



EMERGENCY MANAGEMENT PRE PLAN

T2101 Credible Emergencies



Plot plan indicating T2101



Scenario

NO FIRE = **Sinking Floating Roof**

1. During an AGO transfer ex IVS to T2101 the Bayhead site operator noticed that there was a sheen on the side of the tank. Upon further investigation the operator noticed that there was product (AGO) around the tank base.

FIRE = **Tank Fire**

1. Rim Seal Fire
2. Full Surface Fire
3. Bund Fire



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Tank Details				
Type	Floating Roof	Height	18345 m	
Fixed Foam System	Yes – foam pourers	Diameter	25 m	
Product	AGO - (Automotive Gas Oil)	Surface Area of Roof (m2)	2923m ²	
Flash Point	62°C	Bund Area (Excluding Tank)	4576m ²	
Tank Capacity	19200 m3	Surface Area of Foam Dam (m2)	1195 m2	
Product Temperature	34 - 38 °C	Number of Roof Foam Pourers	4	
Product Properties				
Auto Ignition	338°C			
SANS Classification/NFPA	 - (2-Flammability, 0-Health, 0-Instability)			
Vapor Pressure	No data			
Flash Point	62°C			
Upper Explosive Limit	13.5 %			
Lower Explosive Limit	6 %			
Initial boiling point and boiling range	190°C to 390°C			
Vapor Density	No data			
IDLH ppm	No data			
Foam Requirement NFPA 11				
	Application Rate	Foam Solution Required (lpm)	Foam Concentrate Required (lpm)	Water Required (Total)
Rim Seal Fire	12,2 lpm/m2 For 30 minutes	22,700 lpm	680 lpm	22,000 litres
Full Surface Fire	10 lpm/ m ² for 60 minutes	807,700 lpm	24,2450 lpm	783,450 litres
Bund Fire	6,5 lpm/ m ² for 65 minutes	533,650 lpm	16, 050 lpm	517,650 litres
Equipment / Manpower Requirements				
Incident	Equipment Required		Manpower Required	
Rim Seal Fire	Fixed Foam System – inlet on east side – Rosenbauer International		4	
Tank Fire	TNPA - Big Ed 6-Gun Ambassador Monitor , and Foam Tankers		12+	
Bund Fire	Rosenbauer, TNPA - Big Ed 6-Gun Ambassador Monitor , and Foam Tankers		15+	
Cooling Water	Skin Cooling (fixed system)		Depending on number of equipment required for cooling	



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Injury	<i>Ambulance Rescue equipment</i>	2 4 - <i>Dependent on rescue type</i>
Fixed Equipment		
Hydrants	Monitors	Foam systems
2 x red hydrant system on the south side	n/a	Skin Cooling / Tank Drencher system
5 x blue hydrant system on the south side	n/a	Rim Seal Foam Pourers
2 x red hydrant system on the west side	n/a	Bund Foam Pourers
3 x blue hydrant system on the west side	n/a	
Plant Information		
Tank No	Pump out rate (m3/hr)	Pump No
Response		
<u>LOPC</u> Responding Vehicles - Quick Attack (Fire Officer) - Gully Sucker – Office hours - Activation of SLA if/when required (Spill Tech). Responding routes (Wind Direction) (Southerly Wind direction) - From Permit office join Trinidad Road and follow road which will lead straight to Wharfside Road. - From Site 3 go into Formosa Road and turn into the Emergency Road by Check Point 2 (along Total site) which leads to Wharfside Road. (Northerly Wind direction) - From Cuttler Check Point 2 (Gate 12) Formosa Road then turn left on Hainan Road into Wharfside Road. - From Site 3 go into Formosa Road and turn right on Hainan Road onto Wharfside Road.		
<u>FIRE</u> Responding Vehicles (Sapref) - Quick Attack (Fire Officer) foam - Moussol 3/6 APS 500 litres - Rosenbauer International (Fire Crew) Fire Engine with AFFF 7000 litres - Patient Transport Vehicle (Medical Response Team) Responding vehicle TNPA - First response fire tender. Fire Equipment from Cutler - Foam on Wheel 2 x 26000lts of Alcoséal Foam. - Big Edd/Six Gun Fire Monitor 22000lts /min - Hose Trailer with all necessary equipment		



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Responding routes

(South West Wind direction)

- Wharf side Road to Trinidad Road. Bayhead Tank farm on left side.

(North East Wind direction)

- From Permit office join Trinidad Road Bayhead Tank farm on right side.

Fire Equipment on site: (Immediately Available)

- There are Hydrants in this area.
- Hydrants don't have Fixed equipped monitor.

Placement Considerations:

- Set up staging area on Trinidad Road
- Approach upwind if possible.
- Assess risk and choose favourable position for apparatus/personnel ingress and egress
- Position apparatus at a safe distance away from possible hazards such as radiating heat

FCP - Forward Control point

- FCP to be established upwind of incident

Tactics

Fire Response

Foam attack by using the foam lateral: (Rim Seal Fire)

- Park Response Vehicle in a safe location close to T2106 foam lateral connection.
- Connect 4 x 64mm hoses from a hydrant to the water inlet manifold of the Response Vehicle.
- Connect 4 x line 64mm hoses from the water/foam manifold discharge valve on the First Response Vehicle to the 64mm foam lateral connection with non-return valves.
- Open the hydrant and follow the Response Vehicle operating procedure to supply foam solution.
- Observe that the foam is coming out of the foam pourers.

Foam attack by using the 6 Gun Ambassador by TNPA: (Full Surface Fire)

- Access the scene and wind direction.
- Setup the Williams 6-Gun Pump as per manual instructions.
- Connect up the 6-Gun Foam Monitor.
- Get the foam supply from one of the Foam Tank Carriers.
- Use the correct flow nozzle and fit to 6-Gun Monitor.
- Do a flow test first before directing it inside the tank on fire.
- The First Response will be used as a fire teaser (to tease the fire) while establishing the 6-Gun attack.

Foam attack by using the 6 Gun Ambassador by TNPA: (Bund Fire)

- Equipment and personnel should be placed in a safe location taking in consideration the wind direction and the location of the foam lateral connection to T2106.
- Deploy additional cooling lines onto adjacent Tanks if radiant heat is threatening adjacent tanks.

Special Hazards (Explosion, Toxic Hazards etc.)



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- Pontoons of the Floating roof may explode due to vapours in roof compartments and it can cause roof to sink which will lead to a full can fire.
- Smoke inhalation from Fire.
- The proximity of this specific tank to T2105 and T2107R could cause possible fire spread, therefore special attention must be spent on exposure protection.

Exposure Protection

- Apply cooling to neighbouring tanks if radiant heat is threatening these tanks by activating the fire water deluge systems (skin cooling) on the adjacent tanks.
- Deploy additional cooling lines onto adjacent Tanks if radiant heat is threatening adjacent tanks if there is no Fire water deluge systems installed on the adjacent tanks.

Medical Response

- Equipment and personnel should be placed in a safe location.
- Multiple patients follow triage protocol and mutual aid protocol.
- MRT (Medical Response Team) to stabilize patient on scene using correct PPE and ensuring own safety.
- Patient loaded in ambulance and further treatment given (Vitals monitored).
- Inform Clinic of patient condition
- Log all information on patient report

Rescue Response

- Rescue Team will respond to the scene.
- Scene size up to ensure most efficient rescue tactics.
- Confirm Rescue tactics with Fire Branch director
- Safety of rescuer very important
- Correct PPE and rescue equipment for the specific rescue

Fire Water

Supply

- **Red system Fresh water**
P2102 Electric 300 m3/hr 10 Bar
- **Blue system CFI Sea water**

Fire Pump Capacities (Rated)

- P2102A Electric 300 m3/hr 10 bar
- TNPA Jockey Pump 750 m3/hr 15 bar
- TNPA Electric 750 m3/hr 15 bar
- TNPA Electric 750 m3/hr 15 bar
- TNPA Electric 750 m3/hr 15 Bar
- TNPA pumps can run of Diesel generators.

Water Application

- Sapref Rosenbauer International Fire Truck
- **Water Pump:** Hale single stage centrifugal pump with a flow rate of 2,838L/min to 4,731L/min
- **Foam Pump:** Edwards gear foam pump, maximum discharge 1547 L/min



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- **Fixed Deck Monitor water/ foam:** scorpion RF monitor maximum flow capacity is 7571lt/m. provides a flow range of 1893 to 7571 Lt/m at 6.2 bar

Foam

Stock available

SAPREF

- | | | |
|----------------------------|-----------------|---------|
| • Rosenbauer International | AFFF | 7 000 L |
| • Quick attack | Moussol 3/6 APS | 5 00 L |

TNPA

- | | | |
|--------------------|----------|----------|
| • TNPA FIRE TENDER | Alcoseal | 8 000 L |
| • Trailer 1 | Alcoseal | 26 000 L |
| • Trailer 2 | Alcoseal | 26 000 L |
| • CFI | Alcoseal | 230 000L |

Additional Information

- T2101 is a tank at Bayhead which primarily holds AGO (Automotive Gas Oil).

