

**Test Procedure For
Determining Diurnal Emissions from Metal
Refueling Stations (aka “gas caddies”)
Category: RT06ST1**

Purpose
To measure diurnal emissions from metal refueling stations, including and excluding the hose/nozzle assembly.
General Test Conditions/Parameters
For testing the tank only, the hose/nozzle assembly is kept isolated by keeping the manual fuel hose valve handle at the bottom of the tank in the closed position, clamping or capping the hose, or otherwise preventing fuel from entering the hose assembly.
Both vented and permeation emissions are being considered during these testing events. All emissions when not circulating the fuel through the hose are considered to be vented emissions. If fuel circulation in the hose occurs, permeation emissions are included.
All tests will be conducted in a SHED (Sealed Housing for Evaporative Determination) using the CA Summer Temperature Profile (65°F - 105°F - 65°F).
Record THC (Total Hydrocarbon) results generated by SHED-FID.
Ethanol impinger samples will be collected for each test to determine the accurate amount of ethanol emissions caused by ethanol content in the fuel. Ethanol impinger samples will be analyzed by MLD (South) Lab.
SHED THC concentrations will be corrected for ethanol concentrations and together will give the correct ROG (Reactive Organic Gas) concentrations.
Conduct Pre-Soak and Post-Soak tests using CaRFG3 fuel which has approximately 6% Ethanol (E6).
Repeat Post-soak testing with California Phase II Certification E10 fuel.

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Background		
Measure the background emissions of new refueling stations.		
Step #	Procedure	Additional Comments
1	Condition the refueling tank for 6 to 36 hours at 65°F.	
2	Conduct a two-day Diurnal SHED test at 65°F-105°F-65°F without fuel.	
3	Provide SHED ROG emissions data as background.	

Post-Soak		
Measure the vented emissions <u>(hose is isolated)</u>.		
Step #	Procedure	Additional Comments
1	Fill the tank to 50% capacity with fresh CaRFG3 summer fuel (tested at the lab).	Make sure that hose shut-off is in the off position, or that the hose does not contain fuel.
2	Soak the refueling tank system for 30 days at 86°F ± 10°F.	
3	Drain and refuel the tank to 50% capacity with CaRFG3 summer fuel.	
4	Condition the refueling tank system for 6 to 36 hours at 65°F.	
5	Conduct three, one-day Diurnal SHED tests at 65°F-105°F-65°F	
6	Provide SHED ROG emissions data.	

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Post-Soak		
Measure the vented and/or permeation emissions including filler hoses/nozzles.		
Step #	Procedure	Additional Comments
1	Drain and refuel the tank to 50% capacity with fresh CaRFG3 summer fuel (tested at the lab).	
2	Circulate the fuel through the fuel filler hose back into the fuel tank for 1 minute.	Lay the filler nozzle on the refueling tank frame below the fuel tank level to retain fuel in the fuel filler hose.
3	Soak the refueling tank system for 30 days at 86°F ± 10°F (conditioning filler hose).	
4	Drain and refuel the tank to 50% capacity with CaRFG3 summer fuel.	
5	Circulate the fuel through the fuel filler hose back into the fuel tank for 1 minute.	Lay the filler nozzle on the refueling tank frame below the fuel tank level to retain fuel in the fuel filler hose.
6	Condition the refueling tank system for 6 to 36 hours at 65°F.	
7	Conduct three one-day Diurnal SHED Test at 65°F-105°F-65°F.	
8	Provide SHED ROG emissions data.	