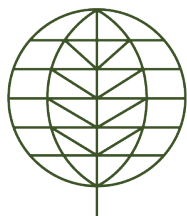


May 16, 2018



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Todd Jordan,
Director, Health Response Team
Occupational Safety and Health Administration
Salt Lake Technical Center,
Sandy, UT 84070

Eric Esswein
Field Effort to Characterize Chemical Exposures in Oil and Gas Extraction Workers,
National Institute for Occupational Safety and Health,
Denver Federal Center,
P.O. Box 25226 Denver, CO 80225

Dear Messrs. Jordan and Esswein,

On behalf of Earthworks, I'm writing with regard to harmful exposure to gas pollution by workers in the oil and gas industry, particularly from leaking or open thief hatches on storage and production tanks.

Earthworks is a non-profit organization dedicated to protecting communities and the environment from the adverse impacts of mineral and energy development while seeking sustainable solutions. To fulfill our mission, Earthworks relies on sound science to expose the health, environmental, economic, social, and cultural impacts of irresponsible energy extraction. For nearly 30 years, Earthworks has partnered with local communities to reform government policies, improve corporate practices, influence investment decisions, and encourage responsible energy sourcing and consumption.

Our Community Empowerment Project (CEP) makes visible air pollution from oil and gas operations, allowing residents and workers to see what they are being exposed to. We do this through Optical Gas Imaging (OGI), specifically Forward Looking Infrared cameras—the same technology used by industry and agencies, including the National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA). To date, we've documented oil and gas pollution at hundreds of sites in 15 states, as well as Canada, Mexico, and Argentina.¹

As documented in OSHA's and NIOSH's 2016 Hazard Alertⁱⁱ, workers face significant exposure risks on the job from open thief hatches, during liquids unloading, workovers, and other oil and gas activities. Earthworks has documented numerous examples of oil and gas industry workers exposed to gas plumes. Enclosed, please find a series of still photographs coupled with infrared OGI videos from selected facilities. Exposure

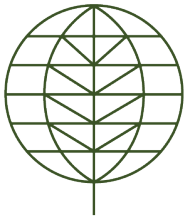
Dedicated to protecting communities and the environment from the adverse impacts of mineral and energy development while promoting sustainable solutions.

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durations and the source of pollution vary, although times, dates, and temperatures are recorded.

For instance, in Reeves County TX, on April 12th, 2018, our ITC-certified thermographer met a worker opening thief hatches on three interconnected tanks, allowing gases to escape for at least 40 minutes. In stark contrast to the OSHA and NIOSH's recommended oil and gas worker safety protocols, this employee worked alone, without a respirator, flame-resistant clothing, nor oxygen monitors. He was equipped with a hydrogen sulfide monitor. As indicated in an online complaint we filed with OSHA on April 20, 2018, the resulting OGI video (available at <https://youtu.be/HOeCgHcV428>) showed that the worker at the site is standing directly in the plume of emissions from a series of interconnected tanks.

- In April 2017, our thermographer filmed another Reeves County, TX worker waving to our camera while standing atop a series of tanks with heavy emissions from open thief hatches. (Primexx)
- In Denton, Texas, June 26, 2017, our OGI captured emissions from an open hatch exposing a worker proximate to a residential neighborhood (Vantage).
- In May 2016, leaks from thief hatches on interconnected tanks near Shreveport, Louisiana form a streaming plume of emissions passing just over the heads of workers on site (JW Operating).
- Near Epping, ND, in September 2015, we documented leaking vapors from what appear to be holes in the side of interconnected tanks, potentially exposing a worker to gas plumes. (Unknown)
- In Brazos, Texas, February 3, 2015, employees at a workover rig inhaled hydrocarbons rapidly billowing upward (Enervest).
- In Nolan/Taylor County Texas, in June 2017, huge plumes of hydrocarbons potentially exposing workers off-loading liquids (Mid-Con Energy)
- In Greeley, Colorado, September 2014, Earthworks documented how an open thief hatch exposed a worker on the catwalk to pollution before the plume wafted into a neighborhood. (Synergy)

Our videos, still photos, and onsite observations indicate that none of these workers wore respirators^{iv} nor any Self-Contained Breathing Apparatus.^v

Vapor emissions and hydrocarbon gases in production and flowback tanks, liquids unloading, workovers, and other activities vary widely. As a result, predicting the severity of risk from any specific task is difficult. In light of these documented working conditions, and the safety recommendations and resources included in OSHA's and NIOSH's Hazard Alert, we respectfully request that OSHA and NIOSH:

- Include these facilities within the agency's Field Effort to Assess Chemical Exposure Risks to Gas and Oil Workers.^{vi}
- Perform a Health Hazard Evaluation for these facilities.
- Provide training to workers in the use of multi-gas meters and the hazards associated with measuring tank volumes.
- Determine whether working conditions at these facilities may exceed "imminent danger to life and health" (IDLH) levels for benzene^{vii}, butane,^{viii} or other harmful pollutants.

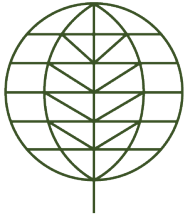
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- Determine whether other standards, guidelines, or regulations apply to these facilities, including, but not limited to, any other appropriate relief for workers or sanction for employers.

Thank you in advance for your attention to this matter. We would welcome the opportunity to discuss these matters with you, and to share additional OGI footage of oil and gas pollution. If you have any questions or concerns, please feel free to contact me.

Sincerely,

Aaron Mintzes,

Senior Policy Counsel, Earthworks

amintzes@earthworks.org

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ⁱ For details on CEP, see https://earthworks.org/stories/citizens_empowerment_project/.

ⁱⁱ NIOSH/OSHA Hazard Alert. Health and Safety Risks for Workers Involved in Manual Tank Gauging and Sampling at Oil and Gas Extraction Sites. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2016-108.

^{iv} In accordance with the OSHA Respiratory Protection Standard (29 CFR 1910.134).

^v Protecting Oil and Gas Workers from Hydrocarbon Gases and Vapors

Video Pub. No.: 2017-158

^{vi} DHHS (NIOSH) Publication No. 2010-130

(<http://www.cdc.gov/niosh/docs/2010-130/>)

^{vii} NIOSH-recommended benzene exposure limit (REL) is 0.1 parts per million (ppm) as a time-weighted average (TWA) for a full shift. NIOSH short-term exposure limit of 1 ppm as a 15-minute average for benzene. Benzene concentrations above 10% of the LEL are considered a risk for fires or explosions and are classified as Immediately Dangerous to Life and Health (IDLH) by OSHA and NIOSH.

^{viii} In 2014, researchers found levels of butane at a tank hatch 48 times the level considered to be an "immediate danger to life and health" (IDLH), and butane was only one of several compounds in the sample. The sample, taken in November, had propane at five times the IDLH level.