IARC MONOGRAPH
Occupational Exposures to Bitumens and Their Emissions

A Conversation With Co-Workers

NAPA 57th Annual Meeting
Palm Desert, CA
January 24, 2012
OVERVIEW

- Managing the context
- Crafting effective messages
- Delivering worker "conversation" PowerPoint
- Summary
ANTICIPATING THE RESULT

IARC Monographs on the Carcinogenic Risk to Humans, Volume 103: Bitumen and bitumen fumes, and some heterocyclic aromatic hydrocarbons
IARC, Lyon, France, 11-18 October 2011
IARC MONOGRAPH

Occupational Exposures to Bitumens and Their Emissions

A Presentation For
Asphalt Paving Workers
December 1, 2011
WHAT IS BITUMEN?

In North America, bitumen is commonly known as “asphalt cement” or “asphalt binder.”

Asphalt pavement is a mixture of about 5 percent bitumen (asphalt cement) and 95 percent small stones, sand, and gravel.

Bitumen (asphalt cement) is produced by distillation of crude oil during petroleum refining. It also occurs naturally.

Bitumen can be divided into broad categories based on physical properties and specifications for different uses.

Straight-run bitumen is used in paving.

Oxidized bitumen is used in roofing.
WHAT ARE IARC MONOGRAPHS?

• IARC is the International Agency for Research on Cancer.

• IARC brings together international panels of scientists to produce publications called IARC Monographs.

• National and state government agencies use this information as scientific support for regulatory actions.
PERSPECTIVES FROM THE ROAD PAVING INDUSTRY

- Continuous improvement in health and safety is a core value for the paving industry.

- Between 1970 and 2010, exposures at the paving site were reduced by 93 to 98 percent.

- Our active and ongoing partnerships with national health and safety agencies, academia, and unions are a recognized model for other industries.

- A 20+ year track record demonstrates commitment to ongoing improvement in workplace conditions.
CONCLUSIONS OF THE IARC WORKING GROUP

- IARC put bitumens and their emissions during road paving in Group 2B - same category as cell phones and coffee.
- IARC categorizes substances and exposures into five groups:
  - Group 1: carcinogenic to humans
  - Group 2A: probably carcinogenic to humans
  - Group 2B: possibly carcinogenic to humans
  - Group 3: not classifiable as to carcinogenicity in humans
  - Group 4: probably not carcinogenic to humans
U.S. PAVING INDUSTRY RESPONSE

- The asphalt industry has worked for the past 20 years to reduce workers’ exposure.
- We have partnered with government agencies, academic institutions, and unions to fill the science gaps.
“People working in the asphalt paving industry should not be concerned about this new IARC classification. The two key animal studies on paving asphalt did not show any evidence of cancer risk, and the major IARC cancer study of people working in the paving industry in Europe did not show any increased risk for cancer.”

DR. JIM MELIUS, TOP DOCTOR FOR THE LABORERS UNION OF NORTH AMERICA
U.S. PAVING INDUSTRY RESPONSE

• The paving industry operates under conditions that support the comfort and health of workers.

• We use engineering controls and warm-mix asphalt to ensure that workers’ exposures are low.
RESEARCHERS’ POINT OF VIEW

• Many studies have been conducted.

• Three types of studies are very important to researchers:
  – Animal inhalation
  – Animal skin painting
  – Human workers

• All three types of studies have been done on fumes from paving asphalt.

• All three types of studies have showed NO CANCER.
KEY ANIMAL SKIN PAINTING STUDY

• Two-year skin painting study sponsored by the Asphalt Institute.

• Researchers painted asphalt paving fume condensate on the skins of mice.

NO CANCER

• Key findings:
  – Condensate was not carcinogenic.
  – The animals did exhibit mild skin irritation.
  – Survival was consistent with the control group.
KEY ANIMAL INHALATION STUDY

- Animal inhalation study at the Fraunhofer Institute in Germany, 2005-2006.

- Rats inhaled high concentrations of asphalt paving fumes.

NO CANCER
KEY HUMAN STUDY BY IARC

• IARC conducted its own study of thousands of paving workers in eight countries.

• This IARC study is considered the gold standard for worker health.

• IARC found that there is no evidence of an association between asphalt fume and lung cancer in workers.

NO CANCER
IARC recognizes separation

- Sector separation: IARC evaluated roofing, mastic, and paving separately.

- Grade separation: IARC evaluated different grades of asphalt separately: oxidized bitumen (roofing), hard bitumen (mastic), and straight-run bitumen (paving).
TEMPERATURE MAKES A DIFFERENCE

- Separation by sector and grade reflects the significant impact of temperature on bitumen emissions.
- At higher temperatures, more fumes are emitted.
- At higher temperatures, the nature of the fumes is different.
WORKPLACE REDUCTION – WARM-MIX ASPHALT

- Warm mix continues to reduce and eliminate paving site exposures by reducing temperatures.
- NIOSH leader Dr. John Howard has recognized warm mix as a prime example of reducing or eliminating emissions at the source.
NIOSH commended the asphalt industry with its NORA Award for engineering controls on paving machines.
SUMMARY

Health and safety is a core value for the paving industry. The union’s top doctor says, “People working in the asphalt paving industry should not be concerned about this new IARC classification.”

The asphalt paving industry will continue to operate in a manner that is safe for workers.
THANK YOU FOR YOUR ATTENTION
Questions?