

□ Health and Environmental Risk Analysis for Oil Shale

26th Oil Shale Symposium

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Background

- **DOE response to energy crisis**
 - Oil Sands
 - Coal Liquefaction
 - Coal Gasification
 - Fusion
 - Trash-to-Energy
 - Photovoltaic
 - Geothermal Energy
- **Union of Concerned Scientists**
- **Oil Shale Taskforce**

Project Goals

- **Human health and environmental risks of a hypothetical one-million-barrels-per-day oil shale industry**
- **Establish research needs**
- **Risk estimates and associated uncertainties**

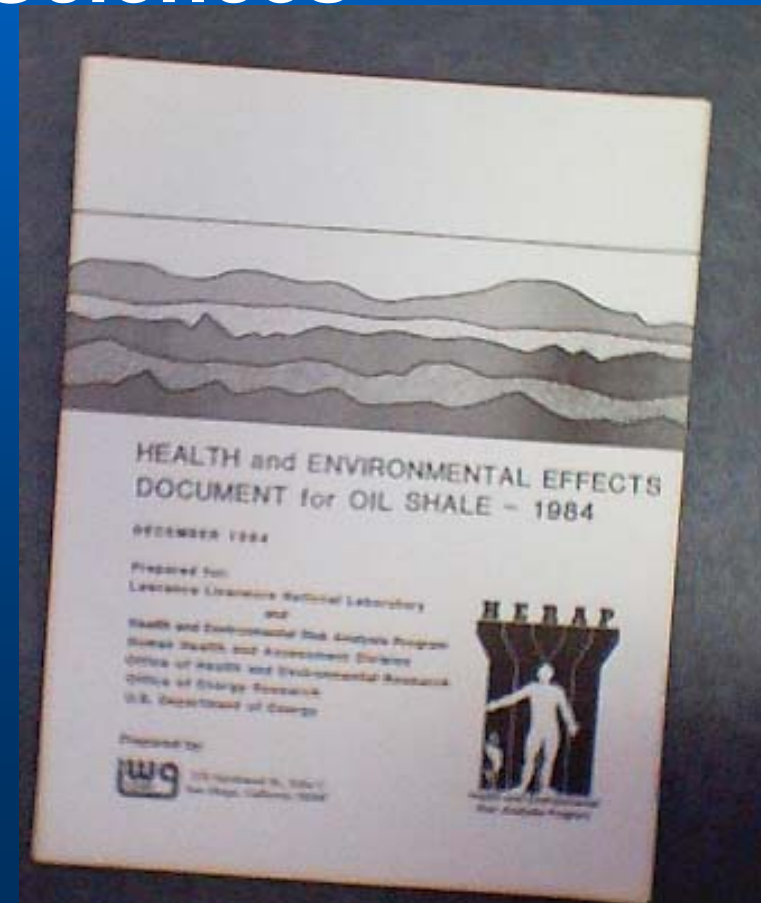
Description

- One-million barrel-per-day oil shale industry
- Promising technologies in 1980's
- R=HETP but more complex
- Periodic Updates



Reviews

- National Academy of Sciences
- Oil Companies
- Research Community



Results

- **Workforce Risks**

- □ pneumoconiosis
- chronic bronchitis
- cancer

- **Public Risks**

- **Ecological Risks**

- □ controversial and highly uncertain

Different Risk Measures

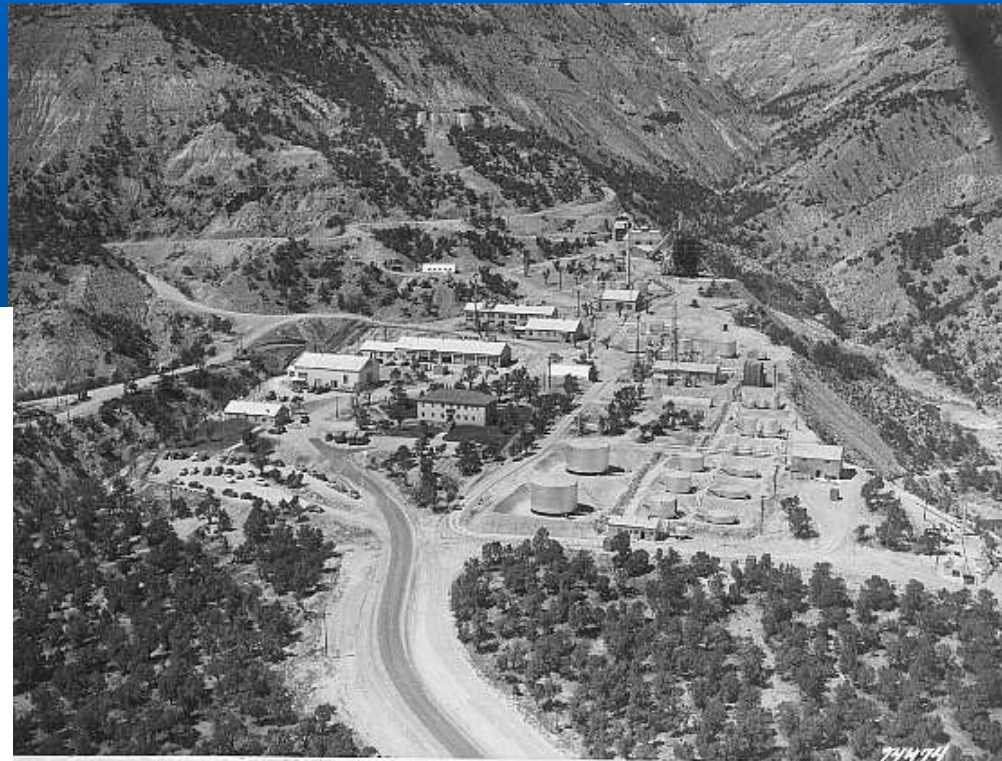
Updating

- Health Impact--300 compounds
- Hazard Indices for Non-Cancer Endpoints
- Ecosystem models
- Endangered Species

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Current Issues

- **Conflicting regulatory pressures**
- **Diverse economic conflicts**
 - **Water**
 - **Land Use**
 - **Viability**



QuickTime™ and a
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Future Oil Shale Industry

- Resource is too large to be ignored
- The Environment will be disturbed
 - Large(st) solids handling project
 - Population density increases
 - Water into semi-arid desert
- Air Quality will be impacted
- Water Quality will be impacted

But are other concerns paramount?



Other Concerns

- **Previous Projects - Environmental Impacts**

- Previous Oil Shale Production
- Mining and Energy Projects
- Peaceful Uses of Nuclear Power

Is Pu moving down the Colorado River?

- **Long Term Economic Impacts of Importing Large Amounts of Oil**

- Health consequences from financing terrorism
- Waiting for crisis?

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Recommendations for a Full-Scale Oil Shale Industry

- **Avoid Crisis Mode through Competition**
 - \$100/barrel for 10 million barrels of upgraded shale oil into NPR
 - Recognition with \$
- **Industry, National Laboratories and Academia**
- **Provide resources to “do things right”**
 - Health and Safety can be preserved and enhanced

Relevant Documents and Publications

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