

# Occupational Health at Vulcan Materials Company

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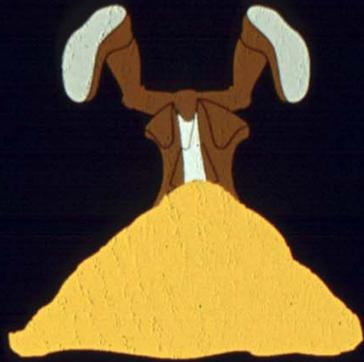
# What We Will Cover

- **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 ?**

● **WHERE ?**

● **WHO ?**

● **HOW ?**

● **WHEN ?**

● **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**

# Exposure Monitoring

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

- **Helper/Laborers and Clean-up Workers**
- **Plant Operators without A/C Booths**
- **Drillers**
- **Confined Space Work**
- **Q.C. Technicians**
- **Sandblasters**
- **Plant Maintenance**
- **Bagging Operations**
- **Mobile Equipment without A/C Cabs**
- **Binsetters**

# Some Guiding Principles for Targeted Sampling

- ◆ **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



# Medical Testing Objectives

- + 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



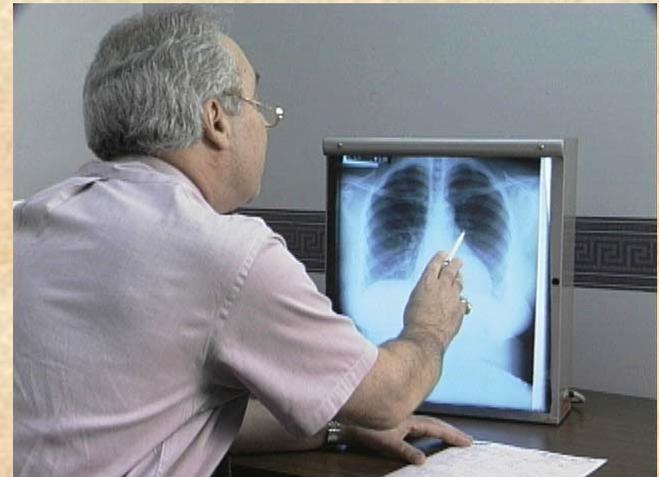
**Medical/Work History**



**Audiometric Testing**



**Pulmonary Function**



**Chest X-Ray B-Reading**

# Periodic Medical Screening



ON SITE

MOBILE HEALTH  
SCREENINGS

# 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

**\$** Baseline Medical Tests \$200 - 300

**\$** Respiratory Screening Tests \$70 - 100

**PA Chest X-ray with B-Reading**

**Pulmonary Function Testing**

**Respiratory and Smoking Histories**

**Follow-up with Employee and Physician**

**\$** Comprehensive Respiratory \$500 - 3000  
Exam 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?**

# Recommendations



## **Lab Analyses:**

**R.J. Lee Group, Inc., Monroeville, 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**

# Recommendations

## **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**