

<b><i>E&amp;B Oilfield Services Inc.</i></b>	Activity: <b>All Work</b> <b>Static Electricity</b>		Doc No:	HAZ-ID
			Initial Issue Date	4/1/2015
			Revision Date:	4/1/2016
<b>HAZARD IDENTIFICATION AND ASSESSMENT</b>			Revision No.	1
			Next Revision Date:	4/1/2017
Preparation: David Abegglen	Authority: Danny Abegglen	Issuing Dept: Safety	Page:	1 of 3

## Purpose

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- **Static Electricity**

## Key Responsibilities

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- E&B Management will provide task appropriate training to all employees for static electricity
- Supervisors / Leads are required to ensure all employees have adequate training
- E&B Employees should make sure they feel comfortable before left on their own while in training

## Hazard and Risk Identification

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Employees MAY be engaged in spill prevention during (but is not limited) to the following activities:

- Pigging gas lines
- Transfer of any flammable liquid (chemical or fuel)

## Risk Assessment

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Hazards are classified and ranked based on severity. The program identifies hazards are classified/prioritized and addressed based on the risk associated with the task. (See the risk analysis matrix outlining severity and probability).

Static electricity is an imbalance of electric charges within or on the surface of a material. The charge remains until it is able to move away by means of an electric current or electrical discharge. Static electricity is named in contrast with current electricity, which flows through wires or other conductors and transmits energy.

A static electric charge is created whenever two surfaces contact and separate, and at least one of the surfaces has a high resistance to electrical current (and is therefore an electrical insulator). The effects of static electricity are familiar to most people because people can feel, hear, and even see the spark as the excess charge is neutralized when brought close to a large electrical conductor (for example, a path to ground), or a region with an excess charge of the opposite polarity (positive or negative). The familiar phenomenon of a static shock—more specifically, an electrostatic discharge—is caused by the neutralization of charge.

The transfer of any liquid has the potential of creating static electricity. If the fluid is flammable then a static discharge in the form of a spark can result in fire or explosion.

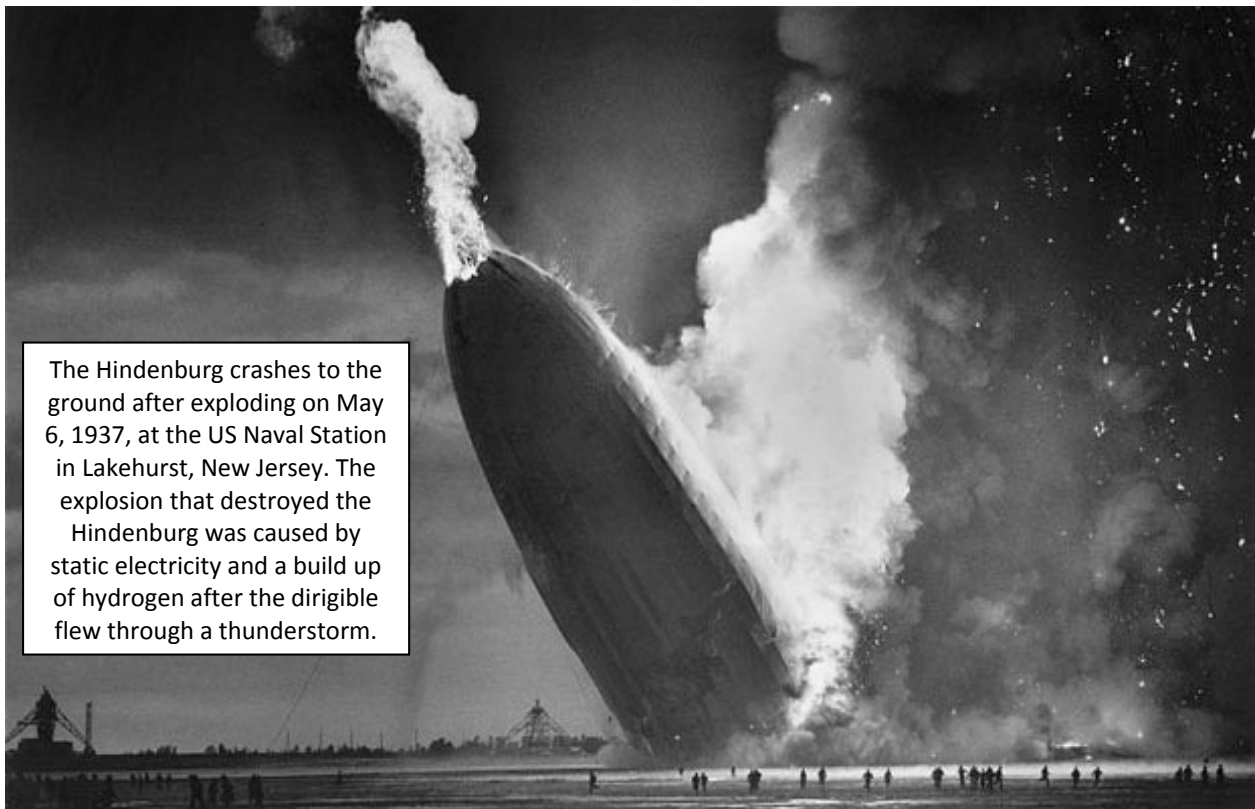
Static electric can also build in poly gas lines with gas flowing through them.

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**E&B OILFIELD SERVICES INC. RISK ASSESSMENT MATRIX – STATIC ELECTRICITY**

CONSEQUENCE					PROBABILITY				
Severity	People	Assets	Environment	Reputation	A	B	C	D	E
					Not Done	Rarely	Once a week	Several Times in a Week	Multiple Times in a Day
0	No health effect	No damage	No effect	No impact					<b>X</b>
1	Slight health effect	Slight damage	Slight effect	Slight impact				<b>X</b>	
2	Minor health effect	Minor damage	Minor effect	Limited impact			<b>X</b>		
3	Major health effect	Localized damage	Localized effect	Considerable impact		<b>X</b>			
4	Single fatality	Major damage	Major effect	National impact	<b>X</b>				
5	Multiple fatalities	Extensive damage	Massive effect	Global impact	<b>X</b>				

<b>Key</b>	Manage for continuous improvement (Low)	Incorporate risk reduction measures (Medium)	Intolerable (High)
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### **Risk Controls/Methods to Ensure Identified Hazards Are Addressed and Mitigated**

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The following describes how identified hazards are addressed and mitigated:

- Grounding cables must be properly used while transferring liquid.
- Don't connect or disconnect from equipment while gas vapors are present.
- Keep body out of the gas vapors

### **JSA Sample**

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The following describes how identified hazards are addressed and mitigated:

Basic Job Step	Potential Injury or Hazards	Mitigation / Tools
Pigging gas line	Explosion	FRC (cotton) clothing / don't connect or disconnect while gas vapors are present

### **Other Info**

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<b>Dry human skin</b>	Greatest tendency to giving up electrons and becoming highly positive (+) in charge
<b>Cotton</b>	Naturally neutral. Best for non-static clothes
<b>Polyester</b>	Clothes have static cling
<b>Polyethylene</b>	Fifth greatest tendency to be negatively charged. The material that "poly" pipe is made of