October 6, 2021

Shawn Lee
Manager, Health, Environment & Safety
Chevron Products Company
P.O. Box 1272
Richmond, CA 94802-0272

RE: Air Monitoring Plan – Notification H_2S Monitoring Selection Requirements

Dear Mr. Lee:

On December 6, 2018 the Bay Area Air Quality Management District (Air District) sent an Air Monitoring Plan (AMP) – Notification of Extension for H_2S Monitoring Selection Submittal. The letter extended the deadline and revised the timeline to allow an additional 3 months for the selection of an H_2S monitoring method. Subsequent extension letters were sent on March 6, 2019, September 17, 2019, December 19, 2019, March 20, 2020, June 19, 2020, September 21, 2020, December 17, 2020, March 18, 2021, and June 22, 2021.

This letter serves to notify Chevron that the Air District will not be issuing any further extensions to the deadline to select an approach to monitor H_2S. The Air District has identified an open path tuneable diode laser (TDL) monitoring system for H_2S that has successfully completed a 6-month proof of performance field study at a California refinery. The system evaluated met Air District minimum expectations and indicates this open path technology has advanced to the point that open path monitoring can be successfully implented. To encourage the use of open path H_2S monitoring, the Air District will allow up to 15 months from the date of this letter to begin operation of such monitoring. Chevron may request a deadline beyond 15 months after the date of this letter if it can show that additional time is needed due to factors beyond its control.

The H_2S TDL field study confirmed that the following instrument checks can be achieved in practice:

- Continuous data validation and quality checks using ambient methane measurement to confirm reliable system operation and response
- Routine system calibration and audits using sealed H_2S calibration gas cells which allow quality checks for precision, accuracy, and linearity

- Routine detection limit verification checks and confirmed detection limits which ranged from 3 to 25 ppb H_2S, depending on environmental and operational conditions, with an average integrated path detection limit of 15 ppb H_2S over the study period. A repeatable detection limit of 25 ppb was achieved at a light transmission less than 1%. The study presenters indicated that these detection limits could be further reduced by installing a larger retroreflector and the study detection limits should be considered worst-case

- Path integrated measurement range of 3 to 5000 ppb H_2S with an accuracy of 2% of reading and repeatability of 1% of reading

- The system remained in optical alignment throughout the study period with no major adjustments

The Air District is expecting the selection, installation, and startup of an open path H_2S monitoring system to meet the following implementation schedule beginning as of the date of this letter:

February 1, 2022	Select open path monitoring system and provide specifications to Air District for approval
May 1, 2022	Following Air District approval, purchase instrumentation and provide installation schedule/timelines to Air District
June 1, 2022	Submit draft AMP revisions, incorporating H_2S monitoring, to Air District for review and approval, including Quality Assurance Project Plan (QAPP) revisions incorporating key parameters bulletized above
October 1, 2022	Complete installation and begin field validation of equipment, including quality and operational metrics identified in AMP and QAPP
January 1, 2023	Commence operation and data reporting/posting to refinery fenceline monitoring website

H_2S monitoring data shall be included in the quarterly fenceline reports upon commencement of operation, regardless of final AMP/QAPP approval status. Any open path H_2S monitoring system that can be shown to meet the specifications detailed above can be submitted to the Air District for a determination of equivalency. If existing monitoring systems can be optimized to meet the specifications detailed in this letter, Chevron should submit the details of the modifications and optimizations that will be implemented to the Air District for determination of equivalency. Following review, any existing

system deemed by the Air District to not be capable of meeting equivalency will need to be replaced with a monitoring system that does meet equivalency standards.

The specifications above represent the minimum acceptable standards for any open path H_2S monitoring system. Open path H_2S monitoring systems should include the following:

- Sealed gas cell, or equivalent, 3-point calibration checks should be performed quarterly at a minimum
- Audit bump checks should be performed at least monthly at a unique concentration that differs from the calibration checks
- Real time validation of TDL data should include measurement of another common ambient air component, such as methane, water, or carbon monoxide if present in the spectra
- Detection limit quantification and verification should be performed continuously in real time, reported in near real time on the refinery fenceline monitoring website, and included in the quarterly reports along with the measurement data
- Signal intensity should be measured in real time and provided in the quarterly reports
- Raw spectral data files should be saved as single files and made available to the Air District upon request
- All quality assurance and quality control metrics and procedures should be fully documented in the AMP and integrated QAPP
- The Air District recommends that system operation and performance is based on a standardized method, such as EPA Method TO-16, or a method developed by a credible standardization body, such as ASTM International or the International Organization for Standardization (ISO)

If Chevron instead chooses to use fixed measurements for H_2S monitoring using the EPA MACT siting procedures for benzene sampling at refineries, then such monitoring must be operational within 6 months of the date of this letter. Chevron may request a deadline beyond 6 months if it can show that additional time is needed due to factors beyond its control. Chevron's selection and implementation of H_2S monitoring will be reviewed as an element of the AMP implementation. Failure to implement H_2S monitoring in a timely and adequate manner would be basis for withdrawal of approval.

If you have any questions regarding this notification, please contact Chris Crowley at 415-749-5118 for compliance issues or me at 415-749-4601 for technical issues.

Sincerely,

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