



CITGO Petroleum Corporation

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June 5, 2012

**CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

Mr. Wayne T. Lemoi  
Director, Office of Pipeline Safety  
PHMSA Southern Region  
233 Peachtree Street Ste. 600  
Atlanta, GA 30303

Re: Notice of Amendment (CPF 2-2012-6009M)

Dear Mr. Lemoi,

In response to the above noted NOA, CITGO has developed OM procedures that will enable us to reasonably calculate the initial release volumes for NRC reporting. The procedures are attached as pages G-12 through G-14 of Section G of the Pipeline Operations and Maintenance Manual (OM).

The procedures developed incorporate a calculation method listed in our current PHMSA Facility Response Plan. That calculation method uses pumping rate, elapsed time that leak was in progress and drainage volume of the line between upstream and downstream isolation valves in a formula. We also addressed calculation of released volume from a tank overflow. Incorporated into this procedure is a visual assessment of surface area and thickness that can be used to estimate the amount of product on water from a release. Lastly, we have adopted a process in which volumes of released material can be calculated when they are saturated in soils. That process would involve measurements taken in the field at the leaksite and then provided to our engineering department for the calculation.

When using any of these methods of calculation, SCADA information provided to the Pipeline Control Center from the time of the release will be compared to the field calculated volumes as a comparison.

Please contact me with any questions concerning this submittal. My office phone number is 337-708-6944 and my cell number is 337-802-1179.

Sincerely,

A handwritten signature in cursive script that reads "Robert B. Bertrand".

Robert B. Bertrand  
EHS&S Manager  
CITGO Petroleum Corporation

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- (4) The time of the failure;
- (5) The fatalities and personal injuries, if any;
- (6) Initial estimate of amount of product released in accordance with (C) below;
- (7) All other significant facts known by CITGO that are relevant to the cause of the failure or extent of the damages.

**C. Calculation/Estimation.** A reasonable initial estimate of the amount of released product will be calculated. Estimating, or calculating release volumes can involve various factors such as elapsed time in which the leak was in progress, drainage volume of the line and pumping rate. Released volume can be floating on water or, if minor in quantity, can be saturated in soils. Depending upon the pipeline breach and rate of release, the SCADA tools used in conjunction with the leak detection system may trigger alarms to alert of a possible release. This SCADA data may be useful as input variables to calculate release volume. Below are methods of spill volume estimation/calculation to be utilized initially after release in order to make a telephonic notice to the National Response Center. SCADA data will be utilized for comparison with field calculations to assure the closest estimation of calculation for release volume. Actual spill volume release may be adjusted during the spill response as more information becomes available.

**(1) Spill Volume Estimating**

Early in a spill response, estimation of spill volume is required in order to:

- Report to agencies
- Determine liquid recovery requirements
- Determine personnel and equipment requirements
- Estimate disposal and interim storage requirements

Some rapid methods to estimate spill size/quantity are:

- Pumping operations: Multiply the pumping rate by the elapsed time that the leak was in progress, plus the drainage volume of the line between the two closest valves or isolation points (volume loss = pump rate (bbls/min) x elapsed time (min) + line contents (bbl)). In areas where there is a significant elevation difference within the segment and between the isolation valves, this will be considered in the release calculations/estimates.
- Tank overfills: Elapsed time multiplied by the pumping rate
- Visual assessment of the surface area and thickness (FIGURE 1 below); this method may yield unreliable results because:
  - 1) Interpretation of sheen color varies with different observers
  - 2) Appearance of a slick varies depending upon amount of available sunlight, sea state, and viewing angle
  - 3) Different products may behave differently, depending upon their properties

**FIGURE 1 – SPILL ESTIMATION FACTORS**

<b>OIL THICKNESS ESTIMATIONS</b>				
Standard Form	Approx. Film Thickness		Approx. Quantity of Oil in Film	
	inches	mm	gallons/mile <sup>2</sup>	liters/km <sup>2</sup>
Barely Visible	0.0000015	0.00004	25	44
Silvery	0.000003	0.00008	50	88
Slightly colored	0.000006	0.00015	100	179
Brightly colored	0.000012	0.0003	200	351
Dull	0.00004	0.001	666	1,167
Dark	0.00008	0.002	1,332	2,237
Thickness of light oils: 0.0010 inches to 0.00010 inches				
Thickness of heavy oils: 0.10inches to 0.010 inches				

NOAA, 09/2000

(2) Saturated Soil Release Volume Estimate/Calculation

Small releases are many times not detected by a change in pressure or a discrepancy in the volume measured as moving through the pipeline so other methods of estimation are utilized. In situations where product saturation into soil has occurred, soil samples will be collected during the initial response activities and information will be gathered from personnel who observed the sampling site. First in this process, estimates of the area of soil impact (example: approx. 10 feet wide by 20 feet long by 10 feet deep, or approx. 2,000 ft<sup>3</sup>) will be measured. Then the area of soil impact will be divided into 2 areas (Areas A and B). Area A will be the nearest the release point and will be assumed to have the highest concentration of hydrocarbons. Area B will be assumed to have the lower concentration of hydrocarbons. To calculate the volume of hydrocarbons in the area of impact, utilize the weight of the product released (ex. Diesel fuel @ 7.09 lbs/gallon). So, using the volume of soil, the mass of soil, the Total Petroleum Hydrocarbon (TPH) measured maximum concentration of Area A and an assumed adjusted concentration of Area B, the volume of product in each area can be closely estimated to give a total volume of product saturated in soils.

- D. **New Information.** CITGO will provide an additional telephonic report to the NRC if significant new information becomes available during the emergency response phase of a reported event at the earliest practicable moment after such additional information becomes known.

195.54 Accident Reports

Each District/Terminal that experiences an accident that is required to be reported under 195.50 shall file, as soon as practicable but no later than 30 days after discovery, an accident report on PHMSA Form F 7000-1. Submittal must be electronically to