

Process Safety Vulnerabilities Enhanced by COVID19

Presented By:
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AGENDA



World's Response to COVID19

What have we done around the globe to protect ourselves and others?



Trickle-Down Effect On Oil, Gas, Petrochemical

How have our global responses impacted our daily and local operations?



Enhanced PSM Vulnerabilities

Did we check our tires and adjust our mirrors?



Thoughts On Bolstering Our Safeguards

What engineering and administrative safeguards can we use to adapt?



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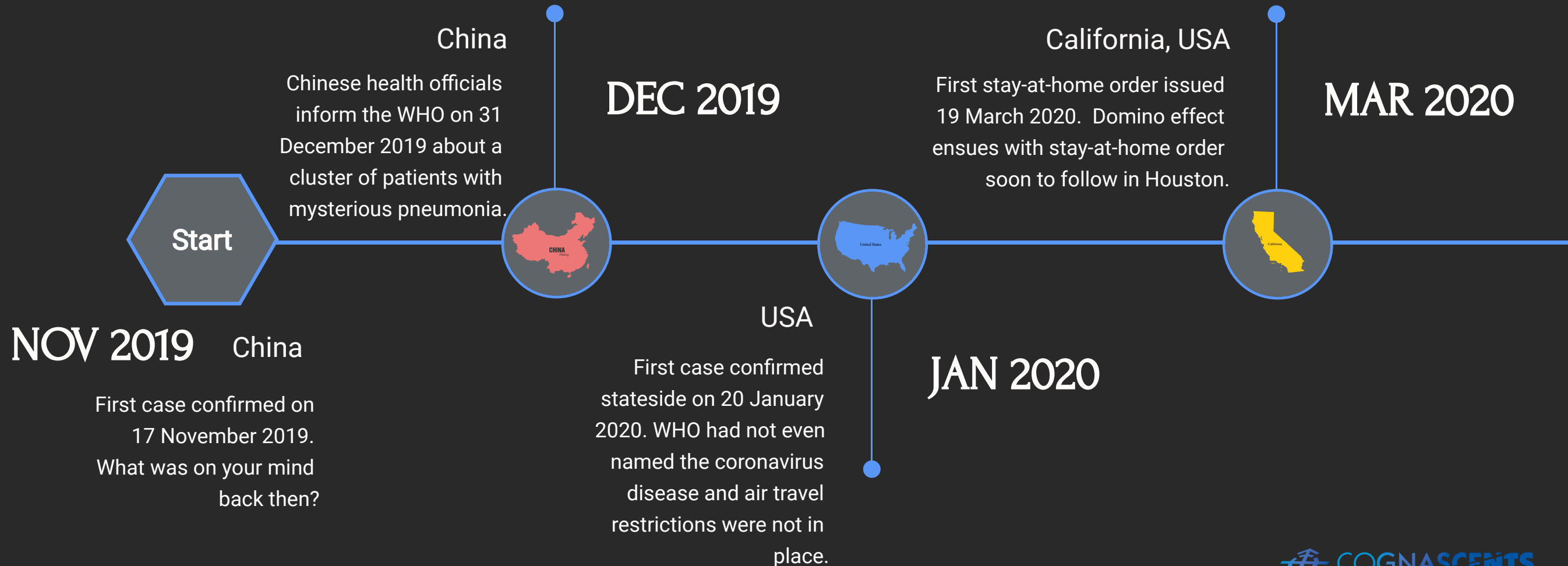
- Happily married with four teenagers!
- Rice University - '96 BSChE, '12 MBA
- Rohm and Hass - Process Engineer
- Berwanger - Engineer and Sales
- Celerity3 Engineering - Owner
- Lloyd's Register - Sold Out
- Cognascents - Round 2
- 24 years in Process Safety

Opening Thoughts...

When COVID19 became real to you, what did you do first? And second? And third? At what point did you start to focus on vulnerabilities beyond yourself and your loved ones? At what point did you start considering how things would change at the office? On the platform? At the refinery? In the field?

COVID19 TIMELINE

A lot can happen between Thanksgiving and Easter.



World Response to Coronavirus

What behaviors did we change to combat COVID19?



Travel Restrictions

Travel restrictions started between China and the rest of the world and eventually expanded to restrictions between countries and now states/provinces.



Stringent Hygiene

Guidance to wash hands and disinfect surfaces resulted in worldwide runs on hand sanitizer, disinfectant wipes, Clorox®, and face masks.



Social Distancing

Guidance to limit gatherings to <10 persons and to stay at least 6 ft. away from other persons led to modified personal and professional environments.



Stay-At-Home

Policies requesting persons to stay at home except for essential visits have reduced consumption on many fronts while also spurring spikes of panic buying and hoarding.

Trickle-Down Effect On Oil, Gas, and Petrochemical

Where did travel restrictions, more stringent hygiene, social distancing, and stay-at-home policies take our industries?



Reduced Consumption

For the most part, our consumption has reduced down to living essentials and whatever entertainment we can afford.

"More than two-thirds of U.S. economic output is tied to consumer spending, and a majority of Americans are actively cutting their spending due to pervasive worries about the COVID-19 impact on the economy and stock market," says

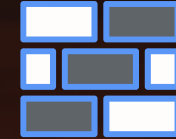
Greg McBride, CFA, Bankrate chief financial analyst.



Work Disruption

Non-essential businesses are closed and non-essential workers have been relegated to contribute remotely, if at all.

The coronavirus outbreak could cost 47 million jobs next quarter, according to estimates by the Federal Reserve Bank of St. Louis. That would translate to an unemployment rate of 32.1%, well above the 24.9% rate it was at during the Great Depression.



Nationalistic Economic Reactions

Nations and cultures are withdrawing behind the castle walls and doing whatever they can to shore up their economies (e.g. oil plays, repatriation).

"If the Saudis and Russians can't agree on a production cut, WTI could slip even farther. \$15 per barrel looks like a real possibility." - Jim Patterson, Managing Editor, Kiplinger



Fear, Uncertainty, Doubt

Researchers at the Sheffield and Ulster Universities in Northern Ireland found on March 24 (the day after Prime Minister Boris Johnson announced Britons were to stay at home) 38% of participants reported increased feelings of depression and 36% said they felt more anxious.

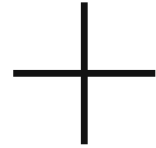
"Courage is not the absence of fear, but rather the assessment that something else is more important than fear." - Franklin D. Roosevelt

Operational Readiness

Process transitions, such as start-ups and shutdowns, are where the wild things live.

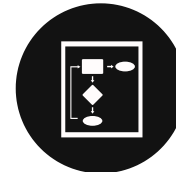
Enhanced Vulnerabilities

Adaptive Safeguarding



Working without margin and buffer

How will a quick and broad workforce infection impact your ability to shutdown?



Develop your Plan B to Plan B

Define your decision-points regarding required resource levels against time to perform critical shutdown activities.

Potential competency gap for PSSRs

What effort is made to contact personnel competent in the PSSR scope?



Use technology to loop in competency

Conduct online PSSR in addition to field PSSR using video-conferencing and 3-D viewer.

Operational stress and fatigue

Some essential personnel will not perform to the same level of excellence during this ordeal.



Perform meticulous verification via checklists

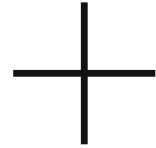
Checklists ensure corners do not get inadvertently cut when the mind, body, and soul fatigue.

Operational Discipline

Formality of operations must increase when complexity and anxiety increase.

Enhanced Vulnerabilities

Adaptive Safeguarding



Working without margin and buffer

Are response times and simultaneous operations negatively impacted during strained resourcing?



Check operational resourcing assumptions

Ensure resourcing affords safe operation and emergency response given social distancing requirements.

"Churn" during economic downturn

How are changes in responsibility being managed during this pandemic?



Postpone org. changes for 6 months

Now is simply not a time to push the envelope regarding organizational change.

Reduced operational oversight

Who is providing operational oversight during this turbulent time?



Use technology to loop in competency

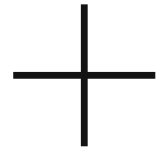
Use video-conferencing and electronic logs to keep experienced personnel working remotely engaged and informed

Asset Integrity and Reliability

Assets that are not fit for purpose must not be put into operation.

Enhanced Vulnerabilities

Adaptive Safeguarding



Working without margin and buffer

What level of resourcing is required to maintain inspection and maintenance integrity?



Identify asset integrity / maintenance absolutes

Define your decision-points regarding safety-critical and compliance-driven maintenance activity.

Exposed asset integrity risks

Are essential personnel aware of high severity asset integrity risks?



Review high-risk asset integrity scenarios with essential personnel

AI risks may be tracked separately from PHA risks.

Running with higher number of exemptions

What decision will be made if critical inspection or PM cannot be performed due to COVID19 impact?



Define asset integrity-driven shutdown triggers

Make the decision when level-headed and stick to it when things go South.

Input from Colleagues

You never want to be the smartest person in the room and thanks to y'all I am not.



Make up for unstructured conversations

"Regular team check in to review work progress and remain connected. This prevents things falling through the cracks at a time where there are not a lot of unstructured conversations that you would have in the work place." - The Earl*



Maintain presence of leadership and culture

"Weekly safety meetings with the operations crews were attended by members of the leadership team, safety, and process safety at one site. To limit the number of attendees in these meetings, the leadership team, safety, and process safety no longer attend. Discussion of weekly topics are led by the crew foreman with the crew." - The MIT Grad*



Combat distraction and depression

"Distracted operators who may not be totally focused on the risks in their everyday work because they are worried about their families in this current environment." - The Grillmaster*



Prepare, share, and "On Air"

"We are planning on doing PHAs remotely. Plan is to provide hard copies of P&IDs that are sent out beforehand and to require use of cameras during sessions to maintain engagement." - Mr. 3 Floyds*

* Names have been changed to protect the innocent.

Effective Videoconferencing

01

VIPS Only

Reduce the number of participants to only those required to make the necessary decisions and perform the necessary tasks to achieve the goals of the meeting

02

Advance Sharing

Share information required for the meeting at least two days in advance with all required participants.

03

Reduce Length

Reduce the length of virtual meetings in comparison to face-to-face meetings. Long virtual meetings run the risk of participant disengagement.

04

Rules and Roles

Define ground-rules and assign roles for meeting participants (such as timekeeper and rabbit-hole watcher). You may want to define communication / approval hierarchy.

05

Engaging Hooks

Call on participants by name with queries for input (e.g. "What do you feel needs to be changed?", "Is this how it is done in the field?", "Are you happy with the wording?")

06

Body Language

Watch body language (e.g. posture, subconscious gestures, facial expressions) and listen for non-visual cues (e.g. short / sharp responses, sighing, heaving, huffing).

COVID19 Survival Loop

Apply the following loop to help navigate crucial conversations and decision points while in the fight.



Slow down.

We make mistakes when we outrun ourselves...especially when we are stressed out.

Keep thinking.

Make time for creative problem-solving as well as traditional decision-making processes.

Say "No" and be disciplined.

You cannot do it all and some things just need to be put on hold. Everyone has this super-power!

Do with excellence.

Spend your time on critical tasks. Channel your energy to the distilled mother liquor of life!



WE END WITH A TOAST TO ALL IN THE FIGHT.

Forge your steel with courage,
Lighten your steps with hope,
And when you think you're at the end
Have trust, for I will give you more rope.

GET IN TOUCH

We are here to serve your asset integrity, process safety, and process engineering needs.

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