**EXECUTIVE SUMMARY**

**Item Name:** **Approval of Regents' Grants Proposal #4 – Arizona's Need of a Comprehensive Assessment Identifying Potentially Hazardous Abandoned Mine Features Impacting Surface and Groundwater**

☒ Action Item

**Requested Action:** The universities and the board office ask the board for approval of its Regents' Grants Proposal for Arizona's Need of a Comprehensive Assessment Identifying Potentially Hazardous Abandoned Mine Features Impacting Surface and Groundwater.

**Background/History of Previous Board Action**

Arizona law established TRIF from Proposition 301 state sales tax revenue and gives ABOR the authority to administer the fund on the universities' behalf. The board manages and administers the TRIF revenues through awarding and allocating revenues.

One of the options the board has is to award TRIF revenues to the universities through the recently developed Regents' Grant process.

The purpose of Regents' Grants is to address and deliver solutions to critical issues facing the State of Arizona and its citizens.

The board office engaged with Governor's Office, the Department of Administration, and the Department of Environmental Quality (AzDEQ), Department of Health Services (AzDHS) and Department of Water Resources (AzDWR) to develop a list of problem statements.

The universities received ADEQ's initial problem statements in November of 2021 and engaged in a Q&A session held in January to answer faculty questions regarding the problem statements. ADEQ's problems statements are:

1. Currently we do not understand how the unique southwest natural environment and potential ozone precursor sources in Arizona--nitrogen oxides (NOx), volatile organic compounds (VOCs), and biogenic volatile organic compounds (BVOCs) impact or assist in the production of ozone in Arizona. Thus, it is not clear which types of controls can be put in place or voluntary actions Arizonans can take to reduce ozone and improve air quality. Beyond the existing photochemical air

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modeling and analysis, Arizona needs a better predictive method to establish the independent and reasonably controllable variables influencing ozone in Arizona.

2. Arizona would benefit from a cost-effective solution and/or options to identify an optimal fallow field plan that minimizes wind-blown PM10 (~dust) emissions and Valley Fever spores.

3. Need cost effective technology to remediate PFAS contaminated water and need a cost-effective means to replace current AFFF supplies with a more benign but effective fire suppressant.

4. Arizona needs a comprehensive assessment identifying potentially hazardous mine features impacting surface and groundwater. Arizona needs a cost-effective solution or mitigation technology that can limit the spread of contaminants via water and air.

5. Arizona would benefit from an economic feasibility study to manage recycling by municipality size. The study should detail recycling options for Arizona and highlight pros and cons for each community size.

The universities submitted their proposals in response to the state's problem statements in February and ADEQ, AzDHS and ABOR reviewed the proposals.

**Discussion**

Based on the reviews of the multi-university proposals submitted in response to Problem Statement #4 regarding Arizona's need of a comprehensive assessment identifying potentially hazardous abandoned mine features impacting surface and groundwater.

The board is asked to review and approve for Regents' Grant Funding the following proposal in response to this problem statement:

Context:

There are an estimated 200,000 potentially hazardous abandoned mine features such as tailing piles in Arizona discharging pollutants to surface and groundwater. Storm water in Arizona mobilizes both natural and contaminants into Arizona waters and is a major contributor to impairment of Arizona waters. Abandoned mines can produce acidic (low pH) water rich in heavy metals, which impacts aquatic life and the people and animals that eat fish from these waters and drinking water for both municipal systems, private well owners, livestock and wildlife.

Team:

Arizona State University: Drs. Rolf Halden, Rebecca Muenich, Erin Driver, Otakuye Conroy-Ben, Kerry Hamilton
University of Arizona: Dr. Mark Barton

Proposal Summary

A three-year study is being proposed by a multi-disciplinary team of engineers, biologists, geologists and risk accessors, to (i) inventory abandoned mining sites in Arizona, (ii) identify potential risks posed, (iii) rank hazardous sites using a risk assessment framework, and (iv) create multiple work products to support the successful near- and long-term management

Why it Matters to Arizona

Despite the greater than 150 years history of development of Arizona's mineral wealth, there is no comprehensive dataset that provides the needed basic information about mining-related features such as openings, waste, and contaminated water or soil.

Budget

| Annual | Three-Year |
|---|---|
| $500,000 | $1,500,000 |

Project Length

Three years.

**Committee Review and Recommendation**

The Research and Health Sciences Committee reviewed this item at its March 25, 2022 meeting and recommended forwarding the item to the full board for approval.

**Statutory/Policy Requirements**

A.R.S. § 15-1648 "Technology and Research Initiative Fund"

ABOR Policy 3-412 "Administration of Technology and Research Initiative Fund"