

Uranium Watch

P.O. Box 1306
Monticello, Utah 84535
435-260-8384

March 30, 2020

Ms. Cheryl Moss Herman
U.S. Department of Energy
Office of Nuclear Energy
19901 Germantown Rd.
Germantown, Maryland 20874-1290
rfi-uranium@hq.doe.gov

RE: Response to RFI. Docket ID: DOE_FRDOC_0001-3946. 85 Fed. Reg. 10424,
February 24, 2020.

Dear Ms. Herman:

Below please find the comments of Uranium Watch regarding the Department of Energy (DOE) "Request for Information [RFI] Regarding Key Challenges in Reconstituting Uranium Mining and Conversion Capabilities in the United States;" 85 Fed. Reg. 10424, February 24, 2020. The February 24th *Federal Register* Notice announced a due date for comments of March 16, 2020. In response to a requests for an extension by Uranium Watch and others, the comment period was extended to March 30, 2020. Uranium Watch appreciates the extension.

Uranium Watch is a public interest 501(c)(3) non-profit organization located in southeast Utah. For 15 years UW has been tracking the activities of the uranium mining and milling industry, primarily conventional mining and milling associated with the Energy Fuels Resources (USA) Inc. (Energy Fuels) White Mesa Uranium Mill on White Mesa adjacent to the White Mesa Ute Mountain Ute Community, San Juan County, Utah. These public interest activities have included research, attendance at numerous state and federal meetings and hearings associated with mines and the Mill, submittal of substantive comments related to uranium mine and mill permits and licenses, letters to state and federal regulatory agencies regarding the implementation of their regulatory programs applicable to uranium mining and milling, submittal of allegations and challenges related to state and federal permitting and licensing decisions. public outreach and education, and related efforts and involvement.

1. GENERAL COMMENTS

1.1. There have been some issues with the public noticing of the DOE RIF comment opportunity. The February 24 and March 11 *Federal Register* Notices failed to include the Docket ID necessary to submit comments on the government regulations website. Unfortunately, the government regulations website, at DOE_FRDOC_0001-3946, has not been updated to reflect the new comment due date of March 30. Rather, it indicated that the comment period was closed. Therefore, I was unable to upload my comments via the government regulations website.

1.2. The DOE should clearly define what is meant by “reconstituting a uranium mining and conversion capability.”

1.3. The DOE must provide an opportunity for public comments and hold public hearings near communities affected by current and possible future impacts from the uranium industry related to any proposed DOE or other federal actions in support of the the domestic uranium industry.

2. NO BAILOUT AND ARTIFICIAL SUPPORTS

2.1. The DOE starts from the erroneous assumption that uranium production in the U.S is necessary for national security and that the uranium industry deserves the input of millions of dollars of tax-payer funding to support a uneconomical and unnecessary industry. At this time of national emergency, the federal government should not divert funds needed to fight the COVID-19 virus and provide relief to its citizens. Artificial support of the uranium industry with federal financial incentives will provide relatively few jobs and not serve the recovery of the national economy. If federal funds are to be spent to provide jobs in rural areas that have historically produced uranium, funding should be dedicated to the reclamation and remediation the hundreds of abandoned uranium mines on tribal and public lands, including mines associated with the atomic weapons program.

2.2. There is no rational justification for the federal government to provide artificial and costly support to the uranium industry. The only way to “reconstitute” the uranium industry in the US would be through trade restrictions, direct purchases of uranium, or other type of price supports. This will cost tax-payers and/or rate-payers millions. The artificial support of the uranium industry would have to be continued indefinitely. Ten years of federal uranium purchases would give some uranium producers an additional 10 years, only to face the same economic, mine operation, and related circumstances as they do today. Since the 1980s, the U.S. has not been able to maintain a viable uranium industry for more than a few years at a time. The uranium industry has been, and continues to be a “boom-and-bust” economy. Through those periods of off and on uranium production, the nation’s security has never been threatened. *See* information regarding the historic uranium industry in Appendix A, below.

2.3. There is no national security justification for propping up the foreign companies that mine and mill uranium in the U.S. through the use of tax-payer resources at the time. Diverting funding from much more pressing national needs, not the lack of uranium that has been produced in the U.S. by foreign companies (Canadian, Australian, Russian), is the real national security concern. The uranium industry should not use a “national security” scare to justify another uranium boondoggle.

The U.S. should not use the Defense Production Act to buy strategic stockpiles of uranium. There is no evidence that the current pandemic crisis “is exposing the vulnerability of our nuclear fuel supply chain.” as some in the uranium industry claim. It is unfortunate that industry representatives are using this crisis to further their own agenda.

3. “ADDITIONAL” CONSIDERATIONS

The RFI asks commenters if “there additional considerations that should be taken into account regarding key challenges to reconstituting a uranium mining and conversion capability in the United States.” UW will address these “additional considerations” first. UW is most familiar with conventional uranium mining and milling and will primarily address the conventional uranium mining and recovery industry.

3.1. The DOE must get a clear picture of the current and historic conventional uranium mining industry and the impacts of that industry on the health, well being, economic and social position of individuals, communities, tribal members and tribal entities, workers, worker families, and other interested and affected parties who have and will continue to face significant challenges due to the past, current, and possible future domestic production of uranium.

3.2. The DOE must identify and consider adverse impacts related to any federal actions to reconstitute a uranium mining and conversion capability. These impacts would include: 1) amount of radon and other radionuclides released into the environment; 2) contamination of ground and surface water; 3) increases in the amount of uranium mill tailings (11e.(2) byproduct material), which must be kept in government control in perpetuity; 4) destruction of significant cultural resources; 5) increases in mine waste rock that contains uranium, uranium progeny, and hazardous materials, such as silica; 6) social and economic impacts related to an industry that has never provided secure, long-term employment; 7) cumulative impacts from current, historic, and future uranium exploration, uranium mine and mill development, mine and mill operation, and long-term care; 8) violations of state and federal health, safety, and environmental regulations; and 9) adequacy of state and federal regulations, and the implementation of those regulations, to protect mine workers, nearby communities, ground and surface water, air quality, and other aspects of the environment.

3.3. The DOE should take a hard look at the historic and future burdens of the uranium industry on the U.S. economy and the environment. The DOE and the uranium industry seem to think that everything about the uranium industry is, has been, and will continue to be beneficial. This is not the case. The federal government under Title I of the Uranium Mill Tailings Radiation Control Act of 1978, has spent millions of dollars remediating the uranium mills. The estimated cost of the remediation of the Moab tailings by the DOE is \$1 billion.

Uranium mill tailings must be kept under government control in perpetuity, with problems appearing at remediated sites that must be addressed using public funds. The DOE identified over 4,000 abandoned uranium mines associated with the atomic weapons program. There are hundreds of other abandoned or inadequately remediated uranium mine sites. Most uranium mills are a continual source of groundwater contamination, because the uranium mill tailings impoundments constructed prior to the early 1980s were not lined, The federal government is spending trillions of dollars to remediate and care for sites associated with the atomic weapons programs. Billions of federal dollars have gone to compensate downwinders and mine and mill workers under the Radiation Exposure Compensation Act (RECA) and the Energy Employees Occupational Illness Compensation Program (EEOICP).

Cancer is still a problem in worker and local community populations. State and federal regulations for mining and milling have been inadequate, and there has been a lack of effective enforcement. The U.S. has no radiological standard for the operation and remediation of uranium mines on federal lands.

4. DOE QUESTIONS

Market-Related

4.1. There is much data and information on the public record that provides answers to the RFI's market-related questions. Historic uranium mining production and operational information would shed light on the viability of the current foreign-owned uranium mining and uranium recovery industry in the U.S.

Global Uranium Industry

4.2. The "U.S." uranium industry is primarily a "Canadian" uranium industry. Both Energy Fuel Resources (USA) Inc.¹ and UR-Energy,² the companies that submitted a Section 232 Petition to the U.S. Department of Commerce expressing their deep-seated concerns for U.S. national security, are Canadian companies, as are most of the other companies that own uranium mines and uranium recovery operations in the U.S.³ These

¹ <https://www.sedar.com/DisplayProfile.do?lang=EN&issuerType=03&issuerNo=00004321>

² <https://www.sedar.com/DisplayProfile.do?lang=EN&issuerType=03&issuerNo=00021840>

³ <https://www.nrc.gov/info-finder/materials/uranium/index.html#licensed-facilities>

Canadian companies include Western Uranium and Vanadium Corp.⁴ (uranium mine properties); Virginia Energy Resources Inc.⁵ (uranium properties); Power Resources Crow Butte Resources (Cameco Corp.)⁶ (ISL uranium recovery operations); Azarga Uranium⁷ (Powertech) (ISL uranium recovery operations); Uranium One Inc.⁸ (ISL uranium recovery operations) is a Russian company, Strata Energy Inc.⁹ (ISL uranium recovery operations) is the U.S. subsidiary of Australian-based Peninsula Energy Limited, and Kennecott Uranium Co. (Rio Tinto)¹⁰ is a British company. In addition to owning uranium recovery operations in the U.S., Cameco owns operations in Kazakhstan.¹¹ The three conventional uranium mills in the U.S. are owned by foreign companies: Anfield Energy Inc.,¹² a Canadian company, owns the Shootaring Canyon Mill (Utah), Rio Tinto, a British company, owns the Sweetwater Mill (Wyoming), and Energy Fuels Resources (USA) Inc., the U.S. subsidiary of the Canadian company, Energy Fuels Inc.,¹³ owns the White Mesa Mill (Utah). Only the White Mesa Mill is licensed to operate. The other two mills have not operated since the early 1980s, yet have not been reclaimed.

4.3. The uranium industry is a global industry. With the majority of the uranium operations in the U.S. owned by Canadian or other foreign companies, some of which also produce uranium in Canada and other countries, it would be reasonable to assume that these and other companies outside of Russia, Kazakhstan, Uzbekistan, and China could supply the US nuclear industry needs for years to come.

4.4. If there is a concern about uranium produced in Russia, Kazakhstan, and Uzbekistan, why would the U.S. allow a company that is owned by Russia to produce uranium in the US? The fact is, under current U.S. laws and regulations, foreign companies can own and operate uranium recovery operations, secure uranium mine claims and leases and operate uranium mines on federal lands, own mines on private lands, and otherwise participate fully in the domestic uranium industry from mining to fuel fabrication.

⁴ <https://www.sedar.com/DisplayProfile.do?lang=EN&issuerType=03&issuerNo=00026200>

⁵ <https://www.sedar.com/DisplayProfile.do?lang=EN&issuerType=03&issuerNo=00033649>

⁶ <https://sedar.com/DisplayProfile.do?lang=EN&issuerType=03&issuerNo=00001296>

⁷ <https://www.sedar.com/DisplayProfile.do?lang=EN&issuerType=03&issuerNo=00005207>

⁸ <http://www.wise-uranium.org/ucscr.html>

⁹ <https://stratawyo.com/>

¹⁰ <http://www.wise-uranium.org/ucrtz.html>

¹¹ <http://www.wise-uranium.org/uccam.html>

¹² <https://www.sedar.com/DisplayProfile.do?lang=EN&issuerType=03&issuerNo=00001296>

¹³ <https://www.sedar.com/DisplayProfile.do?lang=EN&issuerType=03&issuerNo=00004321>

4.5. If a supply of uranium from Russia or other country is disrupted for any reason, it is unlikely that that would seriously impact U.S. commercial nuclear reactors. Uranium can be obtained from Canada and other countries. Uranium mines and recovery operations in the U.S. can remain on standby for decades. The mines and recovery operations can be restarted if there is a sudden need. Uranium oxide and uranium hexafluoride can also be stored indefinitely. The vulnerability to the U.S. nuclear industry from disruption in foreign supply is minimal.

4.6. The DOE must look at where uranium that has been produced in the U.S. during the past 25 years ended up. Was it used for domestic nuclear power, or was it used foreign nuclear power? Would federal funding go to support foreign owned companies that will be producing uranium for foreign use? These are some questions the DOE should address.

Incentivization

4.7. The primary question is who will pay to incentivize the domestic production of uranium. Will it be the rate-payers, should the U.S. limit the import of foreign uranium, sometimes produced by the same companies that have production operations in the U.S.? Will it be U.S. tax-payers, who will continued to be burdened with an ever-increasing national debt? Will it be U.S. tax-payers, who are now challenged by a pandemic, as they have not been in a century? Will the rate-payer and/or tax-payer funds be used to incentivize the many foreign companies that produce and recover uranium in the U.S? These are questions that the DOE must address.

Technical/Regulatory

4.8. As far as Uranium Watch can tell, there are currently no significant regulatory barriers to the restart of uranium mining. There is only one company that owns and operates a conventional uranium mill in the U.S., Energy Fuels Resources (USA) Inc. (Energy Fuels), the U.S. subsidiary of Energy Fuels Resources Inc., Toronto, Canada. Energy Fuels really has only one permitted mine complex that is ready to operate, the La Sal Mines Complex, but even that mine complex needs additional approval by the Utah Division of Oil, Gas & Mining to expand.¹⁴ Energy Fuels has a mine on standby that has been depleted (Rim Mine), a mine that has never been developed (Redd Block IV), a mine that has not operated since 1982 and will require extensive work (Energy Queen), another mine that still needs state approval to expand (Daneros), a mine that needs federal and state approvals for further development (Tony M), a mine under development (Canyon Mine), and a few other mines on standby that may have sufficient ore to recommence operation (Whirlwind, and Arizona 1 Mines). The company has uranium resources, but for one reason or another, those resources have not been developed

¹⁴ <https://ogm.utah.gov/minerals/MineralsPDO/angularmineralsfilesbypermit.php?M0370026>

4.9. The uranium industry and the DOE should not use the current problems of the uranium industry to justify diminishing the already inadequate state and federal regulatory programs.

4.10. It is possible that someone responding to the RIF will urge the DOE to take action to influence the Nuclear Regulatory Commission (NRC) to override the determination by the NRC staff and the State of Colorado that ablation uranium recovery (kinetic separation) is a uranium milling process subject to regulation under the Atomic Energy Act and 10 C.R. Part 40. There is no technical or regulatory basis for making a determination that ablation is a mining process, not subject to uranium mill regulatory programs.

Financial Challenges

4.11. The DOE should take a hard look at the most recent “uranium boom,” from 2006 to 2012. *See* Appendix A, below.

4.12. The uranium industry claims that the governments of other countries unfairly subsidize their uranium industry. However, the U.S. government has heavily subsidized uranium mining and the nuclear power industry for over 70 years. Uranium mines on BLM and USFS administered lands do not have to pay royalties. To maintain a mine claim, a mine owner pays only \$155.00 a year on federal lands and \$1.00 an acre on State-owned lands in Utah. The DOE requires the payment of royalties for mines that are part of the DOE Uranium Mine Lease Program, but DOE leased mines have not produced ore for many years, and the DOE has spent public monies to remediate older mine sites. Uranium mines on federal and state lands have been remediated at public expense. The fees paid to the state and federal regulators do not cover the costs of administering these mine operation, mine worker health and safety, clean water, clean air, and radon emission regulatory programs.

4.13. The DOE should consider the complete history of the uranium industry in the U.S. If the federal government is considering the expenditure of public monies to prop up the primarily foreign-owned domestic uranium industry in the U.S., it should consider all the federal funds spent in the past 80 years to develop and support the industry, clean up its messes, and compensate workers and their families, including past, current, and future

The DOE should provide information and evaluate expenditures of federal funds spent and needed to be spent to reclaim and remediate facilities associated with the production of nuclear fuel, both for commercial nuclear power and the U.S. atomic weapons program. The DOE should provide data on the federal funds spent to compensate uranium workers for the health impacts under the RECA and EEOICPA.

4.14. The DOE must recognize that there are companies that use their ownership of uranium claims and uranium mines to raise money for their companies from investors, then pay the principal owners as “consultants.” Then, they do not acquire the permits or

permit modification necessary to commence mine operations. An example is the Sage Mine,¹⁵ San Juan County, Utah, owned by Piñon Ridge Mining LLC, a subsidiary of Western Uranium and Vanadium Corporation (WUC).¹⁶

The Sage Mine last operated in 1989. Though the mine is on land administered by the U.S. Department of Interior, Bureau of Land Management (BLM), the mine operated in 1981 and 1989 without the required Plan of Operations (POO). The BLM did not review a POO, assess the environmental impacts, nor approve the mine operation. There was no BLM-approved Interim Management for decades when the mine was idle, as required by Department of Interior regulations. In order to re-commence mining, WUC needs to submit a POO, obtain water rights and develop a well, build a new portal, remove and deal with accumulated mine water, and apply for other permits. WUC has not taken those steps. If the price of uranium increased to justify the removal of ore, the price might drop before operations commenced. Additionally, WUC does not own a uranium mill, so would have to make arrangements with Energy Fuels to process its ore. There is an abundance of financial information available to demonstrate how WUC spends its financial resources.

In addition, WUC claims that their “Sunday Mines were reopened with active mining being conducted during the Summer of 2019, with ore being mined and stockpiled underground in the mines.”¹⁷ However, the Mine Safety and Health Administration (MSHA) mine data base for the Sunday Mine (Mine ID. 0501197) shows that the Sunday Mine is a Non-Producing Active mine and that in 2019 one (1) underground worker worked 5 hours.¹⁸ See Appendix B, below. Additionally, the other mines in the Sunday Mine Complex (Carnation, St. Jude, Topaz, and West Sunday) are still considered abandoned and were not active in 2019. Therefore, it is highly unlikely that the “Sunday Mines” were reopened with active mining being conducted during the Summer of 2019,” since only one mine re-opened and active mining did not occur. Also, it is unlikely that one underground worker, spending 5 hours underground, was able to mine and stockpile very much ore.

4.15. It is hard to understand the need, or desire, for “new companies” to enter the uranium industry. The conventional uranium industry has long been limited by who owns and operates uranium mills. There is currently only one conventional uranium mill permitted to operate, the White Mesa Mill, Utah. The last uranium production cycle did not support the construction of any new mills, nor the refurbishment and opening of the Sweetwater Mill, Wyoming, and Shootaring Canyon Mill, Utah. The Cotter Mill,

¹⁵ <https://ogm.utah.gov/minerals/MineralsPDO/angularmineralsfilesbypermit.php?S0370058>

¹⁶ <https://www.sedar.com/DisplayProfile.do?lang=EN&issuerType=03&issuerNo=00026200>

¹⁷ Western Uranium & Vanadium Corp. Mining Update, February 26, 2020. <https://www.sedar.com/GetFile.do?lang=EN&docClass=8&issuerNo=00026200&issuerType=03&projectNo=03015404&docId=4661422>

¹⁸ <https://www.msha.gov/mine-data-retrieval-system>

Colorado, last processed ore in 2006. The owner of the White Mesa Mill has permitted, developed uranium mines, the other mill owners do not.

Also, there are licensed in-situ leach uranium recover operations on standby.

4.16. There is no need for new uranium mine and uranium recovery development, with so many existing operations on standby. There is no need for new development, because the U.S. is being supplied with lower-cost uranium from foreign countries, including Canada and Australia, traditional allies of the U.S. Some of these foreign companies, such as Cameco, are the same producers of uranium in the U.S.

4.17. The DOE asks, “What financial incentives are required for new companies to enter the industry?” There is no need for new companies to enter the uranium market, only to compete with existing companies. The argument has been that it is the competition of foreign producers that has driven down the price of uranium in the U.S. (even though some of those same producers own U.S. uranium resources). How can additional competition, most likely from U.S. subsidiaries of foreign owned companies, be justified? How can financial incentives to encourage new companies be justified?

4.18. If new companies entered the uranium industry, they would have to purchase existing mines and recovery operations—essentially no change in U.S. production—or develop new mines and recovery operations. The development of a new uranium mine, conventional uranium mill, or ISL or heap-leach uranium recovery operation takes years and millions of dollars of capital. New operations mean new surface disturbance, more uranium mine waste rock piles, more uranium mill tailings (11e.(2) byproduct material) to be kept under perpetual government care, more contaminated ground and surface water, more uranium and uranium progeny released into the air, more radiological contamination of public lands, and more adverse impacts to workers and communities. The reasoning behind this is hard to comprehend.

Importance

4.19. The most important challenges to the reconstituting a uranium mining and conversion capability are 1) the unjustified costs to ratepayers and/or U.S. taxpayers 2) failure of the federal government to establish a radiological clean-up standard for the remediation of uranium mines, 3) failure of the BLM and USFS to establish hard rock mine regulations specific to the unique problems at uranium mines, 4) the lack of a long-term monitoring and response program for remediated uranium mine sites, 4) the release of radon within a quarter mile from an elementary school in Utah, 5) poor owner oversight of uranium mine operations, and 6) ongoing adverse impacts to public health and safety and the environment.

Thank you for providing this opportunity to comment.

Sincerely.

Sarah Fields
sarah@uraniumwatch.org

Enclosure: As stated.

APPENDIX A

CONVENTIONAL URANIUM MINING INDUSTRY

1. Uranium Mine Regulation

Uranium mines are regulated by states on private, state, and tribal lands. Uranium mines on federal lands are regulated under the 1872 Mining Law and regulations applicable to hard rock mining operations on lands administered by the Department of Agriculture, US Forest Service (USFS) and Department of Interior, Bureau of Land Management, and the Department of Energy (DOE) Uranium Mine Leasing Program. Colorado, New Mexico, and Utah also regulate hard rock mines on federal lands. The USFS and BLM do not have regulations specific to uranium mining they come under hard rock mine regulations.

2. Uranium Mine History - Most Recent Uranium Boom

2.1. It is important for the DOE to have a clear and unadorned picture of the uranium mines in the Four Corners area (Arizona, Colorado, New Mexico, and Utah) during the most uranium boom, from 2006 to 2013, when operational uranium mines had been shut down. This section will discuss that most recent revival of the conventional uranium industry in the U.S.

2.2. According to publicly available data,¹⁹ starting in 2007 the spot and long-term prices of uranium on the global market started to rise. The spot price peaked at \$136 a pound, then dropped to \$41 at the beginning of 2010, then started to rise again to a peak of about \$73 at the beginning of 2011, dropping and fluctuating between \$52.00 and \$18 to its current price of \$24.80. The long-term price leveled off from mid-2007 to mid-2008 at \$95 a pound, then started to slowly drop in a path similar to the spot price, but between \$95 and \$21 to the beginning of 2011, when it peaked about \$70 for both prices, dropping to its current log-term price of \$32.50.

2.3. The revival of the uranium industry starting in 2006 did not support the reopening of many existing, permitted uranium mines in Utah, Colorado, and New Mexico. The fact that hard rock mines in these states can remain on standby (referred to cessation of operation or “temporary” cessation of operation) for a decade or more distorts the uranium development picture and delays reclamation long after the productive life of a uranium mine. The currently permitted uranium mines in Arizona, Utah, Colorado, and New Mexico have been on standby for more years than they have been active and produced. The DOE can easily obtain data on the status of uranium and uranium-vanadium mines and their employment history since 1983 by using the MSHA Mine Data Retrieval System.²⁰ The System can also provide data on historic uranium and uranium-

¹⁹ <https://www.cameco.com/invest/markets/uranium-price>

²⁰ <https://www.msha.gov/mine-data-retrieval-system>

vanadium mines, providing the last status date. This enables one to get a state-by-state, even county-by-county, history of uranium mining operations, including date of abandonment.

2.4. It is unclear whether the DOE considers ISL uranium recovery operations to be uranium mines. Although uranium is removed from the underground uranium ore body by dissolution and extraction, ISLs are regulated under the Atomic Energy Act and Nuclear Regulatory Commission regulation applicable to uranium mills. If the DOE does include ISL operations in the definition of uranium mines, data and information on these operations can be found on the NRC website.²¹

2.5. In 2006, there was only one conventional uranium mill that was licensed and operational, the White Mesa Uranium Mill, San Juan County, Utah, owned and operated by Energy Fuels Resources (USA) Inc. This was the only conventional mill in the U.S. authorized to recover uranium. There were permitted uranium mines that commenced operation, permitted mines that did not reopen, and three mines on locations of previously reclaimed sites. There were no completely new uranium mines permitted and developed from 2007 to the present, in spite of hundreds of new uranium claims on federal, state, and private lands. There is currently one proposed new mine in New Mexico. Except for the Daneros Mine, which was later purchased by Energy Fuels, all of the mines that supplied ore to the mill were owned by Energy Fuels. The operation of the mill did not support the development of mines by other companies, nor did it support the development of some of Energy Fuels' mines. Except for the La Sal Mines Complex, it did not support the operation of any of their uranium mines for more than a few years.

Basically, during the period from 2007 to 2013, the conventional uranium mining and milling industry was dependent on mines that were originally developed and permitted in the 1970s and early 1980s. Most of these mines are, or soon will be, at the end of their productive life.

2.6. In the years from 1997 to 2007, the White Mesa Mill relied on the receipt and processing and disposal of uranium-bearing wastes from the clean-up and remediation of other mineral processing operations in the U.S. and Canada. The Mill operator was paid to take these wastes and received additional revenue from the sale of the uranium. The Mill also is authorized to dispose of wastes from the remediation of ISL operations. The Mill still receives some wastes for processing and disposal, but to the extent as in the past. Without these revenue streams, the Mill would have closed down 2 decades ago.

2.7. The White Mesa Mill was constructed and began production almost 40 years ago. The uranium mines that most recently produced uranium ore began operation in the 1970s (La Sal Mines Complex, Rim, Whirlwind, and Pinenut), have not operated since the early 1980s (Energy Queen), were developed at old mine sites and operated briefly (Daneros and Tony M), are under development (Canyon Mine), or were mined out after a

²¹ <https://www.nrc.gov/info-finder/materials/uranium/index.html#licensed-facilities>

brief period of operation (Arizona 1). The White Mesa Mill and the conventional uranium mines have operated erratically since the 1970s. The low prices and erratic mine and mill operations are not recent or sudden events caused by the import of uranium from Russia, Kazakhstan, Uzbekistan, or any other foreign nation.

2.8. Energy Fuels has claimed that they use efficient modern mining methods. However, Energy Fuels' mines were initially developed decades ago. The methods of underground mining have not changed much over the past 50 years, though the Mine Safety and Health Administration (MSHA) regulations to protect worker health and safety have improved. A review of the violations by the Energy Fuels and the previous owners of the mines that supply ore to the White Mesa Mill give a picture of poor mine management.²² In 2010 an inexperienced mine worker was killed at the Pandora Mine.²³ This was determined to be the fault of the mine operator. Recently, a hoist broke at the Canyon Mine (Arizona) due to the use of old mining equipment.

APPENDIX B

²² <https://www.msha.gov/mine-data-retrieval-system>

²³ <https://www.msha.gov/data-reports/fatality-reports/2010/fatality-8-may-26-2010/final-report>

SUNDAY MINE
COLORADO
MINE EMPLOYMENT - 2019²⁴

Prod. Year	Prod Qtr.	Mine ID	Subunit		Quarterly Hrs.	Coal Prod.	Avg. Empl Cnt.*
2019	20192	501197	1	UNDER GROUND	0	0	0
2019	20192	501197	2	SURFACE AT UNDER GROUND	166	0	3
2019	20193	501197	1	UNDER GROUND	5	0	1
2019	20193	501197	2	SURFACE AT UNDER GROUND	230	0	2
2019	20194	501197	2	SURFACE AT UNDER GROUND	60	0	2

²⁴ <https://www.msha.gov/mine-data-retrieval-system>