

# BOWTIE MODEL

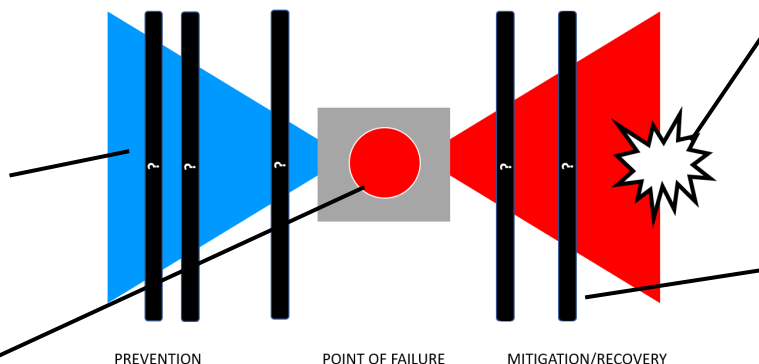
The Bowtie Model is a way to check the controls you have in place to guard against a bad day.

### PREVENTION CONTROLS

Actions or equipment designed to stop an event from occurring (Example: anti-lock brakes)

### POINT OF FAILURE

The point where you lose control of the situation (Example: car crash)



### CONSEQUENCE

The unacceptable outcome from the event that must be stopped (Example: fatality from crash)

### RECOVERY CONTROLS

Actions or equipment designed to mitigate the effects of the event and stop the consequence (Example: airbags)

From the KII Safety Vision: “We make this happen every day by building capability in our people and resilience in our systems, to adapt, prevent, contain, and recover, so when the unexpected happens no one is killed or seriously hurt.” Stopping to look at the number and effectiveness of the controls we have in place on either side of the event is key to stopping the consequence from occurring.

Dealing with the reality that some of our prevention controls may fail allows for an important check of how we can recover from an event and stop the bad day.

## How do I use the Bowtie Model?

### STEPS

STEPS	EXAMPLE
1. Select the <b>EVENT</b> scenario you want to review	Mobile crane tips while lifting a load
2. Identify the <b>CONSEQUENCE</b> you will not accept	Injury to personnel
3. Review the <b>PREVENTION</b> controls that can stop the <b>EVENT</b>	Training of crane operator, outriggers used and functional, load plan in place, wind speed is considered, communication plan in place
4. Review the <b>RECOVERY</b> controls that would stop the <b>CONSEQUENCE</b>	Taping off radius around the crane, limiting access to only vital personnel, and reinforced cage around crane operator
5. Is that enough?	Group decides to clear hazardous materials from nearby process lines.

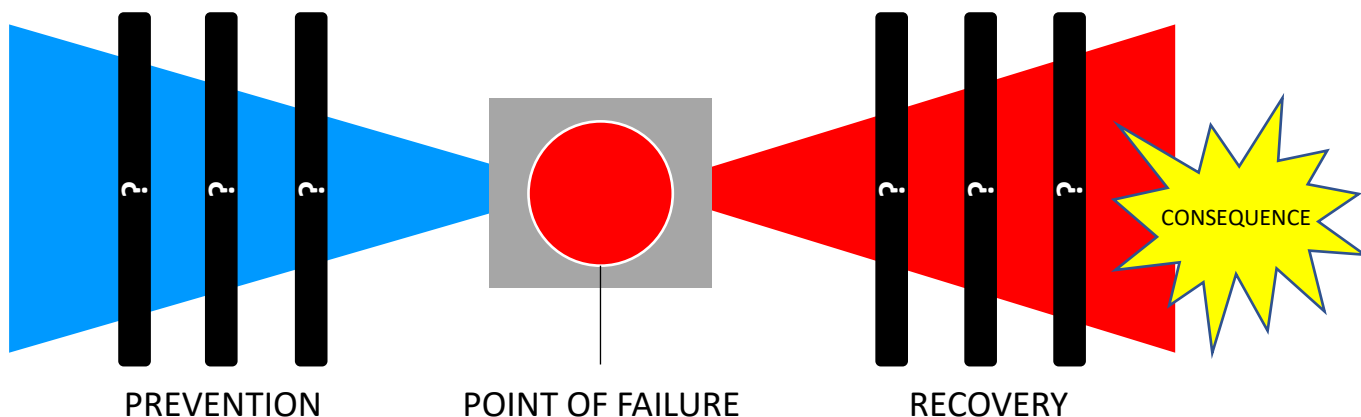
## When can I apply the Bowtie model?

The Bowtie model can be used in several scenarios:

- Before a job, as part of the Save My Life permit process
- Before starting a project or outage
- After an incident occurs, reviewing both what controls were in place and what should be in place to stop a future consequence
- After a successful outage, project, or permitted job- looking for what was in place for both prevention and recovery to make the job successful

# BOWTIE MODEL REVIEW

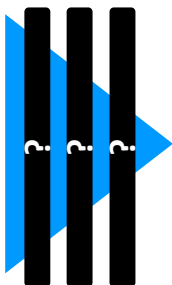
What can kill me or change my life during the work?



What can go wrong during the work? Consider prevention controls are in place. What can go wrong if those fail?



What are the **PREVENTION** controls (controls thought of to prevent the incident)?



What are the **RECOVERY** controls (controls thought of to minimize the impact to people when failure occurs)?

