

**Comments of the United Mine Workers of America on the
Proposed Extension of Existing Information Collection; Refuge Alternatives for Underground
Coal Mines
April 2, 2012**

MSHA indicates that this proposal is part of the Department of Labor's continuing effort to reduce paperwork and respondent burden in accordance with the requirements of the Paperwork Reduction Act of 1995. This proposal provides the general public and Federal agencies with an opportunity to comment on proposed and/or continuing collections of information to ensure that requested data can be provided in the desired format, reporting burden is minimized, collection instruments are clearly understood, and the impact of collection requirements on respondents can be properly assessed. MSHA indicates it is particularly interested in comments that:

- Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the Agency, including whether the information will have practical utility;

UMWA Response- The Union believes that this information can be a valuable tool for the Agency. Based on the information to be gathered the Agency should be able to identify if the shelters/refuge alternatives are safe, operative, and if the required worker training is appropriate and whether it has been completed. Because shelters/refuge alternatives require frequent examinations to ensure that they are in proper working order if needed during an emergency, it is necessary to continue to collect the information as required under **30 CFR §75.1506 Refuge Alternatives, and 30 CFR Subpart P - Mine Emergencies.**

- Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

UMWA Response- The UMWA has no way to determine that the Agency's Estimated Total Burden Hours of 93,917 hours and that the Estimated Total Burden Cost is \$7,979,712 so we cannot comment. We do however have a concern on the validity of the methodology and assumptions used, and include responsive comments below.

- Enhance the quality, utility, and clarity of the information to be collected; and

UMWA Response- We have concerns about the substantive information at issue – particularly about the inadequacy of current training requirements for miners on refuge alternatives; we delineate these concerns below. We also remain concerned that the required volume is not adequate and explain these concerns below.

- Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submissions of responses.

UMWA Response- The Union agrees that electronic submissions could be provided to take advantage of technology but other means must also be provided. Some miners lack access to computers and computer skills so mail with hard copies will still be necessary.

This proposal specifically requests comments relative to MSHA's request for an extension of the existing collection of information in 30 CFR § 75.1506 - Refuge Alternatives. The requirements of that standard as well as our comments about training and volume requirements that pertain to the refuge alternatives and their effective use follow:

30 CFR § 75.1506 Refuge alternatives.

(a) Each operator shall provide refuge alternatives and components as follows:

(1) Prefabricated self-contained units, including the structural, breathable air, air monitoring, and harmful gas removal components of the unit, shall be approved under 30 CFR part 7; and

(2) The structural components of units consisting of 15 psi stoppings constructed prior to an event shall be approved by the District Manager, and the breathable air, air monitoring, and harmful gas removal components of these units shall be approved under 30 CFR part 7.

(3) Prefabricated refuge alternative structures that states have approved and those that MSHA has accepted in approved Emergency Response Plans (ERPs) that are in service prior to March 2, 2009 are permitted until December 31, 2018, or until replaced, whichever comes first. Breathable air, air-monitoring, and harmful gas removal components of either a prefabricated self-contained unit or a unit consisting of 15 psi stoppings constructed prior to an event in a secure space and an isolated atmosphere that states have approved and those that MSHA has accepted in approved ERPs that are in use prior to March 2, 2009 are permitted until December 31, 2013, or until replaced, whichever comes first. Refuge alternatives consisting of materials pre-positioned for miners to deploy in a secure space with an isolated atmosphere that MSHA has accepted in approved ERPs that are in use prior to March 2, 2009 are permitted until December 31, 2010, or until replaced, whichever comes first.

(b) Except as permitted under paragraph (a)(3) of this section, each operator shall provide refuge alternatives with sufficient capacity to accommodate all persons working underground.

(1) Refuge alternatives shall provide at least 15 square feet of floor space per person and 30 to 60 cubic feet of volume per person according to the following chart. The airlock can be included in the space and volume if waste is disposed outside the refuge alternative.

Unrestricted volume (cubic feet) per person*	
Mining height (inches)	
36 or less.....	30
>36-<=42.....	37.5
>42-<=48.....	45
>48-<=54.....	52.5
>54.....	60

* Includes an adjustment of 12 inches for clearances.

(2) Refuge alternatives for working sections shall accommodate the maximum number of persons that can be expected on or near the section at any time.

(3) Each refuge alternative for outby areas shall accommodate persons reasonably expected to use

it.

(c) Refuge alternatives shall be provided at the following locations:

(1) Within 1,000 feet from the nearest working face and from locations where mechanized mining equipment is being installed or removed except that for underground anthracite coal mines that have no electrical face equipment, refuge alternatives shall be provided if the nearest working face is greater than 2,000 feet from the surface.

(2) Spaced within one-hour travel distances in outby areas where persons work such that persons in outby areas are never more than a 30- minute travel distance from a refuge alternative or safe exit. However, the operator may request and the District Manager may approve a different location in the ERP. The operator's request shall be based on an assessment of the risk to persons in outby areas, considering the following factors: proximity to seals; proximity to potential fire or ignition sources; conditions in the outby areas; location of stored SCSRs; and proximity to the most direct, safe, and practical route to an intake escapeway.

(d) Roof and rib support for refuge alternative locations shall be specified in the mine's roof control plan.

(e) The operator shall protect the refuge alternative and contents from damage during transportation, installation, and storage.

(f) A refuge alternative shall be removed from service if examination reveals damage that interferes with the functioning of the refuge alternative or any component.

(1) If a refuge alternative is removed from service, the operator shall withdraw all persons from the area serviced by the refuge alternative, except those persons referred to in Sec. 104(c) of the Mine Act.

(2) Refuge alternative components removed from service shall be replaced or be repaired for return to service in accordance with the manufacturer's specifications.

(g) At all times, the site and area around the refuge alternative shall be kept clear of machinery, materials, and obstructions that could interfere with the deployment or use of the refuge alternative.

(h) Each refuge alternative shall be conspicuously identified with a sign or marker as follows:

(1) A sign or marker made of a reflective material with the word "REFUGE" shall be posted conspicuously at each refuge alternative.

(2) Directional signs made of a reflective material shall be posted leading to each refuge alternative location.

(i) During use of the refuge alternative, the atmosphere within the refuge alternative shall be monitored. Changes or adjustments shall be made to reduce the concentration of methane to less than 1 percent; to reduce the concentration of carbon dioxide to 1 percent or less and excursions not exceeding 2.5 percent; and to reduce the concentration of carbon monoxide to 25 ppm or less. Oxygen shall be maintained at 18.5 to 23 percent.

(j) Refuge alternatives shall contain a fire extinguisher that--

(1) Meets the requirements for portable fire extinguishers used in underground coal mines under this part;

(2) Is appropriate for extinguishing fires involving the chemicals used for harmful gas removal; and

(3) Uses a low-toxicity extinguishing agent that does not produce a hazardous by-product when activated.

Comment

This notice requests an extension of the "existing collection of information in 30 CFR 75.1506." Upon examination of the standard, only two provisions involve such "information collection" requirements. Section (c) paragraph (2) does permit the operator to request and the District Manager to approve a different location for the refuge alternative in the ERP. The operator's request shall be based on an assessment of the risk to persons in outby areas, considering the following factors: proximity to seals; proximity to potential fire or ignition sources; conditions in the outby areas; location of stored SCSRs; and proximity to the most direct, safe, and practical route to an intake escapeway. The UMWA recommends that this "information collection" requirement remain in the standard. This information is necessary for the proper performance of the functions of the Agency and has practical utility. Any time an operator wants to locate a refuge chamber to a different location based on whether it meets the needs of the miners working underground, MSHA must have approval jurisdiction over whether to permit it to do so. It is critical that the Agency, inspectors, mine management and the miners are fully aware of the location of these shelters. If the operator desires to relocate a refuge in an outby location to accommodate miners who may need additional protection or are not in close proximity to SCSR's or escapeways and are at risk because of their work location near seals or potential fire or ignition sources, there should be no problem in doing so. However, when the operator wants to do so, he must be required to make the proper requests of the Agency to gain approval to do so and then make sure those affected are informed of this change. So yes, this information collection is necessary in the code.

The second "collection of information" requirement in 75.1506 is in paragraph (d) which requires - Roof and rib support for refuge alternative locations shall be specified in the mine's roof control plan. This requirement basically specifies that the requirements for supporting the roof and ribs in a refuge alternative location must be spelled out in the roof control plan, and approved by MSHA. Any location that is specified for a refuge, must provide the added support to assure that the roof and ribs are adequately supported and will provide a safe place for miners to shelter in the event of an emergency. This information is necessary for function of the Agency, has practical utility and is not a burden for the mine operator. This is basic information required in the mine roof control plan and does not place a burden on the mine operator to submit through the mine roof control plan. Therefore, this provision should not be changed in the regulation.

We are concerned that this request fails to specifically request information about items that have been and remain of concern to the UMWA, namely: the training of miners on the use of refuge alternatives, as well as the required volume. Accordingly, we provide the following comments.

On December 31, 2008, MSHA promulgated "Refuge Alternatives for Underground Coal Mines; Final Rule". 73 Fed. Reg. 80656-80700. On January 13, 2009, the UMWA filed a petition for review of the Final Rule in the D.C. Circuit Court of Appeals. The petition was granted in part and denied in part, and the Court agreed with the UMWA's argument that the Rule's training provisions were **not** supported by facts in the administrative record. Indeed, the record included a significant amount of research on the necessity of **quarterly** hands-on training for the type of motor task skills involved in the operation of various components of a refuge shelter.

The training regulation at issue was the mandatory safety standard for emergency evacuation training and drills, including use and deployment of refuge chambers. 30 CFR 75.1504(b),(c). What follows is the factual presentation the UMWA presented to the Court of Appeals. We believe that these concerns are as valid today as when they were presented to the Court. We note that the Court agreed with the Union's position that the rulemaking record did not support the training provisions in the Final Rule.

In 2006, three highly publicized multi-fatality tragedies occurred in the underground coal mining industry. On January 2, 2006, an underground explosion at Sago Mine in West Virginia took the lives of twelve miners. One miner died instantly while eleven others huddled in a makeshift barricade where they expired from fatal levels of carbon monoxide before they could be rescued. On January 19, 2006, two miners died trying to escape fatal smoke from an underground fire at Aracoma Mine in West Virginia. On May 20, 2006, an underground explosion at the Darby Mine in Kentucky instantly killed two miners and produced fatal carbon monoxide that took the lives of three others as they tried to evacuate.

In direct response to these tragedies, Congress enacted the Mine Improvement and New Emergency Response Act ("MINER Act"). P.L. 109-236, S. 2803 (2006). The Act, an amendment to the Mine Safety and Health Act of 1977 ("Mine Act"), 30 USC 801 et seq., requires coal operators to "develop and adopt response and preparedness plans, which must provide for the evacuation of miners who may be endangered in an emergency or, if miners cannot evacuate, provide for their maintenance underground." S. Rep. No. 109-365, 109th Cong., 2d Sess. (2006). To "provide for their maintenance underground" where miner evacuation is impossible, the MINER Act directs research into underground refuge chambers to serve as a basis for agency action implementing their use.

In Section 6 of the MINER Act, Congress created the Office of Mine Safety and Health within the National Institute of Occupational Safety and Health ("OMSH" and "NIOSH," respectively). P.L. 109-236; codified at 29 U.S.C. 671. In Section 13 of the Act, Congress directed the newly created OMSH to conduct research and tests into the use of underground refuge chambers and to produce and deliver to the Secretary of Labor a report on such research. P.L. 109-236, Sec. 13(b). Section 13 specifically directed the Secretary of Labor, upon receipt of the Report, to provide committees in the House and Senate a "response" containing a "description of the actions, if any, that the Secretary intends to take based upon the report, including proposing regulatory changes, and the reasons for such actions." P.L. 109-236, Sec 13(b)(2).

In December 2007, the OMSH produced its Report: "Research Report on Refuge Alternatives for Underground Coal Mines." BKG-25 at 1. The Report drew, *inter alia*, from prior NIOSH experience, independent research and testing and a survey of existing research related to mine refuge chambers. On June 6, 2008, MSHA published in the Federal Register a Proposed Rule on refuge alternatives. 73 Fed. Reg. 34140. MSHA stated the Proposed Rule "would implement

Section 13 of the MINER Act of 2006" and, "[c]onsistent with the MINER Act, it includes MSHA's response to the NIOSH Report on Refuge Alternatives." 73 Fed. Reg. 34140.

In its comments, the UMWA made specific objections to MSHA's abandonment of the OMSH Report's findings and recommendations with regard to the provisions on miner training (and chamber volume) that are discussed more fully below. The Secretary promulgated the Final Rule on December 31, 2008. 73 Fed. Reg. 80656-80700. Although the Final Rule states it "implements section 13 of the MINER Act of 2006" and "includes MSHA's response to the NIOSH Report on Refuge Alternatives," it abandons key findings and recommendations in the OMSH Report.

Training

A. The OMSH Report on Training

The OMSH Report cited existing NIOSH research to recommend:

motor task training, i.e. how to use refuge alternatives, should be given quarterly, possibly in conjunction with the mandatory mine evacuation training and drills. This would also be an appropriate time to include training on decision-making skills, i.e. *when to use* refuge alternatives. Finally, expectations training would be useful to reduce panic and anxiety associated with the use of refuge alternatives, and should be included with the other training components described in this paragraph. (*italics in original*).

Of particular importance here was the Report's recommendation that task training and drills on how and when to use refuge alternatives should be given quarterly and that expectations training should be included with such training.

B. The Proposed Rule on Training

MSHA discussed training requirements in the preamble to the Proposed Rule by quoting approvingly from the OMSH Report and noting "[t]he best refuge technology, equipment and emergency supplies are of little benefit if they are misused or not used at all." 73 FR 34156. It stated further "MSHA has identified problems related to skill degradation in emergency evacuations of mines." *Id.* Citing a series of studies addressing skills degradation that found "proficiency rates dropped about 80 percent in follow-up evaluations conducted about 90 days after training," MSHA stated: "with any non-routine task, such as constructing, activating, and using a refuge alternative, knowledge and skill diminish rapidly." *Id.* (citing U.S. Bureau of Mines (Vaught et al. 1993)).¹

¹NIOSH's staff reviewed research underlying the OMSH Report recommendation for quarterly training that revealed: "The operation of a refuge chamber is a motor task... As with all motor tasks, there is a two-fold issue to be considered: How does the individual learn the task in the first place, and once having learned it, how does he or she retain what has been learned? A series of NIOSH investigations involving coal miners' ability to don their emergency breathing apparatus, called SCSRs, have addressed these questions. In contrast to the 18 sequential steps to operate the refuge chamber, there are only six steps to donning an SCSR. *Yet, NIOSH testing has shown that without repeated hands-on practice, miners quickly forget how to physically perform these steps. In one NIOSH experiment, a group of miners received hands-on training until they demonstrated proficiency. They were not given any additional training and were tested throughout the year. Proficiency declined at every test point. At the end of one year only ten percent of the individuals sampled were proficient... [O]ther miners completed hands-on*

MSHA further quoted another study finding “companies should adopt a hands-on training protocol,” in support of its additional finding that “frequent and effective refuge alternative training would be necessary to assure miner proficiency.” *Id.* (emphasis supplied.)

The Proposed Rule included requirements that on a quarterly basis, miners locate escapeways and refuge alternatives, 75.1504(b)(4)(ii), and review procedures for deployment of refuge chambers and components, 75.1504(b)(6) and (8); 73 Fed. Reg. 34171. However, these provisions failed to require quarterly motor skills or hands-on training on how or when to use refuge chambers; this training would be required only annually, 75.1504(c)(3); 73 Fed. Reg. 34171.

C. Comments and the Final Rule on Training

The UMWA’s comments on the Proposed Rule addressing its training requirements stated: “the fact [t]hat expectations training is required only once a year is inconsistent with the data presented... To adequately protect miners in the post-accident situation, the training protocol must require hands-on training at least every 90 days.” UMWA comment at 17.

The preamble to the Final Rule repeated the same findings of the OMSH Report and studies discussed in the Proposed Rule clearly supporting quarterly hands-on motor-skills and expectations training, though the Final Rule made no substantive changes to the proposed training requirements. See 30 C.F.R. 75.1504; 73 Fed. Reg. 80698.

D. The Problem With the Final Rule on Training

MSHA’s Final Rule abandoned the OMSH Report’s recommendations as to the content and frequency of training for miners in the deployment and use of refuge chambers and effectively supplanted them with arbitrarily contrived training requirements. Pursuant to direction from Congress in Section 13(a) of the MINER Act, the OMSH examined NIOSH research into worker training to recommend in a Report to the Secretary that “motor task training... should be given quarterly.” The OMSH recommendation that miners undergo “motor-task training” on a quarterly basis was based on NIOSH’s review of its research:

Generally, there is little or no reason to believe the operation of a refuge chamber is in any way exempt from the principles that have held true for literally hundreds of motor tasks that have been studied since the turn of the 20th century: **people learn by doing, and tend to forget over time unless they practice. There are, therefore, implications for how miners should be trained to operate a refuge chamber... Trainers ought not to rely solely on verbal or printed instructions, videos, etc...** The optimum intervals for retraining on a refuge chamber are not known. A reasonable approach, however, would be to integrate instruction on the refuge

training quarterly. At the end of a year, 70% were still proficient. In sum, the NIOSH research confirmed what is known empirically about all motor tasks: initial instruction should involve hands-on practice, which must be repeated in order to maintain proficiency.” *Summary report of information concerning training issues associated with refuge chambers in underground coal mines, compiled by NIOSH staff*, NIOSH Docket No. 125 (“Refuge Alternatives Research”) at <http://www.cdc.gov/niosh/docket/pdfs/NIOSH-125/125-Refuge%20Chamber%20Training.pdf>.

chamber into the emergency mine evacuation training and drills that are mandated to be held quarterly.²

NIOSH Docket No. 125 (2006) (emphasis supplied).

In its Final Rule, MSHA abandoned the OMSH Report's recommendation of quarterly training consisting of both hands-on motor skills component and expectations training. With the exception of the quarterly "task training" in the non-emergency task of "proper transportation of the refuge alternatives and components," 75.1504(b)(9), the Final Rule did not require quarterly hands-on training.² Instead of adopting the OMSH recommendations, the much more limited quarterly training that MSHA required in its Rule amounts to nothing more than a paper review of procedures that operators could meet by handing miners a stack of documents. See 30 C.F.R. 75.1504(b)(6) and (8).

Finally, MSHA cited no factual finding or recommendation to support its abandonment of the OMSH Report's recommendation of quarterly expectations training; it is required only annually. 30 C.F.R. 75.1504(c)(3). The preamble to the Final Rule contained the false statement that its decision to not require expectations training on a quarterly basis "is consistent with the NIOSH report." 73 Fed. Reg. 80680. Nevertheless, MSHA acknowledged the gravity of its decision to abandon the OMSH Report's training recommendations by stating in the preamble "failure to correctly perform these tasks [to be addressed during training] may imperil the lives of miners within the refuge alternative." 73 Fed. Reg. 80681.

MSHA's Final Rule regarding the frequency of required training was not supported by reasoned explanation connecting facts found to promulgation of the rule. MSHA abandoned the OMSH Report recommendations on training, as discussed above, and failed to provide a reasoned explanation of facts underlying its decision to supplant the recommendations of the Report, even though it recognized "some [commenters] expressed concern that all aspects of deploying and maintaining a refuge alternative be covered during hands-on training and that this hands-on training should occur every 90 days." 73 Fed. Reg. 80681.³

Factual findings in the preamble to the Final Rule support the OMSH Report recommendation and the UMW's comments that both hands-on task training and expectations training should be conducted on a quarterly basis. See 73 Fed. Reg. 80680: "MSHA has identified problems related to skill degradation in emergency evacuations of mines" and cites a study that found miners' "proficiency rates dropped about 80 percent in follow-up evaluations conducted about 90 days after training."

Even though the Final Rule on training is virtually identical to the Proposed Rule, the preambles differ slightly. For the Final Rule, MSHA omits this statement: "MSHA recognizes that with any non-routine task, such as constructing, activating, and using a refuge alternative, knowledge and skill diminish rapidly" as well as a reference to a study concluding "companies should adopt a

² See also fn. 1, describing NIOSH research addressing the speed at which miners' are known to lose skills after training.

³ As periodic transportation of the refuge would occur only under non-emergency conditions, it has nothing to do with proper deployment or use in an emergency, yet it is the *only* task for which the Final Rule requires quarterly hands-on motor skills training. See 75.1504(b).

hands-on training protocol,” from which MSHA concluded “frequent and effective refuge alternative training would be necessary to assure miner proficiency.” 73 Fed. Reg. 34156 (citing U.S. Bureau of Mines (Vaught et al. 1993)) (emphasis supplied). These changes indicate that for the Final Rule, MSHA knowingly omitted contrary factual findings.⁴

MSHA’s explanations in the preamble to the Proposed and Final Rules favorably discussing the above-referenced findings of fact would constitute a legally satisfactory explanation for a decision to require hands-on motor skill training and expectations training on a quarterly basis; yet they appear in the preamble to a Final Rule rejecting the OMSH Report’s recommendation of quarterly training. MSHA never explained its decision to depart from the OMSH Report’s recommendations on the substance and frequency for miner training related to refuge chambers or the conspicuous disconnect between its factual findings and its decisions. By deviating and failing to explain its departure from the OMSH Report on frequency of training, the Court determined the record did not support MSHA’s rule.

The OMSH Report’s training recommendation addressed three types of training: motor-task training; expectations training; and, decision-making training. It plainly stated the minimum frequency with which each type of training must be required in order for such training to be effective:

Motor Task Training - The Report stated:

“NIOSH research indicates that motor task training, i.e. how to use refuge alternatives, should be given quarterly, possibly in conjunction with the mandatory mine evacuation training and drills.” This recommendation of quarterly motor-task training involving hands-on repetition of motor-tasks is the minimum necessary to assure effective acquisition and retention of knowledge and skills:

The operation of a refuge chamber is a motor task. In other words, there are discrete steps at which the miner will be required to physically perform an action. For example, one chamber requires a series of 18 sequential steps to activate and maintain. Some of these steps involve turning handles, opening valves, depressing buttons and pulling latch handles out, setting oxygen flow meters guided by a chart for the number of people in the chamber, placing soda lime cartridges on top of scrubber tray slots, and monitoring the atmosphere by taking readings. As with all motor tasks, there is a two-fold issue to be considered: How does the individual learn the task in the first place, and once having learned it, how does he or she retain what has been learned?

⁴ Nevertheless, the Final Rule retained a finding of fact from the Proposed Rule: “the best refuge technology, equipment and emergency supplies are of little benefit if they are misused or not used at all.” 73 Fed. Reg. 34156, 80580.

A series of NIOSH investigations involving coal miners' ability to don their emergency breathing apparatus, called "self-contained self-rescuers (SCSRs)", have addressed these questions. In contrast to the 18 sequential steps to operate the refuge chamber, there are only six steps to donning an SCSR. Yet, NIOSH testing has shown that without repeated hands-on practice, miners quickly forget how to physically perform these steps. In one NIOSH experiment, a group of miners received hands-on training until they demonstrated proficiency. They were not given any additional training and were tested throughout the year. Proficiency declined at every test point. At the end of one year only ten percent of the individuals sampled were proficient. Also as part of the experiment, other miners completed hands-on training quarterly. At the end of a year, 70% were still proficient. In sum, the NIOSH research confirmed what is known empirically about all motor tasks: initial instruction should involve hands-on practice, which must be repeated in order to maintain proficiency.

Issues Regarding Refuge Chamber Training, NIOSH Docket No. 125 ("Refuge Alternatives Research") at 1.

MSHA's decision to abandon the Report's recommendation of quarterly hands-on motor task training in the deployment and use of rescue chambers and supplant it with a mere paper review of such procedures, in reliance on nothing more than an unsupported assertion of administrative knowledge and experience, represented a decision to abandon and supplant the Report's recommendation. MSHA abandoned the Report's explicit recommendation that hands-on motor-task training must be conducted quarterly to be effective, and supplanted it with a quarterly "paper review" that research cited in the Report explicitly warned should not be used as a substitute:

Hands-on Training - Trainers ought not to rely solely on verbal or printed instructions, videos, etc. At a minimum, miners should be given a chance to visit a chamber, be talked through the steps involved in its operation, and simulate activating the various controls while demonstrating that they have heard and understood key components of the process.

Id. at 2.

The Rule's training requirement cannot be considered "based upon", "consistent with", "congruent with" or "compatible" with the OMSH Report's recommendation, where it ignored the recommendation in favor of a training regime the research explicitly states "ought not" be adopted. Id.

Expectations and Decision-Making Training - In the same paragraph the OMSH Report recommended hands-on motor task training be required quarterly, it stated "[t]his would also be an appropriate time to include training on decision-making skills..." and "expectations training... should be included with the other training components described in this paragraph." The OMSH Report and underlying research admittedly did not discuss in any greater detail the frequency with which expectations training and decision-making training must be conducted. Nevertheless, the Report

clearly recommended that they be included with the quarterly hands-on training, and the Rule abandoned this recommendation, supplanting it without rational explanation with a requirement that such training be conducted only on an annual basis. See 30 C.F.R. § 75.1504(c)(3).

The OMSH Report recommended that miners receive “effective” training in the use and deployment of underground rescue chambers. The report and the research referenced therein went on to discuss in great detail what is minimally necessary in terms of frequency in an effective training requirement. Only by ignoring substantial evidence before MSHA that a quarterly motor-task training requirement is necessary was the agency able to abandon the Report recommendation and replace it with an ineffective quarterly paper review of procedures.

If, as MSHA claimed, it promulgated a Rule based upon and consistent with the Report’s training recommendation that it “modified” based on additional evidence, it might have a plausible argument that the final Rule does not “abandon and supplant” the Report’s recommendation.⁵ However, this is not what it did. In reference to the MSHA’s failure to promulgate a Rule rationally connected to evidence, the only support MSHA cited in favor of this “modification” of the Report’s recommendation was its reliance on wholly unsubstantiated and unexplained “knowledge and experience.” MSHA abandoned the Report’s recommendation as to the minimum frequency necessary for an effective training requirement and supplanted it with a training regime that one who reviews the Report’s recommendation and all other record evidence can only conclude is ineffective.⁶

MSHA offered no facts upon which its admitted departure from the OMSH Report’s recommendations on training frequency could be considered rationally based. For this reason, the Court deemed the Rule’s training provisions to be “arbitrary and capricious”. There is no evidence in dispute as to the frequency with which hands-on motor task training must be required.

Nowhere did the OMSH Report, any of the training studies cited by MSHA, or any fact whatsoever in the administrative record support MSHA’s decision to substitute a paper procedures review for the hands-on motor task training that all of the data indicate is necessary. No fact cited by MSHA in its proposed or final rule is counter to the OMSH Report recommendation that decision-making and expectations training should also be required quarterly. All of the data from OMSH and the other studies indicate the Rule’s failure to include quarterly hands-on motor task training in use and deployment of rescue chambers will result in a significant diminishment of knowledge and skills.

MSHA’s failure to promulgate a Rule with a rational connection to the data, a Rule that runs counter to all evidence before the agency addressing training frequency and effectiveness, may well be a matter of life and death. (“The best refuge technology, equipment, and emergency supplies are of little benefit if they are misused or not used at all.”). If miners do not receive quarterly hands-on

⁵ Such an argument would nevertheless be unpersuasive in light of the Report’s explicit recommendation that the type of “paper review” the Secretary adopted should not replace the recommend quarterly hands-on motor task training.

⁶ MSHA attempted to support its argument that its Rule is consistent with the Report’s recommendation by claiming that the omission in NIOSH’s comments of any reference to the Rule’s training requirement was conclusive evidence is consistent with the Report’s recommendation. Absence of comment on the training requirement was not reliable evidence of NIOSH’s position, if it had one, on the content of the final Rule and was certainly not dispositive of the statutory interpretation issue then before the Court.

motor-task training in the procedures necessary to deploy and use a rescue chamber, their survival is imperiled. See 73 Fed. Reg. 806081, in which MSHA stated:

Properly deploying a refuge alternative or component can be a relatively complex procedure that must be done correctly to establish a breathable air environment in a smoke-filled mine... Failure to correctly perform these tasks may imperil the lives of persons within the refuge alternative.

Volume.

A. The OMSH Report on Volume

The OMSH Report recommended refuge chambers provide, at minimum, 85 cubic ft. per person. The Report stated 85 cubic ft. was one of several specifications “chosen based on the literature, practices in other countries, and guidance obtained from the study of non-mining applications.” *Id.*

B. The Proposed Rule on Volume

The Proposed Rule abandoned the OMSH recommendation by requiring only “60 cubic feet of volume per person.” 75.1505(a)(1), 75.1506(a)(1); 73 Fed. Reg. 34168, 34171. Its preamble stated, “MSHA believes that these proposed minimums are necessary to provide adequate room for miners using the refuge alternative.” 73 Fed. Reg. 34146. The preamble also stated “[t]he area cannot be determined solely by the number of miners that would be using the refuge alternative. Miners would need some free space to operate components, drink, eat, and use the sanitation facilities - and tend to injuries.” *Id.* Soliciting comments, MSHA stated “[f]or mines with lower heights, the 60 cubic ft. of space may need to be attained by increasing the length or floor area.” *Id.* Nowhere did the Proposed Rule suggest that for mines with lower heights, the overall volume requirement might be reduced even further.

C. Comments and the Final Rule on Volume

Responding to the Proposed Rule’s abandonment of the 85 cubic ft. volume requirement recommended in the OMSH Report, the UMW commented:

[I]f the area of the mine would not support one large chamber to accommodate the number of miners affected, we would support the use of more than one chamber on the section. Because it is anticipated that miners may be required to stay in the refuge for up to 96 hours, the Union cannot accept the Agency's decision to reduce the miners' useable space from what NIOSH recommended... From the very beginning, it was always the intent to provide not only the necessary protections for miners to sustain life while they are inside a chamber/shelter, but to also allow miners to be comfortable while awaiting rescue. This is necessary to help protect a miner's mental stability while awaiting rescue.

UMWA comment at 9-10.

Abandoning both the recommendation in the OMSH Report and the Proposed Rule's plan to accommodate lower mine height by increasing chamber length or floor area, MSHA's Final Rule further reduced the volume requirement to as little as 30 square ft. per person in mines with a mining height of 36 inches or less. 30 C.F.R. 7.505(a)(1), 75.1506(b)(1); 73 Fed. Reg. 80695, 80698.

D. The Problem With the Final Rule on Volume

MSHA failed to adequately explain a connection between its findings of fact with regard to chamber volume and the choice it made to set the (nominal) minimum standard at 60 cubic ft. instead of the 85 cubic ft. recommended in the OMSH Report. Furthermore, MSHA failed to adequately explain its decision to further reduce the 60 cubic ft. requirement based on mine height in light of its factual finding that "[f]or mines with lower heights, the 60 cubic feet of space may need to be attained by increasing the length or floor area." 73 Fed. Reg. 34146. MSHA offered no explanation as to why it chose to reduce the volume requirement for mines with lower heights instead of providing for adequate space for each miner by increasing the length or floor area. The Final Rule required only 30 cubic feet per person for low seam mines. 30 C.F.R. 7.505(a)(1), 75.1506(b).

As explained in the preamble to the Final Rule, the 30 cubic ft. per person requirement contemplates miners trapped in such a space laying on a floor in a 15 square ft. area with a mere two feet of clearance between floor and ceiling. 73 Fed. Reg. 80664-80665.⁷ Contemplation of miners' predicament - trapped underground in a coffin-sized space for 96 hours, possibly injured, with an ever dwindling supply of oxygen - illuminates why the UMWA urged MSHA to take mental well-being into account even before it abandoned the OMSH Report's 85 cubic ft. volume standard.

Astoundingly, the Final Rule permitting such a drastically confined space in refuge chambers nevertheless acknowledged in its preamble that "[a]dequate space is needed to accommodate larger persons" and space requirements are "necessary to assure that persons can conduct necessary activities in the refuge alternative" including a "need to attend to harmful gas removal; monitor gas levels; attend to basic needs, such as drinking, eating, and using the sanitation facilities; and provide care to injured miners." *Id.* at 80665. Even if two feet of ceiling clearance and 2.5 ft. of horizontal space elbow to elbow would be sufficient for an average-sized person to conduct these necessary activities, it is implausible to believe the space would suffice for "larger persons." Indeed, we wondered whether a mildly obese miner would even be able enter a chamber with two feet of ceiling clearance. Of course, these issues could have been addressed during notice and comment if only the Proposed Rule provided parties with adequate notice of the volume requirements in the Final Rule.

The UMWA's objections to the Rule's minimum volume requirements are motivated, in part, by a concern for the relative comfort of miners using the refuges. This, as well as the mental stability of miners awaiting rescue in a cramped space, was a basis for the UMWA's comments objecting to MSHA's initial reduction of the 85 cubic feet per miner volume requirement recommended in the OMSH Report. UMWA comment at 9. However, it would not be accurate to suggest that the only objection to the final Rule's unreasonably low minimum volume standard is whether miners will have "relative comfort" as they await rescue in underground chambers. The issue is whether MSHA's decision to promulgate a final Rule that drastically reduced the proposed

⁷ It is a simple mathematical fact that the 30 cubic ft. volume requirement would leave a six foot tall miner lying on the floor of a shelter with his head and feet touching the outer walls with only 2.5 ft. of horizontal space elbow to elbow, and two feet from floor to ceiling.

rule's volume requirement even further, resulted in a Rule so patently implausible that compliant rescue chambers would not provide enough space for a miner to engage in the activities like rescue chamber repair and medical treatment that MSHA rightly recognized are necessary for survival.

The Rule's deficiency is rooted in MSHA's unjustified, unexplained and implausible assumption that miners could perform survival tasks in the unreasonably confined space permitted under the Final Rule. The UMW did not raise these issues in its comments because the proposed rule stated that lower mine heights would be accommodated by an increase in floor area, giving no warning that the proposed rule's minimum volume requirement would be slashed by half. The concerns we raised in the litigation over the Final Rule still persist.

The volume requirements MSHA proposed for low mine heights - that is, mines that have a low ceiling clearance - are self-evidently insufficient to permit the performance of "necessary activities" that MSHA recognized as critical to miner survival, including "harmful gas removal; monitor gas levels; attend to basic needs, such as drinking, eating, and using the sanitation facilities; and provide care to injured miners." 73 Fed. Reg. 80665. MSHA also recognized "[a]dequate space is needed to accommodate larger than average persons." *Id.* The Rule also contemplates miners having sufficient volume to perform life-saving repairs to the rescue chamber. 73 Fed. Reg. 80668; JA at _____. (requiring training in emergency rescue chamber repair procedures.)

MSHA did not deny that performance of these tasks is any less critical in a rescue chamber provided for miners working in low mine heights. MSHA also did not dispute that performance of these tasks would be impossible in the severely confined volume provided by the Rule to miners in low mine heights. Nor did MSHA dispute the UMW's assertion that "larger than average persons" would have difficulty even fitting in such a tight space. Instead, MSHA argued that it can do no better, suggesting that in mines with a ceiling lower than 36 inches, the fact miners will not have sufficient space is "an unfortunate but inevitable consequence of the reality that miners who work in low mines do not have as much space as miners who work in taller mines."

MSHA seemingly considered itself constrained by "inevitability" only by creating a straw-man argument, raised for the first time in the UMW's litigation challenging the Rule, that its Rule was crafted to avoid a "pancake-shaped unit [that] would be too difficult to maneuver, deploy or use." MSHA Br. at 29. Portions of the preamble MSHA cited to suggest its Rule accommodated concerns about a "pancake-shaped unit" actually discuss commenters' concerns about the maneuverability of relatively tall rescue chambers in mines with low ceilings. *Id.* citing 73 Fed. Reg. 80665. (addressing "concerns regarding the ability to maneuver, deploy, or use larger units in mines with low seam heights") and 73 Fed. Reg. 80677-78. ("In response to commenters' concerns regarding the ability to maneuver, deploy, or use larger units in mines with low seam heights, the final Rule has changed the proposed volume requirements to take mining height into consideration.")

Nowhere in the proposed rule, comments or the Final Rule did MSHA or any commenter discuss a concern with length or width dimensions, only height. Moreover, neither MSHA nor any commenter ever discussed any type of potential problem with the straw-man "pancake-shaped" unit that MSHA then claimed would result from an increase in the length and width dimension of a unit where low mine height necessitates a reduction of the height dimension. Not only did MSHA never before the UMW's legal challenge raise maneuverability or any other issues with respect to an increase in length and width to accommodate low mine heights while preserving a realistic minimum volume, MSHA proposed this solution where it stated, "[f]or mines with lower heights, the 60 cubic ft. of space may need to be attained by increasing the length or floor area." 73 Fed. Reg. 34146.

MSHA's brief to the Court manufactured the "pancaked-shape unit" strawman to bolster its false-dilemma argument that the Rule's impossibly cramped chambers are the "unfortunate but inevitable consequence" of low ceiling clearance in mines with low mine heights. This is nothing more than a post-hoc rationalization of a minimum volume requirement so implausible it would entail those miners fortunate enough to fit in the rescue chamber waiting days in an area so confined they would be unable to tend to injuries or make repairs.

Increased floor area in lower mine heights to provide sufficient volume to perform tasks MSHA identified as necessary to survival in no way necessitates "pancaked shape" units. Floor length and width can be increased a reasonable amount to provide sufficient volume in low mine heights (as the proposed rule suggests), and once floor length and width reach maximum levels, an additional rescue chamber could be utilized to provide sufficient volume per miner. The Rule already contemplates multiple rescue chambers based on the size of the mine and the number of miners working in any particular section, and the minimum volume requirement is but one of several other requirements that could create a need for more than one rescue chamber. See, e.g. 30 CFR 75.1502(c)(8) (requiring instruction plan to include review of "locations of refuge alternatives" (plural)); 30 CFR 75.1506(c)(1),(2) (requiring rescue chambers to be located at multiple locations throughout active mining sections).

Accordingly, the UMWA suggests that the training requirements remain inadequate, and requests that MSHA reconsider and expand the volume requirements for refuge alternatives.