Do You Understand Mine Emergencies?

Are You Prepared for a Mine Emergency?

SUPPLEMENATAL MATERIALS

PENN STATE MINER TRAINING PROGRAM
UNIVERSITY PARK, PA
2008

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MINE IMPROVEMENT AND NEW EMERGENCY RESPONSE ACT OF 2006 (MINER ACT)

UNITED STATES PUBLIC LAWS
109th Congress - Second Session
Convening January 7, 2005

PL 109-236 (S 2803)
June 15, 2006

MINE IMPROVEMENT AND NEW EMERGENCY RESPONSE ACT OF 2006 (MINER ACT)

An Act To amend the Federal Mine Safety and Health Act of 1977 to improve the safety of mines and mining.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Mine Improvement and New Emergency Response Act of 2006" or the "MINER Act".

SEC. 2. EMERGENCY RESPONSE.

Section 316 of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. 876) is amended--

(1) in the section heading by adding at the end the following: "AND EMERGENCY RESPONSE PLANS";

(2) by striking "Telephone" and inserting "(a) IN GENERAL.--TELEPHONE"; and

(3) by adding at the end the following:

"(b) ACCIDENT PREPAREDNESS AND RESPONSE.--

"(1) IN GENERAL.--Each underground coal mine operator shall carry out on a continuing basis a program to improve accident preparedness and response at each mine.

"(2) RESPONSE AND PREPAREDNESS PLAN.--

"(A) IN GENERAL.--Not later than 60 days after the date of enactment of the Mine Improvement and New Emergency Response Act of 2006, each underground coal mine operator shall develop and adopt a written accident response plan that complies with this subsection with respect to each mine of the operator, and periodically update such plans to reflect changes in operations in the mine, advances in technology, or other relevant considerations. Each such operator shall make the accident response plan available to the miners and the miners' representatives.

"(B) PLAN REQUIREMENTS.--An accident response plan under subparagraph (A) shall--

"(i) provide for the evacuation of all individuals endangered by an emergency; and

"(ii) provide for the maintenance of individuals trapped underground in the event that miners are not able to evacuate the mine.

"(C) PLAN APPROVAL.--The accident response plan under subparagraph (A) shall be subject to review and approval by the Secretary. In determining whether to approve a

particular plan the Secretary shall take into consideration all comments submitted by miners or their representatives. Approved plans shall--

"(i) afford miners a level of safety protection at least consistent with the existing standards, including standards mandated by law and regulation;

"(ii) reflect the most recent credible scientific research;

"(iii) be technologically feasible, make use of current commercially available technology, and account for the specific physical characteristics of the mine; and

"(iv) reflect the improvements in mine safety gained from experience under this Act and other worker safety and health laws.

"(D) PLAN REVIEW.--The accident response plan under subparagraph (A) shall be reviewed periodically, but at least every 6 months, by the Secretary. In such periodic reviews, the Secretary shall consider all comments submitted by miners or miners' representatives and intervening advancements in science and technology that could be implemented to enhance miners' ability to evacuate or otherwise survive in an emergency.

"(E) PLAN CONTENT-GENERAL REQUIREMENTS.--To be approved under subparagraph (C), an accident response plan shall include the following:

"(i) POST-ACCIDENT COMMUNICATIONS.--The plan shall provide for a redundant means of communication with the surface for persons underground, such as secondary telephone or equivalent two-way communication.

"(ii) POST-ACCIDENT TRACKING.--Consistent with commercially available technology and with the physical constraints, if any, of the mine, the plan shall provide for above ground personnel to determine the current, or immediately pre-accident, location of all underground personnel. Any system so utilized shall be functional, reliable, and calculated to remain serviceable in a post-accident setting.

"(iii) POST-ACCIDENT BREATHABLE AIR.--The plan shall provide for--

"(I) emergency supplies of breathable air for individuals trapped underground sufficient to maintain such individuals for a sustained period of time;

"(II) in addition to the 2 hours of breathable air per miner required by law under the emergency temporary standard as of the day before the date of enactment of the Mine Improvement and New Emergency Response Act of 2006, caches of self-rescuers providing in the aggregate not less than 2 hours per miner to be kept in escapeways from the deepest work area to the surface at a distance of no further than an average miner could walk in 30 minutes;

"(III) a maintenance schedule for checking the reliability of self rescuers, retiring older self-rescuers first, and introducing new self-rescuer technology, such as units with interchangeable air or oxygen cylinders not requiring doffing to replenish airflow and units with supplies of greater than 60 minutes, as they are approved by the Administration and become available on the market; and

"(IV) training for each miner in proper procedures for donning self-rescuers, switching from one unit to another, and ensuring a proper fit.

"(iv) POST-ACCIDENT LIFELINES.--The plan shall provide for the use of flame-resistant directional lifelines or equivalent systems in escapeways to enable evacuation. The flame-resistance requirement of this clause shall apply upon the replacement of existing lifelines, or, in the case of lifelines in working sections, upon the earlier of the replacement of such lifelines or 3 years after the date of enactment of the Mine Improvement and New Emergency Response Act of 2006.

"(v) TRAINING.--The plan shall provide a training program for emergency procedures described in the plan which will not diminish the requirements for mandatory health and safety training currently required under section 115.

"(vi) LOCAL COORDINATION.--The plan shall set out procedures for coordination and communication between the operator, mine rescue teams, and local emergency response personnel and make provisions for familiarizing local rescue personnel with surface functions that may be required in the course of mine rescue work.

"(F) PLAN CONTENT-SPECIFIC REQUIREMENTS.--

"(i) IN GENERAL.--In addition to the content requirements contained in subparagraph (E), and subject to the considerations contained in subparagraph (C), the Secretary may make additional plan requirements with respect to any of the content matters.

"(ii) POST ACCIDENT COMMUNICATIONS.--Not later than 3 years after the date of enactment of the Mine Improvement and New Emergency Response Act of 2006, a plan shall, to be approved, provide for post accident communication between underground and surface personnel via a wireless two-way medium, and provide for an electronic tracking system permitting surface personnel to determine the location of any persons trapped underground or set forth within the plan the reasons such provisions can not be adopted. Where such plan sets forth the reasons such provisions can not be adopted, the plan shall also set forth the operator's alternative means of compliance. Such alternative shall approximate, as closely as possible, the degree of functional utility and safety protection provided by the wireless two-way medium and tracking system referred to in this subpart.

"(G) PLAN DISPUTE RESOLUTION.--

"(i) IN GENERAL.--Any dispute between the Secretary and an operator with respect to the content of the operator's plan or any refusal by the Secretary to approve such a plan shall be resolved on an expedited basis.

"(ii) DISPUTES.--In the event of a dispute or refusal described in clause (i), the Secretary shall issue a citation which shall be immediately referred to a Commission Administrative Law Judge. The Secretary and the operator shall submit all relevant material regarding the dispute to the Administrative Law Judge within 15 days of the date of the referral. The Administrative Law Judge shall render his or her decision with respect to the plan content dispute within 15 days of the receipt of the submission.

"(iii) FURTHER APPEALS.--A party adversely affected by a decision under clause (ii) may pursue all further available appeal rights with respect to the citation involved, except that inclusion of the disputed provision in the plan will not be limited by such appeal unless such relief is requested by the operator and permitted by the Administrative Law Judge.

"(H) MAINTAINING PROTECTIONS FOR MINERS.--Notwithstanding any other provision of this Act, nothing in this section, and no response and preparedness plan developed under this

section, shall be approved if it reduces the protection afforded miners by an existing mandatory health or safety standard.".

SEC. 3. INCIDENT COMMAND AND CONTROL.

Title I of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. 811 et seq.) is amended by adding at the end the following:

"SEC. 116. LIMITATION ON CERTAIN LIABILITY FOR RESCUE OPERATIONS.

"(a) IN GENERAL.--No person shall bring an action against any covered individual or his or her regular employer for property damage or an injury (or death) sustained as a result of carrying out activities relating to mine accident rescue or recovery operations. This subsection shall not apply where the action that is alleged to result in the property damages or injury (or death) was the result of gross negligence, reckless conduct, or illegal conduct or, where the regular employer (as such term is used in this Act) is the operator of the mine at which the rescue activity takes place. Nothing in this section shall be construed to preempt State workers' compensation laws.

"(b) COVERED INDIVIDUAL.--For purposes of subsection (a), the term 'covered individual' means an individual--

"(1) who is a member of a mine rescue team or who is otherwise a volunteer with respect to a mine accident; and

"(2) who is carrying out activities relating to mine accident rescue or recovery operations.

"(c) REGULAR EMPLOYER.--For purposes of subsection (a), the term 'regular employer' means the entity that is the covered employee's legal or statutory employer pursuant to applicable State law.".

SEC. 4. MINE RESCUE TEAMS.

Section 115(e) of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. 825(e)) is amended--

(1) by inserting "(1)" after the subsection designation; and

(2) by adding at the end the following:

"(2)(A) The Secretary shall issue regulations with regard to mine rescue teams which shall be finalized and in effect not later than 18 months after the date of enactment of the Mine Improvement and New Emergency Response Act of 2006.

"(B) Such regulations shall provide for the following:

"(i) That such regulations shall not be construed to waive operator training requirements applicable to existing mine rescue teams.

"(ii) That the Mine Safety and Health Administration shall establish, and update every 5 years thereafter, criteria to certify the qualifications of mine rescue teams.

"(iii)(I) That the operator of each underground coal mine with more than 36 employees--

"(aa) have an employee knowledgeable in mine emergency response who is employed at the mine on each shift at each

underground mine; and

"(bb) make available two certified mine rescue teams whose members--

"(AA) are familiar with the operations of such coal mine;

"(BB) participate at least annually in two local mine rescue contests;

"(CC) participate at least annually in mine rescue training at the underground coal mine covered by the mine rescue team; and

"(DD) are available at the mine within one hour ground travel time from the mine rescue station.

"(II)(aa) For the purpose of complying with subclause (I), an operator shall employ one team that is either an individual mine site mine rescue team or a composite team as provided for in item (bb)(BB).

"(bb) The following options may be used by an operator to comply with the requirements of item (aa):

"(AA) An individual mine-site mine rescue team.

"(BB) A multi-employer composite team that is made up of team members who are knowledgeable about the operations and ventilation of the covered mines and who train on a semi-annual basis at the covered underground coal mine—

"(aaa) which provides coverage for multiple operators that have team members which include at least two active employees from each of the covered mines;

"(bbb) which provides coverage for multiple mines owned by the same operator which members include at least two active employees from each mine; or

"(ccc) which is a State-sponsored mine rescue team comprised of at least two active employees from each of the covered mines.

"(CC) A commercial mine rescue team provided by contract through a third-party vendor or mine rescue team provided by another coal company, if such team—

"(aaa) trains on a quarterly basis at covered underground coal mines;

"(bbb) is knowledgeable about the operations and ventilation of the covered mines; and

"(ccc) is comprised of individuals with a minimum of 3 years underground coal mine experience that shall have occurred within the 10-year period preceding their employment on the contract mine rescue team.

"(DD) A State-sponsored team made up of State employees.

"(iv) That the operator of each underground coal mine with 36 or less employees shall—

"(I) have an employee on each shift who is knowledgeable in mine emergency responses; and

"(II) make available two certified mine rescue teams whose members—

"(aa) are familiar with the operations of such coal mine;

"(bb) participate at least annually in two local mine rescue contests;

"(cc) participate at least semi-annually in mine rescue training at the underground coal mine covered by the mine rescue team;

"(dd) are available at the mine within one hour ground travel time from the mine rescue station;

"(ee) are knowledgeable about the operations and ventilation of the covered mines; and

"(ff) are comprised of individuals with a minimum of 3 years underground coal mine experience that shall have occurred within the 10-year period preceding their employment on the contract mine rescue team.".

SEC. 5. PROMPT INCIDENT NOTIFICATION.

(a) IN GENERAL.--Section 103(j) of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. 813(j)) is amended by inserting after the first sentence the following: "For purposes of the preceding sentence, the notification required shall be provided by the operator within 15 minutes of the time at which the operator realizes that the death of an individual at the mine, or an injury or entrapment of an individual at the mine which has a reasonable potential to cause death, has occurred.".

(b) PENALTY.--Section 110(a) of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. 820(a)) is amended—

(1) by striking "The operator" and inserting "(1) The operator"; and

(2) by adding at the end the following:

"(2) The operator of a coal or other mine who fails to provide timely notification to the Secretary as required under section 103(j) (relating to the 15 minute requirement) shall be assessed a civil penalty by the Secretary of not less than $5,000 and not more than $60,000.".

SEC. 6. NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH.

(a) GRANTS.--Section 22 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 671) is amended by adding at the end the following:

"(h) OFFICE OF MINE SAFETY AND HEALTH.—

"(1) IN GENERAL.--There shall be permanently established within the Institute an Office of Mine Safety and Health which shall be administered by an Associate Director to be appointed by the Director.

"(2) PURPOSE.--The purpose of the Office is to enhance the development of new mine safety technology and technological applications and to expedite the commercial availability and implementation of such technology in mining environments.

"(3) FUNCTIONS.--In addition to all purposes and authorities provided for under this section, the Office of Mine Safety and Health shall be responsible for research, development, and testing of new technologies and equipment designed to enhance mine safety and health. To carry out such functions the Director of the Institute, acting through the Office, shall have the authority to—

"(A) award competitive grants to institutions and private entities to encourage the development and manufacture of mine safety equipment;

"(B) award contracts to educational institutions or private laboratories for the performance of product testing or related work with respect to new mine technology and equipment; and

"(C) establish an interagency working group as provided for in paragraph (5).

"(4) GRANT AUTHORITY.--To be eligible to receive a grant under the authority provided for under paragraph (3)(A), an entity or institution shall—

"(A) submit to the Director of the Institute an application at such time, in such manner, and containing such information as the Director may require; and

"(B) include in the application under subparagraph (A), a description of the mine safety equipment to be developed and manufactured under the grant and a description of the reasons that such equipment would otherwise not be developed or manufactured, including reasons relating to the limited potential commercial market for such equipment.

"(5) INTERAGENCY WORKING GROUP.—

"(A) ESTABLISHMENT.--The Director of the Institute, in carrying out paragraph (3)(D) shall establish an interagency working group to share technology and technological research and developments that could be utilized to enhance mine safety and accident response.

"(B) MEMBERSHIP.--The working group under subparagraph (A) shall be chaired by the Associate Director of the Office who shall appoint the members of the working group, which may include representatives of other Federal agencies or departments as determined appropriate by the Associate Director.

"(C) DUTIES.--The working group under subparagraph (A) shall conduct an evaluation of research conducted by, and the technological developments of, agencies and departments who are represented on the working group that may have applicability to mine safety and accident response and make recommendations to the Director for the further development and

eventual implementation of such technology.

"(6) ANNUAL REPORT.--Not later than 1 year after the establishment of the Office under this subsection, and annually thereafter, the Director of the Institute shall submit to the Committee on Health, Education, Labor, and Pensions of the Senate and the Committee on Education and the Workforce of the House of Representatives a report that, with respect to the year involved, describes the new mine safety technologies and equipment that have been studied, tested, and certified for use, and with respect to those instances of technologies and equipment that have been considered but not yet certified for use, the reasons therefore.

"(7) AUTHORIZATION OF APPROPRIATIONS.--There is authorized to be appropriated, such sums as may be necessary to enable the Institute and the Office of Mine Safety and Health to carry out this subsection.".

SEC. 7. REQUIREMENT CONCERNING FAMILY LIAISONS.

The Secretary of Labor shall establish a policy that--

(1) requires the temporary assignment of an individual Department of Labor official to be a liaison between the Department and the families of victims of mine tragedies involving multiple deaths;

(2) requires the Mine Safety and Health Administration to be as responsive as possible to requests from the families of mine accident victims for information relating to mine accidents; and

(3) requires that in such accidents, that the Mine Safety and Health Administration shall serve as the primary communicator with the operator, miners' families, the press and the public.

SEC. 8. PENALTIES.

(a) IN GENERAL.--Section 110 of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. 820) is amended--

(1) in subsection (a)--

(A) by inserting "(1)" after the subsection designation; and

(B) by adding at the end the following:

"(2) Any operator who willfully violates a mandatory health or safety standard, or knowingly violates or fails or refuses to comply with any order issued under section 104 and section 107, or any order incorporated in a final decision issued under this title, except an order incorporated in a decision under paragraph (1) or section 105(c), shall, upon conviction, be punished by a fine of not more than $250,000, or by imprisonment for not more than one year, or by both, except that if the conviction is for a violation committed after the first conviction of such operator under this Act, punishment shall be by a fine of not more than $500,000, or by imprisonment for not more than five years, or both.

"(3)(A) The minimum penalty for any citation or order issued under section 104(d)(1) shall be $2,000.

"(B) The minimum penalty for any order issued under section 104(d)(2) shall be $4,000.

"(4) Nothing in this subsection shall be construed to prevent an operator from obtaining a review, in accordance with section 106, of an order imposing a penalty described in this subsection. If a court, in making such review, sustains the order, the court ***501** shall apply at least the minimum

penalties required under this subsection."; and

(2) by adding at the end of subsection (b) the following: "Violations under this section that are deemed to be flagrant may be assessed a civil penalty of not more than $220,000. For purposes of the preceding sentence, the term 'flagrant' with respect to a violation means a reckless or repeated failure to make reasonable efforts to eliminate a known violation of a mandatory health or safety standard that substantially and proximately caused, or reasonably could have been expected to cause, death or serious bodily injury.".

(b) REGULATIONS.--Not later than December 30, 2006, the Secretary of Labor shall promulgate final regulations with respect to penalties.

SEC. 9. FINE COLLECTIONS.

Section 108(a)(1)(A) of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. 818(a)(1)(A)) is amended by inserting before the comma, the following: ", or fails or refuses to comply with any order or decision, including a civil penalty assessment order, that is issued under this Act".

SEC. 10. SEALING OF ABANDONED AREAS.

Not later than 18 months after the issuance by the Mine Safety and Health Administration of a final report on the Sago Mine accident or the date of enactment of the Mine Improvement and New Emergency Response Act of 2006, whichever occurs earlier, the Secretary of Labor shall finalize mandatory heath and safety standards relating to the sealing of abandoned areas in underground coal mines. Such health and safety standards shall provide for an increase in the 20 psi standard currently set forth in section 75.335(a)(2) of title 30, Code of Federal Regulations.

SEC. 11. TECHNICAL STUDY PANEL.

Title V of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. 951 et seq.) is amended by adding at the end the following:

"SEC. 514. TECHNICAL STUDY PANEL.

"(a) ESTABLISHMENT.--There is established a Technical Study Panel (referred to in this section as the 'Panel') which shall provide independent scientific and engineering review and recommendations with respect to the utilization of belt air and the composition and fire retardant properties of belt materials in underground coal mining.

"(b) MEMBERSHIP.--The Panel shall be composed of—

"(1) two individuals to be appointed by the Secretary of Health and Human Services, in consultation with the Director of the National Institute for Occupational Safety and Health and the Associate Director of the Office of Mine Safety;

"(2) two individuals to be appointed by the Secretary of Labor, in consultation with the Assistant Secretary for Mine Safety and Health; and

"(3) two individuals, one to be appointed jointly by the majority leaders of the Senate and House of Representatives and one to be appointed jointly by the minority leader of the Senate and House of Representatives, each to be appointed *502 prior to the sine die adjournment of the second session of the 109th Congress.

"(c) QUALIFICATIONS.--Four of the six individuals appointed to the Panel under subsection (b) shall possess a masters or doctoral level degree in mining engineering or another scientific field demonstrably related to the subject of the report. No individual appointed to the Panel shall be an employee of any coal or other mine, or of any labor organization, or of any State or Federal agency primarily responsible for regulating the mining industry.

"(d) REPORT.—

"(1) IN GENERAL.--Not later than 1 year after the date on which all members of the Panel are appointed under subsection (b), the Panel shall prepare and submit to the Secretary of Labor, the Secretary of Health and Human Services, the Committee on Health, Education, Labor, and Pensions of the Senate, and the Committee on Education and the Workforce of the House of Representatives a report concerning the utilization of belt air and the composition and fire retardant properties of belt materials in underground coal mining.

"(2) RESPONSE BY SECRETARY.--Not later than 180 days after the receipt of the report under paragraph (1), the Secretary of Labor shall provide a response to the Committee on Health, Education, Labor, and Pensions of the Senate and the Committee on Education and the Workforce of the House of Representatives 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.

"(e) COMPENSATION.--Members appointed to the Panel, while carrying out the duties of the Panel shall be entitled to receive compensation, per diem in lieu of subsistence, and travel expenses in the same manner and under the same conditions as that prescribed under section 208(c) of the Public Health Service Act.".

SEC. 12. SCHOLARSHIPS.

Title V of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. 951 et seq.), as amended by section 11, is further amended by adding at the end the following:

"SEC. 515. SCHOLARSHIPS.

"(a) ESTABLISHMENT.--The Secretary of Education (referred to in this section as the 'Secretary'), in consultation with the Secretary of Labor and the Secretary of Health and Human Services, shall establish a program to provide scholarships to eligible individuals to increase the skilled workforce for both private sector coal mine operators and mine safety inspectors and other regulatory personnel for the Mine Safety and Health Administration.

"(b) FUNDAMENTAL SKILLS SCHOLARSHIPS.--

"(1) IN GENERAL.--Under the program under subsection (a), the Secretary may award scholarship to fully or partially pay the tuition costs of eligible individuals enrolled in 2-year associate's degree programs at community colleges or other colleges and universities that focus on providing the fundamental skills and training that is of immediate use to a beginning coal miner.

"(2) SKILLS.--The skills described in paragraph (1) shall include basic math, basic health and safety, business principles, management and supervisory skills, skills related to electric circuitry, skills related to heavy equipment operations, and skills related to communications.

"(3) ELIGIBILITY.--To be eligible to receive a scholarship under this subsection an individual shall--

"(A) have a high school diploma or a GED;

"(B) have at least 2 years experience in full-time employment in mining or mining-related activities;

"(C) submit to the Secretary an application at such time, in such manner, and containing such information; and

"(D) demonstrate an interest in working in the field of mining and performing an internship with the Mine Safety and Health Administration or the National Institute for Occupational Safety and Health Office of Mine Safety.

"(c) MINE SAFETY INSPECTOR SCHOLARSHIPS.--

"(1) IN GENERAL.--Under the program under subsection (a), the Secretary may award scholarship to fully or partially pay the tuition costs of eligible individuals enrolled in undergraduate bachelor's degree programs at accredited colleges or universities that provide the skills needed to become mine safety inspectors.

"(2) SKILLS.--The skills described in paragraph (1) include skills developed through programs leading to a degree in mining engineering, civil engineering, mechanical engineering, electrical engineering, industrial engineering, environmental engineering, industrial hygiene, occupational health and safety, geology, chemistry, or other fields of study related to mine safety and health work.

"(3) ELIGIBILITY.--To be eligible to receive a scholarship under this subsection an individual shall—

"(A) have a high school diploma or a GED;

"(B) have at least 5 years experience in full-time employment in mining or mining-related activities;

"(C) submit to the Secretary an application at such time, in such manner, and containing such information; and

"(D) agree to be employed for a period of at least 5 years at the Mine Safety and Health Administration or, to repay, on a pro-rated basis, the funds received under this program, plus interest, at a rate established by the Secretary upon the issuance of the scholarship.

"(d) ADVANCED RESEARCH SCHOLARSHIPS.--

"(1) IN GENERAL.--Under the program under subsection (a), the Secretary may award scholarships to fully or partially pay the tuition costs of eligible individuals enrolled in undergraduate bachelor's degree, masters degree, and Ph.D. degree programs at accredited colleges or universities that provide the skills needed to augment and advance research in mine safety and to broaden, improve, and expand the universe of candidates for mine safety inspector and other regulatory positions in the Mine Safety and Health Administration.

"(2) SKILLS.--The skills described in paragraph (1) include skills developed through programs leading to a degree in mining engineering, civil engineering, mechanical engineering, electrical engineering, industrial engineering, environmental engineering, industrial hygiene, occupational health and safety, geology, chemistry, or other fields of study related to mine safety and health work.

"(3) ELIGIBILITY.--To be eligible to receive a scholarship under this subsection an individual shall--

"(A) have a bachelor's degree or equivalent from an accredited 4-year institution;

"(B) have at least 5 years experience in full-time employment in underground mining or mining-related activities; and

"(C) submit to the Secretary an application at such time, in such manner, and containing such information.

"(e) AUTHORIZATION OF APPROPRIATIONS.--There are authorized to be appropriated such sums as may be necessary to carry out this section.".

SEC. 13. RESEARCH CONCERNING REFUGE ALTERNATIVES.

(a) IN GENERAL.--The National Institute of Occupational Safety and Health shall provide for the conduct of research, including field tests, concerning the utility, practicality, survivability, and cost of various refuge alternatives in an underground coal mine environment, including commercially-available portable refuge chambers.

(b) REPORT.--

(1) IN GENERAL.--Not later than 18 months after the date of enactment of this Act, the National Institute for Occupational Safety and Health shall prepare and submit to the Secretary of Labor, the Secretary of Health and Human Services, the Committee on Health, Education, Labor, and Pensions of the Senate, and the Committee on Education and the Workforce of the House of Representatives a report concerning the results of the research conducted under subsection (a), including any field tests.

(2) RESPONSE BY SECRETARY.--Not later than 180 days after the receipt of the report under paragraph (1), the Secretary of Labor shall provide a response to the Committee on Health, Education, Labor, and Pensions of the Senate and the Committee on Education and the Workforce of the House of Representatives 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.

SEC. 14. BROOKWOOD-SAGO MINE SAFETY GRANTS.

(a) IN GENERAL.--The Secretary of Labor shall establish a program to award competitive grants for education and training, to be known as Brookwood-Sago Mine Safety Grants, to carry out the purposes of this section.

(b) PURPOSES.--It is the purpose of this section, to provide for the funding of education and training programs to better identify, avoid, and prevent unsafe working conditions in and around mines.

(c) ELIGIBILITY.--To be eligible to receive a grant under this section, an entity shall--

(1) be a public or private nonprofit entity; and

(2) submit to the Secretary of Labor an application at such time, in such manner, and containing such information as the Secretary may require.

(d) USE OF FUNDS.--Amounts received under a grant under this section shall be used to establish and implement education and training programs, or to develop training materials for employers and miners, concerning safety and health topics in mines, as determined appropriate by the Mine Safety and Health Administration.

(e) AWARDING OF GRANTS.--

(1) ANNUAL BASIS.--Grants under this section shall be awarded on an annual basis.

(2) SPECIAL EMPHASIS.--In awarding grants under this section, the Secretary of Labor shall give special emphasis to programs and materials that target workers in smaller mines, including training miners and employers about new Mine Safety and Health Administration standards, high risk activities, or hazards identified by such Administration.

(3) PRIORITY.--In awarding grants under this section, the Secretary of Labor shall give priority to the funding of pilot and demonstration projects that the Secretary determines will provide opportunities for broad applicability for mine safety.

(f) EVALUATION.--The Secretary of Labor shall use not less than 1 percent of the funds made available to carry out this section in a fiscal year to conduct evaluations of the projects funded under grants under this section.

(g) AUTHORIZATION OF APPROPRIATIONS.--There are authorized to be appropriated for each fiscal year, such sums as may be necessary to carry out this section.

Approved June 15, 2006.

PL 109-236, 2006 S 2803

SAMPLE EMERGENCY RESPONSE PLAN

Surname	Date

Coal Mine Safety and Health
District

JUN 200

RE:
ID No.
Emergency Response Plan

Dear Mr.

The Mine Safety and Health Administration (MSHA) has reviewed the Emergency Response Plan (ERP) submitted by the dated June 2007, consisting of a cover letter and 8 pages. This ERP has been reviewed to determine compliance with the provisions of Section 2 of the Mine Improvement and Emergency Response Act of 2006 (MINER Act), 30 U.S.C. § 876, and relevant Federal Mine Safety and Health Act standards and regulations. Based on this review, we have approved the ERP in its entirety.

All portions of this ERP must be implemented immediately, with the exception of the breathable air provisions, which must be implemented by 60 days from the date of this letter. The failure to implement all of the ERP provisions and/or to conduct miner training in a timely manner will result in a citation.

In accordance with the MINER Act, at least once every six months, MSHA will review each ERP to determine whether an ERP could be amended to enhance miners' ability to evacuate or otherwise survive in an emergency. In addition, operators must periodically update their ERPs to reflect: changes in operations in the mine, such as a change in systems of mining, changes in mine layout, or relocation of escapeways; advances in technology; or other relevant considerations. MSHA approval must be obtained before any changes to an existing ERP are implemented. You are also required to make this ERP available to all miners and miners' representatives.

APPROVED
JUN
CMSH

2/6

If you have any questions concerning the implementation of the ERP, please contact

Sincerely,

District Manager

cc:

bcc: [Exempt 2]
[Exempt 2]

APPROVED
JUN
CMSH

EMERGENCY RESPONSE PLAN

The following program of storage and location of self-rescuers and escape lifelines and other emergency materials is adopted in accordance with 30 CFR part 75 requirements.

Submitted by: Date: June

Company:

Mine: Mine

Mine I.D #

Self-Rescuers

1) Storage locations shall be designated and maintained in accordance with 30 CFR, 75.1714-4. The seam height being , the caches will not exceed feet apart, including bleeders and beltlines.

2) Caches of self-rescuers will be established in both the primary and secondary escape ways at distance-intervals determined in the fore mentioned criteria. The actual locations and number of self- rescuers in storages will be noted on all escapway maps and the mines ventilation map and list below
   - Main West x-c 27 (20 SR-100 in Primary and 20 SR-100 in Secondary)
   - Main West x-c 75 (20 SR-100 in Primary and 20 SR-100 in Secondary)
   - 1st South Mains X-C 18 bleeder (1 SR-100 in travel way)
   - 1st West X-C 15 bleeder (1 SR-100 in travel way)
   - All of the SCSRs in the . Mine are SR-100s of the CSE Corporation.

3) These cache locations shall be marked in accordance with the requirements of 30 CFR 75.1714-2
4) SCSRs will be stored, examined and maintained in accordance to the manufactures and 30 CFR 75.1714-2.
5) 1% to 5% of all SCSRs in use on mine property shall be opened annually, to ensure the reliability of the SCSRs.
6) SCSRs shall be retired in accordance with manufacturer's recommendations.

Post Accident Breathable Air

1) Post-accident breathable air will be provided within 2000 feet of the loading point of each active working section. A breathable air atmosphere within safe havens, i.e. a barricaded section of an entry, will be provided and maintained through the use of compressed oxygen and soda lime (or equivalent) for carbon dioxide scrubbing. A sufficient number of compressed oxygen cylinders and supply of soda lime will be provided for 18 miners for 96 hours.

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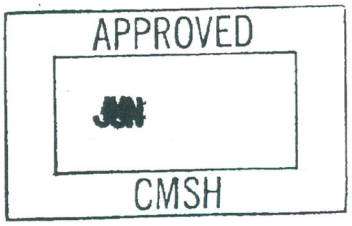
2) The number of oxygen cylinders required to maintain the post-accident breathable air within a safe haven barricade was calculated using the parameters provided in Attachment 2 to PIB P07-03, i.e. 1.32 ft3/hour oxygen consumption per miner at the "assumed breathing rate". Using the 1.32ft^3/hr oxygen consumption per hour parameter, we have calculated that we will need to provide 9 each "K" size cylinders each having a minimum of 282 ft^3 oxygen per cylinder (1.32x18x96)/282=8.1 bottles).
3) Compressed air cylinders will be used for purging the barricade. The compressed air cylinders provided for purging will be three (3) times the amount of barricade volume. Fifteen "K" 6000 psi compressed air cylinders containing 500 cubic foot of air will be required to purge contaminants from a (20' x 18' x 7') barricade. Miners will be instructed to use their SCSR's until the barricaded area is purged of contaminates.
4) Pre-packaged soda lime cartridges will be placed in the air powered scrubber to provide carbon dioxide scrubbing capability to prevent contamination within the barricaded area. An addition two compressed "K" 6000 psi cylinders will be used to operate the air powered scrubber. A 96 hour supply of soda lime (or equivalent) will be provided for the maximum number of miners anticipated to use the barricade.
5) Outby Work Locations– Individual sets of post-accident breathable air supplies positioned in intake aircourses will be provided at outby locations in close proximity to every other primary escapeway SCSR cache location. A breathable air atmosphere within safe havens, i.e. a barricaded section of an entry or crosscut, will be provided and maintained through the use of compressed oxygen and soda lime (or equivalent) for carbon dioxide scrubbing. The number of oxygen cylinders and the amount of soda lime (or equivalent) to be provided will be determined using the procedure described above to provide a breathable atmosphere for each location for 96 hours. (refer to mine map for current outby breathable air location(s)).
6) Map Locations: The locations of post-accident breathable air supplies shall be shown on the mine maps required under 30CFR 75.1200 and 75.1505.

Lifelines

1) Directional lifelines will be installed in accordance with the requirements of the CFR 75.380 (d) (7) and 75.381 (c) (5).
2) The directional lifelines are located in both the primary and secondary escape ways from the surface to each working section or location where mechanized mining equipment is either being installed or removed life line will be installed in such a manner for miners to effectively escape.
3) The directional lifelines are marked with reflective material every 25 feet and have directional indicators showing the escape route located at intervals not greater than 100 feet. The small end of the directional cone will be facing in-by.



Implementation of the plans

Appropriate numbers of self-rescuers and lifelines materials have been ordered in compliance with the requirements of CFR. Implantation of the plan shall commence immediately upon receipt of the material and self-rescuers.

Post-accident communications

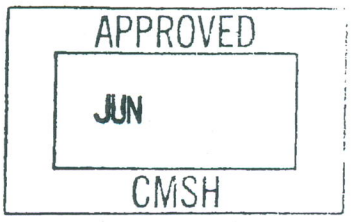
In accordance with PPL #P06-V-10 Mine will utilize two hardwired system routed through separate entries for protection of the system.

Post-accident Tracking

In accordance with PPL #P06-V-10, Mine will utilize a dispatcher system that has the function of tracking coal miners underground with the use of a magnetic tracking board and or written log. Tracking zones will consist of 4 haulage zones, section zones, and belt flight zones. Phones will be placed at all zones intersections, at the head of all sections, belt flight exchanges, and in the bleeder travel ways. All areas underground will be marked noting the zone intersections. The tracking board located near the dispatcher will note via magnetic name tags personnel located underground and movement of personnel from Zone to Zone.

Training

1) All miners will be trained in the evacuation procedures and escape ways and in the SCSR storage plan. All miners shall be trained in the donning, transferring and use of self-rescuers in accordance with the manufacturers suggested procedures. Said training shall included practice in the method required to transfer from on self-rescuer to another, assuring proper fit, and at least one training session per year will be conducted in a smoke or "no visibility" simulation.
2) All training with the name of the employees and date the training occurred will be recorded in the fire drill book. All miners will participate in mine emergency evacuation drills at a quarterly basis.
3) During SCSR expectations training which shall be conducted one quarter of each year, miners shall be trained with SCSR training units that simulate breathing resistance and heat.
4) Training shall also include donning and transferring in a simulated smoke environment of SCSR's used at the operation.



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Additional Provisions

The following material will be stored in the "Emergency Materials Skid and/or Trailer" This container will be located within 2000 feet of the working section.

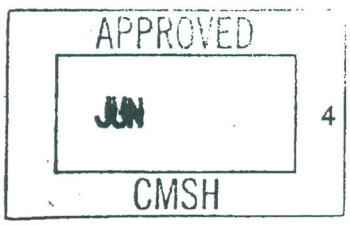
1) Two inflatable stoppings or other quick deployable barricade units will be provided within 6 months of becoming commercially available until that time the following will be provided (material 1 through 8)
2) A sufficient number of brattice boards (enough to span the width of the entry 4 times)
3) No less than 2 polyurethane foam packs and no more than 5 polyurethane foam packs. (With protective gloves & goggles.) To be stored in compliance with MINE HEALTH INSPECTION HAND BOOK chapter 9-2 (b) and the approved ventilation plan.
4) 1 roll of brattice.
5) 1 spad gun
6) 2 1bs of spads
7) 2 lbs of washers
8) 2 claw hammers
9) 2 lbs of #8 nails
10) Enough MRE rations (or equivalent) for every miner working on the section to last 96 hours.
11) 10 gallons of water.
12) 10 chemical light sticks.
13) First Aid Kit (the first aid supplies required by 30 CFR 75.214 meets this requirement)
14) A sufficient amount of roof jacks, or timbers with wedges, tools and equipment necessary to install them. (The material required by 30 CFR 750214 meets this requirement)
15) 1 multi gas detector.

Post Accident Logistics

Command center will be located on the second floor of
The command center has locking doors on either side in the event of an emergency security personnel will be placed at both doors.

Family accommodation will be located in the main shop in the event of an emergency the shop area will be cleaned out and appropriate tables and chairs will be brought in and set up. The shop area has access to bathrooms, and drinking water. Security personnel will be placed at all entrances to the shop area

Press accommodation will be located
Traffic control will be a combined effort with the company and the County Sheriffs office.



Local Coordination

Local emergency responders shall visit mine property to familiarize there selves with mine location, operation, and personnel. A continued interaction with local law enforcement and emergency services will be implemented between persons on the surface, MSHA and other agencies or departments as needed. Notification shall be given to the following in an emergency situation:

MSHA: One Call 24/7	1-800-746-1553
AMBULANCE: 911	
POLICE: 911	
HOSPITAL	
POISON CONTROL	1-800-456-7707
MSHA	

COMPANY NAMES AND NUMBERS

Mine Emergency Suppliers

OVERVIEW OF THE DUTIES OF THE RESPONSIBLE PERSON

Overview of the Duties of the Responsible Person

The responsible person must be provided with the knowledge to act quickly, effectively and appropriately in the event of a mine emergency:

- Initiating an Emergency Mine Evacuation
- Contacting Emergency Personnel
- Organizing a Command Center
- Establishing Security
- Communicating Appropriate Information Related to the Emergency
- Coordinating Firefighting Personnel
- Deploying Firefighting Equipment
- Coordinating Mine Rescue Personnel
- Deploying Mine Rescue Teams
- Establishing a Fresh Air Base
- Providing for Mine Gas Sampling and Analysis

If an emergency occurs at the mine, the responsible person will immediately establish contact with:

- Personnel in the affected area
- Personnel inby the affected area who may be in danger
- Personnel in outby areas (mine-wide evacuation) as conditions warrant
- Personnel on the surface responsible for notification of key personnel off-site

SCSR CHECKLIST (SR100)

SCSR Checklist (SR100)

Daily Visual Inspection

- Check Top and Bottom Covers, are they badly dented or out of position
- Is the security band tight?
- Have either of the seals been cut or out of place?
- Are the moisture indicators on the top and bottom covers both blue?
- Has the case been damaged?

Donning From Kneeling Position

- Remove your hard hat, place it on the Bottom with the light shining on the rescuer
- Unfasten the pull tab and release the security band and remove the top and bottom covers
- Loop neck strap around your neck
- Pull down on the orange tab to activate
- Lift up on the mouthpiece to remove the plug
- Insert the mouthpiece remembering to bite firmly on the lugs and wrap your lips around the mouthpiece
- Put on the noseclips
- Put on the goggles
- Tighten the neckstrap
- Tighten the waist strap

Switching from an SR100 To a SR100

- Knee and put the replacement SCSR on the remove your hat and shine your light on it
- Prepare the rescuer to be put on by opening it and unfolding the bag and laying out the straps

- Remove the neck strap on the rescuer you are wearing, allowing it to hang by the waist strap
- Loop the neck strap of the replacement unit around your neck
- Activate the replacement unit
- Take a deep breath and hold it from the unit you are using and hold your breath
- Put the mouthpiece in your mouth from the replacement unit and exhale into the mouthpiece
- Put the nose clips on
- Remove the waist band from the first rescuer and adjust the straps on the replacement unit

DESCRIPTION OF MSHA-APPROVED TECHNOLOGIES

DESCRIPTION OF MSHA-APPROVED TECHNOLOGIES

Handheld two-way radios

General Information:

Handheld, portable radios (walkie-talkies) are two-way radio transceivers widely used by consumers and can also be engineered for use in industry and more rugged working environments, including underground mines.

Pros:

- Page phones are currently available and are MSHA approved.
- Handheld walkie-talkies have the capability of providing two-way voice communication.
- Flexibility can be provided for use (frequency range and number of channels).

Cons:

- These frequencies cannot penetrate rock due to the high level of attenuation that they suffer. Communication is problematic if the devices aren't within "line of sight" of each other.
- Limited range; typically about 500ft.

Leaky Feeder Communication Systems

General Information:

"Leaky Feeder" systems are two-way radio systems that feature a base station on the surface that communicates with individual underground radio units, such as walkie-talkie radios. To allow radio frequencies to function underground, it is necessary to replace a standard surface antenna system with a cable network. The cable networks should be installed to effectively radiate the signal throughout the mine. The cable is designed to "leak" signal, which allows radio transmissions to both leak from the cable and also enter the cable. The systems are generally used for both data and voice communications.

Pros:

- These systems are currently available and are MSHA approved.

- Leaky feeder systems have the capability of providing two-way voice communication.

Cons:

- The main limitation is based on the frequency band for two-way voice, data and video is VHF. These frequencies cannot penetrate rock due to the high level of attenuation that they suffer. Communication is problematic if the devices aren't within "line of sight" of each other. An example of this problem is the inability of a commercial radio signal to broadcast through tunnels. Therefore, the walkie-talkie user must be fairly near the underground leaky feeder cable network to adequately communicate with the system.
- The cables are subject to damage, which can disable the system.

Mine Page Phones.

General Information:

Paging telephones are self-contained battery-powered communication units that provide loudspeaker paging and handset party line conversation over a two-conductor telephone line. In general, they operate from 12 volt DC lantern batteries. When paging, the user's voice can be heard via loudspeaker at all telephones connected to the system.

There is no practical limit to the number of units which can be connected to a paging telephone system. The units can be placed miles apart or as close together as a few feet. The system arrangement need not be on a loop basis, but can include branch circuits as required for convenience.

Pros:

- These systems are currently available and are MSHA approved.
- Paging telephones have the capability of providing two-way voice communication wherever telephone lines are installed.
- Mature technology with simple and familiar operation.
- The units are relatively immune to interference from other electrical systems.
- Small portable units are available, which connect to the telephone lines with alligator clips.

Cons:

- The cables are subject to damage, which can disable portions of the system.
- The lantern batteries can be subject to frequent replacement.
- Most units are not carried by the user, but mounted at permanent or temporary fixed sites, requiring the user to be at the device to communicate.
- To use the small portable units, one must find and connect to the telephone line, which may be difficult in an emergency.

Radio Frequency Identification (RFID) Tracking Systems

General Information

RFID tracking systems enable the identification of a miner's location in an underground mine. The miner wears a transmitter, which sends out a unique pulsed signal that is received by a receiver "reader". This is a mature technology that is just recently being introduced into underground United States mines.

- Requires hard wire data and power connecctions.
- The readers are not MSHA approved (therefore, not intrinsically safe) but could be placed in explosion proof boxes.

Pro:

- If the system is disrupted, it still could provide the last recorded location of all personnel and equipment underground.

Cons:

- System is subject to damage from fire and explosion which could compromise the ability to track personnel or vehicles.
- The tracking accuracy is limited by the number of installed readers. The range of the readers is typically limited to approximately 200 feet. Therefore, if the readers are spaced (as commonly done) at 3000' intervals, a signal is received when the transmitter passes within 200' of reader A, but then not again until it passes within 200' of reader B. If the system is disrupted in an emergency and personnel need to be located, this limitation would create a potential search window of approximately ½ mile.

PED System - Mine Site Technologies

General information:

The PED system is a one-way "Personal Emergency Device", a communication system featuring a belt-wearable receiving unit for individual miners. Mine Site Technologies was issued MSHA Approval for the Model PED1 Paging Receiver/Cap Lamp, meaning that this system may be marketed for use and used in underground gassy atmospheres. The system generally consists of a transmitter capable of sending communications that can be received as a text message by miners through their PED. The PED system is currently used at about a dozen U.S. underground mines and has also been deployed at mines in other countries, particularly Australia.

- It utilizes either a surface or underground antenna loop which radiates a radio frequency signal enabling one way communication to the underground workings.
- System dims and flashes lamp for about 10 seconds then sends a text message to the wearer. Individual, group or broadcast messages can be sent.
- There is only one US mine currently using the surface antenna.
- The problem of using a surface antenna is a logistical one mainly with the terrain.
- The maximum amount of cover for a surface antenna to be effective is about 2500' - 3000'.
- There have been a couple of success stories with respect to use in US mines, Willow Creek being the primary one.
- The system is MSHA approved for use on Koehler, MSA and Northern Lights [Canadian Manufacturer] cap lamps.
- Battery life - normally 8-12 hours but if lamp is turned off this time could be extended to days.

Pros:

- System enables communication of text messages from a central control center on the surface to miners underground. It uses a through the earth transmission system. The transmitting antenna can be installed either underground or on the surface. If installed on the surface, the system does not depend on any underground wiring.
- The system is relatively easy to use. It can convey a text message of up to 32 characters.

- The PED receiver is attached to the miner's cap lamp battery. This ensures the receiver is always with the miner.
- System has the potential of providing messages to miners during the early stages of a mine fire including evaluation instructions.
- Can be retrofitted with existing cap lamp manufacturers lamps, Koehler, NLT and MSA.
- System can be deployed in an emergency by stringing antenna cable on the surface thus enabling one way communication from the surface in some cases. This deployment may take time, however.

Cons:

- Installations incorporating underground antenna loops may be compromised in the event of a fire or explosion preventing communications.
- Systems employing underground antenna loops are not intrinsically safe and power must be removed in the event of a fan outage or other incidents such as mine fires and explosions, thus disrupting communication capability.
- The PED System only provides one-way communication from a person sending a message to a person receiving a message. The person sending the message receives no confirmation that the message was received.

MSHA PED Evaluation Results:

The operation of the PED system at several U. S. underground coal mines was investigated by MSHA Technical Support engineers, with the participation and full cooperation of both the mine operators and miners using the system. The investigation included an evaluation of the PED in the only U.S. mine that deploys a surface mounted antenna, and in several mines in Australia. In a cooperative effort with Mine Site Technologies, MSHA and a state of West Virginia Board of Coal Mine Health and Safety representative visited four mines in Australia, including the only underground coal mine with a Tracker IV installation. The issues reported below regarding signal loss or "shadow" zones were investigated to accurately determine the nature of these anomalies.

- Antennas are installed to provide coverage in pre-determined areas. In one U.S. mine surveyed, the antennas provide coverage to virtually the complete mine. In three other mines, the coverage was limited to the active working area of the mine.
- All four mines visited reported experiencing "shadow zones" in the areas where the system is intended to provide coverage. "Shadow zones" are areas, within the antenna radius coverage, where a message sent may not

be received by a miner wearing the PED receiver. MSHA engineers verified this in one particular mine.

- The PED system was installed at the four mines surveyed in February 2006 to enable the mine to contact key personnel in the mine. Although mines did consider the system to be useful in the event of an emergency at the mine, the primary reason they reported that the system was installed was to contact personnel so that they could assist with a malfunction in the mine affecting production.
- The PED receiver is attached to the miner's cap lamp battery. This ensures the receiver is always with the miner. It increases the size and weight of the cap lamp battery. The increased size simply requires a larger cap lamp pouch and miners seem to get used to the increased weight (one pound).
- The PED System only provides one-way communication from a person sending a message at the PEDCall computer to a person receiving a message via a BeltPED. The person sending the message receives no confirmation that the message was received. If the receiving BeltPED does not receive the message at the time it is sent, the message is lost. For this reason, a typical message is for the person receiving a message to call the person sending the message. This is to ensure that the receiver received the message.
- All four mines visited used an underground antenna. This approach was taken because mine owners did not have the right of way on the surface and because they felt the antenna in the mine would be easier to maintain.
- The PED System was reported by mine personnel to interfere with other mine communication systems such as pager phones, trolley phones and mine phones. Each mine has developed methods to reduce this interference to a tolerable level.

The transmission of the message is not instantaneous and is dependent on the length of the message. The longer the message the longer it will take to transmit. A 32 character message may take almost 3 minutes for the receiver to receive the message.

MSHA Approved Communications & Tracking Technologies

Revised November 14, 2008 (New Items Highlighted in Yellow)

The following is a listing of the various MSHA approved communications and tracking products. Some products may belong in multiple categories in which case we placed them in what we considered to be the primary use category. Please direct any issues to our attention so that we can make necessary changes.

Communication System Peripherals

Manufacturer	Model Number	Product Type	Approval #
Kenwood USA Corporation	TK-290, TK-390	VHF or UHF Portable Radio	23-A060002-0
Venture Design Services, Inc.	Model TMLT Text Messaging Location Transponder	Tracking Tag and Text Messaging Device	23-A080002-0
Motorola	HT750	VHF or UHF Portable Radio	23-A080007-0
SubterraCom Wireless Solutions, LLC	Model 810T	Wireless Tracking and Communication Device	23-A080014-0
Hughes Supply Company	HSC RDR_02	Radio Repeater	23-A080019-0
Alion Science and Technology	ASM100001 Accolade	Mesh Radio Handset	23-A080020-0

Leaky Feeder Communication Systems

Manufacturer	Model Number	Approval #
Mine Radio Systems	Flexcom Communications Systems	9B-219
Varis Mine Tech.	Model IS Leaky Feeder Communication System	23-A050001
DAC	Type RFM 2000 Radio System	9B-201
EL-EQUIP, INC	Model VHF-1 Radio System	9B-196
Tunnel Radio of America	Model UltraComm Distributed Antenna Communication System	23-A070005-0
Becker Electronics (PTY) LTD	Becker Leaky Feeder System	23-A080003-0

Mine Page Phones

Manufacturer	Model Number	Approval #
Comtrol Corporation	"Loudmouth" Page Phones	9B-71
Gai-Tronics	Model 491-204 Mine Dial Page Phone	9B-221
Gai-Tronics	Part Nos. AM7011, AM7012, AM7021, AM7022 Loudspeaking Telephones	9B-155
Pyott Boone	Model Nos. 112 and 112P, 118 and 119 Page Phones	9B-102, 9B-163
Pyott-Boone	Model 128 Mini Page Boss	9B-158
Mine Safe Electronics	Model IIA Mine Phone	9B-164
Mine Safety Appliances (MSA)	Pager III	9B-85

Paging/Text Messaging Systems

Manufacturer	Model Number	Approval #
Mine Site Technologies	Model PED1	6D-46-0
Mine Site Technologies	ICCL Integrated Communications Cap Lamp with Optional PED	23-ISA080002-0
NL Technologies	Model GII Cap Lamp Messenger Circuit	23-ISA070004-0
Stolar Horizon, Inc.	RGU104-001 Remote Graphical User Interface	23-A070002-0

Radio Frequency Identification (RFID) Tracking Components / Systems

Manufacturer	Model Number	Product Type	Approval #
Mine Site Technologies	Model TAG IV Transmitter	Tracking Tag	2G-4162-0
Marco	Model PRIM Model PTT-1	Tracking Tag	23-A060001-0
Matrix Design Group, LLC	Model MatrixTracker T1000 RFID Tag	Tracking Tag	23-A060003-0
NL Technologies	Model Standalone WiFi RFID Tag	Tracking Tag	23-A070001-0
NL Technologies	Cap Lamp with RFID Tag	Tracking Tag	23-ISA070001-0
Venture Design Services	MLT Mobile Location Transponder Tag	Tracking Tag	23-A070003-0
Wholesale Mine Supply	Model i-Q8X rfid Tag	Tracking Tag	23-A070004-0
Koehler-Bright Star	Model TAG5 Tracker Tag Module	Tracking Tag	23-ISA070002-0
Koehler-Bright Star	Model MultiTAG TP1 Transmitter TAG PCB Assembly	Tracking Tag	23-ISA070003-0
Mine Radio Systems	Model TP2/ISPT	Tracking Tag	23-A070006-0
American Mine Research, Inc.	Model Mine Net Tag	Tracking Tag	23-A070007-0
Pyott-Boone	Model 1980 Tracking Tag	Tracking Tag	23-A080004-0
Tunnel Radio of America	Model MineAx T1 RFID Tracking Tag	Tracking Tag	23-A080005-0
Extronics Ltd.	Model iTAG100/BWH3000 Tag	Tracking Tag	23-A080006-0

Radio Frequency Identification (RFID) Tracking Components / Systems (Continued)

Manufacturer	Model Number	Product Type	Approval #
Wavetrend Technologies, Inc.	TG100, TG501, TG800 and TG800-IH	Tracking Tag	23-A080018-0
Conspec Controls	911152 Personnel Tracking Transmitter	Tracking Tag	23-A080011-0
Mine Site Technologies	T3i-SC RFID	Tracking Tag	23-A080012-0
Matrix Design Group, LLC	MDG METS 2.1 Miner Tracking System	RFID Tracking System	23-A080013-0
Active Control Technology, Inc.	ActiveMine Ekahau T301	Tracking Tag	23-A080017-0

Wired Intercom Systems

Manufacturer	Model Number	Approval #
Con-Space Communications	Model CSI-2000 Confined Space Intercom System	9B-199-0

Wireless Mesh Communications and/or Tracking Systems

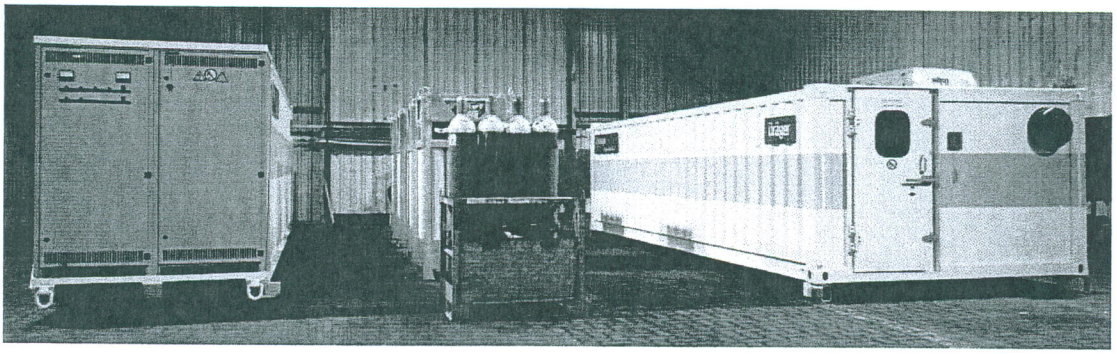
Manufacturer	Model Number	Product Type	Approval #
Venture Design Services, Inc.	MineTracer Miner Location Monitoring System	IEEE 802.15.4 Text Messaging and Tracking System	23-A080001-0
Innovative Wireless Technologies	Fixed Mesh Node, with Antenna & Battery	Fixed Mesh Node	23-ISA080005-0
L-3 Communications	ACCOLADE	Wireless Mesh Communication System	23-A080015-0

Fixed WiFi 802.11 Networks

Manufacturer	Model Number	Product Type	Approval #
NL Technologies	Digital Communications System	IEEE 802.11 mesh network over fiber System	23-A080010-0

REFUGE SHELTER SPECIFICATIONS

Dräger safety



SPECIFICATIONS

Refuge Shelter

model

DSSI RS24-15

Accommodates 15 people, with independent life support up to 24 hours

Draeger Safety, Inc., BreathingGas Systems
101 Technology Drive • Pittsburgh, PA 15275
☎ (412) 787-8383 • Telefax (412) 787-2207

Intended use

The **Dräger Refuge Shelter or Escape Chamber is** specially designed for use in mining and tunneling operations to provide shelter for persons working underground in the event of a situation yielding a non-breathable atmosphere (IDHL atmosphere). This situation may develop for example in case of an explosion, fire, cave-in or other accident.

The escape chamber is designed to be easily transported and therefore always made available at the place of work. In an emergency the underground workers may isolate themselves from the IDLH atmosphere if the escape route is too long or blocked off and wait for rescue. The shelter is designed to be used in underground mines but NOT in a blasting environment which exposes the shelter to repeated air pressure shock waves. These systems are available upon request from **Dräger.**

The protection principle

The air inside the chamber is cooled, and exchanged through air-conditioning and atmosphere purging. A carbon dioxide scrubbing system is used to remove CO2 from the chamber atmosphere. A separate pure oxygen supply, supplements the oxygen consumed by the occupants. Over the whole period of use the chamber is pressurized with a slight positive pressure thus preventing contaminated air from entering. Further, the shelter is equipped with a man lock to minimize the ingress of smoke and toxic gases when persons enter and exit the shelter. This lock is kept smoke free by leading flushing air from the main chamber by a special arrangement of exhaust valves.

Cooling is an essential part of the life support system, especially over a longer period of time. Therefore, the air conditioner is equipped with a protective condenser filter to prevent blockage due to the dusty atmosphere outside the shelter. Provision is made for the occupants to clean this filter from inside the shelter.

The carbon dioxide scrubber is designed with two blower motors, so that in the event of failure of one motor, the other will still maintain the circulation through the scrubber material. An air distribution pipe work ensures efficient CO_2 removal. The soda lime is pre-packed into cartridges which have the advantage of being more homogeneously distributed minimizing dusting and channeling effects. Locating the scrubber and spare soda lime cartridges under the benches provide for a space saving solution.

The standard shelter is powered, using an externally supplied 120V AC source. In case of a loss of power the air-conditioning and CO_2 scrubber system is operated with battery power.

The shelter is designed to accommodate 15 people, and to provide these people with life support to last up to 24 hours independent of external electrical or air supply. Of course, if external services are available, the life support period is extended beyond this 24 hour period,

The standard shelter with a completely configured life support system will consist of the following,

Draeger Safety, Inc., BreathingGas Systems
101 Technology Drive • Pittsburgh, PA 15275
☎ (412) 787-8383 • Telefax (412) 787-2207

- **Steel framed structure with man lock**
  - Gas tight doors
  - Escape hatch
  - Exhaust valves
  - Storage shelves
  - Air Conditioning system
  - Over pressure gauge
  - Gas Analyzer for O_2 and CO_2
- **Electrical System**
  - Battery backup system
  - Battery charging and control panel
  - Fluorescent lighting and wall outlets
  - Warning light and alarm
  - External power switch panel
- **Breathing Air Supply System**
  - Air storage bank & control panel
  - Oxygen supply cylinders with dosage control
- **CO_2 Scrubber System**
  - CO2 Scrubber unit
  - CO2 Scrubber cartridges
- **Room Equipment**
  - First Aid kit
  - Chemical toilet

In certain instances, a basic shelter may be installed with an air supply provided through an external air line. It will be designed with provisions for retrofitting life supporting components for stand alone operation at a later date. The BASIC shelter will consist of the following,

- **Steel framed structure with man lock**
  - Gas tight doors
  - Escape hatch
  - Exhaust valves
  - Storage shelves
  - Over pressure gauge
  - Gas Analyzer for O_2 and CO_2
- **Lighting**
  - Flashlights
  - Warning light and alarm (Dry cell battery powered)
  -
- **Breathing Air Supply System**
  - Air control panel
  - Oxygen supply cylinders with dosage control
  - External air supply filter panel
- **Room Equipment**
  - First Aid kit
  - Stretcher
  - Chemical toilet

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Technical Data

Escape chamber layout	Maximum occupancy	**15 persons**
	Usage period	**24 hours**
	ambient temperature in case of fire	max. 50 °C
Container	outer dimensions without equipment fitted on the outside	8m L x 2.4m W x 2.5m H (26.2'L x 8.0'W x 8.2'H)
	weight	approx. 4,150 kg (9,100lbs)
	max. allowed pressure load	1000 Pa (10 mbar)
Air supply for positive pressure operation	Air supply bank	High pressure compressed air cylinders supply pressure: 300 bar (4,300 psi)
	Testing unit	HP Air Cylinder (for testing purposes)
	dosage rate	120 L/min when adjusted in the green range
	positive pressure inside chamber	at least 100 Pa
Oxygen supply	O_2 - supply	High pressure oxygen cylinders,
	supply pressure/ operating pressure	200 bar / 5.5 bar
	O_2 dosage rate	8 L/min
	O_2 -monitoring via Dräger gas detection instrument	Alarm levels: min. 19 Vol. % max. 22 Vol. %
CO_2 absorption	CO_2 absorber	Forced ventilation array with twin blowers
	CO_2 absorber cartridge-	DraegerSorb S
	CO_2 - concentration	< 1 Vol. %
	CO_2 - monitoring via Dräger gas detection instrument	1. alarm level 0,5 Vol. % 2. alarm level 1,0 Vol. %
Cooling	Air Conditioner	Split type room air conditioner modified
	Heat removal	100 W per person
	Condenser protection	Dust filtration
Electrical System	External control panel	External power connection, switches and breakers
	Battery control panel	Battery switching circuit, charger and inverter
	Battery Array	VRLA batteries 24V for 24hr capacity at full load for air conditioner and CO2 absorber

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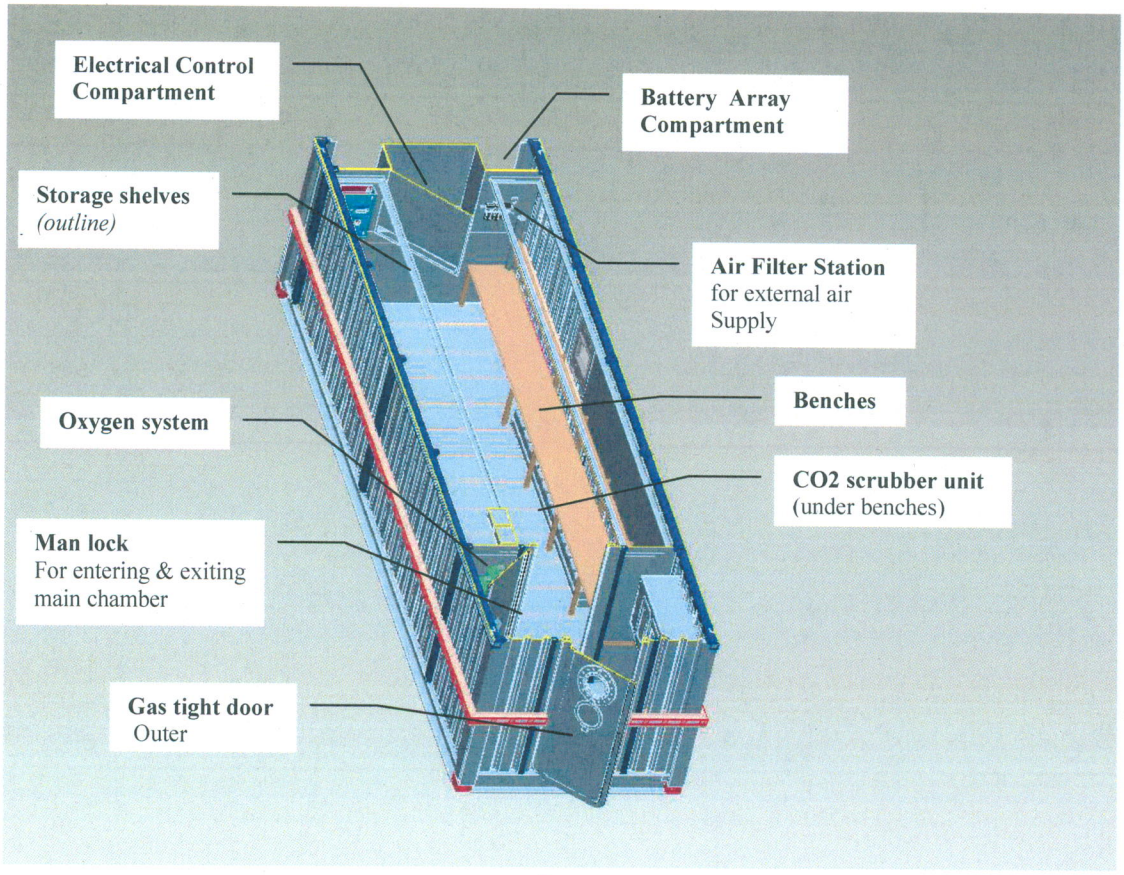
	Lighting/other	Room fluorescent lighting, Emergency lighting, wall outlets, External warning light, alarm



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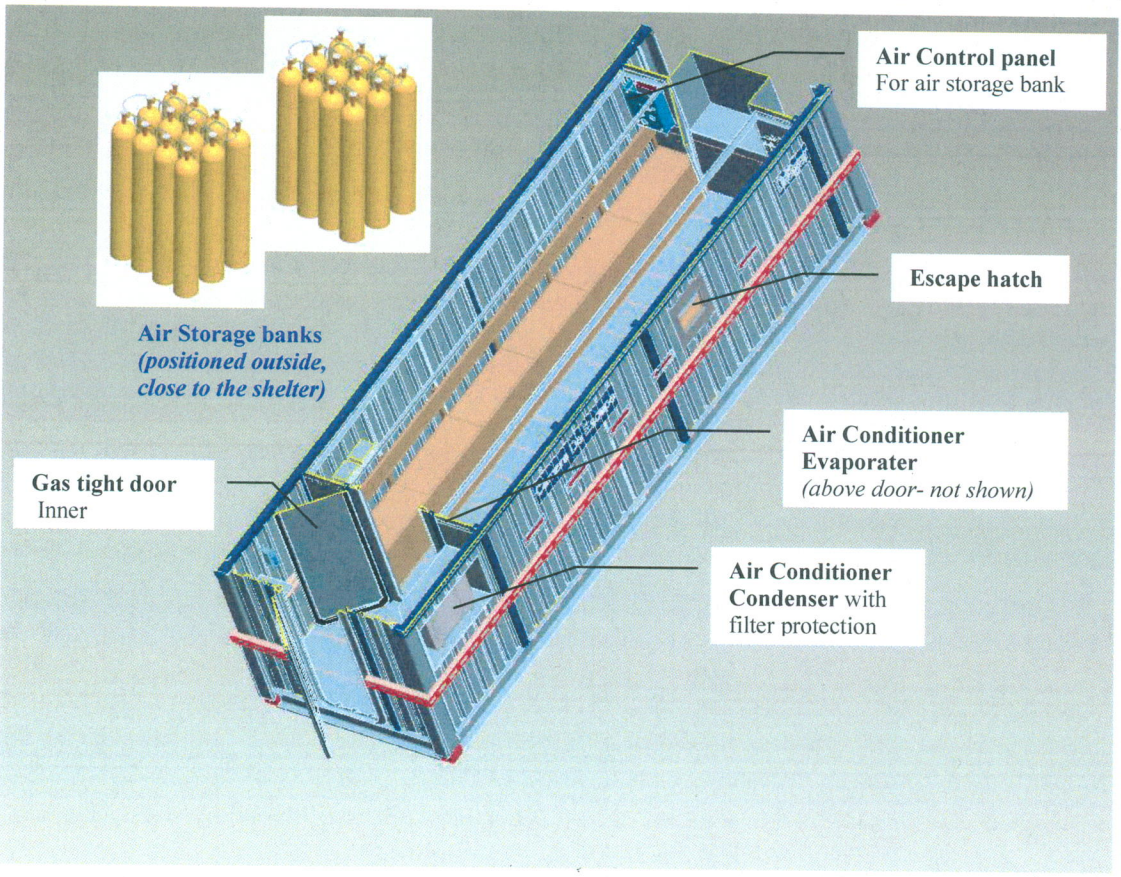

General layout of a typical shelter. The actual appearance may change due to final design parameters

Note: Shelters can be customized to any specification, provided that these customizations do not interfere with the basic life support function of the shelter.

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