

EMERGENCY PRE-PLAN : 51 TK 173 B

STORAGE TANK FOR PREMIUM PRODUCT

EMERGENCY RESPONSE

ACTION OF PROCESS CONTROLLER

Report all spillage / product leaks immediately.

Minor – If possible, isolate the item concerned and deal with the spillage / product leak as per normal procedures.

Major – Activate the nearest fire alarm and evacuate the area. Stop all supply pumps immediately. Appropriate protective clothing and breathing apparatus must be worn when isolating or repairing equipment affected by the spillage / product leak.

Fire – Activate the closest fire alarm. Confirm situation by any practical means with the Central Control Room.

If safe to do so, attempt to extinguish the fire, using the appropriate fire equipment situated at strategic locations around the unit.

If it is not safe to attempt to extinguish the fire, evacuate the area immediately.

ACTION OF FIRE DEPARTMENT

Wind Direction

- Fire fighting activities will depend on the wind direction
- The wind direction is predominantly from either the West or East
- Fire equipment will be deployed according to the wind direction via either West or East.

Product Release From Tank

- Respond and remain upwind.
- Carry out dynamic risk assessment; determine the extent of the problem.
- Set up standby fire fighting equipment in case product ignites
- Confirm with Shift Manager the necessity of activating the JOC.
- Evacuate the immediate area, and down wind for a large release.
- Confirm with production to determine if product may be drained to other storage facilities if considered an appropriate step
- Protect storm water drains and ensure all drains are blocked to contain product into the bund
- Foam may be used for vapor suppression if needed.
- Liaise with production staff and confirm all necessary pumps, valves, etc. have been isolated.

Rim Seal fire

- Respond and remain upwind.

- Carry out dynamic risk assessment; determine the extent of the problem.
- Set up ground monitors and fixed monitors to provide protection in the event that the product has ignited.
- Attempt fighting the fire by opening valves for spray system located near Gasoline road and 51 TK 172 C (Picture1.3) Foam mixing valves located on Tank farm road next to 51 TK 173 B must be operated for the foam pourers to operate (Picture1.2)
- Take measures ensure the floating roof does not sink while the rim seal foam pourers are in operation.
- Confirm with Shift Manager the necessity of activating the JOC.
- Protect exposures, especially nearby tanks.
- If the severity of the incident increases, consult with the Shift manager and stop foam pourers operation while cooling by fixed spray system and ground.
- Confirm with production to determine whether supply and transfer valves and pumps have isolated or closed.

Full Surface Tank Fire.

- Respond and remain upwind.
- Carry out dynamic risk assessment; determine the extent of the problem and impact on the environment.
- Confirm with Shift Manager the necessity of activating the JOC.
- Fight such fire from a distance using the appropriate equipment and medium.
- No product transfer should be done until instructed to do so.
- **Ensure all resources available before starting fire fighting operations.**
- Ensure cooling protection to the nearby tanks and the tank on fire. **Direct water onto the tank wall. If steam comes off, the tank should be cooled. If not, repeat the test periodically**

Clean-up

- Contain product and water / foam as far as possible.
- Small gasoline spills can be absorbed with absorbent material and disposed of at Landfill as per PetroSA standards.
- Bio-remediation and / or soil removal must be considered for larger environmental incidents.
- Water used for cleaning the area should be directed to the Oily Water Sewage System.

Special Hazards

- Full fire fighting protective clothing should be worn.
- It is strongly recommended that breathing apparatus be worn.
- The product is highly flammable / explosive.
- Vapors may travel long distances to ignition sources and flash back.
- Vapours in confined spaces (tanks, drains, buildings, etc) may explode when exposed to fire.
- 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 surface. This may be complicated by the roof tilting
- Smoke inhalation from Fire
- Extreme radiant heat

Construction of Tank

- Tank has a floating roof with a double seal and a foam Dam to contain a foam blanket over the seal area.
- **The roof has pontoons which may contain vapours or product**
- The tank has a roof drain which should be open when foam is directed up foam laterals to prevent any accumulation of foam/water on top of roof outside the foam dam which may cause roof to tilt.

First Aid

- More gas is toxic in high concentrations by inhalation, and can result in dizziness, headache and in severe cases, unconsciousness.
- Remove patient to fresh air. Give oxygen if necessary. Seek medical attention.

Decontaminate as follows:

1. **Skin** - Remove contaminated clothing, wash with soap and water, or shower.
2. **Eye contact** – Rinse eyes with large amounts of water or saline solution for at least 15 minutes. Seek medical attention.
3. **Ingestion** – Will cause nausea and vomiting. If conscious give strong salt solution to drink. Seek medical attention.
4. **NOTE:** - Toxic affects may be delayed. For skin burns, cool with water and apply clean dressings. Seek medical attention.

Major Accident Source

51 TK 173 B Storage tank for Premium Petrol



Picture1.1 Storage Tank 51 TK 173 B

EMERGENCY PRE-PLAN 51 TK 173 B

Picture 1.1, Storage tank 51 TK 173 B is located in the corner of Tank farm Road and Gasoline Road.

There are fire hydrants on all sides of the tank and fire water isolation points.



Picture 1.2 these two valves need to be opened to introduce foam into the foam pourers

Picture 1.2, Foam mixing station on the Western side of 51 TK 173 B (Tank farm Road), and another foam mixing station is on the Eastern side (Premium Road) of the storage tank with a similar set up.

When the two valves opened from foam mix station, automatically water line will opens due Clark/Fall valve installed between the lines. Foam pump may be started at Unit 56, Ops Control Room or Fire Dept in order to introduce pressure in foam system.

Foam concentrate from an outside source may be introduced at the foam mixing station inlet as well, should it be deemed necessary.



Picture 1.3 Spray water activation panel for 51 TK 173 B

Picture 1.3. The storage tank is installed with two spray water systems; each covers one side while the other covers the other side of the tank.

Each spray system has its own water supply from the fire water reticulation system.

The water supply is triggered by opening a valve on the panel to depressurise the line, then the pneumatic valve water supply will open.

Product name: Premium Petrol	Auto Ignition Temp.: 220 ° C	Flash Point: - 43 ° C	Storage Temperature: 21 ° C
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Tank Data	Diameter: 28.5 m	Height: 14.9 m	Surface Area: 637.6 m ²
Working Capacity: 8336 m ³	Foam Pourers: 3 rim seal – Type II	Deluge System: Yes	Tank Type: Floating Roof

Foam Application Recommended	Induction Rate: 3%	Application Rate: 6.5 l/min/m ²	Required Solution / min: 4147 l/min
Recommended Equipment: Bigfoot – 4200 l/min	Foam Concentrate / min: 124.4 l	Water / min: 4022.6 l	Foam Concentrate / hr: 7464 l

Foam Application Capability	Induction Rate: 3%	Application Rate: 6.5 l/min/m ²	Required Solution / min: 7500 l/min
Recommended Equipment: Bigfoot- 7500 l/min	Foam Concentrate / min: 225 l/min	Water / min: 7275 l/min	Foam Concentrate / hr: 13500 litres

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Response route will be determined by the wind direction

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- Access to hot zone is extremely prohibited and fire fighting activities will be done out of the hot zone.
- Fire hydrants and other fire fighting equipment used must be out of the hot zone.
- Once fire fighting equipment has been set up, withdraw personnel as much as possible.