## Supplementary Table 1

**Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary**

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description of Variable</th>
<th>Plausible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident ID</td>
<td>Unique identifier for each incident. Comprised of year incident occurred followed by incident number, beginning with 001.</td>
<td>YYYY-####</td>
</tr>
<tr>
<td>Injuries to Multiple People</td>
<td>Displays either &quot;Y&quot; indicating that yes, more than one worker was injured in the incident or &quot;N&quot; indicating that no, only one worker was injured.</td>
<td>- Y-Yes&lt;br&gt;- N-No&lt;br&gt;- U-Unknown</td>
</tr>
<tr>
<td># of Oil and Gas Extraction (OGE) Fatalities</td>
<td>Number of fatally injured workers</td>
<td>1+</td>
</tr>
<tr>
<td># of OGE Hospitalizations</td>
<td>Number of workers that were seriously injured and transferred to a hospital</td>
<td>0+</td>
</tr>
<tr>
<td>Year</td>
<td>Year the incident occurred</td>
<td>YYYY</td>
</tr>
<tr>
<td>Date</td>
<td>Date the incident occurred</td>
<td>MM/DD/YYYY</td>
</tr>
<tr>
<td>Time</td>
<td>Time the incident occurred</td>
<td>Time 24-hour system</td>
</tr>
<tr>
<td>Emergency Medical Services (EMS) Response Time</td>
<td>Time it took first responders to arrive</td>
<td>Free text [Number of minutes]</td>
</tr>
<tr>
<td>State</td>
<td>State where the incident occurred</td>
<td>State abbreviation</td>
</tr>
<tr>
<td>City</td>
<td>City where the incident occurred</td>
<td>Free text [City name]</td>
</tr>
<tr>
<td>Address</td>
<td>Address of where the incident occurred</td>
<td>Free text [Street number; Street name]</td>
</tr>
<tr>
<td>Latitude</td>
<td>Exact or estimated latitude of where the incident occurred</td>
<td>Free text [Decimal degrees]&lt;br&gt;Unknown</td>
</tr>
<tr>
<td>Longitude</td>
<td>Exact or estimated longitude of where the incident occurred</td>
<td>Free text [Decimal degrees]&lt;br&gt;Unknown</td>
</tr>
<tr>
<td>Longitude/Latitude Accuracy</td>
<td>Determination of whether the latitude and longitude were reported in the investigation report or if they were estimated by the FOG research team based on the geographic (city, state, address) information</td>
<td>- Estimate&lt;br&gt;- Non-Estimate&lt;br&gt;- Unknown</td>
</tr>
<tr>
<td>Basin</td>
<td>Basin where the incident occurred based on geographic (city, state) information and the FracTracker basin map</td>
<td>- Anadarko&lt;br&gt;- Appalachian&lt;br&gt;- Ardmore&lt;br&gt;- Arkoma&lt;br&gt;- Bighorn&lt;br&gt;- Black Warrior&lt;br&gt;- Cherokee Platform&lt;br&gt;- Denver&lt;br&gt;- Forest City&lt;br&gt;- Fort Worth&lt;br&gt;- Greater Green River&lt;br&gt;- Illinois&lt;br&gt;- Los Angeles&lt;br&gt;- Marfa&lt;br&gt;- Marietta&lt;br&gt;- Michigan&lt;br&gt;- Montana Thrust Belt&lt;br&gt;- North Park&lt;br&gt;- Palo Duro&lt;br&gt;- Paradox&lt;br&gt;- Permian&lt;br&gt;- Powder River&lt;br&gt;- Raton&lt;br&gt;- San Joaquin&lt;br&gt;- San Juan</td>
</tr>
<tr>
<td><strong>Operator Name</strong></td>
<td>Name of the company who owns or leases the wellsite</td>
<td>Free text</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td><strong>Operator # of Employees</strong></td>
<td>Number of workers employed by the company who own or leases the wellsite</td>
<td>Free text [Numeric]</td>
</tr>
<tr>
<td><strong>Operator Size</strong></td>
<td>Size of the company who owns or leases the wellsite</td>
<td>Large, 99+ - Medium, 20-99 - Small, &lt;20</td>
</tr>
<tr>
<td><strong>Phase of Operation</strong></td>
<td>The distinct stage or processes of well development that was taking place when the incident occurred</td>
<td>Casing Installation - Drilling Operations - Emergency Operations - Exploration - Plug and Abandon Well - Production - Site Preparation and Construction - Unknown - Unspecified: Off-Wellsite - Unspecified: Roadway - Unspecified: Wellsite - Waste Fluids Treatment and Disposal - Well Completion: Flowback - Well Completion: Hydraulic Fracturing - Well Completion: Other - Well Servicing, Intervention, or Workover - Yard Operations</td>
</tr>
<tr>
<td><strong>Activity 1</strong></td>
<td>The task or step within an operation that was taking place when the incident occurred. Each incident is assigned as many activities as appropriate to adequately characterize the event. It is possible for an incident to not have any assigned activities.</td>
<td>Break or Rest - Cementing - Chemical handling - Coiled tubing activities - Drilling during workover activities - Drilling fluid mixing and pumping - Drilling, pulling or running tubulars: - Lay down or pick-up - Makeup or break-out - Racking back - Other - Unspecified activity - Equipment assembly or dismantle - Fishing - Hot oiling - Hot work and welding - Housekeeping and cleaning: - Equipment - Rig - Tanks or other vessels - Other</td>
</tr>
</tbody>
</table>
Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary

- Unspecified
- Lease operation
- Material handling:
  - Powered equipment
  - Manual
- Office and administrative activities
- Perforating
- Plug drill out
- Pressure pumping
- Pressure testing
- Production rig activities
- Repair or maintenance:
  - Equipment
  - Flowlines
  - Rig
  - Separation equipment
  - Tanks
  - Tubulars
  - Vehicle
- Rigging up or down
- Setting packers or plugs
- Snubbing
- Spotting
- Swabbing
- Tank opening, gauging, or sampling
- Tank refurbishment and custom fabrication
- Training
- Transport:
  - (And transfer) of fluids
  - Equipment, proppant, or supplies hauling
  - Other types of cargo
  - Unspecified cargo
- Travel:
  - Aircraft
  - Light duty vehicle (commuting, non-traditional)
  - Light duty vehicle (on-duty)
  - Light duty vehicle (unknown)
  - Other (rail, bike, animal, etc.)
  - Water vehicle
- Well cleanout
- Well control equipment activities
- Wellhead or pumping unit activities
- Well kill
- Wellsite construction or upkeep
- Well testing or logging
- Wireline and slickline activities

<table>
<thead>
<tr>
<th>Activity 2</th>
<th>Same as Activity 1. This variable is only used if more than 1 activity is needed.</th>
<th>[See Activity 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 3</td>
<td>Same as Activity 1. This variable is only used if more than 2 activities are needed.</td>
<td>[See Activity 1]</td>
</tr>
</tbody>
</table>
## Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary

<table>
<thead>
<tr>
<th>Activity 4</th>
<th>Same as Activity 1. This variable is only used if more than 3 activities are needed.</th>
<th>[See Activity 1]</th>
</tr>
</thead>
</table>
| Location on Rig | Location on the wellsite where the incident occurred | - Catwalk/V-Door  
- Cherry picker/Crane  
- Derrick/Mast (Crown Monkey/Stabbing board, A-frame)  
- Engine room/Generator room  
- Forklift  
- Fuel/Water storage tanks  
- Jacking house  
- Living/Camp areas/Accommodations  
- Mud pump room  
- Off location  
- Mud mixing tank/area  
- Mud pits/tanks  
- Pipe rack/deck  
- Rig floor  
- SCR/Electrical room  
- Shale shaker  
- Stairs/ladders  
- Substructures  
- Tank battery  
- Well control (BOP) stack/Wellhead/Tree area  
- Well pad  
- Winch truck  
- Work room (Change house, Storage house)  
- Other  
- Unknown |
| Fatigue Related | Denotes whether worker fatigue was listed as a contributing factor in the investigation report | - Y-Yes  
- N-No |
| Pressure Related | Denotes whether high pressure was listed as a contributing factor in the investigation report | - Y-Yes  
- N-No |
| Permit Required Confined Space | Denotes whether a permit confined space contributed to the incident | - Y-Yes  
- N-No |
| Fluid Type | Completed if the incident involved the transport or transport of a fluid by a hauler | - Condensate  
- Crude oil  
- Flowback  
- Fresh water  
- Produced water (waste water, salt water, etc.)  
- Tank bottoms, solids, waste  
- Unspecified |
| Vehicle Related | Denotes whether the incident occurred in a moving vehicle | - Y-Yes  
- N-No |
| Crash Type | Completed only if Vehicle Related=Y. Denotes the type of crash as reported in the crash report. | - Collision with object other than vehicle  
- Collision with other vehicle  
- Non-collision incident  
- Pedestrian vehicular incident |
| Vehicle Type | Completed only if Vehicle Related=Y. Denotes the vehicle the fatally injured worker was driving or riding in when the incident occurred. | - ATV  
- Automobile  
- Bus  
- Crane |
## Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary

| Road Type | Completed only if Vehicle Related=Y. Denotes the type of road as reported in the crash report. | - At the wells site
- Lease road
- Local road or street
- Parking lot
- Rural highway (2 lane)
- Rural highway (>2 lane)
- Urban Interstate
- Yard
- Other unpaved road
- Unknown |
|-----------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| O&G Vehicle at Fault | Completed only if Vehicle Related=Y. Denotes whether the vehicle that the fatally injured worker was driving or riding in was at fault as reported in the crash report. | - Y-Yes
- N-No
- U-Unknown
- N/A |
| Occupation of Driver | Completed only if Vehicle Related=Y. Occupation of the fatally injured worker if they were driving the vehicle involved in the incident or the occupation of the driver of the vehicle the fatally injured worker was riding in. | - Area/Region Manager (Well Servicing)
- Coiled Tubing Assistant
- Coiled Tubing Operator
- Company Man
- Construction Worker – Facilities
- Construction Worker – Pipeline/Flow line
- Construction Worker – Well Site
- Crane Operator
- Derrickman
- District Manager (Well Servicing)
- Driller
- Electrician (Drilling)
- Electronics Tech (Well Servicing)
- Engineer (Drilling)
- Engineer (Well Servicing)
- Engineer – Field (Well Servicing)
- Environmental Manager/Technician (Production)
- Floorhand
- Health and Safety Manager (Well Servicing)
- Hot Oilier Helper/Asst.
- Hot Oilier Truck Operator/Driver
- Hydraulic Fracturing Equipment Operator
- Hydraulic Fracturing Field Coordinator |
<table>
<thead>
<tr>
<th><strong>Occupation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Hydraulic Fracturing Operations Manager/Asst.</td>
</tr>
<tr>
<td>- Hydraulic Fracturing Service Leader</td>
</tr>
<tr>
<td>- I.T./Metering/SCADA/Automation Technician (Production)</td>
</tr>
<tr>
<td>- Kill Truck Operator/Driver</td>
</tr>
<tr>
<td>- Maintenance Manager (Well Servicing)</td>
</tr>
<tr>
<td>- Maintenance Supervisor (Drilling)</td>
</tr>
<tr>
<td>- Mechanic/Repair Tech (Drilling)</td>
</tr>
<tr>
<td>- Medic (Drilling)</td>
</tr>
<tr>
<td>- Motorman</td>
</tr>
<tr>
<td>- Pressure Control Specialist</td>
</tr>
<tr>
<td>- Procedures Analyst</td>
</tr>
<tr>
<td>- Professional Driver-Shuttle/Van/Bus</td>
</tr>
<tr>
<td>- Pumper/Operator/Field Technician</td>
</tr>
<tr>
<td>- QA/QC Technician</td>
</tr>
<tr>
<td>- Rig Helper</td>
</tr>
<tr>
<td>- Rigger</td>
</tr>
<tr>
<td>- Roustabout</td>
</tr>
<tr>
<td>- Service Manager</td>
</tr>
<tr>
<td>- Shop Foreman</td>
</tr>
<tr>
<td>- Snubbing Assistant</td>
</tr>
<tr>
<td>- Snubbing Specialist</td>
</tr>
<tr>
<td>- Supervisor (Well Servicing)</td>
</tr>
<tr>
<td>- Swab Truck Assistant</td>
</tr>
<tr>
<td>- Swab Truck Operator</td>
</tr>
<tr>
<td>- Tank Gauger</td>
</tr>
<tr>
<td>- Tool/Fishing Operator</td>
</tr>
<tr>
<td>- Toolpusher/Drilling Supervisor</td>
</tr>
<tr>
<td>- Truck Driver – Crude Oil Tank</td>
</tr>
<tr>
<td>- Truck Driver – Flatbed Driver</td>
</tr>
<tr>
<td>- Truck Driver – Fluid Hauler</td>
</tr>
<tr>
<td>- Truck Driver – Other</td>
</tr>
<tr>
<td>- Truck Driver – Proppant Hauler</td>
</tr>
<tr>
<td>- Truck Driver – Sand Hauler</td>
</tr>
<tr>
<td>- Truck Driver – Straight Stick Transport Driver (Deliveries, etc.)</td>
</tr>
<tr>
<td>- Truck Driver – Unspecified</td>
</tr>
<tr>
<td>- Truck Driver – Water Hauler</td>
</tr>
<tr>
<td>- Truck Driver – Welding Truck</td>
</tr>
<tr>
<td>- Truck Helper/Swamper (Drilling)</td>
</tr>
<tr>
<td>- Vacuum Truck Operator/Driver</td>
</tr>
<tr>
<td>- Welder (Drilling)</td>
</tr>
<tr>
<td>- Welder (Well Servicing)</td>
</tr>
<tr>
<td>- Well Servicing Operator</td>
</tr>
<tr>
<td>- Wireline Operator</td>
</tr>
<tr>
<td>- Wireline Technician</td>
</tr>
<tr>
<td>- Wireline Gun Loader</td>
</tr>
<tr>
<td>- Other Occupation</td>
</tr>
<tr>
<td>- Unknown Occupation</td>
</tr>
<tr>
<td>- N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Speeding</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed only if Vehicle Related=Y. Denotes whether speeding was listed as a contributing factor or potential</td>
</tr>
<tr>
<td>- Y-Yes</td>
</tr>
<tr>
<td>- N-No</td>
</tr>
<tr>
<td>- U-Unknown</td>
</tr>
<tr>
<td><strong>Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary</strong></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Contributing Factor to the Crash</strong></td>
</tr>
<tr>
<td>MPH over Speed Limit</td>
</tr>
<tr>
<td>Distraction</td>
</tr>
<tr>
<td>Distraction Type</td>
</tr>
<tr>
<td>Fatigue/Drowsiness</td>
</tr>
<tr>
<td>Alcohol Involvement</td>
</tr>
<tr>
<td>Drug Involvement</td>
</tr>
<tr>
<td>Weather Related</td>
</tr>
<tr>
<td>Environmental Factor 1</td>
</tr>
<tr>
<td>Environmental Factor 2</td>
</tr>
<tr>
<td>Other Environmental Factor</td>
</tr>
<tr>
<td>Offshore</td>
</tr>
<tr>
<td>Wave Height (ft)</td>
</tr>
<tr>
<td>Distance from Shore (mi)</td>
</tr>
<tr>
<td><strong>Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary</strong></td>
</tr>
<tr>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td><strong>Wind Speed (kts)</strong></td>
</tr>
<tr>
<td><strong>Water Temperature (°F)</strong></td>
</tr>
<tr>
<td><strong>Water Depth (ft)</strong></td>
</tr>
<tr>
<td><strong>USCG Investigation #</strong></td>
</tr>
<tr>
<td><strong>BSEE Lease #</strong></td>
</tr>
<tr>
<td><strong>NTSB Investigation #</strong></td>
</tr>
<tr>
<td><strong>OSHA Investigation #</strong></td>
</tr>
<tr>
<td><strong>OSHA Fatal Facts #</strong></td>
</tr>
<tr>
<td><strong>NIOSH FACE Investigation #</strong></td>
</tr>
</tbody>
</table>
| **Case Identification** | Primary source of case identification | - BSEE  
- Media – Google Alert  
- Media – OSHA or NIOSH Clips  
- Media – Other  
- Newsletter  
- OSHA Direct Notification  
- OSHA Fat/Cat  
- OSHA Preliminary Report Data  
- OSHA Weekly Reports  
- Professional Contact  
- State OSHA Website  
- TX DOT  
- USCG IIIR  
- USCG Search  
- Other  
- N/A |
<p>| <strong>NIOSH Incident Description</strong> | Incident description from source documents | Free text |
| <strong>NIOSH Additional Information</strong> | Additional notes describing incident | Free text |
| <strong>OSHA Incident Descriptions</strong> | Incident description from OSHA case file if investigated by OSHA | Free text |
| <strong>Worker ID</strong> | Unique identifier for each fatally injured worker. Comprised of incident ID followed by worker number, beginning with 1. | YYYY-#### |
| <strong>Age</strong> | Age of the fatally injured worker | Free text |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td>Sex of the fatally injured worker</td>
<td>- Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Male</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td>Race of the fatally injured worker</td>
<td>- American Indian/Alaska Native</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Asian</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Black or African American</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hispanic or Latino</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- White</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Unknown</td>
</tr>
<tr>
<td><strong>State of Residence</strong></td>
<td>State of residence of the fatally injured worker</td>
<td>State abbreviation</td>
</tr>
<tr>
<td><strong>ESL</strong></td>
<td>Denotes whether the fatally injured worker spoke English as a second language</td>
<td>- Y-Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- N-No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- U-Unknown</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td>Occupation of the fatally injured worker</td>
<td>- Area/Region Manager (Well Servicing)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Coiled Tubing Assistant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Coiled Tubing Operator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Company Man</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Construction Worker – Facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Construction Worker – Pipeline/Flow line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Construction Worker – Well Site</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Crane Operator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Derrickman</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- District Manager (Well Servicing)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Driller</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Electrician (Drilling)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Electronics Tech (Well Servicing)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Engineer (Drilling)</td>
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<tr>
<td></td>
<td></td>
<td>- Engineer (Well Servicing)</td>
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<tr>
<td></td>
<td></td>
<td>- Engineer – Field (Well Servicing)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Environmental Manager/Technician (Production)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Floorhand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Health and Safety Manager (Well Servicing)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hot Oiler Helper/Asst.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hot Oiler Truck Operator/Driver</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hydraulic Fracturing Equipment Operator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hydraulic Fracturing Field Coordinator</td>
</tr>
<tr>
<td></td>
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<td>- Hydraulic Fracturing Operations Manager/Asst.</td>
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<td>- I.T./Metering/SCADA/Automation Technician (Production)</td>
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<tr>
<td></td>
<td></td>
<td>- Kill Truck Operator/Driver</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Maintenance Manager (Well Servicing)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Maintenance Supervisor (Drilling)</td>
</tr>
<tr>
<td></td>
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<td>- Mechanic/Repair Tech (Drilling)</td>
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<tr>
<td></td>
<td></td>
<td>- Motorman</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Pressure Control Specialist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Procedures Analyst</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Professional Driver-Shuttle/Van/Bus</td>
</tr>
</tbody>
</table>
### Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years in Oil Field</td>
<td>Number of known years of experience the fatally injured worker had in the oil and gas extraction industry</td>
<td>Free text</td>
</tr>
<tr>
<td>Contractor</td>
<td>Name of the company that worker was employed by</td>
<td>Free text</td>
</tr>
<tr>
<td>Contractor # of Employees</td>
<td>Number of workers employed by the company that worker was employed by</td>
<td>Free text</td>
</tr>
<tr>
<td>Contractor Size</td>
<td>Size of the company that worker was employed by</td>
<td>- Large, 99+ - Medium, 20-99 - Small, &lt;20 - Unknown</td>
</tr>
<tr>
<td>NAICS Code</td>
<td>North American Industry Classification System (NAICS) code indicating the industry group of the employer</td>
<td>- 211- Operator - 213111- Drilling Operations - 213112- Well Servicing - 238910- Site Preparation and Construction for Oil and Gas - 4842- Specialized Freight - 541360- Geophysical Surveying and Mapping</td>
</tr>
</tbody>
</table>
## Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lone Worker</td>
<td>Denotes whether the worker was fatally injured without any other worker or person present at the worksite or in the vehicle</td>
<td>- Other&lt;br&gt;- Unknown</td>
</tr>
<tr>
<td>Working Unobserved</td>
<td>Denotes whether the worker was fatally injured while working independently and unobserved by other workers on-site</td>
<td>- Y-Yes&lt;br&gt;- N-No&lt;br&gt;- U-Unknown&lt;br&gt;- N/A</td>
</tr>
<tr>
<td>NIOSH Event Type</td>
<td>How the fatal injury or illness occurred. In instances where two or more events occur to a single victim, precedence is given to the initial event type.</td>
<td>- Cardiac Event: No Known Work Exposure&lt;br&gt;- Contact Injury:&lt;br&gt;  - Caught Between or Crushed&lt;br&gt;  - Struck Against&lt;br&gt;  - Struck By&lt;br&gt;  - Struck By Falling Object&lt;br&gt;  - Electrocution&lt;br&gt;  - Explosion (combustion) or fire&lt;br&gt;  - Exposure:&lt;br&gt;  - Alcohol or Drug Overdose&lt;br&gt;  - Cardiac Event: Possible Work Exposure&lt;br&gt;  - Environmental&lt;br&gt;  - Hot or Cold Objects&lt;br&gt;  - Harmful Substance&lt;br&gt;  - Undetermined: Possible Work Exposure&lt;br&gt;  - Fall:&lt;br&gt;  - From Height&lt;br&gt;  - Same Level&lt;br&gt;  - Intentional Act&lt;br&gt;  - Overexertion&lt;br&gt;  - Vehicle Incident:&lt;br&gt;  - On-Site&lt;br&gt;  - Other Location&lt;br&gt;  - Roadway&lt;br&gt;  - Unspecified Location&lt;br&gt;  - Undetermined: No Known Work Exposure&lt;br&gt;  - Unknown</td>
</tr>
<tr>
<td>Injury Event Code</td>
<td>The manner in which the injury or illness was produced or inflicted by the source of injury or illness as coded by the Occupational Injury and Illness Classification System (OIICS)</td>
<td>Free text&lt;br&gt;<a href="https://www.cdc.gov/niosh/oilc.html">See OIICS Manual for Coding Scheme</a></td>
</tr>
<tr>
<td>Nature of Injury</td>
<td>Principal physical characteristic(s) of the work related injury or illness as coded by OIICS</td>
<td>Free text&lt;br&gt;<a href="https://www.cdc.gov/niosh/oilc.html">See OIICS Manual for Coding Scheme</a></td>
</tr>
<tr>
<td>Body Part Injured</td>
<td>Part of the body directly affected by the previously identified nature of injury or illness as coded by OIICS</td>
<td>Free text&lt;br&gt;<a href="https://www.cdc.gov/niosh/oilc.html">See OIICS Manual for Coding Scheme</a></td>
</tr>
<tr>
<td>Source of Injury</td>
<td>Object, substance, equipment, or other factor that was responsible for the injury or illness incurred by the worker or that precipitated the event or exposure as coded by OIICS</td>
<td>Free text&lt;br&gt;<a href="https://www.cdc.gov/niosh/oilc.html">See OIICS Manual for Coding Scheme</a></td>
</tr>
</tbody>
</table>
## Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary

<table>
<thead>
<tr>
<th><strong>Secondary Source</strong></th>
<th>Object, substance, equipment, or other factor that was responsible for the injury or illness incurred by the worker or that precipitated the event or exposure as coded by OIICS</th>
<th>Free text</th>
<th>See OIICS Manual for Coding Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task</strong></td>
<td>Primary task performed by the fatally injured worker at the time of the incident</td>
<td>Free text</td>
<td></td>
</tr>
<tr>
<td><strong>Other Task</strong></td>
<td>Other task performed by the fatally injured worker at the time of the incident</td>
<td>Free text</td>
<td></td>
</tr>
</tbody>
</table>
| **Human Factor 1**   | Primary human factor that contributed to the incident | - Alcohol Consumption  
- Defective Equipment: Knowingly Used  
- Distracting Actions by Others  
- Drug Use  
- Equipment in Use Not Appropriate for Operation or Process  
- Fatigue  
- Inexperience  
- Insufficient or Lack of Engineering Controls  
- Insufficient or Lack of Exposure or Biological Monitoring  
- Insufficient or Lack of Housekeeping Program  
- Insufficient or Lack of Protective Work Clothing and Equipment  
- Insufficient or Lack of Respiratory Protection  
- Insufficient or Lack of Written Work Practices Program  
- Malfunction of Neuro-Muscular System  
- Malfunction of Perception System with Respect to Task Environment  
- Malfunction of Procedure for Securing Operation or Warning of Hazardous Situation  
- Malfunction of Procedure for Lock-Out or Tag-Out  
- Misjudgment of Hazardous Situation  
- Operational Position Not Appropriate  
- Procedure for Handling Materials Not Appropriate for Task  
- Safety Devices Removed or Inoperative  
- Under Suspended Load Unnecessarily |
| **Human Factor 2**   | Additional human factor that contributed to the incident | - Alcohol Consumption  
- Defective Equipment: Knowingly Used  
- Distracting Actions by Others  
- Drug Use  
- Equipment in Use Not Appropriate for Operation or Process  
- Fatigue  
- Inexperience  
- Insufficient or Lack of Engineering Controls  
- Insufficient or Lack of Exposure or Biological Monitoring |
**Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary**

<table>
<thead>
<tr>
<th>Other Human Factor</th>
<th>Other human factor that contributed to the incident or additional details describing the previously identified human factors</th>
<th>Free text</th>
</tr>
</thead>
</table>

| Contact Injury | Completed only if NIOSH Event Type=Contact Injury OR if a contact injured occurred during the incident. Denotes whether the incident involved a contact injury. | Y-Yes, N-No |

<p>| Equipment | Completed only if Contact Injury=Y. Equipment that produced or inflicted the injury or illness. | Anchor Chains, Cables, Winches, Boards/Baskets, BOP Stack, Chemicals, Chemicals (sack, drum, pail, bulk hopper), Christmas Tree, Coiled Tubing, Crane, Decks (grating, walkway), Drawworks/Hoists/Winch (cathead), Elevators, Engines/Pumps/Machinery/Compressor, Forklift, Hand Tools (manual), Hand Tools (power), Hardline/Softline, Heater Treater, Iron Roughneck, Pipe Spinner, Power Tongs, Kelly Bushings (master bushings), Ladder, Manual Tongs, Pipes, Collars, Tubulars, Pressure Hoses/Lines, Pump Unit |</p>
<table>
<thead>
<tr>
<th>Other Equipment</th>
<th>Completed only if Contact Injury=Y. Other equipment that contributed to injury or illness.</th>
<th>Free text</th>
</tr>
</thead>
</table>
| Pipe Handling   | Completed only if Contact Injury=Y. Denotes whether pipe handling occurred during incident. | - Y-Yes  
|                 |                                                                                                 | - N-No    |
| Fall            | Completed only if NIOSH Event Type=Fall OR if a fall occurred during the incident. Denotes whether the incident involved a fall. | - Y-Yes  
|                 |                                                                                                 | - N-No    |
| Fall Height (ft) | Completed only if Fall=Y. Height of the fall. Denotes whether the incident involved a fall. | Free text |
| Harness Used    | Completed only if Fall=Y. Denotes whether fall protection equipment, such as a harness, was worn by the fatally injured worker. | - Y-Yes  
|                 |                                                                                                 | - N-No    
|                 |                                                                                                 | - U-Unknown |
|                 |                                                                                                 | - N/A     |
| Harness Sized Correctly | Completed only if Fall=Y AND Harness Used=Y. Denotes whether the harness was sized correctly for the fatally injured worker. | - Y-Yes  
|                 |                                                                                                 | - N-No    
|                 |                                                                                                 | - U-Unknown |
|                 |                                                                                                 | - N/A     |
| Tied Off Correctly | Completed only if Fall=Y AND Harness Used=Y. Denotes whether the harness was tied off correctly. | - Y-Yes  
|                 |                                                                                                 | - N-No    
|                 |                                                                                                 | - U-Unknown |
|                 |                                                                                                 | - N/A     |
| System Failure  | Completed only if Fall=Y AND Harness Used=Y. Denotes whether a harness system failure occurred. | - Y-Yes  
|                 |                                                                                                 | - N-No    
|                 |                                                                                                 | - U-Unknown |
|                 |                                                                                                 | - N/A     |
| Transport Accident | Denotes whether the incident was related to transportation. | - Y-Yes  
|                 |                                                                                                 | - N-No    |
| Commuting       | Completed only if Transport Accident=Y. Denotes whether the fatally injured worker was commuting to or from work. | - Y-Yes  
|                 |                                                                                                 | - N-No    
|                 |                                                                                                 | - U-Unknown |
|                 |                                                                                                 | - N/A     |
| Ejected         | Completed only if Transport Accident=Y. Denotes whether the fatally injured worker was ejected from the vehicle. | - Y-Yes  
|                 |                                                                                                 | - N-No    
|                 |                                                                                                 | - U-Unknown |
|                 |                                                                                                 | - N/A     |
| Seatbelt Used   | Completed only if Transport Accident=Y. Denotes whether the fatally injured worker was wearing a seat belt. | - Y-Yes  
|                 |                                                                                                 | - N-No    
|                 |                                                                                                 | - U-Unknown |
|                 |                                                                                                 | - N/A     |
### Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary

| Fires and Explosions | Completed only if NIOSH Event Type= Explosion (combustion) or fire OR Explosion (pressure) OR if a fire or explosion occurred during the incident. Denotes whether the incident involved a fire or explosion. | - Y-Yes  
- N-No |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Equipment            | Completed only if Fires and Explosions=Y. Equipment that was involved in the fire or explosion.                                                                                                                                                           | Anchor Chains, Cables, Winches  
- Boards/Baskets  
- BOP Stack  
- Chemicals  
- Chemicals (sack, drum, pail, bulk hopper)  
- Christmas Tree  
- Coiled Tubing  
- Crane  
- Decks (grating, walkway)  
- Drawworks/Hoists/Winch (cathead)  
- Elevators  
- Engines/Pumps/Machinery/Compressor  
- Forklift  
- Hand Tools (manual)  
- Hand Tools (power)  
- Hardline/Softline  
- Heater Treater  
- Iron Roughneck, Pipe Spinner, Power Tongs  
- Kelly Bushings (master bushings)  
- Ladder  
- Manual Tongs  
- Pipes, Collars, Tubulars  
- Pressure Hoses/Lines  
- Pump Unit  
- Rig Floor Winch  
- Rotary  
- Sand Separator  
- Slings (wire rope, cable, chain, web)  
- Slips  
- Spinning Chain  
- Stairs  
- Tank/Vessels  
- Top Drive (blocks, swivel, Kelly)  
- Truck- Semi, Long-Haul, Short-Haul  
- Truck- Vacuum  
- Truck- Winch  
- Vehicles  
- Welding, Cutting, Grinding Equipment  
- Other Equipment |
| Other Equipment      | Completed only if Fires and Explosions=Y. Other equipment that was involved in the fire or explosion.                                                                                                                                                 | Free text |
| Ignition Source      | Completed only if Fires and Explosions=Y. Ignition source that produced the fire or explosion.                                                                                                                                                            | Free text |
| Flammable Material Source | Completed only if Fires and Explosions=Y. Source of flammable material involved in the fire or explosion.                                                                                                                                      | Free text |
Supplementary Table 2
Fatalities in Oil and Gas Extraction (FOG) Database

Variable Changes from FOG 1.0 to FOG 2.0

The FOG variables Phase of Operation, Activity, and Event Type were reviewed and updated by NIOSH oil and gas researchers to better reflect the OGE circumstances of fatalities identified during 2014–2017. An updated “FOG 2.0” set of variable codes were used to code fatalities during 2018–2019 and were also used to update codes for fatalities during 2014–2017. The following tables display the original FOG 1.0 values for each variable and the updated FOG 2.0 values. Values highlighted in red in FOG 1.0 were removed if the corresponding FOG 2.0 cell is blank. Values highlighted in red in FOG 1.0 were renamed, combined, or modified in some way if the corresponding FOG 2.0 cell is highlighted in green. Values highlighted in green in FOG 2.0 where the corresponding FOG 1.0 cell is blank were new values.

**Phase of Operation:**

<table>
<thead>
<tr>
<th>FOG 1.0</th>
<th>FOG 2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casing installation</td>
<td>Casing installation</td>
</tr>
<tr>
<td>Drilling operations</td>
<td>Drilling operations</td>
</tr>
<tr>
<td>Emergency operations</td>
<td>Emergency operations</td>
</tr>
<tr>
<td>Exploration</td>
<td></td>
</tr>
<tr>
<td>Flowback</td>
<td></td>
</tr>
<tr>
<td>Hydraulic fracturing</td>
<td></td>
</tr>
<tr>
<td>Offshore</td>
<td></td>
</tr>
<tr>
<td>Plug and abandon well</td>
<td>Plug and abandon well</td>
</tr>
<tr>
<td>Production</td>
<td>Production</td>
</tr>
<tr>
<td>Site preparation</td>
<td>Site preparation and construction</td>
</tr>
<tr>
<td>Tank refurbishment and custom fabrication</td>
<td>Unknown</td>
</tr>
<tr>
<td>Unspecified: Off-wellsite</td>
<td>Unspecified: Off-wellsite</td>
</tr>
<tr>
<td>Unspecified: Wellsite</td>
<td>Unspecified: Wellsite</td>
</tr>
<tr>
<td>Vehicle repair or maintenance operations</td>
<td></td>
</tr>
<tr>
<td>Waste fluids treatment and disposal</td>
<td>Waste fluids treatment and disposal</td>
</tr>
<tr>
<td>Well completion</td>
<td>Well completion: Flowback</td>
</tr>
<tr>
<td>Well completion: Hydraulic fracturing</td>
<td>Well completion: Other</td>
</tr>
<tr>
<td>Well servicing, intervention, or workover</td>
<td>Well servicing, intervention, or workover</td>
</tr>
<tr>
<td></td>
<td>Yard operations</td>
</tr>
<tr>
<td>Activity:</td>
<td>FOG 1.0</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Break or rest</td>
<td>Break or rest</td>
</tr>
<tr>
<td>Casing repair or maintenance</td>
<td></td>
</tr>
<tr>
<td>Cementing</td>
<td>Cementing</td>
</tr>
<tr>
<td>Coiled tubing activities</td>
<td>Coiled tubing activities</td>
</tr>
<tr>
<td>Downhole tool and equipment activities</td>
<td>Drilling during workover activities</td>
</tr>
<tr>
<td>Drilling activities</td>
<td>Drilling fluid mixing and pumping</td>
</tr>
<tr>
<td>Laydown or pickup tubulars</td>
<td>Lay down or pick-up</td>
</tr>
<tr>
<td>Makeup or breakout tubulars</td>
<td></td>
</tr>
<tr>
<td>Racking back tubulars</td>
<td></td>
</tr>
<tr>
<td>Making connection</td>
<td></td>
</tr>
<tr>
<td>Pulling or running rods</td>
<td></td>
</tr>
<tr>
<td>Pulling or running tubing</td>
<td></td>
</tr>
<tr>
<td>Equipment install or dismantle</td>
<td>Equipment install or dismantle</td>
</tr>
<tr>
<td>Fishing</td>
<td>Fishing</td>
</tr>
<tr>
<td>Hot oiling</td>
<td>Hot oiling</td>
</tr>
<tr>
<td>Hotwork and welding</td>
<td>Hotwork and welding</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Production monitoring</td>
<td></td>
</tr>
<tr>
<td>Material handling:</td>
<td></td>
</tr>
<tr>
<td>Crane, forklift, winch truck</td>
<td>Powered equipment</td>
</tr>
<tr>
<td>Manual</td>
<td>Manual</td>
</tr>
<tr>
<td>Rig floor hoisting equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen pumping</td>
<td></td>
</tr>
<tr>
<td>Paraffin removal</td>
<td></td>
</tr>
<tr>
<td>Perforating</td>
<td></td>
</tr>
<tr>
<td>Plug drill out</td>
<td></td>
</tr>
<tr>
<td>Pressure pumping</td>
<td></td>
</tr>
<tr>
<td>Pressure testing</td>
<td></td>
</tr>
<tr>
<td>Produced and waste fluids storage</td>
<td></td>
</tr>
<tr>
<td>Production rig activities</td>
<td></td>
</tr>
<tr>
<td>Rig or equipment repair or maintenance</td>
<td>Repair or maintenance:</td>
</tr>
<tr>
<td>Rod repair or maintenance</td>
<td></td>
</tr>
<tr>
<td>Tank cleaning or maintenance</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Production tubing repair or maintenance</strong></td>
<td><strong>Tanks</strong></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td><strong>Vehicle repair or maintenance</strong></td>
<td><strong>Tubulars</strong></td>
</tr>
<tr>
<td><strong>Production tubing installation</strong></td>
<td><strong>Vehicle</strong></td>
</tr>
<tr>
<td><strong>Rigging up or down</strong></td>
<td><strong>Rigging up or down</strong></td>
</tr>
<tr>
<td><strong>Running casing</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Separation equipment activities</strong></td>
<td><strong>Setting packers or plugs</strong></td>
</tr>
<tr>
<td><strong>Snubbing</strong></td>
<td><strong>Snubbing</strong></td>
</tr>
<tr>
<td><strong>Spotting</strong></td>
<td><strong>Spotting</strong></td>
</tr>
<tr>
<td><strong>Swabbing</strong></td>
<td><strong>Swabbing</strong></td>
</tr>
<tr>
<td><strong>Tank gauging or sampling</strong></td>
<td><strong>Tank opening, gauging, or sampling</strong></td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td><strong>Training</strong></td>
</tr>
<tr>
<td><strong>Tripping pipe in or out</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Truck transport:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Crude oil hauling</strong></td>
<td><strong>(And transfer) of fluids</strong></td>
</tr>
<tr>
<td><strong>Equipment or supplies hauling</strong></td>
<td><strong>Equipment, proppant, or supplies hauling</strong></td>
</tr>
<tr>
<td><strong>Other types of cargo</strong></td>
<td><strong>Other types of cargo</strong></td>
</tr>
<tr>
<td><strong>Produced or waste water hauling</strong></td>
<td><strong>Unspecified cargo</strong></td>
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<td><strong>Unspecified cargo</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Water hauling</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Commuting: Nontraditional</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Travel:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Motor vehicle travel</strong></td>
<td><strong>Light duty vehicle (commuting, non-traditional)</strong></td>
</tr>
<tr>
<td><strong>Nonmotor vehicle travel</strong></td>
<td><strong>Light duty vehicle (on-duty)</strong></td>
</tr>
<tr>
<td><strong>Other (rail, bike, animal, etc.)</strong></td>
<td><strong>Light duty vehicle (unknown)</strong></td>
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<tr>
<td><strong>Vacuum truck activities</strong></td>
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</tr>
<tr>
<td><strong>Well cleanout</strong></td>
<td><strong>Well cleanout</strong></td>
</tr>
<tr>
<td><strong>Well control equipment activities</strong></td>
<td><strong>Well control equipment activities</strong></td>
</tr>
<tr>
<td><strong>Wellhead or pumping unit activities</strong></td>
<td><strong>Wellhead or pumping unit activities</strong></td>
</tr>
<tr>
<td><strong>Well kill</strong></td>
<td><strong>Well kill</strong></td>
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<td><strong>Wellsite maintenance or construction</strong></td>
<td><strong>Wellsite construction and upkeep</strong></td>
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<td><strong>Well testing or logging</strong></td>
<td><strong>Well testing or logging</strong></td>
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<tr>
<td><strong>Wireline and slickline activities</strong></td>
<td><strong>Wireline and slickline activities</strong></td>
</tr>
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<td>Event Type:</td>
<td>FOG 1.0</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Contact Injuries</td>
<td>Caught between or crushed</td>
</tr>
<tr>
<td></td>
<td>Struck by</td>
</tr>
<tr>
<td></td>
<td>Struck by falling object</td>
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<tr>
<td>Electrocutions</td>
<td></td>
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<tr>
<td>Explosion (combustion) or fire</td>
<td></td>
</tr>
<tr>
<td>Explosion (pressure)</td>
<td></td>
</tr>
<tr>
<td>Exposure</td>
<td>Alcohol or drug poisoning</td>
</tr>
<tr>
<td></td>
<td>Cardiac event: possible work exposure</td>
</tr>
<tr>
<td></td>
<td>Environmental</td>
</tr>
<tr>
<td></td>
<td>Harmful substance</td>
</tr>
<tr>
<td></td>
<td>Undetermined: possible work exposure</td>
</tr>
<tr>
<td>Fall</td>
<td>Fall from height</td>
</tr>
<tr>
<td></td>
<td>Same level (slip or trip)</td>
</tr>
<tr>
<td>Intentional Acts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overexertion</td>
</tr>
<tr>
<td>Vehicle Incident</td>
<td>On site</td>
</tr>
<tr>
<td></td>
<td>Other location</td>
</tr>
<tr>
<td></td>
<td>Roadway</td>
</tr>
<tr>
<td></td>
<td>Unspecified location</td>
</tr>
<tr>
<td>Events with No Known Work Exposure</td>
<td>Cardiac event: no known work exposure</td>
</tr>
<tr>
<td></td>
<td>Undetermined: no known work exposure</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
</tr>
</tbody>
</table>
Supplementary Table 3
Oil and gas extraction worker fatalities by phase of operation – Fatalities in Oil and Gas Extraction (FOG) Database, 2014-2019

<table>
<thead>
<tr>
<th>Phase of Operation</th>
<th>Total FOG fatalities No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>83 (17.7)</td>
</tr>
<tr>
<td>Unspecified: roadway</td>
<td>76 (16.2)</td>
</tr>
<tr>
<td>Well servicing, intervention, or workover</td>
<td>67 (14.3)</td>
</tr>
<tr>
<td>Drilling operations</td>
<td>66 (14.0)</td>
</tr>
<tr>
<td>Well completion</td>
<td>39 (8.3)</td>
</tr>
<tr>
<td>Yard operations</td>
<td>31 (6.6)</td>
</tr>
<tr>
<td>Unspecified: wellsite</td>
<td>23 (4.9)</td>
</tr>
<tr>
<td>Waste fluids treatment and disposal</td>
<td>11 (2.3)</td>
</tr>
<tr>
<td>Casing installation</td>
<td>10 (2.1)</td>
</tr>
<tr>
<td>Site preparation and construction</td>
<td>7 (1.5)</td>
</tr>
<tr>
<td>Unspecified: off-wellsite</td>
<td>6 (1.3)</td>
</tr>
<tr>
<td>Plug and abandon well</td>
<td>2 (0.4)</td>
</tr>
<tr>
<td>Exploration</td>
<td>1 (0.2)</td>
</tr>
<tr>
<td>Unknown</td>
<td>48 (10.2)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>470</strong></td>
</tr>
</tbody>
</table>
Supplementary Appendix 1

Fatality Information Form

Fatalities in Oil and Gas Extraction (FOG) Database
# Required Incident Information

| Date: | Select Date (MM/DD/YYYY) |
| Time: | Type Time (Military time) |
| EMS Response Time: | Type Minutes |
| State: | Select State |
| City: | Type City |
| Address: | Type Address |
| Latitude: | Type Coordinate or Select Unknown |
| Longitude: | Type Coordinate or Select Unknown |
| Long./Lat. Accuracy: | Select Answer |
| Basin: | Select Basin |
| Operator Name: | Type Operator Name |
| # of Employees: | Type Operator # of Employees |
| Size: | Select Operator Size |
| Phase of operation: | Click here to enter text |
| Activities: | Type activities separated by a semicolon |
| Location on Rig: | Select Location |

## Fatigue Related:
- ☐

## Pressure Related:
- ☐

## Permit required confined space:
- ☐

## Fluid Type:
- Choose an item

## Vehicle Related:
- ☐

- Crash type: Choose an item
- Vehicle Type: Select Vehicle Type
- Road Type: Select Road Type
- O&G Vehicle at Fault: Select Answer
- Occupation of Driver: Select Occupation
- Speeding: Select Answer
- MPH over speed limit: Click here to enter text
- Distraction: Select Answer
- Distraction Type: Click here to enter text
- Fatigue/Drowsiness: Select Answer
- Alcohol Involvement: Select Answer
- Drug Involvement: Select Answer

## Weather Related:
- ☐

- Env. Factor 1: Select Env. Factor
- Env. Factor 2: Select Env. Factor
- Other Env. Factor: Click here to enter text

## Offshore:
- ☐

- Wave Height (ft): Type Wave Height
- Wind Speed (kts): Type Wind Speed
- Water Depth (ft): Type Water Depth
- Distance from Shore (mi): Type Distance from Shore
- Water Temperature (°F): Type Water Temperature
- USCG Investigation #: Type USCG Investigation #
- BSEE Lease #: Type BSEE Lease #
- NTSB Investigation #: Type NTSB Investigation #
## Incident Descriptions

<table>
<thead>
<tr>
<th>Field</th>
<th>Type or Select N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA Investigation #:</td>
<td></td>
</tr>
<tr>
<td>OSHA Fatal Facts #:</td>
<td></td>
</tr>
<tr>
<td>NIOSH FACE Investigation #:</td>
<td></td>
</tr>
<tr>
<td>Case Identification:</td>
<td>Type/Select Source</td>
</tr>
<tr>
<td>Source Document Tracking Form:</td>
<td>Hyperlink or Paste Pathname</td>
</tr>
</tbody>
</table>

**NIOSH Oil and Gas Description of Incident** (includes all de-identified relevant information from all sources):
Type NIOSH description of Incident

**NIOSH Oil and Gas Additional Information**
Type description

**OSHA Preliminary Report Descriptions of Incident:**
Type OSHA description of Incident
## Employee Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Type Age</td>
</tr>
<tr>
<td>Sex</td>
<td>Select Sex</td>
</tr>
<tr>
<td>Race</td>
<td>Select Race</td>
</tr>
<tr>
<td>State of Residence</td>
<td>Select State</td>
</tr>
<tr>
<td>ESL</td>
<td>Select answer</td>
</tr>
<tr>
<td>Occupation</td>
<td>Select Occupation or Click here to enter text</td>
</tr>
<tr>
<td>Years in Oil Field</td>
<td>Type Years in Oil Field</td>
</tr>
<tr>
<td>Contractor</td>
<td>Type Contractor Name</td>
</tr>
<tr>
<td># of Employees</td>
<td>Type Contractor # of Employees</td>
</tr>
<tr>
<td>Size</td>
<td>Select Contractor Size</td>
</tr>
<tr>
<td>NAICS Code</td>
<td>Select NAICS Code</td>
</tr>
</tbody>
</table>

## Lone worker

- Select Answer

## Working unobserved

- Select Answer

## NIOSH Event Type

- Select Event Type

## Injury Event Code

- ######

## Nature of Injury

- ######

## Body Part Injured

- ######

## Source of Injury

- ######

## Secondary Source

- ######

## Task

- Type Task

## Other Task

- Type Other Task

## Human Factor 1

- Select Human Factor

## Human Factor 2

- Select Human Factor

## Other Human Factor

- Type Other Human Factor

## 0- Contact Injury

- Select Equipment
- Type Other Equipment

## 1- Fall

- Type Fall Height
- Select Answer

## 4- Transport Accident

- Select Answer
- Select Answer

## 5- Fires and Explosions

- Select Equipment
- Type Other Equipment
- Type Ignition Source
- Type Flammable Material Source

---

**Page 3 of 3**
Supplementary Appendix 2
Contributions of Fatalities in Oil and Gas Extraction (FOG) data to oil and gas extraction research

Exposures to hydrocarbon gases and vapors


Periodic publications


Hazard alerts and fact sheets

Fatalities in Oil and Gas Extraction (FOG) Database Data Dictionary


Scientific Publications

• Working Alone and/or in Remote Locations: Opportunities to Prevent the Risk of Fatality from Cardiovascular Events in Oil and Gas Extraction Workers. 2023. Journal of Occupational and Environmental Medicine.
• Risk Factors for Heat-Related Illness Resulting in Death or Hospitalization in the Oil and Gas Extraction Industry. 2023. Submitted for publication.