

# **Fitzroy Gasworks : Overcoming OHH Challenges During Large Scale Site Remediation**

Srijeeta Ratnayake



# Overview

Provision of occupational hygiene services for a large-scale soil remediation projects at a former gasworks site in Fitzroy, Victoria, requiring constant management throughout all phases of works.

The remediation works are being carried out within 6 separate odour control enclosures (OCE) (i.e. tents under negative pressure with emission control systems). Posing OHH risks and hazards.



## Site Historical Overview

- > 1859 - 1927: Built and key supplier of gas
- > 1927 – 1970s: Used as a workshop and storage facility
- > 1980s: Redeveloped
- > 2014: EPA declared a clean-up notice
- > 2015: Remediation works commence by Enviropacific Services





# Our Approach – Planning Phase

The purpose and scope of this document is to ensure that all relevant guidelines and legislation are complied with and that site workers and the community are not at risk of adverse health effects detailing.

- Identify the potential health effects for each CoPC based on activity
- Understand each aspect of the project to best assess risks and establish Similar exposure groups (SEGs)
- Setting shift adjusted WESs and ‘zoned limits’ depending on works to be carried out and PPE to be utilised
- Design a contaminant monitoring program to best assess SEG, process etc. during the different phases/tasks of work.
- Design a contaminant monitoring program
- Report requirements and relaying information to workers – and Continuously monitor!
- Outlining specific PPE and RPE requirements based on task including donning and decontamination processes

COC	EXPOSURE ACTIVITY	EXPOSURE PATHWAY	HEALTH EFFECTS / SYMPTOMS	TARGET ORGANS	RISK RATING
Benzene	Drilling and excavation – dermal contact with coal tar on excavation equipment and drilling spoil. Vapour originating from drilling spoil, brought to the surface.	Inhalation;	• Irritation to eyes, skin, nose, respiratory system;	Eyes;	B,1 – High
		Skin	• Dizziness;	Skin;	
		Absorption;	• Headache;	Respiratory system;	
		Ingestion;	• Nausea;	Blood;	
PAH	Stockpiling, classification testing & removal of spoil.	Skin and/or eye contact.	• Staggered gait;	Central nervous system;	B,1 – High
			• Lassitude;	Bone marrow.	
			• Dermatitis;		
			• Bone marrow depression (Leukaemia);		
PAH	Drilling and excavation – dermal contact with coal tar on drilling and excavation equipment.	Inhalation;	• Irritation of eyes, nose mucous membranes;	Eyes;	B,1 – High
		Ingestion;	• Headaches;	Skin;	
		Absorption	• Nausea;	Blood;	
			• Cataracts;	Liver;	
ETC.	Dust – emanating from drilling equipment and drilling spoil.		• Liver and kidney damage;	Kidneys;	B,1 – High
	Stockpiling, classification testing & removal of spoil.		• Lung, bladder, skin and gastrointestinal tract cancers;	Central nervous system.	
	Handling sludge from water pre-treatment unit containing solids.		• Birth defects.		
			• Benzo(a)pyrene Group1 Carcinogen;		
ETC.			• Mixture of Group 2A, 2B and 3 Carcinogens.		B,1 – High

# Sampling and Monitoring

The OCE, while minimising potential community impacts, increases risks of worker exposure and therefore full-time supervision is required under these extreme conditions. Accordingly, WSP was responsible for:

- ❖ Monitoring conditions inside the OCE and adherence to OHHMP.
- ❖ Continuous real-time monitoring for VOC, Benzene, Dust,  $\text{NH}_3$ ,  $\text{NO}_2$ , LEL,  $\text{O}_2$ ,  $\text{CO}_2$ ,  $\text{H}_2\text{S}$ , Temp, RH (%)
- ❖ Personal monitoring of PAH, VOCs, hydrogen cyanide and ammonia, etc.
- ❖ Dust management including RCSD
- ❖ Ongoing heat stress risk assessment process
- ❖ Personal noise monitoring
- ❖ Airborne asbestos fibre monitoring

## Challenges

- ❖ The workers – PPE usage and maintenance – Constantly breaking habits
- ❖ The de-contamination process (shared showers/locker rooms)
- ❖ Constant exceedances leading to evacuations
- ❖ Constant equipment calibrations due to burn out



## PPE SELECTION

Based on the OHHMP and understanding of tasks the following PPE were utilised:

- Chemical coveralls (100% relative humidity)
- Full face, PAPR– flip top and then changed to face fitted PAPR based on real-time data
- No skin exposure with gloves (nitrile/cut resistant), gumboots and hearing protection







# Site Outcome

The initial part parcel was remediated and is now an active operations of the Fitzroy Gasworks Senior Secondary School.

The remaining land use will be based on:

- 20% Affordable Housing
- 8% Public Open Space
- 1,200 New apartments
- Great access to transport
- maximise urban greening by introducing trees, ground cover, vertical and roof top vegetation.

Duration of project – commenced Early 2019 - still ongoing (Works within OCEs finished Dec 2021)