Integration of Risk Assessment and Risk Management
The Need for Caution

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Problem Statement
“Science and Decisions”

- Trichloroethylene
- Formaldehyde
- Dioxins
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• "If it ain't broke... the government will fix it until it is." Dell Hunt, 2001
Problem Statement
Risk Assessment

• Weight of evidence approaches inherently put a line through a continuum. Inevitably, the weight of evidence for some compounds will be close to the line such that minor scientific disagreement is converted into a yes/no argument.

• Extrapolation to lower risk levels than there are verifiable data is done only in response to societal decisions to be protected against low level risk. It uses science – but it isn’t verifiable.

• Risk assessment is more suitable for population-based public health than it is for individual risk.
## IARC Overall Evaluation of Carcinogenicity to Humans

<table>
<thead>
<tr>
<th>Weight of Evidence</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Carcinogenic to Humans</td>
</tr>
<tr>
<td>2A</td>
<td>Probably Carcinogenic</td>
</tr>
<tr>
<td>2B</td>
<td>Possibly Carcinogenic</td>
</tr>
<tr>
<td>3</td>
<td>Not Classifiable</td>
</tr>
<tr>
<td>4</td>
<td>Probably Not Carcinogenic</td>
</tr>
</tbody>
</table>
Stealth Farmer Scenario

• Family of 4 secretly develops subsistence life style on DOE land contaminated to level of 1/100,000 risk. Replaced every 70 years with another family of 4
• One adverse event will occur every 1.75 million years
• Humans have been on planet approximately 1.75 million years.
Safe, Safety

“freed from harm or risk … secure from threat of danger, harm or loss … harmless”

Protect, Protection

“to cover or shield from injury or destruction: guard … syn. see defend”
Framework is Conducted:

• In collaboration with stakeholders.

• Using iterations if new information is developed that changes the need for or nature of risk management.