





#### Instructor Skills Conference X Making Learning Fun through Group Interaction Dennis Link



#### September 25, 2019

"Learning is directly proportional to the amount of fun you're having." Bob Pike



# **Ground Rules**

- Maintain a Safe Environment
- Be Respectful
- Participate
- Share your Ideas, Experience and Expertise
- ► Have FUN!



#### Making Learning Fun through Interaction Workshop Agenda

Time	Торіс
10 Minutes	Introductions, Expectations and Objectives
15 Minutes	Safety Discussion Table Activity
20 Minutes	Crude Oil Barrel vs. Refined Barrel Table Activity
35 Minutes	Pump Startup Activity
10 Minutes	Debrief, Action Plan and Evaluations



# **Learning Objectives**

At the end of this workshop you will be able to:

- Share safety tips to help eliminate injuries
- Facilitate interactive learning activities with small groups
- List the key differences in the components of a barrel of crude oil and refined barrel
- Place pump startup procedure steps in the proper sequence to ensure a safe, environmentally sound and efficient startup



#### Making Learning Fun through Interaction Initial Personal Expectation Ratings



- A. How valuable do you feel this workshop will be to you?
- B. How participative do you plan to be during this workshop?





## **Workshop Expectations**

Use your learner journal to:

- Write down at least one thing you'd like to learn during this workshop
- Share what you'd like to learn with another participant





## **Making Safety Personal**

- > What is your role in **SAFETY**?
- How many people are counting on you to return home safely everyday?
- What would be the impact to your loved ones, friends and co-workers if you didn't return home safely?



## **Safety Table Activity**

- Discuss a safety-related incident that happened to you or co-worker.
- Use the seven causes of accidents to determine how your incident could have been prevented.
- Select a spokesperson from each table to share key learnings from one of your safety incidents.

## **Seven Causes of Safety Incidents**

- 1. Taking shortcuts
- 2. Being over confident
- 3. Starting task with incomplete instructions
- 4. Poor housekeeping
- 5. Ignoring safety policies and procedures
- 6. Mental distractions
- 7. Failure to pre-plan work



# Barrel of Crude Oil Table Activity

- Work with your table group to identify and compare components in a barrel of crude oil and a barrel of refined crude oil.
- Select a spokesperson to share your work and the key points of your discussion.





#### What's in a 'Barrel of Crude Oil' and How We Change It

Crude Oil Components	<b>Refined Products</b>



#### What's in a 'Barrel of Crude Oil' and How We Change It



#### Labeling Pump Components Table Activity



# **Pump Components**



## Starting a Pump Table Activity

- Complete the individual column of the provided "placing pump in service" worksheet
- Once everyone at your table is done with individual column, work with your table group to agree upon proper sequence of steps and place in group column of worksheet
- Now let's work together as a class to agree upon proper sequence of steps and place in class column on worksheet
- What are key learnings from this activity?
- How could you use this type of activity?



	Pump Startup Steps	Individual
Α	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Н	Verify pump case is water free, then vent pump until case is full	
Τ	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
0	Crack open discharge valve	
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Group
Α	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Н	Verify pump case is water free, then vent pump until case is full	
I	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
0	Crack open discharge valve	
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Н	Verify pump case is water free, then vent pump until case is full	
I	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
0	Crack open discharge valve	
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	1
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
н	Verify pump case is water free, then vent pump until case is full	
T	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
K	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
М	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
0	Crack open discharge valve	
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure is off pump	2
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
т	Verify pump case is water free, then vent pump until case is full	
I.	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
K	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
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	Pump Startup Steps	Class
Α	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
т	Verify pump case is water free, then vent pump until case is full	
I.	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	3
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
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Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Η	Verify pump case is water free, then vent pump until case is full	
T -	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
K	De-LOTO pump by removing all chains and locks from valves	4
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
0	Crack open discharge valve	
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	5
Н	Verify pump case is water free, then vent pump until case is full	
1	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
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	Pump Startup Steps	Class
Α	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Н	Verify pump case is water free, then vent pump until case is full	6
I.	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L -	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
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	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
н	Verify pump case is water free, then vent pump until case is full	
T	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	7
Ν	Verify pump is running smooth with normal operating conditions	
0	Crack open discharge valve	
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	8
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Η	Verify pump case is water free, then vent pump until case is full	
I.	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
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Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	9
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Н	Verify pump case is water free, then vent pump until case is full	
T.	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
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Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure if off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Η	Verify pump case is water free, then vent pump until case is full	
T.	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
0	Crack open discharge valve	
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	10

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure if off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
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Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Ξ	Verify pump case is water free, then vent pump until case is full	
T -	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	11
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
0	Crack open discharge valve	
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

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А	Verify suction and discharge block valves are closed and pressure is off pump	
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Н	Verify pump case is water free, then vent pump until case is full	
T	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
0	Crack open discharge valve	12
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Н	Verify pump case is water free, then vent pump until case is full	
T.	Notify inside operator that you are preparing to start the pump motor	13
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
0	Crack open discharge valve	
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	14
D	Completely open suction valve	
Е	Completely open discharge valve	
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Н	Verify pump case is water free, then vent pump until case is full	
1	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
K	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
М	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	
0	Crack open discharge valve	
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
А	Verify suction and discharge block valves are closed and pressure is off pump	
В	Verify all mechanical repairs have been made and signed off properly	
С	Start pump motor	
D	Completely open suction valve	
Е	Completely open discharge valve	15
F	Unlock and energize pump motor electrical switchgear	
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	
Н	Verify pump case is water free, then vent pump until case is full	
T.	Notify inside operator that you are preparing to start the pump motor	
J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
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J	Have maintenance pull suction and discharge blinds	
Κ	De-LOTO pump by removing all chains and locks from valves	
L	Verify pump has proper lubrication oil levels and clarity	
Μ	Verify pump case is fully primed, then close and plug all vents and drains	
Ν	Verify pump is running smooth with normal operating conditions	16
0	Crack open discharge valve	
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	

	Pump Startup Steps	Class
Α	Verify suction and discharge block valves are closed and pressure is off pump	2
В	Verify all mechanical repairs have been made and signed off properly	1
С	Start pump motor	14
D	Completely open suction valve	8
Е	Completely open discharge valve	15
F	Unlock and energize pump motor electrical switchgear	9
G	Close pump drains, crack open pump case vent valve, then crack open suction valve	5
н	Verify pump case is water free, then vent pump until case is full	6
T	Notify inside operator that you are preparing to start the pump motor	13
J	Have maintenance pull suction and discharge blinds	3
κ	De-LOTO pump by removing all chains and locks from valves	4
L	Verify pump has proper lubrication oil levels and clarity	11
Μ	Verify pump case is fully primed, then close and plug all vents and drains	7
Ν	Verify pump is running smooth with normal operating conditions	16
0	Crack open discharge valve	12
Ρ	Verify good meg reading has been obtained on pump motor by I/E personnel	10

# **Learning Objectives**

At the end of this workshop you will be able to:

- Share safety tips to help eliminate injuries
- Facilitate interactive learning activities with small groups
- List the key differences in the components of a barrel of crude oil and refined barrel
- Place pump startup procedure steps in the proper sequence to ensure a safe, environmentally sound and efficient startup



# **Workshop Action Plan**

Use your learner journal to:

- Write down one thing you learned during this workshop
- Write down one thing you will do differently as a result of participating in this workshop
- Share your action plan with another participant





# Making Learning Fun through Interaction Final Personal Expectation Ratings 1 4 7

Low

High

- A. How valuable do you feel this workshop was to you?
- B. How participative were you during this workshop?





#### Making Learning Fun through Interaction Final Thoughts

Thank you so much for your participation and creating a fun, interactive learning environment. Please use the information and learnings to make a positive difference for you, your work team and your organization.



