



Shell Chemical Appalachia LLC
300 Frankfort Rd
Monaca, PA 15061

August 6, 2019

Mark Gorog P.E., Regional Manager Air Quality Program
Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, PA 15222

RE: Shell Chemical Appalachia LLC
Shell Polymers Monaca Site
Potter and Center Townships, Beaver County
Plan Approval PA-04-00740A
Leak Detection and Repair (LDAR) Initial Monitoring Timing Requirement

Dear Mr. Gorog:

Shell Chemical Appalachia LLC ("Shell") is engaged in a program of continuous construction of the above-referenced facility under PA-04-00740A authorization in Potter and Center Townships, Beaver County. PA-04-00740A was originally issued to Shell on June 18, 2015 and extended effective June 18, 2019, authorizing the construction of a "Petrochemicals Complex, Ethylene and Polyethylene Manufacturing" at this location. This site has since been named "Shell Polymers Monaca Site". Shell is required to develop and implement an LDAR program for this facility under Section C. Condition #026 on page 22 of PA-04-00740A, and is also required to implement LDAR for affected source categories under multiple Federal regulations. This letter seeks to identify and clarify the timing of initial monitoring required under the LDAR program and Shell's intention to meet or exceed all monitoring requirements. Shell requests that Pennsylvania Department of Environmental Protection (PADEP) confirm Shell's interpretation of the schedule for initial monitoring under the LDAR program.

Section C. Condition #026 on page 22 of PA-04-00740A states in relevant part:

"The Owner/Operator shall develop and implement a leak detection and repair (LDAR) program for this facility. All aspects of the LDAR program shall be consistent with 40 CFR Part 63 Subpart UU – National Emission Standards for Equipment Leaks – Control Level 2 Standards, except as follows:

- a. LDAR shall be applied to equipment in organic compound service (including fuel gas equipment).
- b. Organic compound service means that piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 5 wt% of organic compounds as determined according to the provisions of 40 CFR §63.180(d) of Subpart H [except that "organic compound" replaces instances of "organic HAP"]. The provisions of 40 CFR §63.180(d) of Subpart H also specify how to determine that a piece of equipment is not in organic compound service.
- c. Leak detection shall be conducted on a monthly basis for non-bellows seal valves unless 98.0% or greater of the nonbellows seal gas/vapor and/or light liquid valves are found to leak at a rate less than 100 ppmv

for two consecutive months, then the detection frequency may be changed to a quarterly basis. The annual monitoring frequency for valves (skip periods) is not applicable...”

Shell’s interpretation to implement LDAR on the combustion turbine (cogen) natural gas fuel system within 30 days of pressurization of the system was incorrect as transmitted to the PADEP Southwest Regional Office via letter dated January 24, 2019.¹ PADEP responded that LDAR shall be implemented in accordance with Section C. Condition #026 of PA-04-00740A and that “As such, more frequent LDAR is acceptable” to Shell via letter dated February 26, 2019. Shell’s interpretation was incorrectly applied to the gas fuel system as described below.

1. The Plan Approval-specific LDAR condition is applied under Lowest Achievable Emission Rate (LAER) for VOC and Best Available Control Technology (BACT) for GHG. Potential leaks from the gas fuel system are a GHG emission source subject to BACT and not directly subject to a Federal New Source Performance Standard (NSPS) or National Emission Standard for Hazardous Air Pollutants (NESHAP).
2. The Plan Approval-specific LDAR condition does not directly identify initial or ongoing monitoring frequencies other than for non-bellows seal valves (monthly moving to quarterly). Therefore, the referenced 40 CFR Part 63 Subpart UU is the basis for these aspects of the overall LDAR program. Monitoring for valves in gas, vapor, or light liquid service; and pumps in light liquid service is required to be monthly moving to quarterly for valves and monthly for pumps.
3. The compliance schedule for valves and pumps in 40 CFR Part 63 Subpart UU is based upon the referencing subpart.

Per 40 CFR §63.1025 Valves in gas and vapor service and in light liquid service standards.

- (a) “*Compliance schedule.* (1) The owner or operator shall comply with this section no later than the compliance dates specified in the referencing subpart.”

In this case, the “referencing subpart” is LAER for VOC and BACT for GHG. Shell interprets this as to comply with the applicable LDAR program initial monitoring requirements after initial startup of the process unit as defined in 40 CFR Part 63 Subpart UU.

Per 40 CFR §63.1020 Definitions.

“*Initial startup* means, for new sources, the first time the source begins production. For additions or changes not defined as a new source by this subpart, initial startup means the first time additional or changed equipment is put into operation. Initial startup does not include operation solely for testing equipment. Initial startup does not include subsequent startup (as defined in this section) of process units following malfunctions or process unit shutdowns. Except for equipment leaks, initial startup also does not include subsequent startups (as defined in this section) of process units following changes in product for flexible operation units or following recharging of equipment in batch unit operations.

Process unit means the equipment specified in the definitions of process unit in the applicable referencing subpart. If the referencing subpart does not define process unit, then for the purposes of this part, process unit means the equipment assembled and connected by pipes or ducts to process raw materials and to manufacture an intended product.”

4. The cogen plant and associated utilities (including gas fuel system) are to be commissioned and handed over to Shell as a single Block. This is a single “process unit” in context of the LDAR program, and consistent with Source IDs 101 – 103 in PA-04-00740A. The intended product of the cogen plant is electricity and/or steam. Pressurization of the gas fuel system does not constitute initial startup of the cogen

¹ H. James Sewell, “RE: Utilities and General Facilities (UGF) Commissioning and Commencement of Temporary Operation Planning”, January 24, 2019, p.3

plant until it has completed the commissioning process and begun production. Initial startup is further clarified by USEPA within guidance for National Emission Standards for Hazardous Air Pollutants.

Per USEPA Implementation Question and Answer Document for National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.²

“39) Is the “commissioning period” of the RICE considered the initial “startup” of the unit?”

No. The EPA interprets the “commissioning period” to be the final phase of the construction process. Activities conducted during the commissioning period include: checking all mechanical, electrical, and control systems for the RICE and all related equipment; and confirming the performance measures specified in the purchase agreement. The EPA understands that the commissioning period may take up to 2 weeks to complete. The EPA does not consider the “commissioning period” as the initial startup of the unit as long as the RICE is not being used for its intended purpose or any other beneficial use at the facility during this time. Site-specific determinations of initial startup may be required for facilities that operate in a commissioning mode for excessive periods of time.”

Shell is planning to conduct commissioning activities at this facility beginning near the end of 2019 and continuing intermittently into early 2021 for every system of the facility, including all air sources and controls. Commissioning is the process which brings each system of the facility into a state of readiness or commence temporary operation to facilitate shakedown of air sources and controls. Temporary operation of various air sources and controls will commence during commissioning. Dependent upon the source or process, commissioning may include chemical cleaning (citric acid mixture), hydrostatic pressure testing, steam blowing, gradual firing of combustion units to cure refractory material, mechanical acceptance of process equipment, temporary firing of combustion units to burn off contaminants within new ductwork. Additional practical considerations limit tagging around commissioning activities and monitoring until after initial startup. These include line painting, line labelling, labor constraints, and startup procedures limiting unit access due to increased and unusual operator activities which also pose an increased safety risk.

Shell intends to commence LDAR monitoring for equipment in organic compound service as soon as practicable within regulatory-required frequencies after the commissioning period and initial startup of each process unit. This will begin with pumps and valves which have the most frequent monitoring basis of monthly (or monthly moving to quarterly) and move to other components with longer monitoring frequencies as dictated by 40 CFR Part 63 Subpart UU. “After initial startup” is interpreted within this facility as:

- Combustion Turbine/Duct Burner Units - Source IDs 101-103 (natural gas fuel system): generation of electricity or steam for sale or for plant use in the production of polyethylene for sale
- Ethane Cracking Furnaces – Source IDs 031-037 (gas fuel system and ethane feedstock): cracking of ethane for production of polyethylene for sale
- Ethylene Manufacturing Line – Source ID 201 (organic compound process lines and equipment): production of ethylene used in the production of polyethylene for sale
- Polyethylene Manufacturing Lines – Source ID 202 (organic compound process lines: production of polyethylene for sale
- Low Pressure, High Pressure, and Spent Caustic Header Systems – Source IDs 204-206 (organic compound waste gas and liquid streams): combustion of process-related vent gas generated during production of polyethylene for sale
- Liquid Loadout and Storage Tanks – Source IDs 302-407 (organic compound liquids): storage and loadout of organic compounds used during or generated as the byproduct of the production of polyethylene for sale
- Equipment Components – Source ID 501 (organic compound gas and liquid streams): production of product within respective process unit areas

² https://www.epa.gov/sites/production/files/2014-03/documents/4_2_2013_qa_stationary_rice_neshap_nsps_stationaryci_si_ice.pdf

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- Wastewater Treatment Plant (organic compound wastewater streams) – treatment of organic compounds generated within the facility during production of polyethylene for sale

Please contact me at jim.sewell@shell.com or (218) 731-3287 or kimberly.kaal@shell.com at (724) 709-2467 if you have any questions or require additional information.

Sincerely,



H. James Sewell
Environmental Manager, Attorney-in-Fact