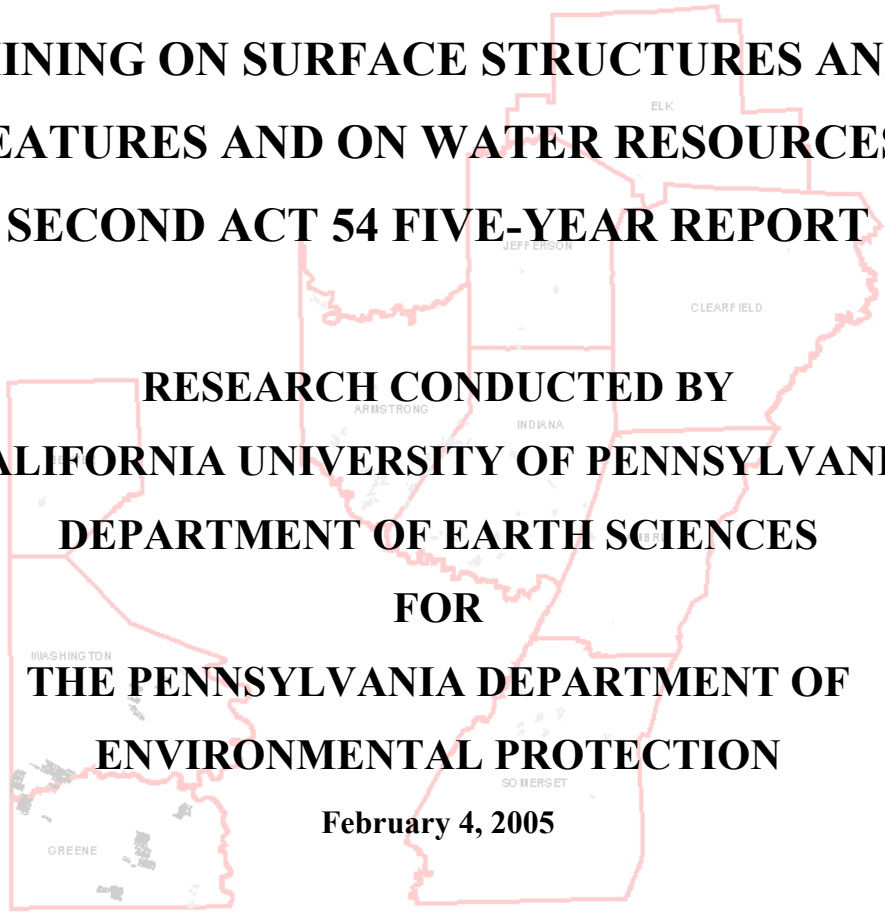
THE EFFECTS OF SUBSIDENCE RESULTING FROM UNDERGROUND BITUMINOUS COAL MINING ON SURFACE STRUCTURES AND FEATURES AND ON WATER RESOURCES: SECOND ACT 54 FIVE-YEAR REPORT



RESEARCH CONDUCTED BY

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FOR

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Section XIV: CONCLUSIONS

1. Because the same kinds of entities (e.g., brick houses, first-order streams of a given gradient or geomorphologic character) undergo multiple effects and degrees of impact by subsidence, a standardized terminology for all natural and artificial entities potentially affected by underground mining is essential for a scientific assessment of the effects of mining.
2. Baseline studies of natural phenomena potentially affected by underground mining are essential to accurate assessments of mining's impacts. This applies, in particular, to streams, wetlands, and groundwater.
3. A fixed distance based on the findings of this report is more appropriate than the 35-degree angle of draw to the assignment of liability and the prediction of survivability of springs and wells.
4. Increased use of GPS in identifying the locations of all phenomena potentially affected by underground mining will enhance a future Act 54 report.
5. Longwall mining has not dewatered the near-surface (that zone tapped by most wells) ground water zone in Washington and Greene Counties even though some water source owners have lost their personal water supplies. Near-surface ground water is not reporting to longwall mines to the detriment of the zone tapped by most wells in the two counties.
6. Not all water diminution of the assessment period is attributable to longwall mining because droughty conditions and above-normal temperatures reduced the influx of meteoric water reporting to the ground.
7. The majority of undermined structures do not appear to suffer damage from subsidence.
8. Some streams adversely affected by underground mining can recover their use in large measure after the application of restoration techniques.
9. Some streams suffering from diminution of flow caused by underground mining can recover their flow without PA DEP intervention.

10. Wetlands are largely unaffected by longwall mining.
11. Impacts to infrastructure are difficult to ascertain precisely because many different government agencies (e.g., state, township) have inadequate documentation and reporting protocols.
12. The California District Mining Office thoroughly investigates every claim, but it has too few staff members to cover all mining-related effects.