Sustainability Concepts and Metrics

AlHce
Anita Roper, Director Sustainability
6 June, 2007 : Philadelphia
Discussion Points

- Alcoa and sustainability
- Measuring Our Progress
  - Corporate: 2020 Sustainability Framework
  - Community Health
- The business case
Each day there are 130,000 Alcoans, working in 450 communities, in 43 countries that will …

- Mine 85,800 tons of bauxite and 27,300 tons of coal
- Refine 34,300 tons of alumina
- Smelt 9,550 tons of aluminum
- Recycle 2,300 tons of aluminum
- Manufacture 8,810 tons of aluminum products
- Produce 166,000,000 closures
- Assemble harnesses for 20,400 vehicles
- Generate 96,000 MWH of electricity
- Purchase $27 million in goods and services
Alcoa Business Sustainability Model

Environmental Excellence

Values
- Integrity
- Environment Health & Safety
- Customer
- Excellence
- People
- Profitability
- Accountability

Social Responsibility

ABS
People – linchpin the system
Products – make to use
Processes – eliminate waste

Governance

Stakeholders
Communities
Shareholders
Customers
Suppliers
Employees
...
Deliver net long-term benefits to our shareholders, employees, customers, suppliers, and the communities in which we operate

By using our Values, our people, processes and products will achieve simultaneously:

- financial success
- environmental excellence
- social responsibility

... through partnerships
Living our Values

Social Responsibility

Environmental Excellence

Good Governance


Dividends to shareholders
Alcoa Foundation
Env. Policy
Bates - 70 Year Mining Plan
Brazil 1st Greenfield Plant with sustainability in mind
Greening Aust. Partnership
Safety data systems
Vision and Values
EH&S Training
WEC Gold Medal
Action and Bravo

Community Framework (2001)
2020 Framework
1st and 2nd Cost challenges
Human Rights Position
Fortune – Best Metals Co. (over 10 yrs)
UN Global 500 Award
ABS
Sustainability Reporting

Long-term business success


ALCOA
Metrics, metrics, metrics
2020 Sustainability Framework

- **Respect and Protect People: Communities**
- **Safe and Sustainable Products**
- **Accountability and Governance**
- **Economic Benefit**
- **Respect and Protect People: Employees**

- Meet the needs of current and future generations through efficient resource use.
2020 Sustainability Framework

Safety
- Zero fatalities, zero lost workday injuries
- Zero incidents

Health
- By 2008 20% reduction in number of employees requiring protective measures against
  - unacceptable noise levels
  - Unacceptable workplace exposure to chemicals
  - Elimination of ergonomic risks [Current target =100% of total ergonomic risks that have been targeted for control have been controlled by year end 2008]

Community
- 100% of manufacturing locations will implement the Alcoa Community Framework by 2010
- 40% of employees within a business unit or region volunteered in the community through ACTIOM, Bravo! Or Month of Service

Environment
- From base year 2000:
  - 60% reduction S02 by 2010
  - 50% reduction volatile organic compounds by 2008
  - 30% reduction nitrogen oxides by 2007
  - 80% reduction mercury emissions by 2008
  - 50% reduction landfilled waste by 2007
- From base year 1990, 25% reduction in greenhouse gas emissions by 2010. Assuming success with the inert anode technology, a 50% reduction by 2010
### Significant Ergonomic Risks

**Location:**

**Changed by:** CRONCOPY  On 4/2/2007 4:15:48 PM (Pittsburgh Time)

**Year/Quarter:** 2007 / 3

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### Ergonomic Metrics Reporting

- **Location:**
- **Year:** 2007
- **Quarter:** 1
- **Function:** Significant Ergonomic Risks
% Control of Significant Ergonomic Risks: Total Alcoa

Target = 50%

1Q 2004 2Q 2004 3Q 2004 4Q 2004 1Q 2005 2Q 2005
Ergonomic Cases: Total Alcoa

Number of Incidents

Target = 50%

- Number of Incidents:
  - 2002: 933
  - 2003: 790
  - 2004: 642
  - 2005: 391
  - 2006: 320
  - Q1 2007: 81

- Lost Workday Cases:
  - 2002: 7
  - 2003: 13
  - 2004: 22
  - 2005: 24
  - 2006: 29
  - Q1 2007: 35

- Recordable Cases:
  - 2002: 77
  - 2003: 80
  - 2004: 56
  - 2005: 37
  - 2006: 32
  - Q1 2007: 13

- X-axis: Years and Quarters
- Y-axis: Number of Incidents

Legend:
- Recordable Cases
- Lost Workday Cases
More than a metric ....

- **Industrial Hygiene Exposure Assessments**
  - Qualitative; Quantitative

- **Occupational Medicine**
  - Programs established; Required Medical Examinations completed

- **Risk Reduction**
  - Reduction in Number of Employees exposed to Noise and Chemicals > OELs
  - Reduction in the Magnitude of Noise and Chemical Exposures
  - Ergonomic Risk Control

- **Audit or Self-Assessment Score**
  - Ergonomics; Asbestos Management; Hearing Conservation Program

- **Healthy Workforce Initiatives**
  - Health Promotion; Employee Assistance Program; Influenza Vaccination; No Smoking Policy / Smoking Cessation
Goal:
Zero work related illnesses/injuries and improved health & well-being.

Current Condition:

- **Injury/illness Milestones**:  
  - Fatalities: 5 (2-Alcoan and 3-Contractor)  
  - LWD Rate: 0.068  
  - TR Rate: 1.10

Alcoa Fatalities 1963-2006

LWD Performance 1994-2006

TRI Performance 1994-2006

New-to-Job TRI 2005-2006

Hand/Finger TRI 2005-2006

Target Condition:

- **Zero Fatalities**
  - Expand “Critical 4” to “Critical 8” - Achieve 100% “Good or better” Audits/ASATs performance on:
    - Contractor Safety by year-end 2007.
    - Electrical Safety by year-end 2008.
    - Combustion Safety by year-end 2010.
    - Crane SPAs at applicable locations/BUs/Groups focused on a defined improvement plan consistent with the incident experience, maintenance and training needs. “Crane ASAT performance “Good or better by year-end 2007.”
  - Close the “gap” on preventing truck/trailer falls. Each Group/BU to ensure applicable locations has an updated fall prevention survey (2006) and have a capital plan to move from interim to engineered countermeasures for all high to moderate risks by year end 2007.
  - Each Group/BU to develop an A3, SME resources and deployment plan for Human Performance Modules 1-4 by year-end 2007.
  - Close the “gap” on preventing truck/trailer falls. Each Group/BU to ensure applicable locations has an updated fall prevention survey (2006) and have a capital plan to move from interim to engineered countermeasures for all high to moderate risks by year end 2007.
  - Each Group/BU to develop an A3, SME resources and deployment plan for Human Performance Modules 1-4 by year-end 2007.
  - Improve the use of “field-observations” by defining Group/BU expectations for targeting known high-risk tasks/activities and error-like situations.
  - Improve the use of “pre-job” briefings by defining Group/BU expectations for those common or similar tasks requiring a mandatory pre-job briefing, providing training on effective pre-job briefing and developing a systemic tool for monitoring the effective application.

- **Zero LWD Cases and TRI Rate < 0.90**
  - BU Injury Free Event Ratio (IFE/ALL Injuries) greater than 4.0 (2007)
  - Each Group to analyze their hand/finger injury prevention experience to identify “Top 5” opportunities for intervention and problem-solving to develop appropriate countermeasures. (2007)
  - Each BU to analyze their employees new to job injury experience and determine the “top three” jobs, positions, or activities in the business unit for intervention and problem-solving to develop appropriate countermeasures. (2007)
  - Improve “Extended Hour Waivers” and reduce incidents vs. 2006 baseline. (2007)
  - Improve “Hearing Conservation self assessment score of good or better by (2008)
  - Improve “Hand/Finger” TRI Performance and reduce incidents vs. 2006 baseline. (2008)

- **Healthy Workforce**
  - Number of employees participating in a voluntary assessment of their health risks
  - Number of smokers participating in smoking cessation
  - Number of employees completing driver safety training
  - 3% or higher utilization rate of EAP by year end 2008.

- **Community/ Stakeholder Engagement**
  - 100% of all new, expanded (>550 million) and existing major operations where significant community impacts are identified by Environment Management System (EMS) have conducted a community health risk assessment

- **Accountability and Governance**
  - Compliance with laws and regulations is an EHS Principle. All non-compliance situations should be aggressively self-identified and addressed. This requires an ongoing regulatory gap analysis and corrective action plan

**Action Plan Enablers:**

- Human Performance Tools SME Training Modules and Skill-builders
- Fatality Prevention, Trouble-shooting and Updated Work Safe Precautions Training Modules.
- Below-the-Hook Lifting Device & Crane Standard Overview Training Modules
- Additional BTH Lifting Device (10) & Pre-job Briefing Training Modules
- People, Process, and Equipment stability efforts-Daily Management Boards, 5S and TPM Initiatives
- Fatality Prevention Process – Achieved closed/open run rate of 75%/25%
- Alcoa Self Assessment Process
- BU/Plant Manager Hazard Recognition/Risk Assessment /Leadership Training
- Occ. Health Information Systems: Hygenius, OHM, MEDTRA, Medgate, etc.
- Metric #5 outputs
- Alcoa Community Framework
- Alcoa OEL Team, WW Ergonomic Lead Team
- Ergonomic Risk Prioritization model
Occupational Health Scorecard:
2006-2008 BSC Cycle: 1Q 2007 Status

Qualitative
- 100% Hearing Conservation Program
- 100% Smoking Cessation Program
- 100% Flu Vaccine Program
- 100% Health Promotion
- 100% Emp Asst Programs

Quantitative
- 95% Ergonomic Audit/ASAT
- 72% Occ Med Programs
- 97% Occ Med Evaluations
- 80% Targeted Ergonomic Risk Control
- 97% Chemical SEG Magnitude Reduction
- 80% Chemical Employee Reduction
- 20% Noise SEG Magnitude Reduction
- 20% Noise Employee Reduction

*Target is 20% for either number of employees or SEG magnitude, not both

Annualized completion rate, based on 1Q actual completion
Community Metrics
Community and Health

- Shift in focus from only employee health to employee and community health
- Community health is a key factor in our ability to obtain our ‘social license to operate’
- Requires a defined management structure and process
- Requires a multi-discipline approach
Future Directions

- Building relationships with health professionals in areas where we operate (e.g. Russia)
- Community health templates for key processes:
  - Building a library of peer-reviewed materials on occupational and environmental health issues related to aluminum production by process
  - Expand the library to include other manufacturing processes in the future.
- Community health risk assessments encompassing human and ecological health issues required for all expansions or greenfield projects over $50 million.
- Baseline health assessment before expansion undertaken, in locations where there is a business case for it.
A company of choice has continued access to ….

√ Land
√ Resources
√ Markets
√ Capital
√ People

Improving shareholder and stakeholder value
OK by law
OK by Alcoa Values