

Advances in Mine Safety and Health An Industry Perspective

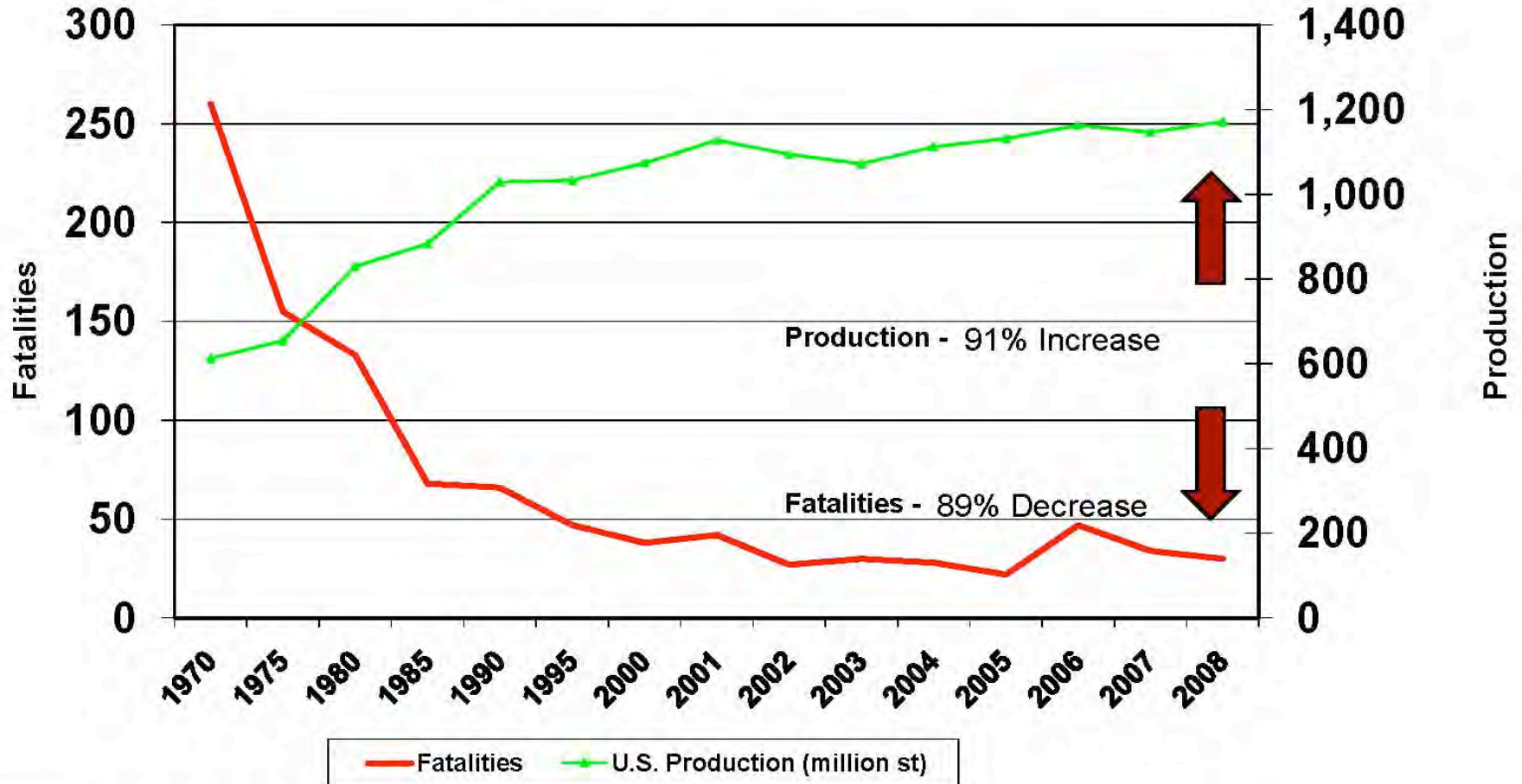
Special Institute on Mine Safety and Health Law
Energy & Mineral Law Foundation
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Advances in Mine Safety and Health

- Accident and Injury Trends
- Recent Mine Safety & Health Improvements
- 2010 and Beyond
- Goal to Zero Fatalities
- Zero Fatalities is a Reality.....

U.S. Coal Mine Safety and Production Trends

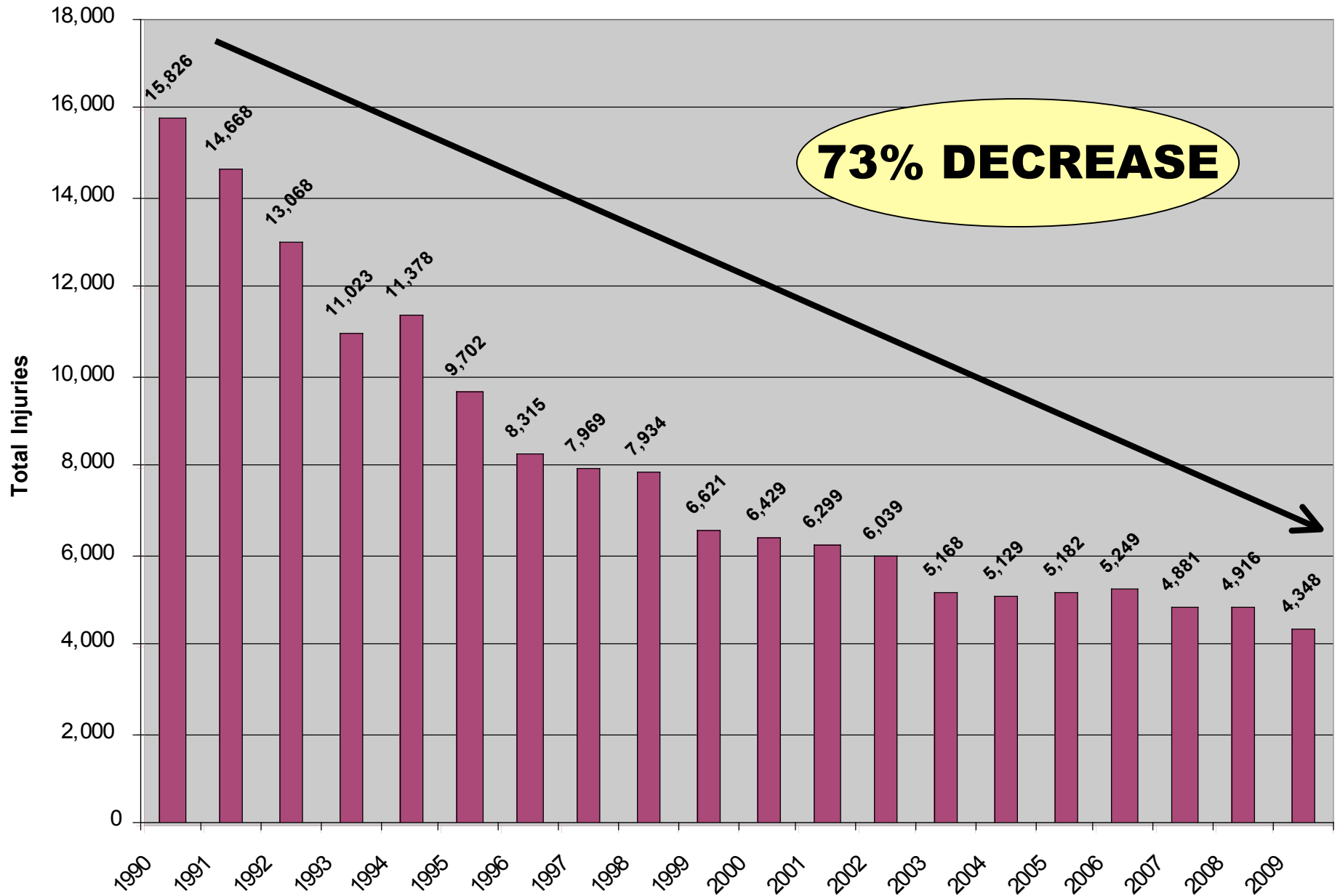


^{1/} 2008 fatality data are as of July 2009

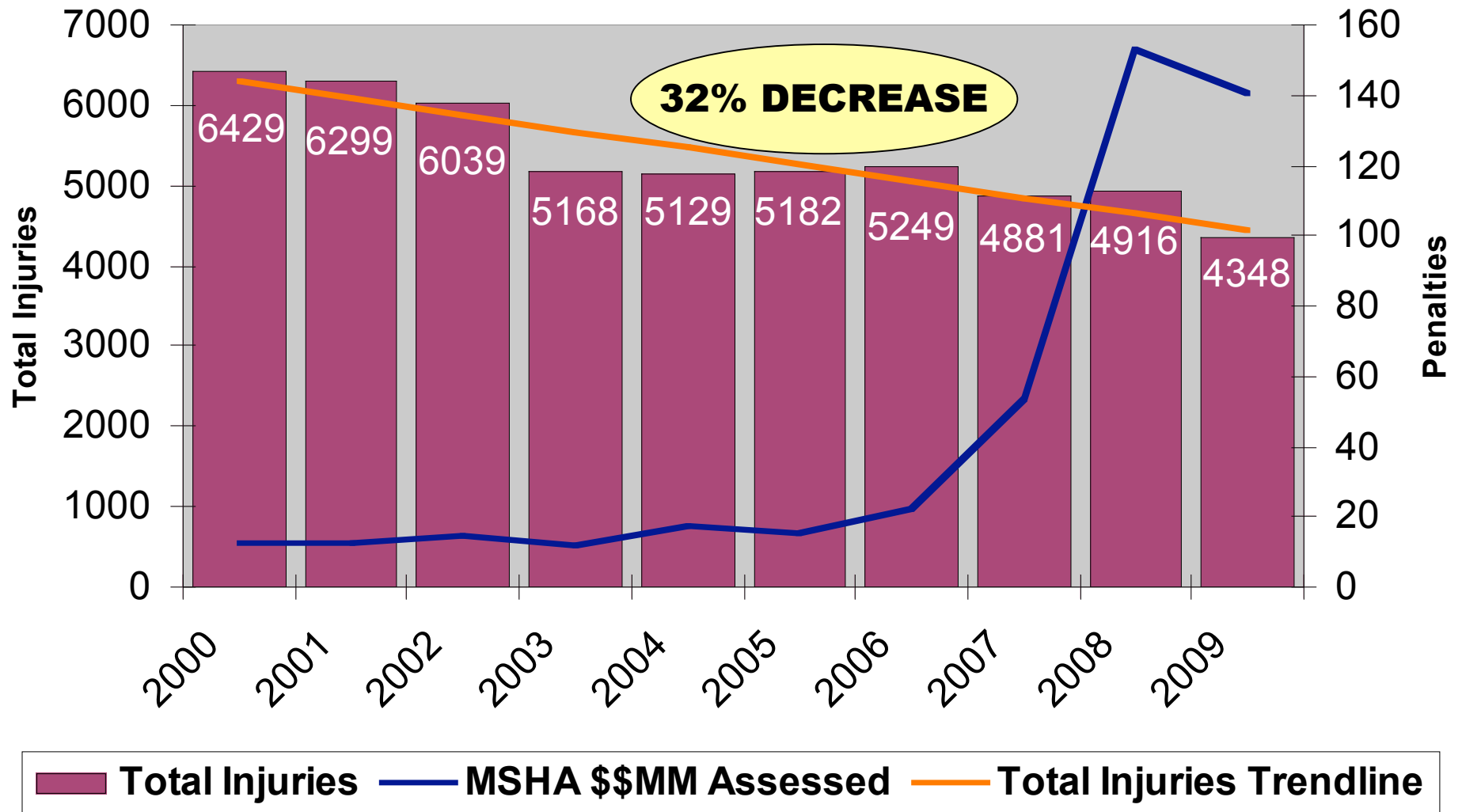
Source: Mine Safety & Health Administration (MSHA)



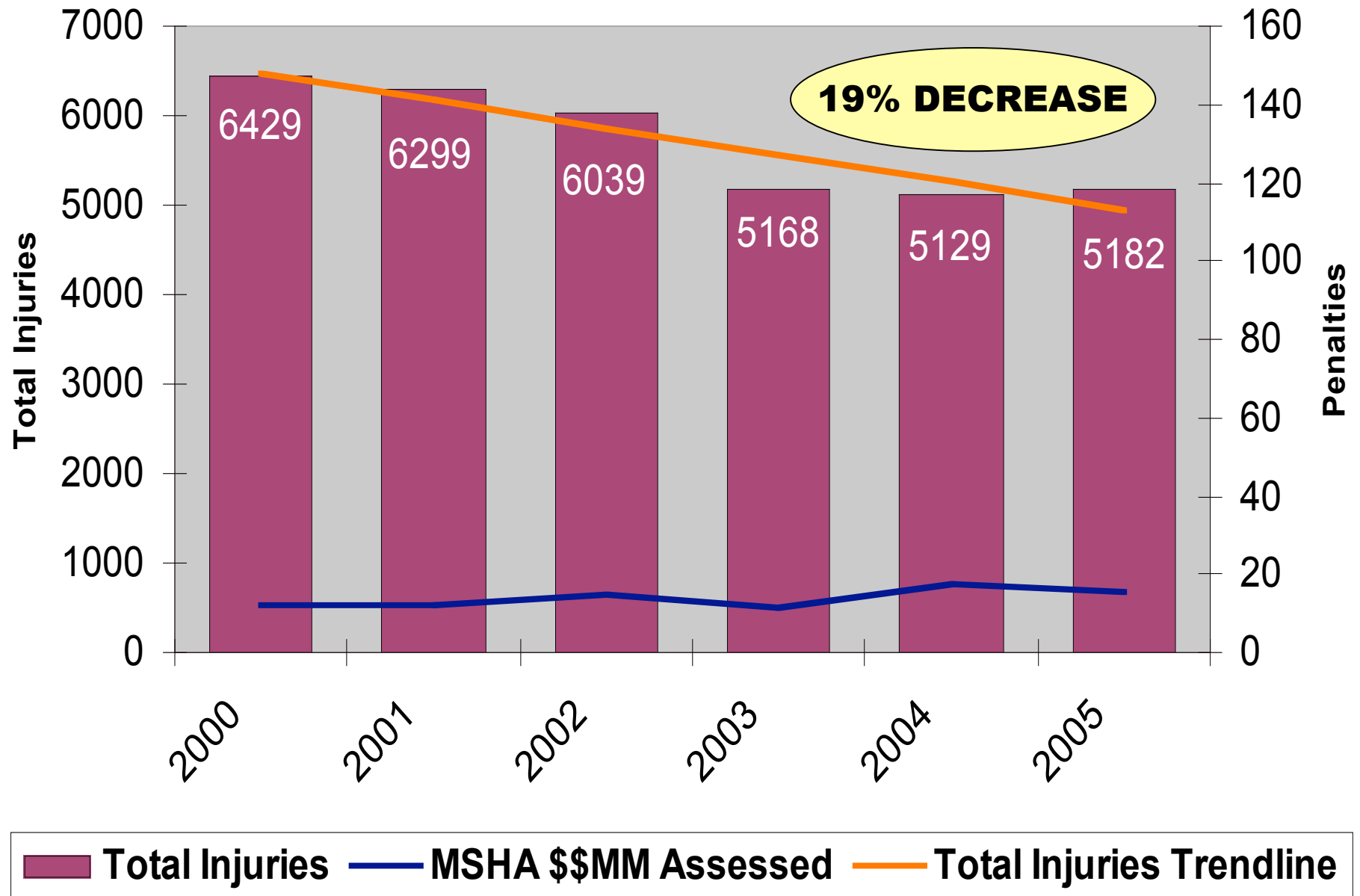
Reduction of Total Injuries 1990 - 2009



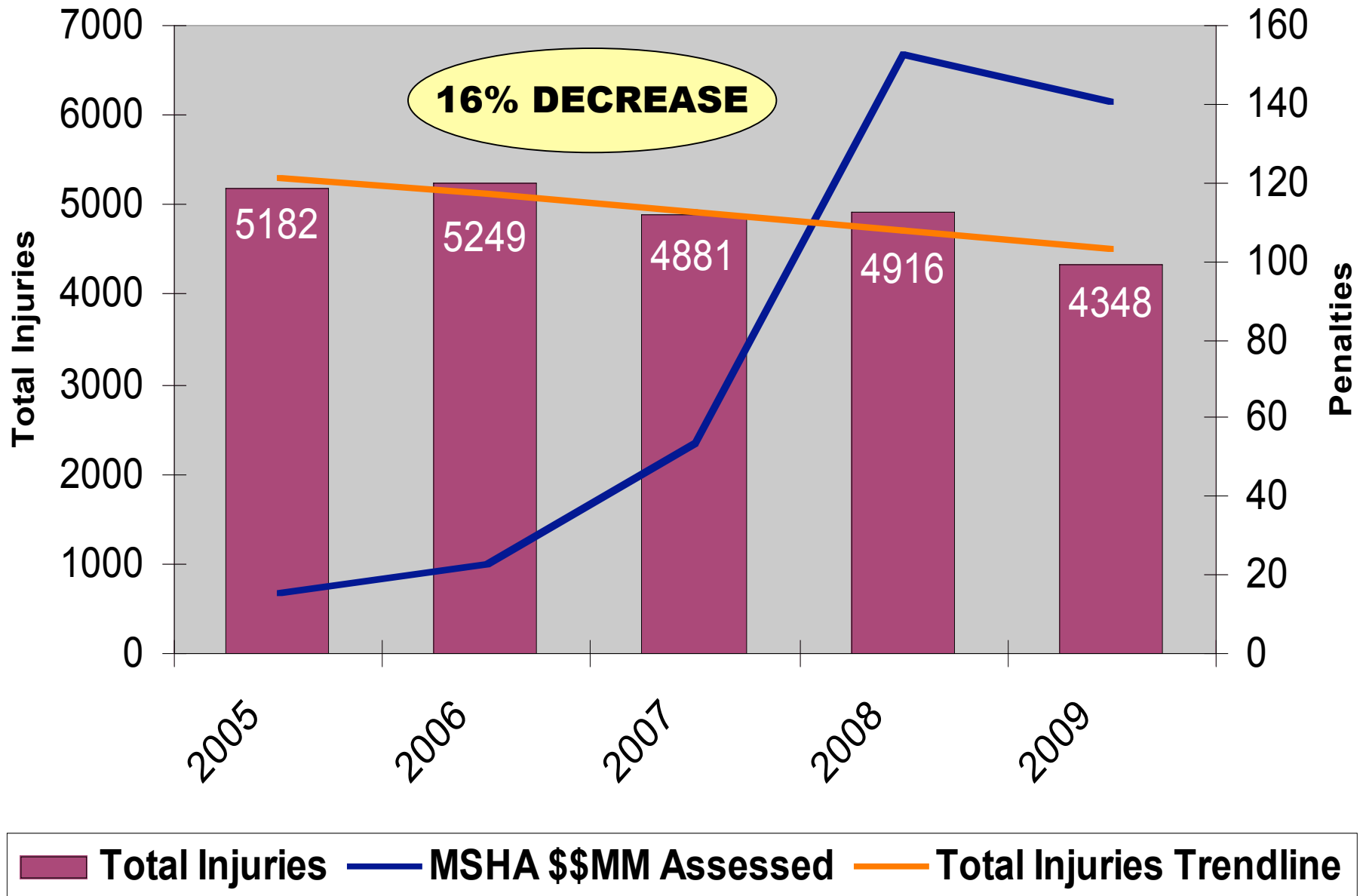
Total Injuries vs Penalties 2000 - 2009



Total Injuries vs Penalties 2000 - 2005



Total Injuries vs Penalties 2005 - 2009



Mine Safety & Health Improvements Since 2006

- Self-Contained Self Rescuers (SCSRs)
 - More than 150,000 new Units placed into service
- SCSR Training
 - All miners receive quarterly training and,
 - All miners receive annual expectation training
- Emergency Evacuation Training
 - All miners receive quarterly training
- Emergency Response Plans (ERPs)
 - ERPs have been submitted to MSHA and approved

Mine Safety & Health Improvements Since 2006

- Evacuation Aids
 - Lifelines in each escapeway
 - SCSR caches at fixed distances
 - Emergency tethers provided to link miners together
- Locating Trapped Miners
 - Electronic systems provide pre-accident and post-accident tracking
- Post Accident Communications
 - Communications systems installed in separate entries
 - ERPs describe systems

Mine Safety & Health Improvements Since 2006

- Sealing of Abandoned Areas
 - Operators required to install stronger permanent seals
 - All existing seals have been evaluated
 - Seal defects have been corrected
 - More aggressive examinations of seals
- Refuge Alternatives
 - Refuge Alternates have been provided underground
 - Safe Havens with fresh-air boreholes to the surface have also been installed in some cases
- Mine Rescue Teams
 - New mine rescue teams have been trained
 - More aggressive training requirements
 - Participation in mine rescue contests

A scenic landscape featuring a two-lane asphalt road with a dashed yellow center line, winding through a valley. The road is flanked by green fields and wooden fences. In the background, there are rolling hills and mountains under a cloudy, overcast sky. The overall tone is somewhat somber due to the grey clouds.

2010 and Beyond...

Health & Safety Are Core Values

- Expanded Safety Departments
 - Consultants
 - Former state and federal regulators
 - Promoting key managers
- Improved Safety Systems
 - Risk Assessment Techniques
 - Risk Management
 - Human Behavior
- Improved Equipment Design
 - Noise reduction features
 - Wet head miners and roof bolters to better control respirable dust

Health & Safety Are Core Values

- Technological Advances
 - Proximity Detection on continuous miners
 - Personnel Dust Monitors (PDMs)
 - Wireless CO monitoring systems
- Large Monetary Investment by Mining Industry
 - Over one billion \$\$\$ toward MINER Act compliance
 - Millions of \$\$\$ toward advancement of new technology
- Advanced and Continuous Training
 - Virtual reality training
 - On-line training courses
 - More creative training techniques in the class room

Goal to Zero Fatalities

- Collaborative Effort Between MSHA - Industry
 - Communication
 - Cooperation
 - Commitment
 - Trust
- Focus on 'Prevention'
 - MINER Act geared toward 'Reactionary' measures
 - Much time and energy spent on implementing and understanding MINER Act provisions
 - Compliance & Safety must be 'Intertwined'
 - Recognize that one serious accident is too many

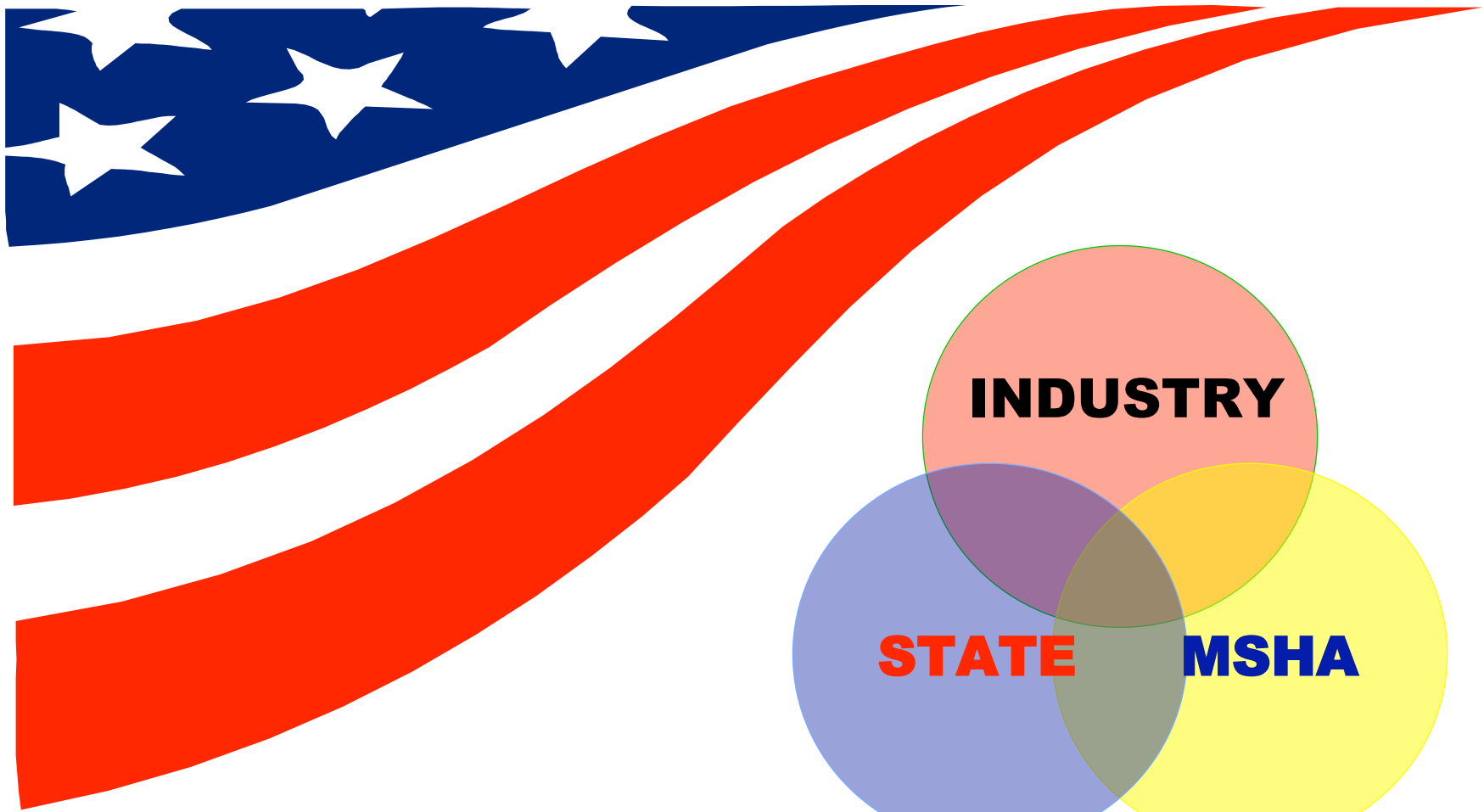
Goal to Zero Fatalities – A REALITY

- ❖ Coal mining industry went for an 8-month period in 2009 without a single underground fatality
- ❖ Of the 2450 active coal mining operations in the US:
 - ✓ 2432 were 'Fatal Free' in 2009
- ❖ Of the 1250 active underground mechanized mining units in the US:
 - ✓ 1247 were 'Fatal Free' in 2009
- ❖ Of the mining jurisdictions charged to the 11 MSHA Districts in the US:
 - ✓ 2 entire Districts were 'Fatal Free' in 2009
 - ✓ 4 entire Districts recorded one fatal each in 2009

Goal to Zero Fatalities – A REALITY

- ❖ Of the 25 coal producing states in the US:
 - ✓ 17 were 'Fatal Free' in 2009
 - ✓ Wyoming (largest US coal producer) was one of the 'Fatal Free' states
 - ✓ West Virginia worked over 51 million employee hours with one underground fatal in 2009
 - ✓ Pennsylvania worked over 17 million employee hours with one underground fatal in 2009
 - ✓ Kentucky worked over 42 million employee hours with two underground fatalities in 2009

- ❖ No individual mining company experienced more than one fatal in 2009
 - ✓ Hundreds of mining companies were 'Fatal Free' in 2009....



TOGETHER

'WE'

CAN MAKE A DIFFERENCE!!