Occupational Health at Vulcan Materials Company

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Birmingham, Alabama
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What We Will Cover

- Key Elements of a Successful Occupational Health Program
- First Steps Beyond Management Commitment - Doing the Leg Work
- An Exposure Monitoring Program
- Medical Surveillance for Mines
Key Elements of an Occupational Health Program

- Management Commitment
- Exposure Monitoring
- Exposure Controls
- Medical Screening
- Data Analysis
- Health Hazard Training & Program Communication
Basic Management Styles

- Head-in-the-Sand
- Reactive
- Compliance Only
- Progressive
Primary Occupational Health Hazards in Aggregate Mining

- Silica Containing Respirable Dusts
- Naturally Occurring Asbestos
- Excessive Occupational Noise
- Welding Fumes in Confined Spaces
- Diesel Exhaust/Particulate
- Ergonomics
QUESTIONS TO ASK

WHAT?
WHO?
WHEN?
WHERE?
HOW?
HOW MUCH?
Qualitative Risk Assessment

- What are the sources of exposure?
- Where are the highest potential exposures?
- How many operations are affected?
- Which jobs are in high exposure areas?
- How many people are in those jobs?
- How are people exposed?
Qualitative Risk Assessment

- What are they doing to increase their risk?
- What controls are in place? How effective are they and how are they maintained?
- What does MSHA/OSHA data indicate?
- What is the typical length of service of people in high exposure jobs?
Qualitative Risk Assessment

- Where, how many, what jobs and when did you have claims for occupational illness? What were the ages of the claimants?

- Who do you hire and what has been their potential exposures to hazards?

- What is percentage of current and former smokers working for you? How heavily do they smoke?
Based on Your Risk Assessment
You Should Know:

- Is there a real risk of occupational illness?
- Where highest potential risks are located.
- How many people should be included in the program.
- Some idea of the exposure control effectiveness.
- Initial exposure monitoring program design.
- Information for determining costs.
Exposure Monitoring Strategies

- **Targeted Sampling Strategy**
  - Find exposure problems
  - Answer specific exposure questions

- **Case Closing Sampling**
  - Re-sampling exposure problems after controls have been installed

- **Random Sampling Strategy**
  - Characterizes entire workforce exposure for epidemiological studies
Exposure Monitoring

Must Have Qualified and Trained Personnel

Must be Committed to Resolve Problems Found
Exposure Monitoring

Begin with Targeted Sampling

Highest Potentially Exposed First
In Aggregate Mines, Which Jobs Typically have the Highest Potential Dust and Noise Exposure?

<table>
<thead>
<tr>
<th>Helper/Laborers and Clean-up Workers</th>
<th>Plant Operators without A/C Booths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drillers</td>
<td>Confined Space Work</td>
</tr>
<tr>
<td>Q.C. Technicians</td>
<td>Sandblasters</td>
</tr>
<tr>
<td>Plant Maintenance</td>
<td>Bagging Operations</td>
</tr>
<tr>
<td>Mobile Equipment without A/C Cabs</td>
<td>Binsetters</td>
</tr>
</tbody>
</table>
The objective is to find problems NOT to have “good numbers”.

Once you find the problems, they must be tracked until they are fixed.

Decide before you start what “fixed” means.

Local management must be accountable for eliminating exposure problems.
Vulcan's Case Closing Process

Dust Cases

- Two samples collected on different days below 80% of the shift adjusted limit.
- Completion of a case closing form
- Signatures of responsible people involved
- Review and approval by Corporate IH
Noise Cases

- Sound Level Meter reading below 85 dBA at high idle (control booths or cabs).
- Two noise dosimetry results below 76 % dose collected on different days.
- Completion of a case closing form
- Signatures of responsible people involved
- Review and approval by Corporate IH
Costs of a Sampling Program

- Monitoring Equipment: $13,100/set of 5
- 3 Day Training of Samplers: $1,000/ea
- Laboratory Analyses of Filters: $65/ea
- Sampler’s Time and Expenses: 10hrs/day
- Processing and Interpretation of Results
- Purchasing and Installing Controls
Medical Testing
Establish a baseline to assess future changes.

Detect possible job-related abnormalities at an early stage, when corrective measures can be most beneficial.

Detect non-occupational problems early for appropriate medical follow-up by workers.

Ultimate auditor of exposure control efforts.

Data for epidemiological studies developed.
Medical Testing Provider Qualifications

- Perform 14 x 17 in. posterior-anterior (PA) chest x-ray.

- Chest x-ray must be read by a NIOSH certified B-reader in accordance with ILO guidelines.

- NIOSH certified Pulmonary Function Testing (PFT).

- Audiometric testing as per OSHA criteria.

- Other tests appropriate to risks present.
Basic Medical Screening - Cover the Risks

Medical/Work History

Audiometric Testing

Pulmonary Function

Chest X-Ray B-Reading
Periodic Medical Screening
The Benefits of Having Medical Data

The Employees:
- Relieves apprehension by answering their primary question - Have I been affected?
- Allows early intervention of potentially serious medical problems.

The Company:
- Provides the current health status of workforce as it relates to potential job exposures.
- Improves overall workforce health.
- Shows health trends in workforce over time.
- Provides data for Company defense when needed.
There is one Hitch to Realizing the Company’s Benefits:

Employee Participation
Keys to High Employee Participation

- Do not charge costs to employees.
- Make it voluntary but aggressively promote the program as a benefit.
- Provide qualified, courteous & experienced medical testing contractor.
- Exclude invasive tests initially.
- **DO NOT** combine with drug testing or other testing perceived as “for the Company”.
- Make it easy to participate. Overcome language barriers.
Use a Mobile Testing Service if:

Local clinics do not meet testing criteria.

Multiple operations over wide geography.
Benefits of Mobile Testing

- Testing performed in a consistent manner.
- High quality testing available at all sites.
- Uniform records maintained at a single site.
- Uniform reporting of results.
- Minimal disruption of operation schedules. 15 - 20 minutes/employee depending on tests.
- Maximizes flexibility by multi-shift testing.
- Ability to expand testing program easily.
- Much lower costs than sending to clinics.
## Medical Costs by Test

<table>
<thead>
<tr>
<th>Test</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Medical Tests</td>
<td>$200 - 300</td>
</tr>
<tr>
<td>Respiratory Screening Tests</td>
<td>$70 - 100</td>
</tr>
<tr>
<td>PA Chest X-ray with B-Reading</td>
<td></td>
</tr>
<tr>
<td>Pulmonary Function Testing</td>
<td></td>
</tr>
<tr>
<td>Respiratory and Smoking Histories</td>
<td></td>
</tr>
<tr>
<td>Follow-up with Employee and Physician</td>
<td></td>
</tr>
</tbody>
</table>
| Comprehensive Respiratory Exam                         | $500 - 3000| Exam
| Audiometric Testing                                    | $20 - 30   |
| Cost of Resolving Initial Claims                       |            |
Results of Efforts

- Prevention of Occupationally Related Disease
- Slow Progression of Existing Disease
- Increased Hazard Awareness in Employees
- Timely Assessment of Exposure Controls
- Defense Against Unwarranted Claims
- Elimination of New Claims
Results of Efforts

❤️ Improved Employee and Community Relations

❤️ Comprehensive Occupational Health Database Established

❤️ Citation Defense

❤️ In-House Expertise Developed

❤️ Enhanced Image and Respect of Company

❤️ Enhanced Credibility with Regulators
Results of Efforts

- Assess Impact of New Regulations
- Reduction in the Number of Smokers
- Early Detection of Non-Occupational Diseases
- Facilitates Future Program Expansion
- Improved Use of Protective Equipment
- Data for Permitting and Zoning Hearings
Industry Challenges

- Silica - Mining a Carcinogen = Dust Control
- Getting Our Workers to Stop Smoking and Lose Weight
- Hearing Loss
- The Non-Asbestiform Fiber Issue Act III
- Community Relations - The 24-hour Regulator
- The Internet - Anyone can Look into Your Closet - Is it Clean?
- Ergonomics for the Miner - Are We Ready?
Lab Analyses:
R.J. Lee Group, Inc., Monongrove, PA
(724) - 387 - 1776
Silica, Welding Fumes, Asbestos,
Asphalt Fume, Lime Dust

Clayton Laboratories
Diesel Particulate

Mobile Medical Testing Provider:
Industrial Health Council, Birmingham, AL
(205) - 326 - 4109
Particulate Sampling Equipment:
- Gilar 5 (under review)
- SKC Aluminum Cyclones
- Bios DryCal Pump Calibrator

Noise Monitoring Equipment:
- Quest Edge Dosimeters
- Quest 2100 Sound Level Meters
- For on-site SLM: Radio Shack
Recommendations

Smoking Cessation
Free and Clear
206-876-2249

Office Ergonomics
Cardinus
Omega Health Systems
866 966 3420

Material Safety Data Sheet Management
3E Company
800-360-3220