NIOSH Oil and Gas Extraction Program

May 2016

At-A-Glance

The Oil and Gas Extraction Program conducts research, partners with stakeholders, and develops and communicates workplace solutions to improve safety and health in the oil and gas exploration and production industry. This snapshot shows recent accomplishments and upcoming work.

What are our priorities?

The National Institute for Occupational Safety and Health (NIOSH) Oil and Gas Extraction Program works with partners in industry, labor, trade associations, professional organizations, and academia. The program focuses on these areas:

- Preventing worker fatalities in the oil and gas extraction industry, with an emphasis on transportation and exposure to hydrocarbon gases and vapors.
- Reducing respirable crystalline silica exposure, which can cause silicosis.

What do we do?

The program addresses safety and health hazards in the oil and gas extraction industry.

- Conduct epidemiology and surveillance to identify leading causes of death and injury.
- Characterize exposures to better understand the hazards.
- Develop and test engineering controls in the workplace, such as the NIOSH Mini-Baghouse Retrofit Assembly, which is designed to reduce respirable silica emissions from sand movers during hydraulic fracturing.
- Communicate and distribute information to raise awareness of hazards and NIOSH recommendations. Examples include developing products and reports that target the leading causes of death for workers, and working closely with partners to raise awareness of the hazards that involve hydrocarbon gases and vapors.

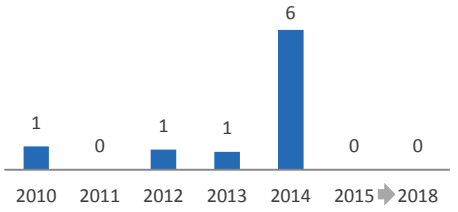
Oil and gas extraction worker fatality rate (per 100,000 workers)

Source: U.S. Bureau of Labor Statistics

What have we accomplished?

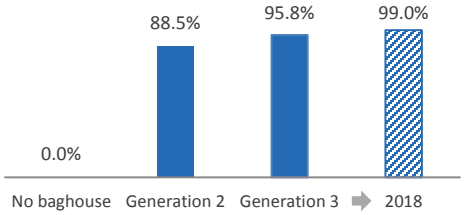
- Published an MMWR report on trends in oil and gas extraction worker fatalities during the industry boom from 2003–2013. During this period, the industry doubled its workforce and experienced a 71% increase in active drilling rigs, but the fatality rate decreased by 36%.
- Established the Fatalities in Oil and Gas (FOG) website and the 2014 mid-year report. FOG data are used to inform NIOSH, industry, and other stakeholder groups, and to guide interventions that will prevent future loss of life in this industry.
- Published a special FOG report that studied fatalities involving manual tank gauging, fluid transfer, and exposure to hydrocarbon gases and vapors. The report was based on findings from field assessments.
- Published a "NIOSH/OSHA Hazard Alert" on hydrocarbon exposure during manual tank gauging and fluid transfer operations.
- Contributed to an OSHA and National Service, Transmission, Exploration & Production Safety (STEPS) Alliance "Tank Hazard Alert" about hydrocarbon gases and vapors. (The National STEPS Network is made up of agencies, companies, and contractors that promote safety and health in the oil and gas extraction industry. NIOSH has a formal alliance with OSHA and STEPS.)
- Found that data from a test of the Generation 3 NIOSH Mini-Baghouse Retrofit Assembly control technology reduced respirable crystalline silica emissions by 95.8%—an improvement over the 88.5% reduction achieved by Generation 2. The Mini-Baghouse will help protect workers from harmful exposures during hydraulic fracturing.
- Published a book chapter on worker safety and health in *Environmental and Health Issues of Unconventional Oil and Gas Development.*

Number of oil and gas extraction worker deaths associated with hydrocarbon gases and vapors



Source: Fatalities in Oil and Gas (FOG) database

Reduction in respirable crystalline silica emissions by mini-baghouse control technology



Source: NIOSH [2015]. Field evaluation of a NIOSH mini-baghouse assembly for control of silica dust on sand movers. EPHB Report No. 373-11a.

What's next?

- Publish research findings on fatalities due to falls.
- Patent the NIOSH mini-baghouse silica dust engineering control.
- Conduct a survey of 500 oil and gas extraction workers to collect detailed information on factors related to safety and health.

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