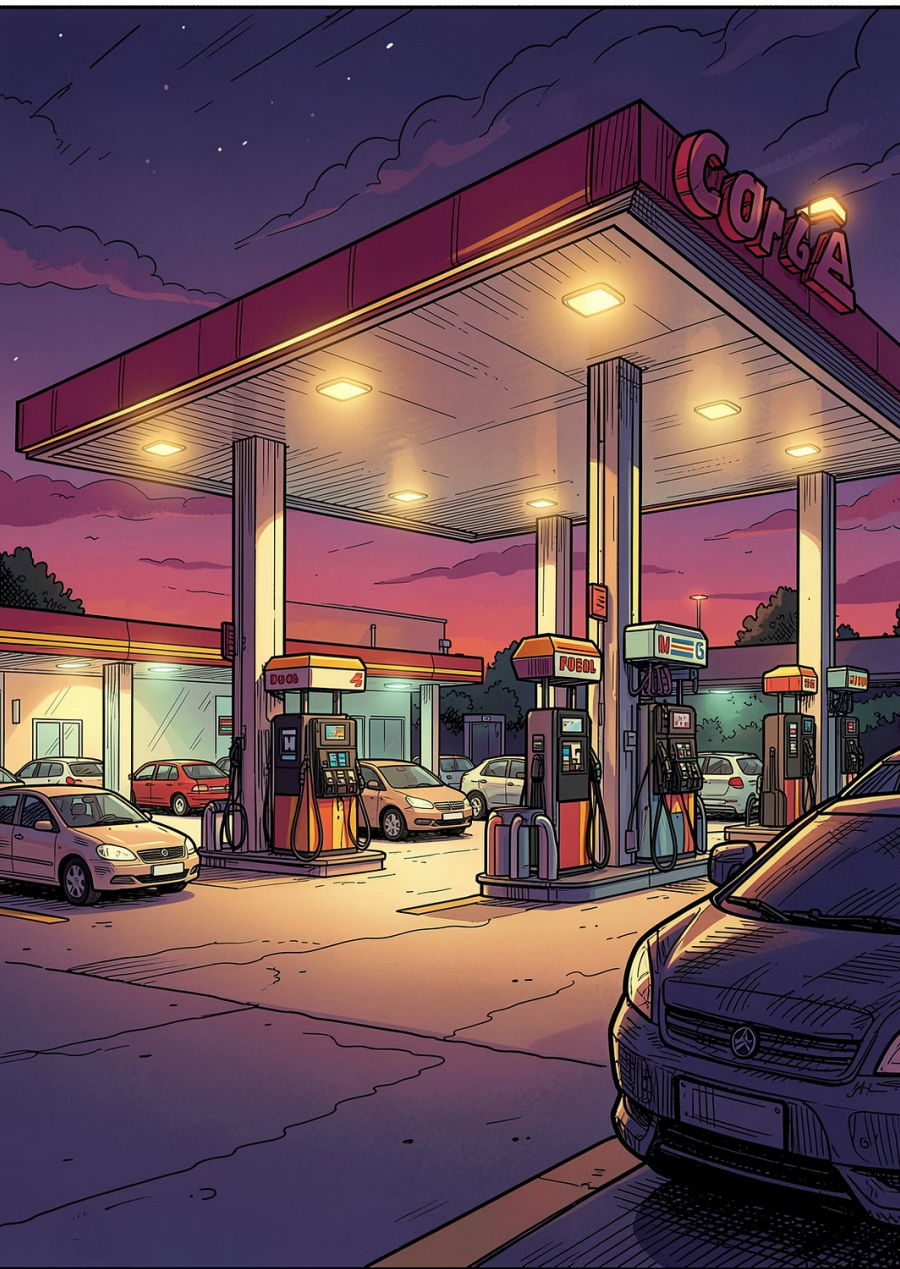




# Forecourt Safety Protocols

Fuel station forecourts are among the most volatile work environments in the energy sector. A safe operation demands rigorous management of three invisible, intersecting threats: **highly flammable liquid, expanding vapor clouds, and unpredictable ignition sources**. This guide provides the complete, authoritative protocols for every person operating on the forecourt.

HSE TRAINING

OIL & GAS

FUEL STATION OPERATIONS

# Three Invisible Threats

Every incident on the forecourt traces back to the convergence of three hazard categories. Understanding how they interact is the foundation of all safe fueling operations.

## Flammable Liquid

Gasoline ignites at extremely low energy levels. Even a small spill creates an immediate fire hazard that can escalate in seconds.

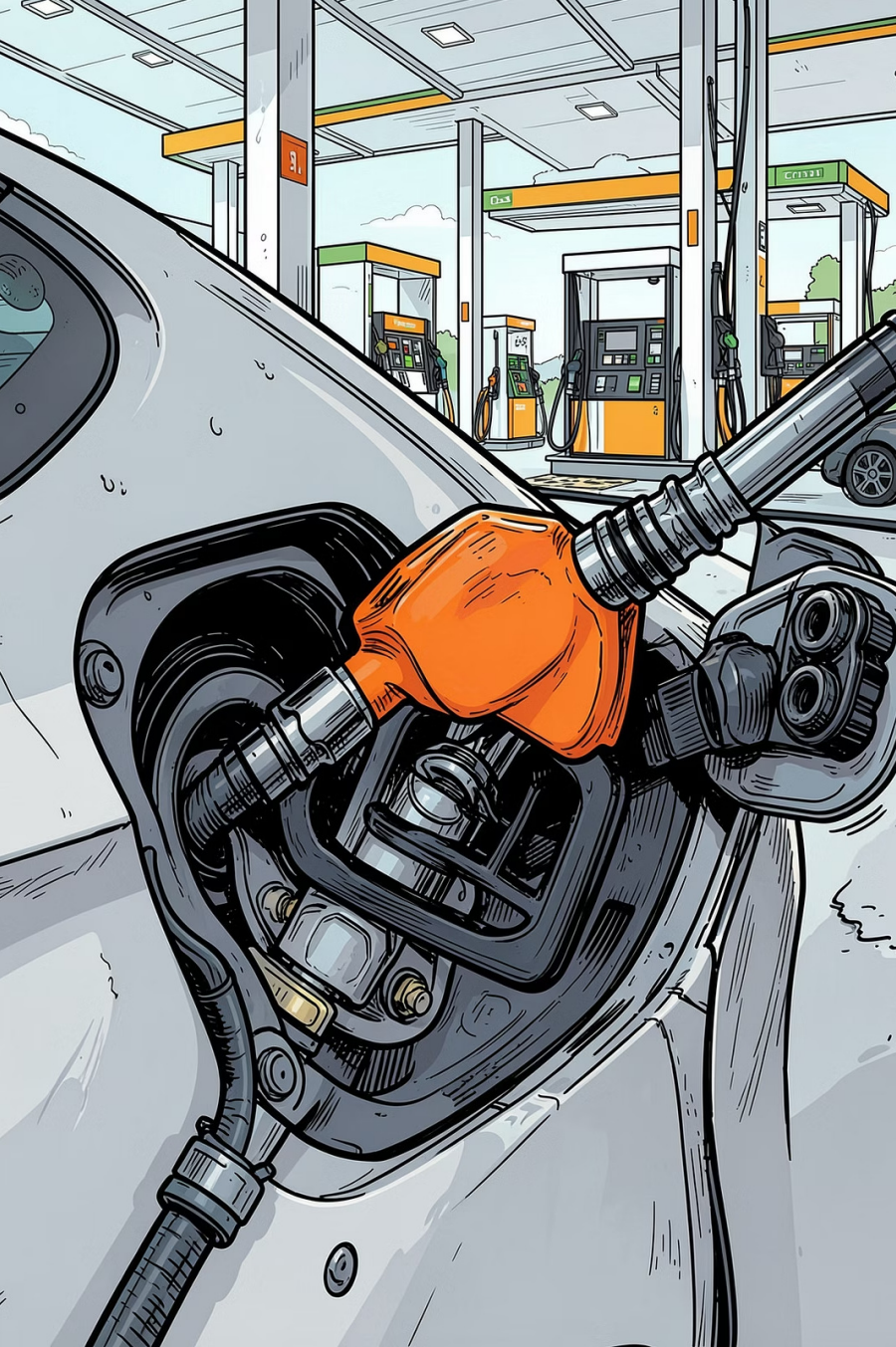
## Expanding Vapor Clouds

Fuel vapors are heavier than air – they sink, pool at ground level, and travel across the forecourt seeking an ignition source.

## Unpredictable Ignition Sources

Sparks from engines, static discharge, mobile devices, and hot surfaces can all trigger a flash fire without warning.

 All three threats must be managed simultaneously. Eliminating only one or two still leaves the forecourt dangerously exposed.



## SECTION 1

# Fire Prevention & Ignition Control

The primary goal on the forecourt is the **absolute isolation of all ignition sources from the fueling zone**. Every action taken during refueling must be evaluated against this standard. The following protocols are non-negotiable for all operators and customers.

# Ignition Control: Four Non-Negotiables

## Mandatory Engine Shutdown

All vehicle engines must be **turned off before the fuel cap is removed**. An active engine introduces multiple ignition risks – sparks from the alternator, extreme exhaust manifold heat, and potential backfires.

## Zero Open Flames

Smoking, using lighters, or lighting matches is **strictly prohibited within a minimum of 20 meters** of pump islands and underground tank vents. This zone must be visibly marked and actively enforced.

## Mobile Device Restrictions

Mobile phones must **remain inside the vehicle**. Dropping a phone can puncture its lithium-ion battery, creating an immediate chemical fire. Defective batteries or RF signals can also generate micro-sparks near vapor zones.

## Continuous Manual Nozzle Control

**Never wedge the pump nozzle trigger open** with a gas cap, bottle, or any foreign object. You must maintain physical, manual control at all times to react instantly to auto-shutoff failures or sudden spills.

# Static Electricity: The Leading Cause of Flash Fires

## Why Static Is So Dangerous

Simply sliding across a car seat can generate **thousands of volts** of static electricity on a person's body. A single discharge near the fuel filler neck is sufficient to ignite vapor and cause a flash fire.

Static is invisible, silent, and easily underestimated — making it the most common cause of unexpected pump fires.

### 1 The 3-Second Discharge Rule

Before touching the pump or gas cap, touch a **bare metal part of the vehicle** (door threshold or metal pillar) with your bare hand to safely discharge static into the chassis.

### 2 The Re-Entry Danger

**Do not re-enter the vehicle while refueling.** Sliding back out regenerates a new static charge. If you must re-enter, repeat the bare-metal discharge rule before touching the nozzle again.

### 3 Portable Container Grounding

Never fill a gas can inside a trunk, on a seat, or in a plastic-lined truck bed. Insulating surfaces prevent static from grounding. Keep the **metal nozzle tip in constant contact** with the container rim.

## SECTION 3

# Vapor Hazard Protocols

Gasoline vapors are **heavier than air**. They do not dissipate upward – they sink and pool around your ankles and across the concrete forecourt. Treat every refueling event as a vapor management operation.



# Managing Vapor Exposure & Spills



## Wind Positioning

Whenever possible, **position yourself upwind of the nozzle**. This prevents toxic, displaced vapors – pushing out of the tank as it fills – from reaching your breathing zone.



## No "Topping Off"

When the nozzle automatically clicks off, **stop pumping immediately**. Forcing additional fuel destroys the vehicle's vapor recovery charcoal canister and causes highly flammable liquid to spill down the side of the car.



## Spill Management

If a spill occurs, **do not wash it away with water** – this spreads flammable liquid over a larger area. Use the station's designated absorbent sand or spill kit immediately to smother vapors and soak up fuel.

# Emergency Action Plan

If a flash fire occurs at the nozzle or a massive spill compromises the forecourt, **strict sequential procedures apply**. Deviation from these steps can turn a containable incident into a catastrophic event. All personnel must know and practice this sequence.



These four steps must be executed in strict order. The most critical and most commonly violated step is **leaving the nozzle in the vehicle** – removing it during a fire will spray burning fuel across the forecourt and onto personnel.

# Emergency Procedures: Critical Details

## Step 1 — Leave the Nozzle In

If a fire starts at the fuel filler neck, **do not pull the nozzle out.** Removing it will spray burning fuel across the forecourt and onto yourself. Leave it inserted – the nozzle's auto-shutoff may still be functional, and it contains the flow path.

## Step 2 — Hit the E-Stop

Immediately locate and press the station's **Emergency Stop (E-Stop) button.** This cuts electrical power to the underground turbine pumps, instantly stopping the flow of pressurized fuel to all dispensers.

## Step 3 — Evacuate Upwind

Move all personnel and customers away from the canopy area to the **designated upwind muster point.** Account for all individuals and prevent re-entry until emergency services declare the area safe.

## Step 4 — Do Not Start the Engine

If there is a major spill under a vehicle, **the driver must not start the engine to move the car.** The starter motor spark or hot exhaust can easily ignite pooled vapors. Push the vehicle to safety or wait for emergency services.

⊗ All forecourt staff must know the location of every E-Stop button and the designated muster point before beginning their shift. This is not optional orientation content – it is a life-safety requirement.

# Key Takeaways: The Forecourt Safety Standard



## Engine Off. Always.

No exceptions. Engine shutdown before cap removal is the first line of defense against ignition.



## Discharge Static First

Touch bare metal before every fueling interaction. Never re-enter the vehicle mid-fuel without re-discharging.



## Respect the Vapors

Vapors sink and pool. Stay upwind, never top off, and use absorbent – not water – for spills.



## Know Your E-Stop

In an emergency: nozzle stays in, hit E-Stop, evacuate upwind, never start an engine over a spill.

Forecourt safety is not a checklist – it is a **continuous discipline**. Every refueling event is an opportunity to prevent an incident. Consistent adherence to these protocols by every operator, supervisor, and customer is what keeps the forecourt safe.