



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4
Air, Pesticides and Toxics Management Division
61 Forsyth Street
Atlanta, Georgia 30303-8960

FEDERAL AIR QUALITY OPERATING PERMITS PROGRAM STATEMENT OF BASIS

Permit Number:	P71-JKY-001
Source:	Louisville Gas & Electric Company, Muldraugh Compressor Station, on highway 31W, Muldraugh, Meade County, Kentucky

I. EPA AUTHORITY TO ISSUE THIS PART 71 PERMIT

Section 505(c) of the CAA (Clean Air Act), 42 U.S.C. § 7661d(c), and the regulations promulgated thereunder at 40 C.F.R. § 70.8(c)(4), provide that EPA either issue or deny a title V permit for a source when an EPA objection to a proposed title V permit is not resolved by the permitting authority.

I.A. History

Commonwealth of Kentucky Part 70 Program

The EPA gave interim approval to the Commonwealth of Kentucky's Part 70 permitting program on November 14, 1995, and final approval on October 31, 2001. This approval gave the Kentucky Division for Air Quality (KYDAQ) primary responsibility for issuing title V permits for sources under its jurisdiction. However, the EPA retained final authority to determine whether the Commonwealth-issued permits comply with all requirements of the CAA and Part 70.

EPA Authority to Issue this Part 71 Permit

Section 505 of the CAA, 40 C.F.R. § 70.8, and Kentucky's Rule 401 KAR 50:035 explain EPA's role and the process for KYDAQ to correct a proposed permit in response to an EPA objection. If EPA reviews a proposed permit and issues an objection, then Section 505(c) of the CAA, 40 C.F.R. § 70.8(c), and Kentucky's Rule 401 KAR 50:035, Section 21 provide that the KYDAQ must correct the permit to meet the objection within 90 days. If KYDAQ does not correct the proposed permit within 90 days, then Section 505(c) of the CAA, 40 C.F.R. § 70.8(c)(4), and Kentucky's Rule 401 KAR 50:035 provide that EPA either issue or deny a permit for the source.

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EPA Objection for LG&E Muldraugh Proposed Title V Permit

The EPA objected to the Commonwealth's proposed title V permit for LG&E (Louisville Gas and Electric, Muldraugh Station) in a January 26, 2000, letter to the Commonwealth of Kentucky. The 90-day period for resolving EPA's objection expired on April 25, 2000, without the KYDAQ resolving EPA's objection. Therefore, the LG&E facility is subject to the requirements of the federal operating permit program at 40 C.F.R. Part 71.

EPA Request for a Part 71 Permit Application

On June 30, 2000, EPA requested LG&E to submit a Part 71 permit application. EPA received a timely filed Part 71 application from LG&E on January 2, 2001.

II. SOURCE INFORMATION

LG&E is a natural gas compression and purification station. The station is operated as a peak-shaving operation where natural gas is stored during the summer months in underground storage fields and withdrawn during the cold months. When the natural gas is withdrawn from the storage fields it is filtered, compressed, purified (H₂S removed) and dehydrated (H₂O removed).

The source is located on highway 31W, Muldraugh, Meade County, Kentucky. **Meade County is classified attainment** or unclassified for all criteria pollutants. The potential to emit for this source is greater than the title V applicability thresholds for sulfur dioxide (SO₂), nitrogen oxides (NO_x), and carbon monoxide (CO) (see table 3).

II.A. Emissions Units

Source Emission Units

The following table identifies and describes each emissions unit, such as process units and control devices.

Table 1. Source Emission Units

Emissions Units		Air Pollution Control Devices	
ID. No.	Description	ID. No.	Description
01	5.1 MM Btu/hr Internal Combustion Natural Gas Fired Reciprocating Integral Compressor Unit/Two-Cycle Lean Burning	None	None

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02	Six (6) 10.4 MM Btu/hr Internal Combustion Natural Gas Fired Reciprocating Integral Compressor Units/Two-Cycle Lean Burning	None	None
03	Two (2) 14.2 MM Btu/hr Compressor Units/Natural Gas Fired Turbines	None	None
04	Natural Gas Fired Purification Plants #2 and #3, controlled by a 5.1 MM Btu/hr, H ₂ S Afterburner	AB-1	5.1 MM Btu/hr H ₂ S Afterburner
05	12.6 MM Btu/hr Indirect Heat Exchanger (Natural Gas Fired Unit for Purification Plant #3)	None	None
06	12.3 MM Btu/hr Caterpillar Gas Engine - Standby Generator	None	None
07	One (1) 10 MM Btu/hr Indirect Heat Exchanger (purifier #2 boiler)	None	None
08	Natural Gas Fired Purification Plant #1, controlled by a 5.1 MM Btu/hr, H ₂ S Afterburner	AB-1	5.1 MM Btu/hr H ₂ S Afterburner

- * Each compressor, purification plant, etc. are considered separate emissions units because they are individual activities that emit or have the potential to emit regulated air pollutants. However, similar emissions units were combined in this permit into one emissions unit ID to simplify the permit. These emissions units may have the same applicable requirements. See 40 C.F.R. § 71.2 for emissions unit definition.

Insignificant Emission Units

40 C.F.R. § Part 71 allows sources to separately list in the permit application emissions units or activities that qualify as “insignificant” based on potential emissions. The insignificant emissions unit criteria is potential to emit below 2 tons/year for all regulated air pollutants and below 1000 lbs/year or the de minimis level established under Section 112(g), whichever is lower, for hazardous air pollutants (HAPs).

Units that qualify as “insignificant” for part 71 application purposes are not exempt from applicable requirements or any other requirements of the part 71 permit. The following table describes each insignificant emissions unit located at the source.

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Table 2. Insignificant Emission Units

Insignificant Emissions Units Description
Three (3) direct natural gas-fired boilers for purification plant # 1 with rated capacity of 1.5, 5.0 and 5.0 MM Btu/hr
One (1) natural gas-fired boiler for glycol dehydration with rated capacity of 2 MM Btu/hr
One (1) BTEX afterburner for glycol dehydration unit with rated capacity of 2 MM Btu/hr
Anti-freeze usage for compressor engine cooling
One (1) metal degreaser (non-VOC solvent)
One (1) BTEX thermal oxidizer for glycol dehydration unit with rated capacity of 2 MM Btu/hr

II.B. Potential to Emit

Table 3 includes potential to emit data provided by LG&E. **Potential to emit** means the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is enforceable by EPA.

LG&E received conditional major permit number S-95-093 from the Commonwealth of Kentucky on May 15, 1995. This permit imposes federally enforceable limitations that limit LG&E's potential to emit below the prevention of significant deterioration permitting thresholds.

Table 3. Potential to Emit

Emissions Unit ID	Potential to Emit for Regulated Air Pollutants in Tons per Year						
	NO _x	VOC	SO ₂	PM ₁₀	CO	Lead	HAP
01	60	2	0	1	8	0	1
02	738	30	0	12	102	0	12
03	40	0	8	0	10	0	0
04	2	0	136	0	2	0	0

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Emissions Unit ID	Potential to Emit for Regulated Air Pollutants in Tons per Year						
	NO _x	VOC	SO ₂	PM ₁₀	CO	Lead	HAP
05	5	0	0	0	5	0	0
06	29	6	0	2	28	0	0
07	2	0	0	0	4	0	0
08	The potential emissions of this emissions units are included in emissions unit no. 04						
Facility Total	876	38	144	15	159	0	13

III. APPLICABLE REQUIREMENTS

The following table lists the emissions units and their applicable requirements.

Table 4. Applicable Requirements

Emissions Unit ID	Pollutant	Emission Limitation / Operational Restrictions	Applicable Requirements	Monitoring		Compliance / Testing
				Record keeping	Reporting	
01		None	None	None	None	None
02		None	None	None	None	None
03		None	None	None	None	None
04	SO ₂	40 CFR 60.642(a) and (b)	Standards for Performance for Onshore Natural Gas Processing, 40 CFR 60 Subpart LLL	40 CFR 60.646; 40 CFR 60.647	40 CFR 60.647	40 CFR 60.644
	Process limitation	7,100 MMSCF per 12 consecutive months	Permit to construct / operate S-95-093 issued on May 15, 1995	Daily and monthly record keeping of natural gas processed	Deviation* reports every 6 months	None

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Emissions Unit ID	Pollutant	Emission Limitation / Operational Restrictions	Applicable Requirements	Monitoring		Compliance / Testing
				Record keeping	Reporting	
	Process limitation	Maximum throughput of natural gas per unit shall not exceed 4.38 MM SCF/hour - 105 MMSCF/day for units 2 and 3	Permit to construct / operate S-95-093 issued on May 15, 1995	Daily record keeping of natural gas processed	Deviation* reports every 6 months	None
	H ₂ S	20 grains/100 ft ³ as an annual average for plants 2 and 3	Permit to construct / operate S-95-093 issued on May 15, 1995	Daily sampling and record keeping	Deviation* reports every 6 months	None
05	PM	0.62 lb/MMBtu as a three-hour average	401 KAR 61:015, Section 4(4) and Regulation No. 7	One time compliance demonstration, AP-42 calculation, Record the type of fuel combusted, use of natural gas	Deviation* reports every 6 months	Method 5
	Opacity	40% opacity as a six-minute average	401 KAR 61:015, Section 4(4) and Regulation No. 7	Record the type of fuel combusted, use of natural gas	Deviation* reports every 6 months	Method 9
	SO ₂	5.41 lbs/MMBtu as a 24-hour average	401 KAR 61:015 Section 5(1)	One time compliance demonstration, AP-42 calculation, Record the type of fuel combusted, use of natural gas	Deviation* reports every 6 months	Method 6

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Emissions Unit ID	Pollutant	Emission Limitation / Operational Restrictions	Applicable Requirements	Monitoring		Compliance / Testing
				Record keeping	Reporting	
06		None	None	None	None	None
07	PM	0.75 lb/MMBtu as a three-hour average	401 KAR 61:015, Section 4(1)	One time compliance demonstration, AP-42 calculation Record the type of fuel combusted, use of natural gas	Deviation* reports every 6 months	Method 5
	Opacity	40% opacity as a six-minute average	401 KAR 61:015, Section 4(3)	Record the type of fuel combusted, use of natural gas	Deviation* reports every 6 months	Method 9
	SO2	6.0 lbs/MMBtu as a 24-hour average	401 KAR 61:015 Section 5(1)	One time compliance demonstration, AP-42 calculation, Record the type of fuel combusted, use of natural gas	Deviation* reports every 6 months	Method 6
08	Process limitation	7,100 MMSCF per 12 consecutive months	Permit to construct / operate S-95-093 issued on May 15, 1995	Daily and monthly record keeping of natural gas processed	Deviation* reports every 6 months	None

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Emissions Unit ID	Pollutant	Emission Limitation / Operational Restrictions	Applicable Requirements	Monitoring		Compliance / Testing
				Record keeping	Reporting	
	Process limitation	Maximum throughput of natural gas per unit shall not exceed 2.08 MM SCF/hour - 50 MMSCF/day for unit 01	Permit to construct / operate S-95-093 issued on May 15, 1995	Daily record keeping of natural gas processed	Deviation* reports every 6 months	None

* **Deviation** means any situation in which an emissions unit fails to meet a permit term or condition. A deviation is not always a violation. A deviation can be determined by observation or through review of data obtained from any testing, monitoring, or recordkeeping.

40 CFR Subpart Dc is not applicable to emissions unit no. 05 and no. 07 because they were installed in 1967 and 1962 respectively. The potential to emit for emissions unit no. 2 is above the thresholds for new source review applicability. However, emissions unit no. 2 was installed in 1963, before new source review regulations were applicable. Emissions unit 04 obtained a synthetic minor construction/operation permit in 1995 to avoid applicability of new source review.

Emissions unit no. 08 (purification plant #1) was constructed before the applicability date of NSPS Subpart LLL. Thus, emissions unit no. 08 is not subject to NSPS Subpart LLL.

Table 5. Rationale for the Selected Monitoring

Emissions Unit ID	Rationale for Monitoring
01, 02, 03, 06	There are no applicable requirements for these emissions units. Therefore, no monitoring requirements are needed

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04	This emissions unit is subject to the requirements of NSPS Subpart LLL. This subpart specifies the monitoring required to assure compliance with the emission limitations. Not all monitoring requirements from Subpart LLL were added to the permit because emissions from this unit are below the threshold for which some of the monitoring would be required. In addition, this emissions unit is subject to the applicable requirements from a synthetic minor construction permit. Requirements for daily and monthly recording of natural gas processed and daily recording of sulfur content were added to the permit because of the averaging times involved with the emission limitations. This monitoring was added pursuant to 40 C.F.R. § 71.6(a)(3)(i)(B).
05, 07	Monitoring the type of fuel combusted every day will assure compliance with the applicable requirements. AP-42 calculations show that the use of natural gas inherently keeps the emissions units in compliance with the applicable requirements. This monitoring was added pursuant to 40 C.F.R. § 71.6(a)(3)(i)(B).
08	Daily and monthly recording of natural gas processed was added because of the averaging time (12 consecutive months, SCF/day) of the requirements. This monitoring was added pursuant to 40 C.F.R. § 71.6(a)(3)(i)(B).

IV. SECTION 7 OF THE ENDANGERED SPECIES ACT

Section 7 of the Endangered Species Act directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the Fish and Wildlife Service, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of Federal lands as well as other Federal actions that may affect listed species such as Federal approval of private activities through the issuance of Federal permits, licenses, or other actions.

The Federal agency, or the applicant as the designated non-Federal entity, contacts the appropriate local Fish and Wildlife Service office to determine if listed species are present within the action area. The Fish and Wildlife Service responds to the request by providing a list of species that are known to occur or may occur in the vicinity; if the Fish and Wildlife Service provides a negative response, no further consultation is required unless the scope or nature of the project is altered or new information indicates that listed species may be affected.

If listed species are present, the Federal agency must determine if the action may affect them. A "may affect" determination includes those actions that are not likely to adversely affect as well as likely to adversely affect listed species. If the Federal agency determines that the action is not likely to adversely effect listed species (e.g., the effects are

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beneficial, insignificant, or discountable), and the Fish and Wildlife Service agrees with that determination, the Fish and Wildlife Service provides concurrence in writing and no further consultation is required.

The EPA and LG&E identified the gray bat and the Indiana bat as listed species within the action area. On March 12, 2002, LG&E submitted a project analysis to the Fish and Wildlife Service concluding that EPA's Part 71 permit action is not likely to adversely affect these species. On April 19, 2002, the Fish and Wildlife Service sent a letter to LG&E informing them that they concur that the permit action is not likely to adversely affect these species. Therefore, the requirements of Section 7 of the Endangered Species Act have been fulfilled.

For more information on the Section 7 of the Endangered Species Act requirements, visit http://endangered.fws.gov/consultations/sec7_faq.html

V. USE OF ALL CREDIBLE EVIDENCE

Determinations of deviations, continuous or intermittent compliance status, or violations of the permit are not limited to the testing or monitoring methods required by the underlying regulations or this permit; other credible evidence (including any evidence admissible under the Federal Rules of Evidence) must be considered by the source and EPA in such determinations.

VI. PUBLIC PARTICIPATION

VI.A. Public Notice.

As described in 40 CFR 71.11(a)(5), all part 71 draft operating permits shall be publicly noticed and made available for public comment. The Public Notice of permit actions and public comment period is described in 40 CFR 71.11(d). There will be a 30-day public comment period for actions pertaining to a draft permit. Public notice and the availability for comment on the draft permit has been published in the Louisville Courier-Journal, a daily newspaper of general circulation in the area affected by this source.

VI.B. Opportunity for Comment

Members of the public may review a copy of the draft permit prepared by EPA, the application, this statement of basis for the draft permit, and all supporting materials for the draft permit. Copies of these documents are available at:

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Meade County Public Library
400 Library Place
Brandenburg, Kentucky 40108-1045
(270) 422-2094
<http://www.meadereads.org/>

U.S. EPA, Region 4
Air, Pesticides and Toxics Management Division
61 Forsyth St. S.W.
Atlanta, GA 30303-8960
(404) 562-9744

Copies of the draft permit and statement of basis are also available electronically on the EPA, Region 4 Website at <http://www.epa.gov/region4/air/permits/index.htm>

Any interested person may submit written comments on the draft Part 71 operating permit during the public comment period to:

César Zapata
U.S. Environmental Protection Agency, Region 4
Air, Pesticides and Toxics Management Division
61 Forsyth St. S.W.
Atlanta, GA 30303-8960

E-mail: zapata.cesar@epa.gov

All comments will be considered and answered by EPA in making the final decision on the permit. EPA will keep a record of the commenters and of the issues raised during the public participation process.

Anyone, including the applicant, who believes any condition of the draft permit is inappropriate must raise all reasonable ascertainable issues and submit all arguments supporting their position by the close of the public comment period.

Any supporting materials submitted must be included in full and may not be incorporated by reference, unless the material has been already submitted as part of the administrative record in the same proceeding or consists of state or federal statutes and regulations, EPA documents of general applicability, or other generally available reference material.

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VI.C. Opportunity to Request a Hearing

A person may submit a written request for a public hearing to:

César Zapata
U.S. Environmental Protection Agency, Region 4
Air, Pesticides and Toxics Management Division
61 Forsyth St. S.W.
Atlanta, GA 30303-8960

E-mail: zapata.cesar@epa.gov

The request must state the nature of the issues to be raised at the public hearing. Based on the number of hearing requests received, EPA will hold a public hearing whenever it finds there is a significant degree of public interest in a draft operating permit. EPA will provide public notice of the public hearing. If a public hearing is held, any person may submit oral or written statements and data concerning the draft permit at that time.

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The purpose of this addendum is to provide additional clarification regarding the basis upon which EPA finds that 40 CFR 60, Subpart LLL, Standards of Performance for Onshore Natural Gas Processing: SO₂ Emissions (Subpart LLL), is an applicable requirement for LG&E's Muldraugh Compressor Station. No significant changes have been made to the statement of basis above, which was prepared for the draft permit in accordance with 40 CFR § 71.7(a)(5).

Succinctly stated, the basis for EPA's determination that the Muldraugh Compressor Station is subject to 40 CFR 60, Subpart LLL is as follows. Subpart LLL applies to sweetening units and sweetening units followed by sulfur recovery units that "process natural gas." 40 CFR § 60.640(a). A sweetening unit is a "process device that separates the H₂S and CO₂ contents from the sour natural gas." 40 CFR §60.641. Subpart LLL does not contain a definition of "sour natural gas," but a reasonable inference is that "sour natural gas" is natural gas that contains H₂S and/or CO₂. The record is clear that Purification Plants #2 and #3 separate H₂S from natural gas. Hence, those two units are subject to Subpart LLL. Neither the mechanism by which the H₂S became entrained in the natural gas nor the physical location of Purification Plants #2 and #3 changes this conclusion. LG&E nevertheless argues that one or both of these factors should lead EPA to conclude that Subpart LLL does not apply to Purification Plants #2 and #3.

As stated in section I above, on January 26, 2000, EPA objected to the issuance of Kentucky's proposed title V permit for LG&E's Muldraugh Compressor Station. Both LG&E and KYDAQ have consistently contested EPA's position that the Muldraugh Compressor Station is subject to Subpart LLL. On March 30, 2000, LG&E filed a petition requesting that EPA reconsider the applicability of Subpart LLL to the Muldraugh Compressor Station. On May 22, 2000, EPA's Office of Enforcement and Compliance Assurance responded to the LG&E petition, agreeing with Region 4's judgment on the applicability of Subpart LLL to the Muldraugh Compressor Station and the Region's objection to issuance of the title V permit proposed by KYDAQ. On June 5, 2002, Region 4 published notice of a draft title V permit, prepared pursuant to 40 CFR part 71, that included the requirements of Subpart LLL. KYDAQ submitted comments regarding the draft permit to Region 4 on July 9, 2002, reiterating their disagreement with EPA on the applicability of Subpart LLL to the Muldraugh Compressor Station. On July 10, 2002, LG&E also reiterated their disagreement with EPA. The LG&E letter stated in part:

As we have previously advised, LG&E continues to believe that Subpart LLL of the New Source Performance Standards does not apply to the Muldraugh Compressor Station. Subpart LLL applies to "facilities that process natural gas," including "each sweetening unit, and each sweetening unit followed by a sulfur recovery unit." 40 CFR 60.640(a). First, LG&E does not process natural gas within the meaning of Subpart LLL as it handles pipeline quality gas removed from storage, rather than "a natural occurring mixture of hydrocarbons" as defined in 40 CFR 60.641. LG&E's hydrogen sulfide

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removal units are not "sweetening units" as they do not separate CO₂ and H₂S from a sour natural gas stream as referenced in the 40 CFR 60.641 definition. Second, the Muldraugh Compressor Station is not a "natural gas processing plant." While the term is undefined in Subpart LLL, Subpart KKK which deals with similar requirements, defines the "onshore natural gas processing plant" as "any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both." 40 CFR 60.631.

LG&E neither extracts natural gas liquids from field gas nor engages in gas fractionation. Finally, the NSPS preamble and Background Information Document clarifies that U.S. EPA did not contemplate that Subpart LLL would apply to hydrogen sulfide removal units at gas storage and distribution facilities. See 50 Federal Register 40158 (October 1, 1985). U.S. EPA did not consider the impacts of the rule on gas storage reservoirs such as the Muldraugh Compressor Station and the rule is clearly inappropriate for such peak-load facilities that are characterized by variable operations as opposed to the steady-state operations found in a production field. For these reasons, we request that all references to the applicability of Subpart LLL be removed from the draft permit.

As stated in EPA's Response to Comments document prepared after taking comments on the draft part 71 permit, EPA finds that Subpart LLL applies to the Muldraugh Compressor Station. The units subject to the rule are Natural Gas-Fired Purification Plants #2 and #3 (designated in the title V permit as Emissions Unit 04). Section 60.640(a) states that Subpart LLL is applicable to "the following affected facilities that process natural gas: each sweetening unit, and each sweetening unit followed by sulfur recovery unit." Section 60.641 defines *sweetening unit* as "a process device that separates the H₂S and CO₂ contents from the sour natural gas stream." The Muldraugh Compressor Station uses sweetening units to process natural gas before distribution to consumers. Because two of those units (Purification Plants #2 and #3) meet the applicability criteria under § 60.640, the facility is subject to Subpart LLL.

The EPA believes that the Muldraugh Compressor Station processes natural gas within the meaning of Subpart LLL. Section 60.641 defines *natural gas* as "a naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface. The principal hydrocarbon constituent is methane." This definition differentiates natural gas from similar composition gas streams produced in industrial settings. For example, light gases, including methane, are created synthetically in petroleum refineries by breaking down higher molecular weight compounds, but such gas streams would not be classified as natural gas since they were not derived naturally. However, the gas stored in caverns at the Muldraugh Compressor Station is naturally occurring (i.e., it comes originally from onshore or offshore wells). Sweetening this gas by removal of hydrogen sulfide (H₂S) and carbon dioxide (CO₂) prior to storage does not change its principal constituent, methane, or the fact that the gas

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originated naturally from geologic formations beneath the earth's surface. Therefore, the gas stored at the Muldraugh Compressor Station is properly classified as natural gas.

Several documents of record confirm LG&E's acknowledgment that the Muldraugh Compressor Station handles natural gas. For example, KDAQ's draft title V permit for the Muldraugh Compressor Station indicates the facility operates "natural gas purification processes"; LG&E Muldraugh's part 70 and part 71 permit applications refer to the facility as the "Muldraugh Natural Gas Compressor Station"; correspondence from LG&E to Region 4 (e.g., letters dated July 16, 2002, and June 30, 1997) refer to the facility as the "Muldraugh Natural Gas Compressor Station"; and a construction/operation permit (permit number S-95-093) issued to "Muldraugh Natural Gas Compressor Station" on April 4, 1995, indicates the facility operates three "[n]atural gas purification units."

The sweetening units operated by the Muldraugh Compressor Station unquestionably separate CO₂ and H₂S from a sour natural gas stream (i.e., a gas stream of natural origin contaminated by sulfur compounds).¹ The potential for SO₂ emissions from the sweetening operation is substantial. In terms of impact on the environment, whether emissions are due to H₂S already present in the gas when it is placed in storage or are caused by H₂S that accumulates in the gas during storage does not matter. Based upon the maximum H₂S content found by LG&E in the gas it processes (50 gr/100 cubic feet), the total potential emission rate for its two larger sweetening units (Purification Plants #2 and #3) is over 5,000 tons of SO₂ per year. This is not changed by the fact that the gas, which was originally extracted from the ground and sweetened at other facilities, accumulated most of the H₂S removed by the Muldraugh Compressor Station while it was stored in caverns by LG&E. In point of fact, LG&E chose to store previously purified natural gas under conditions resulting in the absorption of H₂S. A consequence of that decision is that the absorbed H₂S must then be removed prior to the gas being transferred to end users. LG&E's removal of the H₂S produces the very emissions Subpart LLL is intended to limit. LG&E has itself created the circumstances bringing its activities within the ambit of Subpart LLL.

The EPA's core conclusion that Subpart LLL applies to Purification Plants #2 and #3 is not changed by LG&E's argument that those units are not subject to Subpart KKK and are, therefore, not subject to Subpart LLL. Each individual New Source Performance Standard

¹ Historical data on gas sweetened by the Muldraugh Compressor Station shows an annual average H₂S content of 5 to 20 gr/100 cubic feet. The EPA's Background Information Document for the proposed Subpart LLL standards (proposed standards BID) indicates on page 3-3 that sour gas is natural gas with a H₂S concentration greater than 0.25 gr/100 cubic feet. "SO₂ Emissions in Natural Gas Production Industry—Background Information for Proposed Standards," EPA-450/3-82-023a, November 1983.

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(NSPS) of 40 CFR Part 60 contains the definitions of the terms needed to properly implement that specific standard (in addition to the terms defined in Subpart A, General Provisions). *Natural gas processing plant* is defined under 40 CFR 60, Subpart KKK, Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants (Subpart KKK), as "any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both." Subpart KKK applies to equipment leaks of volatile organic compounds from operations in the natural gas production industry that may be susceptible to such leaks. LG&E has stated that Subpart KKK deals with requirements similar to those of Subpart LLL and argued that Subpart LLL does not apply to the Muldraugh Compressor Station because the facility is not a *natural gas processing plant*. The EPA agrees that the Muldraugh Compressor Station does not extract natural gas liquids from field gas or engage in gas fractionation and thus is not a "natural gas processing plant" subject to Subpart KKK. This fact does not, however, refute EPA's determination that the facility is subject to Subpart LLL. The question of whether a particular facility is a "natural gas processing plant" is simply not relevant to a determination of whether that facility is subject to Subpart LLL. Subpart LLL does not refer to "natural gas processing plants," because it regulates emissions from sweetening units and sweetening units followed by a sulfur recovery unit that processes natural gas regardless of whether those units are associated with a "natural gas processing plant."

Subpart LLL is applicable to "the following affected facilities that process natural gas: each sweetening unit, and each sweetening unit followed by a sulfur recovery unit" (underline added for emphasis). *Affected facility* is defined in the general provisions of Part 60 as "any apparatus to which a standard is applicable." [40 CFR 60.2] Sweetening of natural gas is a process, or treatment. The phrase "affected facilities that process natural gas" serves merely to introduce the apparatus to which Subpart LLL applies (each sweetening unit and each sweetening unit followed by a sulfur recovery unit). Therefore, a reasonable interpretation of the applicability provisions of Subpart LLL, which regulates SO₂ emissions from sweetening units, is that it applies to plants independent of the applicability of Subpart KKK.

As indicated by LG&E, the first paragraph of the preamble to the Subpart LLL final rule states that the rule promulgates "standards of performance for atmospheric emissions of sulfur dioxide (SO₂) from new, modified, and reconstructed sweetening and sulfur recovery units in onshore natural gas processing plants." [50 FR 40158, October 1, 1985] However, the same paragraph also clarifies that "gas processing," in this instance, refers to "sweetening and sulfur recovery." In addition, the preamble in the proposal notice to Subpart LLL (49 FR 2656, January 20, 1984) discredits any link between Subpart KKK and Subpart LLL. The notice states on page 2658:

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Plants affected by the SO₂ standards [in Subpart LLL] may also be subject to the VOC standards [in Subpart KKK] for the natural gas production industry that are being proposed in a separate Federal Register notice. Not all plants would be affected by both standards; only natural gas plants that separate natural gas liquids from field gas and/or fractionate natural gas liquids, in addition to sweetening sour gas, would be impacted by both the SO₂ and VOC standards.

Thus, EPA clearly contemplated situations in which sweetening units used in operations other than *natural gas processing plants* regulated under Subpart KKK might be subject to Subpart LLL. The final notice does not address this point further.

LG&E argues that the Subpart LLL standards are not appropriate for peak-load facilities, such as the Muldraugh Compressor Station, which are characterized by variable operations as opposed to the steady-state operations found in a production field. The Company states that the sulfur recovery units at gas storage facilities are not able to meet the minimum SO₂ emission reduction efficiency of 74 percent using Claus-type controls. However, Subpart LLL does not dictate the type of controls a facility must use to accomplish the required sulfur emission reductions. In fact, the proposed rule suggests several types of controls that may be used to recover sulfur from sweetening units, including 2-stage and 3-stage Recycle Selectox sulfur recovery units, 2-stage and 3-stage Claus sulfur recover units, Sulfreen tail gas units, Shell Claus off-gas treatment units, Beavon sulfur removal process units, and cold bed absorption units. Moreover, the Muldraugh Compressor Station is not subject to any emission reduction efficiency requirements as long as the facility conducts appropriate monitoring and verifies that the sulfur feed rates (the long tons per day of sulfur in the acid gas² emerging from the sweetening operations) to Purification Plants #2 and #3 remain less than two long tons per day each. This is based upon 40 CFR § 60.642, which provides that emission reduction efficiencies apply only to units with sulfur feed rates greater than two long tons per day. Historical data provided to Region 4 by LG&E show that sulfur feed rates to Purification Plants #2 and #3 are less than two long tons per day each under normal operation. Keeping records on sulfur feed rates to these units should impose no significant burden on the facility.

Finally, LG&E argues that Subpart LLL does not apply to gas storage operations, such as the Muldraugh Compressor Station, because the Agency has not shown any standard to be achievable by such operations and did not consider the operating characteristics of, and economic and other impacts on, gas storage operations in developing the rule. LG&E further argues that the proposed standards BID indicates that EPA has not evaluated the control technologies and other requirements that would be appropriate for gas storage operations. The EPA's assessment

² *Acid gas* means a gas stream of hydrogen sulfide (H₂S) and carbon dioxide (CO₂) that has been separated from sour natural gas by a sweetening unit. 40 CFR 60.641.

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of the applicability of Subpart LLL to the Muldraugh Compressor Station is, however, based not on the station's function as a gas storage operation, but on its use of sweetening units to remove H_2S from sour natural gas. As indicated on page 3-1 of the proposed standards BID, EPA considers sweetening operations to be one of the three basic operations within the crude oil and natural gas industry that are important to the control of sulfur compound emissions into the atmosphere. The final Subpart LLL rule places no limitation on its applicability with regard to the location of the sweetening units or the types of operations in which sweetening units are used.

The only exception to the applicability of Subpart LLL to onshore sweetening units constructed or modified after January 20, 1984, is for those "producing acid gas that is completely reinjected into oil-or-gas-bearing geologic strata or that is otherwise not released to the atmosphere." 40 CFR § 60.640(e). Therefore, for the reasons stated above, EPA continues to conclude that all other sweetening units and sweetening units followed by sulfur recovery units that "process natural gas" are subject to Subpart LLL. 40 CFR § 60.640(a).