

# TAME THE FLAME:

FLAME CUTTING AND WELDING SAFETY  
FOR UNDERGROUND COAL MINERS

## 2008 Safety Tip Calendar



Look for the full **TAME THE FLAME**  
safety awareness toolkit  
coming from NIOSH in 2008!



To receive NIOSH documents or  
for more information about occupational  
safety and health topics, contact:  
1-800-CDC-INFO (1-800-232-4636)  
1-888-232-6348 (TTY)  
e-mail: [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov)  
or visit the NIOSH Web site at  
<http://www.cdc.gov/niosh>

**SAFER • HEALTHIER • PEOPLE.**  
DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers For Disease Control and Prevention  
National Institute for Occupational Safety and Health  
DHHS (NIOSH) Publication NO: 2008-108  
January 2008

TAME THE FLAME

FLAME CUTTING AND WELDING SAFETY  
FOR UNDERGROUND COAL MINERS

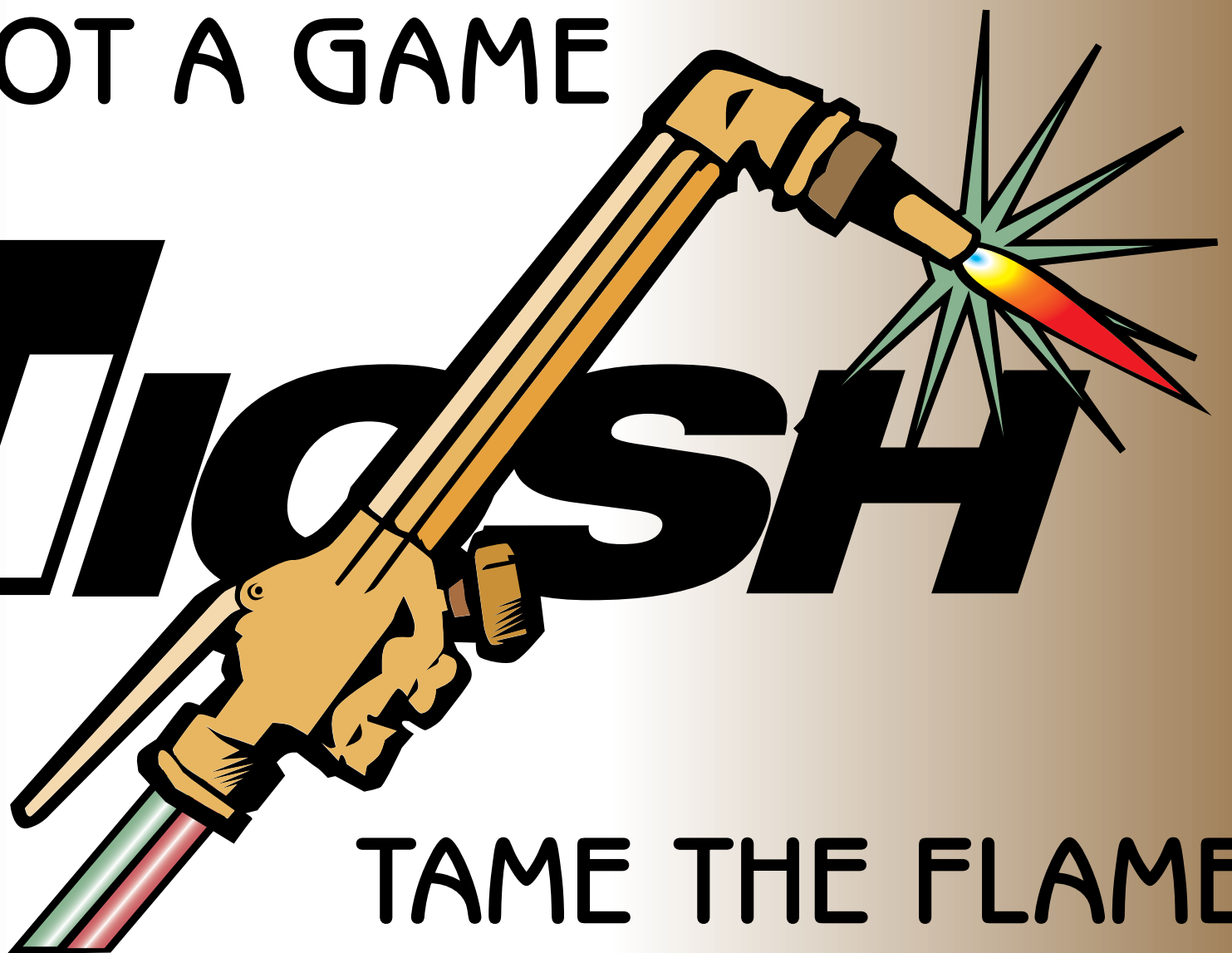


Jesse Joseph, Elkhorn 3 Mine



IT'S NOT A GAME

**NIOSH**



TAME THE FLAME

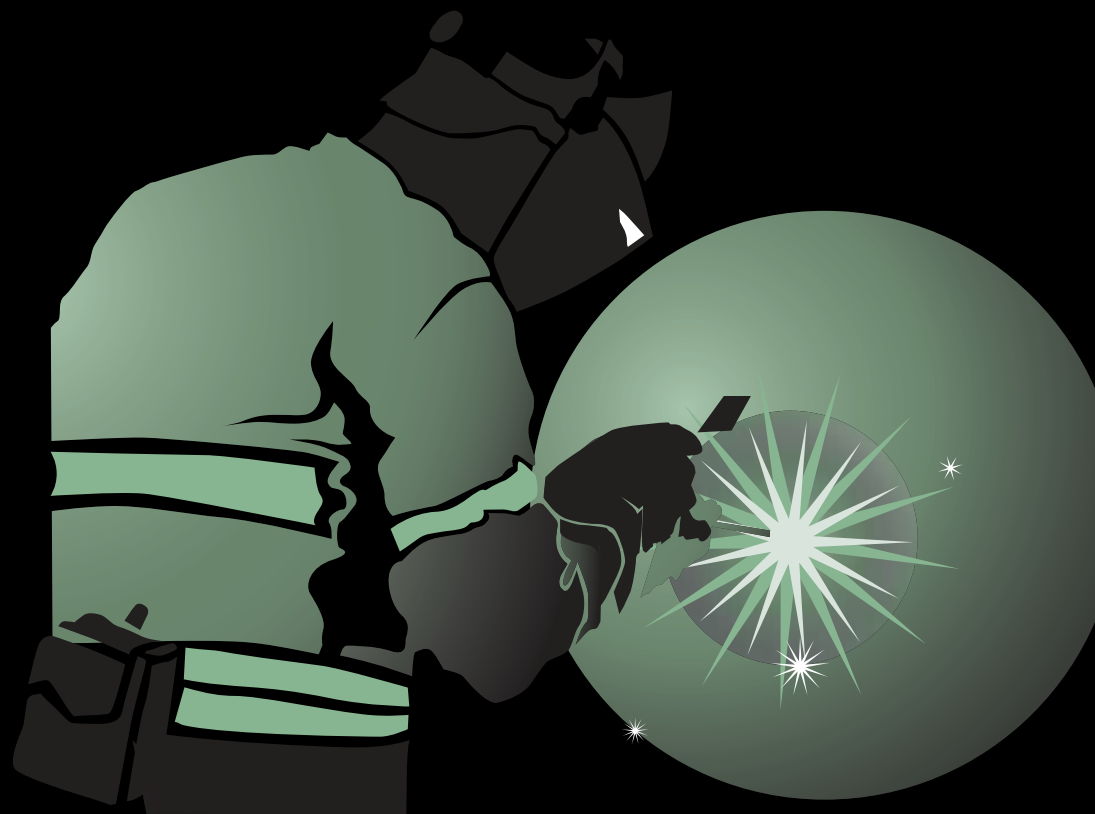
# TAME THE FLAME:

## FLAME CUTTING AND WELDING SAFETY FOR UNDERGROUND COAL MINERS

Flame Cutting and Welding in underground coal mines is a very exacting procedure requiring skilled execution and strict adherence to federal regulations, company policies, and agreed upon best practices. Among the many hazards dealt with every day by welders underground are coal dust, methane and other gases and fumes, and compressed oxygen and acetylene. This calendar is one component of a flame cutting and welding training toolbox designed by the National Institute for Occupational Safety and Health with input from underground miners in six different states.

This toolbox and its components are the culmination of a five year research project conducted by the Pittsburgh Research Laboratory and Spokane Research Laboratory. The project was started in response to Mine Safety and Health Administrations data and the tragic events of the Darby Mine disaster in 2006. It is hoped that this safety awareness toolbox, along with site specific training, will help to curtail the occurrence of fatalities and injuries associated with flame cutting and welding in underground coal mines.

- "Tame The Flame"  
Safety Awareness Video  
(DVD & VHS)
- "7 Cool Tips for Hot Work"  
Poster
- Flame Cutting and  
Welding Toolbox  
Training Modules
- A Trainer's Curriculum
- Flame Cutting and  
Welding PowerPoint  
Slides
- Hard Hat Stickers



## January 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Cutting and Welding Safety Tip: <b>Policy vs Regulation</b> Every mine must follow federal regulations regarding flame cutting and welding. These regulations are the minimum standards set by MSHA.		1  <i>New Year's Day</i>	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21  <i>Martin Luther King Day</i>	22	23	24	25	26
27	28	29	30	31	Many company policies are more strict than the MSHA standards. Make sure you ask your supervisor about your own site's specific policies.	





**Ricky Thomas, Elkhorn 3 Mine**



## February 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1	2
<p><b>Cutting and Welding Safety Tip: Rock Dust</b>                      Every time you get ready to cut or weld you need to prepare your site. An important component of that preparation is rock dust. Make sure it covers every possible source for coal dust ignition including the ribs, the roof, and the machinery. Then make sure there is enough on hand to smother hot spots if necessary. You should have 240 pounds of rock dust on hand each time you cut and weld.</p>						
3	4	5	6	7	8	9
10	11	12	13	14 Valentine's Day	15	16
17	18 Washington's Birthday	19	20	21	22	23
24	25	26	27	28	29	



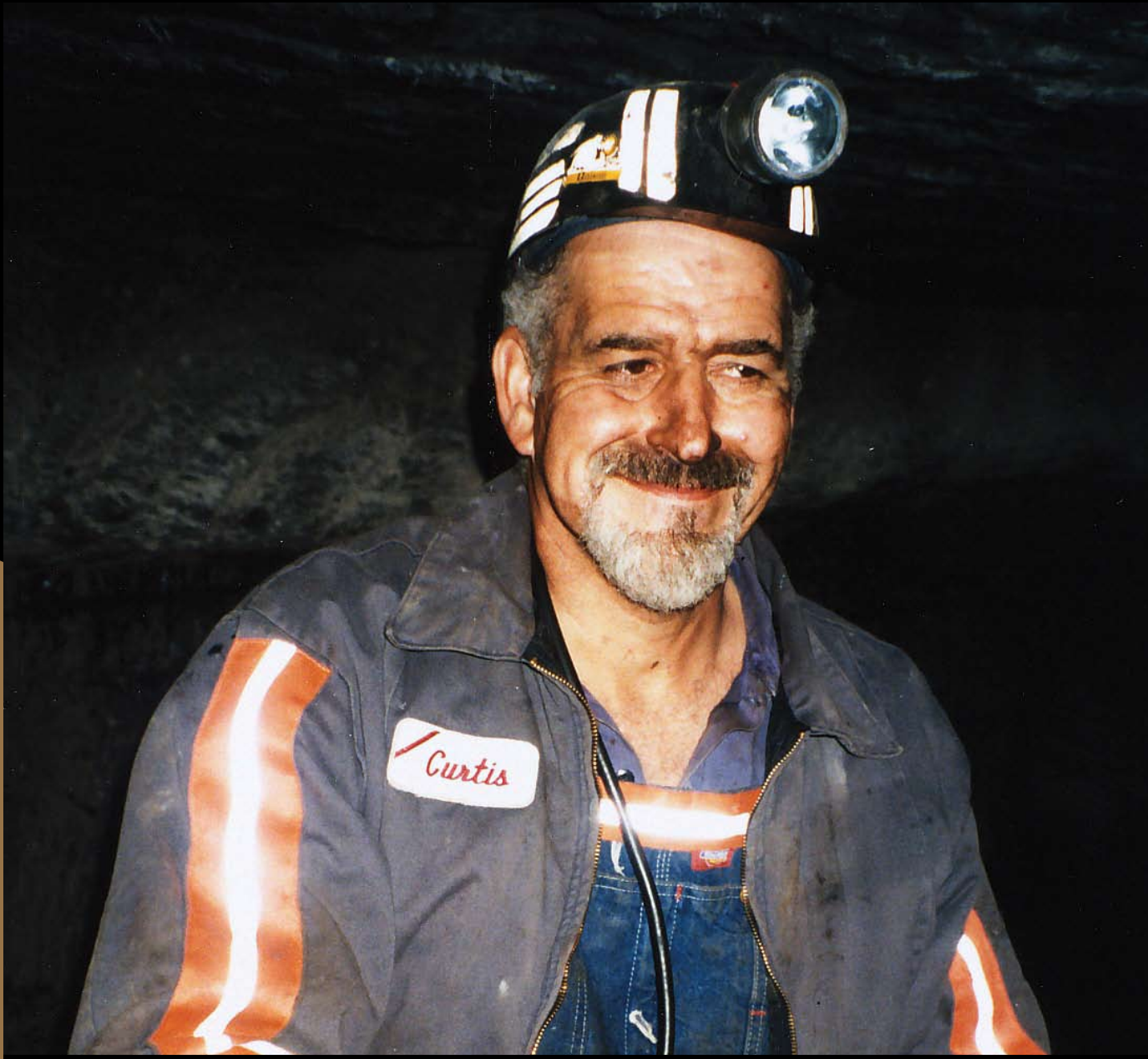
*Steve Adams, Jim Bridger Mine*



## March 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<p><b>Cutting and Welding Safety Tip: Coal Dust &amp; Float Dust</b>                      Coal dust is not only bad for your lungs, but it is also a major contributor to explosion propagation in coal mines. When coal dust is allowed to accumulate, it can cause a methane flash to become a mine-destroying explosion. Float dust is ultrafine coal dust that can stay suspended in air and float on water. It can also propagate methane gas explosions. The two best tools that miners have to combat these hazards are rock dust and water. Used alone or in combination, they can keep dust out of the air and off the equipment making everyone's job safer.</p>						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23/30	24/31	25	26	27	28	29





**Curtis "Junior" Looney, Woodman III Mine**



## April 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	<b>Cutting and Welding Safety Tip: Gases Part 1</b> The most dangerous gas in all coal mines is methane (CH <sub>4</sub> ). This gas is colorless, odorless, and lighter than air. Check for it in high spots on the roof and under equipment or pan lines where it can get trapped as it escapes from the floor.		



**Ken Wilson, Jim Bridger Mine**



## May 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<b>Cutting and Welding Tip: Gases Part 2</b> In addition to methane, coal mines typically have three other hazardous gases: hydrogen sulfide (H <sub>2</sub> S), carbon monoxide (CO), and carbon dioxide (CO <sub>2</sub> ), each with its own unique properties. All of them can be monitored with a multi-gas detector. Ask your mine's certified person to check for these gases before you cut or weld.				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	29	20	21	22	23	24
25	26 Memorial Day	27	28	29	30	31





**T.J. Johnson, Jim Bridger Mine**



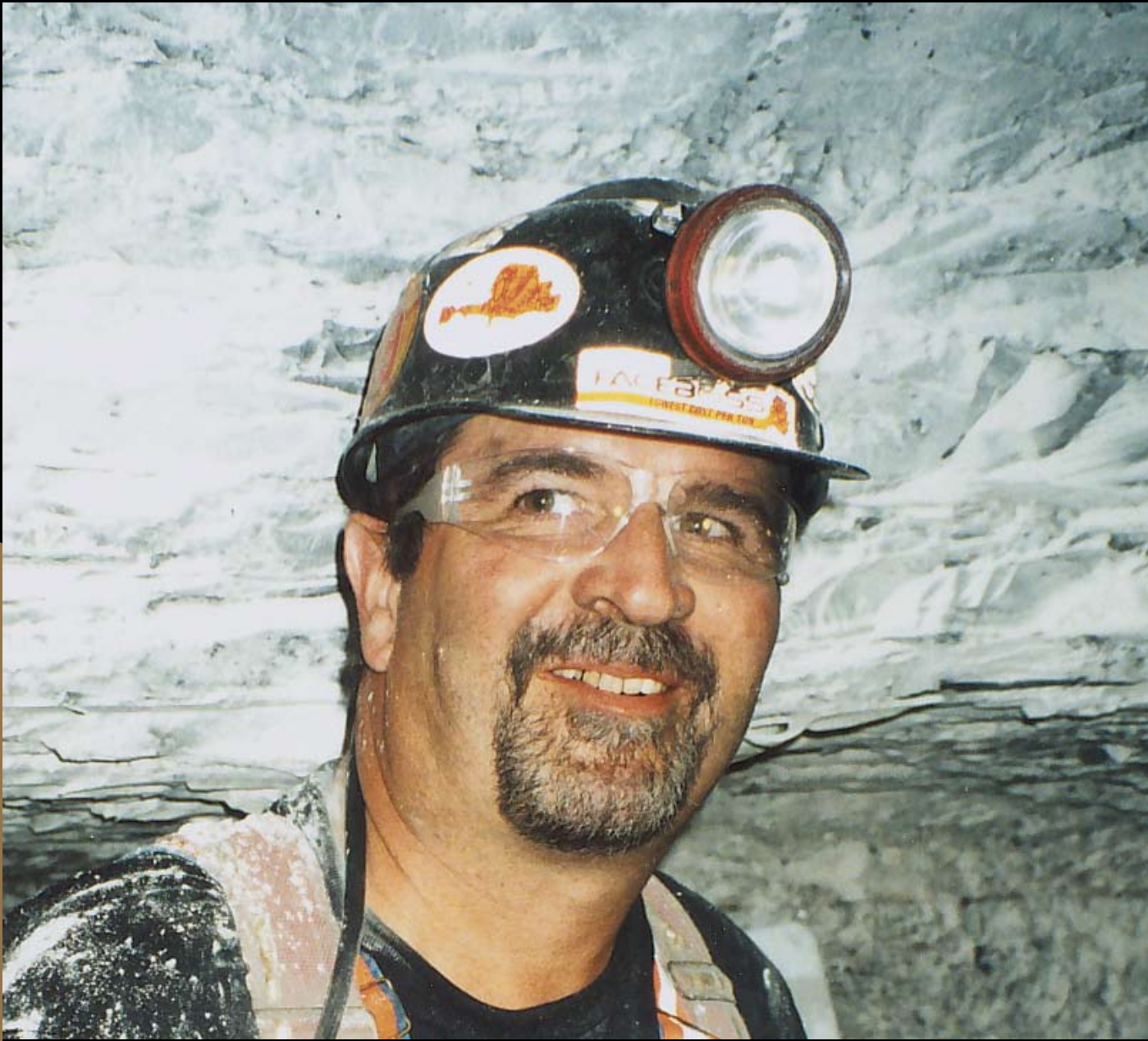
## June 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	<p><b>Cutting and Welding Safety Tip: Cold Weather</b>                      Just because it stays the same temperature year round in a coal mine doesn't mean you can ignore the weather. During the cold parts of the year, cold ventilation air can dry out the roof and ribs making them susceptible to slabbing. Make sure to pay close attention to the roof rock in your entries and bar down any loose material that might fall or come loose because of the added heat from your cutting and welding operation.</p>				



# TAME THE FLAME

FLAME CUTTING AND WELDING SAFETY  
FOR UNDERGROUND COAL MINERS



Dave Goff, Big Run Mine

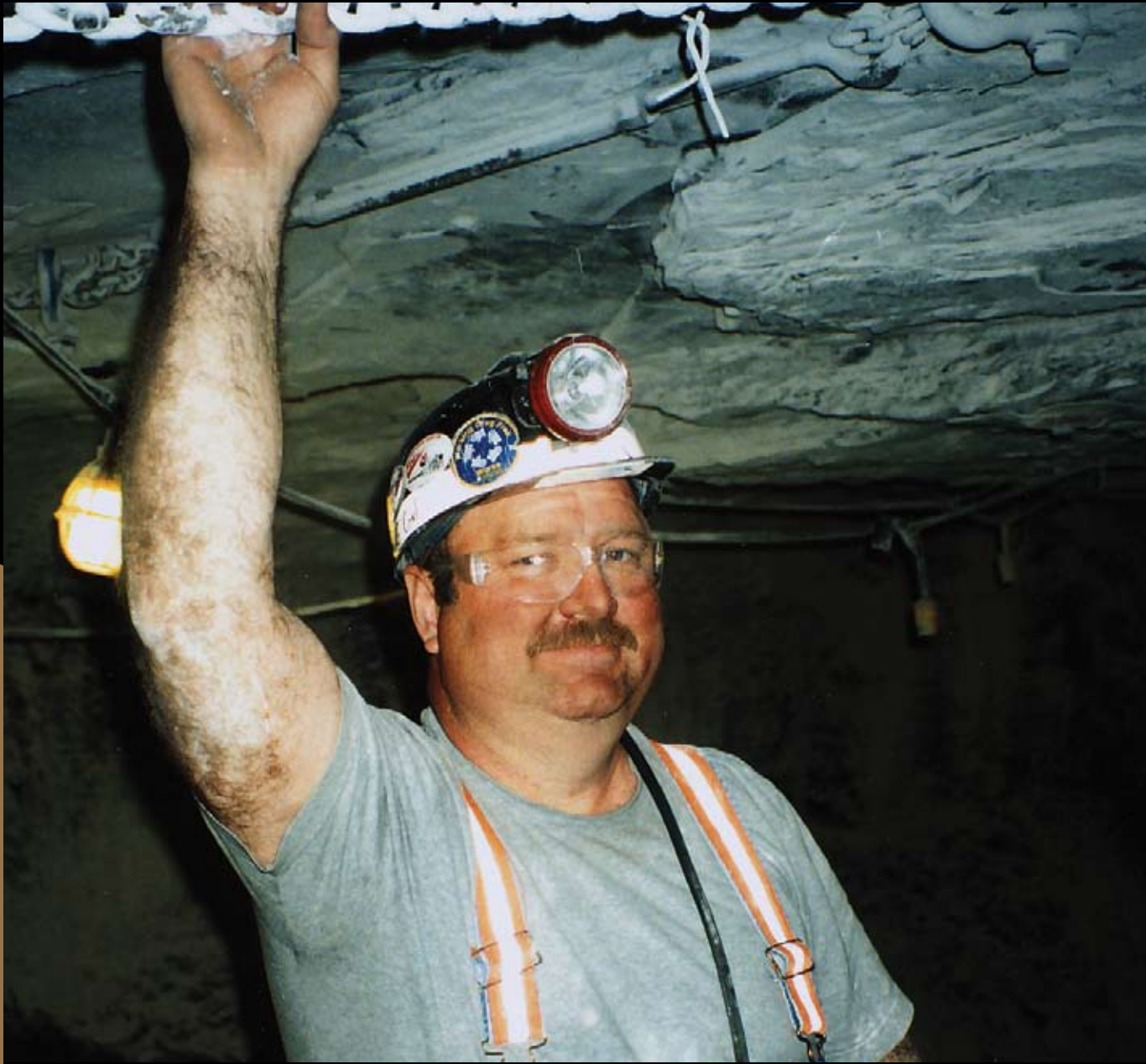


## July 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<b>Cutting and Welding Safety Tip: Tanks</b> Make sure tanks are stored and used while upright and secured with a chain. Even in low coal, a slight angle to the tank must be maintained to keep the gas at the top.		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	<b>Cutting and Welding Safety Tip: Regulators</b> When attaching hoses to your regulators, use the correct tool for the job. Pipe wrenches can damage hose connectors.	

# TAME THE FLAME

FLAME CUTTING AND WELDING SAFETY  
FOR UNDERGROUND COAL MINERS



Keith Casbier, Big Run Mine



## August 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<b>Cutting and Welding Safety Tip: Hoses and Tips</b> After you finish your hot work, it's a good idea to seal the ends of the hoses with electrician's tape to keep dust and debris from getting into your hoses. In the same way and when it is not in use, you can cover the tip of the cutting torch with tape to keep it debris-free.					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24/31	25	26	27	28	29	30





Terry Ellison, Jim Bridger Mine



## September 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1  <i>Labor Day</i>	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	<b>Cutting and Welding Safety Tip: Person Protective Equipment (PPE)</b> A whopping 41% of flame cutting and welding accidents involve the head, eyes, and ears. Make sure to wear protective goggles, ear muffs, and face shields to protect yourself from slag and sparks. If you have long hair make sure to secure it behind you to keep it from catching fire as well.			





**Bert Peacock, Jim Bridger Mine**



## October 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<b>Cutting and Welding Safety Tip: Stormy Weather</b> As a storm approaches and the barometer drops, pay close attention to methane levels around stoppings and seals. The daily variance in barometric pressure allows gases from sealed areas to move into active entries, almost as if the mine was breathing.			1	2	3	4
5	6	7	8	9	10	11
12	13 <i>Columbus Day</i>	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31 <i>Halloween</i>	





**Steve Marshall, Nolo Mine**



## November 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<p><b>Cutting and Welding Safety Tip: Checking for Methane</b>                      We no longer use canaries to check for mine gases, but methane checks should still be a critical part of any flame cutting and welding work you do. Methane levels can fluctuate rapidly depending on the volume of the methane source, the ventilation of the area, or the size of the opening. Continuous monitoring (meaning at least once every 15-20 minutes) is the best way to keep yourself safe.</p>						1
2	3	4	5	6	7	8
9	10	11 Veterans Day	12	13	14	15
16	17	18	19	20	21	22
23/30	24	25	26	27 Thanksgiving Day	28	29

# TAME THE FLAME

FLAME CUTTING AND WELDING SAFETY  
FOR UNDERGROUND COAL MINERS



**Bruce Maggard, Elkhorn 3 Mine**



## December 2008

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
				Christmas Day		
28	29	30	31	<b>Cutting and Welding Safety Tip: Checking for Fire</b> After you have completed your hot work, it is critical that you check for hot spots and fire. Douse your area with water and rock dust to extinguish any hot spots, then come back in 30 minutes to check again with water. If your shift is ending, make sure to tell the next crew.		