Legacy Gold Mines Provide an Opportunity to Produce Metals During Reclamation – An Example from the Gold-pyrite Belt of Virginia

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Unreclaimed abandoned hard rock mine sites pose environmental and public safety hazards...
In the first half of the 19th century, Virginia was a major gold producer.

Most of this production was from the Gold-pyrite Belt.
Geologic Setting of the Virginia Gold-pyrite Belt
Over 500 abandoned mines and prospects are present in the Virginia Gold-pyrite Belt.
These mines were abandoned long before the implementation of state reclamation laws in the 1960s.

Most of the abandoned mines are on private land.

The Virginia Orphaned Lands Reclamation Fund is funded by a small stream of interest from the Minerals Reclamation Fund.

The fund is sufficient to reclaim a few sites per decade.
Gold occurs in quartzites and schists near the contact between the Chopawamsic & Quantico formations
A Brief History of the Moss Mine

• 1829 – Placer gold discovered nearby
• 1835 – Lode gold discovered
• 1836-1838 – Two shafts driven to 50’
• 1891-1893 – Two more shafts to 72’
• 1902-1904 – Shafts & drifts to 130’
• 1931-1936 – Shafts & drifts to 228’
• Mid-1990s – Core drilling & rudimentary reclamation
• 2020 – Current gold recovery & reclamation effort begins

Reportedly, much gold & mercury remains onsite.
Status, October 2022

- Mine permit & reclamation plan have been approved
- Old tailings have been excavated & stockpiled
- Old millhouse has been removed
- Equipment is onsite
- Assembly & testing are underway
Big Dawg Resources gold & mercury recovery process

- Trommel (Washer)
- Screens
- Coarse
- Crusher 100 TPH
- Fines
- Sluices
- Jigs
- Shaker Table
- Old Tailings
- Tailings Pond

GOLD & MERCURY!!
Gold and mercury recovered during equipment testing.
§ 45.2-1203. Exemption for restricted mining.

Any operator engaged in mining who disturbs less than one acre of land and removes less than 500 tons of minerals at any particular site is exempt from all mining permit fees, renewal fees, and bond requirements of this chapter if such person intending to engage in such restricted mining submits an application for a permit, a sketch of the mining site, and an operations plan to be adhered to in accordance with §§ 45.2-1205 and 45.2-1206. The Director shall approve the application if he determines that the issuance of the permit will not violate any provision of this chapter.
Summary & Recommendations

• One man is reclaiming one mine, one acre at a time with private funds in the hope of recovering enough gold to cover expenses and return a profit.

• This is an interesting model, but it’s not likely to address the great remaining need.

• Government-sponsored incentives would be helpful, for example:
  • “Good Samaritan” release from future liability
  • Less restrictive bonding for voluntary reclamation
  • Financial incentives