

CE 400 / CE 500

Process Safety Management

Lecture 35

Facilities Siting

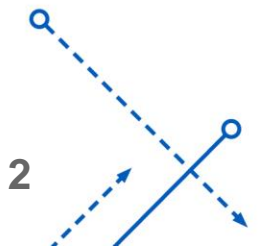
Instructor: David Courtemanche



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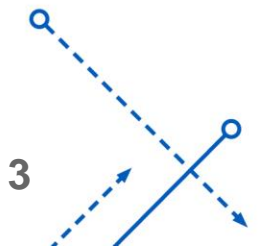
What is Facilities Siting?

- Kind of an offshoot of a Process Hazards Analysis Hazards Evaluation
- History has shown that many injuries and fatalities were caused not directly by process incidents, but by the structures where personnel were located collapsing on them
- A Facilities Siting report focuses on:
 - Where are personnel located relative to the process hazards?
 - Do they need to be there?
 - What is the construction design of the buildings they are in?
 - What hazardous events might impact them?
- PHA reports will have a Facilities Siting section in them
- The site will also have a standalone Facilities Siting Report



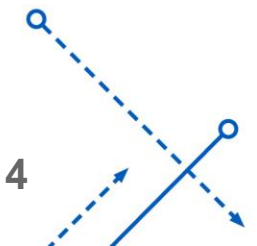
Background

- In March 2005 the British Petroleum Texas City Explosion occurred
- CSB Video: <https://www.csb.gov/bp-america-refinery-explosion/>
- In October 2005 the Chemical Safety and Hazard Investigation Board (CSB) issued recommendations that lead to Facilities Siting becoming a required part of PSM
 - Specifically focused on portable trailers
 - Applies to more than just trailers



Facilities Siting vs PHA

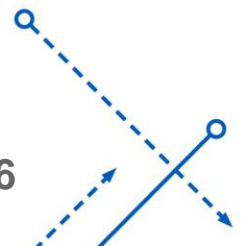
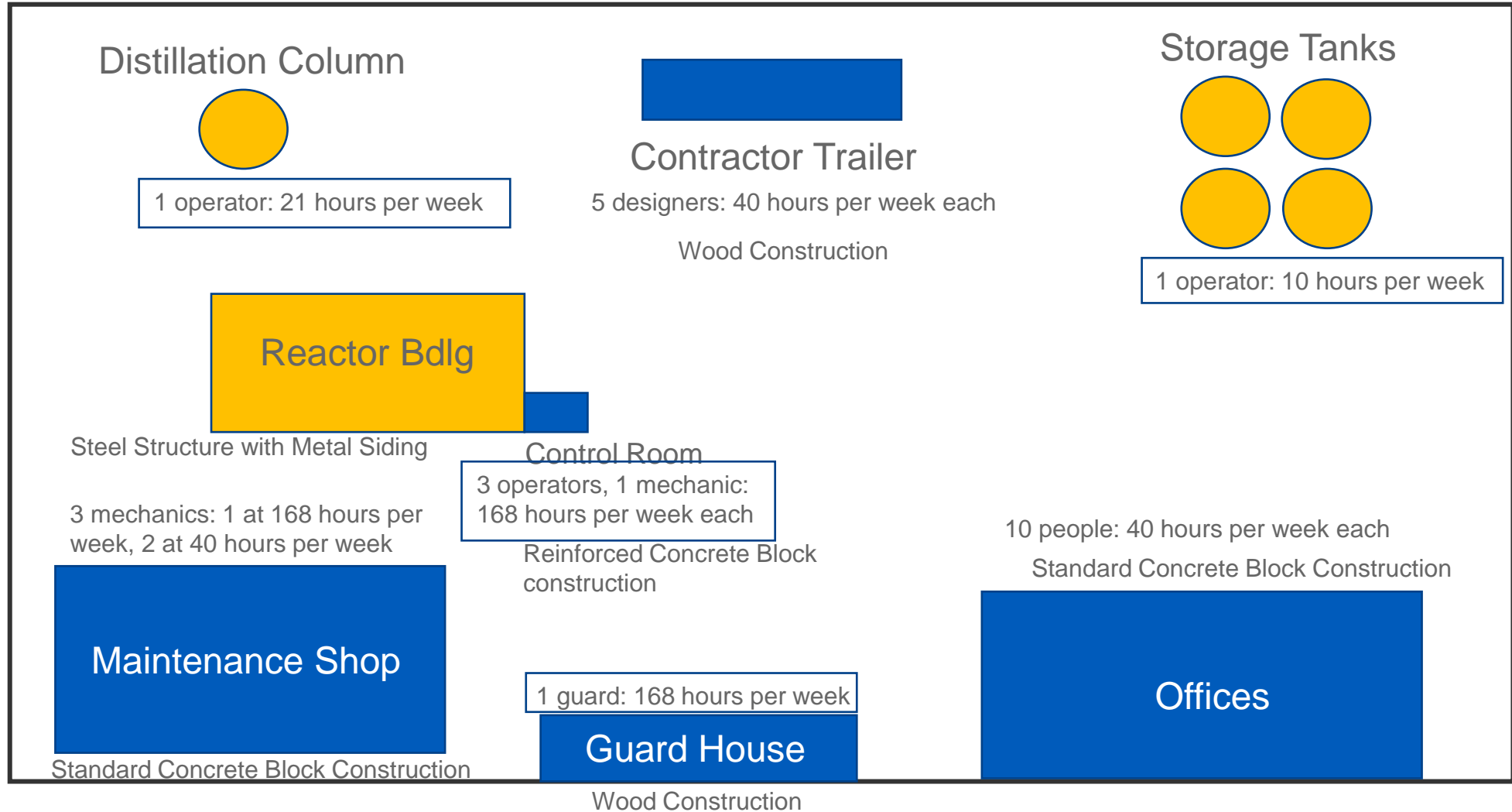
- A PHA will have a facilities siting section and address the concerns of where personnel are located, etc
- An individual PHA will assess the risk that the area under study presents to the various personnel on (and off) the site
- A particular building may fall within the influence of hazardous events from multiple process units that are covered under separate PHA reports
- In order to fully determine the risk of each location, the events discovered in all of the site's PHAs need to be considered
- Hence the need for a site-wide Facilities Siting Report



Step 1

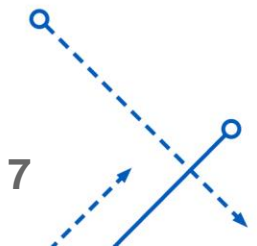
- Gather information on where personnel work on site
- Gather information on what they are doing and do they need to be in close proximity to the process equipment in order to do it efficiently
 - Essential versus non-Essential
 - Essential personnel must be in close proximity in order to do their jobs
 - Non-Essential personnel do not like seeing themselves listed as non-essential
 - It does not mean we can do without them, it just means that they can do their job without being in close proximity to the process
- Gather information in the type of construction of the buildings in which they reside

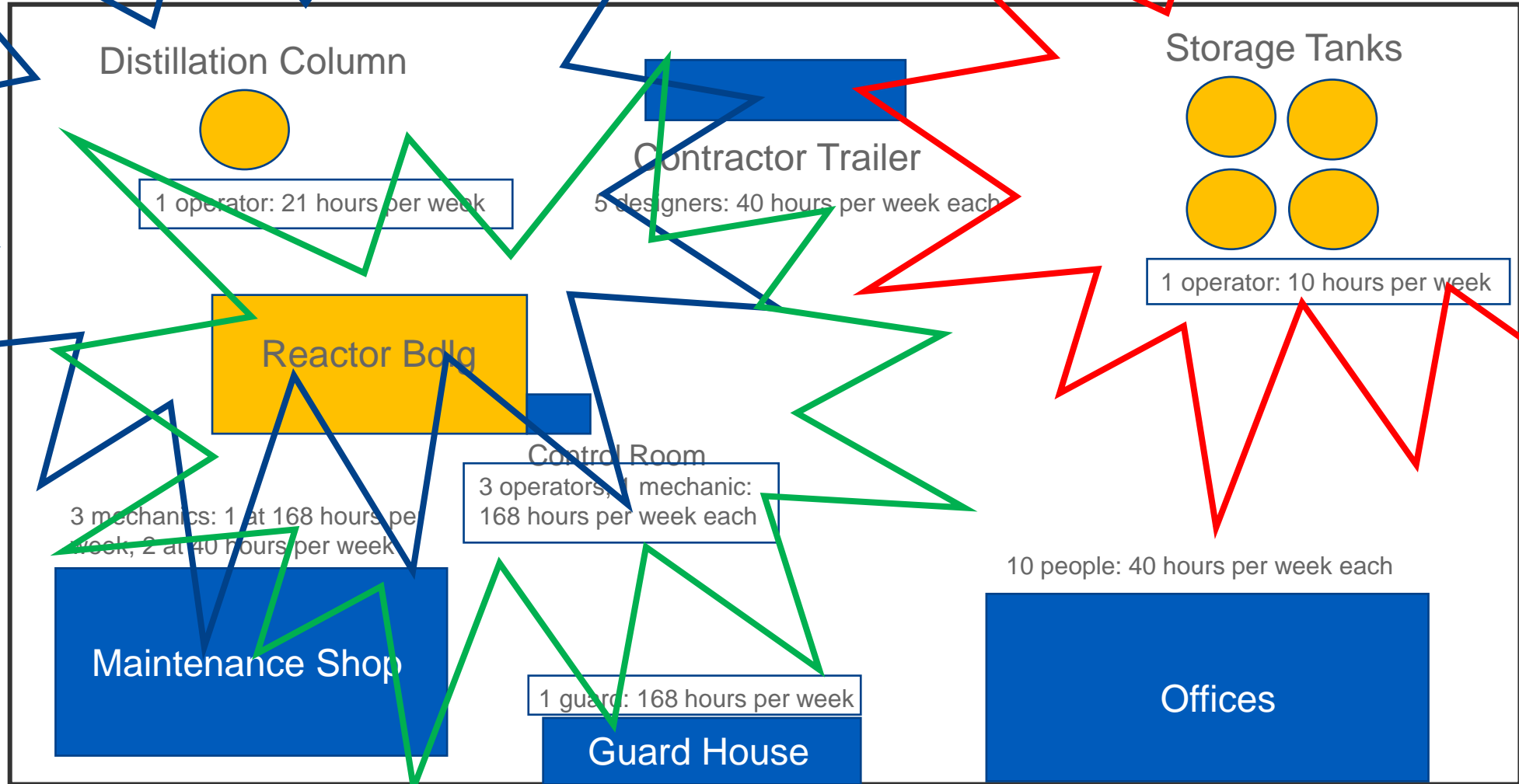




Step 2

- Review most recent issues of each PHA on site
- Determine if the Consequence Analysis of major events in the reports address the affect on personnel, particularly those not in the immediate process area
- If there are events that have not addressed the affect on all possible personnel, extend the study to include those effects
 - The location, number of people, and construction of the dwelling in which they reside will play a key part of this analysis
- Look for locations where events from multiple PHA studies impacts overlap and determine if the Risk to personnel in that area is in the tolerable range





Step 3

- Issue report with any needed recommendations to bring risk to tolerable levels
- Report and recommendations are managed via the same site management systems that govern PHA reports
 - Must track recommendations to closure

