Committee on Natural Resources
Rob Bishop Chairman
Mark-Up Memorandum

June 20, 2017

To: All Natural Resources Committee Members

From: Majority Committee Staff—Joshua Hoffman
Subcommittee on Energy and Mineral Resources (x5-9297)

Mark-Up: **H.R. 2053 (Rep. Martha McSally)**To amend the Surface Mining Control and Reclamation Act of 1977 to provide support to mining schools, and for other purposes.
June 22 & 27, 2017; 1324 Longworth HOB

H.R. 2053 (Rep. Martha McSally, R-AZ-02), *"Mining Schools Enhancement Act"*

Summary of the Bill

On April 6, 2017 H.R. 2053 was introduced by Congressman Martha McSally (R-AZ), and co-sponsored by Congressman Ed Perlmutter (D-CO). This bill amends the Surface Mining Control and Reclamation Act of 1977 (SMCRA) to require the Office of Surface Mining Reclamation and Enforcement (OSM) of the Department of the Interior to ensure that at least 70% of specified amounts available for projects relating to the environmental impacts of surface coal mining is expended to fund activities of mining and mineral engineering programs at mining schools in the United States.

Cosponsors

Rep. Amodei, Mark E. [R-NV-2], Rep. Barr, Andy [R-KY-6], Rep. Gosar, Paul A. [R-AZ-4], Rep. McKinley, David B. [R-WV-1], Rep. Noem, Kristi L. [R-SD-At Large], Rep. Pearce, Stevan [R-NM-2], Rep. Perlmutter, Ed [D-CO-7], Rep. Thompson, Glenn [R-PA-5], Rep. Young, Don [R-AK-At Large]

Background

Within the next 10 to 15 years, approximately 70 percent of the United States' mining industry's technical leaders will reach retirement age. The National Research Council (NRC) identified this aging demographic within the mining sector as the "most critical issue" facing the workforce, and highlighted the "paucity of candidates to replace" the retiring workforce in the "mining-related faculty at institutions of higher knowledge."[1] Evidencing this is the decrease in the number of accredited mining and mineral engineering programs, which has fallen from 25 in

[1] National Research Council, Emerging Workforce Trends in the U.S. Energy and Mining Industries: A Call to Action, at 82 (2014).

1982 to 14 in 2007, and a corresponding decline in faculty, which fell from 120 in 1984 to 70 in 2007.[2]

The issues of a retiring workforce and a resultant lack of mining expertise are not limited solely to industry, but also affects the federal regulatory agencies. Indeed, 47 percent of the Mine Safety and Health Administration's coal sector workforce are currently eligible for retirement; while in 2016, the U.S. Environmental Protection Agency did not employ a single mining engineer in its over 15,000 employee workforce.[3] Without sufficient numbers of mining experts, more disasters like the Gold King Mine waste water spill are more likely to occur; therefore, it is crucial to encourage the training and development of mining and mineral engineers.

One factor identified by the NRC as contributing to the decrease in mining and mineral engineering programs and faculty is the "relative absence of consistent federal research funding to support graduate programs at mining schools."[4] In 1994, $52 million had been directed through the U.S. Bureau of Mines to fund research – a majority of which was received by mining schools.[5] This program, however, was eliminated, and has been credited to be one of the root causes of weakening mining programs. Thus, one way to reinvigorate mining and mineral engineering programs would be an assurance of federal research directed to mining schools.

When Congress passed SMCRA in 1977, it identified a principal purpose of the act as "provid[ing] for . . . the conduct of research investigations, experiments, and demonstrations, in the exploration, extraction, processing, development, and production of minerals and *the training of mineral engineers and scientists in the field of mining, minerals resources, and technology*."[6] [Emphasis added] Currently, the OSM offers a research grant program for schools to apply for, but a minor fraction of the grants are directed to mining schools. For instance, only one of 18 current or completed projects awarded in 2014 was conducted at a mining school, while only seven of the entire 64 projects awarded over the past ten years were awarded to faculty members at mining engineering programs.[7] To ensure the continued development of mining engineers and the statutory objectives of SMCRA are upheld, OSM should direct more of its grants towards mining and mineral engineering programs.

H.R. 2053, *"Mining Schools Enhancement Act,"* attempts to address the aforementioned issues by requiring OSM to direct at least 50 percent of its research funding to mining schools for the purpose of "enhance[ing] and support[ing] mining and mineral engineering programs." Such funds must provide a "significant opportunity for participation by undergraduate and graduate students at mining schools" and must be used to promote "studies of mining, mineral extraction efficiency, and related processing technology;" "mineral economics, reclamation technology, and practices for active mining operations;" "the development of remining systems

[2] *Id.* at 85.
[3] U.S. Office of Professional Management, Federal Human Resource Data, http://www.fedscope.opm.gov/
[4] Emerging Workforce Trends in the U.S. Energy and Mining Industries: A Call to Action, at 87.
[5] *Oversight Hearing on the Aging of the Energy and Mineral Workforce Before the Subcomm. on Energy and Mineral Resources, Comm. on Natural Resources*, 108th Cong. (2004) (testimony from Mary Poulton, Dept. Head of the University of Arizona's Department of Mining and Geological Engineering).
[6] 30 U.S.C. § 1202(l) (emphasis added).
[7] *See* Office of Surface Mining Reclamation and Enforcement, Applied Science Projects, http://www.osmre.gov/programs/tdt/appliedscience/projects.shtm

and technologies that facilitate reclamation that fosters the recovery of resources at abandoned mine sites;" "investigations of mineral resources extraction methods that reduce environmental and human impacts"; "reducing dependence on foreign energy supplies"; and "enhancing the competitiveness of United States energy technology exports."

Table 1 US Mining Schools by State

School	Location
University of Alaska - Fairbanks	Fairbanks, AK
The University of Arizona	Tucson, AZ
Colorado School of Mines	Golden, CO
University of Kentucky	Lexington, KY
Missouri University of Science and Technology	Rolla, MO
Montana Tech - The University of Montana	Butte, MT
University of Nevada, Reno	Reno, NV
New Mexico Institute of Mining and Technology	Socorro, NM
The Pennsylvania State University	University Park, PA
Southern Illinois University at Carbondale	Carbondale, IL
South Dakota School of Mines and Technology	Rapid City, SD
The University of Utah	Salt Lake City, UT
Virginia Polytechnic Institute and State University	Blacksburg, VA
West Virginia University	Morgantown, WV

On December 14, 2015, in the 114th Congress, the Subcommittee on Energy and Mineral Resources held a legislative field hearing on H.R. 3734 in the underground classroom of the Edgar Mine, at the Colorado School of Mines Experimental Mine in Idaho Springs, Colorado.

This current iteration, H.R. 2053, is part of the Committee's response to the Gold King Mine and the Standard Mine spills that occurred in Colorado in August and September of 2016, which reports indicated were caused by the Environmental Protection Agency (EPA).[8] These reports also highlighted the lack of technical expertise, in particular mining engineers, needed for mine reclamation work.

The Gold King Mine spill, which turned the Animas River an ochre color this past August,[9] helped shine a national spotlight on the range of complex technical, legal, educational and funding related challenges that must be addressed in order to move forward with success in addressing abandoned mine lands (AML) not just in the Western U.S., but across the country.

[8] See: http://naturalresources.house.gov/calendar/eventsingle.aspx?EventID=399212; http://naturalresources.house.gov/newsroom/documentsingle.aspx?DocumentID=399238

[9] http://www.newsweek.com/epa-causes-massive-colorado-spill-1-million-gallons-mining-waste-turns-river-361019

Major Provisions H.R. 2053

SECTION 1. SHORT TITLE.

SEC. 2. SUPPORT FOR MINING SCHOOLS.

Of the amounts made available for Section 721 of the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1309b: Research), the Director of the Office of Surface Mining Reclamation and Enforcement shall ensure that at least 50 percent is expended to enhance and support mining and mineral engineering programs in the United States by funding activities at mining schools.

In expending funds under this section, the Director shall consult with relevant stakeholders and ensure a significant opportunity for participation by undergraduate and graduate students at mining schools.

Activities conducted under this section relate to conventional fuel resource development and production, and include studies of:

- mining, mineral extraction efficiency, and related processing technology;
- mineral economics, reclamation technology, and practices for active mining operations;
- the development of remining systems and technologies that facilitate reclamation that fosters the recovery of resources at abandoned mine sites;
- mineral resource extraction methods that reduce environmental and human impacts;
- rare earth co-mineralization with coal;
- reducing dependence on foreign energy supplies; and
- enhancing the competitiveness of United States energy technology exports.

Mining School is defined as a mining or mineral engineering program or department accredited by the Accreditation Board for Engineering and Technology, Inc., that is located at an institution of higher education.

Cost

As drafted, H.R. 2053 only directs the use of existing funds, there is not anticipated to be an impact on the federal budget. An expected amendment authorizes $10,000,000 for each of fiscal years 2018 through 2024.

Anticipated Amendments

An amendment is expected to authorize $10 million per year through 2024 and changes the distribution to Mining Schools from 50 percent of the authorized amount to 70 percent.

Administration Position

Unknown.

Effect on Current Law (Ramseyer):

Showing Current Law as Amended by H.R. 2053

[new text highlighted in yellow; text to be deleted bracketed and highlighted in blue]

Section 721 of the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1309b)

§1309b. Research

(a) In General.—Subject to subjection (b), the [The] Office of Surface Mining Reclamation and Enforcement is authorized to conduct studies, research and demonstration projects relating to the implementation of, and compliance with, subchapter V of this chapter, and provide technical assistance to states [1] for that purpose. Prior to approving any such studies, research or demonstration projects the Director, Office of Surface Mining Reclamation and Enforcement, shall first consult with the Director, Bureau of Mines, and obtain a determination from such Director that the Bureau of Mines is not already conducting like or similar studies, research or demonstration projects. Studies, research and demonstration projects for the purposes of subchapter IV of this chapter shall only be conducted in accordance with section 1231(c)(6) of this title.

(b) Mining Program Support-

(1) Of the amounts made available under this Act for activities authorized under this section, the Director of the Office of Surface Mining Reclamation and Enforcement shall ensure that at least 50 percent is expended to enhance and support mining and mineral engineering programs in the United States by funding activities at mining schools.

(2) In expending funds under this section, the Director shall consult with relevant stakeholders and ensure a significant opportunity for participation by undergraduate and graduate students at mining schools.

(3) The Director shall ensure that the activities conducted under this section relate to resource development and production, and include--

(A) studies of mining, mineral extraction efficiency, and related processing technology;

(B) mineral economics, reclamation technology, and practices for active mining operations;

(C) the development of remining systems and technologies that facilitate reclamation that fosters the recovery of resources at abandoned mine sites;

(D) investigations of mineral resource extraction methods that reduce environmental and human impacts;

(E) reducing dependence on foreign energy supplies;
(F) enhancing the competitiveness of United States energy technology exports;
(G) the extraction or processing of coinciding mineralization, including rare earth elements, within coal, coal processing byproduct, overburden or coal residue; and
(H) enhancing technologies and practices related to mitigation of acid mine drainage, reforestation, and revegetation in the reclamation of land and water resources adversely affected by coal mining.

(c) Mining School Defined- In this section the term `mining school' means a mining, metallurgical, or mineral engineering program or department accredited by the Accreditation Board for Engineering and Technology, Inc., that is located at an institution of higher education (as that term is defined in section 631(a) of the Higher Education Act of 1965 (20 U.S.C. 1132(a))) in the United States.