

COMMENTS on HEI SCOPING MEETING FOR HUMAN HEALTH STUDY CRITIQUE

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HEI Research Committee Meeting, Boston

January 17, 2018



Scoping Meeting

 HEALTH EFFECTS INSTITUTE October 2015	Strategic Research Agenda on the Potential Impacts of 21st Century Oil and Natural Gas Development in the Appalachian Region and Beyond HEI Special Scientific Committee on Unconventional Oil and Gas Development in the Appalachian Basin
101 Federal Street, Suite 500 Boston, MA 02210, USA +1-617-488-2300 www.healtheffects.org	

- I. Stressor & Exposure Characterization
- II. Health & Well-being assessment
- III. Evaluation of most-effective practices



The Charge



- What information should the committee review to assess the epidemiological literature related to the onshore development of oil and natural gas from unconventional resources?
- What criteria should the committee use to evaluate study quality?
- What do you see as key contributions that the Committee can make to the science and the public dialogue around the development of oil and natural gas from shale and other unconventional resources?
- Looking beyond the initial Human Health Study Critique task, what do you see as key contributions from the Committee's review of literature and research planning in Year 1 and beyond?



Information-Data Acquisition



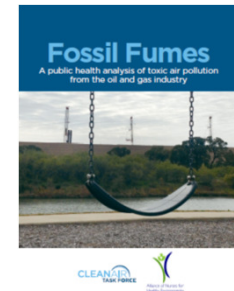
Peer reviewed literature



Industry



NGOs



Community-based
participatory research



Insurance Providers



Other Special Councils



Government

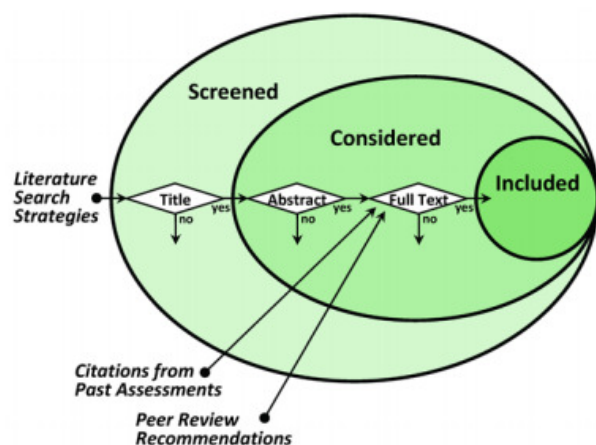


Regulatory Agencies



Criteria for Study Evaluation

WORLD HEALTH ORGANIZATION
INTERNATIONAL AGENCY FOR RESEARCH ON CANCER



Criteria for study evaluation include:

- Are the study populations, subjects, or animal models adequately selected, and are they sufficiently well defined to allow for meaningful comparisons between study or exposure groups?
- Are the statistical analyses appropriate, properly performed, and properly interpreted? Are likely covariates adequately controlled or taken into account in the study design and statistical analysis?
- Are the air quality data, exposure, or dose metrics of adequate quality and sufficiently representative of information regarding ambient conditions?
- Are the health, ecological or welfare effect measurements meaningful, valid and reliable?
- Do the analytical methods provide adequate sensitivity and precision to support conclusions?

***IARC Monographs on the Evaluation of
Carcinogenic Risks to Humans***

P R E A M B L E

From 2013 ISA on Ozone NAAQS

Figure II Illustration of processes for literature search and study selection used for development of ISAs.

LYON, FRANCE
2006

Key Contributions Needed

Science



- Chemical toxicity
- Exposure Characterizations
- Impacts on Climate/Ecosystem
- Seismicity

Health



- Respiratory Issues
- Pregnancy Outcomes
- Psychosocial
- Worker Safety
- Health Analyses

Law/Policy



- Loss of Local Democracy
- Siting Policies/Best Practices
- Infrastructure
- Community services
- Monitoring
- Enforcement

Unknowns



- Handling/treatment of Produced Water
- “Beneficial” Reuse
- Risk Management
- Other gaps in the research
- Monitoring

The Need



Aliso Canyon Gas Leak: The fallout



EVACUATION

Thousands of families are forced to leave their homes.



HOSPITALIZATION

Odor causes fever, nose bleeds, nausea and other illness.



BLACKOUTS

California energy agencies warn of blackouts

#1

Biggest methane leak
in U.S. history

119

The number of days it took to
plug the leak

109,000

Metric tons of **methane pollution**
emitted into the atmosphere

CLIMATE DAMAGE + WASTED ENERGY



Same annual near term
climate damage as nearly
2 million cars



Energy equal to burning
1 billion gallons
of gasoline



Same near term
climate damage as
9 million metric tons of CO₂

Re:Aliso Well Blow-out
Mr. Hamburg,

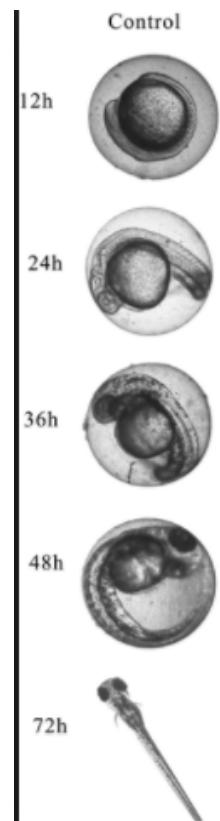
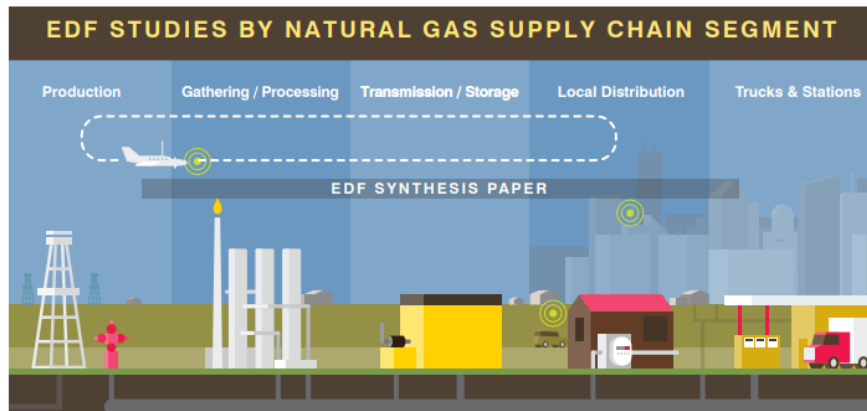
First I would like to thank you very much for the important work. Sometimes it's not until people personally that they begin to get it and I have at least about 6000 neighbors who get it now.

I am hoping you can help me with a question regarding any residual compounds from this blowout that we need to be concerned about. **We are being returned to our homes by the gas company and other agencies who assured us that no further environmental testing needs to be done.** We live in agriculturally zoned neighborhood that was affected. We have poultry, growing gardens, breeding horses etc. **Los Angeles Department of Public health will not make a record of whether or not our gardens are safe to consume fruits and vegetables from or even the interior air quality of our homes. After a disaster of this magnitude and duration can you tell us what compounds that rained down left residuals behind? Trying to find out if our soil should be tested before we begin growing again and what method should be used and what lab is reliable...**

Any help you can render would be greatly appreciated.

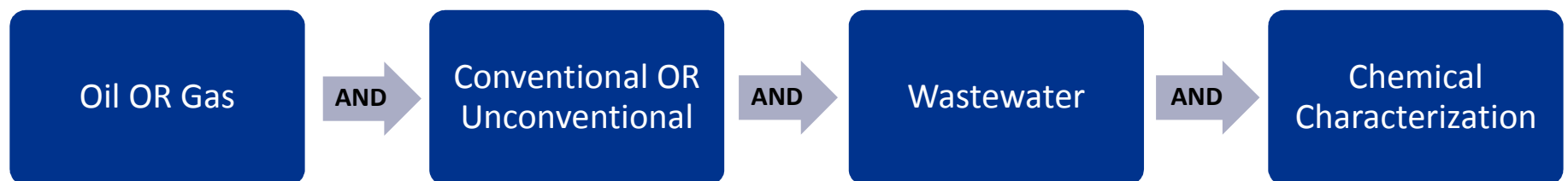
Best,
Eva

Other Comments



Literature Review Objectives

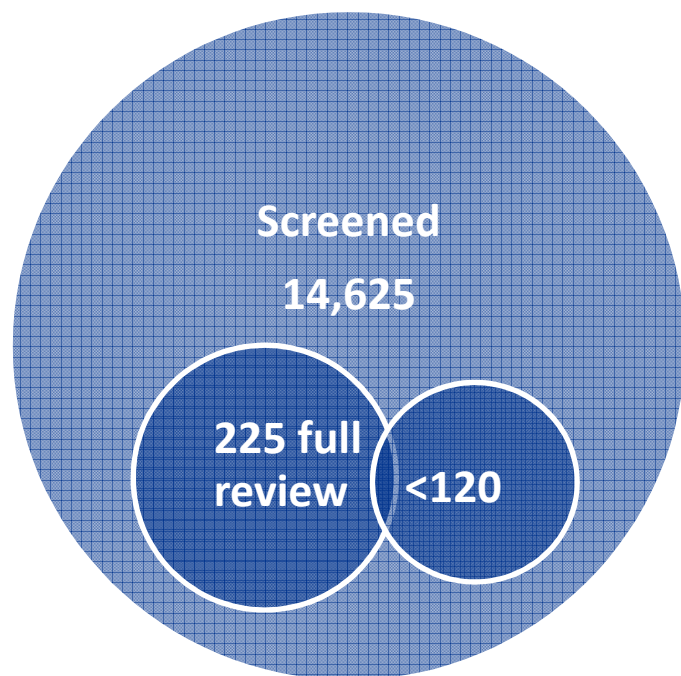
- Identify chemicals detected in wastewater from on on-shore oil and gas operations
- Prioritize based on known/unknown toxicity hazards
- Search logic:



Anticipated output (pending)

[illegible]

Current status



- Currently reviewing papers and pulling data
- Anticipate <120 paper to be included
- Data extraction: ~1200 unique chemicals identified so far



JAY JANNER/AUSTIN AMERICAN-STATESMAN VIA AP

Photo: Jay Janner

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