



**Sam McEwen**  
Director, Environmental

July 22, 2022

**Via Email Delivery**

Michael E. Scott  
Director  
NC Division of Waste Management, NCDEQ  
217 West Jones Street  
Raleigh, NC 27603

**Re: Huntersville: Updated Estimated Released Volume**

Dear Director Scott:

In the consent order reached with the State of North Carolina, we are required to provide an updated released volume estimate to NCDEQ within 30 days of the Judge signing off on the agreement. This letter fulfills that requirement.

Each estimate we have provided to-date has been based on the best available data we had at the time, using an environmental model to calculate an estimated released volume. However, after an exhaustive geological assessment and significant subsurface geotechnical analysis and consultation with you and your team at NCDEQ, we determined that an operational model is a more responsible and appropriate approach for this site.

Unique geophysical conditions at the site place too many limitations on traditional environmental modeling. Most importantly, if we were to continue to use the environmental model for our release estimate, it would require the site to be at a steady state where no product is being recovered. This would be necessary to gather the data necessary for the model, but would also require us to shut down the free-product recovery system for several weeks (perhaps up to six months). This could allow migration of the product and would not be most protective of human health or the environment. Neither of our organizations could allow this risk.

Since realizing the challenges with conducting another estimate based on environmental data, Colonial has continued to explore other models and methodologies to estimate the released volume. Over the past several months, we have determined that the updated released volume estimate would be based on an operational model, using operational data from Colonial's "Over/Short" process for managing pipeline and tank farm inventories and other pipeline operations. "Over/Short" is a calculation summing all metered volumes delivered out from the pipeline at delivery locations along the way, minus the sum of all metered volumes received into the pipeline at points along the way. Because the Over/Short calculation is the difference in metered volumes, the accuracy of the calculation at any point in time depends upon measurement accuracy. Accurate measurement of volumes in this context depends upon:

- Accurate product temperature, pressure and gravity readings at all metered locations;

- Adhering to routine meter proving frequency at all metered locations; and
- Adhering to meter utilization guidelines (e.g., operating within the preferred flow range) at all metered locations.

Even without any measurement inaccuracies, however, there will be inherent variability in a pipeline's Over/Short data due to variable product conditions and variable operating conditions, including the seasonal changes in temperature. Thus, the Over/Short calculation may result in zero, a positive number, or a negative number—and such results are frequently observed under normal operations. Although some variation in Over/Short data is expected due to operating conditions, analyzing cumulative data over longer periods of time allows us to identify the prevailing trends. This has allowed Colonial to use the Over/Short data from Line 1 to produce an estimate of the volume released. Colonial did so in the following manner.

1. **Determine the start date of the release.** Colonial examined the daily Over/Short data on Line 1 from 2015 to 2022 and found that it shows a relatively stable and repeatable pattern in the trends from year to year. The Line 1 cumulative daily trends are flat to slightly “short” in January and February, begin to trend “over” in March through May, trend flat or slightly “over” from June through September, and trend flat to slightly “short” in October and December. The daily Over/Short data for Line 1 in July and August 2020, however, did not follow that pattern. The daily data trended downward starting in late July 2020, rather than following the trend typical of such months in other years. Analysis of the daily data revealed a shift in the trend beginning on July 27, 2020. Colonial identified July 27, 2020, as the start date for the release at Huntersville based on the over/short data. Colonial then validated that conclusion through an independent third-party review.
2. **Determine the Over/Short amount for the relevant segment of Line 1.** The release from Line 1 was discovered on August 14, 2020, and the pipeline was shut down immediately. Using the start date of July 27, 2020, and the end date of August 14, 2020, Colonial could examine the Over/Short data for the relevant segment of Line 1 (between Houston, Texas, and Greensboro, N.C.). For that segment of line over that time period, deliveries were 45,729 barrels short of receipts (approximately 0.13% of volume over that time period).
3. **Convert the Over/Short data for the relevant time period into an estimate of the volume released.** As noted above, the Over/Short data is dynamic over the short term, and frequently ranges from a positive number to a negative number due to normal system variability. In order to utilize the Over/Short data to estimate the release volume over a specific time period, one needs to compare the actual cumulative Over/Short trend performance to the expected. Based on review of historical Line 1 Over/Short performance, it would not be appropriate to assume the expected Over/Short trend would



have been exactly zero over the time period in question. The Line 1 Over/Short trend performance in the immediate weeks prior to and following the relevant time period provide additional support for the expected Over/Short trend performance. Colonial therefore examined the over/short trends in the weeks before and the weeks after the 2020 release and determined that the trends in each time period were relatively flat. This supports the conclusion that the Over/Short data during the time period of the release would also have been relatively flat, absent the release. However, to be conservative in preparing its updated volume estimate, Colonial increased its estimate from the 45,729 barrels (identified in step 2, above) to 47,619 barrels, to cover the possibility of an increasing trend in Over/Short data that might have occurred from July 27, 2020, to August 14, 2020, had the release not happened. At a ratio of 42 gallons per barrel, this equates to approximately 2 million gallons.

This updated estimate of the volume released from Line 1 at Huntersville in 2020 is a reasonable estimate, based upon the data Colonial currently has and the information currently known. Like any estimate, it requires certain reasonable assumptions and depends upon the accuracy of the data used as inputs. If additional information arises that requires different assumptions to be made or requires the use of different data, then the results of this methodology could change.

Since this release was first identified on August 14, 2020, Colonial Pipeline has remained steadfast in our commitment to recovering free product while protecting human health and the environment.

We remain committed to working closely with NCDEQ, county, and community leaders as recovery efforts move forward.

Respectfully,

*Sam McEwen*

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