PHILLIPS 66
LOCK, TAG, TRY

March, 2017

LOCK, TAG, TRY

- LOTO (Lotto) is gambling, we do LTT!

- The most important part of Energy Isolation is to verify the absence of energy before work on equipment begins.
- Try points include:
  - Bleeds, Vents, Start/Stop switches, etc.
- It's the last line of defense!

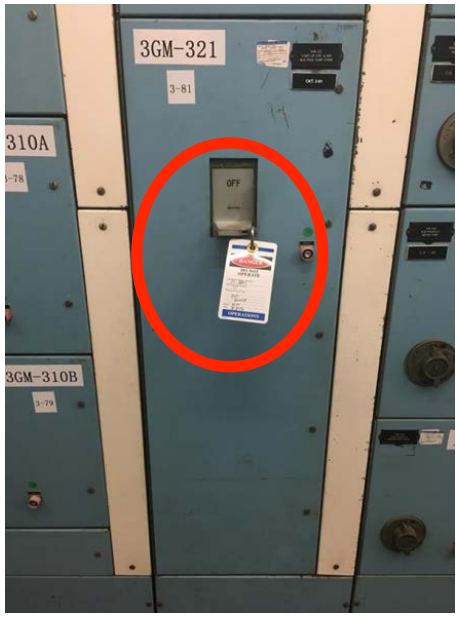
INDUSTRY SERIOUS EVENTS

- Every day equipment is taken out of service, repaired, and put it back into service. Relatively routine work, however the potential for serious injury is high when equipment is not properly LTT'd or tested for zero energy state/absence of energy.

- Serious injuries and Process Safety Events have occurred in our industry due to not verifying absence of energy.
  - Multiple H2S exposures
  - Workers burned by hot oil or condensate
  - Fires
- Performing the TRY step verifies:
  - The isolation is accurate
  - Isolation points are holding

LOCK, TAG, TRY

- Industry Examples:
  - pumps, fans, (or other equipment) that were “Locked out” but then started when the Try step was performed
  - Mislabeled switchgear that was properly locked out, and matches the pump #, but the pump was still energized
  - Block valves leaking by or circuit breakers not disengaging
  - A switch or pump electrically fed from two different locations, unaware until Try step was performed

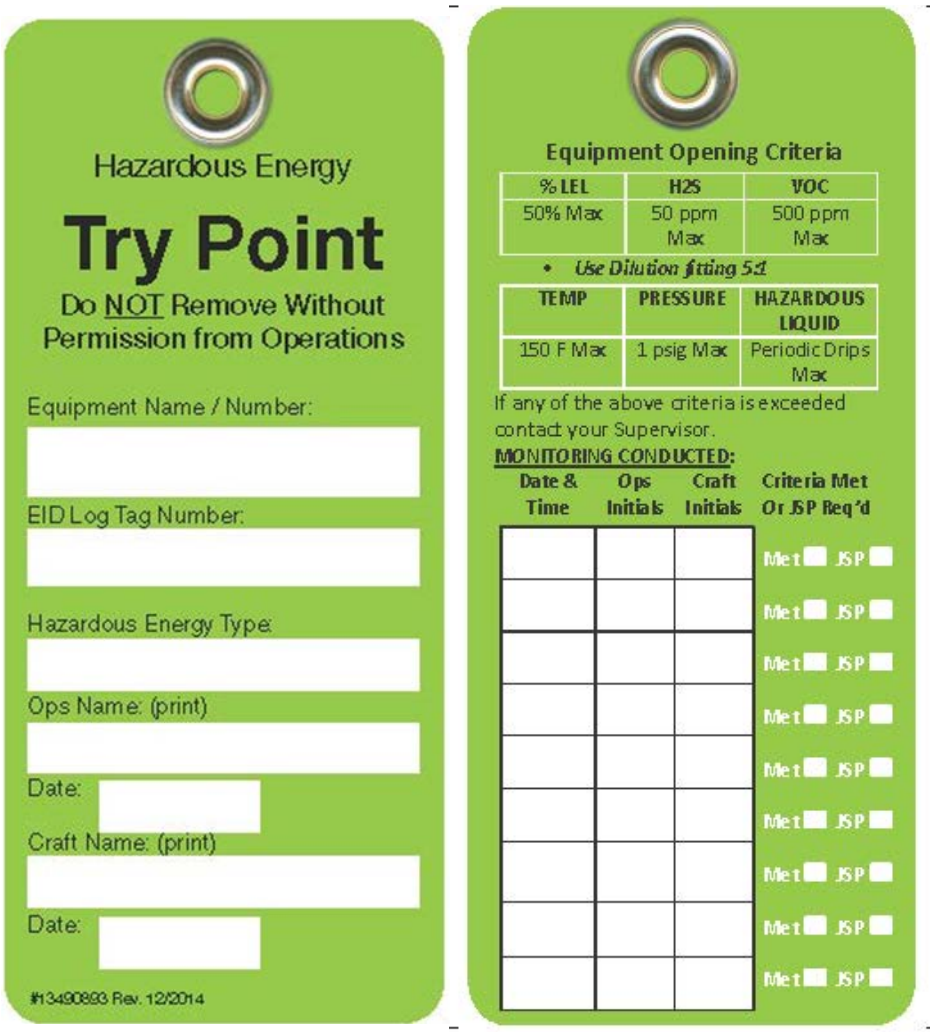


LOCK, TAG, TRY AT PHILLIPS 66

- Prior to any line-breaking, appropriate cleaning (steaming, purging, etc.) shall be performed to prepare the equipment for maintenance.
- Equipment will be tested by Operations and verified (Try) by Maintenance as Energy Free.
  - Bleeds and vents are tested by atmospheric monitoring equipment
  - Start/stop switches are tested.

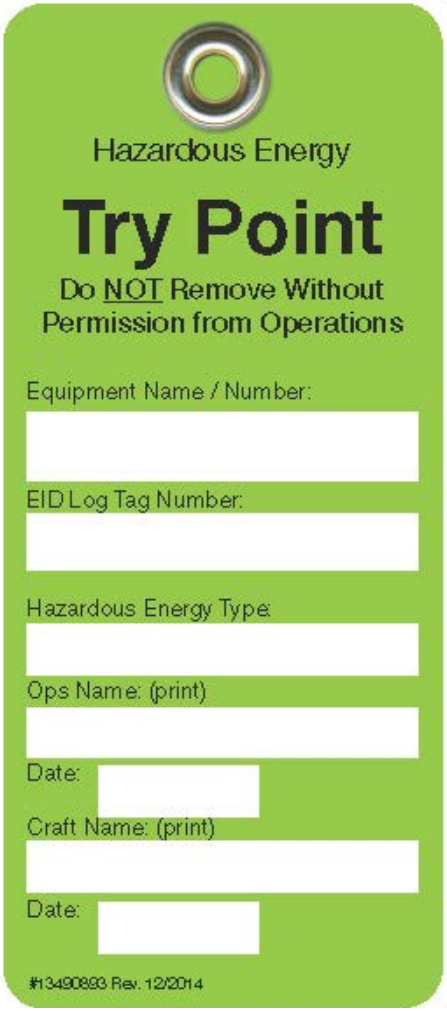
- Every time the system is to be opened a new test is required.

TRY POINTS TAGS AT PHILLIPS 66



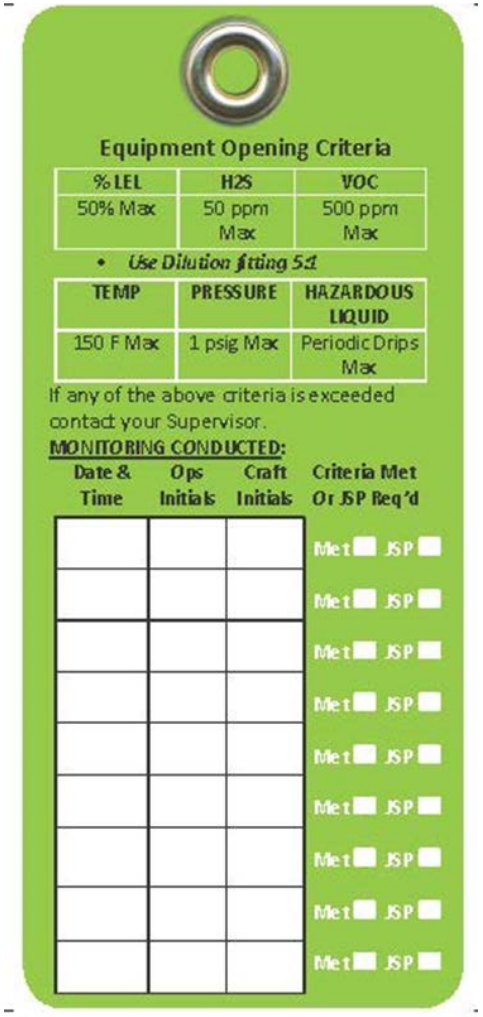
- Two sided tag completed by operations
  - Reviewed and signed by Maintenance
- These will be at every Try Point. Even Start/Stop switches.
- If there is no way to determine if the criteria can be met, then a Job Safety Plan must be completed.
  - No bleed/vent, etc.
  - No Try Point (s)

TRY POINT TAG AT PHILLIPS 66 - FRONT



- Equipment Name/Number
- EID Log Tag Number
- Hazardous Energy Type
  - Electrical, H2S, Steam, Sulfuric Acid, DGA, etc.
- Ops Name & Date
  - The operator who has walked the job with the craft, verifying Try Points
- Craft Name & Date
  - Craft who has initialed the EID log and who has verified Try Point

TRY POINT TAG AT PHILLIPS 66 - BACK



Equipment Opening Criteria

% LEL	H2S	VOC
50% Max	50 ppm Max	500 ppm Max

- *Use Dilution fitting 5:1*

TEMP	PRESSURE	HAZARDOUS LIQUID
150 F Max	1 psig Max	Periodic Drips Max

If any of the above criteria is exceeded contact your Supervisor.

MONITORING CONDUCTED:

Date & Time	Ops Initials	Craft Initials	Criteria Met Or JSP Req'd
			Met ☐ JSP ☐
			Met ☐ JSP ☐
			Met ☐ JSP ☐
			Met ☐ JSP ☐
			Met ☐ JSP ☐
			Met ☐ JSP ☐
			Met ☐ JSP ☐
			Met ☐ JSP ☐
			Met ☐ JSP ☐

- **Equipment Opening Criteria**
  - LEL, H2S, VOC, Temperature, Pressure, Hazardous Liquid
- **Monitoring Conducted**
  - Time and initials of Operator testing the equipment (Must test within 2-hrs of opening)
- **Test Outside of Parameters**
  - Clean the line/equipment for a longer time, or with a different method.
    - Then retest
  - If still unable to get clean complete a Job Safety Plan

QUESTIONS

- Questions