	BENZENE CODE OF PRACTICE ALL-AOA-00-000-HST-0025	Retention Code: <i>CG01 - CA</i>
		Revised: <i>February 2020</i>
Owner: <i>HSE Operations</i>	Approved By: <i>Manager, Health & Safety Operations</i>	Review Frequency: <i>Five years or less</i>
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About the Code of Practice	3
Purpose	3
1. About Benzene	4
Products that Contain Benzene.....	4
Tasks with Potential Benzene Exposure	4
Health Effects to Consider.....	4
Fire and Explosion Factors to Consider	5
2. Exposure Controls	6
Defenses to consider.....	6
Respiratory Protective Equipment (RPE) Requirements	6
Personal Protective Equipment (PPE) Considerations.....	6
3. Industrial Hygiene	7
Planned Sampling.....	7
Ad hoc Sampling.....	7
4. Benzene Decontamination.....	8
Reasons for Decontamination.....	8
Decontamination Areas	8
Non-Contaminated Areas.....	8
Decontamination – Minimal Contamination	8
Decontamination – Extensive Contamination	9
Laundering Contaminated Clothing	9

Document History

Date	Approved by	Change Summary
February 2020	David Reaich	Usability Mapped – Issued for Use

About the Code of Practice

Purpose

The purpose of this practice is to prevent negative health effects due to Benzene overexposure at all work sites operated by ConocoPhillips Canada (CPC).

This Code of Practice also fulfills legislative requirements:


- British Columbia – Benzene Exposure Control Plan.
 - Alberta – Benzene Code of Practice.
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1. About Benzene


Products that Contain Benzene

Examples of products that contain Benzene include:

Process-Related Products	Other Products
<ul style="list-style-type: none"> • Condensate. • Crude Oil. • Produced Water. • Lime Sludge. 	<ul style="list-style-type: none"> • Oil. • Diesel. • Gasoline. • Frac Fluids.



NOTE: Always check the Safety Data Sheet (SDS) if unsure of the contents of a product.



NOTE: Excluding fresh water and heating fluids, all process liquids should be considered as potential Benzene sources.

Tasks with Potential Benzene Exposure

Examples of tasks with potential Benzene exposure:

- Spill clean-up.
- Vessel entries.
- Blowdowns.
- Fluid transfers.
- Maintenance activities.

Health Effects to Consider

Health effects to consider include:

Short-Term (seconds to hours)	Long-Term (chronic effects)
<p>Inhaling Benzene may immediately result in:</p> <ul style="list-style-type: none"> • Dizziness or drowsiness. • Headache. • Nausea. • Nose or throat irritation. 	<p>Inhaling Benzene may lead to the following over time:</p> <ul style="list-style-type: none"> • Nose or throat irritation. • Various blood disorders. • Cancer (Leukemia).
<ul style="list-style-type: none"> • Skin contact with Benzene may lead to cracked, infected or irritated skin. • Eye contact with Benzene May lead to eye irritation. 	

Fire and Explosion
Factors to Consider

Fire and Explosion factors to consider include:

- Ignition sources.
- Not being grounded and bonded when transferring fluids.
- That Benzene is heavier than air.
- That Benzene can have a vigorous reaction with oxidizers.



NOTE: Pure Benzene is highly flammable. Since most CPC products have low Benzene concentrations, the other contents of a product have a greater impact on the fire and explosion hazard.



NOTE: Consider the fire tetrahedron when assessing hazards.

2. Exposure Controls

Defenses to consider Defenses to consider include:

- Use products with < 0.1% Benzene w/w when possible.
- Automate sampling processes.
- Use low-Benzene products for draining and purging.
- Direct blowdown lines outside.
- Vent outside buildings and away from workers.



NOTE: Follow WHMIS 2015/GHS identification and labelling requirements.

Respiratory
Protective
Equipment (RPE)
Requirements

Respiratory protective equipment requirements are as follows:

Exposure Time in One Work- Day	Benzene Concentration (ppm)	Respirator Required
≤ 15 Minutes	1.25 - 5	Half Mask – OVC Filter
	>5 - 25	Full Face Mask – OVC Filter
	>25	Supplied Air or Self-Contained Breathing Apparatus
> 15 Minutes	0.25 - 2.5	Half Mask – OVC Filter
	>2.5 – 12.5	Full Face Mask – OVC Filter
	>12.5	Supplied Air or Self-Contained Breathing Apparatus

Personal Protective
Equipment (PPE)
Considerations

Consider the following personal protective equipment to prevent skin and eye exposure:

- Splash goggles.
- Impervious gloves e.g., Viton/neoprene, Viton, Polyvinyl alcohol, Silver Shield/4H.

3. Industrial Hygiene

Planned Sampling

Planned sampling must meet the Corporate Occupational Health Standard.

An exposure assessment and annual sampling plan help ConocoPhillips Canada:

- Understand worker exposure potential.
- Implement appropriate controls.

Samples are sent to a lab for analysis.

Ad hoc Sampling

Ad hoc sampling can be completed upon request if:

- Workers have unease.
- Benzene levels are unknown.
- To determine the proper respiratory protective equipment.

Direct-reading instruments are used so results are immediate.

4. Benzene Decontamination

Reasons for Decontamination

Decontamination is done to prevent Benzene from:

- Being absorbed through worker's skin.
- Becoming a hazard to other workers.
- Going home with the worker.

Decontamination Areas

At least one decontamination area must be designated per worksite. Minimum requirements include:

- A designated area to remove contaminated clothing.
- Facilities to clean, wash or shower.
- Cleaning equipment and supplies to clean contaminated equipment.
- Hand washing stations with hand cleaner and sanitizer.
- Eyewash stations in high-risk locations.

Non-Contaminated Areas

Non-contaminated areas include:

- Washrooms.
- Lunchrooms.
- Rooms to change from street to work clothes.
- Offices.

Decontamination – Minimal Contamination

When a worker has minimal contamination:




- Remove outer layer, e.g. FR coveralls.
- Wash hands and face prior to eating or smoking.
- Only eat and smoke in designated areas.

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Decontamination –
Extensive
Contamination


When a worker has extensive contamination affecting clothing and equipment:

Step	Action
1.	<p>Remove clothing quickly.</p> <div data-bbox="613 405 1297 510" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  NOTE: Any heavily contaminated clothing that must be pulled over the head should be cut off. </div> <div data-bbox="613 562 1297 667" style="border: 1px solid black; padding: 5px;">  NOTE: Use gloves if helping remove contaminated clothing from another worker. </div>
2.	<p>Wash affected skin and eyes</p> <ul style="list-style-type: none"> • Use soap and water. • Rinse eyes according to the SDS; consider having Diphoterine available. • Remove contact lenses with clean hands.
3.	<p>Dispose or clean clothing and equipment.</p> <ul style="list-style-type: none"> • Place clothing inside plastic bag for disposal or cleaning. • Ensure equipment is thoroughly cleaned. <div data-bbox="613 1024 1297 1159" style="border: 1px solid black; padding: 5px;">  NOTE: Wear impervious gloves or other personal protective clothing to prevent further contamination. </div>

Laundering
Contaminated
Clothing

If clothing is contaminated:

- Workers are responsible to ensure it is laundered.
- ConocoPhillips camps have laundry service available to ensure contaminated clothing is cleaned as per manufacturer’s specifications.

 **NOTE:** Do not allow hydrocarbon products to build up on coveralls. This creates an unnecessary hazard.