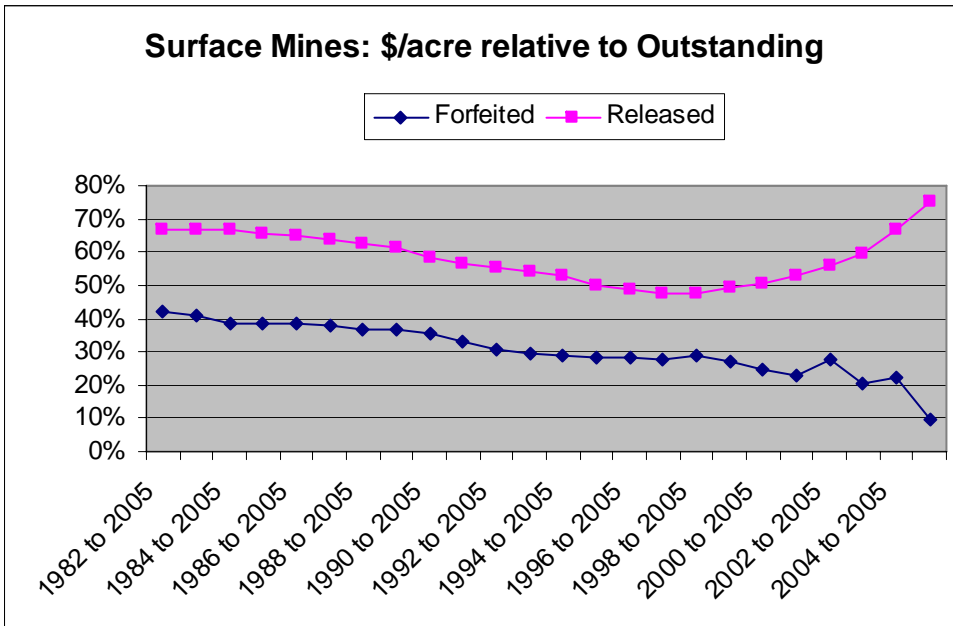
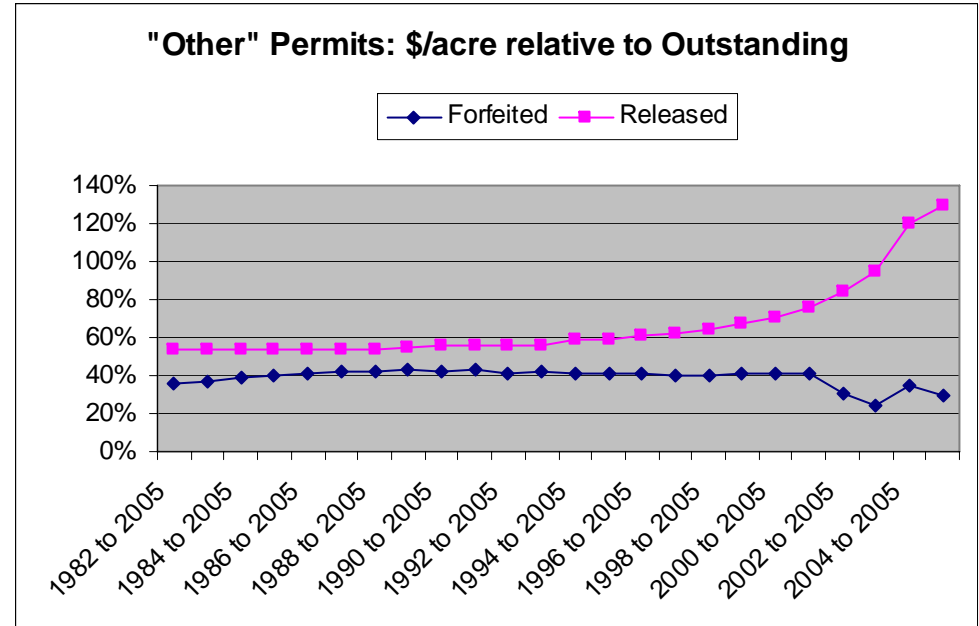


Figure R4



largest portion of SRF forfeited bond revenues and over the last ten years have only averaged 26% of outstanding surface mine bonds, with a declining trend and a low of 10% in 2005.

Forfeited bond amounts that are below average partial bond amounts explain the difference between CBER’s and the DEP’s projections for this category of revenue. For the year 2010 in the “Reconciled” column shown in Table R1, CBER’s projections are 13.6 percent higher than the DEP’s, with 12.5 percent explained by the use of nominal dollars. The one percent discrepancy remaining represents modeling choices and uncertainty that appear to be reasonable.

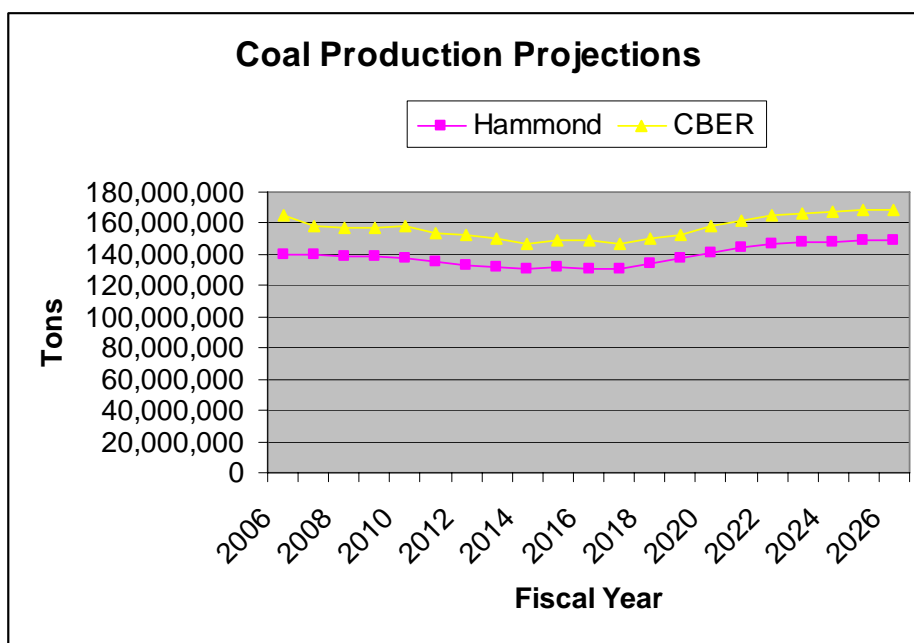
Alternate projections are based on CBER’s calculations of bond amounts and associated collections from forfeited bonds. The highlighted column below represents collected bond amounts beginning with the permit-specific \$/acre amounts shown in Figures R2 through R4. Beginning in 2007 it is assumed that forfeited bond amounts begin to increase relative to outstanding bonds and that by 2026 forfeited bond amounts are equal to average bond amounts for all types of permits. This assumption represents an improvement over current bond collections and allows an increasing fund balance and thus the possibility of lowering the production tax. This assumption causes CBER’s 2010 figures to be about 25% higher than the DEP’s as shown in the highlighted column below. The remaining difference is due to use of nominal dollars.

Table R1: Harmonization of Projections of Bond Forfeiture and Penalty Revenue

FY	CBER Original Projections	DEP Internal Planning Projections	CBER Projections (forfeited bond amounts = averages by 2026)	RECONCILED (recent forfeited bond amounts by permit type)
2006	\$ 4,497,310	\$ 2,100,000	\$ 2,071,495	\$ 2,071,495
2007	\$ 4,714,561	\$ 2,100,000	\$ 2,293,348	\$ 2,159,339
2008	\$ 4,912,320	\$ 2,100,000	\$ 2,521,965	\$ 2,241,852
2009	\$ 5,095,358	\$ 2,100,000	\$ 2,757,116	\$ 2,320,514
2010	\$ 5,236,219	\$ 2,100,000	\$ 2,984,685	\$ 2,386,915
2011	\$ 5,330,694	\$ 2,100,000	\$ 3,197,912	\$ 2,439,768
2012	\$ 5,450,189		\$ 3,429,130	\$ 2,501,005
2013	\$ 5,541,576		\$ 3,651,143	\$ 2,554,337
2014	\$ 5,654,947		\$ 3,890,816	\$ 2,615,298
2015	\$ 5,746,584		\$ 4,122,613	\$ 2,670,348
2016	\$ 5,850,239		\$ 4,366,690	\$ 2,729,877
2017	\$ 5,958,245		\$ 4,618,824	\$ 2,791,556
2018	\$ 6,128,356		\$ 4,922,306	\$ 2,873,172
2019	\$ 6,279,565		\$ 5,220,618	\$ 2,949,841
2020	\$ 6,446,323		\$ 5,539,682	\$ 3,032,178
2021	\$ 6,621,104		\$ 5,874,646	\$ 3,117,907
2022	\$ 6,816,121		\$ 6,237,098	\$ 3,210,806
2023	\$ 7,010,382		\$ 6,609,679	\$ 3,304,445
2024	\$ 7,212,686		\$ 7,000,604	\$ 3,401,528
2025	\$ 7,416,910		\$ 7,404,494	\$ 3,500,222
2026	\$ 7,615,019		\$ 7,813,087	\$ 3,598,087

Revenues from Coal Production Tax. Higher assumed production taxes are a large reason for balance differences, accounting for a difference of \$5 million in revenue in 2006, or about 50% of the balance difference in that year. Both the DEP and the CBER used the Coal Consensus forecast of Dr. Hammond to base its projections for future tax revenue. However, the original CBER report forecast revised these numbers upward to reflect the increased coal production associated with the higher prices of the last couple years. A comparison of Dr Hammond’s original forecast and the one used in CBER’s analysis is shown below. Future year projections are the average of Dr. Hammond’s projections and production trends obtained from applying the same annual percentage changes assumed by Dr. Hammond for the 2006 to 2026 time period.

Figure R5 - Comparison of Coal Production Projections



It may be prudent to assume a more conservative rate of production than what CBER assumed. Reported production for 2005 ranges from 150 million² to 160 million³ tons, which illustrates the difficulties inherent in such forecasting. The Energy Information Administration’s projected production for the Appalachian region is an increasing level of production through 2011, net of declines in Central Appalachia, followed by eight years of decline and a return to current levels.

Assuming a tax collection rate of 90% is also more appropriate as the DEP has done for their planning purposes. The CBER had used a collection rate of 100% in the original report.

² U.S. Department of Energy, Energy Information Administration (2006). Monthly Coal Report.

³ West Virginia Office of Miners’ Health, Safety and Training.

The following table compares DEP’s internal projections with CBER’s projected production tax revenues with the two adjustments made to reconcile the two projections. The two adjustments are: 1) reducing the tax collection rate from 100% to 90%, and 2) lower production forecasts. The “Reconciled” column shown in Table R2 utilizes Dr. Hammond’s original production forecast and closely matches the DEP’s revenue projections. The three percent discrepancy in 2006 represents modeling choices and uncertainty that appear to be reasonable. The highlighted column begins with an assumed 2006 production of 160 million tons, reduces that amount by five million tons annually and then uses Dr. Hammond’s long-term projections beginning in 2011.

Table R2 – Harmonization of Projections of Coal Production Tax Revenue

FY	CBER Original Projections	DEP Internal Projections	RECONCILED (Hammond Tonnage Revenue @ 90%)	CBER Projections (Revenue @ 90% + Lower Tonnage)
2006	\$ 23,100,000	\$ 18,269,998	\$ 17,715,600	\$ 20,160,000
2007	\$ 13,879,977	\$ 11,025,002	\$ 11,032,875	\$ 12,206,250
2008	\$ 11,008,872	\$ 8,820,004	\$ 8,750,700	\$ 9,450,000
2009	\$ 11,032,650	\$ 8,820,004	\$ 8,769,600	\$ 9,135,000
2010	\$ 11,040,575	\$ 8,662,502	\$ 8,775,900	\$ 8,820,000
2011	\$ 10,771,100		\$ 8,561,700	\$ 8,561,700
2012	\$ 10,636,362		\$ 8,454,600	\$ 8,454,600
2013	\$ 10,533,327		\$ 8,372,700	\$ 8,372,700
2014	\$ 10,311,406		\$ 8,196,300	\$ 8,196,300
2015	\$ 10,469,921		\$ 8,322,300	\$ 8,322,300
2016	\$ 10,422,367		\$ 8,284,500	\$ 8,284,500
2017	\$ 10,271,777		\$ 8,164,800	\$ 8,164,800
2018	\$ 10,525,401		\$ 8,366,400	\$ 8,366,400
2019	\$ 10,699,768		\$ 8,505,000	\$ 8,505,000
2020	\$ 11,048,501		\$ 8,782,200	\$ 8,782,200
2021	\$ 11,325,903		\$ 9,002,700	\$ 9,002,700
2022	\$ 11,539,898		\$ 9,172,800	\$ 9,172,800
2023	\$ 11,658,784		\$ 9,267,300	\$ 9,267,300
2024	\$ 11,745,968		\$ 9,336,600	\$ 9,336,600
2025	\$ 11,785,596		\$ 9,368,100	\$ 9,368,100
2026	\$ 11,825,225		\$ 9,399,600	\$ 9,399,600

The SRF balances under the four funding mechanisms are shown in charts R6 through R9 applying the highlighted alternative assumptions shown in Table R1 and R2 as sensitivity cases to CBER’s original projections. These four potential funding mechanisms are:

1. Maintain the status quo system (partial-cost bonding & 7 cent/ton tax)
2. Full-cost bonding for all permits (legacy costs are not covered)
3. Full-cost bonding for underground and “other” permits only
4. Full-cost bonding for land reclamation only, with water treatment covered by a trust fund

Figure R6: Status Quo System

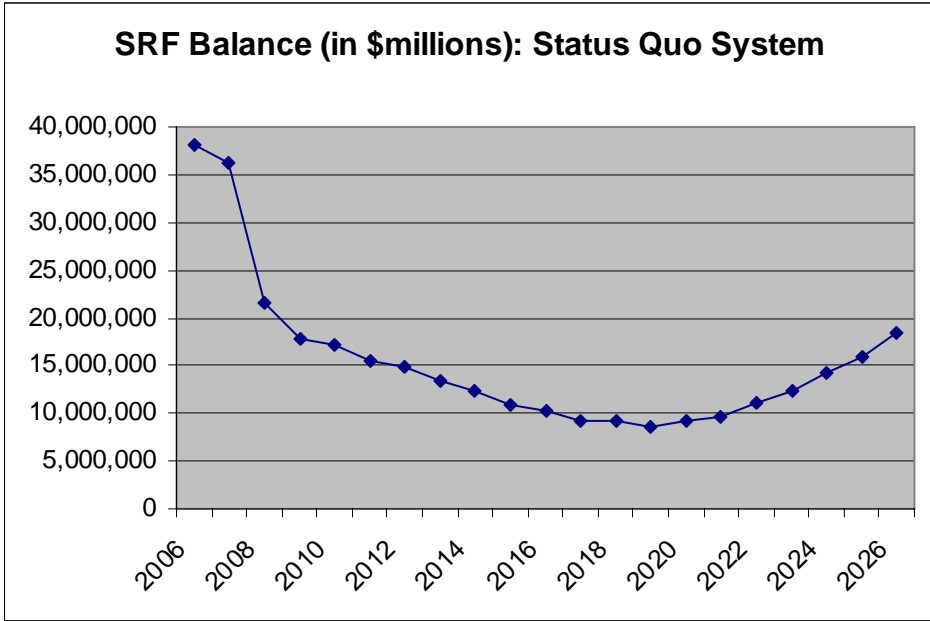


Figure R7: Full-Cost Bonding System

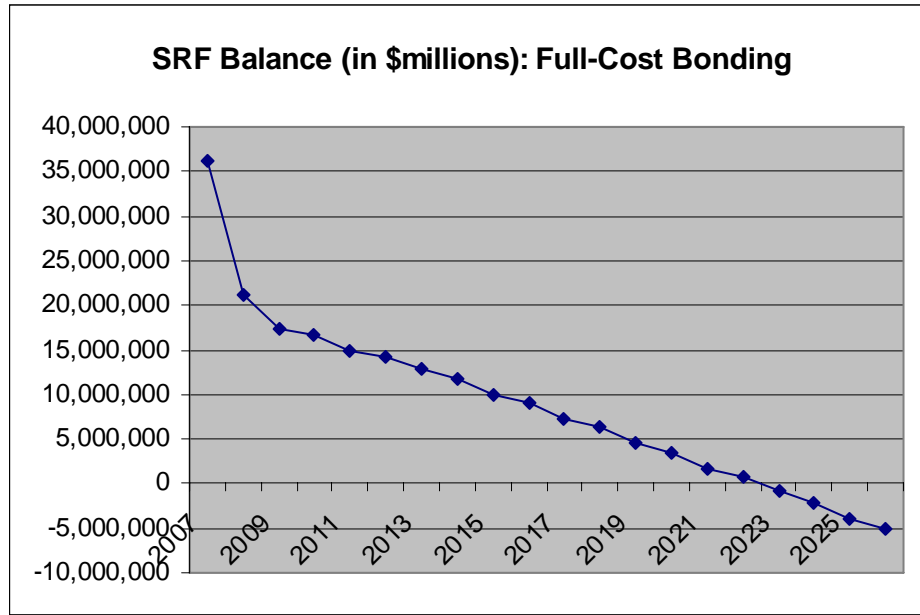


Figure R8: Full-Cost Bonding for Underground and Other Operations

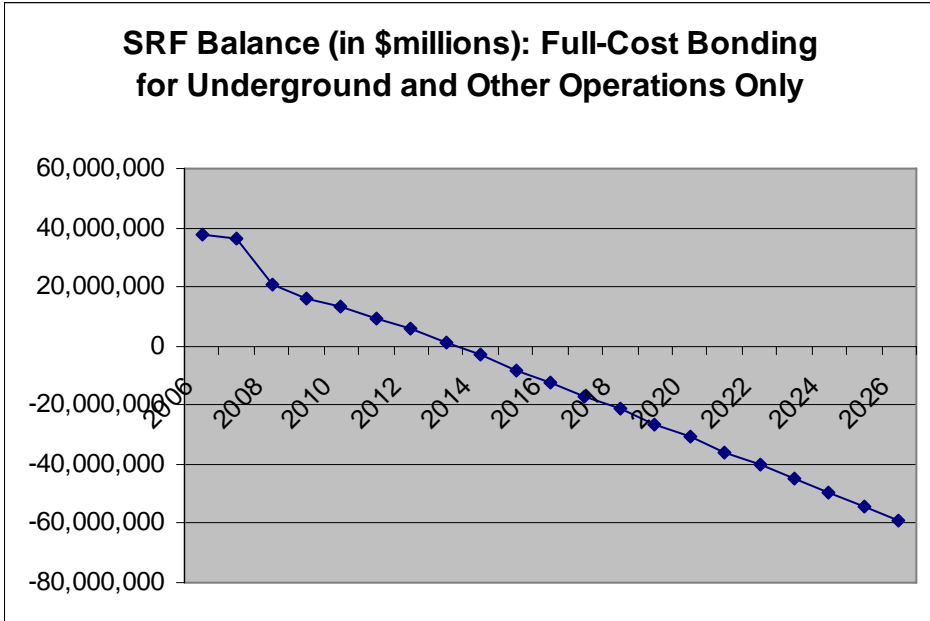
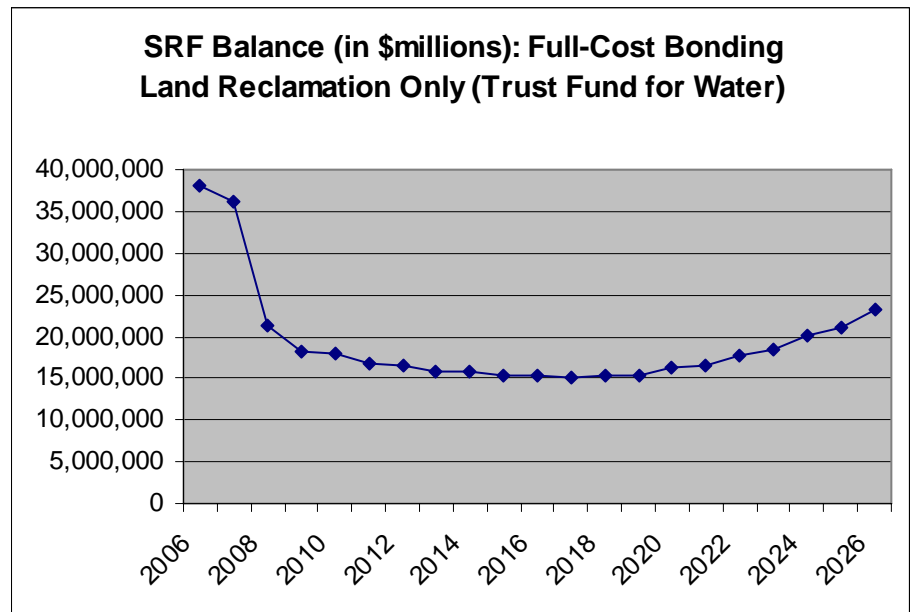


Figure R9: Full-Cost Bonding for Land Reclamation and a Trust Fund for Water

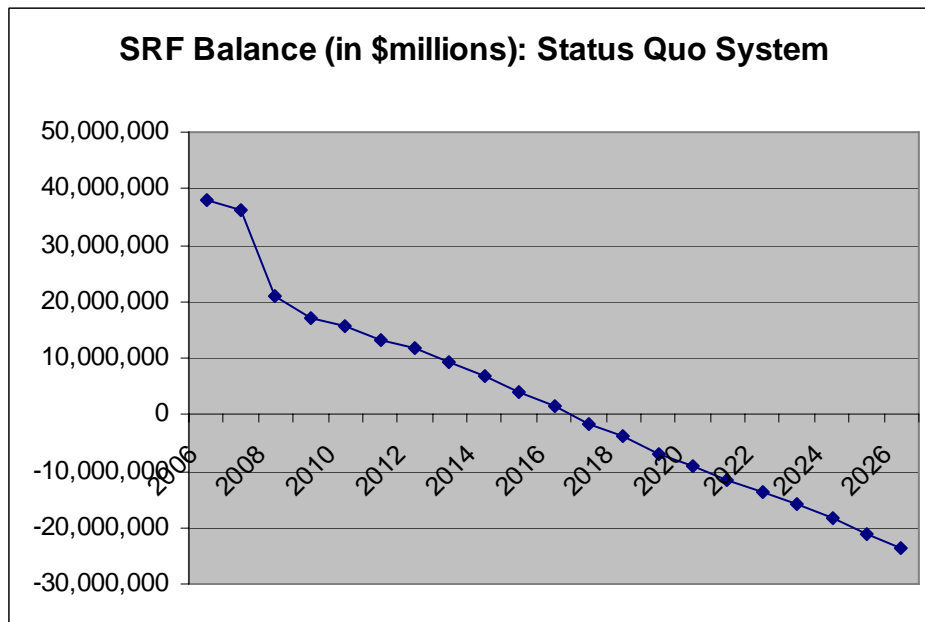


These results show less optimistic balances for all scenarios and the status quo balance initially declines rather than rises. In two other cases, the fund is extinguished before the end of the time period. The resulting recommendation is the same. The trust fund option for water combined with full-cost bonding for land reclamation declines, but stabilizes toward the middle of the time horizon and thus remains solvent under the revised parameters.

The purpose of this underlying study was to evaluate the best alternative to the status quo, due to the current inadequacy of bond values. A system of full-cost bonding for land reclamation combined with a trust fund for water treatment represents a solvent model that has the most equitable distribution of reclamation costs.

In the current system forfeited bond amounts are considerably below average partial bond amounts. This creates a disincentive to reclaim and possibly also an incentive to forfeit. Production taxes can not be reduced until the amount collected (per acre) from a typical forfeited bond is on par with the typical open permit bond. Until that happens, forfeits will be lower than even partial bond amounts and can not sustain the SRF. Continuation of such trends would result in a status quo fund balance similar to that shown in Figure R10.

Figure R10: SRF Balance Under Status Quo System With Forfeitures Dominated by Below-Average Partial Bond Amounts



Figures R11 and R12 below show the distribution of forfeited bonds (top chart) and open bonds (bottom chart) for 1995 through 2005. The horizontal axis is \$/acre. This illustrates clearly the clustering of forfeited bonds at significantly lower amounts than the population of open bonds.

Figures R11 and R12

