



Arch Coal, Inc.



Arch Coal's Safety & Health Process: Leveraging culture and leadership to achieve the "Perfect Zero"

Tony Bumbico, VP of Safety, Arch Coal, Inc.

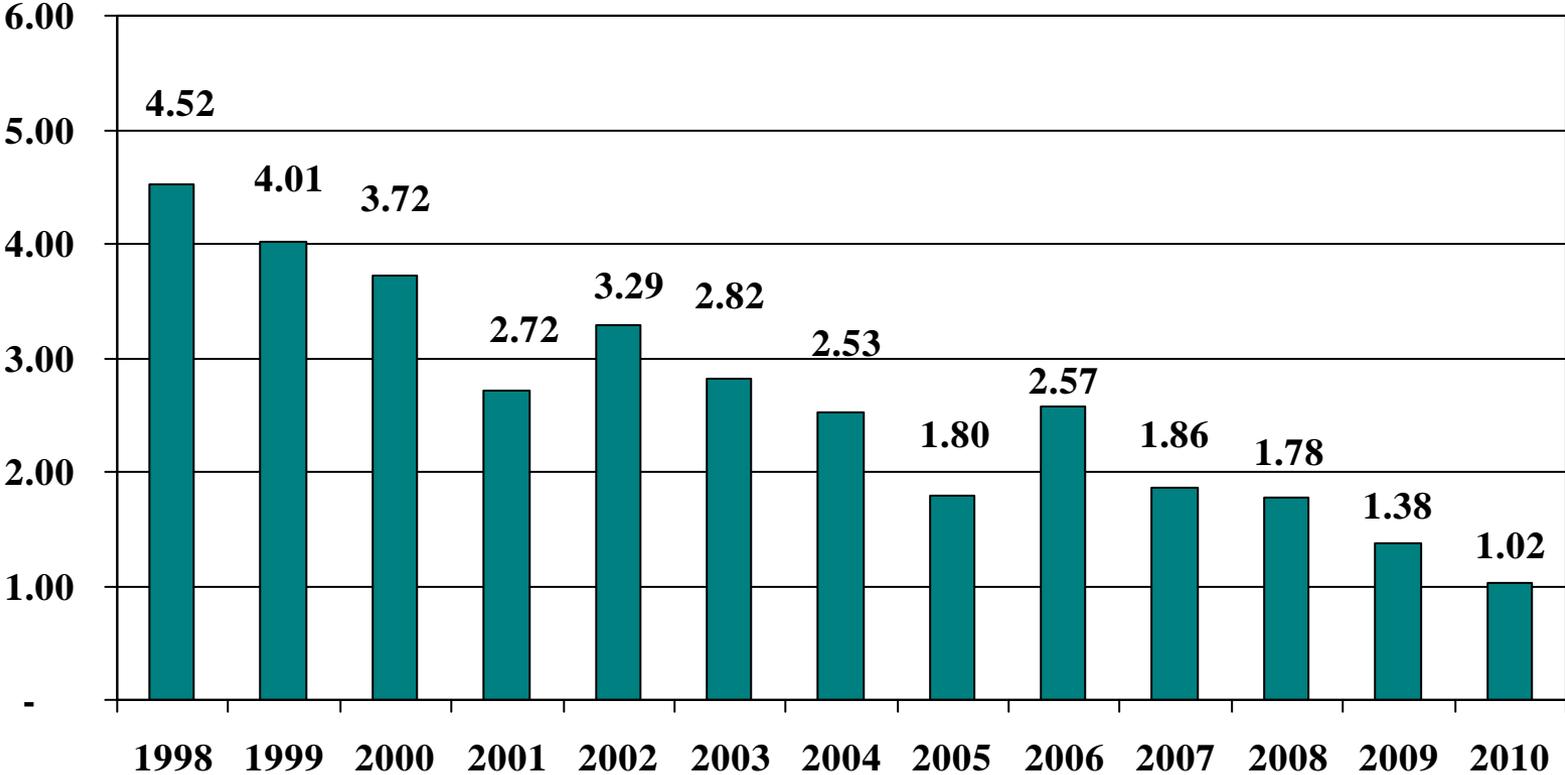
October 14, 2010 – Omni William Penn Hotel – Pittsburgh, Pennsylvania

Arch Coal's goal is to achieve the “perfect zero”

- Safety is a value
- Home Safely! Everyone – Every day!
- We believe this goal is achievable

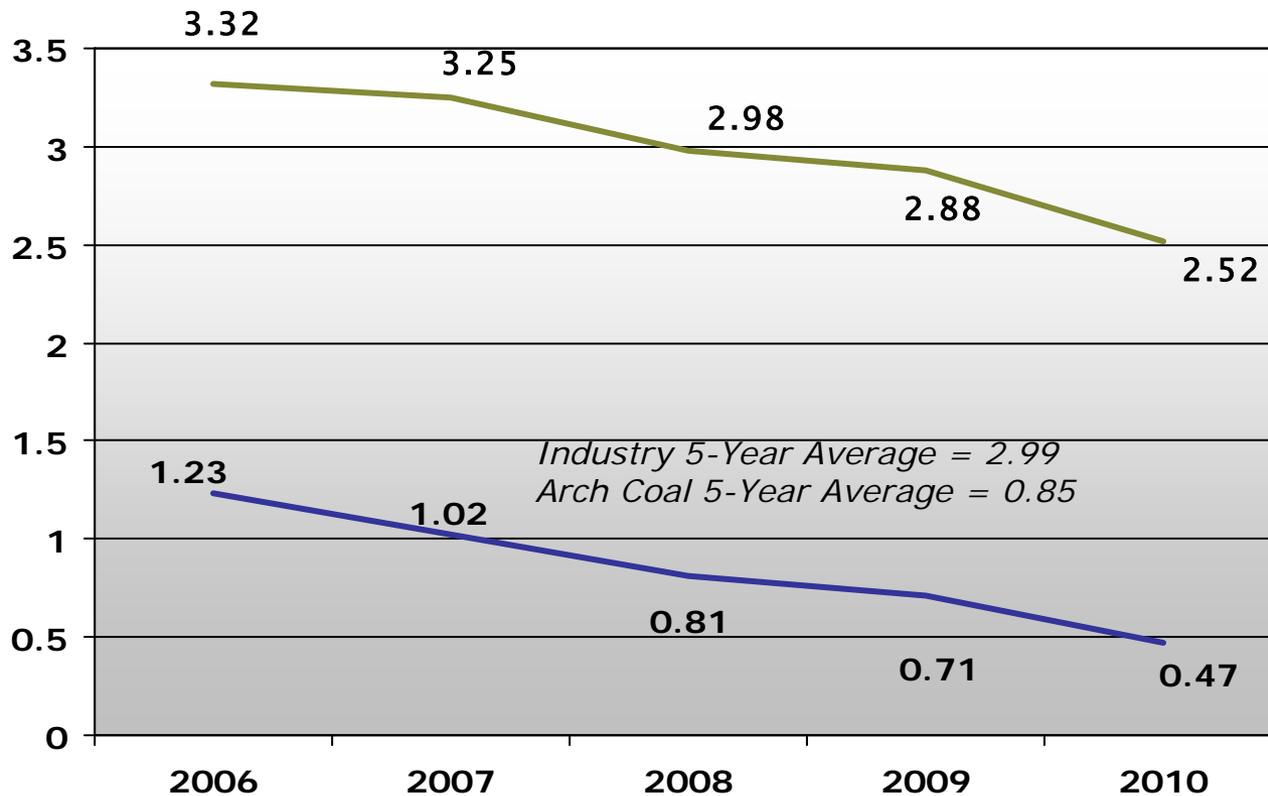
Arch's safety performance has improved over time

Total Incident Rate



Arch's 5-year average is 72% better than the industry

Incident Rates
Ranked by Lost-Time Incidents
Per 200,000 employee-hours worked



Source: MSHA Mine Injury and Worktime Quarterly Statistics



Arch's safety foundation has been built in layers

- Division Safety Plans
- Cross Operational Safety Audits
- Safety Improvement Process
- Behavior-Based Safety

Key safety principles are our basic building blocks

- Strong visible management commitment
- A working safety policy with a goal of **Zero Injuries**
- A safety process integrated into the organization
- The line organization is responsible for safety
- Challenging safety goals and objectives
- High standards of performance
- Supportive safety professionals
- Progressive motivation
- Comprehensive injury/incident investigations
- Effective two-way communications
- Continuous safety training
- Comprehensive safety audits

Our SIP process helps to improve the foundation

- Systems-based approach
- Focus on continuous improvement
- Process renews on annual basis
- Goal-oriented approach
- Focus on measurable results
 - Gaps in performance
 - Gaps with largest potential for improvement
 - Link actions to targets

The SIP identifies opportunities for improvement

- Conduct needs assessment
 - Data collection (injuries, behaviors, compliance, etc)
 - Identify measurable needs (gaps in performance)
 - Target setting (3-5/year)
- Develop improvement intervention
 - BEM: Is root cause environmental or behavioral?
 - Match intervention to contributing factor
- Evaluate results
 - Compare performance to target
- Feedback Loop
 - Revise/adjust interventions/targets

Cross Operational Audits maintain the foundation

- Build on existing audit process
- Obtain a “**snapshot**” of safety process
- Evaluate progress relative:
 - Division Safety Plans
 - Safety Improvement Plans
 - Basic Safety Process Components
 - Behavior-Based Safety Process

The cross operation audit is basic and effective

- Operation overview
- Conduct hazard training
- Review operation safety plan/SIP
- Conduct site inspection
- Interview sample of employees
- Provide management feedback
- Discuss Best Practices
- Prepare audit report

The audit focuses on basic process components

- Electrical Safety
- Fire Protection
- Personal Protective Equipment
- Hazardous Materials
- Inspections
- Fall Protection
- Housekeeping
- Emergency Procedures
- Equipment Safety
- Safety Communication
- Roof/Rib Ground Control
- Atmospheric Monitoring/Ventilation
- Welding/Cutting
- Incident Reporting/Investigation
- Safety Training
- Contractor Safety
- Behavior-Based Safety

Our audit process is not a “gotcha” exercise

- A “snapshot” not a wall-to-wall inspection
- Evaluates health of problem-solving process
- Evaluates level of employee health/safety knowledge
- Identifies & shares best practices
- Provides constructive feedback

Cross operational audits have multiple objectives

- Improve health & safety performance
- Management development vehicle
- Benchmarking exercise
- Share best practices
- Encourage employee involvement
- Demonstrate Arch's commitment to safety

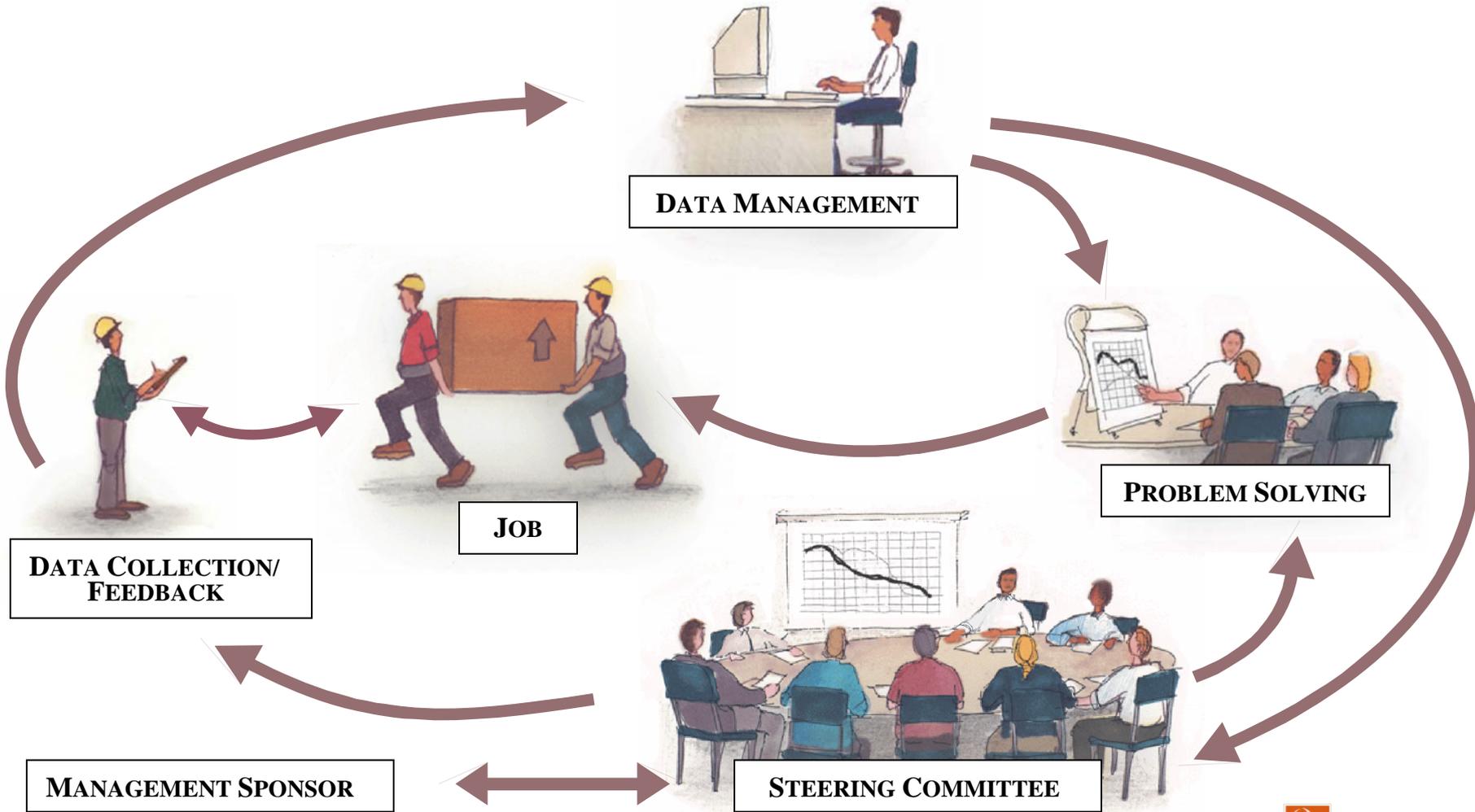
Other key safety process components

- Annual Safety Summit
- Regional Safety Development Workshops
- Contractor Safety Process
- Emergency Preparedness Audits
- Mine Rescue/Crisis Communication Process
- Explosives Safety Process

BBS: Our strategy for getting to the next level

- Our performance had reached a plateau
- Too many preventable injuries
- One injury is one too many!

BBS: Our strategy for getting to the next level



Implementation process started in 2006

| Operation | Date Initiated |
|-------------------------|----------------|
| Thunder Basin | July 2006 |
| Mingo Logan | August 2006 |
| Lone Mountain | December 2006 |
| Arch Western Bituminous | January 2007 |
| Cumberland River | May 2007 |
| Coal-Mac | August 2007 |
| Arch of Wyoming | May 2008 |
| Arch Coal Terminal | September 2008 |

This is not just another safety program!

- Organizational Assessment
- Leadership Development
- Process Improvement Structure
- Data Collection
- Problem Solving
- Process Evaluation

Phase 1: Assess your organization & leadership

- Initial planning meeting
- OCDI (Cultural Assessment)
- LDI (Leadership Diagnostic)
- Leading w/Safety & Coaching
- Supervisor Skills Training

Phase 2: Establishing your process structure

- Management Sponsor
- Facilitator
- Steering Committee
- Critical Behavior Inventory
- Observer Training

Phase 3: Data collection & problem solving

- Conduct observations
- Establish database
- Engage in problem-solving
- Develop action plans

Phase 4: Process evaluation

- BST Consultant's Feedback
- Sustainability Review
- Repeat OCDI

How is Arch making BBS an effective process?

- Integrate BBS into our safety process & culture
- Adopt upstream measures of safety performance
- Provide highly visible safety leadership
- Encourage each process to adopt a unique identity

Integrating BBS into safety process & culture

- Committees participate in Safety Summit
- Facilitators attend Safety Managers Meetings
- Corporate Leading with Safety Workshop
- Trained four internal BBS consultants
- Initiating advanced facilitator training

Integrating BBS into safety process & culture

- Analyze injury and near miss reports
- Site observer network meetings
- Regional meetings help exchange best practices
- Committee members participate in safety audits.

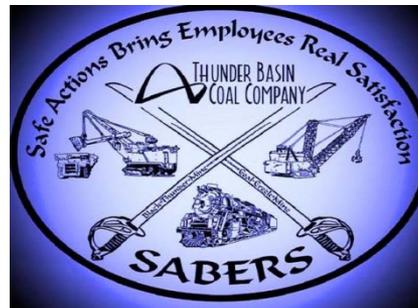
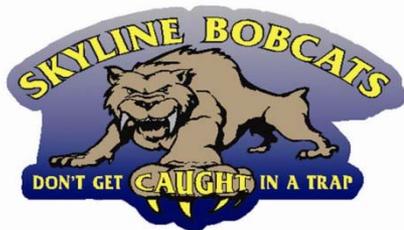
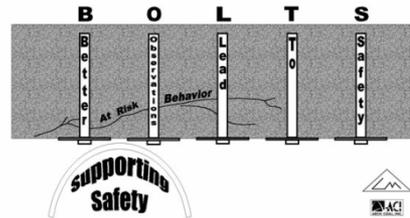
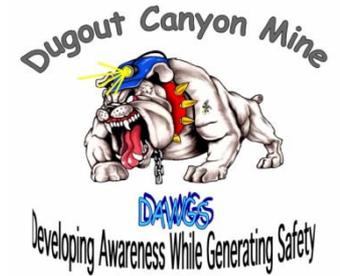
Upstream targets are our new safety performance measures

- Contact (observation) rate
- Observation/feedback quality
- Percentage of trained/active observers
- Barriers identified/removed

Visible safety leadership is the key to success

- Senior officers routinely conduct site visits
- Senior officers supported BST User Conference
- BBS facilitator presentation to BOD Meeting

Each process has its own unique identity



We Achieve Rapid Respect In Our Record Safety

What results/benefits have we seen?

- Improving traditional indicators
- Exposures identified/reduced
- Safe behaviors reinforced
- Specific barriers eliminated
- Culture & process strengthened
- Employee development benefits
- General feedback

Trained observers identify exposures and provide feedback



Exposures are reduced & safe behaviors reinforced

| | |
|------------------------------|---------|
| Employees covered | 3,800 |
| Number or trained observers | 2,280 |
| Number of observations | 94,738 |
| Number of employees observed | 121,377 |
| Contact rate | 0.78 |
| Observation quality | 4.80 |
| Barriers removed | 2,151 |

Problem solving helps remove specific barriers

- What we mean by a barrier: Anything that prevents safe behavior or makes it difficult.
- Barriers identified through peer-to-peer observations and near miss reports
- Removal Method depends on the barrier
 - Enabled (Easy)
 - Difficult
 - Non-Enabled (Impossible)

Specific barriers removed: Modified Locomotive Canopies



Specific barriers removed: Mounting & Dismounting



↑
Before & After →

Specific barriers removed: Fall Hazard at Prep Plant



Our safety process & culture are stronger

- More hourly employees are involved in the process
- Communication is enhanced by improved information flow
- Problem solving skills have been upgraded
- Observers hold themselves to a higher standard
- People are more enthusiastic about the process

We've identified a new talent pool of future leaders



Here's what our facilitators say about BBS

- BBS has improved communication within all levels of the organization
- BBS has involved people more directly in safety
- BBS provided hourly employees with an opportunity to use their talents
- We have been able to get employees who were initially negative toward the process to support it
- BBS is a vehicle that is helping us improve our safety culture
- BBS is affecting our behavior both on and off the job

Here's what our facilitators say about BBS

- The process involves the workforce and empowers them to be self-directed in improving safety
- The process holds employees accountable for their own safety performance
- BBS empowers people to change in a positive way
- BBS provides a format for structured problem-solving that can be applied to all areas, not just safety

Home Safely! Everyone – Every Day!

- Room to improve but results are encouraging
- Employee involvement is strong and growing
- A culture to eliminate “at-risk” behavior is expanding
- One more step on the path to a “Perfect Zero”

