pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

## Bureau of Air Quality

# *Comment and Response Document*

# *General Permit GP-5*

# *January 31, 2013*

## Introduction

The Department of Environmental Protection (DEP) has finalized the revisions to General Plan Approval and/or Operating Permit (BAQ-GPA/GP-5 or General Permit) for Natural Gas Compression and/or Processing Facilities that establishes emission limitations and other applicable Federal and State requirements including Best Available Technology requirements.

The notice of availability of the proposed General Permit was published in the *Pennsylvania Bulletin* (Vol. 42, Pa.B. 1187) on Saturday, March 3, 2012. A 60-day public comment period was provided. On May 2, 2012, the Department extended the public comment period to May 23, 2012, to provide adequate time to fully consider the federal New Source Performance Standards and National Emission Standards for Hazardous Air Pollutant regulations. This comment and response document has been prepared, which summarizes the Department's response to the comments.

BAQ-GPA/GP-5 applies to the construction, operation and modification of both new and existing natural gas compression and/or processing facilities that compress and/or process natural gas, coal bed methane, or gob gas through steps such as gas dehydration, compression, fractionation, and storage.

This document summarizes the comments from the 255 commentators received by the Department pertaining to the proposed GP-5 and the Department's responses to those comments. The comments and responses in this document are organized based on the order of the conditions in the General Permit dated February 10, 2012 and proposed for public comment on March 3, 2012.

## List of Commentators

| ID | Name | Affiliation |
|---|---|---|
| 1 | James M. Zendek | Science Application International Corporation |
| 2 | Diana Esher | US Environmental Protection Agency (EPA) |
| 3 | Beverly Braverman | Clean Air Council/Mountain Watershed Association |
| 4 | Charles McPhedran | Clean Air Council/Earthjustice |
| 5 | David Presley | Clean Air Council |
| 6 | Erika Staff | Clean Air Council/PennEnvironment |
| 7 | Joe Osborne | Group Against Smog and Pollution (GASP) |
| 8 | Joseph Otis Minott | Clean Air Council |
| 9 | Mark Szybist | Penn Future |
| 10 | Maya Van Rossum | Clean Air Council/Delaware Riverkeeper Network |
| 11 | Ralph Kisberg | Clean Air Council/Responsible Drilling Alliance |
| 12 | Richard Martin | Clean Air Council/Pennsylvania Forest Coalition |
| 13 | Steve Hvozdovish | Clean Air Council/Clean Water Action |
| 14 | Ted Robinson | Citizen Power |
| 15 | Thom Au | Clean Air Council/Sierra Club Pennsylvania Chapter |
| 16 | Tracy Carlucio | Delaware Riverkeeper Network |
| 17 | John Dutton | Gas Compressor Association |
| 18 | John Peck | Cameron Compression Systems |
| 19 | Joseph L. Suchecki | EMA Trucks & Engine Manufacturers Association |
| 20 | Leslie H. Witherspoon | Solar Turbines |
| 21 | Mark Lemke | GE Energy |
| 22 | Bart Roberts | Cabot Oil and Gas |
| 23 | Daryl Grieger | Williams |
| 24 | David Morris | Consol Energy |
| 25 | H. James Sewell | Shell Exploration & Production |
| 26 | Jeff Applekamp | Gas Processors Association |
| 27 | Jennifer Hoffman | Chesapeake |
| 28 | John Jacus | MarkWest Liberty |
| 29 | Julie Betik | Anadarko Petroleum Corporation |
| 30 | Kathryn Z. Klaber | Marcellus Shale Coalition |
| 31 | Lou D'Amico | PA Independent Oil and Gas Association (PIOGA) |
| 32 | Michael D. Sherman | Range Resources |
| 33 | Pamela Faggert | Dominion Resources Services |
| 34 | Richard Baker | Williams |
| 35 | Stephanie Catarino Wissman | American Petroleum Institute |
| 36 | Terry Bossert | Chief Oil and Gas |
| 37 | Angela Warfsman | Private Citizen |

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| 38 | Briget Shields | Private Citizen |
| 39 | Carole McIntyre | Private Citizen |
| 40 | Cindy Copeland | Private Citizen |
| 41 | Claudia Haynes | Private Citizen |
| 42 | Cynthia Walter | Private Citizen |
| 43 | Daniel Gosselin | Private Citizen |
| 44 | Emily Krafjack | Private Citizen |
| 45 | Jim Rosenberg | Private Citizen |
| 46 | John Kesich | Private Citizen |
| 47 | John Sykas | Private Citizen |
| 48 | John Zimmerman | Private Citizen |
| 49 | Kevin Heatley | Private Citizen |
| 50 | Madeline Rawley | Private Citizen |
| 51 | Maria Hixson | Private Citizen |
| 52 | Megan Williams | Private Citizen |
| 53 | Nancy McCaughey | Private Citizen |
| 54 | Rosalyn Robitaille | Private Citizen |
| 55 | Aaron Burson | Private Citizen |
| 56 | Alex Allen | Private Citizen |
| 57 | Allen Knizner Jr. | Private Citizen |
| 58 | Andy Pollak | Private Citizen |
| 59 | Angela Smith | Private Citizen |
| 60 | Anne Kirby | Private Citizen |
| 61 | Anne Miltenberger | Private Citizen |
| 62 | Anne Quashnoc | Private Citizen |
| 63 | Audrey Gozdiskowski | Private Citizen |
| 64 | Audrey Simpson | Private Citizen |
| 65 | Barbara Clifford | Private Citizen |
| 66 | Barbara Edelman | Private Citizen |
| 67 | Barbara Silverstein | Private Citizen |
| 68 | Barbara Taylor | Private Citizen |
| 69 | Ben Fiorillo | Private Citizen |
| 70 | Benita Campbell | Private Citizen |
| 71 | Benjamin Roter | Private Citizen |
| 72 | Beth Pierce | Private Citizen |
| 73 | Bev Fraim | Private Citizen |
| 74 | Bill Forrest | Private Citizen |
| 75 | Bob Bernhardy | Private Citizen |
| 76 | Brad Kurlancheek | Private Citizen |
| 77 | Bridget Coyne | Private Citizen |
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| 79 | Caleigh Miller | Private Citizen |
| 80 | Calin Riffle | Private Citizen |
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| 82 | Carla Hornback | Private Citizen |
| 83 | Carol Anne Donohoe | Private Citizen |
| 84 | Carol Frampton | Private Citizen |
| 85 | Carolyn Wells | Private Citizen |
| 86 | Carrie Hahn | Private Citizen |
| 87 | Cathy Frankenberg | Private Citizen |
| 88 | Cathy McNulty | Private Citizen |
| 89 | Celia M Janosik | Private Citizen |
| 90 | Charles Younger | Private Citizen |
| 91 | Charlie Umphred | Private Citizen |
| 92 | Cherry Poteet | Private Citizen |
| 93 | Cheryl Launer | Private Citizen |
| 94 | Cheryl Lee | Private Citizen |
| 95 | Christina Morford | Private Citizen |
| 96 | Christine Griffin | Private Citizen |
| 97 | Cindy Evans | Private Citizen |
| 98 | Cindy Hoffer | Private Citizen |
| 99 | Claire Andrews | Private Citizen |
| 100 | Claudia Crane | Private Citizen |
| 101 | D.E. Bassett | Private Citizen |
| 102 | Dale Chidester | Private Citizen |
| 103 | Darell Smitsky | Private Citizen |
| 104 | David Meiser | Private Citizen |
| 105 | David Plank | Private Citizen |
| 106 | David Wasileewski | Private Citizen |
| 107 | Dean Marshall | Private Citizen |
| 108 | Deb Kibbe | Private Citizen |
| 109 | Debra Borowiec | Private Citizen |
| 110 | Debra Snell | Private Citizen |
| 111 | Deirdre Lally | Private Citizen |
| 112 | Delma Burns | Private Citizen |
| 113 | Denis Robitaille | Private Citizen |
| 114 | Denise Coyle | Private Citizen |
| 115 | Diana Steck | Private Citizen |
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| 117 | Diane Sipe | Private Citizen |
| 118 | Diane Sniezek | Private Citizen |
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| 120 | Donald Dixon | Private Citizen |
| 121 | Dorina Hippauf | Private Citizen |
| 122 | Eleanor Skibo | Private Citizen |
| 123 | Elizabeth Hawkins | Private Citizen |
| 124 | Ellen A Smith | Private Citizen |
| 125 | Ellen Armstrong | Private Citizen |
| 126 | Eva Galvin | Private Citizen |
| 127 | Fran Harkins | Private Citizen |
| 128 | Frank Finan | Private Citizen |
| 129 | Gail Domalakes | Private Citizen |
| 130 | Garrett Socling | Private Citizen |
| 131 | Gayle Funk | Private Citizen |
| 132 | George Darrow | Private Citizen |
| 133 | Gloria Forouzan | Private Citizen |
| 134 | Gregory Pais | Private Citizen |
| 135 | Hazel Cope | Private Citizen |
| 136 | Helene de l'Etoile | Private Citizen |
| 137 | Henry Berkowitz | Private Citizen |
| 138 | J W Langham | Private Citizen |
| 139 | J. Stephen Cleghorn | Private Citizen |
| 140 | James Jones | Private Citizen |
| 141 | Jan Milburn | Private Citizen |
| 142 | Jane Riddle | Private Citizen |
| 143 | Janine Dymond | Private Citizen |
| 144 | Janis Johnson | Private Citizen |
| 145 | Jason Chastain | Private Citizen |
| 146 | Jason Walters | Private Citizen |
| 147 | Jay Sweeney | Private Citizen |
| 148 | Jeffrey Shralow | Private Citizen |
| 149 | Jennifer Behm | Private Citizen |
| 150 | Jessie Rosenthal | Private Citizen |
| 151 | Joann Aurand | Private Citizen |
| 152 | Joanne Corey | Private Citizen |
| 153 | Joanne Farrar | Private Citizen |
| 154 | Joanne Fiorito | Private Citizen |
| 155 | John Atherton | Private Citizen |
| 156 | John Cofchin | Private Citizen |
| 157 | John Detwiler | Private Citizen |
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| 159 | John Quashnoc | Private Citizen |
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| 161 | Jon Bogle | Private Citizen |
| 162 | Joseph Guthrie | Private Citizen |
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| 166 | Karen Bagdes-Canning | Private Citizen |
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| 169 | Karen Feridun | Private Citizen |
| 170 | Kathleen Bishop | Private Citizen |
| 171 | Kathleen Helbling | Private Citizen |
| 172 | Kathleen O'Donnell | Private Citizen |
| 173 | Kenneth Moberg | Private Citizen |
| 174 | Kim Feil | Private Citizen |
| 175 | Kim Krupsha | Private Citizen |
| 176 | Kristin Landon | Private Citizen |
| 177 | Larry Franklin | Private Citizen |
| 178 | Larry Schweiger | Private Citizen |
| 179 | Lawrence Borowiec | Private Citizen |
| 180 | Leah Schade | Private Citizen |
| 181 | Linda Small | Private Citizen |
| 182 | Lisa Paduck | Private Citizen |
| 183 | Lois Bjornson | Private Citizen |
| 184 | Luana Cleveland | Private Citizen |
| 185 | Lynn Senick | Private Citizen |
| 186 | Lynne Whelden | Private Citizen |
| 187 | Maggie Balsley | Private Citizen |
| 188 | Maren Cooke | Private Citizen |
| 189 | Margaret Henry | Private Citizen |
| 190 | Margaret Kress | Private Citizen |
| 191 | Margaret Motheral | Private Citizen |
| 192 | Margaret Yaggie | Private Citizen |
| 193 | Maria Payan | Private Citizen |
| 194 | Maria Pileggi | Private Citizen |
| 195 | Marian Szmyd | Private Citizen |
| 196 | Marissa Calafaty | Private Citizen |
| 197 | Mary Ciarrocchi | Private Citizen |
| 198 | Mary Sweeney | Private Citizen |
| 199 | Matthew Grazulis | Private Citizen |
| 200 | Mel Packer | Private Citizen |
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| 202 | Michelle Stonemark | Private Citizen |
| 203 | Molly Rush | Private Citizen |
| 204 | Ms. Mary Pirt | Private Citizen |
| 205 | Nancy Barta-Smith | Private Citizen |
| 206 | Nancy Dolan | Private Citizen |
| 207 | Nathan Sooy | Private Citizen |
| 208 | Nickie Corey | Private Citizen |
| 209 | Paul Roden | Private Citizen |
| 210 | Paula Lim | Private Citizen |
| 211 | Paula Slomer | Private Citizen |
| 212 | Pauline Beck | Private Citizen |
| 213 | Peter Buckland | Private Citizen |
| 214 | Rachel Roter | Private Citizen |
| 215 | Rachel Spott | Private Citizen |
| 216 | Randa Morris | Private Citizen |
| 217 | Randolph Shannon | Private Citizen |
| 218 | Rebecca Obleski | Private Citizen |
| 219 | Rebecca Roter | Private Citizen |
| 220 | Rebecca Studer | Private Citizen |
| 221 | Richard Yanock | Private Citizen |
| 222 | Rob Cooley | Private Citizen |
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| 227 | Rodrica Tilley | Private Citizen |
| 228 | Ron Slabe | Private Citizen |
| 229 | Rosalyn Robitaille | Private Citizen |
| 230 | Rosemary Fielding | Private Citizen |
| 231 | Roy Brashear | Private Citizen |
| 232 | Sandra Folzer | Private Citizen |
| 233 | Sandra McVeigh | Private Citizen |
| 234 | Scott Cannon | Private Citizen |
| 235 | Scott Davis | Private Citizen |
| 236 | Sherry McNeil | Private Citizen |
| 237 | Stephen Kunz | Private Citizen |
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| 239 | Susan Breese | Private Citizen |
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| 243 | Ted Popovich | Private Citizen |
| 244 | Terri Davin | Private Citizen |
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| 246 | Travis Rogers | Private Citizen |
| 247 | Ursula Zangrilli | Private Citizen |
| 248 | Valeri Fornagiel | Private Citizen |
| 249 | Vera Scroggins | Private Citizen |
| 250 | Veronica Coptis | Private Citizen |
| 251 | Walter Sanders | Private Citizen |
| 252 | Wanda Guthrie | Private Citizen |
| 253 | Wendy Lynne Lee | Private Citizen |
| 254 | William Ferullo | Private Citizen |
| 255 | William Henry | Private Citizen |

## Comments and Responses

## Proposed Section A: General Conditions

**1. Comment:** The commentator supports PADEP's development of general permits that are consistent with Section 504(d) of the Clean Air Act. The proposed broad expansion of GP-5 to cover all sources/operations related to the production, treatment, processing, compression, storage, and transmission of natural gas is contrary to Section 504(d) of the CAA regarding general permits. The commentator recommends that PADEP reconsider the broad applicability provisions of the currently proposed GP- 5 and group related operations into proposed additional general permits, consistent with the intent of Section 504(d) of the CAA and consistent with applicable federal and state regulatory requirements. This should be done in a manner that simplifies the permitting process by referencing the federal requirements and utilizes a source registration process. (31)

***Response:*** Thank you for your comments supporting the development of general permits. Section 504(d) of the Clean Air Act (related to permit requirements and conditions) allows the permitting authority, after notice and opportunity for public hearing, to issue a general permit covering numerous similar sources. In addition, 25 Pa. Code §127.611 (related to general plan approvals and general operating permits) allows the Department to issue or modify a general plan approval or general operating permit for any category of stationary air contamination source if the Department determines that sources in the category are similar and can be adequately regulated using standardized specifications and conditions. The Department has determined that the sources located at a source category such as natural gas compression and/or processing facilities are a collection similar in nature and can be regulated with standardized specifications and conditions. In addition, states such as Ohio and West Virginia have issued general permits for similar sources located at natural gas compression facilities. Therefore, GP-5 is consistent with Section 504(d) of the CAA and 25 Pa. Code §127.611.

**2. Comment:** The broad definition of "Natural Gas Production Facility" in the proposed GP-5 does not distinguish emissions sources and further complicates the definition of a facility and aggregation. The commentator asks that the Department entertain the concept of multiple General Permits that clearly define the types and service of the sources intended to be regulated by that permit. (33)

***Response:*** The owner and/or operator are only required to comply with the conditions that are relevant to the sources located at their facility. The Department determined that the sources located at a source category such as natural gas compression and/or processing facilities are a collection similar in nature and can be regulated with standardized specifications and conditions. Therefore, it is not necessary to split the GP-5 and develop a separate general permit for each source contained in GP-5.

**3. Comment:** The generally applicable state implementation plan (SIP) requirements specified in Conditions A(13), A(14), and A(l5) of proposed GP-5 should be deleted. The SIP requirements cited are generally applicable to all sources in Pennsylvania and

apply regardless of their inclusion in the proposed GP-5. Their inclusion adds unnecessary clutter and duplicity to the document. (31)

***Response:*** The Department agrees that the conditions 13 (relating to fugitive dust emissions), 14 (relating to diesel powered motor vehicle idling), 15 (relating to odor control) from Section A of the proposed GP-5 are generally applicable to all sources in Pennsylvania and are applicable regardless of inclusion in this General Permit. In addition, the fugitive dust emissions from natural gas compression and/or processing facilities are of minor significance with respect to causing air pollution. The owner and/or operator is required to comply with the applicable fugitive emissions requirements of 25 Pa. Code §123.1 and §123.2.

As per the "Diesel-Powered Motor Vehicle Idling Act" (Act 124 of 2008), Section 10, the diesel idling requirements of this act may not be incorporated into the applicable to operating permits required under 25 Pa. Code Chapter 127 (relating to construction, modification, reactivation and operation of sources). However, the owners/operators of the facilities must comply with the applicable provisions of Act 124.

The owner and/or operator is required to comply with the applicable odor emissions requirements of 25 Pa. Code §123.31, which do not allow the owner or operator to emit any malodorous air contaminants that are detectable outside the property. The Department believes that the existing requirement addresses odor emissions from natural gas compression and/or processing facilities.

Therefore, the requirements specified in Conditions 13, 14, and l5 from Section A of the proposed GP-5 are not included in the final GP-5. However, the fugitive and odor emission requirements specified in 25 Pa. Code §123.1, §123.2, §123.11, and §127.12(a)(5) have been incorporated by reference in the Condition of 9 of the final General Permit. Moreover, Condition 23 of Section A provides that nothing in this General Permit relieves the facility owner or operator from the obligation to comply with all applicable Federal, state and local laws and regulations including 25 Pa. Code Article III (relating to air resources). So facility owners and operators will need to comply with all laws regardless of whether they are listed in GP-5.

**4. Comment:** Proposed GP-5 is 49 pages long, and would apply not only to natural gas production facilities, but also to natural gas processing facilities. Presumably, Proposed GP-5 could also be used for facilities operated as part of a transmission pipeline, because the language in current GP-5 proscribing this use has been eliminated. The commentator states that the Department has failed to demonstrate that natural gas production facilities, natural gas processing facilities, and natural gas transmission facilities are similar in nature and can be adequately regulated using the same standardized specifications and conditions. (9)

***Response:*** The Department disagrees. GP-5 is not applicable to sources used in a natural gas transmission facility. Typically, natural gas transmission facilities involve significantly larger sources than at gathering stations. GP-5 is intended to address

sources located at gathering stations and gas processing facilities. As discussed in the response to Comment #1, 25 Pa. Code §127.611 allows the Department to issue or modify a general plan approval or general operating permit for any category of stationary air contamination source if the Department determines that sources in the category are similar and can be adequately regulated using standardized specifications and conditions. The Department has determined that the sources located at a source category such as natural gas compression and/or processing facilities are a collection of similar sources and can be regulated with standardized specifications and conditions.

**5. Comment:** The New Source Performance Standards (NSPS) regulations are independently enforceable and Air Pollution Control Act regulations automatically incorporate finalized NSPS into Pennsylvania's rules, 25 Pa. Code § 122.1. The Subpart OOOO regulation states that its provisions are exempt from state and federal operating permitting requirements. Consequently, no permitting is necessary in order for the Department to enforce the NSPS. (36)

***Response:*** The Department agrees that the NSPS standards including the 40 CFR Part 60 Subpart OOOO requirements are incorporated into Pennsylvania under 25 Pa. Code Chapter 122. Permitting requirements are not mandated by these NSPS requirements and as such are enforceable as state law as well. The need for requiring permits is evaluated independently. The Department reevaluated the need for including the wellheads and the associated sources in the final General Permit. Due to the limited duration of the temporary operation, the wellheads are not included in the applicability condition of the final GP-5. However, sources including wellheads must comply with all applicable requirements of 40 CFR Part 60, Subpart OOOO.

However, it should be noted that the Department has proposed revisions to Item #38 (oil and gas exploration, development, and production facilities and associated equipment) of the exemption list for public comment in the February 2, 2013 issue of the *Pennsylvania Bulletin*. The proposed revisions will exempt unconventional wellheads and associated equipment meeting specific criteria. The proposed exemption requires drillers to control emission more stringently and conduct leak detection more frequently than is currently required by federal air quality rules for oil and gas development.

**6. Comment:** The commentator is in favor of modifying the GP-5 at this time to expand its scope in order to include air contamination sources such as wellheads and valve assemblies, natural gas-fired spark ignition internal combustion engines, natural gas-fired simple cycle turbines, centrifugal compressors, condensate tanks, distillation towers, glycol dehydrators, reboilers, natural gas fractionation units, vapor recovery systems, storage vessels/tanks, flares, piping, flanges and transport loading arms. These changes will not only prescribe emission limitations on potentially significant sources of air pollution, but they will also improve the monitoring and reporting of the air impact resulting from oil and gas drilling operations. (14)

***Response:*** The Department agrees that the NSPS standards including the 40 CFR Part 60 Subpart OOOO requirements are incorporated into Pennsylvania under 25 Pa. Code

Chapter 122. Permitting requirements are not mandated by these NSPS requirements and as such are enforceable as state law as well. The need for requiring permits is evaluated independently. The Department reevaluated the need for including the wellheads and the associated sources in the final General Permit. Due to the limited duration of the temporary operation, the wellheads are not included in the applicability condition of the final GP-5. However, sources including wellheads must comply with all applicable requirements of 40 CFR Part 60, Subpart OOOO.

However, it should be noted that the Department has proposed revisions to Item #38 (oil and gas exploration, development, and production facilities and associated equipment) of the exemption list for public comment in the February 2, 2013 issue of the *Pennsylvania Bulletin*. The proposed revisions will exempt unconventional wellheads and associated equipment meeting specific criteria. The proposed exemption requires drillers to control emission more stringently and conduct leak detection more frequently than is currently required by federal air quality rules for oil and gas development.

The final GP-5 is applicable to sources located at natural gas compression and/or processing facilities. GP-5 is applicable to natural gas-fired spark ignition internal combustion engines, natural gas-fired simple cycle turbines, centrifugal compressors, glycol dehydration units and associated equipment including Gas-Condensate-Glycol ("GCG") separators (flash tank separators), natural gas fractionation (such as de-propanizer, de-ethanizer, de-butanizer), storage vessel/tanks, equipment leaks, pneumatic controllers, and sweetening units.

**Proposed A1: Statutory/Regulatory Authority and General Description**

**7. Comment:** The finalized GP-5 should set forth Best Available Technology (BAT) for all sources the permit will cover. Sections (A)(1) and (A)(3)(a) should be modified to make clear that the GP-5 covers only the sources specifically listed in those provisions. The General Permit Sections would have to contain BAT standards for those enumerated sources. If the GP-5 does not establish BAT for a particular source category at a natural gas production and/or processing facility, BAT for any sources in that category must be determined on a case-by-case basis. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** The final GP-5 has been revised to include the list of sources authorized for natural gas compression and/or processing facilities. GP-5 is applicable to natural gas-fired spark ignition internal combustion engines, natural gas-fired simple cycle turbines, centrifugal compressors, glycol dehydration units and associated equipment including Gas-Condensate-Glycol ("GCG") separators (flash tank separators), natural gas fractionation (such as de-propanizer, de-ethanizer, de-butanizer), storage vessel/tanks, equipment leaks, pneumatic controllers, and sweetening units. Performance standards and/or emission limits applicable to these sources, which are BAT, have been included in Sections B through J.

**8. Comment:** The general description of GP-5 includes "transport loading arms" as a type of source that may be authorized under GP-5, and the term "natural gas production facility" is defined in Proposed GP-5 to include transport loading arms. However, transport loading arms are not included on the list of sources in Section A(3) of the permit ("Applicability/Scope"), and there are no standards or requirements for loading arms within the body of the permit. The Department should either remove transport loading arms from Section A(1) or include stringent standards and conditions for loading arms in the body of the permit. (9)

***Response:*** The Department agrees. Since no specific standards or requirements for loading arms are included in the proposed GP-5, loading arms have not been included in the Applicability/Scope section of this final General Permit.

**9. Comment:** Midstream and gathering operations should be included as to the applicable facilities. (24, 27, 29)

***Response:*** Midstream and gathering operations such as compressor stations, and other related emission sources, are included in GP-5. GP-5 is applicable to sources located at midstream and gathering stations, such as natural gas-fired spark ignition internal combustion engines, natural gas-fired simple cycle turbines, centrifugal compressors, glycol dehydration units and associated equipment including Gas-Condensate-Glycol ("GCG") separators (flash tank separators). No additional clarification is required.

**10. Comment:** Condition A.1 of the permit indicates applicability to production and processing facilities. The commentator recommends limiting the applicability of GP-5 to processing and gathering facilities. (30)

***Response:*** As stated in the response to Comments #5 and #6, the final GP-5 is not applicable to production sources such as wellheads. GP-5 is applicable to sources located at natural gas compression and/or processing facilities. GP-5 is applicable to natural gas-fired spark ignition internal combustion engines, natural gas-fired simple cycle turbines, centrifugal compressors, glycol dehydration units and associated equipment including Gas-Condensate-Glycol ("GCG") separators (flash tank separators), natural gas fractionation (such as de-propanizer, de-ethanizer, de-butanizer), storage vessel/tanks, equipment leaks, pneumatic controllers, and sweetening units.

**11. Comment:** One source that is not included is an emergency generator. Most compressor stations include an emergency generator. GP-5 needs to be modified to include emergency generators and mandate natural gas as the required fuel source. With that modification the condition is recommended for adoption. (44)

***Response:*** GP-5 is applicable to natural gas fired internal combustion (IC) engines, including the one used as emergency generators. The Department has also issued GP-9 for Diesel or No. 2 Fuel-fired Internal Combustion Engines. The owner or operator of an emergency diesel-fired generator may also obtain an authorization to use GP-9 for construction and/or operation of such engines. Therefore, no changes are warranted.

## Proposed A2: Definitions

**12. Comment:** The definition of "natural gas" should specifically exclude landfill gas and manufactured or byproduct gas. This would clarify that GP-5 is not available to permit the compression of gas at landfills and industrial facilities that are not engaged in natural gas production activities. (9)

The commentator requests PADEP change the proposed definition of "natural gas". Distinction should be made between pipeline quality natural gas and other methane-based gaseous fuels. The commentator recommends PADEP use the natural gas definition as found in 40 CFR 60 Subpart KKKK. (20)

The definition of "Natural Gas" should remove the term "hydrofracking" to be replaced with "hydraulic fracturing" to avoid any negative implications associated with the term "fracking." (28)

***Response:*** The terms used in GP-5, with the exception of "coal bed methane" and "natural gas compression and/or processing facility", are already defined in Section 3 of the APCA (35 P.S. § 4003), 25 Pa. Code, Chapters 121 - 145 and applicable definitions codified in the Code of Federal Regulations including 40 CFR Part 60 Subparts Kb, KKK, LLL, JJJJ, KKKK, and OOOO and 40 CFR Part 63 Subparts HH and ZZZZ. To avoid possible discrepancies in the interpretation of terms, the Department is including these definitions by reference in the final GP-5. Therefore, the definition of "natural gas" is not included in the final GP-5. As a result, GP-5 is only available for use by natural gas compression and/or processing facilities.

Therefore, GP-5 is not applicable to sources located in landfills and industrial facilities that are not engaged in natural gas production activities.

**13. Comment:** Coal bed methane is more often recovered prior to mining activities than during those activities, and it is possible for coal bed methane to be recovered in the absence of any mining activities (e.g., when the coal seam is unworkable). The Department should define coal bed methane simply as methane released from a coal seam. (9)

***Response:*** The Department concurs with this comment and has revised the definition of "coal bed methane" in the final GP-5 to read as follows.

> *Coal bed methane – Methane that is released from the coal and surrounding rock strata.*

**14. Comment:** DEP should define equipment as pumps, compressor seals, flanges, connectors, pressure relief valves and open ended lines (in reference to equipment leaks). (25)

***Response:*** The terms used in GP-5, with the exception of "coal bed methane" and "natural gas compression and/or processing facility", are already defined in Section 3 of the APCA (35 P.S. § 4003), 25 Pa. Code, Chapters 121 - 145 and applicable definitions codified in the Code of Federal Regulations including 40 CFR Part 60 Subparts Kb, KKK, LLL, JJJJ, KKKK, and OOOO and 40 CFR Part 63 Subparts HH and ZZZZ. To avoid possible discrepancies in the interpretation of terms, the Department is including these definitions by reference in the final GP-5.

**15. Comment:** The commentator suggests modifying the definition of a leak for components subject to leak detection and repair requirements. This would help to clarify when a leak is detected and repairs are needed. (26)

***Response:*** The Department disagrees with the comment. Any leak detected by a forward look infrared ("FLIR") camera and/or audible, visual, and olfactory ("AVO") inspections are considered leaks. The leak detection and repair program included in the GP-5 will address all air pollutants including greenhouse emissions such as methane, hazardous air pollutants and VOCs. Therefore, unlike the federal regulations, the leak definition is not based on VOC concentrations. Any leak detected through FLIR camera or through AVO inspections is required to be repaired.

**16. Comment:** Combustors should be added to the definitions and included as an emissions source at natural gas facilities. (29)

***Response:*** The term "Combustion Unit" is defined in 25 Pa. Code §121.1. The Department has already issued GP-1 for combustion units. The owner or operator of a combustion unit may obtain an authorization under GP-1 for construction and/or operation. Typically, the combustion units located at a natural gas compression and/or processing facility, such as glycol dehydrator reboilers, qualify to be exempted from permitting requirements since the heat input of these combustion units are less than 10 million Btu per hour.

**17. Comment:** The definition of Particulate Matter (PM) used in GP-5 is incorrect and conflicts with US EPA measurement methods and standards for internal combustion engines. The definition of PM, as well as the test methods used to measure PM in the General Permit, should conform to the regulatory requirements used by the US EPA in 40 CFR 60, Subpart JJJJ governing stationary spark-ignition engines so that the standards and measurement methods applied to stationary engines in Pennsylvania are aligned with the national emissions standards and those in other states. (19)

***Response:*** The final GP-5 does not include a definition for PM. Since the PM emissions are very low from natural gas-fired engines, the final GP-5 does not include emission limitations for PM from engines. The Department calculated that for a larger engine (2370 bhp), PM emissions are less than 0.8 ton per year, based on 0.03 g/bhp-hr. The final GP-5 does not include PM limitations and associated testing requirements for natural gas-fired engines. Therefore, no clarification is needed for filterable and condensable particulate. Since 40 CFR Part 60, Subpart JJJJ is incorporated by reference

into GP-5 there is consistency between GP-5 and the federal requirements regarding particulate matter.

**18. Comment:** The definition of Rich Burn engine should be changed to match ZZZZ definition. The phrase "less than or equal to 1:1" should be changed to "less than or equal to 1.1". (22)

The definitions in the General Permit should be consistent with the same terms found in 40 CFR Part 98, Subpart W or 40 CFR Part 60, Subpart OOOO and should be incorporated by reference. (23, 34)

***Response:*** The terms used in GP-5, with the exception of "coal bed methane" and "natural gas compression and/or processing facility", are already defined in Section 3 of the APCA (35 P.S. § 4003), 25 Pa. Code, Chapters 121 - 145 and applicable definitions codified in the Code of Federal Regulations including 40 CFR Part 60 Subparts Kb, KKK, LLL, JJJJ, KKKK, and OOOO and 40 CFR Part 63 Subparts HH and ZZZZ. To avoid possible discrepancies in the interpretation of terms, the Department is including these definitions by reference in the final GP-5. Therefore, no additional definitions for these terms are included in the final GP-5.

**19. Comment:** Please modify the following definitions as indicated below: (26)

> ***Component*** *means each metal to metal joint or seal of non-welded connection separated by a compression gasket, screwed thread (with or without thread sealing compound), metal to metal compression, or fluid barrier through which natural gas or liquid can escape to the atmosphere.*
>
> ***Flare*** *means a combustion device, whether at ground level or elevated, that uses a flame to combust waste gas without energy recovery.*
>
> ***Natural Gas Processing Plant*** *– A processing plant engaged in the forced extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, and/or facilities engaged in treatment of natural gas including extraction of $CO_2$ and/or acid gas.*
>
> ***Small glycol dehydration unit*** *– A glycol dehydration unit, located at a major source as defined by MACT subpart HH, with an actual annual average natural gas flow rate less than 85,000 standard cubic meters per day or actual annual average benzene emissions less than 0.90 Mg/Yr, determined according to 40 CFR 63.772(b).*
>
> ***Large glycol dehydration unit*** *– A glycol dehydration unit, located at a major source as defined by MACT subpart HH, with an actual annual average natural gas flow rate equal to or greater than 85,000 standard cubic meters per day or*

*actual annual average benzene emissions equal to or greater than 0.90 Mg/Yr, determined according to 40 CFR 63.772(b).*

***Storage vessel*** *means a tank or other vessel that is designed to contain accumulation of crude oil, condensate, intermediate hydrocarbon liquids, produced water, or other liquid, and is constructed primarily of non-earthen materials.*

***Response:*** The terms used in GP-5, with the exception of "coal bed methane" and "natural gas compression and/or processing facility", are already defined in Section 3 of the APCA (35 P.S. § 4003), 25 Pa. Code, Chapters 121 - 145 and applicable definitions codified in the Code of Federal Regulations including 40 CFR Part 60 Subparts Kb, KKK, LLL, JJJJ, KKKK, and OOOO and 40 CFR Part 63 Subparts HH and ZZZZ. To avoid possible discrepancies in the interpretation of terms, the Department is including these definitions by reference in the final GP-5. Therefore, no additional definitions for these terms are included in the final GP-5.

**20. Comment:** The commentator suggests modifying the definitions of large and small glycol dehydration units to reference the applicability to sources located at major sources and to include English units as industry does not recognize metric units. See recommended changes below: (27, 29, 30)

***Large Glycol Dehydration Unit*** *– A glycol dehydration unit, located at a major source as defined by MACT Subpart HH, with an actual annual average natural gas flow rate equal to or greater than 3 million standard cubic feet per day and actual annual average benzene emissions equal to or greater than 1 ton/yr.*

***Small Glycol Dehydration Unit*** *– A glycol dehydration unit, located at a major source as defined by MACT Subpart HH, with an actual annual average natural gas flow rate less than 3 million standard cubic feet per day or actual annual average benzene emissions less than 1 ton/yr.*

***Response:*** The terms used in GP-5, with the exception of "coal bed methane" and "natural gas compression and/or processing facility", are already defined in Section 3 of the APCA (35 P.S. § 4003), 25 Pa. Code, Chapters 121 - 145 and applicable definitions codified in the Code of Federal Regulations including 40 CFR Part 60 Subparts Kb, KKK, LLL, JJJJ, KKKK, and OOOO and 40 CFR Part 63 Subparts HH and ZZZZ. To avoid possible discrepancies in the interpretation of terms, the Department is including these definitions by reference in the final GP-5. Therefore, no additional definitions for these terms are included in the final GP-5.

**21. Comment:** The Department should amend the definition of *natural Gas Processing Plant* as follows:

***Natural Gas Processing Plant*** *– Natural gas processing plant (gas plant) means any processing site engaged in the extraction of natural gas liquids to natural gas*

*products, or both. A Joule-Thompson valve, a dew point depression valve, or an isolated or standalone Joule-Thompson skid is not a natural gas processing plant.* (27)

***Natural Gas Processing Plant*** *– A processing plant engaged in the forced extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both.* (30)

***Natural Gas Production Facility*** *– A facility, as defined in 25 Pa. Code §121.1, that extracts and/or produces natural gas.* (30, 36)

The definition of "natural gas production facility" should be revised to clarify what types of sources may operate, and what sort of activities may take place, at such facilities. The fact that the Department includes the "processing" and "refining" as functions of natural gas production facilities is confusing because "natural gas processing plant" is a term defined separately in Proposed GP-5. The Department should use a different term or clarify the meaning of "processing" in this context. (9).

***Response:*** Based on the comments received, the Department has revised the definition as follows.

*Natural gas compression and/or processing facility – A facility that produces, compresses and/or processes natural gas, coal bed methane, or gob gas starting with gas dehydration, compression, fractionation, and storage.*

**22. Comment:** The Department should delete "etc." from the list of sources in the definition of "natural gas production facility". The public should have an opportunity to comment on addition of any sources that may be permitted under GP-5 but do not appear in the Proposed GP-5. (9)

***Response:*** As stated in the response to Comment #21, the definition of "natural gas compression and/or processing facility" in the final GP-5 does not include the term "etc." In addition, the final GP-5 does not include any source which was not included in the proposed GP-5.

**23. Comment:** Glycol dehydration unit reboiler vent should be referred to as still vent (Industry standard terminology) and not reboiler vent. This could cause confusion between the reboiler exhaust which is an external combustion devise and the actual still vent which is the point of emissions from the regeneration of the glycol. (29)

***Response:*** Typically, the combustion units located at a natural gas compression and/or processing facility, such as glycol dehydrator reboilers, qualify to be exempted from permitting requirements since the heat input of these combustion units are less than 10 million Btu per hour. Therefore, the final GP-5 includes requirements for glycol dehydrators and not for the glycol dehydrator unit reboilers.

**24. Comment:** The definitions of the sources are not clear. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

We suggest modifying the definition of storage vessel to incorporate by reference the definition found in 40 CFR part 60 subpart OOOO which discusses storage vessel affected facilities. Assigning an emission rate qualifier to the definition is not necessary and confusing. (30)

The applicable definitions that are included in the proposed GP-5 are exhaustive and several of the definitions that are included directly in the proposed GP-5 are inconsistent with analogous definitions included in the referenced federal regulations. The commentator recommends that proposed GP-5 incorporate all applicable definitions by reference and that PADEP remove all specific definitions from Section 2 to ensure consistency with underlying requirements. (31)

***Response:*** The final GP-5 includes the definitions only for the terms "coal bed methane" and "natural gas compression and/or processing facility." Other terms used in GP-5 are defined in Section 3 of the APCA (35 P.S. § 4003), 25 Pa. Code, Chapters 121 - 145 and applicable definitions codified in the Code of Federal Regulations including 40 CFR Part 60 Subparts Kb, KKK, LLL, JJJJ, KKKK, and OOOO and 40 CFR Part 63 Subparts HH and ZZZZ. To avoid possible discrepancies in the interpretation of terms, the Department is including these definitions by reference in the final GP-5.

## Proposed A3: Applicability/Scope

**25. Comment:** The Department should combine conditions (A)(3)(b) and (A)(3)(e). A simpler wording might read:

> Prohibited Uses of GP-5. This General Permit may not be used for the construction, modification, or operation of:
>
> (i) Any major source which is subject to the prevention of significant deterioration or nonattainment new source review requirements specified in 25 Pa. Code Chapter 127, Subchapters D and E; or
>
> (ii) Any source at a natural gas production and/or processing facility subject to the prevention of significant deterioration or nonattainment new source review requirements specified in 25 Pa. Code Chapter 127, Subchapters D and E; or
>
> (iii) Any spark ignition internal combustion engine or simple cycle turbine that is used as a "peak shaving engine generator." (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** In the final GP-5, the Department has prohibited the use of GP-5 for Title V facilities and included a relevant condition as follows:

GP-5 may not be used for the construction, modification or operation of the any of the following air contamination source:

(a) A proposed source located at a Title V facility.

(b) A proposed source that is subject to Title V permitting requirements specified in 25 Pa. Code Chapter 127, Subchapters F and G, prevention of significant deterioration and nonattainment new source review requirements specified in 25 Pa. Code Chapter 127, Subchapters D (relating to prevention of significant deterioration) or E (relating to new source review).

(c) Any engine or turbine that is used as a "peak shaving engine generator" or source participating in an Emergency and Economic Load Response Program.

(d) Any engine or turbine that is used on a natural gas transmission line. Transmission line means a pipeline, other than a gathering line, that transports gas from a gathering line or storage facility to a distribution center, storage facility, or large volume customer that is not downstream from a distribution center.

**26. Comment:** Condition (A)(3)(c) should be worded to only apply to sources in the natural gas industry. Condition (A)(3)(c) should be reworded to include the following:

If a source located at a natural gas production and/or processing facility is exempted from plan approval requirements under 25 Pa. Code § 127.14 (relating to exemptions), this GP-5 may be used to authorize the operation of the source.

Moreover, if sources covered by Condition (A)(3)(c) are required to obtain operating permits, either under the GP-5 or elsewhere. The Department should clarify this point because it may leave many sources without operating permits that need them. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** This GP-5 is limited to natural gas compression and/or processing facilities, which is defined as a facility that produces, compresses and/or processes natural gas, coal bed methane, or gob gas starting with gas dehydration, compression, fractionation, and storage. The final GP-5 stipulates if a source is exempted from plan approval requirements under 25 Pa. Code § 127.14 (relating to exemptions), this GP-5 may be used to authorize the operation of the source. As a result, the Department believes there is sufficient clarification under GP-5.

**27. Comment:** The requirement for sources identified in proposed GP-5 to obtain a GP-5 operating permit will result in confusion among the regulated community and application gridlock at PADEP. The commentator suggests that PADEP clarify the operating permit requirements of sources that have been historically exempt from Plan

Approval and Operating Permit requirements and state that no new permitting is required except under specific identified conditions that would trigger the requirement for permitting. (31)

***Response:*** Sources that are historically exempted from permitting requirements are not affected by GP-5 and will remain exempt. The final GP-5 is applicable to sources that are not exempted from permitting requirements.

**28. Comment:** DEP should clarify the relationship between GP-5 and the 25 Pa. Code § 127.14 exemption list. The Department should clarify the scope of this provision by identifying exactly what sources on the section 127.14 exemption list ("exemption list") will be eligible to be operated under GP-5. To some extent, Proposed GP-5 and the proposed revised exemption list are complementary. To some extent, however, Proposed GP-5 and the proposed revised exemption list are at odds. The commentator urges the Department to include more sources on GP-5 – while establishing BAT – and fewer on the exemption list. And the Department should clarify what sources on the exemption list can operate under GP-5. Section A(3) of Proposed GP-5 appears to apply to all sources on the exemption list, regardless of whether they are sources classified as "oil and gas exploration and production" sources in the list, or are similar to those sources. The commentator assumes that the Department's actual intent is to allow GP-5 as an operating permit only for sources that appear in the oil and gas exploration and production category in the exemption list. The Department should clarify that this is its intention. (9)

***Response:*** The final GP-5 is applicable to sources located at natural gas compression and/or processing facilities unless a source is exempted from permitting requirements. Exemption list issues are outside the scope of GP-5. However, it should be noted that the Department has proposed revisions to Item #38 (oil and gas exploration, development, and production facilities and associated equipment) of the exemption list for public comment in the February 2, 2013 issue of the *Pennsylvania Bulletin*. The proposed revisions will exempt unconventional wellheads and associated equipment meeting specific criteria. As a result, the Department believes that GP-5 is sufficiently clear and no other clarification is warranted.

**29. Comment:** Condition (A)(3)(f) requires clarification. Condition (A)(3)(f) provides in part that

> The owner or operator of any existing natural gas production and/or processing facility for which a plan approval was previously issued pursuant to 25 Pa. Code § 127.11 . . . shall continue to comply with the BAT requirements established in the previously issued plan approval if they are more stringent than the BAT requirements established in the General Permit.

Commentators assume this condition does not mean that a source that has already obtained a plan approval with less stringent BAT than provided for in the GP-5 would have to obtain another plan approval under the GP-5. Commenters would appreciate

clarification on these points, and on the purpose behind the sentence at issue. At the very least, the Department must ensure the source will be made to achieve the strictest BAT standard under either the plan approval or the GP-5. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** The Department agrees that a source that has already obtained a plan approval with BAT less stringent than GP-5 will not be required to seek authorization to use GP-5. In addition, the owner or operator of any source that has already obtained a plan approval with BAT more stringent than GP-5 will continue to comply with the more stringent requirements even if they seek authorization to use GP-5. It should be noted that the use of GP-5 is optional; it is not mandated by the Department.

**30. Comment:** The proposed GP-5 should not enshrine an obsolete BAT standard. If the Department determines than an existing plan approval contains more stringent BAT than the GP-5, it should be required to reissue the GP-5 BAT standard to reflect more stringent protections. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

The Department should include in GP-5 a mechanism to ensure that BAT for natural gas-fired spark ignition internal combustion engines is reevaluated every two years. (9)

***Response:*** The GP-5 does not enshrine an obsolete BAT standard. It is reflective of what a broad range of engines and other sources is capable of achieving on a consistent basis. GP-5 incorporates the BAT requirements for the sources at the time of issuance of GP-5. The Department periodically reviews all of its GPs to ensure that the BAT continues to be representative of state of the art of technology to control the air emissions. During this evaluation, the Department will consider the BAT determinations included in plan approvals, which are determined on a case-by-case basis. At any time if the Department determines that GP-5 is not adequately reflecting the state of the art technology, GP-5 will be amended. While the Department does periodically review its BAT determinations, it does not believe that a set timeframe is appropriate.

**31. Comment:** BAT determinations must be regularly revisited, but no later than two years from the date of issuance of the general permit to determine whether the BAT standards in the GP-5 still represent the best available technology for controlling pollution from those sources. Additionally, the results of the BAT determinations and the bases for the Department action should be made a matter of public record by publishing in the *Pennsylvania Bulletin* and on the Department's website. Should the Department fail to complete and publish this review within one year of the issuance of GP-5, it shall lapse and natural gas production and/or processing sources to which the GP-5 is otherwise applicable must obtain plan approvals and operating permits. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

It is recommended that a mechanism based on either a not greater than a biannual interval or a BAT percentage of emission reduction be part of this permit/policy to address possible future technology improvements. With that modification, this condition is recommended for adoption. (44)

The specification of Best Available Control Technology is a constantly changing matter. New technologies with lower air emissions are constantly being developed. These improvements should be applied as quickly as possible rather than waiting for the five year review of GP-5. (48)

***Response:*** The Department disagrees that is should establish a set timeframe to review the BAT in GPs. The Department also disagrees with the suggestion that the GP should lapse. As stated in the response to Comment #30, the Department periodically reviews all of its GPs to ensure that the BAT continues to be representative of state of the art of technology to control the air emissions. During this evaluation, the Department will consider the BAT determinations included in plan approvals, which are determined on a case-by-case basis. At any time if the Department determines that GP-5 is not adequately reflecting the state of the art technology, GP-5 will be amended. While the Department does periodically review its BAT determinations, it does not believe that a set timeframe is appropriate.

GP-5 is finalized along with a technical support document providing the basis for the emission standards and the requirements for the sources included in the general permit. This technical support document is available for public review on the Department's website.

**32. Comment:** Section A(3)(f) of Proposed GP-5 does not establish BAT for natural gas production facilities or natural gas processing facilities, overall. It establishes (at section B, Condition 2) BAT only for one type of source at those facilities: gas-fired spark-ignition internal combustion engines. (9)

***Response:*** The final GP-5 includes BAT requirements for the emission sources located at natural gas compression and/or processing facilities. The emission standards and other requirements for these sources are included in Section B through J of the final GP-5.

**33. Comment:** The Department must establish standards and requirements for every source covered in GP-5. To ensure compliance with these regulations, the Department should establish standards and requirements for all sources that may be authorized under Proposed GP-5. Proposed GP-5 would also allow for other types of sources that are identified in other sections of the permit (e.g., transport loading arms, which are identified in section A(1)) or are not identified at all. It may be that the Department has concluded that other categories for which standards and limitations have been established (e.g.: equipment leaks, pneumatic controllers, onshore gas processing plants and sweetening units), furnish standards and requirements for these sources. If that is the case, the Department should explain the basis of its conclusion, and identify clearly which standards apply to which sources. (9)

***Response:*** The Department agrees. Since no specific standards or requirements for loading arms are included in the proposed GP-5, loading arms have not been included in the Applicability/Scope section of this final General Permit. GP-5 is applicable to natural gas-fired spark ignition internal combustion engines, natural gas-fired simple cycle

turbines, centrifugal compressors, glycol dehydration units and associated equipment including Gas-Condensate-Glycol ("GCG") separators (flash tank separators), natural gas fractionation (such as de-propanizer, de-ethanizer, de-butanizer), storage vessel/tanks, equipment leaks, pneumatic controllers, and sweetening units. Performance standards and/or emission limits applicable to these sources, which are BAT, have been included in Sections B through J.

**34. Comment:** The commentator recommends changing the language in condition A.3(a) to clarify what is meant by "facility" and by limiting the applicability of GP-5 to processing and gathering facilities. We recommended the text be modified as indicated in bold below. (30, 36)

*The applicability of this General Permit **may** include, but is not limited to, **any** of the following:*

***Response:*** Based on the all comments received, the Department has revised the definitions of Natural Gas Processing Plant and Natural Gas Production Facility with the single definition as follows:

> *Natural gas compression and/or processing facility – A facility that produces, compresses and/or processes natural gas, coal bed methane, or gob gas starting with gas dehydration, compression, fractionation, and storage.*

The final GP-5 includes the list of sources authorized for natural gas compression and/or processing facilities. It applies to these sources and only these sources. GP-5 is applicable to natural gas-fired spark ignition internal combustion engines, natural gas-fired simple cycle turbines, centrifugal compressors, glycol dehydration units and associated equipment including Gas-Condensate-Glycol ("GCG") separators (flash tank separators), natural gas fractionation (such as de-propanizer, de-ethanizer, de-butanizer), storage vessel/tanks, equipment leaks, pneumatic controllers, and sweetening units.

The Department has revised Condition 3(a) of Section A to read as follows:

"… The applicability of this General Permit may include any of the following: …"

**35. Comment:** The commentator supports Conditions 3(a), (d), (e), and (h). (44)

***Response:*** The Department appreciates the comment.

**36. Comment:** Prior versions of BAQ-GPA/GP-5 included limitations on the size of a compression engine that was eligible to be permitted under a General Permit. Specifically, any single compression engine rated at over 1500 bhp made a facility ineligible for GP-5. This limitation has been dropped from 2012 Draft GP-5. DEP has provided no justification whatsoever for this broadening of eligibility for GP-5. DEP should not only reinstate an eligibility requirement for GP-5 based on horsepower, the requirement should be strengthened and should be an aggregate requirement based on

total horsepower for an entire facility. Specifically, that any of the following criteria should make a compressor stations ineligible for a General Air Quality Permit:

A. Total aggregate horsepower among all installed compression engines and turbines in one facility above 3,000 bhp.

B. More than one installed glycol dehydrator in one facility. (45)

The commentator recommends that the GP-5 draft should be modified to continue to exclude compression engines above 1500 bhp and to allow for public comment in all GP-5 individual permit applications. In addition, the current industry practice of simply installing multiple compression engines just below the 1500 bhp limit in order to qualify for a general permit should not be allowed to continue. (14)

***Response:*** The Department has prohibited the use of the final GP-5 for Title V facilities. Condition 9(c) of Section A in the final GP-5 requires the emissions from all sources and associated air pollution control equipment located at a natural gas compression and/or processing facility to be less than the major source thresholds on a 12-month rolling sum basis. Condition 14 of Section A in the final GP-5 requires the owner or operator of the facility to maintain records that clearly demonstrate to the Department that the facility is not a Title V facility.

The Department believes that aggregate horsepower limits for engines or turbines are not warranted. The emissions from all sources and associated air pollution control equipment located at a natural gas compression and/or processing facility are capped to ensure that they will not equal or exceed major source thresholds. Owners or operators may install larger and/or more engines on site provided that the emissions from the facility do not exceed major source thresholds. Additionally, the revised GP-5 has been updated to include emission standards that are reflective of BAT regardless of the size of the engine.

When the DEP first proposes a general permit, a public comment period is provided as required under 25 *Pennsylvania Code*, Section 127.612 (relating to public notice and review period). The public comments period is also provided for subsequent modifications of General Permit. This comment period is to allow public participation in the development of the specific requirements contained within the general permit. The public comment provisions are only applicable when the DEP first proposes or proposes revisions to the general permit. The DEP then finalizes the general permit for use by anyone who can comply with the specific provisions of the general permit.

When the owner or operator of a facility seeks authorization to use GP-5, the owner or operator must demonstrate to the DEP that the source they wish to install meets the requirements specified by GP-5. If the application satisfactorily demonstrates that the source would comply with all the terms and conditions of GP-5, the DEP authorizes the owner or operator to use GP-5. Because the terms and conditions of GP-5 cannot be modified during the authorization to use GP-5, the public comment provisions under Section 127.612 are not applicable prior to each authorization to use GP-5. However, the

Department publishes a notice of each authorization to use GP-5 into the *Pennsylvania Bulletin.*

**37. Comment:** Each GP-5 permit should require an individual Best Available Technology analysis rather than only requiring these analyses during revisions of the GP-5 every few years. If not, commentator requests PA DEP to put a provision in the GP-5 that requires an annual revision of BAT. (54, 55-255)

***Response:*** The Department disagrees. BAT is established when a general permit is issued, not when each authorization to use a general permit is reviewed. No BAT determination is made when the owner or operator applies for the use of a general permit. The Department periodically reviews BAT and revises general permits accordingly.

**38. Comment:** Section A.3 should incorporate language that provides PA DEP with the right to request an air quality analysis that shows that the facility built under the GP-5 will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS) or threaten PADEP's ability to use the Pennsylvania SIP to achieve compliance with the NAAQS. This language would be in keeping with the requirements under 25 Pa. Code §127.12(a)(6), as well as 40 C.F.R. §51.160.

PA DEP should consider the cumulative impacts from numerous GP-5s on NAAQS attainment and maintenance in certain regions of Pennsylvania and statewide. The public record for revisions to this general permit should detail that the issuance of these permits will not violate the SIP-approved control strategy for Pennsylvania for NAAQS nor interfere with attainment and maintenance of the NAAQS. (2)

***Response:*** The Department appreciates the shared concern about the effect of Marcellus gas production, compression, and/or processing on air quality. In addition to all applicable federal and state requirements of the federal Clean Air Act, APCA and regulations adopted under the acts, Marcellus gas production, compression, and/or processing facilities must also comply with the General Plan Approval and/or General Operating Permit for natural gas production, compression, and/or processing facilities (GP-5).

The final GP-5 is applicable only to sources located at a non-major facility. If it is determined to be necessary, the Department may require the owner or operator of the facility to demonstrate compliance with the NAAQS after the issuance of an authorization to use GP-5. Notwithstanding these factors, the Department is actively investigating the effects of the Marcellus gas industry on air quality.

The Department has completed short-term air monitoring studies in the south west, north central, and north east portions of the state that measured pollutant concentrations near various Marcellus activities (drilling, fracturing, flaring, etc.) to address immediate health concerns of nearby residents. Short-term sampling for CO, $NO_2$, $SO_2$, and $O_3$ did not detect concentrations above NAAQS at any of the sampling sites.

On July 11, 2012, the Department initiated a one-year ambient air project in Washington County with an emphasis on characterizing near-source concentrations of criteria and hazardous air pollutants from permanent facilities related to the Marcellus Shale gas industry (compressor stations, gas processing). Additional information can be obtained at the PA DEP website at the following address: http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Long-Term_Marcellus_Ambient_Air_Monitoring_Project-Protocol_for_Web_2012-07-23.pdf.

## Proposed Potential to Emit (PTE) Restrictions

**39. Comment:** Section A, Condition 3(g) appears to be making several contradictory statements. GP-5 only authorizes temporary operation to facilitate shakedown pending issuance of a Title V Permit if the source applying for authorization under GP-5 is also a Title V source. This statement needs to be revised to recognize the difference between a source that will be newly subject to Title V as a result of the construction or modification and one that is already a Title V source. GP-5 needs to clearly state how the Title V permit is to be modified (minor or significant modification) to incorporate the equipment authorized to be installed or modified under GP-5.

Condition 3(g) goes on to state that once authorization to use the GP is granted, operation may proceed provided that the owner or operator notifies the Department. This contradicts the first sentence that clearly states that GP-5 only authorizes temporary operation until the facility has been issued its Title V permit. Furthermore, Condition 3(d) state that an owner or operator of a Title V facility may seek authorization for use of this GP and a General Plan Approval when PSD and NNSR are not application requirements. Clearly, GP-5 can only be used as an authorization to construct, not an authorization to operate so the meaning of the phrase "operation may proceed" in Condition 3(g) is unclear.

Paragraph 3(h) of the proposed GP-5 provides that the applicant may use the General Permit to limit the potential to emit (PTE) in accordance with the specifications in the Application for Authorization to Use GP-5. The commentator asserts that since the GP-5 Application does not undergo any public review, the application would not be "federally enforceable." Therefore, the application cannot be used to limit PTE in accordance with the specifications of the applications. (2)

General permits cannot incorporate customized, site-specific PTE restrictions into general permits for individual sources. The draft section providing for customized PTE restrictions must be eliminated from the final GP-5. (7)

Neither GP-5 nor any other general permit may be used to limit a facility's Potential to Emit (PTE). Under the APCA a general permit may be issued only for a category of sources that can be adequately regulated using standardized specifications and conditions.

Restrictions on PTE are not standardized conditions. They are case-by-case limitations unique to particular facilities, and have force only to the extent that they are enforceable. (9)

***Response:*** The Department agrees that limiting the potential to emit (PTE) in accordance with the specifications in the Application for Authorization to Use GP-5 is not "federally enforceable" since the application seeking restriction of PTE has not undergone public participation. Therefore, the owner or operator seeking authorization to use GP-5 may not limit the PTE to a specific level using the specifications in the application.

The Department has prohibited the use of the final GP-5 for Title V facilities. Condition 9(c) of Section A in the final GP-5 requires the emissions from all sources and associated air pollution control equipment located at a natural gas compression and/or processing facility to be less than the major source thresholds on a 12-month rolling sum basis. Condition 14 of Section A in the final GP-5 requires the owner or operator of the facility to maintain records that clearly demonstrate to the Department that the facility is not a Title V facility. Therefore, the emission limits established in GP-5 are federally enforceable.

## Proposed A4: Municipal Notifications

**40. Comment:** Condition A(4) does not satisfy the requirements of the Pennsylvania Municipalities Planning Code ("MPC"), 53 P.S. 10101. As amended by Acts 67, 68 and 127 of 2000, the MPC requires that state agencies consider comprehensive plans and zoning ordinances when reviewing applications for certain types of permits, and specifies that in some circumstances agencies may rely upon comprehensive plans and zoning ordinances in making permitting decisions. Proposed GP-5 triggers the Department's MPC responsibilities because the sources eligible to use the permit are subject to 40 C.F.R .Part 60 (New Source Performance Standards) and 63 (National Emission Standards for Hazardous Air Pollutants), and are therefore included in Appendix A of the Department's policy. Section A(4) should note that the Department will comply with the MPC and follow its policy, when reviewing applications to use GP-5, and that any operator applying to use GP-5 should comply with the policy by seeking land use letters from municipalities prior to submitting its application. (9)

***Response:*** The Department disagrees that GP-5 is subject to the Department's Policy for Consideration of Local Comprehensive Plan and Zoning Ordinances in DEP Review of Authorization for Facilities and Infrastructure. The policy specifically says on page 3 that "[o]nly one General Permit program, DEP's General Permit for stormwater construction activities (PAG-2), is covered by this policy". The air permits referenced under Annex A only apply to individual plan approvals and not general permits such as GP-5.

**41. Comment:** Commentator requests that only a notice be made to the municipalities, consistent with the plan approval requirements in 25 Pa. Code §127.43(a). An actual permit application submittal should not be required. (25, 29, 31)

The notification for counties and municipalities should be required in accordance with Act 14 of 2012. (23, 34)

As a Plan Approval and Title V Operating Permit application require only Act 14 notification letter and a copy of the complete application is not submitted to the municipalities, it is not consistent or appropriate to submit a complete copy of the GP-5 application to the municipality. Section 1905-A does not require that a copy of a permit-by-rule (or general permit) be delivered to the municipality. Therefore, the requirement to submit a copy of the complete application to the municipality should be removed from the General Permit. (26)

The commentator suggests changing the notification requirement by removing the reference to "application" submittal to be consistent with plan approval notification requirements that indicate only a notification is required, not submittal of the entire application to the municipality. In addition, we recommend removing the requirement to submit a proof of receipt from the municipality prior to submitting the application to the Department. Past experience has shown receiving a proof of receipt from a municipality can result in significant and unnecessary delays. (27, 30)

Section A.4 is overly burdensome and, in practice, such municipal notification is not required by Section 1905-A of the Administrative Code, which requires notification for individual plan approval/operating permit applications but not authorization pursuant to a general permit plan. Section 1905-A should be interpreted to only apply to individual applications for plan approvals/operating permits. The commentator suggests that the requirements should be agnostic as to the form of proof required to be shown by the owner/operator *(e.g.,* Fed Ex, UPS, or USPS tracking systems). (28)

Remove proof of receipt as this could result in unnecessary delays. (29)

One item worth mentioning is that many of the small rural municipalities may only operate with part time supervisors and office staff. The municipal office may only be open one or two days weekly. If the idea is to only provide notification to township officials, then the five day rule will probably suffice. Regardless, municipal notification is very important and therefore this condition or the modified, more adequate version is recommended for adoption. (44)

***Response:*** The Department has revised the condition in the final GP-5 such that municipal notifications shall be done in accordance with Act 14 of 2012. The condition reads as follows:

> *A facility owner or operator proposing to use this General Permit shall notify the local municipality and county where the air pollution source is to be located that*

*the applicant has applied for an authorization to use GP-5. The notification shall clearly describe the proposed sources and/or modifications. The owner or operator shall also submit to the Department proof of submittal of the municipal notification along with a copy of the Application for Authorization to Use GP-5.*

**Proposed A5: Application for Use**

**42. Comment:** This existing 30 day requirement to review and act on applications contained in the former GP-5 was adequate, but the addition of these new substantive amendments will create a bottle neck situation. This is a situation that can overwhelm our BAQ professionals because they are lacking a tool in their tool kit to perform their duties adequately. This is a situation that can cause the industry to be very frustrated by delays based on an anticipated 30 day window. And, a situation where the public's frustration may point out that our DEP BAQ professionals are 'rubber stamping' applications. It is not an acceptable trade-off to solve one problem and create another that could be easily avoided. This is a situation that need not be. 25 Pa. Code Section 127.621 (c) needs to be modified for the hybrid GP-5 as follows.

(c) The Department will take action on the application within 60 days of receipt.

In the interim it is necessary that the substantive amendments be adapted with the 60 day action in order to effectively address this unnecessary situation. (44)

***Response:*** 25 Pa. Code §127.621 states that the Department will take action on the application within 30 days of receipt. The Department believes that the technical resources are available to review general permit applications. Moreover, as the comment relates to modifying the regulatory requirement, it is beyond the scope of the revisions related to GP-5.

**43. Comment:** The commentator anticipates a significant increase in the filing of GP-5 applications to PADEP for review and questions whether PADEP has the technical resources to issue GP-5 permits in a 30 day time frame. The commentator requests that the anticipated resource requirements (and associated costs) for the Department related to the administration of the GP-5 program be made part of the public record and available for review and comment. (31)

***Response:*** 25 Pa. Code §127.621 states that the Department will take action on the application within 30 days of receipt. As the comment relates to modifying the regulatory requirement, it is beyond the scope of the revisions related to GP-5.

The Department does not track specific resources spent in the development and finalization of GP-5. The Department believes that adequate technical resources are available to review applications for authorization to use the general permit. The records of administration of all permit programs, including GP-5 authorizations, are available through eFACTS.

## Proposed A6: Compliance Requirements

**44. Comment:** The owner/operator of a facility should be required to operate according to manufacturer specifications unless deviating from them would reduce emissions. Condition (A)(9)(b) should be reworded as follows: "or an alternate procedure approved by the Department that achieves equal or greater emission reductions." (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** The Department agrees and has revised the respective condition as suggested.

**45. Comment:** Condition 6(b)(ii) requires the recommended maintenance schedule or an alternate procedure to be approved by the Department. Department approval of such maintenance schedule is more stringent than current Plan Approval requirements, and requires actions in addition to defined standard conditions and should be removed (23, 26, 34)

***Response:*** The Department disagrees. There is no need for the owner or operator to obtain Department approval if the sources are operated and maintained in accordance with the manufacturer's specifications, procedures, recommended maintenance schedule, and the specifications in the Application for Authorization to Use GP-5. The Department approval is only required if the owner or operator chooses to use an alternate procedure.

**46. Comment:** The GP-5 should require sources to meet the NAAQS. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** Please see the response to Comment #38.

**47. Comment:** Because well sites and compressor stations are typically unmanned, the permit and application should be maintained at the field office. Another commentator recommended that copies of the General Permit and application be kept on location or at the closest manned facility and make them available to the Department upon request. (24, 25, 26, 27, 28, 29, 30)

***Response:*** The Department agrees with the comment. This condition in the final GP-5 has been revised to remove the requirement to keep copies of the general permit and applications on site.

## Proposed A7: Modification, Suspension, and Revocation of GP-5 and Authorizations to Use the General Permit

**48. Comment:** The commentator supports Condition 7. (44)

***Response:*** The Department appreciates the comment.

**49. Comment:** Section A 7, "Modification, Suspension, and Revocation of GP-5 and Authorizations to Use the General Permit" is confusing, ambiguous, and badly worded. The section title refers to "***Authorizations*** to Use the General Permit" [emphasis added]. But some wording within the section refers to GP-5 itself. E.g. A 7 (a): "This ***General Permit may be modified***, suspended, or revoked if the Department determines that ***the natural gas production and/or processing facility*** cannot be adequately regulated under this General Permit." [Emphasis added.] What is the referent here: GP-5 itself (i.e. 2012 Draft GP-5) or the authorization to use it?

As DEP fully knows, a modification to GP-5 itself is subject to the procedures outlined in 25 Pa. Code § 127.612, Public notice and review period. Indeed, this comment is submitted pursuant to 25 Pa. Code § 127.612. What is the procedure for "modifying authorization to use GP-5" described under section A 7? Does it trigger 25 Pa. Code § 127.612? What is the recourse of the public to assert that authorization to use GP-5 should be "modified" under section A 7? (45)

***Response:*** The Department believes that the language is clear. The Department issues a general permit in accordance with 25 Pa. Code Chapter 127, Subchapter H requirements, including the requirement for public participation. Once this GP is issued, the owner or operator of a facility may seek authorization to use this GP for construction, modification or operation of source(s) and/or air cleaning device(s). In the condition in the final GP-5, subsections (a) and (b) pertain to the issuance of GP, not for the authorization to use the GP. Subsections (c) and (d) pertain to the authorization to use the GP. If the Department decides to modify GP-5, it would submit those proposed modifications for comment consistent with the provisions of 25 Pa. Code Chapter 127, Subchapter H, which includes a public comment period.

When the owner or operator of a facility seeks authorization to use GP-5, the owner or operator must demonstrate to the DEP that the source they wish to install meets the requirements specified by GP-5. If the application satisfactorily demonstrates that the source would comply with all the terms and conditions of GP-5, the DEP authorizes the owner or operator to use GP-5. Because the terms and conditions of GP-5 cannot be modified during the authorization to use GP-5, the public comment provisions under Section 127.612 are not applicable prior to each authorization to use GP-5. However, the Department publishes a notice of each authorization to use GP-5 into the *Pennsylvania Bulletin.*

## Proposed A8: Notice Requirements

**50. Comment:** Notification of the Department for many events is already required under oil and gas statutes and regulations. For example, operators are required to submit an application for a permit to drill a well, notify the Department prior to drilling a well, submit a well record and a well completion report after the well is constructed, and renew a permit if the permit has expired and the well drilling is still anticipated. The commentator recommends that the Bureau of Air Quality and the Bureau of Oil and Gas

Planning and Program Management work together to develop a single permit application and notification requirement protocol that satisfies the needs of both programs. The Department has used the OGRE system for the collection of air emissions inventory information. Use of such a portal or equivalent systems coordination to serve the needs of both programs should be explored. Program coordination should take place before BAQ-GPA/GP-5 is issued as final. Notification requirements in BAQ-GPA/GP-5 should reflect that coordination. (35)

***Response:*** As discussed in the response to Comment #5, the final GP-5 is not applicable to wellheads.

The owner or operator of the facility may choose to send a copy of the notification required by Bureau of Oil and Gas Management to the Regional Air program managers, if appropriate. For example, a copy of the advance notification of commencement of a well completion required by Bureau of Oil and Gas Management may be forwarded to the appropriate air program manager as required by 40 CFR Part 60, Subpart OOOO. The Department will evaluate the streamlining of the application and notification procedures currently in place.

**51. Comment:** Condition 8(b), as written, required hand delivery or delivery via certified mail which precludes delivery via UPS, Federal Express, or other means. This provision should be modified to allow delivery via any method or service. (26, 29)

***Response:*** The Department agrees. This condition is being revised to clarify the meaning of "hand delivered". Hand delivery includes the use of courier services, such Federal Express, United Parcel Service, United States Postal Service, etc.

**52. Comment:** In condition A.8(c) the commentator recommends the following wording change for clarification. (27, 30)

*"The owner or operator shall notify the Department in writing no later than 5 business days after the following activities:"*

***Response:*** The Department agrees with the comment. This condition in the final GP-5 has been revised accordingly.

**53. Comment:** Condition A.8(c)(ii) is redundant as condition A.8(d) requires the owner or operator within five (5) business days prior to commencing operation to notify the Department of the intent to commence operation. Shortly following the completion of construction, it is typical to be ready to commence operation; so these two notifications are redundant. Furthermore, there is no requirement under the NSPS or NESHAP standards to notify a regulatory agency of the final completion date of construction. Therefore this condition should be removed. (26, 27, 30)

***Response:*** The Department disagrees. The Department may inspect a source after completion of construction and prior to commencement of operation, especially if there is a delay of commencement of operation after the completion of construction. Therefore, notification of completion of construction of the source is required. If the time between commencement of operation and completion of construction is short, then the two notifications may be combined.

**54. Comment:** Five day notice prior to start-up of operations is already a condition under the current GP-5 and is sufficient. As proposed, these provisions would require the owner/operator, within five days, to notify the Department of: (1) initial commencement date of construction; (2) final completion date of construction; and (3) any lapse in construction activity of 18 months or more. Also required is a written notification of the intent to commence operation at least five (5) days prior to commencing operation. These additional notification requirements are onerous. The notification requirements in Sections A.8(c)(ii) and 8(d) are duplicative. The commentator suggests simplifying the construction notification requirements by replacing them with a single notification obligation within five days after the start of operations. (28)

***Response:*** Condition A.8(c)(ii) and condition A.8(d) in the proposed GP-5 are not duplicative. Condition A.8(c)(ii) in the proposed GP-5 refers to the notification requirement for final completion of the construction and condition A.8(d) refers to the notification prior to commencing operation of the source. The Department may inspect a source after completion of construction and prior to commencement of operation, especially if there is a delay of commencement of operation after the completion of construction. Therefore, notification of completion of construction of the source is required. If the time between commencement of operation and completion of construction is short, then the two notifications may be combined.

**55. Comment:** Condition 8(c)(iii) requires the owner operator within five (5) business days to notify the Department of any lapse in construction activity of eighteen (18) months or more that may take place in between the initial and start-up dates. This condition is not necessary and should be removed from the permit as Condition 9 of this section addresses any potential lapse in construction activity. (26)

***Response:*** Condition 9 in Section A of the proposed GP-5 addresses the term of authorization to use GP-5, whereas Condition 8(c)(iii) in Section A of the proposed GP-5 addresses the notification requirement for any lapse in construction activity. Therefore, no revision of this condition is required.

**56. Comment:** Condition A.8 (e) mentions a written notice, but no notice is required. This appears to be a typographical error. The condition should be rewritten. One commentator suggested the wording *"A written notice must also be submitted to DEP for malfunctions…"* instead of "*This written notice must also be submitted…"* (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 23, 25, 26, 27, 30, 34)

Condition 8(e)(iii) should state any other malfunction *resulting in air contaminants in excess of any applicable limitation* shall be reported to the Department within five (5) days of malfunction discovery. (26)

The commentator requests clarification for Condition A.8.(e)(i) by changing it to include: *"If the owner or operator is unable to provide notification by telephone to the appropriate Regional Office within twenty-four (24) hours of discovery of a malfunction due to a weekend, a state observed holiday or company published holiday, the notification shall be made to the Department by no later than 5 p.m. on the first business day for the Department following the weekend or holiday."* In addition the commentator requests that clarification be made if this is only for state holidays or if company holidays are included as they sometimes differ.

The commentator requests clarification for Condition A.8.(e)(iii) whether the notification is required within five calendar days or five business days. (27)

The malfunction notification in Section A.8(e) needs clarification. First, we believe the intent is for malfunction notification to be triggered upon "the discovery" of any malfunction. Second, the form of notice is unclear. On one hand it requires the operator to notify via telephone, but also references a "written notice." This should be clarified. We suggest initial telephone notice be followed by written notice within five days following the discovery of a malfunction. (28)

Eliminate Condition A.8(e)(iii) or revise to clarify reporting. Malfunctions that do not result in an excess emission should not require Department reporting. (29)

The two hour telephone notice and the 24 hour notice in combination with the written notice as outlined need further review. The one hour telephone notice may in fact be a better requirement. (44)

As an extension of this malfunction notification measure, noting the concerns of individuals and families living within that immediate area, some measure of notification needs to be extended to the public residing in that immediate area (3000 feet is recommended). Families within this immediate area need not be wondering in their homes if it is safe to be there or not; they need to be advised that it is safe, or they need to leave for the time being. The operator must not be the one to assure the public. Assurance from the operator is questionable considering the manner in which many of the companies have interacted with the public thus far. This assurance must come from the regulator and notification can be assisted through the local fire police. (44, 45)

***Response:*** The Department reevaluated the malfunction notification requirements. The Department agrees that the condition requires clarification and elimination of redundancy. Malfunctions that pose a threat to health and safety, must be reported to the Department and the county emergency response management agency immediately. The county agency is responsible for notifying the citizens of the malfunction. The

Department has revised the condition pertaining to malfunction notifications in the final GP-5 to read as follows:

Malfunctions. The owner or operator shall notify the Department by telephone within twenty-four (24) hours of the discovery of any malfunction at a natural gas compression and/or processing facility operating pursuant to this General Permit, or any malfunction of pollution control equipment associated with a facility, which results in, or may possibly be resulting in, the emission of air contaminants in excess of any applicable limitation specified herein. Following the telephone notification, a written notice also shall be submitted to DEP as specified below.

(i) If the owner or operator is unable to provide notification by telephone to the appropriate Regional Office within twenty-four (24) hours of discovery of a malfunction due to a weekend or holiday, the notification shall be made to the Department by no later than 4 p.m. on the first business day for the Department following the weekend or holiday.

(ii) Any malfunction that poses an imminent danger to the public health, safety, welfare, or environment shall be reported by telephone to the Department and the County Emergency Management Agency immediately after the discovery of an incident. The owner or operator shall submit a written report of instances of such malfunctions to the Department within three (3) business days of the telephone report.

(iii) Unless otherwise required by this General Permit, any other malfunctions shall be reported to the Department, in writing, within five (5) business days of malfunction discovery.

**57. Comment:** The Department needs to be clear on instruction provided to the operator. If the department indicates that the facility is not to commence any operations until the department performs an inspection for example, than all parties must clearly understand that is in the purview of the Department and the operator must adhere to this instruction. Any deviations by the operator need to be clearly evaluated and enforced accordingly. The operator must obtain authorization in advance of commencing operations. (44)

***Response:*** The Department disagrees. GP-5 serves as both a general plan approval and general operating permit. Therefore, after authorization to use GP-5 is obtained, no additional authorization is necessary for the operation of the facility. However, GP-5 requires the owner or operator to provide written notification to the Department of the intent to commence operation of the facility as least five (5) days prior to commencing operation of the source or facility.

**58. Comment:** The commentator requests that the Intent to Commence Operation notification be deleted and replaced with a Notification of Actual Startup, within 15 days of startup. The commentator also recommends that the notice for final date of

construction be deleted. Notifications should consist of those required by the NSPS or NESHAP standards, the Pennsylvania Code or typical language in the current GP5 or Plan Approvals. (23, 25, 34)

***Response:*** The Department disagrees. The Department may inspect a source after completion of construction and prior to commencement of operation, especially if there is a significant amount of time between completion of construction and commencement of operation. Therefore, notification of completion of construction of the source is required. If the time between commencement of operation and completion of construction is short, then the two notifications can be combined. The other notice requirements remain in the final GP-5. The Department believes it is reasonable to provide the notification within five (5) business days.

## Proposed A10: General Permit Fees

**59. Comment:** The operator has eighteen (18) months to begin construction of the natural gas production and/or processing facility after applying for the general permit. If the operator decides to postpone construction until the final six (6) months of the eighteen (18) month period, does the operator still have to pay the annual operating permit administration fee ($375) for the previous year while no air polluting activities were occurring? (1)

***Response:*** The annual operating permit administration fee is required for all active authorizations to use GP-5. In this case, the owner or operator would need to pay the annual operating permit administration fee ($375) for the previous year.

**60. Comment:** It is not clear whether fees apply per site (i.e. well pad or compressor station) or per piece of equipment (NSPS affected sources) that is added to the GP-5. The commentator believes a facility should be added to the GP-5 under the fees and there should be a cheaper Notification fee for construction activities (such as adding a tank to a well pad that is already on the permit). The construction fee could also apply to public records. (22)

Reduced Emissions Completion (REC) requirements should be removed from the GP in their entirety. If they should remain subject to the GP there is the possibility that the owner/operator could be paying annual permit administration fees for a temporary source if cancellation of the permit cannot be secured before the fee deadline. If temporary sources are permitted independently from permanent stationary sources then the permit administration fee should be waived. (24, 27, 30)

***Response:*** As discussed in the response to Comment #5, the final GP-5 is not applicable to wellheads. Since wellhead operations are no longer covered by the final GP-5, reduced Emissions Completion (REC) requirements was removed from the GP in their entirety and are not subject to separate fees. The fees apply to each applicant seeking authorization to use GP-5 as stated in Condition 13 of Section A in the final GP-5.

**61. Comment:** Condition 10 should be clarified in that it should only pertain to GP-5 permitting actions. (26)

***Response:*** Condition 10 in the proposed GP-5 specifically addresses fees for GP-5. Therefore, no further clarification is needed within the referenced condition pertaining to fees.

**62. Comment:** The fee scheduled identified in Condition A (10) of proposed GP-5 includes an excessive increase in the Plan Approval fee of over 400%. The proposed fee schedule that is needed to administer several simpler GPs (versus a single, all-encompassing GP-5) should be reduced accordingly. Regardless, the commentator requests that the anticipated resource requirements (and associated costs) for the Department related to the administration of the GP-5 program be made part of the public record and available for review and comment. (31, 35)

***Response:*** The Department disagrees that the fees are excessive. The application fee is set to cover the costs of developing the general permit that includes determining control technologies for each source category, monitoring, recordkeeping, reporting requirements, subsequent public participation including newspaper notices and finally, administrative and technical review of application packages for GP-5 authorization. In addition, the fee covers the costs associated with inspections, administration, oversight, and compliance and enforcement. In the absence of GP-5, the cost for a plan approval application for these sources would be comparable to $1,700.

**63. Comment:** The commentator supports Condition 10. (44)

***Response:*** Thank you for the comment. The Department agrees that the fees are appropriate.

## Proposed A11: Source Reporting Requirements

**64. Comment:** The Department should resolve ambiguities in requirements for annual source reports and emission standards. Condition (A)(11)(a) states that the owner or operator of a natural gas production or processing facility must comply with the reporting requirements found in 25 Pa. Code § 135.3. The reporting requirements in 25 Pa. Code § 135.3 do not apply to "[o]ther sources and classes of sources determined to be of minor significance by the Department." The Department has expressed in a Guidance Document that it considers virtually all activities in oil and natural gas exploration and production to be "of minor significance." Thus, the reporting requirements in §135.3 seemingly do not apply to sources covered by the GP-5. The Air Pollution Control Act (APCA) provides the Department with the authority to require sources permitted under the GP-5 to comply with the reporting requirements it has included in the draft GP-5. In the first sentence of condition (A)(11)(a), the words, "In accordance with 25 Pa. Code § 135.3," should be removed. The proposed GP-5 should include GHGs and VOCs in the annual source report. Commenters suggest eliminating "In accordance with 25 Pa. Code 135.21" from condition (A)(11)(b). (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** The requirements for annual reports specified in 25 Pa. Code Chapter 135 are independent of permitting requirements contained in 25 Pa. Code Chapter 127. In fact, the owners and operators of natural gas processing sources have reported air contaminant emissions for the calendar year 2011 while some sources were exempted from permitting requirements. GHGs are required to be reported under 40 CFR Part 98 (Mandatory Greenhouse Gas Reporting). VOCs are required to be reported. GHG emissions will be reported to the Department in the report due no later than March 1, 2013. As a result, the Department declines to make the recommended change.

**65. Comment:** Condition 11(a) should clarify that speciated individual HAP emissions in excess of 0.10 tons per year should be reported, and specify which HAP components are to be reported (i.e. BTEX, formaldehyde, and hexane). (26)

The Department should eliminate the requirement to report "speciated" Hazardous Air Pollutants ("HAPs"). Requiring reporting on the speciation numerous HAPs would be extremely time-consuming and costly, would produce little (if any) beneficial data, and would greatly increase the resources required to comply with and oversee the program. There is a limited universe of HAPs of primary concern at these natural gas facilities, and for which the Department should be collecting data (i.e., BTEX and formaldehyde). Moreover, compliance with applicable manufacturing specifications and other testing protocols already is sufficient to provide reasonable assurances that the HAP requirements of the GP-5 are being met. (28)

***Response:*** The Department believes that HAPs need to be speciated to accurately assess the impact of these HAPs on the environment. Speciated HAPs were reported in the calendar year 2011 emission inventory from oil and gas industry sources. Consequently, these requirements remain in the final GP-5.

**66. Comment:** Section A.11(a) requires the submission of "Annual Source Reports", and Section A.11(b) requires the submission of "Annual Emission Statements." These requirements are somewhat confusing, duplicative, and overly burdensome. Sources with emissions or PTEs above these thresholds are "major sources" and therefore, not eligible to be constructed and operated pursuant to the GP-5. Accordingly, this requirement should be omitted. (28)

If the Department intends to require all GP-5 permittees to provide annual source reports in accordance with 25 Pa. Code § 135.3, as indicated in section A.11(a), this section should simply state that *"all owners and operators of a natural gas production and/or processing facility covered under this general permit must comply with the annual source reporting requirements of 25 Pa. Code § 135.3."* (28)

Condition 11(b) should be removed since any facility emitting 100 tpy or more of NOx or 50 tpy or more of VOC would be subject to NNSR permitting requirements and thus the GP-5 permit would not apply. (23, 24, 26, 27, 29, 30, 34)

***Response:*** The Department is limiting the applicability of the final GP-5 to only minor facilities. Therefore, annual emission statements required by 25 Pa. Code §135.21 are no longer an applicable requirement for GP-5 and the condition has been removed from the final GP-5. However, the owner or operator is required to submit annual source reports as required under 25 Pa. Code § 135.3.

### Proposed A12: Public Records and Confidential Information

**67. Comment:** The GP-5 must clarify what does not constitute confidential business information. The revised GP-5 should make clear that protections for trade secrets and confidential business information are limited. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

The provisions in Section A.12 protecting Confidential Business Information ("CBI") and trade secrets are lacking in specifics. First, the Department should clarify that it intends to protect CBI in addition to trade secrets contained and identified in GP-5 permits, consistent with existing Pennsylvania law and Department regulations and policy, i.e., the Pennsylvania Right-to-Know Law, 65 P.S. Sections 67.1 0 1-67.3104, and the Department's Public Access to Information and Right to Know Law Policy, Document Number 012-0200-005 (June 3, 2010). Second, it is unclear what constitutes "cause" for qualifying for the protection. The parameters for cause should be set forth for both CBI and trade secret protection, and should also be consistent with existing Pennsylvania law and Department regulations and policy. (28)

***Response:*** The language included in this condition is consistent with Section 13.2 of the APCA (relating to confidential information). Upon cause shown by any person that the records, reports or information, or a particular portion thereof, but not emission data, to which the Department has access under the provisions of the Air Pollution Control Act ("the act"), if made public, would divulge production or sales figures or methods, processes or production unique to that person or would otherwise tend to affect adversely the competitive position of that person by revealing trade secrets, including intellectual property rights, the Department will consider the record, report or information, or particular portion thereof confidential in the administration of the act. Any request for confidentiality will be reviewed on a case-by-case basis and in accordance with all applicable laws. As a result, the Department does not believe that GP-5 needs to be any more specific than it already is.

**68. Comment:** The commentator supports Condition 12. (44)

***Response:*** Thank you for the comment.

### Proposed A13: Standards and Requirements for Fugitive Dust Emissions

**69. Comment:** In Section A.13.(a)(ii), the commentator suggests adding "as necessary" to the requirement to use sweeping tire washing to control dust or carry out. This leaves the fugitive dust control requirements in the permit and gives the owner/operator the

flexibility to use measures as necessary. Another commentator recommended that the owner/operator shall prevent emissions in excess of the requirements on 25 Pa. Code § 123.2 and remove any carry out from public roadways immediately upon discovery. (22, 24, 27)

In Section A.13.(b) and (c), we suggest that written manual on dust control and records of dust control measures performed be kept at the appropriate field office for unmanned sites without permanent structures. This way one dust control plan could cover all well pads for an area. Pumpers could log any road cleaning to demonstrate compliance. (22)

Facilities that generate significant fugitive dust emissions are uncommon and should not set the standard for the General Permit. Incorporating these requirements as proposed will create a scenario where permitting through the GP process is the exception and not the rule. (30)

Requirements applicable to fugitive dust and to equipment leaks are unreasonable and should be deleted. (24, 25, 27, 29, 30, 32, 35)

Condition A.13(c) needs to be removed for the same reasons outlined in the commentators' comments on Condition A.13(b). (30, 32)

Maintaining manual documenting activities to control fugitive PM emissions at the site seems overly prescriptive for sites with de minimis road dust emissions. In addition, unmanned sites should not be required to maintain any kind of hard copy documents. (29)

Well sties and compressor stations are typically unmanned or have very little vehicle traffic. Any fugitive dust requirements should be contingent on site-specific conditions and operating scenarios and not applicable to all facilities regardless of the presence of emissions generating activities. Therefore, fugitive dust emission requirements should be deleted. (23, 24, 25, 27, 29, 32, 34)

In accordance with Pa. Code §123.1(c) and §123.2, this section should only address Condition 13(a)(i); Conditions 13(a)(ii), 13(b) and 13(c) are not specified in the Pa. Code and should therefore be struck. (26)

Section A.13(a) imposes numerous requirements over and above 25 Pa. Code §§ 123.1 and 123.2 with respect to the control of fugitive dust. The commentator believes these measures are unnecessary in light of existing requirements, do not allow for the requisite flexibility, and will result in increased costs and other regulatory burdens with little or no attendant benefit. The Department should simply require that GP-5 permittees comply with existing requirements under 25 Pa. Code §§ 123.1 and 123.2. (28)

Blanket sweeping and/or tire wash station requirements for all facilities using the GP-5 in Condition A.13.(a)(ii) is unnecessary and will force the small unmanned facilities with little or no fugitive dust emissions from vehicle traffic to use the more complicated and

burdensome Plan Approval process to avoid a requirement that has no environmental benefit. (30, 32)

The requirements in the Condition A.13 go beyond those found in the Pennsylvania Code. T The commentator asks that the requirements, beyond those in the regulations, be removed from the permit. (33)

An additional condition needs to address in accordance with 25 Pa. Code Section 123.2 that the well operator shall not allow the tracking of dirt/soils onto public roads and in order to prevent extreme dust clouds they have a responsibility to provide an adequate dust suppression system. Should a vacuum/dust suppression with water/containment system be utilized, then proper disposal of this tracked/vacuumed dirt is necessary. (44)

***Response:*** The Department agrees that this reference should be removed from GP-5. However, Condition 13 of Section A of the proposed GP-5 is generally applicable to all sources in Pennsylvania and is applicable regardless of inclusion in this General Permit. In addition, the fugitive emissions from natural gas compression and/or processing facilities are of minor significance with respect to causing air pollution. The owner and/or operator is required to comply with the applicable fugitive emissions requirements of 25 Pa. Code §123.1 (relating to prohibition of certain fugitive emissions) and §123.2 (relating to fugitive particulate matter).

Therefore, the final GP-5 does not include the proposed specific requirements related to fugitive dust emissions. However, the fugitive emission and fugitive particulate matter requirements specified in 25 Pa. Code §123.1 and §123.2 are incorporated by reference in the final General Permit Moreover, Condition A. 23 provides that nothing in this General Permit relieves the facility owner or operator from the obligation to comply with all applicable Federal, state and local laws and regulations including 25 Pa. Code Article III (relating to air resources).

## Proposed A14: Diesel Powered Motor Vehicle Idling Requirements

**70. Comment:** The Diesel Powered Motor Vehicle Idling Act should not be incorporated into the general permit. Alternatively, a simple reference to the Act may be sufficient. One commentator stated that it is not appropriate to include this condition in the General Permit. (23, 25, 26, 34, 35)

It is most appropriate to bring the Diesel Idling Act into the GP-5. In addition to the requirements noted, the corresponding penalties from the Diesel Idling Act need to be part of the enforcement of the GP-5. (44)

***Response:*** As per the "Diesel-Powered Motor Vehicle Idling Act" (Act 124 of 2008), Section 10, the diesel idling requirements of the act are not applicable to operating permits required under 25 Pa. Code Chapter 127 (relating to construction, modification, reactivation and operation of sources). Therefore, the Department has no longer included condition 14 of Section A of the proposed GP-5 in the final GP-5. However, Condition

A. 23 provides that nothing in this General Permit relieves the facility owner or operator from the obligation to comply with all applicable Federal, state and local laws and regulations including 25 Pa. Code Article III (relating to air resources).

### Proposed A15: Odor Control Requirements

**71. Comment:** Because the regulatory test for odor control is based on the detection of fugitive particulate matter (25 Pa. Code § 123.2) and malodors (25 Pa. Code § 123.31) at the property line, appropriate control measures are highly site-specific, and a standardized condition does not provide adequate regulation. The Department must explain how it will ensure, through case-specific determinations, that odors and dust are in fact adequately controlled. (9)

Condition A15 should reference 25 Pa. Code §123.31(b). (26)

Condition A15 has no basis in the regulations. Consequently, the commentator recommends that section A15 be deleted from BAQ-GPA/GP-5. (35)

There is no easy answer on methods of dealing with odor control. There is no easy manner in which to place a call and provide information. There needs to be a mechanism for residents living nearby activity to have resolution. People need to know that they can contact the well operator and have results. If the operator does not respond, then DEP needs to step in and protect the public's health and safety. (44)

***Response:*** The owner and/or operator is required to comply with the applicable odor emissions requirements of 25 Pa. Code §123.31, which do not allow the owner or operator to emit any malodorous air contaminants that are detectable outside the property. The Department believes that the existing requirement addresses odor emissions from natural gas compression and/or processing facilities. These requirements have been established in the final GP-5 by reference. The Department agrees that the public needs resolution to a complaint, so the public should contact the Department if there is an odor complaint at a site.

### Proposed A16: Circumvention

**72. Comment:** The commentator supports Condition 16. (44)

***Response:*** Thank you for your comment.

### Proposed A17: NSPS and NESHAP Submittals

**73. Comment:** Condition 17(a) should specify that the submittals pertain to New Source Performance Standard and National Emission Standard for Hazardous Air Pollutants. One commentator suggested the wording: *"The owner or operator of a*

*natural gas production and/or processing facility shall submit to the appropriate DEP Regional Air Quality Office requests, reports, applications, submittals and other communications concerning applicable New Source Performance Standards and National Emissions Standards for Hazardous Air Pollutants."* (26, 27)

***Response:*** Thank you for your comment. The typographical error has been corrected in the final GP-5.

**74. Comment:** The commentator recommends that the Bureau of Air Quality and the U.S. EPA Region III work together to develop a single permit application and notification requirement protocol that satisfies the needs of both programs. The Department has used the OGRE system for the collection of air emissions inventory information. Use of such a portal, shared with U.S. EPA to serve the needs of both programs, should be explored. Program coordination should take place before BAQ-GPA/GP-5 is issued as final. Notification requirements for NSPS and NESHAP contained in BAQ-GPA/GP-5 should reflect that coordination. (35)

***Response:*** The Department disagrees with the commentator; the Department believes that the suggested requirement is excessive. The applicant is required to send copies of all notifications and reports to the Department and to EPA as required by 40 CFR Parts 60 and 63. Moreover, it is the department and not EPA that is the primary permitting authority in Pennsylvania.

The owner or operator of the facility may choose to send a copy of the notification required by Bureau of Oil and Gas Management to the Regional Air program managers, if appropriate. For example, a copy of the advance notification of commencement of a well completion required by Bureau of Oil and Gas Management may be forwarded to the appropriate air program manager as required by 40 CFR Part 60, Subpart OOOO. The Department will evaluate the streamlining of the notification procedures currently in place.

**75. Comment:** Reports described in Section A, Condition 17(b) should be sent to the "Office of Air Enforcement and Compliance Assistance (3AP20)" at the Region III address that is listed (not to the "Air Enforcement Branch Chief"). (2)

***Response:*** Thank you for your comment. The condition has been revised to reflect the proper recipient.

## Proposed A18: Emission Limitations and/or Operating Requirements Previously Established for Best Available Technology and/or to Restrict Operations

**76. Comment:** The commentator supports Condition 18. (44)

***Response:*** The Department appreciates the comment.

## Proposed A19: Applicable Laws

**77. Comment:** Federal regulations should be controlling in the event of a conflict between federal and state regulations regardless of stringency. Condition A(19)(b) of the proposed GP-5 provides that, in the event the General Permit conflicts with other state or federal regulations, the more stringent requirement applies. Pennsylvania's Air Pollution Control Act requires that state regulations implementing the federal Clean Air Act not be any more stringent than those required by the Clean Air Act. 35 P.S. § 4004.2(b). (31)

***Response:*** The Department disagrees with the commentator. 35 P.S. §4004.2(b) also states that the requirement to be no more stringent than the Clean Air Act shall not apply if the Environmental Quality Board (EQB) determines that it is reasonably necessary for a control measure or other requirement to exceed minimum Clean Air Act requirements. Additionally, this requirement applies to regulations and not to the development of general permits that establish best available control technology (BAT) requirements.

The EQB has determined, through the adoption of regulations, that new sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The BAT requirements included in the final GP-5 is based on vendors' guaranteed emission standards, stack test data, available control technologies, and associated costs. Furthermore, Section 6.6(c) of the APCA provides that the Department is authorized to require that new sources control emissions by using BAT.

**78. Comment:** As stated under proposed GP-5 the owners or operators of "New Source" (i.e., subject to NSPS, but not the permitting requirements under the Clean Air Act), may have to obtain GP-5 permits for such sources at least for operating purposes. As already stated, the commentator believes that such permitting exceeds PADEP's authority and is also unnecessary given the fact that, as indicated, such sources are required to comply with NSPS whether a permit is required or not. (31)

***Response:*** The Department agrees that permitting requirements are not mandated by the NSPS standards. However, the need for requiring permits is evaluated independently.

The NSPS standards including the 40 CFR Part 60 Subpart OOOO requirements are incorporated into Pennsylvania under 25 Pa. Code Chapter 122. Permitting requirements are not mandated by these NSPS requirements and as such are enforceable as state law as well. The need for requiring permits is evaluated independently.

As discussed in the response to Comment #5, the final GP-5 is not applicable to wellheads. However, the Department disagrees that it exceeded its authority in the proposed GP-5.

Therefore, the Department has determined that the sources at natural gas compression and/or processing facilities are subject to permitting requirements and are included in the GP-5.

**79. Comment:** In the event that federal regulations change to impose requirements that differ from those contained in GP-5, there could be confusion as to which requirements the owners and operators must comply with. To prevent this confusion, the amendments should be modified to make clear which requirements apply during any interim period in which the relevant federal regulations have changed but the GP-5 has not yet been modified to reflect those changes. The commentator believes that GP-5 should contain a provision specifying that federal regulations will be applicable immediately if they are less stringent than existing permit terms and conditions, but that existing permit terms and conditions will remain in effect until permit expiration if federal regulations are more stringent. (31)

***Response:*** The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference. In the event that federal regulations are amended, the owner or operator shall comply with the applicable regulations. Therefore, there will be no confusion and no need to revise GP-5 as a result of a change in the federal regulations.

In addition to the compliance requirements of NSPS, these source are subject to the permitting and BAT requirements in accordance with 25 Pa. Code §§127.1 and 127.12(a)(5). It is very unlikely that amended federal regulations will be less stringent than the previously established regulations. However, as mentioned above, these sources are also subject to BAT requirements, which would remain in effect.

**80. Comment:** 25 Pa. Code Chapter 145 applies to rich burn ICE greater than or equal to 2400 hp with a NOx limit of 1.5 g/hp-hr, while the proposed GP-5 NOx limit for rich burn ICE is 0.2 for new and reconstructed engines and 2 for existing engines. Would the chapter 145 limit of 1.5 for the larger engines still apply after the GP-5 is finalized? Likewise, we are trying to determine how the proposed GP-5 and Pa. Code chapter 129.202 for turbines work together. (40, 52)

***Response:*** New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The BAT requirements included in the final GP-5 is based on vendors' guaranteed emission standards, stack test data, available control technologies, and associated costs.

The NOx emission limitations for engines and turbines established as BAT in GP-5 is more stringent than the NOx emission limitations for engines and turbines established in 25 Pa. Code Chapters 129 and 145. For new sources, compliance with the requirements in GP-5 assures compliance with the requirements in 25 Pa. Code Chapters 129 and 145.

Therefore, it is not necessary to reiterate the requirements of 25 Pa. Code Chapters 129 and 145 in the final GP-5. However, engines and turbines subject to 25 Pa. Code Chapters 129 and 145 are required to comply with all other applicable requirements established in 25 Pa. Code Chapters 129 and 145.

**81. Comment:** The commentator supports Condition 19. (44)

***Response:*** The Department appreciates the comment.

### Proposed A20: Transfer of Ownership

**82. Comment:** Condition 20(b) should be rewritten to state "Within 30 days *after* a change of ownership of the facility …". The timing of fixed asset acquisitions is often very fluid and exact transfer dates cannot be established with certainly ahead of time. Additionally, such transactions are often confidential (by federal law) until complete. Such notification can only be provided after transfer of ownership has occurred. One commentator added that this is consistent with the requirements found in other state regulations. (23, 26, 34)

GP-5 provision should be amended so that a subsequent owner/operator is required to submit notification of the transfer 30 days after the change of ownership. At a minimum, the notice prior to transfer should be significantly shortened to 5 days. (28)

Most states permitting authorities allow for the transfer of permits to other owners/operators. A simple transfer and or delegation form with proper signatory releases is all that would be required for a site. The commentator recommends a mechanism to transfer ownership of the permit. (29)

***Response:*** The Department has revised the condition in the final GP-5 to allow the transfer of authorization to use GP-5 when a change of ownership is demonstrated to the satisfaction of the Department and the Department approves the transfer of authorization in writing. Within thirty (30) days after a change of ownership of the facility, the new owner or operator shall submit to the Department a GP-5 application, compliance review form, and applicable fees.

### Proposed A21: Expiration and Re-authorization of the Use of GP-5

**83. Comment:** Requiring a full application for renewal purposes is burdensome, and in many cases, would be unnecessary. The Department should consider developing a renewal form applicable for facilities that have not materially changed over the period of the permit. (28)

***Response:*** The Department disagrees that requiring a full application for re-authorization of the use of GP-5 is burdensome. The owner or operator may include the same information in the re-authorization application as in the original application.

**84. Comment:** Proposed GP-5 will create uncertainty as to the finality of permit conditions in the event of an appeal from a permit amendment or reissuance. The commentator believes that the Department's inclusion in proposed GP-5 of the standards of performance and other requirements applicable to multiple individual sources is improper in the first place and also increases the likelihood that the validity of such conditions could be subject to a challenge in an appeal of a permit amendment or reissuance even though those conditions were previously believed to have been settled finally. The commentator further believes that such risk can be removed by limiting the scope of the GP-5. The commentator recommends that PADEP reconsider the broad applicability provisions of the currently proposed GP- 5 and group related operations into proposed additional general permits, consistent with the intent of Section 504(d) of the CAA and consistent with applicable federal and state regulatory requirements. (31)

***Response:*** The Department believes that GP-5, as with every other GP issued by the Department, is consistent with the CAA and other applicable laws and regulations. 40 CFR Part 60, Subpart OOOO was promulgated on April 17, 2012. The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference. Since the final GP-5 incorporates the final NSPS Subpart OOOO requirements, there is no uncertainty as to the finality of permit conditions.

Section 504(d) of the Clean Air Act (related to permit requirements and conditions) allows the permitting authority, after notice and opportunity for public hearing, to issue a general permit covering numerous similar sources. In addition, 25 Pa. Code §127.611 (related to general plan approvals and general operating permits) allows the Department to issue or modify a general plan approval or general operating permit for any category of stationary air contamination source if the Department determines that sources in the category are similar and can be adequately regulated using standardized specifications and conditions. The Department has determined that the sources located at a source category such as natural gas compression and/or processing facilities are a collection similar in nature and can be regulated with standardized specifications and conditions. In addition, states such as Ohio and West Virginia have issued general permits for similar sources located at natural gas compression facilities.

## Proposed Section B: Spark Ignition Internal Combustion Engine Requirements

**85. Comment:** It is the commentator's understanding after contacting DEP BAQ, that RICE – reciprocating internal combustion engines are also SI ICE. Therefore, it is suggested that this section be revised to also note RICE in order that all readers be aware that these requirements also pertain to RICE. This revision will eliminate unnecessary confusion. (44)

***Response:*** Reciprocating internal combustion engines (RICE) includes both spark ignition (SI ICE) and compression ignition (CI ICE) engines. Since this section of the GP-5 deals exclusively with SI ICE, it is appropriate to call it SI ICE and not RICE.

**86. Comment:** The Department should require pressure-volume (P-V) diagrams from the manufacturer as well as the operation post installation to be submitted by the permittee. P-V diagrams are useful as they show the exact conditions occurring at the moment of combustion inside of a chamber in an SI ICE. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The BAT requirements included in the final GP-5 is based on vendors' guaranteed emission standards, stack test data, available control technologies, and associated costs.

The Department has established performance testing, monitoring, recordkeeping, and reporting requirements for the owner or operator to demonstrate compliance with the emission limitations for the affected engines. P-V diagrams are critical for the design of the engines for the manufacturers. The Department evaluated the vendor and manufacturer data prior to finalizing GP-5. Therefore, the Department believes that it is not necessary to require the owner or operator to submit P-V diagrams.

**87. Comment:** The Department must clarify the useful life/certified emissions life limits for spark ignition internal combustion engines used in natural gas production and processing. The Department must craft a system in which the requirements of Subpart JJJJ are able to be met by the manufacturer. Further, the Department should outline the process by which manufacturers of SI ICEs permitted by a GP-5 can have their sources certified emissions lives determined, and how the owner/operators of these sources will maintain the performance standards once the certified emissions life has expired. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The BAT requirements included in the final GP-5 is based on vendors' guaranteed emission standards, stack test data, available control technologies, and associated costs. The Department has established emission limits, performance testing, monitoring, recordkeeping, and reporting requirements consistent with the BAT requirements for the affected engines.

In addition to the BAT requirements, the final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference. SI ICEs operated under GP-5 shall also comply with all applicable requirements of 40 CFR Part 60, Subpart JJJJ and/or 40 CFR

Part 63, Subpart ZZZZ. The requirements are applicable during the duration of the GP-5 authorization. In addition, GP-5 includes adequate testing and monitoring requirements to ensure compliance with the emission limitations.

**88. Comment:** The Department should place a condition in the GP-5 to prevent SI ICE emergency shutdown system and purge pressure shut down controls from blowing down gas in to the atmosphere consistent with conditions inserted in other permits. For example Chief Gathering LLC's Barto Compressor Station (Plan Approval 41-00078C) was permitted with two conditions focused on reducing blowdown emissions. The Department should incorporate both of those conditions into the GP-5 for relevant air contamination sources, as it would be consistent with prior permitting actions and a reasonable request that would further reduce emissions. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The BAT requirements included in the final GP-5 is based on vendors' guaranteed emission standards, stack test data, available control technologies, and associated costs.

BAT is determined on a case-by-case basis considering technical and economic feasibility at the site at the time of issuance of a plan approval. Therefore, the case-by-case BAT determination for a specific source, like Barto, might have different requirements than the requirements in GP-5.

The BAT requirements contained in GP-5 apply to a similar source group instead of a specific individual source within a specific application. The Department believes that it is not necessary to revise the requirements for every source in a source category based on one specific BAT determination. However, the Department periodically reviews the BAT determinations of the source group and based on the information received, the Department may revise the GP-5 to reflect the new BAT requirements of the source group.

EPA has evaluated the Gas Star program information, including emergency shutdown systems and purge pressure shutdown controls, and has already incorporated all the applicable and relevant Gas Star program requirements into Subpart OOOO. These requirements are incorporated by reference into GP-5.

**89. Comment:** The pulsations in reciprocating engines create acoustic waves and vibrations that lower efficiency of the SI ICE/compressor, increase wear and fatigue, and flow metering inaccuracy. The net effect is an increase in emissions per unit of work that the SI ICE/compressor does because of loss in efficiency and a direct increase in emissions where the acoustic waves and vibrations cause incomplete combustion. The Department should investigate the feasibility and require in the GP-5 the pulsation

mitigation systems on reciprocating compressor engines such as valve dynamic performance analysis (VDPAs), API 618-style mechanical response analyses, or performance augmentation networks ("PAN") technology by OPTIMUM Power Technology. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** The key requirement is for facilities to meet the emission limitations in GP-5. While the pulsations in these engines may affect emissions, the affected engines are still required to meet the emissions limitations in GP-5.

New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The BAT requirements included in the final GP-5 is based on vendors' guaranteed emission standards, stack test data, available control technologies, and associated costs. While the final GP-5 does not mandate any specific technology, the Department has established specific BAT emission limits, as well as performance testing, monitoring, recordkeeping, and reporting requirements to demonstrate compliance with the BAT emission limitations for the affected engines.

**90. Comment:** The Department should require analyses and estimates of the effects of "pipeline quality gas" on the emissions of the particular sources. Studies have shown that pipeline quality gas coming from the Marcellus Shale can rapidly change in composition, increasing or decreasing especially in ethane content and potentially causing combustion inefficiencies where speciation data is not immediately available. The Department should also consider and investigate the possibility of real-time gas speciation that could react to rapid changes in gas composition. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** The Department has considered the composition of natural gas while establishing the emission standards and monitoring requirements for the sources in the general permit. The Department does not see any necessity to require real-time gas speciation as part of the general permit. The Department has established specific BAT emission limits, as well as performance testing, monitoring, recordkeeping, and reporting requirements to demonstrate compliance with the BAT emission limitations for the affected engines.

### Proposed B1 (Previous Limits): Spark Ignition Internal Combustion Engine Requirements

**91. Comment:** The commentator recommends that the Department retain the proposed emission standards for existing, in-use engines that are currently operating under the current GP-5. (19)

***Response:*** The final GP-5 contains a condition that retains the emission requirements for existing engines operating under the previous GP-5. The Department appreciates the comment.

**92. Comment:** The commentator recommends that all NSPS and NESHAPS requirements for SI ICE be individually listed. General permits should be stand-alone documents and include all applicable regulatory requirements for the source. The public and the permittee should not have to conduct independent research to identify applicable requirements. (9)

***Response:*** If all applicable requirements were listed in full, the GP-5 document would be extremely voluminous and difficult to navigate. In order to avoid discrepancies between the final GP-5 and the federal requirements, the final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference.

**93. Comment:** In Section B.1.(c), the commentator suggests striking this condition because emission of some pollutants (most notably NOx) can be higher at partial loads than at full rated load on a lb/hr basis. (19, 22)

The proposed GP-5 includes condition (b)(ii) which proposes to set emission standards for Non Methane Hydrocarbons (NMHC), which are not regulated under federal regulations. It is recommended the proposed Condition (b)(ii) set emission standards (i) only for VOC or (ii) Non Methane Non Ethane Hydrocarbons (NMNEHC). (23, 26, 28, 34)

2012 Draft GP-5 establishes no standard for VOCs for Spark Ignition Internal Combustion Engines (SI ICE). This is a grave deficiency. Many VOCs are known to cause serious health effects. Section B 1 (b) must be redrafted to include a clear standard for VOC emissions. (45)

Condition B.1(d) should state that in accordance with 25 Pa. Code §123.41, visible emissions shall not exceed 20 percent for periods aggregating more than 3 minutes in any one hour, and equal to or greater than 60 percent at any time. Additionally, properly operating equipment, firing natural gas, result in no visible emissions. As such, a statement should be added that combustion of natural gas constitutes compliance with this condition. This is consistent with terms of permits found in other states such as Louisiana. (26)

***Response:*** Emissions, including $NO_X$, at lower load will be less on a mass basis due to lower horsepower capacity. In addition, the condition in the final GP-5 includes language from the previous GP-5 and is applicable only to existing engines. Therefore, no changes are warranted.

The non-methane hydrocarbon (NMHC) emission limitation is for existing engines permitted under the previous GP-5. For new engines, the final GP-5 includes emission

limitations for non-methane non-ethane hydrocarbons (NMNEHC). Therefore, no changes are warranted.

As the comment relates to visibility requirements, Condition 1(d) in Section B of the proposed GP-5 was reflective of best available technology. However, all facilities are required to meet all applicable laws as provided under Condition 23 of Section A in the final GP-5. Therefore, no changes are warranted.

**94. Comment:** Revised GP-5 needs to provide clarification with respect to the continued applicability of the limits and requirements for existing sources covered by the existing GP-5. Specifically, Section B.1(a) of the revised GP-5 should be modified to state, "…any SI ICE operating under GP-5 authorizations approved by the Department prior to issuance of this General Permit, shall comply with the emissions standards in Section B.1 of this General Permit." (25)

A condition should be added stating that Best Available Technology determinations made in accordance with previous versions of a general permit shall remain in effect for the life of the source, unless reconstructed as defined in condition A(2), or modified as defined in 25 Pa. Code §121.1. The commentator also requests modification to the GP-5 application form so that the applicant may enter the year (version) of the GP-5 that subject equipment operates under, along with emission limits associated with the applicable GP-5. (26)

***Response:*** The Department has clarified this condition based on the comments. This condition has been revised to include "emission standards and other requirements in Condition 1(b) of this section" and to remove the second sentence. The application form has been revised so the applicant can enter the first GP-5 authorization date that the subject equipment operated under.

**95. Comment:** Condition B.1(e) should state, "The owner or operator of *any applicable* SI ICE shall comply with the Standards of Performance (NSPS)…" (26)

***Response:*** The condition has been revised in the final GP-5 based on the comment.

**Proposed B2 (Current Limits): Best Available Technology for Stationary SI ICE**

**96. Comment:** The commentator supports Condition B. 2(a) and 2(h) through 2(m). (44)

***Response:*** The Department agrees with and appreciates the comment.

**97. Comment:** The commentator recommends that the Department retain the proposed emission standards for new engines less than 100 hp. (19)

***Response:*** The Department agrees with and appreciates the comment.

**98. Comment:** DEP should finalize its proposed non-methane non-ethane hydrocarbon limits, which will significantly limit hydrocarbon emissions from SI ICE. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

***Response:*** The Department reevaluated uncontrolled emissions of NMNEHC, control efficiency of CO catalyst, and stack test results for SI ICE. Based on the reevaluation, the Department has revised NMNEHC emission limits for lean-burn engines rated between 100 and 500 hp to 0.70 g/bhp-hr and for lean-burn engines rated greater than 500 hp to 0.25 g/bhp-hr in the final GP-5. The Department has revised NMNEHC emission limits for rich-burn engines rated greater than 100 hp to 0.20 g/bhp-hr in the final GP-5.

**99. Comment:** First, the commentator thanks the Department for the easily referenced chart. These emission levels are good at present. The commentator recommends the adoption of these levels provided there is a mechanism for a periodic, not greater than biannual review that will update the GP-5 to reflect incremental BAT improvements. The commentator also noticed that the VOCs and HAPs are not included in this BAT requirement. Since, at a minimum, Federal standards would apply, any requirement for more stringent BAT that would provide for public health and safety and environmental considerations balanced with the needs of industry is welcomed. (44)

***Response:*** The Department periodically reviews all of its GPs to ensure that the BAT continues to be representative of state of the art of technology to control the air emissions. During this evaluation, the Department will consider the BAT determinations included in plan approvals, which are determined on a case-by-case basis. At any time if the Department determines that GP-5 is not adequately reflecting the state of the art technology, GP-5 will be amended. While the Department does periodically review its BAT determinations, it does not believe that a set timeframe is appropriate.

Non-methane non-ethane hydrocarbons (NMNEHC) and formaldehyde (HCHO) emission limitations have been included in this condition. NMNEHC is representative of VOCs and HCHO is the predominant HAP from natural gas-fired spark ignition engines.

**100. Comment:** DEP should ensure that emissions controls for diesel engines at natural gas operations are adequate and should implement lower NOx limits similar to those in California and Texas. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

***Response:*** GP-5 is not applicable to diesel-fired engines. The operation of diesel engines is authorized under GP-9.

**101. Comment:** The commentator suggests the general permit state a reduction percentage versus a limit for CO and VOC. Catalyst manufactures' generally quote a percentage reduction for CO and VOC. Since all lean burn engine manufacturers quote a different value for VOC and CO g/hp-hr, it makes more sense to require a reduction percentage instead of a specified limit. It should also be noted that the VOC limit stated in the proposed rule is generally unachievable with one catalyst element and many engines would fail to make such a limit. (29)

***Response*:** GP-5 applies to various types (makes and models) of lean-burn and rich-burn engines, which have different baseline emission levels. Control equipment percent reduction requirements are effective only when baseline emissions over a common category of engine are the same. The Department anticipates that the owner or operator will use cleaner engines with inherently lower uncontrolled air contaminant emissions. The owner or operator may use add-on controls, if necessary, to bring the engines into compliance with the emission standards in the final GP-5.

The Department has incorporated revised emission limitations for NMNEHC in the final GP-5 instead of a reduction percentage to satisfy BAT requirements. However, the Department has included a CO reduction percentage of 93% for lean-burn engines rated at greater than 500 horsepower as a compliance option along with the CO emission limitation of 47 ppmvd at 15% oxygen in the final GP-5. In addition, the Department has included a formaldehyde reduction percentage of 76% for rich-burn engines rated at greater than 500 horsepower as a compliance option along with the formaldehyde emission limitation of 2.7 ppmvd at 15% oxygen in the final GP-5. These have been included to be consistent with the compliance options contained in 40 CFR Part 63, Subpart ZZZZ.

## Proposed Incorporation of Federal Requirements

**102. Comment:** Section B.2(i) to (m) conditions should be under a separate Compressor section since these address only the NSPS Subpart OOOO requirements for reciprocating compressors. Furthermore, 40 CFR Part 60 Subpart OOOO has been revised from the proposal and these conditions need to be consistent with the Final Subpart OOOO requirements. (22, 23, 34)

It is unnecessary to draft new rule language regarding replacement intervals for reciprocating compressor rod packings and pneumatic controllers. Instead, the Department should require compliance with Federal rules that are already finalized. (17)

Condition B.2(j) should state *"The owner or operator shall record the number of hours of operation on a monthly basis."* (26)

***Response:*** The Department agrees with these comments. The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference. Therefore, the condition in the final GP-5 is consistent with the final 40 CFR Part 60, Subpart OOOO. For the purpose of GP-5, reciprocating compressors and reciprocating engines are considered as integral units.

**103. Comment:** Condition B.2(i) addresses requirements for natural gas compressors found in NSPS Subpart OOOO. NSPS Subpart OOOO requirements are addressed elsewhere in the General Permit and it is not appropriate to address compressor requirements in the reciprocating engine section of the General Permit. (23, 26, 34)

***Response:*** Condition B.2(i) in the proposed GP-5 refers to the reciprocating compressors and Section D in the proposed GP-5 refers to centrifugal compressors. The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference. Therefore, the condition in the final GP-5 is consistent with 40 CFR Part 60, Subpart OOOO. For the purpose of GP-5, reciprocating compressors and reciprocating engines are considered as integral units.

## Proposed Engine Size Cutoff

**104. Comment:** If DEP chooses to maintain a cutpoint for larger engines, the cutpoint should be set at 500 hp to align with different requirements for stationary ICE in the NSPS and NESHAP. (19)

Please explain the basis of the 637 hp cut-off for the emission limitations. (25)

The decision to use a 637 bhp cut-off for emissions limitations for lean-burn engines appears to be based on the emissions profile of one commercially available engine. At a minimum, the Department should make clear why it chose to base the emissions limitations on a 637 bhp cutoff. The commentator also believes a more prudent approach would be to choose a bhp cutoff consistent with a BACT -type approach, and/or consistent with bhp categories in the federal NSPS at Subpart "Quad J." 40 C.F.R. Part 60, Subpart JJJJ. (28)

***Response:*** The Department chose the engine size groups using information on various engine makes and models available. Based on this information, the GP-5 groups the engines into the following categories: equal to or less than 100 bhp, greater than 100 bhp and equal to and less than 500 bhp, and greater than 500 bhp. The grouping is comparable to bhp categories in NSPS, 40 CFR Part 60, Subpart JJJJ.

## General BAT

**105. Comment:** DEP should require more stringent limits for lean burn and rich burn ICE, similar to existing requirements in California, Texas and Wyoming. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

The commentator believes that the very stringent values contained in the proposed GP-5 document do not make adequate allowance for the range of field variables that will be encountered throughout Pennsylvania and they are therefore not BAT. (21)

Conditions 2(b) through 2(f) set aggressive emission standards for spark ignition reciprocating engines and the basis for these emission standards is not provided. The commentators suggest that Conditions 2(b) through 2(f) be removed and that the existing NSPS and NESHAP limits should suffice as BAT. (23, 25, 34)

Conditions B.2(c) through B.2(f) appear to be based on equipment-specific manufacturer guarantees and/or the assumption that the SI ICE fires residue gas exclusively. These conditions should be removed and condition B.2(b) reworded to state compliance with the emission standards in Condition B for SI ICE in addition to compliance with applicable NSPS JJJJ and NESHAP ZZZZ standards will result in compliance with this General Permit. (26)

Justification for the proposed best available technology (BAT) levels identified in GP-5 for reciprocating internal combustion engines (RICE) should be provided by PADEP. The Department has provided no documentation to support the emission levels proposed as BAT for lean burn and rich burn reciprocating engines. Without this supporting documentation, the commentator is unable to verify that the proposed emission levels have been demonstrated in practice across the range of sizes included in the draft GP-5. (31)

Commentator insists that the GP-5 revision contain pollution thresholds that are at least as stringent as permits being imposed on natural gas facilities in certain PA DEP regions of the state. These emissions should be lowered as much as technologically possible. If engines at these stations can reduce emissions this much, then PA DEP should at least mandate the same thresholds at these smaller sources across the state through the revised GP-5. (54, 55-255)

***Response:*** New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The applicable emission limits of Federal NSPS and NESHAPS will serve as a baseline for determining the BAT.

The resources utilized in the determination of BAT include the data in the EPA's RACT/BACT/LAER Clearinghouse (RBLC), BAT included in the plan approvals which are determined on a case-by-case basis, general permits and other permits issued by other states, such as Ohio, West Virginia, and Colorado, for similar sources. For example, Ohio and West Virginia have finalized General Permits for Oil and Gas Industry.

The Department also evaluated vendors' guaranteed emission limits and the available stack test data for the applicable sources. The emission limitations included in the GP-5 must be technically and economically achievable. In addition these emission limitations must be sustainable during the life of the unit.

The Department has determined that the emission limitations in the final GP-5 constitute BAT. The basis for the emission limitations in the final GP-5 is included in the technical support document, which is available on the DEP website.

**106. Comment:** Emission limits for all gas-fueled reciprocating engines should be equal and technology neutral. With proper emissions after treatment lean-burn and rich-burn reciprocating engines are capable of the same emissions performance. EPA in 40 CFR 60, Subpart JJJJ and the South Coast Air Quality Management District have promulgated one set of emissions limits applicable to all reciprocating engines. Such standardization reduces regulatory confusion while still achieving best available technology ("BAT") on reciprocating engines. The commentator recommends single BAT emission limits for all reciprocating engines of 0.5 g/bhp-hr NOx, 1.0 g/bhp-hr CO, and 0.25 g/bhp-hr NMNEHC. The commentator limits the comments in this section to engines over 100hp because such stringent emissions limits would present a much higher proportional cost to engines under 100hp. (21)

***Response:*** One set of emission limitations for all types of engines is not appropriate because of different uncontrolled emissions rates from different engine types such as lean-burn versus rich-burn. The Department's analysis shows that $NO_X$ emissions from rich-burn engines utilizing NSCR technology can achieve 0.20 – 0.25 g/bhp-hr, whereas $NO_X$ emissions from lean-burn engines utilizing LEC technology can achieve 0.50 g/bhp-hr. Therefore, it is not appropriate to establish one emission level for both lean-burn and rich-burn engines.

## Proposed Particulate Matter (PM) and Sulfur Oxides ($SO_X$)

**107. Comment:** Setting emission limits for sulfur dioxide ($SO_2$) and particulate matter (PM) for natural gas fired engines is not needed. Due to combustion of natural gas, emissions of SO, and PM are inherently minimized from these units and this work practice (i.e., use of natural gas) should be considered BAT. (19, 21, 31)

Total particulate and $SO_2$ emissions from gas engines are de minimis. Therefore the $SO_2$ and PM emission limitations for all engine types and ratings should be deleted from GP-5. (24, 25)

It also is strongly recommended that the particulate matter and sulfur dioxide limits be removed entirely from the permit. Pennsylvania shale does not contain the sour gas that would require closer regulation of SO2. A considerable advantage to using natural gas-fired equipment, as opposed to other fuels, is the insignificant amounts of PM. (27, 30)

SO2 and PM levels should be removed from the permit as there is no sour gas in the Marcellus Shale gas and the use of natural gas as fuel makes PM emissions insignificant. Industry uses AP-42 factors for SO2 and PM and not manufacturer data. PM and S02 emissions should be eliminated from the permit for rich burn engines as well. (29)

***Response:*** The Department agrees with the commentators because PM and $SO_2$ emissions from SI ICE for an engine with a rated capacity of 2370 bhp are less than 0.8 ton per year and 0.25 ton per year, based on 0.03 g/bhp-hr and 0.01 g/bhp-hr,

respectively. Due to low PM and $SO_2$ emission levels from natural gas-fired engines, the final GP-5 does not include emission limitations or stack testing for PM or $SO_2$ from engines.

### Formaldehyde (HCHO)

**108. Comment:** DEP should lower its proposed formaldehyde limit for SI ICE, which will significantly limit hydrocarbon emissions from SI ICE. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

HCHO emissions from all reciprocating engines are covered in the EPA National Emission Standards for Hazardous Air Pollutants ("NESHAP") for reciprocating engines, reference 40 CFR 63. Subpart ZZZZ. Since the EPA NESHAP MACT standards already apply a best demonstrated control technology requirement to all reciprocating engines. The proposed GP-5 numerical limits in Condition B.2(f) are unnecessary and duplicative and should be removed. (21)

One commentator strongly encourages the DEP to remove the formaldehyde requirements to greatly simplify the compliance demonstrations. EPA has recognized CO as a suitable surrogate for formaldehyde and we recommend that DEP do the same. Please refer to the attached formaldehyde letter and recommendations previously submitted to the DEP in 2010. (27, 30)

The commentator requests that formaldehyde be removed from the requirements to simplify the compliance demonstration. CO compliance is an adequate demonstration of formaldehyde compliance. (29)

***Response:*** New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The applicable emission limits of Federal NSPS and NESHAPS will serve as a baseline for determining the BAT.

The resources utilized in the determination of BAT include the data in the EPA's RACT/BACT/LAER Clearinghouse (RBLC), BAT included in the plan approvals which are determined on a case-by-case basis, general permits and other permits issued by other states, such as Ohio, West Virginia, and Colorado, for similar sources. For example, Ohio and West Virginia have finalized General Permits for Oil and Gas Industry. The Department also evaluated vendors' guaranteed emission limits and the available stack test data for the applicable sources.

The emission limitations included in the GP-5 must be technically and economically achievable. In addition these emission limitations must be sustainable during the life of

the unit. The Department has determined that the emission limitations in the final GP-5 constitute BAT.

For engines greater than 500 bhp, the Department reviewed vendors' guarantees (not-to-exceed limits) and pre-controlled emissions from engines from different engine manufacturers. The uncontrolled emissions ranged from 0.1 g/bhp-hr to 0.36 g/bhp-hr. An engine with uncontrolled formaldehyde emission rate of 0.36 g/bhp-hr and a HCHO reduction efficiency of 85%, can achieve a controlled emissions rate of 0.05 g/bhp-hr. The stack test data confirms that a formaldehyde emission level of 0.05 g/bhp-hr is technically achievable. Based on the above, the Department has determined 0.05 g/bhp-hr as the BAT limit.

The Department has revised the condition to remove formaldehyde emission limitations for all engines rated at 500 horsepower or less because at a typical emission rate of 0.3 g/bhp-hr, a 500 hp engine will emit no greater than 1.45 tons per year.

40 CFR Part 63, Subpart ZZZZ requires a formaldehyde limit of 2.7 ppmvd @ 15% O2 or 76% reduction for existing rich-burn engines rated at greater than 500 hp and located at an area source of HAPs. The Department determined that new engines can also meet this requirement by using an NSCR (non-selective catalytic reduction) system that is able to achieve formaldehyde emission reduction of at least 76% for rich-burn engines rated at greater than 500 bhp.

The vendor data confirms that a formaldehyde limit of 2.7 ppmvd @ 15% O2 or 76% reduction is achievable with a pre-controlled emission rate of 0.05 g/bhp-hr. Therefore, the Department has determined a formaldehyde emission limitation of 2.7 ppmvd at 15% oxygen or 76% reduction for rich-burn engines rated at greater than 500 bhp as BAT in the GP-5.

## Proposed Nitrogen Oxides (NOx) and Carbon Monoxide (CO) for Rich-Burn Engines

**109. Comment:** The commentator suggests increasing the NOx and CO emissions limits for the rich-burn engines to 0.3 and 0.6 g/bhp-hr respectively. (24)

The commentator strongly encourages the Department to consider slightly increasing the Oxides of Nitrogen (NOx) and Carbon Monoxide (CO) emission limits for the rich-burn engines to 0.3 and 1.0 g/bhp-hr respectively. Even the best rich-burn engines cannot meet these limits on a continued compliance basis. (27, 30)

The commentator request the NOX emission factor in Condition B.2.(f) be increased to 0.5 g/hp-hr and CO to 1.0 g/hp-hr. Rich bum engines CANNOT meet the proposed standards for any length of time. (29)

***Response:*** New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The applicable emission limits of Federal NSPS and NESHAPS will serve as a baseline for determining the BAT.

The resources utilized in the determination of BAT include the data in the EPA's RACT/BACT/LAER Clearinghouse (RBLC), BAT included in the plan approvals which are determined on a case-by-case basis, general permits and other permits issued by other states, such as Ohio, West Virginia, and Colorado, for similar sources. For example, Ohio and West Virginia have finalized General Permits for Oil and Gas Industry. The Department also evaluated vendors' guaranteed emission limits and the available stack test data for the applicable sources.

The emission limitations included in the GP-5 must be technically and economically achievable. In addition these emission limitations must be sustainable during the life of the unit. The Department has determined that the emission limitations in the final GP-5 constitute BAT.

The evaluation of uncontrolled emission data from these rich-burn engines indicates emissions of $NO_X$ ranging from 13 to 16.4 g/bhp-hr. Cost analysis from both EPA and the Department show that NSCR (non-selective catalytic reduction) is cost effective for rich burn engines rated at greater than 100 bhp at a cost of less than $177 per ton removed. The Department reviewed vendors' guarantees (not-to-exceed limits) and uncontrolled emissions of $NO_X$ for rich-burn engines rated at greater than 100 bhp from different engine manufacturers.

The vendor data indicates that 98.8% $NO_X$ reduction can be achieved by the NSCR system. An engine with uncontrolled $NO_X$ emission rate of 16.4 g/bhp-hr and a catalyst $NO_X$ reduction efficiency of 98.8%, can achieve a controlled emissions rate of 0.25 g/bhp-hr with a sufficient margin. Based on the above, the Department has determined 0.25 g/bhp-hr as the BAT limit.

The Department reviewed vendors' guarantees (not-to-exceed limits) and uncontrolled emissions of $NO_X$ for rich-burn engines rated at greater than 500 bhp from different engine manufacturers. Uncontrolled emissions of $NO_X$ range from 13 to 16 g/bhp-hr. Cost analysis from both EPA and the Department show that NSCR (non-selective catalytic reduction) is cost effective for rich burn engines rated at greater than 100 bhp at a cost of less than $177 per ton removed.

The vendor data indicates that 98.8% $NO_X$ reduction can be achieved by the NSCR system with a pre-controlled $NO_X$ emission rate of 13 g/bhp-hr. This translates to a post-control $NO_X$ emission rate of 0.15 g/bhp-hr. An engine with uncontrolled $NO_X$ emission rate of 16 g/bhp-hr and a catalyst $NO_X$ reduction efficiency of 98.8%, can achieve a

controlled emissions rate of approximately 0.20 g/bhp-hr. The stack test results from a 1980 bhp engine indicate that actual $NO_X$ emissions range from 0.02 to 0.14 g/bhp-hr. Based on the above, the Department has determined 0.20 g/bhp-hr as the BAT limit.

The Department reviewed vendors' guarantees (not-to-exceed limits) of uncontrolled emissions of CO for rich burn engines rated at greater than 100 bhp from different engine manufacturers. Uncontrolled emissions of CO range from 1.7 g/bhp-hr to 14.8 g/bhp-hr. The vendor data indicates that with a pre-controlled CO emission rate of 9 g/bhp-hr, NSCR can achieve an emission rate 0.15 to 0.25 g/bhp-hr. Cost analysis from both EPA and the Department show that NSCR (non-selective catalytic reduction) is cost effective for rich burn engines rated at greater than 100 bhp at a cost of less than $177 per ton removed. An engine with uncontrolled CO emission rate as high as 14.8 g/bhp-hr and a catalyst CO reduction efficiency of 98%, can achieve a controlled emissions rate of 0.30 g/bhp-hr. Based on the above, the Department has determined 0.30 g/bhp-hr as the BAT limit.

The Department reviewed vendors' guarantees (not-to-exceed limits) of uncontrolled emissions of CO for rich burn engines rated at greater than 500 bhp from different engine manufacturers. Uncontrolled emissions of CO range from 2.28 g/bhp-hr to 14.8 g/bhp-hr. The vendor data indicates that with a pre-controlled CO emission rate of 9 g/bhp-hr, NSCR can achieve an emission rate 0.15 to 0.25 g/bhp-hr. Cost analysis from both EPA and the Department show that NSCR (non-selective catalytic reduction) is cost effective for rich burn engines rated at greater than 100 bhp at a cost of less than $177 per ton removed. An engine with uncontrolled CO emission rate of 14.8 g/bhp-hr and NSCR with CO reduction efficiency of 98%, can achieve a controlled emissions rate of approximately 0.30 g/bhp-hr. The stack test results also confirm that CO emissions from rich burn engines installed with NSCR can achieve CO emission rate of less than 0.30 g/bhp-hr. The stack test results from a 1980 bhp engine indicate that actual CO emissions range from 0.07 to 0.22 g/bhp-hr. Based on the above, the Department has determined 0.30 g/bhp-hr as the BAT limit.

### Proposed Emission Limitations for Lean-Burn Engines

**110. Comment:** The Best Achievable Technology differs significantly across engine size, manufacturer, combustion type and in some cases manufacture date. A one size fits all approach is not appropriate. For example, there is no distinction made in the proposed rule between a 2 stroke engine and a 4 stroke engine in the lean burn category. There are major differences between the operating principles and the emissions control technology for the 2SLB and 4SLB engines. The emissions limits proposed for RICE engines are lower than is realistically sustainable with current technology and there should be an additional category for 2 Stroke Engines. The commentators suggest the following limits. (17, 18)

| Engine Type | Horsepower | NOx | CO | NMNEHC | HCHO |
|---|---|---|---|---|---|
| 4 Stroke Lean Burn | Under 500 hp | Manufactured before 1/1/11 = 2.0 gm/bhphr Manufactured on or after 1/1/11 = 1.0 gm/bhp-hr | 2.0 gm/bhp-hr | 0.7 gm/bhp-hr | Meet Federal Standards |
| 4 Stroke Lean Burn | Over 500 hp | Manufactured before 7/1/10 = 2.0 gm/bhp-hr | 47 ppmv at 15% O2 or 93% reduction | 0.35 gm/bhp-hr or 40% reduction | Meet Federal Standards |
| | | Manufactured on or after 7/1/10 = 0.5 gm/bhp-hr | | | |
| 4 Stroke Rich Burn | All | 0.5 gm/bhp-hr | 2.0 gm/bhp-hr | 0.2 gm/bhp-hr | Meet Federal Standards |
| 2 Stroke Lean Burn | <100 hp | Meet Federal Standards | Meet Federal Standards | Meet Federal Standards | Meet Federal Standards |
| 2 Stroke Lean Burn | 100 hp to 500 hp | 2.0 gm/bhp-hr | Meet Federal Standards | Meet Federal Standards | Meet Federal Standards |
| 2 Stroke Lean Burn | Over 500 hp | 1.0 gm/bhp-hr | 47 ppmv at 15% O2 or 80% reduction | 0.7 gm/bhp-hr | Meet Federal Standards |

***Response:*** The Department has reviewed the prevalence of 2-stroke lean-burn (2SLB) engines and has discovered that in Pennsylvania, the majority of 2SLB engines are rated at less than 500 horsepower. These engines can meet the emission limitations in the final GP-5 for lean-burn engines rated at greater than 100 horsepower and less than or equal to 500 horsepower. For engines rated at greater than 500 horsepower, 4-stroke lean-burn (4SLB) engines are available that generally emit fewer air contaminants than 2SLB engines in this size category. An owner or operator that wishes to use an engine that does not meet the emission limitations in the final GP-5 may submit a plan approval application, which includes a case-by-case BAT analysis.

**111. Comment:** The commentator suggest increasing the CO and VOC emission limits for lean-burn engines greater than 637 hp to 0.3 g/bhp-hr that would give the industry the opportunity to use several engine models and withstand fuel composition fluctuations (field gas vs. residual gas) without triggering permit violations. (24)

The commentator strongly suggest increasing the CO and VOC emission limits for the lean-burn engines greater than 637 hp to 0.35 g/bhp-hr. This small increase will give industry the opportunity to use several engine models and withstand fuel compositions fluctuations without triggering permit violations. Without slight increases in these limits, utilization of this GP will be rare when permitting natural gas facilities in Pennsylvania. (27, 30)

***Response:*** New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The applicable emission limits of Federal NSPS and NESHAPS will serve as a baseline for determining the BAT.

The resources utilized in the determination of BAT include the data in the EPA's RACT/BACT/LAER Clearinghouse (RBLC), BAT included in the plan approvals which are determined on a case-by-case basis, general permits and other permits issued by other states, such as Ohio, West Virginia, and Colorado, for similar sources. For example, Ohio and West Virginia have finalized General Permits for Oil and Gas Industry.

The Department also evaluated vendors' guaranteed emission limits and the available stack test data for the applicable sources. The emission limitations included in the GP-5 must be technically and economically achievable. In addition these emission limitations must be sustainable during the life of the unit. The Department has determined that the emission limitations in the final GP-5 constitute BAT.

As per 40 CFR Part 63, Subpart ZZZZ, existing natural gas fired spark ignition non-emergency lean burn engines rated greater than 500 bhp, located at an area source of HAPs, are required to meet CO emission limit of 93% CO reduction or 47 ppmvd @ 15% O2 (approximately 0.4 g/bhp-hr). The Department determined that new sources can also meet this requirement by installing a CO catalyst. A review of the emission limits contained in similar general permits from other states, such as Ohio, West Virginia, and Colorado, showed limits no more stringent than the federal requirement except Colorado which has a limit of 1.5 g/bhp-hr in some cases. The Department has reviewed vendors' guarantees (not-to-exceed limits) and emissions of CO for lean-burn engines rated at greater than 500 bhp from different engine manufacturers.

Vendor guarantee data showed a CO limit ranged from 1.2 g/bhp-hr to 2.8 g/bhp-hr. Using a CO catalyst with 90% control will reduce the emissions to 0.12 g/bhp-hr to 0.28 g/bhp-hr. Due to limited available test data, the Department determined that a CO emission limit of 47 ppmvd @ 15% O2 or 93% reduction is appropriate for engines rated greater than 500 bhp in order to accommodate variability.

The Department's cost analysis shows that cost effectiveness for oxidation catalyst technology for engines greater than 500 bhp with uncontrolled CO emission rate of 2

g/bhp-hr is less than $2700 per ton of CO removed. Therefore, the CO catalyst is considered as cost effective for engines rated greater than 500 BHP.

Based on the above information, the Department has determined a CO emission limit of 93% CO reduction or 47 ppmvd @ 15% O2 as BAT for engines rated greater than 500 bhp which is consistent with the federal requirements found in 40 CFR Part 63, Subpart ZZZZ.

The Department has reviewed vendors' guarantees (not-to-exceed limits) and emissions of NMNEHC for lean-burn engines rated at greater than 500 bhp from different engine manufacturers. For engines greater than 500 bhp, pre-controlled NMNEHC emissions range from 0.48 g/bhp-hr to 1.0 g/bhp-hr. Using 1.0 g/bhp-hr as uncontrolled emission rate and employing oxidation catalyst control technology that reduces NMNEHC emission by 75%, controlled emission is 0.25 g/bhp-hr.

The Department also reviewed stack test results from engines greater than 500 bhp and found that the engines are able to achieve NMNEHC emission rate of 0.25 g/bhp-hr or less. Based on the above, the Department determined 0.25 g/bhp-hr as BAT for NMNEHC emissions.

### Proposed Emission Limitations Based on Fuel Quality

**112. Comment:** The emission standards in Condition B of GP-5 applicable to spark-ignition internal combustion engines should be based on the quality of the gaseous-fuel burned, and whether the engine is new or in-use, but not on a specific engine technology. The commentator recommends and supports technology-neutral emission standards, and believes that there is a need to establish different standards based on the type and quality of fuel burned. The quality of natural gas fuel has a significant impact on engine-out emissions as well as on the technical feasibility of emission reductions through the use of after-treatment control technology. Based on the need to establish technology-neutral but fuel-specific emission standards, the commentator recommends that DEP revise the remaining emissions standards into two categories: one for engines burning pipeline-quality natural gas, and one for engines burning field or wellhead gas.

For new or reconstructed SI ICE burning pipeline quality natural gas, emissions shall not exceed the following:

NOx - 0.7 g/bhp-hr
CO - 1.5 g/bhp-hr
NMNEHC - 0.7 g/bhp-hr

For new or reconstructed SI ICE burning field or wellhead quality natural gas, emissions shall not exceed the following:

NOx - 2.0 g/bhp-hr
CO - 3.0 g/bhp-hr
NMNEHC - 1.0 g/bhp-hr

The above emission limits are the same as, or more stringent than, those set by the US EPA in the NSPS for stationary ICE engines. The above standards for new or reconstructed engines will, therefore, also be in compliance with the EPA NESHAP requirements to reduce hazardous air pollutant emissions for stationary ICE engines at area sources and for rich-burn engines less than 500 hp and lean-burn engines less than 250 hp at major sources. (19)

The proposed rich and lean burn standards for SI ICE are unachievable in the Marcellus Shale region using existing controls. Only a limited subset of engines, combined with super-clean residue gas as fuel, could ever meet this standard. Residue gas is largely (if not always) unavailable in remote Marcellus locations. Rather, the field gas that is very rich is typically the only available gas. Based on these results from one of the newest and cleanest technologies on the market, it is unlikely there would be any engine for which residue gas could be used and still meet the standard. (28)

***Response:*** New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The applicable emission limits of Federal NSPS and NESHAPS will serve as a baseline for determining the BAT.

The resources utilized in the determination of BAT include the data in the EPA's RACT/BACT/LAER Clearinghouse (RBLC), BAT included in the plan approvals which are determined on a case-by-case basis, general permits and other permits issued by other states, such as Ohio, West Virginia, and Colorado, for similar sources. For example, Ohio and West Virginia have finalized General Permits for Oil and Gas Industry.

The Department also evaluated vendors' guaranteed emission limits and the available stack test data for the applicable sources. The emission limitations included in the GP-5 must be technically and economically achievable. In addition these emission limitations must be sustainable during the life of the unit. The Department has determined that the emission limitations in the final GP-5 constitute BAT.

Stack test data shows that the emission limitations in the final GP-5 are achievable in practice under typical conditions. Typical conditions include using fuel that is normally used and is readily available, i.e. both field gas and pipeline-quality gas. Therefore, there is no need to establish different emission limitations based on the specific type of natural gas combusted.

## Proposed Visible Emissions

**113. Comment:** Condition B.2(g) should state that in accordance with 25 Pa. Code §123.41, visible emissions shall not exceed 20 percent for periods aggregating more than 3 minutes in any one hour, and equal to or greater than 60 percent at any time. (26)

***Response:*** Visible emissions shall not exceed either of the following limitations: equal to or greater than 10 percent for a period or periods aggregating more than three (3) minutes in any one hour or equal to or greater than 30 percent at any time. These visible emission levels are achievable for natural gas-fired engines. Therefore, these levels are appropriate to comply with BAT requirements and no revision of the standard is warranted.

**114. Comment:** The requirement for daily visible emission checks in Condition B (2)(h) for RICE is also excessive based on the combustion of natural gas as fuel. During normal operation, visible emissions will be below the applicable standards and malfunction conditions are addressed in A.8(e). Furthermore, facilities that are unmanned will be unable to comply with this daily monitoring requirement. (19, 31)

In Section B.2(h), visible emission (VE) monitoring should be removed. Sites are unmanned and pumpers are not certified to perform VE tests using Method 9 or Method 22 and it is prohibitive and costly to hire contractors even on a less frequent basis. One commentator suggested that if elimination of the daily requirement is not feasible, then this requirement be changed to require weekly monitoring. (22, 28)

It is recommended that Condition B.2(h) is reworded to require the owner or operator to monitor the facility when the operator is on site. One commentator suggests adding a statement that combustion of natural gas constitutes compliance with this condition. This is consistent with terms of permits found in other states such as Louisiana. (23, 26, 34)

The commentator believes that daily visible emissions monitoring requirements for unmanned facilities are unreasonable and therefore should be deleted. (24, 25)

The daily monitoring of visible emissions is not necessary and, in many cases, impossible due to the absence of personnel at unmanned facilities. We strongly recommend removing this section from the permit. (27, 29, 30)

Visible emissions are rarely observed from natural gas-fired engines and their presence would generally indicate a catastrophic failure of the engine. Compressor engines are observed routinely throughout the day by operations personnel for unusual emissions as an indicator of engine performance; however, the requirement to maintain a log of these observations on a daily basis is excessive and does not enhance the efficacy of this task. The commentator asks that the Department reconsider this requirement. If it is determined that these observations must be logged, we ask that the Department decrease the frequency to monthly. (33)

***Response:*** The Department agrees. The final GP-5 does not include visible emission monitoring requirements. However, the owner or operator shall comply with the applicable requirements of 40 CFR Part 60, Subpart JJJJ and 40 CFR Part 63, Subpart ZZZZ. Moreover, owners and operators will continue to be subject to any applicable visibility requirements under the regulations as provided under Condition23in Section A of the final GP-5.

### B3: Start-up and Shut-down Exceptions for Spark Ignition Internal Combustion Engines

**115. Comment:** The commentator supports Condition 3. (44)

***Response:*** The Department appreciates the comment.

**116. Comment:** Section B.3 requires emissions from startup and shutdown to be included in the 12-month rolling sum. There is no requirement to calculate emissions as a 12-month rolling sum. The commentators request that this portion be deleted. The limits should simply be the NSPS and NESHAP limits. One commentator suggested that the Department to clarify that, if covered by the final GP-5, emissions from startup, shut down and malfunction (SSM) events will be based on the owner/operator's reasonable best estimates of such emissions, consistent with applicable Department guidance. (23, 24, 25, 27, 28, 34)

The last sentence in condition B.3 should state *"Emissions from start-up and shut-down should be included in the Annual Source Reports as required by Condition A.11(a)."* (26)

The commentator strongly recommends removal of the requirement to include the emissions during start-up and shut-down in a 12-month rolling total as it provides no useful information for determining compliance. Furthermore, there is no mention of how to estimate the emissions from these activities. (30)

***Response:*** The final GP-5 limits the applicability to minor sources. Emissions from startup, shutdown, and malfunctions events shall be included in the 12-month rolling sum of facility-wide emissions. The owner and/or operator are required to calculate a 12-month rolling sum of emissions to determine major source applicability and to demonstrate compliance with the facility-wide emission limitations in the final GP-5. Therefore, it is necessary to retain this condition as is.

**117. Comment:** The commentators recommend that the allowable start-up and shutdown durations be increased from one hour to three hours to allow for a more realistic time period relating to these activities, especially when considering a cold-start scenario. One commentator suggests increasing the allowable startup/shut-down time to 3-5 hours (24, 27, 29, 30)

***Response:*** The Department disagrees that allowable start-up and shutdown durations should be increased. The Department has revised the start-up and shutdown durations in the final GP-5 to a maximum of 30 minutes for engines and turbines. This duration is consistent with the provisions contained in 40 CFR Part 63, Subpart ZZZZ for engines and 40 CFR Part 60, Subpart KKKK for turbines.

**118. Comment:** Section B, Condition 3 would allow a start-up and shut-down exception for SI ICE provided that the duration of start-up and shut down does not exceed one hour per occurrence. The US Court of Appeals for DC issued a mandate vacating the SSM exemption provisions of 40 C.F.R. §63.6(f)(1) and (h)(1). Accordingly, EPA no longer allows sources the SSM exemption. The exception proposed in GP-5 for start-up and shut-down should be deleted. This condition may be replaced with – at most – the alternative work practices that are allowed for up to 30 minutes of start-up under the MACT Subpart ZZZZ for certain engines or the applicable work practices required by the NSPS Subpart JJJJ. (2)

***Response:*** The final GP-5 does not provide any exemption from NSPS or NESHAP requirements. The Department has revised the start-up and shutdown durations for engines and turbines in the final GP-5 to a maximum of 30 minutes. This duration is consistent with the provisions contained in 40 CFR Part 63, Subpart ZZZZ for engines and 40 CFR Part 60, Subpart KKKK for turbines.

## Proposed B4: Performance Testing Requirements for Spark Ignition Internal Combustion Engines

**119. Comment:** The Department should use non-chemiluminescence-based detection methods for determining potential emissions from lean-burn SI ICE equipped with oxidation catalysts because a 2010 technical paper from the *Journal of the Air and Waste Management Association* shows that NOx emission detection methods involving chemiluminescence may be inaccurate when applied to lean-burn natural gas engines equipped with oxidation catalyst. Chemiluminescent detectors cannot directly detect NO2; NO2 must first be converted to NO via an inefficient catalyst that ultimately fails to convert all NO to NO2. The end result can be a discrepancy between actual emissions and detected emission when employed chemiluminescence-based NOx detection methods. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** Not all Method 7E requirements were followed in the commentator referenced technical paper. The Department determined that if all appropriate Method 7E procedures are followed, chemiluminescent based analyzers will provide the most accurate NOx emissions data from the various scenarios expected.

**120. Comment:** In addition to routine stack tests and emissions testing within 120 days of start-up, the Department should require emissions testing every 2,500 hours of operation for SI ICE in consistent with permit conditions for SI ICEs it has approved elsewhere and eliminate the portions of the GP-5 that allow for changing emissions

testing schedules. For example, the Department agreed to require this additional testing at Chief Gathering LLC's Barto compressor station (Plan Approval 41-00078C). (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** Plan Approval 41-00078C for the Barto compressor station requires initial performance testing and subsequent performance testing every 8,760 hours of operation or 3 calendar years, whichever comes first, thereafter to demonstrate compliance. In addition to stack testing requirements, the final GP-5 requires the periodic monitoring of $NO_X$ and CO every 2,500 hours of operation to verify continued compliance. Therefore, no changes are warranted in the final GP-5.

**121. Comment:** The GP-5 proposed numeric limits for $SO_2$, PM, and HCHO are extremely low and approach the resolution of field measurement instruments for these pollutants. When the resolution - or non-detect - level of a pollutant becomes a significant portion of the limit value, the probability of poor or misleading data rises dramatically. This increases the risk of false-negative readings and the expense of false-positive readings. In addition, HCHO testing is very expensive, especially relative to smaller reciprocating engines (as opposed to large industrial gas turbines or coal power plants). (21)

Stack testing should not be required for $SO_2$, PM, or HCHO (formaldehyde). As currently proposed, GP-5 would require stack testing in accordance with 25 Pa. Code Chapter 139 for NOx, CO, $SO_2$, PM, HCHO, NMHC, NMNEHC, and periodic monitoring for NOx and CO. These performance testing requirements impose substantial time- and resource-intensive obligations with little or no benefit to either the environment or the Department's ability to ensure emissions standards are being met or air quality is being maintained or improved. (28)

***Response:*** The Department agrees with the commentators because PM and $SO_2$ emissions from SI ICE for an engine with a rated capacity of 2370 bhp are less than 0.8 ton per year and 0.25 ton per year, based on 0.03 g/bhp-hr and 0.01 g/bhp-hr, respectively. Due to low PM and $SO_2$ emission levels from natural gas-fired engines, the final GP-5 does not include emission limitations or stack testing for PM or $SO_2$ from engines.

Formaldehyde is a 112(b) listed HAP that forms from the combustion of natural gas in the engine and should be quantified to ensure protection of human health and the environment. Testing requirements for engines rated greater than 500 hp are being required once during the 5-year life of the permit authorization to quantify emission characteristics. In addition, testing for formaldehyde is required to demonstrate compliance with the formaldehyde emission limitation for engines rated greater than 500 hp in the final GP-5.

**122. Comment:** The emission testing requirements for $SO_2$ and PM from RICE should be deleted from proposed GP-5. (19, 25, 28, 29, 31)

***Response:*** The Department agrees with the commentators because PM and $SO_2$ emissions from SI ICE for an engine with a rated capacity of 2370 bhp are less than 0.8 ton per year and 0.25 ton per year, based on 0.03 g/bhp-hr and 0.01 g/bhp-hr, respectively. Due to low PM and $SO_2$ emission levels from natural gas-fired engines, the final GP-5 does not include emission limitations or stack testing for PM or $SO_2$ from engines.

**123. Comment:** Since measuring formaldehyde from ICE engines is difficult and expensive, particularly for engines tested in the field, the commentator recommends that GP-5 be amended to remove the formaldehyde standard from the general permit and instead incorporate the EPA recommended alternate HAPs surrogate standard into GP-5. (19)

Since CO is commonly recognized as a surrogate for formaldehyde, and since natural gas combustion results in minute quantities of $SO_2$ and particulate matter emissions, Condition B.4(b) should require testing for $NO_x$, CO, and NMNEHC only. (26, 28, 29)

***Response:*** Formaldehyde is a 112(b) listed HAP that forms from the combustion of natural gas in the engine and should be quantified to ensure protection of human health and the environment. Testing requirements for engines rated greater than 500 hp are being required once during the 5-year life of the permit authorization to quantify emission characteristics. In addition, testing for formaldehyde is required to demonstrate compliance with the formaldehyde emission limitation for engines rated greater than 500 hp in the final GP-5.

**124. Comment:** Condition B.4(c) should be revised to be consistent with NSPS Subpart JJJJ at 60.4243(a)(2)(iii) which requires subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance. (23, 34)

The commentator recommends including an option to use a Department approved test that has been performed within 45 days prior to the scheduled periodic monitoring as a substitute for the periodic monitoring to avoid unnecessary duplication. (24)

The commentator requests that DEP indicate that Subpart JJJJ annual testing can be used in lieu of periodic testing. (25)

Condition B.4.(c) should include the option to use any recently performed approved testing as a substitute for the periodic monitoring to avoid unnecessary duplication. (27, 30)

***Response:*** 40 CFR Part 60, Subpart JJJJ requires initial performance testing and subsequent performance testing every 8,760 hours of operation or 3 calendar years, whichever comes first, thereafter to demonstrate compliance. The final GP-5 requires the periodic monitoring of NOx and CO every 2,500 hours of operation to verify continued compliance. If annual testing was done to comply with Subpart JJJJ, such testing could

be used in lieu of periodic testing. This requirement has been revised to incorporate the suggested change into the final GP-5.

**125. Comment:** Condition B.4(e)(ii) should clarify that the test protocol is for the EPA Reference Method testing to be conducted every 8,760 hours or 3 years, whichever comes first. (23, 34)

The commentator requests that DEP indicate whether a protocol is required to be submitted to approve periodic monitoring procedures. The commentator also requests that DEP indicate if a general procedure may be used over multiple sites. (25)

***Response:*** Protocols for periodic monitoring are not required to be submitted for approval, but the Department will review them if requested. Monitoring results may be deemed unacceptable if procedures used were not appropriate. Protocols may be applicable to multiple sites for similar sources.

**126. Comment:** The commentator requests that DEP indicate which DEP Office (DEP Regional Office or DEP Source Testing and Monitoring Division) will have the jurisdiction over the approval of the periodic monitoring procedures, and if and when results must be submitted. (25)

***Response:*** The Source Testing and Monitoring Division will review protocols for periodic monitoring if requested. The Regional Offices have jurisdiction over periodic monitoring procedures and submittals. The final GP-5 is being revised to incorporate a reporting requirement for periodic monitoring.

**127. Comment:** The notification and reporting obligations specific to the GP-5's performance testing requirements should be aligned with federal requirements, or at a minimum made more reasonable. Specifically, section B.4(e)(i) would require the submission of a written report of the performance test results within 180 days after the initial startup of the SI ICE. This requirement conflicts with the requirement in B .4(b), which allows 180 days for the testing to be conducted. Additional time will be needed to review the data and draft the report. The commentator suggests this requirement be amended to require the submission of a written report of the performance test 60 days after the performance test is completed. (28)

***Response:*** Performance testing including the submission of a written report of the results shall be completed no later than 180 days after the initial startup. This requirement is consistent with federal requirements. The condition has been revised to include report submittal.

**128. Comment:** The commentators request the removal of the 15 day requirement for post test notification in B.4.(e)(iv) on Reference Method testing because the commentators believes it is unnecessary and redundant. (23, 24, 25, 26, 27, 29, 30, 34)

Section B.4(e)(iv) requires the facility, within 15 days following on-site testing, to email the Department if a complete test has not yet been submitted, and Section B.4(e)(v) requires a complete test report to be submitted within 30 days after completion of the test. The commentator believes that the requirement to e-mail the Department within 15 days following on-site testing if the complete report has not been submitted provides no beneficial or useful information. The commentator recommends deleting this requirement. (28)

***Response:*** The Department disagrees. This requirement is instituted in order to ensure that the Department is aware that the test was conducted and is expecting to receive a test report within 60 days of the test completion date.

**129. Comment:** The commentators request that the test report be submitted within 60 days after completion of test, consistent with the DEP Source Testing Manual. There is no benefit to submit these results within 30 days of testing. In addition, one commentator indicated that if Method 18 or Method 202 condensable PM analysis has to be performed, 30 days will not be sufficient amount of time to receive the results and compile the report. One commentator suggested that test report submittal should be 60 days after completion of the test to be consistent with subpart JJJJ. (23, 25, 26, 27, 29, 30, 34)

Requiring the submission of a complete test report within 30 days following test completion will almost certainly be impossible to meet as a practical matter. EPA allows for 60 days, and this time period is absolutely necessary in the commentator's experience. Testing personnel routinely perform tests at multiple facilities, and need adequate time to extract, organize, interpret, and present the relevant data. Once the draft report is finished, it must be submitted both to the engine company for accuracy and completeness certification as well as the owner/operator for review and verification. These various levels of compilation and review require 60 days. (28)

***Response:*** Per the EPA National Clean Air Act National Stack Testing Guidance document:

The test report should be submitted to the delegated agency as soon as possible after completion of the stack test and, at a minimum, in compliance with any underlying regulatory requirements. For stack tests being conducted pursuant to 40 CFR Part 60, the test report is to be submitted within 180 days after the initial startup date or within 60 days after reaching maximum production rate.

§ 60.8(a). For those tests being conducted pursuant to 40 CFR Part 61, the test report is to be submitted within 31 days after completion of the test.

§ 61.13(f). If the test is being conducted pursuant to 40 CFR Part 63, the test report must be submitted within 60 days after the test is completed unless another time frame is specified in the applicable subpart.

The Department has revised the condition to require that test reports be submitted within sixty (60) days of the completion of testing. However, the complete test report shall be submitted within 180 days of the startup of the source.

**130. Comment:** Condition B.4(e)(vi) should state, *"The complete test report shall include, at a minimum, the following information…"* (26)

***Response:*** The condition deals specifically with the summary of results, not the complete test report.

**131. Comment:** Condition B.4.(e)(vi) requires a summary of the emission results on the first page of the report indicating if each pollutant measured is within permitted limits and a statement of compliance or non-compliance with all applicable permit conditions. Our current reports have this information included usually within the first 4-5 pages. Since the information is included in the report, we request that the requirement for the information to be *specifically* included on the first page be removed. Another commentator suggested that this information is unlikely to fit on one page for one engine, much less multiple engines as will often be the case. They suggest that this information be summarized at the beginning of the report. (27, 28)

***Response:*** The summary is required to determine compliance without searching through the report. It can be more than one page if necessary. The condition has been revised to indicate that the summary shall be at the beginning of the report.

**132. Comment:** The commentator requests the following changes to B.4(e)(viii)

- Removal of total PM testing (Method 5/202)
- Removal of SO2 testing (Method 6C)
- Emission limit is expressed as NMNEHC; however, test Method 18 is indicated for NMHC. Method 18 would require field GC. Consider revising as follows: "40 CFR Part 60, Appendix A, Method 18; or Method 25A and Method 18; or Method 320 shall be used to determine the NMNEHC"
- Indicate ASTM D6348-03 (FTIR) may also be used for NOx, CO, HCHO, NMNEHC
- Removal of CTM-027 for ammonia (25)

Condition B.4(e)(viii) identifies test methods to be used for various pollutants. It is recommended that the test methods for NMHC, SO2, particulates, HCHO and ammonia should be removed from the General Permit to be consistent with the federal guidelines and regulations. (23, 26, 34)

***Response:*** The test methods in accordance with 40 CFR Parts 60, 61 and 63 have been listed respective for each pollutant. Acceptability of proposed alternative methods should be addressed during the protocol process. The condition is being revised, consistent with 40 CFR Part 60, Subpart JJJJ, to incorporate 40 CFR Part 60 Methods 25A and 18 or 10

CFR Part 60 Method 25A and 40 CFR Part 63 Method 320 as methods for determining NMNEHC.

PM and $SO_2$ emissions from SI ICE for an engine with a rated capacity of 2370 bhp are less than 0.8 ton per year and 0.25 ton per year, based on 0.03 g/bhp-hr and 0.01 g/bhp-hr, respectively. Due to low PM and $SO_2$ emission levels from natural gas-fired engines, the final GP-5 does not include emission limitations or stack testing for PM or $SO_2$ from engines. The condition has been revised in the final GP-5 to remove reference to ammonia test methods.

**133. Comment:** Condition B.4(b) requires engine testing load conditions to be within 10 percent of maximum load design capacity or to within 10 percent of the maximum permitted operating load as proposed by the applicant. This condition should be revised to be consistent with NSPS Subpart JJJJ at 60.4244(a) which states "each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load …" (23, 24, 25, 26, 27, 30, 34)

***Response:*** The Department agrees with the commentators and has revised the condition in the final GP-5 to include "Engine testing load conditions shall be representative to within 10 percent of 100% peak or the highest achievable load." This is consistent with 40 CFR Part 60, Subpart JJJJ.

**134. Comment:** Submitting a test protocol 60 days prior to a scheduled test date is not feasible when considering Subpart JJJJ requires testing to occur within 60 days of start-up. This would mean that the owner/operator would be required to submit a test protocol prior to starting an engine or scheduling a test with the test contractor. The commentators request that this requirement be changed to allow protocol submittal **30 days** in advance of a scheduled test. (24, 26, 27, 28, 29, 30)

***Response:*** The Department agrees that thirty days is consistent with the Source Testing Manual. The condition has been revised to reflect thirty days. In addition, approved test protocols do not need to be resubmitted unless the Department requests a protocol or changes have been made to the approved protocol.

**135. Comment:** The commentator requests that the company be allowed to submit a protocol for approval. Once the protocol is approved, it can be referenced in a test notification letter for identical tests rather than resubmitting the protocol. Also, we request that the requirement to have a protocol acceptance letter from the Department prior to testing be removed. (27)

***Response:*** Approved test protocols do not need to be resubmitted unless the Department requests a protocol or changes have been made to the approved protocol. The protocol acceptance letter is necessary to identify that the protocol was received and the protocol is appropriate for the test that is proposed under conditions specified in the permit. The letter is beneficial to the source owner in that if the test as proposed is not administered correctly, the test results could be rejected and the test would be required to be repeated.

**136. Comment:** The commentators recommend removal of opacity requirements for SI ICE from Condition B.4(a). (24, 26, 27, 29)

***Response:*** The Department agrees with the commentators. Opacity has not been included in this performance testing requirements for SI ICE in the final GP-5.

**137. Comment:** Condition B.4.e(iii) should require notification to the Division of Source Testing and Monitoring only. (26)

***Response:*** Regional staff members need to be informed of testing events as well as Central Office staff so that staff members from both offices can be present for the testing program, if necessary. Therefore, no changes are warranted.

**138. Comment:** Testing requirements for SO2, PM, and formaldehyde should be removed. In addition, periodic monitoring requirements for CO would be more than adequate demonstration of formaldehyde reduction eliminating the need for additional testing of this pollutant. If formaldehyde testing should remain, then Method 323 should be added as an option for formaldehyde testing. Since there are only a limited number of contractors with Method 320 capabilities, this alternate method will assist in alleviating the inevitable backlog. Also, Method 25A with a methane cutter needs to be added as a method for VOC's determination. VOCs can also be determined by a combination of Method 25A (THC) and a Method 18 (methane) bag sample. In addition, one commentator recommends the removal of all references to ammonia testing as it is not necessary. (24, 27, 29, 30)

***Response:*** The Department agrees with the commentators because PM and $SO_2$ emissions from SI ICE for an engine with a rated capacity of 2370 bhp are less than 0.8 ton per year and 0.25 ton per year, based on 0.03 g/bhp-hr and 0.01 g/bhp-hr, respectively. Due to low PM and $SO_2$ emission levels from natural gas-fired engines, the final GP-5 does not include emission limitations or stack testing for PM or $SO_2$ from engines.

Formaldehyde is a 112(b) listed HAP that forms from the combustion of natural gas in the engine and should be quantified to ensure protection of human health and the environment. Testing requirements for engines rated greater than 500 hp are being required once during the 5-year life of the permit authorization to quantify emission characteristics. In addition, testing for formaldehyde is required to demonstrate compliance with the formaldehyde emission limitation for engines rated greater than 500 hp in the final GP-5.

The condition in the final GP-5 allows for the use of alternative test methods approved by the Department to be used for compliance.

**139. Comment:** Additional reference method needs to be added to Condition B.4(e)(viii) to measure Non-Methane Non-Ethane Hydrocarbons. The methods included in the NSPS and NESHAP should be referenced and include EPA Test Method 18 and EPA Test Method 320. (19)

***Response:*** The condition has been revised, consistent with 40 CFR Part 60, Subpart JJJJ, to incorporate 40 CFR Part 60 Methods 25A and 18 or 10 CFR Part 60 Method 25A and 40 CFR Part 63 Method 320 as methods for determining NMNEHC. The condition in the final GP-5 allows for the use of alternative test methods approved by the Department to be used for compliance.

**140. Comment:** Condition B.4(e)(ix) should indicate that either electronic or paper submittal is acceptable, rather than indicating that paper copies can only be submitted if internet submittal is not feasible. (26)

***Response:*** The Department disagrees with the commentator. Electronic submittals will eventually be required by the Department.

**141. Comment:** Condition B(4)(e)(xi) is unreasonable and would frustrate the effective enforcement of violations. Once the DEP has determined that emission standards have been violated and that it is necessary to initiate enforcement action, the Department should require corrective action, not additional testing. (9)

***Response:*** The Department disagrees. Enforcement action will be initiated upon the Department's determination that emission standards are being violated. The Department always reserves its discretion to require additional testing to ensure that the corrective action will meet the emission standards.

**142. Comment:** The commentator has experienced numerous technical difficulties and other problems trying to use the PSIMS system. We believe the system needs technical improvements before attempting to require its use by those availing themselves of the GP-5. Another option would be to simply require submission of permit applications in hard copy, which applications need to go to EPA in hard copy anyway. By requiring use of PSIMS for GP-5 permits, the Department effectively doubles the effort required of operators in submitting their application data. (28)

***Response:*** Efforts to improve PSIMS are ongoing and it is the Department's expectation that all reports will eventually be submitted through PSIMS.

**143. Comment:** The commentator supports Condition 4. (44)

***Response:*** The Department appreciates the comment.

## Proposed B5: Work Practice and Monitoring Requirements for Spark Ignition Internal Combustion Engines

**144. Comment:** The Department should include extra maintenance requirements to optimize operation of SI ICEs consistent with permit conditions for SI ICEs it has approve elsewhere. For example, Chief Gathering LLC's Barto Compressor Station (Plan Approval 41-00078C) was permitted with a condition requiring it to follow all manufacturer recommended maintenance programs for any air contaminant sources at that facility. The Department should place the same condition in the revised GP-5. This would be consistent with past practices, be a reasonable assurance as many manufacturers craft careful maintenance schedules for their equipment, and also ensure that the Department has extra recourse for GP-5 permittees, as it may also enforce this condition along with any other in the GP-5. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** The condition in the final GP-5 requires that sources shall be "Operated and maintained in accordance with the manufacturer's specifications, procedures, recommended maintenance schedule, and the specifications in the Application for Authorization to Use GP-5, or an alternate procedure approved by the Department that achieves equal or greater emission reductions."

**145. Comment:** The requirement to install, operate and maintain the engine "in accordance with manufacturer's specifications" is inappropriate. The manufacturer's liability is a prime concern in these specifications. Sometimes non-OEM parts or services may provide more innovative, economical or superior results than those provided by the manufacturer's specifications. The commentator recommends that in lieu of manufacturers' specification, Condition A 6(b)(ii) and Condition B 5(a) be amended to include the option to use *"a maintenance plan developed by the Owner/Operator that provides for maintenance and operation of the engine and emission control devices in a manner consistent with good air pollution control practices for complying with the emissions standards."* (17)

***Response:*** Should the owner and/or operator desire to deviate from the manufacturer's specifications, an alternate procedure that achieves equal or greater emission reductions may be submitted to the Department for approval in accordance with the final GP-5. Therefore, the conditions do not need to be revised.

**146. Comment:** The monitoring requirements for pressure and temperatures relating to catalyst are overly burdensome. (17)

The commentator does not believe that such intensive monitoring of ICE engine parameters and conditions required in Condition B.5 of GP-5 is warranted or justified for all engines. EMA recommends that the work practices and monitoring requirements in GP-5 be revised to align with the work practices and monitoring requirements of the federal NSPS and NESHAP. (19)

The commentator recommends removing Conditions B.5(b) and B.5(d) from the permit as periodic monitoring in Section B.4(c) is sufficient, and more effective, for verification of proper catalyst function. In addition, establishing parameters during the initial stack test is not practical as engines often do not operate at 100% load or within 10% of the load where the initial compliance test was performed. During performance testing the engines are ramped up for short periods of time to achieve a maximum load for testing purposes only, before returning to the actual operating load dictated by system need. For the same reasons one commentator recommended Conditions B.5(c) and B.5(e) also be stricken from the permit. (24, 27, 30)

Periodic monitoring is the most effective method for determining proper catalyst function and anything above and beyond this is duplicative. Therefore the commentator recommends removing Condition B.5(f). (24, 27, 30)

The GP-5 should not impose additional or more stringent oxidation catalyst continuous monitoring of pressure drop and inlet temperature requirement than there are established in EPA's NSPS and NESHAP requirements. The commentator request that in lieu of recording temperature every 15-mintues, the permit allows for automatic shutoff devices that will shut down the engine when temperature is outside the allowable range. (25)

Since these are unmanned and sometimes remote facilities, the commentator requests that in the monitoring frequency of the air/fuel ratio controller set point be changed to once per quarter. (27)

SI ICEs in natural gas gathering service are subject to widely and frequently variable loads. They are also subject to frequent start-up and shut-down. Requiring CEMS for such equipment is highly impractical, burdensome, and of little or no practical benefit. Furthermore, CEMS require significant and frequent maintenance, as well as daily attention to ensure proper performance. Most of the facilities that will be utilizing this permit are in remote areas, at unmanned facilities, and are only periodically monitored. For these reasons, not only are CEMS systems inefficient and costly, but they are unlikely to produce meaningful or reliable data (for example, CEMS are totally ineffective at measuring the performance and compliance of a catalyst, as it will gradually degrade over time making a periodic testing the only effective method). (28)

Continuous parametric monitoring of pressure drop has been demonstrated to be an ineffective means of determining compliance especially when compared to initial pressure drop measured at the time of compliance testing when the load can be artificially induced. Therefore the commentator recommends eliminating Conditions B.5(b), B.5(c) and B.5(d). (29)

The requirements in Condition B.5(e) mimic requirements required by 40 CPR Part 63, Subpart ZZZZ. The Department should postpone rule development concerning SI ICE until those rule revisions are published. (29)

The record keeping requirement in Condition B.5.(g) has no value as to demonstrate compliance. (29)

The commentator does not believe that requiring monthly records of temperature and pressure and AFR controller settings should be required for emergency units. (33)

The commentator requests that the Department remove the requirement for monitoring the AFR controller setting on a weekly basis. Monthly monitoring should be adequate to ensure that the setting remains unchanged. (33)

***Response:*** In the final GP-5, the Department requires periodic monitoring every 2,500 hours and requires that all control equipment be operated in accordance with manufacturer's specification, procedures and recommended maintenance schedule. Therefore, parametric monitoring for catalysts, including pressure drop and temperature monitoring for oxidation catalysts, pressure drop monitoring for NSCR, have not been included in the final GP-5. However, the engines subject to 40 CFR Part 63, Subpart ZZZZ must comply with all applicable requirements, including parametric monitoring.

**147. Comment:** In Section B.5, clarify that these conditions are only applicable to certain engines under ZZZZ. (22)

The work practice and monitoring requirements with specific references to NESHAP Subpart ZZZZ and NSPS Subpart JJJJ should simply be stated as a reference, rather than spelling out these specific requirements. One commentator suggested rewording this Condition to state that compliance with NSPS subpart JJJJ and NESHAP Subpart ZZZZ constitutes compliance with the applicable provisions of the General Permit. (23, 26, 34)

***Response:*** The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference. In addition to federal requirements, each SI ICE covered under GP-5 is also subject to the state BAT requirements. Consequently, this condition is applicable to all SI ICEs operated under GP-5, not only for certain engines subject to 40 CFR Part 60, Subpart JJJJ and/or 40 CFR Part 63, Subpart ZZZZ. Therefore, rewording of this condition is not necessary.

**148. Comment:** The commentator supports condition 5. (44)

***Response:*** The Department appreciates the comment.

## Proposed B6: Notification, Recordkeeping, and Reporting Requirements for Spark Ignition Internal Combustion Engines

**149. Comment:** Condition 6(a) should be reworded to state "The owner or operator of a SI ICE shall comply with the *applicable* notification …" (23, 24, 26, 30, 34)

***Response:*** The Department agrees with the commentator and has revised the final GP-5 accordingly.

**150. Comment:** Condition B.6(a) could be deleted because these provisions could be incorporated by reference to 40 C.F.R. Part 60, Subpart JJJJ and Part 63 ZZZZ elsewhere in the general permit. (28)

***Response:*** The condition has been revised to include the word "applicable".

**151. Comment:** Condition B.6(b)(ii) should state *"Copies of the report that demonstrates that the SI ICE was operating within 10 percent of 100 percent peak (or the highest achievable) load during performance testing"* per Subpart JJJJ, 60.4244(a). (23, 24, 26, 27, 30, 34)

The Department should include a section that allows for an engine that tests below 10 percent of maximum load design capacity to operate as long as the engine does not operate over 110% of the load at the time of initial testing. (29)

***Response:*** The Department has revised the testing condition in the final GP-5 to include "Engine test load conditions shall be representative to within 10 percent of 100% peak or the highest achievable load." This is consistent with 40 CFR Part 60, Subpart JJJJ. Proposed Condition 6(b) has not been included in the final GP-5 as it is redundant.

**152. Comment:** Conditions B.6(b)-(d) could be replaced with a single provision that requires owners/operators to keep copies of all test reports submitted pursuant to B.4(e) for a minimum of five years, and that requires owners/operators to make these records available to the Department upon request. (28)

***Response:*** The Department disagrees with the commentator. Condition 6 pertains to notification, recordkeeping, and reporting requirements. Proposed Condition 6(b) has not been included in the final GP-5 as it is redundant.

**153. Comment:** The commentator supports Condition 6. (44)

***Response:*** The Department appreciates the comments.

## Proposed Section C: Standards and Requirements for Simple Cycle Gas Turbines

### Proposed C1: Emission Standard for Simple Cycle Turbines

### General BAT Comments

**154. Comment:** DEP should finalize the proposed emission limits for turbines as an effective means of reducing air pollution emissions and ensure these limits are cohesive with existing turbine limits. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

***Response:*** The Department reevaluated uncontrolled emissions, control efficiency of various controls, and stack test results for simple cycle turbines. Based on the reevaluation, the Department has revised the emission limits in the final GP-5 for simple cycle turbines, as appropriate. The detailed basis for the BAT in the final GP-5 is included into the technical support document.

**155. Comment:** A condition should be added stating that Best Available Technology determination made in accordance with previous versions of general permit shall remain in effect for the life of the source, unless reconstructed as defined in Condition A.2 of this general permit, or modified as defined in 25 Pa. Code §121.1. (26)

***Response:*** The previous GP-5 was not applicable to gas turbines. However, for existing engines and dehydrators, the final GP-5 contains conditions that allow these sources to operate with emission limitations and other requirements established in the previous GP-5, unless the sources are reconstructed or modified.

**156. Comment:** The commentator requests that PADEP add qualifiers to Section C.1.(b) similar to those found in 40CFR60 Subpart KKKK that limit the applicability of the emission limits to operating loads greater than 75% load and operating temperatures greater than 0°F. (20)

***Response:*** While the source must comply with the allowable emission standards and other requirements at all times, performance testing to demonstrate compliance with the emission limitations is required within 10 percent of the 100% peak load or the highest achievable load. Compliance with the emission limitations at all times except for start-up and shut-down is required.

**157. Comment:** Referencing Section B 2, it is explicitly stated in the heading Best Available Technology Requirements; BAT is not indicated specifically anywhere in this section. It would seem that in the interests of Pa. Code 127.1 that BAT be a requirement for Section C. Standards and requirements for simple cycle gas turbines. (44)

***Response***: As stipulated in GP-5, the regulatory reference in Section C, Condition 1(a) to 25 Pa. Code §§ 127.1 and 127.12(a)(5) shows that the emission standards were established as BAT. The heading "Best Available Technology Requirements for New Stationary SI ICE" in Section B, Condition 2 has been revised to "Emission Standards for New Stationary Engines" and also the regulatory reference to 25 Pa. Code §§ 127.1 and 127.12(a)(5) has been included in Section B, Condition 2(a).

**158. Comment:** The commentator supports these levels provided there is a mechanism for a periodic, not greater than biannual review that will update the GP-5 to reflect incremental BAT improvements. The commentator also noticed that the VOCs and HAPs are not included in this BAT requirement. Since, at a minimum, Federal standards would apply, any requirement for more stringent BAT that would provide for public health and safety and environmental considerations balanced with the needs of industry is welcomed. (44)

***Response:*** The Department periodically reviews all of its GPs to ensure that the BAT continues to be representative of state of the art of technology to control the air emissions. During this evaluation, the Department will consider the BAT determinations included in plan approvals, which are determined on a case-by-case basis. At any time if the Department determines that GP-5 is not adequately reflecting the state of the art technology, GP-5 will be amended. While the Department does periodically review its BAT determinations, it does not believe that a set timeframe is appropriate.

Non-methane non-ethane hydrocarbons (NMNEHC) emission limitations have been included in the final GP-5. NMNEHC is representative of VOCs. Formaldehyde is the predominant HAP emission from natural gas-fired simple cycle turbines. The Department calculated that for a 5,000 horsepower turbine, formaldehyde emissions are less than 0.063 ton per year (based on 0.0003 lb/MMBtu). For a 30,000 horsepower turbine, formaldehyde emissions are less than 0.08 ton per year (based on 0.0001 lb/MMBtu). Because the formaldehyde emissions are very low for these sources, the final GP-5 does not include emission limitations for formaldehyde from turbines.

### Nitrogen Oxides (NOx) for Turbines

**159. Comment:** The commentator recommends PADEP more closely align the emission standards with the size categories and emissions levels founds in 40CFR60, Subpart KKKK and recent Best Available Technology (BAT) determinations in Pennsylvania. (20)

Solar Turbines offers a Centaur 40-4700S turbine (< 5000 hp); however, due to its combustor design, can only meet 25 ppm NOx. The commentator recommends that Condition 1(b)(i) is reworded to require all stationary combustion turbines with rating ≥ 5,000 hp to meet a 15 ppm NOx standard and all stationary combustion turbines with rating < 5,000 hp to meet NOx standard of 25 ppm.
(23, 26, 34)

Rather than limiting NOx emissions for all turbines to 15 ppm it is suggested that Condition C.1(b)(i) be reworded to require all stationary combustion turbines with rating ≥ 5,000 hp to meet a 15 ppm NOx standard and all turbines with a rating < 5,000 hp to meet a NOx standard of 25 ppm. Some smaller turbines cannot meet the 15 ppm limit due to their combustor design. (30)

Turbines with a rating of ≥ 5,000 hp are able to meet a 15 ppm NOx standard, but smaller units are not able to meet this limit. A limit of 25 ppm NOx for turbines with a rating of <5,000 hp is representative of the current BAT for smaller units. (33)

***Response:*** The Department reevaluated uncontrolled emissions, control efficiency of various controls, and stack test results for simple cycle turbines. Based on the reevaluation, the Department has revised the $NO_X$ emission limits in the final GP-5 for

simple cycle turbines, as appropriate. The detailed basis for the BAT in the final GP-5 is included into the technical support document.

Vendors' guaranteed data show that natural gas fired turbine with dry low $NO_X$ combustor, and rated at less than 5000 bhp can achieve equal to or less than 25 ppm of $NO_X$ emissions @ 15% oxygen. The Department evaluated cost effectiveness for SCR technology for these turbines with uncontrolled $NO_X$ emissions of 25 ppmvd @ 15% oxygen. Based on the evaluation the Department found that the cost effectiveness for SCR technology range from $45,000 to $62,000 per ton of $NO_X$ removed for turbines rated equal to or greater than 1000 bhp and less than 5000 bhp. Therefore, SCR technology is considered as a cost prohibitive option for $NO_X$ control.

A review of the stack test results indicates that $NO_X$ emissions of 25 ppmvd @ 15% oxygen is achievable for turbines rated at equal to or greater than 1000 bhp and less than 5000 bhp. Based on the above the Department has determined 25 ppmvd @ 15% $O_2$ as BAT for $NO_X$ for turbines rated equal to or greater than 1000 bhp and less than 5000 bhp.

**Proposed Carbon Monoxide (CO) and Non-Methane Non-Ethane Hydrocarbons (NMNEHC) for Turbines**

**160. Comment:** The commentator recommends PADEP more closely align the emission standards with the size categories and emissions levels founds in 40CFR60, Subpart KKKK and recent Best Available Technology (BAT) determinations in Pennsylvania. (20)

The commentator questions the necessity of general permit emissions standards for VOC. Under the assumption that PADEP does not agree, the commentator would support a limit of 25 ppm VOC. (20)

Condition C.1.(b)(ii) proposes a CO standard of 5 ppm. An oxidation catalyst would be required to meet this aggressive, Lowest Available Emission Rate (LAER) equivalent, emission standard. Requiring a CO catalyst will not result in a measurable, cost effective improvement in air quality since the CO emissions reductions estimated from the technology are largely "on paper only" emissions. It has recently been demonstrated in plan approval applications that both the 25 ppm CO level and 50 ppm CO level are BAT for turbines. (20)

The NMHC standard of 10 parts per millions, by volume, dry basis ("ppmvd") corrected to 15% oxygen for stationary combustion turbine is achievable with BAT, but it is not possible to measure NMHC using portable test equipment. The commentator recommends removing this condition from the permit. (23, 34)

The Department offers no basis for a CO standard of 5 parts per million, by, volume, dry basis ("ppmvd"), corrected to 15 percent oxygen for simple cycle turbines. This emission

standard which is lower than those demonstrated to be Best Available technology in recent Plan Approval applications. (23, 34)

Conditions C.1.(b)(ii) and C.1.(b)(iii) impose CO and NMHC standards of 5 ppm and 10 ppm, respectively. An oxidation catalyst would be required to meet these aggressive emission standards. The Department offers no basis for these emission standards. (26)

Condition C.1.(b)(ii) imposes a CO standard of 5 ppm parts per million, by volume, dry basis ("ppmvd"), corrected to 15 percent oxygen. An oxidation catalyst would be required to meet this aggressive emission standard. Cost of further CO emissions control by oxidation catalyst is estimated to be at least $8,800 to $13,700/ton of CO-year. As recently demonstrated in Plan Approval applications, 25 ppm CO is BAT for all turbines with a rating ≥ 5000hp and 50 ppm for smaller turbines. The commentator recommends these emission levels reflect BAT in the General Permit as well. (30)

Turbines with a rating of ≥ 5,000 hp are able to meet a 25 ppm standard for CO, but smaller units are not able to meet this limit without installation of controls such as oxidation catalyst. By retaining the same limit across the entire range of power ratings, the use of small turbines becomes less economically attractive when compared with internal combustion engines. A limits of 50 ppm CO for turbines with a rating of <5,000 hp is representative of the current BAT for smaller units. (33)

***Response:*** The Department reevaluated uncontrolled emissions, control efficiency of various controls, and stack test results for simple cycle turbines. Based on the reevaluation, the Department has revised the emission limits in the final GP-5 for simple cycle turbines, as appropriate. The detailed basis for the BAT in the final GP-5 is included into the technical support document.

Vendors' guaranteed data show that natural gas fired turbine with dry low $NO_X$ combustor, and rated at equal to or greater than 1000 bhp and less than 15,000 bhp can achieve equal to or less than 25 ppm of CO emissions @ 15% oxygen. The Department evaluated cost effectiveness for oxidation catalyst technology for these turbines with uncontrolled CO emissions of 25 ppmvd @ 15% oxygen. Based on the evaluation, the Department found that the cost effectiveness for oxidation catalyst technology is as high as $10,000 per ton of CO and HC removed for turbines rated equal to or greater than 1000 bhp and less than 15,000 bhp. Therefore oxidation catalyst technology is considered as a cost prohibitive option for CO control.

A review of the stack test results indicates that CO emissions of 25 ppmvd @ 15% oxygen is achievable for turbines rated at equal to or greater than 1000 bhp and less than 15,000 bhp. Based on the above, the Department has determined 25 ppmvd @ 15% $O_2$ as BAT for CO for turbines rated equal to or greater than 1000 bhp and less than 15,000 bhp.

Vendors' guaranteed data show that natural gas fired turbine with dry low $NO_X$ combustor, and rated at equal to or greater than 1000 bhp and less than 15,000 bhp can

achieve equal to or less than 25 ppm of HC emissions @ 15% oxygen (as methane). The Department evaluated cost effectiveness for oxidation catalyst technology for these turbines with uncontrolled HC emissions of 25 ppmvd @ 15% oxygen (as methane). Based on the evaluation, the Department found that the cost effectiveness for oxidation catalyst technology is as high as $10,000 per ton of CO and HC removed for turbines rated equal to or greater than 1000 bhp and less than 15,000 bhp. Therefore oxidation catalyst technology is considered as a cost prohibitive option for HC control.

Based on the above, the Department would have determined 25 ppmvd @ 15% $O_2$ (as methane) as BAT for NMNEHC for turbines rated equal to or greater than 1000 bhp and less than 15,000 bhp. In order to accurately quantify hydrocarbons from the exhaust of these turbines, the limit has been converted into NMNEHC, reported as propane. The Department has determined 9 ppmvd @ 15% $O_2$ (as propane) as BAT for NMNEHC for turbines rated equal to or greater than 1000 bhp and less than 15,000 bhp.

Vendors' guaranteed data show that natural gas fired turbine with dry low NOx combustor, and rated at equal to or greater than 15,000 bhp can achieve equal to or less than 25 ppm of CO emissions @ 15% oxygen. The Department evaluated cost effectiveness for oxidation catalyst technology for these turbines with uncontrolled CO emissions of 25 ppmvd @ 15% oxygen and a CO control efficiency of 80%. However, catalyst systems are able to achieve CO reduction as high as 99% at higher capital cost. Based on the evaluation, the Department found that the cost effectiveness for oxidation catalyst technology ranges from $4,000 to $6,500 per ton of CO, VOCs, and formaldehyde removed for turbines rated equal to or greater than 15,000 bhp.

For a natural gas-fired turbine, the Department determined that an oxidation catalyst is economically feasible for the control of CO emissions at $5,071 per ton CO removed. The Department determined that the use of oxidation catalyst is considered as BAT for the control of CO emissions from gas turbines. The Department has determined that the use of an oxidation catalyst to control emissions of CO, VOCs, and formaldehyde has been determined to be BAT for Solar Mars 100-15002S III turbines rated at 13,300 bhp and 15,000 bhp constructed at the Texas Eastern, Holbrook compressor station in Green County, Solar Mars turbine rated at 16,000 bhp constructed at the Dominion Finnefrock compressor station in Clinton County, Solar Mars turbine rated at 15,000 bhp constructed at the Tennessee Gas Pipeline, 315 station in Tioga County, and a Solar Mars turbine rated at 15,000 bhp constructed at Penn State University in Centre County. Therefore, oxidation catalyst technology is considered as a cost effective option for CO control at an uncontrolled baseline CO emission level of 25 ppm @ 15% $O_2$.

However, actual emission data from new turbines rated equal to or greater than 15,000 bhp indicates that 10 ppm of CO at 15% $O_2$ has been achieved. The Department evaluated cost effectiveness for oxidation catalyst technology for these turbines with uncontrolled CO emissions of 10 ppmvd @ 15% oxygen. Based on the evaluation, the Department found that the cost effectiveness for oxidation catalyst technology is greater than $15,000 per ton of CO and HC removed for turbines rated equal to or greater than 15,000 bhp. Therefore oxidation catalyst technology is considered as a cost prohibitive

option for CO control at an uncontrolled baseline CO emission level of 10 ppm @ 15% $O_2$. Therefore, the Department has determined an emission limit of 10 ppmvd @ 15% $O_2$ or a CO reduction efficiency requirement of 93% as BAT for CO for simple cycle turbines rated at equal to or greater than 15,000 BHP.

Vendors' guaranteed data show that natural gas fired turbine with dry low $NO_X$ combustor, and rated at equal to or greater than 15,000 bhp can achieve equal to or less than 25 ppm of HC emissions @ 15% oxygen (as methane), which is equivalent to 9 ppm of HC emissions @ 15% oxygen (as propane). However, actual emission data from new turbines rated equal to or greater than 15,000 bhp indicates that 5 ppm of NMNEHC at 15% $O_2$ (as propane) has been achieved. An oxidation catalyst can typically reduce NMNEHC emissions from turbines by 50%. Therefore the Department has determined an NMNEHC emission limit of 5 ppmvd @ 15% $O_2$ (as propane) or a NMNEHC reduction efficiency requirement of 50% as BAT for simple cycle turbines rated at equal to or greater than 15,000 BHP.

### Proposed Formaldehyde (HCHO) for Turbines

**161. Comment:** The commentator questions the necessity of general permit emissions standards for formaldehyde. Under the assumption that PADEP does not agree, the commentator would support a limit of 0.00288 lb formaldehyde /MMBtu (HHV) (20)

All other limits should be consistent with NSPS Subpart KKKK, including 0.00288 lb formaldehyde/MMBtu. (23, 34)

The formaldehyde emission standard for simple cycle turbine is not achievable and is not consistent with the EPA document entitled *Revised HAP Emission Factors for Stationary Combustion Turbines,* OAR-2002-0060, IV-B-09, 08/22/03. In this document, the EPA specifies an emission factor of 0.00288 lb/MMBtu for lean premix gas turbines < 50 MW burning natural gas (95% upper confidence of data). It is suggested that the 0.00288 lb/MMBtu emissions standard be reflected in the General Permit. (23, 26, 30, 34)

***Response:*** Because the formaldehyde emissions are very low for these sources, the final GP-5 does not include emission limitations for formaldehyde from turbines. The Department calculated that for a 5,000 horsepower turbine, formaldehyde emissions are less than 0.063 ton per year (based on 0.0003 lb/MMBtu). For a 30,000 horsepower turbine, formaldehyde emissions are less than 0.08 ton per year (based on 0.0001 lb/MMBtu). Therefore, the Department has removed the formaldehyde emission standards from the final GP-5.

### Proposed Sulfur Limits for Turbines

**162. Comment:** The commentator questions the necessity of general permit emissions standards for sulfur. Under the assumption that PADEP does not agree, the commentator would support a limit of 20 grains sulfur per 100 standard cubic feet of fuel. (20)

All other limits should be consistent with NSPS Subpart KKKK, including 20 grains sulfur per 100 standard cubic feet of fuel. (23, 34)
The Department offers no basis for a fuel sulfur standard of 1.5 grains per 100 standard cubic feet for simple cycle turbines, which is not consistent with that found in NSPS Subpart GG. It is recommended that the sulfur content requirement in Condition C.1(b)(v) to be no greater than 20 grains per 100 standard cubic feet of fuel. (23, 26, 30, 34)

***Response:*** Sulfur will only be present in the exhaust of gas turbines when it is contained in the fuel. In most cases, natural gas contains only a trace amount of sulfur, if any. Since the $SO_2$ emissions are of minor significance from natural gas-fired turbines, the GP-5 does not include additional $SO_2$ emission limitations or stack testing for turbines. Turbines must comply with all applicable requirements of 40 CFR Part 60, Subpart KKKK.

### Proposed Particulate Matter Limits for Turbines

**163. Comment:** The commentator questions the necessity of general permit emissions standards for PM. (20)

***Response:*** PM emissions from turbines primarily result from carryover of noncombustible trace constituents in the fuel. Even though the filterable portion of the total particulate matter from natural gas-fired turbines is low, the condensable portion of the total particulate matter is considerably higher than the filterable particulate matter. For the purposes of GP-5, the particulate matter emission limitations include filterable and condensable particulate matter emissions. The total PM emission limitations remain in the final GP-5.

### Proposed C2: Start-up and Shut-down Exception for Simple Cycle Turbines

**164. Comment:** Section C.2 requires emissions from startup and shutdown to be included in the 12-month rolling sum. The commentators request that this portion be deleted as it provides no useful information for determining compliance. (23, 34)

The last sentence of Condition C.2 should state, *"Emissions from start-up and shut-down should be included in the Annual Source Reports as required by Condition A.11(a)."* (26)

As emission limitations do not apply during startup and shutdown, it is requested the 12-month rolling sum requirement is removed as it provides no useful information for determining compliance. (30)

The proposed permit requires that the start-up and shut-down emissions be included in the 12-month rolling sum of emissions. The commentator asks that the Department reconsider this recordkeeping requirement because it does not provide useful information for determining compliance since the General Permit does not apply during these periods. (33)

***Response:*** The final GP-5 is applicable only to non-major facilities. While the final GP-5 does not require any specific emission limitations during start-up and shutdown periods, the emissions from all the sources located at the facility, including during periods of start-up, shutdown, and malfunction, must be accounted in the 12-month rolling sum of facility-wide emissions to demonstrate compliance with the facility-wide emission limitations in the final GP-5. Therefore, no changes are warranted.

## Proposed C3: Simple Cycle Gas Turbine Core Replacements

**165. Comment:** The commentator asks that PADEP remove the term "major source" from Condition 3.(a). (20)

Section 3(C)(x) would establish a replacement period of 15 years for simple cycle gas turbine cores. BAT should be revisited every time a turbine core is replaced with a new one, and the new core should incorporate the most current technology. (9)

A simple cycle turbine core replacement is a routine maintenance activity, and is neither a modification nor a reconstruction, and thus does not trigger a situation where installation of lower emitting core would be required. Thus, we believe that this entire section should be deleted. (23, 26, 34)

An overhaul is the complete disassembly, inspection, rework, reassembly and test of a gas turbine to original thermodynamic and mechanical performance. Routine overhaul of the modules is a fundamental assumption of product design. The primary reasons for centralized overhaul include lower cost of overhaul, minimal downtime, quality assurance, and the ability to optimize and verify firing temperature, emissions, and other engine parameters in a test cell prior to shipping to a customer site. The commentator suggests that this section be rewritten. (20)

The Commentator recommends Condition C.3.(a)(iv) be removed from the permit. Turbine core replacements should be done in accordance with the NSPS Rule. (20, 30)

Commentator suggested that the turbine core replacement notice is provided thirty (30) days after the turbine core is replaced. (26)

Condition C.3(a)(ii) should be removed from the permit. (26)

Condition C.3(a)(v) should be removed as it discusses a written notice from the owner or operator of any existing major facility, but major facilities are not eligible for General Permit. (23, 30, 34)

Condition C.3(a)(v) should be removed as it discusses a written notice from the owner or operator of any existing major facility but major facilities are not eligible for a General Permit. (20, 26)

Conditions C.3(a)(viii) and C.3(a)(x) should be removed from the General Permit as characteristics beyond the turbine core itself impact emissions. (26)

Condition C.3(a)(ix) should be modified to allow for testing of the turbine core replacement within 180 days of completing the replacement to be consistent with initial startup shakedown period. (26)

Solar requests the PADEP delete the testing referenced in C.3.(a)(ix). It's likely that the every 2500-hr testing, Subpart KKKK testing, or permit renewal testing will occur at a frequent enough interval to render the post-routine maintenance overhaul testing redundant. (20)

Condition C.3(a)(x) should be removed or reworded so as not to prescribe requirements for other equipment at site. One commentator adds that requirements for existing equipment should be regulated under RACT rulemaking efforts. (20, 23, 34)

Condition C.3(a)(ix) should be deleted, as there are no provisions for this in KKKK or GG. (23, 30, 34)

The commentator suggests removing Condition C.3.(a)(x) to avoid a permitting impact to other equipment at a location not related to the turbine that may not need to be permitted otherwise. (30)

The commentator suggests removing the "lower emitting core" language. Condition C.3.(a)(x) will address the technical and commercial viability of lowering emissions at 15 year intervals. (20)

The commentator contends that a turbine core exchange that is not a physical or operational change resulting in an emissions increase, should not be subject to permitting, and ask that the Department evaluate other alternatives tor authorizing this activity rather than the all-encompassing approach being contemplated in the proposed general permit. (33)

If the emission rate after the replacement is higher than the current installation, then the replacement would be subject to the New Source Performance Standards (NSPS) and the owner would be required to apply for a new General Permit or a Plan Approval. The

commentator respectfully requests that the Department eliminate the certification and PSD/NSR analysis requirements from the General Permit. (33)

***Response***: Turbine core replacement will be addressed in the plan approval exemption list. In addition, BAT reevaluation for turbine core replacement is more appropriate for plan approval than for general permit. Therefore, the conditions relating to turbine core replacement is not included in the final GP-5.

### Proposed C4: Performance Testing Requirements for Simple Cycle Gas Turbines

**166. Comment:** The initial performance testing should be required only for NOx and Carbon Monoxide (CO) emissions. (23, 30, 34)

Natural gas-fired simple cycle turbines emit very low levels of NMHC and particulate matter. The commentator asks that the initial performance test be required for only NOx and CO emissions as indicators of engine performance. (33)

The NMHC and particulate matter testing requirements be removed because natural gas fired simple cycle turbines emit low levels of NMHC and particulate matter. (23, 26, 30, 34)

***Response:*** Stack tests are required for PM and NMNEHC to demonstrate compliance with the corresponding emission limitations.

**167. Comment:** The EPA has determined that Carbon Monoxide (CO) can be often used as an appropriate surrogate for formaldehyde. Since testing for CO emissions has many advantages over testing for emissions of hazardous air pollutants (HAP), including formaldehyde, it is suggested that the formaldehyde test requirements is removed and replaced by using CO as an appropriate surrogate for formaldehyde testing. (23, 26, 30, 34)

EPA studies have shown that CO is an appropriate surrogate for formaldehyde. These studies, coupled with the more robust test protocols available for CO, support the use of CO as a reliable indicator of engine performance and emission rates. (33)

***Response:*** Because the formaldehyde emissions are very low for these sources, the final GP-5 does not include emission limitations for formaldehyde from turbines. The Department calculated that for a 5,000 horsepower turbine, formaldehyde emissions are less than 0.063 ton per year (based on 0.0003 lb/MMBtu). For a 30,000 horsepower turbine, formaldehyde emissions are less than 0.08 ton per year (based on 0.0001 lb/MMBtu). Therefore, the Department has removed the formaldehyde emission standards from the final GP-5.

**168. Comment:** Condition C.4(b) regarding emissions monitoring every 2,500 hours of operation and no sooner than 45 days from the previous test should be revised to be

consistent with the NSPS Subpart KKKK, which requires an initial performance test, as required in § 60.8, and subsequent NOx performance tests be conducted on an annual basis (no more than 14 calendar months following the previous performance test.) (23, 34)

***Response:*** 40 CFR Part 60, Subpart KKKK requires an initial performance test, as required in § 60.8, and subsequent $NO_X$ performance tests be conducted on an annual basis (no more than 14 calendar months following the previous performance test.). The final GP-5 requires the periodic monitoring of $NO_X$ and CO every 2,500 hours of operation to verify continued compliance. If annual testing was done to comply with Subpart KKKK, such testing could be used in lieu of periodic testing. This requirement has been amended to include "If a Department approved test has been performed within 45 days prior to the scheduled periodic monitoring this test may be used in lieu of the periodic monitoring for that time period."

**169. Comment:** The requirement to notify the Department at least 60 days prior, and to commence testing once approval of the protocol is received are not acceptable. First, the advance test notification should only be required for EPA reference method testing and the advance notification period should be shortened to thirty (30) days. Second, the last sentence of Condition 4(e) should be removed as we should not have to wait for the Department to approve the test protocol. (26)

***Response***: The Department agrees that thirty days is consistent with the Source Testing Manual. The condition has been revised accordingly in the final GP-5. The protocol acceptance letter is necessary to identify that the protocol was received and the protocol is appropriate for the test that is proposed under conditions specified in the permit. The letter is beneficial to the source owner in that if the test as proposed is not administered correctly, the test results could be rejected and the test would be required to be repeated.

**170. Comment:** Condition C.4(e)(ii) should be clarified to indicate that this test protocol is for the EPA Reference Method testing to be conducted every 8760 hours or three years, whichever comes first. (23, 34)

***Response:*** Approved test protocols do not need to be resubmitted unless the Department requests a protocol or changes have been made to the approved protocol. The protocol acceptance letter is necessary to identify that the protocol was received and the protocol is appropriate for the test that is proposed under conditions specified in the permit. The letter is beneficial to the source owner in that if the test as proposed is not administered correctly, the test results could be rejected and the test would be required to be repeated.

**171. Comment:** Condition C.4(f) should be removed as Condition C.4(e) provides the requisite advance notification of emission monitoring (23, 26, 30, 34)

***Response:*** Regional staff members need to be informed of testing events as well as Central Office staff so that staff members from both offices can be present for the testing program, if necessary.

**172. Comment:** Condition C.4(g) should be removed as it provides no meaningful information. As required by Condition 4(h), the emissions monitoring report will be submitted to the Department in the time period specified. (23, 26, 30, 34)

***Response:*** This requirement is included in order to ensure that the Department is aware that the test was conducted and is expecting to receive a test report within 60 days of the test completion date.

**173. Comment:** The commentators request that the portable analyzer monitoring results need not be submitted to the Department, that the records are maintained and made available to the Department upon request. (23, 34)

***Response:*** The Department disagrees with the commentator. The condition remains in the final GP-5. The data needs to be submitted to the Department in order to demonstrate compliance with the emission limitations.

**174. Comment:** Condition C.4(h) requires a complete test report to be submitted to the department no later than thirty (30) calendar days after completion of the testing. The commentators request that instead of thirty (30) days, sixty (60) calendar days requirement be used. One commentator pointed out that this change is consistent with NSPS requirements. (23, 26, 30, 34)

***Response:*** Per the EPA National Clean Air Act National Stack Testing Guidance document:

The test report should be submitted to the delegated agency as soon as possible after completion of the stack test and, at a minimum, in compliance with any underlying regulatory requirements. For stack tests being conducted pursuant to 40 CFR Part 60, the test report is to be submitted within 180 days after the initial startup date or within 60 days after reaching maximum production rate.

§ 60.8(a). For those tests being conducted pursuant to 40 CFR Part 61, the test report is to be submitted within 31 days after completion of the test.

§ 61.13(f). If the test is being conducted pursuant to 40 CFR Part 63, the test report must be submitted within 60 days after the test is completed unless another time frame is specified in the applicable subpart.

The Department has revised the condition to require that test reports be submitted within sixty (60) days of the completion of testing. However, the complete test report shall be submitted within 180 days of the startup of the source.

**175. Comment:** The commentators request that the test methods for NMHC, particulate and HCHO are removed from the General Permit. (23, 26, 30, 34)

***Response:*** The test methods in accordance with 40 CFR Parts 60, 61 and 63 have been listed respective for each pollutant. Acceptability of proposed alternative methods should be addressed during the protocol process.

### Proposed C5: Work Practice and Monitoring Requirements for Simple Cycle Gas Turbines

**176. Comment:** The pressure drop across a catalyst bed will vary with the exhaust gas flow rate. At 90% of the flow rate, pressure drop should be ~81% of the 100% flow rate. Depending upon the initial flow rate, this could be more than 2 inches of water difference. At other than 100% flow rates, the operator should use their best judgment as to whether or not corrective action is needed. (At 70% flow rate, pressure drop would be about ½ that at 100% load). (23, 30, 34)

Conditions C.5(b), C.5(c), C.5(d) and C.5(e) are not necessary and should be removed from the permit. Condition C.5(a) sufficiently satisfies all of these requirements by requiring operation of the turbine and associated air pollution control equipment in accordance with manufacturer's specifications. (23, 26, 30, 34)

The commentator is not aware of any regulatory requirement for continuous monitoring of the inlet and outlet temperature on the oxidation catalyst. The commentator asks that the Department consider removing this condition from the General Permit because it is overly burdensome and costly to install a computer-based monitoring system that would be required to comply with this provision. (33)

***Response:*** In the final GP-5, the Department requires periodic monitoring every 2,500 hours and requires that all control equipment be operated in accordance with manufacturer's specification, procedures and recommended maintenance schedule. Therefore, parametric monitoring for oxidation catalysts, including pressure drop and temperature monitoring, have not been included in the final GP-5.

### Proposed C6: Notification, Recordkeeping, and Reporting Requirements for Simple Cycle Gas Turbines

**177. Comment:** Turbines cannot always operate within 10 percent of maximum load design capacity or to within 10 percent of the maximum permitted operating load as proposed by the applicant because turbine load is affected by ambient air temperature (i.e. turbine load decreases as ambient temperature increases). As it is not always possible to operate within 10 percent of maximum load design capacity or to within 10 percent of the maximum permitted operating load as proposed by the applicant, it is suggested that this condition is changed to be consistent with NSPS Subpart KKKK (23, 26, 30, 34)

***Response:*** The final GP-5 requires the owner or operator of a turbine to comply with the notification, reporting, and recordkeeping requirements specified in 40 CFR §§ 60.4245 and 63.6645.

## Proposed Section D: Standards and Requirements for Centrifugal Compressors

**178. Comment:** The commentator supports Section D. (44)

***Response:*** The Department appreciates the comment.

**179. Comment:** The Department should require a description of the dry gas seal system and adopt standards ensuring their proper operation and maintenance in order to avoid significant issues with different dry gas seal system solutions that may fail due to issues with quality and supply of buffer gas. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

Section D. 1 needs to be consistent with the Final 40 CFR Part 60, Subpart OOOO, requirements. (Wet seals are not prohibited.) (22)

***Response:*** The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference. Therefore, the condition in the final GP-5 is consistent with 40 CFR Part 60, Subpart OOOO.

## Proposed Section E: Standards and Requirements for Storage Vessels/Tanks

**180. Comment:** The commentator supports Section E. (44)

***Response:*** The Department appreciates the comment.

**181. Comment:** The GP-5 should include requirements for small throughput storage vessels/tanks to decrease emissions. The control efficiency for storage vessels/tanks should be increased to 98% in the GP-5. DEP should explore other options for reducing emissions from storage vessels/tanks. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

***Response:*** The standards and requirements for storage vessels/tanks are based on the requirements included in 40 CFR Part 63, Subpart HH and 40 CFR Part 60, Subparts OOOO, K, and Kb, as well as 25 Pa. Code §§129.56 and 129.57, as applicable. Therefore, no additional requirements are warranted.

**182. Comment:** To greatly simplify this permit, commentator suggests incorporating the entire section by 40 CFR part 60 subpart OOOO reference. At a minimum, they recommend changing the emission rate applicability from 2.7 tpy for aggregated tanks to 6 tpy per tank to be consistent with the NSPS. (27, 29, 30)

The Commentator encourages the Department to revise the applicable standards for storage vessels/tanks so that they are consistent with the newly finalized requirements at 40 C.F.R. Part 60, Subpart OOOO, Part 63 Subpart HH, and 25 Pa. Code §§129.56 and 129.57 as applicable in accordance with 25 Pa. Code §§ 127.1 and 127.12(a)(5), including the use of common definitions. (28)

The commentator requests that this entire section be deleted and that Subpart OOOO, Subpart HH, Subpart Kb be incorporated by reference in the General Condition section. (25)

***Response:*** The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference. In addition, the final GP-5 incorporates 25 Pa. Code §§ 129.56 and 129.57 by reference. Therefore, the conditions in the final GP-5 are consistent with the NSPS, NESHAP, and the Pa. Code.

**183. Comment:** Section E. 6 & 7 refers to storage tank. The definition of storage tank is not provided in this proposed General Permit. (22)

***Response:*** For the purpose of GP-5, storage tanks and storage vessels are the same. The terms used in GP-5, with the exception of "coal bed methane" and "natural gas compression and/or processing facility", are already defined in Section 3 of the APCA (35 P.S. § 4003), 25 Pa. Code, Chapters 121 - 145 and applicable definitions codified in the Code of Federal Regulations including 40 CFR Part 60 Subparts Kb, KKK, LLL, JJJJ, KKKK, and OOOO and 40 CFR Part 63 Subparts HH and ZZZZ. To avoid possible discrepancies in the interpretation of terms, the Department is including these definitions by reference in the final GP-5.

**184. Comment:** Section E.7 references 25 Pa. Code 129.57 which is applicable to above ground stationary storage tanks with a capacity equal to or greater than 2,000 gallons and less than or equal to 40,000 gallons which contain volatile organic compounds. E.7 should be changed to include the range, not just less than or equal to 40,000 gallons. (22)

***Response:*** For the purpose of GP-5, in accordance with 25 Pa. Code §§ 127.1 and 127.12(a) (5), the owner or operator of each storage tank with a capacity less than or equal to 40,000 gallons shall also comply with the requirements in 25 Pa. Code § 129.57. Storage tanks with a capacity equal to or less than 2,000 gallons may qualify for exemption from permitting requirements.

## Proposed Section F: Standards and Requirements for Glycol Dehydrators

**185. Comment:** The commentator supports Section F. (44)

***Response:*** The Department appreciates the comment.

**186. Comment:** DEP's GP-5 should require dehydrators to reduce HAP and VOC emissions by 98%. Other dehydrator technology is available to achieve greater than 98% control of emissions and should be included as requirements in DEP's GP-5 where feasible. Solid desiccant dehydrators are effective alternatives in cases where zero emission dehydrators are not feasible. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

Application of BAT requires more stringent controls. Currently, well-designed and well-operated flares or thermal oxidizers routinely achieve 98-99% VOC control; Condition F(1)(a) should be revised accordingly. (9)

Section F(3)(c) requires 95% control of hazardous air pollutants (HAPs) in accordance with 40 CFR § 63.771(e). This should be the minimum control level for VOCs; in fact, control rates of 98-99% are routinely achieved. (9)

NESHAP subpart HH should govern the regulation of emissions from glycol dehydrators. GP-5 should simply state that the permittee shall comply with applicable provisions of NESHAP subpart HH. To the extent that the Department disagrees and proceeds to impose additional or more stringent requirements, the Department should clearly state which conditions are imposed under state law and provide the detailed analysis to support the rationale for including such restrictions. (25)

***Response:*** New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The applicable emission limits of Federal NSPS and NESHAPS will serve as a baseline for determining the BAT.

The resources utilized in the determination of BAT include the data in the EPA's RACT/BACT/LAER Clearinghouse (RBLC), BAT included in the plan approvals which are determined on a case-by-case basis, general permits and other permits issued by other states, such as Ohio, West Virginia, and Colorado, for similar sources. For example, Ohio and West Virginia have finalized General Permits for Oil and Gas Industry. The Department also evaluated vendors' guaranteed emission limits and the available stack test data for the applicable sources.

The emission limitations included in the GP-5 must be technically and economically achievable. In addition these emission limitations must be sustainable during the life of the unit. The Department has determined that the emission limitations in the final GP-5 constitute BAT. The basis for the emission limitations in the final GP-5 is included in the technical support document, which is available on the DEP website.

The final GP-5 contains a condition for existing glycol dehydrators authorized to operate under previous GP-5 to continue to comply with the same emissions standards and other

requirements. The final GP-5 contains a condition for new or reconstructed glycol dehydrators requiring compliance with BAT and 40 CFR Part 63, Subpart HH, as applicable. The BAT for the new or reconstructed glycol dehydrators not subject to 40 CFR Part 63, Subpart HH with a potential VOC emission rate in excess of five tons per year is the reduction of VOC emissions from the dehydrator still vent stream of at least 95%. This requirement is consistent with the requirement contained in the oil and gas general permit from Ohio EPA. Additionally, during the development of 40 CFR Part 60, Subpart OOOO and 40 CFR Part 63, Subpart HH, EPA reviewed source test data and determined that a destruction efficiency of 95% is appropriate for continuous compliance of the glycol dehydrator.

**187. Comment:** Allowing the Department the authority to approve "alternative methods" on a case-by-case basis is inconsistent with the requirement that general permits be used only to regulate sources that can be adequately regulated using standardized specifications and conditions. (9)

***Response:*** The owner or operator may choose any appropriate method to meet the required control efficiency, as long as it is approved by the Department. The term "as approved by the Department" does not imply that a requirement lower than required control efficiency will be approved.

**188. Comment:** Vapor combustors, as well as traditional flares, will be used in "wet" gas areas with high Btu gas only, eliminating the need for heat content requirement and of waste gas and the inherent design of these units eliminate any concerns regarding residence time. The commentator recommends inserting the following requirement for enclosed vapor combustors:

*A glycol dehydrator using an enclosed vapor combustor as an air cleaning device shall ensure continuous presence of the pilot flame by monitoring the temperature, installing an automatic re-ignite system that will attempt to relight the pilot should it extinguish and incorporate an alarm should the re-ignite function fail.* (24, 27, 30)

Daily visual flare observations for the presence of a pilot flame are not possible at unmanned facilities and for enclosed ground level flares. The commentator recommended the following changes to Condition F.1(c):

*…content of the flare gas above 300 Btu/scf, and by documenting daily visual observations of the continuous presence of a flame, or documentation of pilot temperature using a thermocouple and data acquisition system.* (24, 27, 29, 30)

In Condition F.1(c) the requirement to perform and document daily visual observation for the presence of flame should be removed from the general permit. (26)

***Response:*** The condition allows for the use of a condenser, a flare, or other air cleaning device. A combustor may be considered a flare or considered "other air cleaning device". The final GP-5 has been revised to allow the options for the owner or operator to

document daily visual observations of the continuous presence of a flame or to equip the flare with a heat sensing monitoring device with a continuous recorder that indicates the continuous ignition of the pilot flame.

**189. Comment:** In Condition F.1.(b) final exhaust temperature at the outlet to a condenser should not be limited to 110°F. Commentator's experience is that condenser temperatures can rise above 110°F during the summer months even in northern climates. (29)

***Response:*** The condition limits the daily average final exhaust temperature to a maximum of 110°F. This was a requirement in the previous GP-5 for glycol dehydrators and the Department has no indication of any issues with compliance. Because this outlet exhaust temperature requirement is achievable, no change is warranted.

**190. Comment:** Condition F(1)(d) imposes limitations on visible emissions from glycol dehydrators using flares. All glycol dehydrators should be subject to these conditions, not just those using flares. (9)

***Response:*** There is a potential for a flare to create visible emissions, therefore a specific visible emission standard is included in the final GP-5. However, all sources must comply with the visible emission requirement contained in 25 Pa. Code §123.41.

**191. Comment:** In Condition F, many paragraphs are not consistent with the final HH rule. Also suggest grouping requirements by NESHAP and then state requirements to minimize confusion. Condition F.4 conditions need to be consistent with the Final 40 CFR Part 63, Subpart HH requirements. (Does not apply to area sources.) Section F.4 a. should be changed to include paragraph a(iii). In Section F.6, the citation should be changed to 40 CFR 63.760 (f)(7). (22)

Section F 4 (b) states: "One or more safety devices that vent directly to the atmosphere may be used on the air emission control equipment installed to comply with paragraph (a)(i) and (ii) of this condition." There is no definition of "safety device". Section A 2 should define this term. GP-5 must include clear standards for logging safety device activations and such logs must become part of the File Review materials. An application for authorization to use GP-5 must clearly indicate all safety devices, and must include PTE for safety device activation events. (45)

***Response:*** The final GP-5 has been revised to incorporate all applicable federal NSPS and NESHAP regulations, including 40 CFR Part 63, Subpart HH, by reference.

**192. Comment:** If the BAT requirements in Conditions F.1 and F.2 are retained in the revised GP-5, Condition F.2 should be incorporated into Condition F.1, by making Condition F.1 applicable to all small glycol dehydration units (as that term is defined in Condition A.4) that have a total uncontrolled potential VOC emission rate in excess of ten tpy. As proposed, these separate standards for small glycol dehydrators are confusing. (28)

***Response:*** The Department has revised the final GP-5 to clarify these conditions.

**193. Comment:** In condition F(2) Benzene glycol dehydrators must have both a long-term limit (mg/yr) and a short term limit (#/hr, or g/sec) for benzene. It is very difficult to definitively establish compliance with a long-term limit, lacking an enforceable short term limit. Emissions testing is conducted in the short term. A long-term limit is not protective of public health. (9)

***Response:*** Section F, Condition 2 of the proposed GP-5 contained a glycol dehydrator applicability threshold for benzene of 0.9 Mg/yr, not a benzene emission limit. This threshold has been incorporated in the final GP-5 by reference.

**194. Comment:** Condition F(5) should be revised to read "greater than or equal to" 6 tpy, and the provision concerning "alternative methods approved by the Department" should be struck. (9)

Section F.5 states that a glycol dehydrator with potential VOC emissions of 6 tpy must control VOC emissions by at least 95% with a condenser, flare or other air cleaning device. Is this an error? Would all the dehydrators be covered by F.1, F.2, F.3 or F.4. (25)

In condition F.5, the requirement for a 95% control of VOC emissions greater than six tons per year should be deleted from the general permit. The provision of Subpart HH and facility-wide emissions limit in the general permit are designed to be sufficiently protective to human health and the environment. (26)

***Response:*** The Department has revised GP-5 to include a condition that the owner or operator of a new glycol dehydrator, which is not subject to the requirements established in 40 CFR Part 63, Subpart HH and has a total uncontrolled potential emission rate of VOC in excess of five (5) tons per year, shall comply with a VOC destruction efficiency of at least 95% and other requirements. This requirement is consistent with the requirement contained in the oil and gas general permit from Ohio EPA.

**195. Comment:** The commentator recommends removing the metric references throughout Section F and replacing them with English units as the metric system is not recognized by the oil and gas industry. (i.e. 85,000 SCM = 3 MMscf, 0.9 megagrams/year = 1.0 ton/yr). (24, 27, 29, 30)

***Response:*** The references are consistent with the thresholds found in 40 CFR Part 63, Subpart HH. The final GP-5 has been revised to incorporate all applicable federal NSPS and NESHAP regulations by reference.

**196. Comment:** In Condition F.1(f), the reference to 40 CFR 60 Subpart KKK should be deleted since this reference pertains to section H for onshore natural gas processing plants. (26)

***Response:*** The Department agrees that the requirement is redundant and has removed this requirement from the glycol dehydrator section in the final GP-5.

**197. Comment:** Section F.1 and F.2 appear to be requirements for non-Subpart HH dehydrators. The commentator requests that this be stated in the general permit. (25)

***Response:*** The final GP-5 includes specific requirements for dehydrators that are subject to 40 CFR 63, Subpart HH, as well as dehydrators that are **not** subject to 40 CFR Part 63, Subpart HH.

**198. Comment:** Referencing Section B 2, it is explicitly stated in the heading ***Best Available Technology Requirements;*** BAT is not indicated specifically anywhere in this section. It would seem that in the interests of Pa. Code 127.1 that BAT be a requirement for Section F. (44)

***Response:*** As stipulated in GP-5, the regulatory reference in Section C, Condition 1(a) to 25 Pa. Code §§ 127.1 and 127.12(a)(5) shows that the emission standards were established as BAT. The heading "Best Available Technology Requirements for New Stationary SI ICE" in Section B, Condition 2 has been revised to "Emission Standards for New Stationary Engines" and also the regulatory reference to 25 Pa. Code §§ 127.1 and 127.12(a)(5) has been included in Section B, Condition 2(a).

**199. Comment:** The commentators suggest changing flare to combustion device to allow the owner/operator the flexibility to use other effective control technologies that may not be able to meet the 40 CFR § 60.18 definition of a flare. Vapor combustors are a very effective means of controlling dehydration unit emissions and should be included in Condition F.1(d). (24, 27, 30)

In Condition F.1(a), control devices should include a combustor as well as a flare with conditions demonstrating compliance such as ensuring presence of pilot flame. (29)

***Response:*** The term "flare" is appropriate in this section of GP-5. The GP-5 allows the owner or operator to meet the VOC reduction standard with a condenser, a flare or other air cleaning device, or any alternative methods as approved by the Department.

## Proposed Section G: Standards and Requirements for Glycol Dehydrator Unit Reboilers with a rated Capacity Equal to or Greater than 10MM BTU/HR Heat Input

**200. Comment:** The commentator supports Section G. (44)

Referencing Section B 2, it is explicitly stated in the heading ***Best Available Technology Requirements;*** BAT is not indicated specifically anywhere in this section. It would seem that in the interests of Pa. Code 127.1 that BAT be a requirement for Section G. (44)

Pennsylvania's GP-5 should include lower NOx and CO limits for glycol dehydrator reboiler units with a rated heat input less than 50 mmBtu/hr. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)
In Section G, clarify the requirements that apply only to NSPS boilers. (22)

For Section G, if it is to follow the requirements of 40 CFR 60, Subpart Dc, then the section title should be corrected to the rated capacity from Dc, which is a "maximum design heat input capacity of 29 megawatts(MW)( 100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h). (22)

The commentator does not agree that a Glycol Dehydrator Reboiler with a heat input rate greater than 10 MMBtu/hr could be subject to 40 CFR Part 60, Subpart Dc for Steam Generating Units. Reboilers between 2.5 and 50 MMBtu/hr heat input should only be subject to the state requirement in 25 Pa. Code § 123.11 (relating to combustion units). We request that Section G be revised to remove any reference to the Subpart Dc NSPA and its applicability date. We do not believe a reboiler meets the definition of "steam generating unit" under the NSPS. (22)

The commentator requests that this entire section be deleted and that Subpart Dc be incorporated by reference in the General Condition section. (25)

Glycol reboilers greater than 10 MMBtu/hr capacity are not typically utilized by the natural gas industry. As such, the general permit need not address reboilers with heat input capacity greater than 10 MMBtu/hr. (26)

Condition G(2)(b) does not reflect BAT. Rather, it is the boiler standard for all existing boilers in the Commonwealth – even those fired with coal. As a basis for comparison, 40 CFR § 60.43(e)(1) is the New Source Performance Standard for small solid fossil fuel fired boilers. It limits particulate matter emissions to .030 #/MMBTU, less than 10% of the cited PA standard. These reboilers will be fired with comparatively clean fuels, most likely natural gas, so this NSPS still does not adequately reflect BAT for these units. The Department must develop and include in GP-5 a current BAT limit for particulate matter. (9)

***Response:*** Typically, the combustion units located at a natural gas compression and/or processing facility, such as glycol dehydrator reboilers, qualify to be exempted from permitting requirements in accordance with the current plan approval and operating permit exemption criteria because the heat input of these combustion units are less than 10 million Btu per hour. Therefore, all requirements pertaining to glycol dehydrator reboilers have been removed from the final GP-5.

The Department has already issued GP-1 for combustion units rated greater than 10 million Btu per hour. The owner or operator of a combustion unit may obtain an authorization under GP-1 for construction and/or operation of such a unit.

## Proposed Section H: Standards and Requirements for On Shore Natural Gas Processing Plants

**201. Comment:** The commentator requests that this entire section be deleted and that Subpart KKK be incorporated by reference in the General Condition section. (25)

***Response:*** The Department has revised the final GP-5 to incorporate all applicable requirements of 40 CFR Part 60, Subpart KKK by reference.

## Proposed Section I: Standards and Requirements for Wellheads

**202. Comment:** DEP Should Expand the Requirements for Reduced Emission Completions to Wildcat and Delineation Wells. Expansion of DEP's GP-5 Proposed Permit Requirements to Well Cleanup Operations Would Result in Significant Additional Methane (and VOC) Emissions Reductions. DEP Should Require the Highest Efficiency Flaring Practices to Decrease VOC and Methane Emissions. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

Section I conditions need to be consistent with the Final 40 CFR Part 60, Subpart OOOO, requirements for REC. (22)

The commentator recommends that emissions from well sites continue to be exempt from air permitting based on the very low or de minimis emissions from sources at the well sties. (25, 35)

DEP should remove this provision as the GP-5 should not include upstream operations. (30)

The commentator requests that this entire section be deleted and that Subpart OOOO be incorporated by reference in the General Condition section. (24, 25, 27)

"Wellheads" or Reduced Emissions Completions (REC's) should not be permitted through the General Permit. (29)

The commentator requests that entire sections K and I be deleted and that Subpart OOOO be incorporated by reference in the General Condition section. (25)

It is recommended that I.2(c) be modified to allow flaring for 5-7 consecutive days and then should further flaring be necessary, the same amount of days flared, for example, if they flared for 5 days, then they must wait 5 days before re-igniting the flare. This is reasonable to those who live nearby. (44)

Section I 3 should be amended to specifically state that the owner or operator must provide a copy of the well completion log to DEP where it will become included in File Review materials. (45)

GP-5 should not be expanded to cover natural gas wells and production facilities for the following reasons (30, 32)

As EPA has acknowledged in its comment letter to the DEP, there is no legal requirement that the NSPS be attached to a permitting scheme. Consequently, no permitting is necessary in order for the DEP to enforce the NSPS. (32)

The proposal to require a GP-5 to cover upstream operations will impose an extreme permitting burden on both the industry and DEP and cause significant delays or curtailment to upstream operations. EPA clearly stated that permitting was not required for the NSPS to be enforceable. Thus, there is no need for yet another permit for oil and gas upstream operations (30, 32)

The proposal to require a GP-5 to cover upstream operations will impose an extreme permitting burden on both the industry and DEP and cause significant delays or curtailment to upstream operations. EPA clearly stated that permitting was not required for the NSPS to be enforceable. Thus, there is no need for yet another permit for oil and gas upstream operations (32)

The proposed revisions to the GP-5 fail to account for various phase-in provisions provided for by Subpart OOOO. The reduced emission completions ("REC") requirements do not come into effect until January 2015, and owners and operators are given a year phase-in period for compliance with storage vessel and pneumatic controller requirements. (32)

Subjecting well completions to the GP-5 will impose unnecessary burdens on the industry as well as significant new administrative burdens of the Department, without any additional environmental benefit. (36)

Finalize the proposed amendments to the permit exemption guidance (DEP ID: 275-2101-003) to provide that the well site operations are exempt from permitting IF the operator complies with the NSPS requirements. (36)

The proposed revisions to the GP-5 fail to account for various phase-in provisions provided for by Subpart OOOO. The reduced emission completions ("REC") requirements do not come into effect until January 2015, and owners and operators are given a year phase-in period for compliance with storage vessel and pneumatic controller requirements. (32)

***Response:*** The Department agrees that the NSPS standards including the 40 CFR Part 60 Subpart OOOO requirements are incorporated into Pennsylvania under 25 Pa. Code Chapter 122. Permitting requirements are not mandated by these NSPS requirements and as such are enforceable as state law as well. The need for requiring permits is evaluated independently. The Department reevaluated the need for including the wellheads and the associated sources in the final General Permit. Due to the limited duration of the temporary operation, the wellheads are not included in the applicability condition of the

final GP-5. However, sources including wellheads must comply with all applicable requirements of 40 CFR Part 60, Subpart OOOO.

However, it should be noted that the Department has proposed revisions to Item #38 (oil and gas exploration, development, and production facilities and associated equipment) of the exemption list for public comment in the February 2, 2013 issue of the *Pennsylvania Bulletin*. The proposed revisions will exempt unconventional wellheads and associated equipment meeting specific criteria.

## Proposed Section J: Standards and Requirements for Equipment Leaks

**203. Comment:** A provision should be added to clarify that compliance with NSPS Subpart KKK or OOOO constitutes compliance with this Section J. (26)

***Response:*** The owner or operator must comply with all requirements of 40 CFR Part 60, Subparts KKK and/or OOOO, as applicable. The owner or operator shall also comply with the requirements established in accordance with 25 Pa. Code Sections 127.1 and 127.12(a)(5). Therefore, compliance with NSPS Subparts KKK or OOOO only does not assure compliance with this section in GP-5.

**204. Comment:** LDAR is only applicable to natural gas processing facilities under OOOO and major sources of HAP emissions under HH. These applicability criteria need to be added to Section J to indicate LDAR is not required at all well pads and gathering/boosting stations. (22)

***Response:*** As discussed in the response to Comment #5, the final GP-5 is not applicable to wellheads.

The owner or operator must comply with all LDAR and other requirements of 40 CFR Part 60, Subparts KKK and/or OOOO, as applicable. The owner or operator shall also comply with the requirements for equipment leaks included in Section H of the final GP-5.

**205. Comment:** DEP should implement an effective equipment leak rule for all natural gas segments, including natural gas production, processing, storage and transmission, and distribution. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

The commentator suggests limiting the LDAR program to gas processing plants, similar to the 40 CFR Part 60 Subpart OOOO requirements. (31)

This section should be completely deleted because VOC and HAP emissions at well sites and compressor stations are negligible. (25)

The commentator strongly encourages only facilities subject to NSPS leak detection requirements be included in this standard. One commentator encourages the Department

to implement an exemption for facilities not subject to NSPS leak detection requirements based on VOC content of the gas. (29, 30, 32)

Condition J.2 goes far beyond any federal requirements, and will result in a costly and unnecessary burden on operators. Unless the Department has information that justifies the need for this type of LDAR program, this section should be deleted from BAQ-GPA/GP-5. (35)

The commentators believe that it is prudent to require equipment leak standards as specified in the federal regulations and see no reason to set equipment leak standards for natural gas production facilities. Instead of specifically identifying requirements in the proposed rule, these sections should simply state to comply with NSPS Subpart OOOO as published in the federal Register. (23, 34)

The commentator strongly encourages the Department to implement an exemption for facilities not subject to NSPS leak detection requirements based on VOC content of the gas. They also recommend that standards and requirements for equipment leaks reference NSPS OOOO for the standard to be utilized instead of NSPS KKK and NESHAP HH. They further encourage clarification by only applying LDAR to facilities that are subject to NSPS OOOO requirements. (27)

***Response:*** In accordance with 25 Pa. Code §§127.1 and 127.12(a)(5), the Department included LDAR requirements in Section H of the final GP-5. The owner or operator must also comply with all requirements of 40 CFR Part 60, Subparts KKK and/or OOOO, as applicable. Therefore, compliance with only NSPS Subparts KKK or OOOO does not assure compliance with Section H of the final GP-5.

As discussed in the response to Comment #5, the final GP-5 is not applicable to wellheads.

**206. Comment:** Condition J.5 requires implementation of an LDAR program for VOC established in 40 CFR 63.769. However, this regulation is for volatile HAP and is not applicable for VOC. (31)

Condition J.5 needs ", as applicable." added at the end. (22)

***Response:*** This condition has not been included in the final GP-5. The Department included LDAR requirements in Section H of the final GP-5. In addition, the final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference.

**207. Comment:** The commentator requests that PADEP clarify the 30 day audible, visual, and olfactory (AVO) inspection and initial leak detection requirements. Specifically, the initial leak detection methods are not specified and the 30-day AVO inspections seem to imply 30 consecutive days. (31)

Condition J.1 should require an initial AVO inspection within 30 days of commencing operation, and each calendar month thereafter. (26)

Condition J.1 should be clarified to explain exactly what is required of operators under this condition, and whether this is a one-time or a recurring requirement, and if the latter, how frequent. (28)

In Condition J.1, the commentators recommends clarifying what is meant by an "initial" leak detection and whether the 30 days of AVO's is meant to be consecutive. In addition, one commentator adds that 30 days of AVO is not feasible at unmanned facilities. (27, 30, 32)

***Response:*** The condition has been revised in the final GP-5 to specify that the owner or operator of the natural gas compression and/or processing facility shall, at a minimum, on a monthly basis perform a leak detection and repair program that includes audible, visual, and olfactory ("AVO") inspections.

**208. Comment:** The commentator requests that an audible, visual, and olfactory (AVO) inspection every 30 days and quarterly monitoring using FLIR cameras be deleted, or at least the frequency of the monitoring be reduced, possibly once every year or two. In addition to imaging, Method 21 should be permitted. Since the intent of the GP is to regulate VOC and HAP emissions, there should be a concentration of VOC in the gas to trigger this monitoring (5-10% VOC). (25)

The commentator recommends that Condition J.2. be changed to read *"At a minimum, the owner or operator of the facility shall on a quarterly basis, use forward looking infrared ("FLIR") cameras, Thermo Vapor Analyzers, Cosmos, or other approved leak detection monitoring devices approved by the Department for the detection of fugitive leaks."* (27)

***Response:*** The Department determined that the monitoring requirements, including the frequencies, in this section will prevent or reduce equipments leaks and satisfy BAT requirements.

The owner or operator of the facility shall, at a minimum on a quarterly basis, use forward looking infrared ("FLIR") cameras or other leak detection monitoring devices approved by the Department, including EPA Method 21, for the detection of fugitive leaks.

GP-5 addresses control of various air contaminants, including VOCs and HAPs, as well as greenhouse gasses (specifically methane). The Department believes that leak detection should not be limited to a certain VOC concentration.

**209. Comment:** Condition J.2 should require a FLIR camera survey (or other survey utilizing an alternative method approved by the Department) on a calendar annual basis. (26)

J.2. FLIR testing on a quarterly basis will not be practical for many operators due to the costs associated with equipment and training. For owner/operators not able to purchase their own camera, the scarcity of contractors with FLIR capabilities will create scheduling backlogs possibly leading to non-compliance situations beyond their control. One commentator suggests that if FLIR requirements remain in the final version we request that the frequency be changed to annual monitoring. (27, 29, 30, 32)

Condition J.2 would be cost prohibitive for smaller operations, and there are not enough contractors to provide FLIR monitoring on a quarterly basis. This requirement should be amended to require FLIR or an equivalent leak detection process on an annual basis. (28)

***Response:*** The Department believes that quarterly monitoring for leaks using a FLIR camera or other leak detection monitoring device is necessary. However, the Department has revised the condition in the final GP-5 to provide the owner or operator the ability to request an extension for the use of the FLIR camera upon receipt of a written request from the owner or operator of the facility documenting the justification for the requested extension.

**210. Comment:** Condition J.3 should require that leaks be repaired within 15 days of detection, unless repair requires a shutdown of the associated equipment. (26)

***Response:*** The Department agrees with the comment. The condition has been revised to incorporate that leak repair shall be made as expeditiously as practicable, but no later than fifteen (15) days after the leak is detected, except as provided in 40 CFR §60.482-9. As per 40 CFR §60.482-9, delay of repair of equipment for which leak have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown.

**211. Comment:** Condition J.4 should be deleted from the general permit. Emissions from piping components are quantified and accounted for in the relevant permit application. (26)

Condition J.5 states that natural gas production facilities should comply with §63.769 of Subpart HH. This condition should be deleted as the equipment leak standard in Subpart HH only applies to major sources. (25)

Condition J.5 should be deleted from the general permit. 40 CFR §63.769 applies to fugitive equipment at natural gas processing plants that are in volatile hazardous air pollutant (VHAP) service. (26)

Federal regulation 40 CFR § 63.769 applies to natural gas processing plants, not to production facilities. Consequently, Condition J.5 should be deleted from BAQ-GPA/GP-5. (35)

Condition J.6 should be deleted from the general permit. The provisions of Subpart KKK are addressed in section H of the general permit. (26)

***Response:*** The Department agrees with the comments and Conditions 4 through 6 from this section are not included in the final GP-5 as they are redundant. However, the sources must comply with all applicable requirements of 40 CFR Part 60, Subpart KKK and 40 CFR Part 63, Subpart HH.

**212. Comment:** The commentator supports Section J. (44)

***Response:*** The Department appreciates the comment.

## Proposed Section K: Conditions and Requirements for Pneumatic Controllers

**213. Comment:** DEP should specify at which segment of the natural gas sector the pneumatic controller requirements apply; DEP should control emissions from all pneumatic devices and lower the definition of a low-bleed device to meet current technology. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

Expansion of DEP's proposed standards for no-bleed devices would result in significant additional VOC and methane reductions. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

DEP should explore other options for controls: fast-acting devices and device maintenance. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

In Section K, we recommend consistent wording with final OOOO. (22)

The commentator requests that this entire section be deleted and that Subpart OOOO be incorporated by reference in the General Condition section. (25)

The commentator supports Section K. (44)

***Response:*** The final GP-5 requires the owner or operator of each pneumatic controller affected facility to comply with the applicable requirements specified in 40 CFR Part 60, Subpart OOOO.

## Proposed Section L: Conditions and Requirements for Sweetening Units

**214. Comment:** Section L.5 includes an incorrect reference to OOOO. It should be changed to 40 CFR 60.5415(g). (22)

***Response:*** The Department agrees that the correct citation should be 40 CFR §60.5415(g) instead of 40 CFR §60.5410(g). However, the final GP-5 has been revised to incorporate the applicable federal NSPS regulations by reference.

**215. Comment:** The commentator requests that this entire section be deleted and that Subpart KKK and Subpart OOOO be incorporated by reference in the General Condition section. (25)

The commentator supports Section L. (44)

***Response:*** The final GP-5 has been revised to incorporate the applicable federal NSPS regulations by reference.

## Additional Comments:

### BAT Analysis

**216. Comment:** The Department should include BAT for greenhouse gasses (GHGs) in the GP-5. Commenters suggest that, at the very minimum, the Department review and incorporate methane reduction measures into the GP-5 using EPA Natural Gas Star Program. The Department must ensure proper calculation of GHGs under the GP-5, which EPA has, should be performed in accordance with Subpart W, Mandatory Reporting of Greenhouse Gases. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** EPA's Natural Gas Star program is a voluntary program. EPA has evaluated the Gas Star program information and has incorporated the Natural Gas Star program requirements as they are appropriate in 40 CFR Part 60, Subpart OOOO. The requirements of 40 CFR Part 60, Subpart OOOO have been incorporated into the final GP-5 by reference.

The Department evaluated the available information, including 40 CFR Part 60, Subpart OOOO requirements. In addition to 40 CFR Part 60, Subpart OOOO requirements, the final GP-5 includes requirements for equipment leaks that minimize greenhouse gas emissions.

The final GP-5 is applicable to facilities with greenhouse gas (GHG) emissions, expressed as carbon dioxide equivalent ($CO_2e$), of less than 100,000 tons on a 12-month rolling sum basis. The applicant may estimate the GHG emissions in accordance with Subpart W, Mandatory Reporting of Greenhouse Gases.

**217. Comment:** The Department needs to clearly distinguish within the terms of the GP-5 permit that the BAT found in the GP-5 is not the BAT for Plan Approval. BAT for Plan Approvals must be determined through the traditional case by case analysis. (23, 34)

***Response:*** In accordance with 25 Pa. Code §§ 127.1 and 127.12(a)(5), BAT is determined on a case-by-case basis at the time of the issuance of a plan approval. The Department is not precluded from determining emission limits more stringent than those found in the final GP-5 in plan approvals. There is no need for further clarification within the final GP-5 regarding the determination of BAT for plan approvals.

**218. Comment:** The commentator states that if DEP is to protect commentator from harm, then it is incumbent on the Department to ensure that a Best Available Technology Analysis is done for each natural gas compressor station and that public participation and comments for compressor stations be part of the process. (37)

***Response:*** When the DEP first proposes a general permit, a public comment period is provided as required under 25 *Pennsylvania Code*, Section 127.612 (relating to public notice and review period). The public comments period is also provided for subsequent modifications of General Permit. This comment period is to allow public participation in the development of the specific requirements contained within the general permit. The public comment provisions are only applicable when the DEP first proposes or proposes revisions to the general permit. The DEP then finalizes the general permit for use by anyone who can comply with the specific provisions of the general permit.

The proposed GP-5 was published in the *Pennsylvania Bulletin* and in newspapers soliciting public comments. The Department has received comments from 255 commentators, including individuals, environmental advocacy groups, equipment vendors, regulated industries, environmental professionals, and EPA. The Department has reviewed the comments and has finalized GP-5 after consideration of the comments.

When the owner or operator of a facility seeks authorization to use GP-5, the owner or operator must demonstrate to the DEP that the source they wish to install meets the requirements specified by GP-5. If the application satisfactorily demonstrates that the source would comply with all the terms and conditions of GP-5, the DEP authorizes the owner or operator to use GP-5. Because the terms and conditions of GP-5 cannot be modified during the authorization to use GP-5, the public comment provisions under Section 127.612 are not applicable prior to each authorization to use GP-5. However, the Department publishes a notice of each authorization to use GP-5 into the *Pennsylvania Bulletin.*

**219. Comment:** When the Department encounters an existing BAT requirement more stringent than the relevant BAT requirement in GP-5 the Department should determine whether GP-5 should be updated to reflect the more stringent BAT. Commentator agrees that a less stringent BAT determination should not affect a source's duty to continue to comply with BAT requirements contained in previously issued plan approvals. However, commentator questions how frequently DEP will encounter GP-5 applicant facilities subject to a more stringent BAT than those contained in the proposed GP-5. As a general rule, BAT determinations become more stringent over time as pollution control technology improves. In the event a BAT emission limit contained in GP-5 is less

stringent than a BAT determination made under a previous plan approval, this indicates than the GP-5 BAT determination is outdated and should be revised to reflect the current BAT. (7)

***Response:*** The GP-5 does not enshrine an obsolete BAT standard. It is reflective of what a broad range of engines and other sources is capable of achieving on a consistent basis. GP-5 incorporates the BAT requirements for the sources at the time of issuance of GP-5. The Department periodically reviews all of its GPs to ensure that the BAT continues to be representative of state of the art of technology to control the air emissions. During this evaluation, the Department will consider the BAT determinations included in plan approvals, which are determined on a case-by-case basis. At any time if the Department determines that GP-5 is not adequately reflecting the state of the art technology, GP-5 will be amended. While the Department does periodically review its BAT determinations, it does not believe that a set timeframe is appropriate.

The GP-5 includes language which does not allow previously determined case-by-case BAT included in a plan approval that is more stringent than GP-5 to be superseded by the less stringent requirements contained in GP-5.

## Proposed Public Notice Requirements

**220. Comment**: The GP-5 provides inadequate notice to communities likely to be affected by the sources it covers. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

The Department does not provide an opportunity to comment when a source proposes to use a general plan approval or operating permit. The GP-5 should include an opportunity for public comment in the same way Plan Approvals and State Only Operating Permits do. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 41, 42, 43, 45, 46, 48, 49, 51, 54, 55-255)

EPA's Minor New Source Review ("NSR") regulations require that the State provide opportunity for public comment on information submitted by owners and operators. The final GP-5 should adhere to the Minor NSR regulations and provide the public with notice and opportunity for comment on plan approvals issued under the GP-5. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

The anticipated emissions of sources of air pollutants at a natural gas production and/or processing facility as well as the technology or method used to satisfy BAT for each category of air contamination source at a facility should be published in the *Pennsylvania Bulletin*. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

Commentator recommends DEP to issue *along with* the final 2012 version of BAQ-GPA/GP-5, Technical Guidance instructing its personnel to allow public comment on all applications under GP-5, including associated PTEs, notwithstanding the absence of a requirement to do so under 25 Pa. Code § 127.621. Commentator recommends DEP to immediately initiate a rulemaking to amend 25 Pa. Code § 127.621 to require public

comment for all authorizations to use BAQ-GPA/GP-5, including their associated PTEs. (45)

The commenters request a public hearing for each PA DEP Regional Office with question and answer session to be held to discuss the full impacts of this revised permit. (39, 42, 43, 50, 53, 54, 55-255)

All public comment, agreeable or not, is important to consider and all comment should be allowed! (47)

How would allowing public comment of each compressor station permit application undermine local air quality protection? Where would the DEP prefer to err, on the side of public protection or on the side of private, vested economic interests? (49)

The commentator opposes the proposed reduction in public participation in the permitting process. Currently, the PA DEP does not allow public comments in response to individual GP-5 permit applications. By expanding the number of facilities that would be eligible for GP-5, the draft GP-5 eliminates the opportunity for public participation on all non-major source permit applications. (14)

***Response:*** General Permits are issued in accordance with 25 Pa. Code Chapter 127, Subchapter H. The Pennsylvania regulations codified at 25 Pa. Code, Chapter 127, Subchapter H (relating to general plan approval and operating permits) are approved by the U.S. Environmental Protection Agency as the revision to state implementation plan (52 FR 39594, July 30, 1996).

When the DEP first proposes a general permit, a public comment period is provided as required under 25 *Pennsylvania Code*, Section 127.612 (relating to public notice and review period). The public comments period is also provided for subsequent modifications of General Permit. This comment period is to allow public participation in the development of the specific requirements contained within the general permit. The public comment provisions are only applicable when the DEP first proposes or proposes revisions to the general permit. The DEP then finalizes the general permit for use by anyone who can comply with the specific provisions of the general permit.

When the owner or operator of a facility seeks authorization to use GP-5, the owner or operator must demonstrate to the DEP that the source they wish to install meets the requirements specified by GP-5. If the application satisfactorily demonstrates that the source would comply with all the terms and conditions of GP-5, the DEP authorizes the owner or operator to use GP-5. Because the terms and conditions of GP-5 cannot be modified during the authorization to use GP-5, the public comment provisions under Section 127.612 are not applicable prior to each authorization to use GP-5. However, the Department publishes a notice of each authorization to use GP-5 into the *Pennsylvania Bulletin.*

## Proposed Modeling Data and Analysis/NAAQS

**221. Comment:** There is no evidence that the Department has evaluated the effect that the expedited permitting of large numbers of sources will have on the Commonwealth's air quality, nor is there evidence that the Department will conduct such analysis as it processes individual applications under the GP-5. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

The general permit should specify ranges or limits on operational conditions and emissions rates/control parameters. Further, these limits should not be higher than the maximum limits in the worst case modeling scenario. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

The Department must determine whether the source would affect attainment or maintenance of air quality standards. The GP-5 must provide a mechanism, such as mandatory sampling, that enables the Department to determine whether the construction of sources granted plan approvals under the GP-5 will interfere with the attainment or maintenance of the NAAQS.

EPA's permit by rule guidance assumes that the state will use modeling to determine whether a general permit is protective of the NAAQS.

The Department does not appear to have conducted any such analysis. Before it issues the final GP-5 it must undertake a complete analysis of the potential universe of sources permitted under the GP-5 and demonstrate that these sources, when permitted, will not contribute to interference with attainment of any air quality standards as required by 40 C.F.R. § 51.160(a)(2). (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

Natural gas activity adversely impacts ozone and particulate nonattainment areas and contributes to decreased visibility. DEP must ensure that the cumulative impacts of oil and gas activities permitted under the GP-5 do not adversely impact NAAQS compliance in the state. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 49, 52)

The commentator requests that a requirement for a robust air sampling program that targets all areas where these gas operations are occurring and also covers all areas that are part of the airsheds and watersheds that are potentially impacted by these emissions be included in GP-5. (16)

***Response:*** The Department appreciates the shared concern about the effect of Marcellus gas production, compression, and/or processing on air quality. In addition to all applicable federal and state requirements of the federal Clean Air Act, APCA and regulations adopted under the acts, Marcellus gas production, compression, and/or processing facilities must also comply with the General Plan Approval and/or General Operating Permit for natural gas production, compression, and/or processing facilities (GP-5).

The final GP-5 is applicable only to sources located at a non-major facility. If it is determined to be necessary, the Department may require the owner or operator

of the facility to demonstrate compliance with the NAAQS after the issuance of an authorization to use GP-5. Notwithstanding these factors, the Department is actively investigating the effects of the Marcellus gas industry on air quality.

The Department has completed short-term air monitoring studies in the south west, north central, and north east portions of the state that measured pollutant concentrations near various Marcellus activities (drilling, fracturing, flaring, etc.) to address immediate health concerns of nearby residents. Short-term sampling for CO, $NO_2$, $SO_2$, and $O_3$ did not detect concentrations above NAAQS at any of the sampling sites.

On July 11, 2012, the Department initiated a one-year ambient air project in Washington County with an emphasis on characterizing near-source concentrations of criteria and hazardous air pollutants from permanent facilities related to the Marcellus Shale gas industry (compressor stations, gas processing). Additional information can be obtained at the PA DEP website at the following address: http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Long-Term_Marcellus_Ambient_Air_Monitoring_Project-Protocol_for_Web_2012-07-23.pdf.

An output of this monitoring project includes long-term ambient air pollutant concentration data including the main natural gas constituent (methane), criteria pollutants ($NO_x$, CO, $PM_{2.5}$), hazardous air pollutants (benzene, carbonyls) and other associated pollutants ($H_2S$). The immediate expected outcomes include the identification of any elevated long-term (annual) concentrations of criteria and/or hazardous air pollutants and increased community awareness of adverse air quality issues.

**222. Comment:** Does the department acknowledge that local topographic configurations and weather conditions play a significant role in creating adverse, site-specific, concentrations of air pollutants? If so, why is the right to comment of local residents, people who live with these weather patterns and are familiar with local conditions, being denied under the GP-5? (49)

***Response:*** The Department acknowledges that local topographic configurations and weather conditions may have a role in creating adverse, site-specific, concentrations of air pollutants. The final GP-5 is applicable only to sources located at a non-major facility. If it is determined to be necessary, the Department may require the owner or operator of the facility to demonstrate compliance with the NAAQS after the issuance of an authorization to use GP-5. Notwithstanding these factors, the Department is actively investigating the effects of the Marcellus gas industry on air quality.

In addition, the Department determined the emission limitations included in the final GP-5 in accordance with 25 Pa. Code §§127.1 and 127.12(a)(5) (BAT). BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available.

The implementation of GP-5 requirements will minimize, if not eliminate, adverse concentrations of air pollutants. Prior to issuance of GP-5, the Department solicits comments from all interested parties, regardless of where they live or whether or not they are familiar with the local weather patterns.

### Proposed Source Definitions

**223. Comment:** In the proposed GP-5, under the section titles "Applicability/Scope", the Department lists types of sources the GP-5 is meant to cover, but includes that is "is not limited to" these sources. The vagueness of this statement only reiterates that this part of the GP-5 is outside the bounds of what is thought of as a useful and valid general permit under the CAA by EPA. Sources that are not explicitly permitted under GP-5 or exempt from permitting should still undergo the Plan Approval and the State Only Operating Permit process. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** In the final GP-5, the "Applicability/Scope" section has been amended to list the specific sources covered by GP-5. Sources that are not covered by GP-5 may require a plan approval and operating permit unless they are exempted.

**224. Comment:** The GP-5 as drafted does not provide adequate assurances that it will require sources to use Best Available Technology ("BAT") to control pollution. The GP-5 must make clear how BAT is to be determined for natural gas production and/or processing sources for which the GP-5 does not establish BAT. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response***: The Department disagrees. The proposed, as well as the final, GP-5 provides adequate assurances that sources are required to satisfy BAT. The BAT in the final GP-5 clearly includes emission standards, and other requirements such as performance testing, record keeping, work practices and reporting for each source. Performance standards and/or emission limits applicable to these sources, which are BAT, have been included in Sections B through J of the final GP-5.

GP-5 is finalized along with a technical support document providing the basis for the emission standards and the requirements for the sources included in the general permit. This technical support document is available for public review on the Department's website.

**225. Comment**: The incomplete, open ended description of the types of emission units that may be included in a GP-5 permit is impermissibly vague. Without knowing all emission units likely to be subject to GP-5, the Department cannot possibly fulfill its obligation to determine "that the sources in such category are similar in nature and can be adequately regulated using standardized specifications and conditions." In order to permit natural gas production, processing and well pad operations under GP-5, the Department must first develop a complete list of emission units that may be covered

under GP-5, and must ensure these sources "are similar in nature and can be adequately regulated using standardized specifications and conditions." (7)

***Response:*** 25 Pa. Code §127.611 allows the Department to issue or modify a general plan approval or general operating permit for any category of stationary air contamination source if the Department determines that sources in the category are similar and can be adequately regulated using standardized specifications and conditions. The Department determined that the sources located at a source category such as natural gas compression and/or processing facilities are a collection similar in nature and can be regulated with standardized specifications and conditions.

The final GP-5 does not include the term "etc." under listed sources. Only the sources listed in the applicability section of the final GP-5 qualify for authorization under GP-5. The sources not listed in the applicability section of the final GP-5 either require a case-by-case BAT determination under a plan approval or are exempted from the permitting requirements.

## Single Source Determination

**226. Comment:** GP-5 should not impact single source determinations for the industry. The definition of a "*natural gas production facility*" is broad and could be read to encompass numerous sources that would not be considered part of a single stationary source. (25)

PADEP's arbitrary inclusion of multiple operations from the wellhead to the transmission line in a single proposed GP-5 incorrectly presumes that the identified operations comprise a "single source" under certain state and federal regulations. (31)

Proposed General Permit - 5 (GP-5) works a de facto Aggregation of Sources, is not legally justified and may contribute to inappropriate source aggregation determinations. (31)

Commentator requests clarifications regarding how the Department intends to treat related natural gas sources located in close proximity to each other under the revised GP-5. (7)

To ensure that sources and facilities covered under GP-5 are not major facilities, the Department should require every applicant for GP-5 to submit a comprehensive single source determination screening form. (9)

The Department's duty to perform natural gas source determinations analyses significantly complicates the GP-5 permitting process. In some cases, it may be impractical for the Department to perform a proper source determination analysis within the 30 day general permit review window. Further, this is another example where issuing a GP-5 to a specific source is contingent on the Department performing a complex, site-

specific analysis. Not only does this issue inspire public comment, the comments sometimes results in operational or permit changes, and often, at the very least, lead the air permitting authority to request additional information from the permittee. Thus public participation is an effective tool to ensure agency permitting actions are thorough and transparent. (7)

***Response***: On October 6, 2012, the PADEP issued a final technical guidance DEP ID: 270-0810-006 entitled Guidance for Performing Single Stationary Source Determinations for Oil and Gas Industries. The purpose of this document is to provide interim guidance to assist the PADEP's Air Program permitting staff in making single stationary source determinations for the oil and gas industries in Pennsylvania. Single source determinations for oil and gas operations arise when a company operates an air contamination source on-site or adjacent to another air contamination source. If the emissions from two or more air contamination sources meet the applicable regulatory criteria, they should be aggregated as a single source for air quality permitting purposes.

If the emissions from those air contamination sources are aggregated as a single air contamination source, and reach major source emission thresholds, they would be subject to additional air quality permitting requirements under the Prevention of Significant Deterioration ("PSD"), Non-attainment New Source Review ("NSR") and the Title V Permit programs. The final guidance document will assist the air permitting staff in conducting an analysis to determining whether stationary sources at oil and gas facilities should be considered a single source for permitting requirements applicable to programs including PSD, Non-attainment NSR and Title V Permits. Moreover, all applicants are required to complete a Single Source Determination form before the Department can act on an application.

**227. Comment:** Applicants should be required to submit a list of natural gas sources under similar ownership to increase public awareness of the concentration of a particular operator's activities and to make it simpler to perform a single-source determination and whether they received the proper permit. It is crucial for informed public participation that applicants for GP-5s include information not only about nearby sources owned, operated, or controlled by the applicant, but also information that can be used to determine the relationship between those sources and the facility seeking a GP-5. Adding the following to Condition (A)(5) could remedy this:

An applicant for a plan approval or operating permit under the GP-5 must also submit:

(i) Plan approval numbers and geographic coordinates of any natural gas production and/or processing facilities for which plan approval applications have been submitted to the Department or the Philadelphia or Allegheny County air permitting authorities but not yet issued and which are located within 50 miles of the source for which the GP-5 is sought;

(ii) For all sources covered by (i), 25 Pa. Code § 127.12a(c)(5), and 25 Pa. Code § 127.412(c)(5), permittee must provide the percentage of natural gas flow from one source to another. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response***: The final GP-5 application has been amended to include all the necessary information to make a single source determination. For example, the application includes a questionnaire and checklist for single source determination and a map/layout of adjacent facilities under common control with SIC code, permit number (if any) of each source, and indicated distances between boundaries of compressor station(s), the wells(s), and associated natural gas processing plant(s) on the map/layout.

**228. Comment:** The applicant should be required to submit the same information when a source changes ownership because the question of whether a group of sources constitutes a facility that must undergo Major NSR depends in part on who owns those sources. Thus, in order to ensure that a change in ownership should not trigger Major NSR, Condition (A)(20) should be amended to read:

Within 30 days prior to a change of ownership of the facility, the subsequent owner or operator of the natural gas production and/or natural gas processing facility shall submit to the appropriate DEP Regional Office an Application for Authorization to use GP-5, the Compliance Review Form required under 25 Pa. Code §§ 127.12a and 127.412, *the information described in Section A, Condition 5 of this General Plan Approval* , and appropriate fees in accordance with Section A, Conditions 5 (relating to application for use) and 10 (relating general permit fees) of this General Permit. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response***: The Department has revised the condition in the final GP-5 to allow the transfer of authorization to use GP-5 when a change of ownership is demonstrated to the satisfaction of the Department and the Department approves the transfer of authorization in writing. Within thirty (30) days after a change of ownership of the facility, the new owner or operator shall submit to the Department a GP-5 application, compliance review form, and applicable fees.

As shown in the response to Comment #227, the final GP-5 application includes all the necessary information to make a single source determination.

## Incorporation of Federal Requirements

**229. Comment:** GP-5 should not paraphrase or include specific provisions of federal standards (NESHAP and NSPS). Federal standards should be cited with a simple condition that the owner or operator must comply with applicable provisions of the cited standards. This not only would allow consistency with current federal regulations but would capture any future changes in federal requirements. One commentator mentioned that this will allow for the state-specific standards that go above and beyond federal requirements to be more easily identified. (23, 25, 26, 33, 34, 35)

***Response:*** The Department agrees. The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference.

**230. Comment:** The DEP should not utilize GP-5 to impose additional or more stringent requirements than are established in EPA's NSPS and NESHAPs for oil and gas industries. To the extent that DEP believes that any additional or more stringent requirements are necessary or appropriate (e.g., best available technology (BAT) for new sources), then the DEP should clearly indicate which terms and condition are being imposed under state law and should provide technical and economic justification for any such requirements. (23, 25, 34)

The commentator recommends that BAQ-GPA/GP-5 be consistent with the federal requirements in as many areas as practicable, and not impose conditions that go beyond those requirements unless it is demonstrated that additional measures are clearly necessary. This consistency would have the benefit of assuring that operators who have production in various states can anticipate compliance measures for their activities in Pennsylvania, and level the playing field when planning their development programs. (35)

***Response***: Each new source covered under the final GP-5 is subject to best available technology (BAT) requirements. The Department determined the emission limitations included in the final GP-5 in accordance with 25 Pa. Code §§127.1 and 127.12(a)(5) (BAT). BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available.

The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference. The NSPS and NESHAP requirements serve as the baseline for the determination of BAT. The rationale for BAT is described in the technical support document.

**231. Comment:** All specific emission standards and requirements that are analogous to standards identified in applicable federal regulations should be removed and the federal standards incorporated by reference. (31)

Many of the emission control requirements (e.g., those applicable to SI ICE) in Section B are more stringent than existing federal requirements. The federal requirements have already been shown to be fully protective of human health and the environment and compliance therewith should be sufficient to demonstrate compliance under the GP-5. This is troubling, particularly given that the Department has not provided supporting evidence of additional environmental benefits associated with the more stringent emissions standards proposed. (28)

***Response***: New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The emission limits included in the final GP-5 for each source are based on vendors' guaranteed emission standards, stack test data, available control technologies, and associated costs. The rationale for BAT is described in the technical support document.

**232. Comment:** The inclusion of Subpart OOOO requirements in the proposed GP-5 would essentially negate the EPA exemption and require that all applicable sources obtain this permit, even for installation of a single tank or pneumatic controller. (33)

***Response***: The requirement to obtain a permit is independent of the applicability of 40 CFR Part 60, Subpart OOOO. The use of GP-5 is not mandatory. If a source is not exempted from permitting requirements, the owner or operator has the option of using the General Permit or applying for a Plan Approval. The installation of a single tank or pneumatic controller may be exempted from permitting either as an item on the exemption list or through the use of a Request for Determination of Requirement for Plan Approval (RFD).

**233. Comment**: The Department of Environmental Protection ("DEP") is to be commended for incorporating into the 2-10-2012 Draft BAQ-GPA/GP-5 ("2012 Draft GP-5") the requirements of the recent proposed EPA rule on air emissions from oil and gas infrastructure (FR 52738, August 23, 2011). While the commentator takes strong objection to many points in 2012 Draft GP-5, FR 52738 is a significant step forward in the regulation of air pollution, and the commentator strongly supports inclusion of provisions from FR 52738 in 2012 Draft GP-5. (45)

There are several sections in which the draft permit directly reflects the terms and conditions of NSPS and NESHAP rules that apply to sources that operate under the general permit. The commentator requests that the permit incorporate these applicable rules by reference, instead of restating the regulations. (26, 32)

***Response***: Thank you for your comments. The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference.

### GP-5 and Exemption List

**234. Comment:** DEP policy 275-2101-003 4/16/2010; Notice of Intent to Reopen Public Comment Period on Air Quality Permit Exemptions (DEP ID: 275-2101-003) Published at 40 Pa.B. 2822; had a public comment period close on May 26, 2011. I am wondering the status of this policy revision and how its relationship will affect the GP-5 Substantive Amendments. (44)

***Response:*** The Department has proposed revisions to Item #38 (oil and gas exploration, development, and production facilities and associated equipment) of the exemption list for public comment in the February 2, 2013 issue of the *Pennsylvania Bulletin*. The proposed revisions will exempt unconventional wellheads and associated equipment meeting specific criteria.

**235. Comment:** In DEP Document Number 275-2101-003, Air Quality Permit Exemptions, B38, Oil and gas exploration and production facilities and operations are *exempted* provided they meet certain conditions. What is the status of exemption B38? Are unconventional gas wellheads exempt under B38, or not? DEP needs to clarify this issue. Inclusion of Section I in 2012 Draft GP-5 serves no purpose if exemption B38 remains in place. Commentator recommends DEP to issue the appropriate public document revoking exemption B38, as soon as possible. (45)

DEP must clarify when wells and associated equipment and processes are permit exempt. The Department must clarify how GP-5 and the air permit exemption for wells and associated equipment interact. Doing so will better define the GP-5 source category. Commentator suggests clarifying this issue by replacing the phrase "may be used" with "shall be used." (7)

It is important that any changes to Section I.B.38 of Air Quality Plan Approval and Operating Permit Exemptions are coordinated with BAQ-GPA/GP-5, and that sources that have been determined to be of minor significance remain on the exemptions list. (35)

The revisions to GP-5 must be coordinated with anticipated changes to the Air Permit Exemption listing, DEP's review and assessment of the emissions inventories for this industry, and revisions to GP-11 covering nonroad engines. (25)

***Response:*** Recently promulgated 40 CFR Part 60, Subpart OOOO is applicable to wellheads. However, permitting requirements are not mandated by 40 CFR Part 60, Subpart OOOO requirements. The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations, including 40 CFR Part 60, Subpart OOOO, by reference. The need for requiring permits is evaluated independently. As discussed in the response to Comment #5, the final GP-5 is not applicable to wellheads.

However, it should be noted that the Department has proposed revisions to Item #38 (oil and gas exploration, development, and production facilities and associated equipment) of the exemption list for public comment in the February 2, 2013 issue of the *Pennsylvania Bulletin*. The proposed revisions will exempt unconventional wellheads and associated equipment meeting specific criteria.

**236. Comment:** The commentator suggests that the exempt list for operating permits be the same as the plan approval exemption list for the natural gas industry. A source exempted from plan approval should also be exempted from the requirement to obtain an operating permit. (25)

Proposed GP-5 includes sources and/or source categories that are specifically exempt from both Plan Approval and Operating Permit Requirements as specified in PADEP's list of air quality exemptions (Document No. 275-2101-003 dated July 26, 2003). Based on the current exemption, the Plan Approval requirements do not apply to wellheads and associated equipment. The requirement to include Plan Approval exempt equipment in the proposed General Permit is not necessary as owners and operators are required to comply with Subpart OOOO regardless of pre-construction permitting applicability. It is the commentator's position that the current inclusion of oil and gas exploration and production facilities as exempt from Plan Approval and Operating Permit requirements is accurate and that proposed GP-5 should be revised to exclude all operations that are currently and have been historically determined to be exempt from permitting requirements. (31)

***Response:*** As stated in the response to Comments #234 and #235, the Department has proposed revisions to Item #38 (oil and gas exploration, development, and production facilities and associated equipment) of the exemption list for public comment in the February 2, 2013 issue of the *Pennsylvania Bulletin*. The proposed revisions will exempt unconventional wellheads and associated equipment meeting specific criteria from permitting requirements. GP-5 is not applicable to sources that are exempted from permitting requirements.

## Proposed Application for GP-5

**237. Comment:** Section E ("Applicant's Checklist") should also include a provision for including fugitive emissions data. (2)

***Response:*** Section H9 of the final GP-5 application requires the applicant to document fugitive emissions from component leaks.

**238. Comment:** In Section H, the pollutant information requested in the application is not sufficient to inform the State's reviewer whether the facility may be ineligible for authorization under GP-5. For instance, the list only includes "PM" without any clarification regarding filterable or condensable emissions, and the application does not address emissions of PM10 or PM2.5 or VOCs. Most notably, the application does not require information on GHGs for sources such as tank flashing, working, and breathing losses. GHG emissions from this category of sources may well trigger major source thresholds and the application should address all sources of GHGs, not just engine stack emissions. (2)

***Response:*** The final GP-5 application requires the applicant to include $PM_{10}$, $PM_{2.5}$, VOC, and GHG emissions information, if applicable.

**239. Comment:** In Section H, several tables require information on Compliance Demonstration Methods. In some tables, the applicant is asked to check whether "Department-approved test data for identical unit" is to be used. However, there is not requirement to identify the source of that data or provide the data. (2)

***Response:*** The final GP-5 application requires the applicant to include the basis of estimation [e.g. source test, vendor data, AP-42, etc.].

**240. Comment**: The Application Form for Authorization to use BAQ-GPA/GP-5 for a well should have a blank in Section F for the well operator to indicate the DEP Site ID Number for the compressor station or gas processing plant to which it is connected via pipeline. If this has not yet been determined at the time the application is filed, the well operator should be required to file an amended application with DEP within 30 days of the date when identity of the connected compressor station or gas processing plant has been determined. This information must be available to the public and should be provided in some form on DEP's web site. (45)

***Response:*** The final GP-5 application has been amended to include all the necessary information to make a single source determination. For example, the application includes a questionnaire and checklist for single source determination and a map/layout of adjacent facilities under common control with SIC code, permit number (if any) of each source, and indicated distances between boundaries of compressor station(s), the wells(s), and associated natural gas processing plant(s) on the map/layout.

**241. Comment:** According to the Department's Application Form for the Draft GP-5, there is a section under "Air Cleaning Device Information" meant to elicit information about and permit "other air cleaning devices." The fields on the application form which collect information on to permit any "other air cleaning devices" consist of "Device Type:" and "Device ID:." Other fields require the applicant for GP-5 to "[l]ist all applicable Federal and State rules for this device." It is unclear how a permittee is expected to know the applicable rules for whatever device they possess for "air cleaning." (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response:*** It is incumbent upon the applicant to know the applicable requirements for the selected control equipment.

## Proposed Application for GP-5 Instructions

**242. Comment:** The "Application Instructions" in Section 3, do not make clear that the GP-5 applies to, and authorizes, a wide variety of additional air contamination sources at a natural gas production and/or processing facility, including, but not limited to, centrifugal compressors, condensers, condensate tanks, distillation towers, flares, glycol dehydrators, storage vessels/tanks, vapor recovery systems, and wellhead associated equipment. The Department should revise as appropriate so there are no ambiguities regarding what is allowed under the GP-5. (28)

***Response:*** The final GP-5 application instructions require the applicant to include the list of applicable equipment specified under Section A, Condition 3 of the General Permit.

**243. Comment:** This document includes instruction as well as general information about the general permit. Commentator suggests the document should be organized with a "General Information" section and an "Application Instructions" section and for clarity, the title should reflect "General Information" as well. (2)

***Response:*** The application instructions have been revised as suggested.

**244. Comment:** This document should include instructions on calculating fugitive emissions, including GHGs, from all points at the facility. This is especially important when the general permit is to be used for making modifications at an existing facility.

***Response:*** The instructions have been amended to require stack and fugitive emissions to be included in the application.

**245. Comment:** Only specific pieces of equipment - SI ICE and simple cycle combustion turbines - are discussed here (Instruction 3), while other types of units that are covered by the permit are not. It would be useful if Instruction 3 also provided relevant instructions on the other units covered by the GP-5 for clarity. (2)

***Response:*** Item #3 of the instructions for the final GP-5 application has been revised as follows:

*GP-5 is applicable to any of the following air contamination sources: spark ignition internal combustion engines (SI ICE), simple cycle gas turbines, centrifugal compressor, glycol dehydration unit and associated equipment including gas-condensate-glycol ("GCG"), separator (flash tank separator), natural gas fractionation (such as de-propanizer, de-ethanizer, de-butanizer), storage vessel(s), equipment leaks, pneumatic controllers and sweetening units used in natural gas compression and/or processing facilities.*

## Miscellaneous

**246. Comment**: DEP should include $NO_X$ and CO standards for the potentially numerous heater-treater units under the GP-5 that, at a minimum, require these boilers to limit emissions to 30 ppm ($NO_X$) and 400 ppm (CO). (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

The Department should address heater-treater emissions in GP-5. Heater-treaters are devices that are generally located at the wellhead and are used to remove contaminants such as water and liquid hydrocarbons from the natural gas. An individual heater-treater emits relatively small amount of pollutants such as $NO_X$ and CO. However, these devices are very common and with one to two on these at each well site, emissions of

$NO_X$ and CO will add up quickly. The Department should limit emissions from heater-treaters as part of GP-5 in order to reduce the cumulative impact from these small but common sources of NOx and CO. (7)

***Response***: The final GP-5 is not applicable to the natural gas-fired heater-treaters associated with wellheads. Additionally, the Department has proposed revisions to Item #38 (oil and gas exploration, development, and production facilities and associated equipment) of the exemption list for public comment in the February 2, 2013 issue of the *Pennsylvania Bulletin*. The proposed revisions will exempt unconventional wellheads and associated equipment meeting specific criteria.

**247. Comment**: DEP should implement methane controls in the distribution sector. DEP should address methane emissions from pipelines. DEP should require installing excess flow valves on all gas service lines to reduce methane emissions. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 40, 52)

***Response***: The final GP-5 is applicable only to natural gas compression and/or processing facilities. GP-5 is not applicable to natural gas transmission or distribution sectors.

**248. Comment**: The monitoring, recordkeeping and reporting should be simplified and tailored to minor sources and should not rival the requirements applied to major sources in Title V permits. (25)

***Response***: The final GP-5 is applicable only to non-major facilities. Appropriate monitoring, recordkeeping and reporting requirements are included in the final GP-5.

**249. Comment**: As proposed, the GP-5 will be a complicated and lengthy permit that is similar to the current Plan Approval process. It is overly burdensome and does not meet the goal of streamlining the permitting process. The commentator feels that this will deter operators from using the permit. (26)

A general permit of almost 50 pages of terms and conditions is unreasonable for sources of this magnitude. GP-5 should be simplified and streamlined. (23, 25, 34)

***Response:*** The final GP-5 has been simplified and reduced in size. The final GP-5 has been streamlined and incorporates all applicable federal NSPS and NESHAP regulations by reference.

**250. Comment**: Proposed GP-5 does not identify any transition requirements for facilities that are currently operating under existing GP-5 authorization when the term of the existing GP-5 expires. PADEP should clearly identify how a facility that is operating under existing GP-5 will transition into the new GP-5 with no new additional requirements until such time as new or modified sources may trigger applicability under the new provisions of the revised GP-5 operating permit. (31)

***Response***: When the authorization for sources covered under an existing GP-5 expires, the owner or operator may seek authorization for use of this final GP-5 without triggering any new requirements because the final GP-5 contains conditions that allow sources covered under an existing GP-5 to continue to comply with the provisions of the previous GP-5. However, these sources shall be required to comply with any applicable federal NSPS or NESHAP requirements that become effective after the date of authorization.

**251. Comment**: The Department should consider requiring all API-style tests and reporting requirements of the particular centrifugal compressor to be submitted with the GP-5 application. It is common sense that these tests are conducted routinely. The results from this test are necessary for the Department to determine whether the source will be operated in a responsible manner, assure that unplanned violations of the permit conditions are minimal, and that the source will be properly maintained. DEP's GP-5 should include additional requirements for centrifugal compressors that would further reduce emissions. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response***: The Department has incorporated the NSPS requirements of 40 CFR Part 60, Subpart OOOO for centrifugal compressors by reference in the final GP-5. Subpart OOOO requires that centrifugal compressors with wet seals reduce emissions by 95% by capturing and routing emissions from the wet seal fluid degassing system to a control device that reduces VOC emissions by 95%. Testing and reporting shown in API Standard 617, including stability analyses, are mainly performed by the centrifugal compressor manufacturer before shipment of the centrifugal compressor to the owner or operator. If such tests are recommended by the manufacturer as part of the routine maintenance of the centrifugal compressor, then as per the condition in the final GP-5, the owner or operator must practice the manufacturer's recommended testing and/or maintenance procedures. Therefore, it is not necessary to incorporate the API Standard 617 requirements in the final GP-5.

**252. Comment**: DEP's GP-5 should consider a rod packing replacement threshold based on leakage rates. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response***: The final GP-5 includes all applicable requirements of 40 CFR Part 60, Subpart OOOO, which addresses rod packing replacement requirements.

**253. Comment**: DEP's GP-5 should ensure that all compressor engines, even those located at the well site, are subject to the proposed work practice standard. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response***: As stated in the response to Comment #5, the wellheads are not included in the applicability condition of the final GP-5. However, sources including wellheads must comply with all applicable requirements of 40 CFR Part 60, Subpart OOOO.

**254. Comment**: DEP's GP-5 should consider requiring the use of electric compressor engines where feasible. (3, 4, 5, 6, 8, 10, 11, 12, 13, 15)

***Response***: It is premature to require the use of electric compressor engines at this time. Many of the wellhead and compressor sites are at remote locations and may not have access to electricity and/or it would be cost prohibitive to replace natural gas-fired engines with electric compressor engines. It may be considered in the future.

**255. Comment**: Sections D, E, F, I, K and L address requirements found under EPA's NSPS subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution). Each of these sections reference requirements found in the proposed NSPS Subpart OOOO rule. Instead of specifically identifying requirements in the proposed rule, these sections should state that compliance with NSPS Subpart OOOO (as published in the Federal Register) constitutes compliance with the general permit. (26)

Rather than referencing specific sections of NSPS OOOO, commentator suggest including a condition in the appropriate sections of the permit that states the facility is required to comply with NSPS OOOO, if applicable. This will help to reduce errors and confusion since the rule has yet to be finalized and there is a possibility of changes being made to the section numbers for the rule. (27, 28)

Conditions D, E, F, I, K and L address requirements found in 40CFR60 Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution). Instead of specifically identifying requirements, the commentator requests that the sections simply reference Subpart OOOO as was done in Section C.1.(c) with respect to Subpart KKKK. (20)

***Response***: The Department agrees with the commentators. The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference.

**256. Comment**: The GP-5, as proposed, is a lengthy, complex general permit with many inconsistent, redundant, and/or unnecessary requirements. (28)

***Response***: The final GP-5 has been simplified and reduced in size. The final GP-5 has been streamlined and incorporates all applicable federal NSPS and NESHAP regulations by reference.

As stated in the response to Comment #105, the emission limits included for engines in the final GP-5 are economically feasible and technically achievable.

**257. Comment**: Other parts of the GP-5 do not fully consider NSPS implications. Section A.10 (a) requires a general permit fee of $1,700 for GP-5 applications "including NSPS." However, there are various scenarios where a facility may qualify for GP-5 without triggering NSPS. The Department should clarify when the general permit fee is due, taking into consideration those circumstances where the GP-5 may apply without triggering NSPS. (28)

***Response***: The Department disagrees that the fees are excessive. The application fee is set to cover the costs of developing the general permit that includes determining control technologies for each source category, monitoring, recordkeeping, reporting requirements, subsequent public participation including newspaper notices and finally, administrative and technical review of application packages for GP-5 authorization. In the absence of GP-5, the cost for a plan approval application for these sources would be comparable to $1,700.

**258. Comment**: The commentator believes that the scope of GP-5 coverage is unclear. Specifically, it is unclear whether Section A.3(b) excludes the GP-5's use for construction *of* a major source only, or excludes use of the GP-5 for any construction *at* a major source, including minor modifications at a major source that would otherwise be available for GP-5. The commentator believes that the GP-5 is intended to, and should, be available for applicable construction activities *at* major sources, including minor modifications, where those activities meet applicable requirements. The commentator requests clarification of this issue in the revised final GP-5 and suggests that Section A.11(b) should be removed from the GP-5. (28)

***Response***: The final GP-5 is applicable only to non-major facilities. In accordance with 25 Pa. Code § 135.21, the owner or operator of each stationary source which emits or has the potential to emit 100 tons or more of NOx or 50 tons per year or more of VOCs shall submit to the Department annual emission statements. Therefore, the annual emission statement requirement is not included in the final GP-5.

**259. Comment**: Condition B.4.(e)(iii): Duplicate notifications required by 40 CFR Part 60 Subpart JJJJ and 40 CFR Part 63 Subpart ZZZZ overly burdens both the permittee and Department with paperwork. (29)

***Response***: The final GP-5 incorporates all applicable federal NSPS and NESHAP regulations by reference. The owner or operator is required to comply with all federal NSPS and NESHAP requirements, as applicable.

**260. Comment**: The commentator requests a complete review of the proposed GP-5 revision and be sure to address commentator's concerns about public participation, decreasing emission thresholds, requiring BAT analysis, and removing discretion on exemptions. The commentator also requests a public hearing for each PA DEP Regional Office with question and answer session to be held to discuss the full impacts of this revised permit. (38)

Please do a complete review of the proposed GP-5 revision and be sure to address the public's concerns about public participation, decreasing emission thresholds, requiring BAT analysis, and removing discretion on exemptions. (50, 54, 55-255)

Commentators believe the DEP is using the GP-5 program to fast track industry permits and commentators implore DEP to re-evaluate this program and make public participation a top priority. (51, 54, 55-255)

***Response***: This comment and response document addresses the commentators' concerns about public participation and a complete review of GP-5 based on comments received. The Department has followed the public participation requirement in accordance with 25 Pa. Code §127.612 related to Public Notice and Review Period. The proposed GP-5 was published in the *Pennsylvania Bulletin* and in newspapers soliciting public comments. The Department received comments from 255 commentators, including individuals, environmental advocacy groups, equipment vendors, regulated industries, environmental professionals, and EPA. The Department has reviewed the comments and has finalized GP-5. Therefore, the Department has concluded that public hearings were not warranted.

**261. Comment**: Many of the requirements specified in this proposed GP-5 do not distinguish between owner and operator, and that adds regulatory confusion regarding which entity may be responsible for which requirement. (17)

***Response***: Both owner and operator are responsible for compliance with the terms and conditions of GP-5.

**262. Comment**: Requirements such as daily monitoring of the facility for visible emissions (Condition B, 2(h)) are overly burdensome for companies that do not have personnel on site every day. The requirement to take action if visible emissions are spotted is appropriate, but the requirement should be monthly, quarterly, or whenever observed. (17)

***Response***: Because the facilities are typically unmanned, the daily visible emission monitoring requirements are not included in the final GP-5.

**263. Comment**: Any records required by the permit should not be required to be kept on site. With the advent of modern communication technology, it is largely irrelevant where the records are kept, so long as they can be produced in a reasonable period of time. The focus should be on the capability of producing the records in a timely fashion, not in the mechanism to do so. The PADEP should consider alternative language for records to be kept at the nearest manned facility. (17)

***Response***: Because the facilities are typically unmanned, the final GP-5 has been revised to require that records shall be made available to the Department upon request.

**264. Comment**: Non-Methane Non-Ethane Hydrocarbons should be defined and measured in the same manner as the NSPS and exclude formaldehyde. In addition, the specific test methods required to be used by EPA for NSPS measurements should also be referenced and used when completing tests to determine compliance with the GP-5 requirements. (19)

***Response***: Non-methane non-ethane hydrocarbon emission standards for Spark Ignition Internal Combustion Engines (SI ICE) in the final GP-5 do not include formaldehyde emissions. However, the VOC emissions from the other sources at the facility must include formaldehyde emissions. The final GP-5 references specific test methods.

**265. Comment**: The commentator states that the proposed GP-5 is not effective for the protection of human health or the environment and seeks to have the Department correct the deficiencies in the proposed permit before proceeding towards adoption. The deposition of pollutants from natural gas production and facilities will lead to water quality degradation and provides a substantial pollution pathway that must be addressed in the proposed GP-5 permit. (16)

PADEP does not address cumulative and reactive impacts to water and ecosystems from atmospheric deposition, allowing for those impacts to escape any limits. This needs to be corrected in the GP-5. (16)

In commentator's opinion, the proposed BAQ-GPA/GP-5 is not effective in protecting public health and the environment because it does not go far enough in addressing the problem of deposition. The DEP should explore NOx reducing options such as requiring electric drill rigs and banning flaring. If the Pennsylvania DEP does not revisit BAQ-GPA/GP-5 and require more substantive cuts to emissions, the resulting atmospheric deposition of pollutants can adversely impact water quality and surrounding ecosystems. (16)

***Response***: The final GP-5 is applicable only to non-major facilities.

New sources are required to control the emission of air pollutants to the maximum extent, consistent with the best available technology (BAT) as determined by the Department. Because the emission limits under GP-5 require BAT, they reduce, if not eliminate, many of the environmental and ecological issues that the commentator is concerned about. BAT is defined in 25 Pa. Code §121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. The applicable emission limits of Federal NSPS and NESHAPS will serve as a baseline for determining the BAT. The resources utilized in the determination of BAT include the data in the EPA's RACT/BACT/LAER Clearinghouse (RBLC), BAT included in the plan approvals which are determined on a case-by-case basis, general permits and other permits issued by other states, such as Ohio, West Virginia, and Colorado, for similar sources. For example, Ohio and West Virginia have finalized General Permits for Oil and Gas Industry. The Department also evaluated vendors' guaranteed emission limits and the available stack test data for the applicable sources. The emission limitations included in the GP-5 must be technically and economically achievable. In addition these emission limitations must be sustainable during the life of the unit. The Department has determined that the emission limitations in the final GP-5 constitute BAT. The basis for the emission limitations in the final GP-5 is included in the technical support document, which is available on the DEP website.

**266. Comment**: The uncontrolled release of methane through hydraulic fracturing of natural gas wells contributes a large volume of methane to the air. This damaging release is worsening the destructive progression of global climate change. The GP-5 should include methane as well as carbon dioxide from natural gas operations in order to stem this increase and to co-benefit the reduction of the atmospheric deposition of pollutants and water quality degradation from these activities. (16)

***Response***: As discussed in the response to Comment #5, the final GP-5 is not applicable to wellheads.

**267. Comment**: For diesel engines, the proposed GP-5 does not include any limits. Will diesel engines used for oil and gas development be covered by GP-9 and 25 Pa. Code chapters 145 and 129.203? Would these rules cover all diesel engines used in the natural gas sector? (40, 52)

***Response***: The Department has already issued GP-9 for Diesel or No. 2 Fuel-fired Internal Combustion Engines. The owner or operator of a diesel engine may obtain an authorization under GP-9 for construction and/or operation. The owner or operator of diesel engines used in the natural gas sector shall comply with the requirements of 25 Pa. Code §129.203 and Chapter 145, as applicable.

**268. Comment**: Combined impacts of air toxins are significant. Technology exists for manufacturers to minimize and monitor emissions from even small facilities. The list of air toxins that should be regulated for small and large facilities should be as wide as possible in the number of substances. The commenters support a limit on formaldehyde but believe it should be lowered and more VOC's should be added to the list. The only way we can limit air pollution is to require all emitters to follow the same rules of emission limits and monitoring. (42, 54)

***Response***: The engines rated at greater than 500 horsepower are required to be installed with a CO catalyst, which reduces formaldehyde and other VOC compounds. Formaldehyde is the predominant HAP from natural gas-fired spark ignition engines. The BAT emission limits and testing requirements for formaldehyde established in the final GP-5 effectively limits the emission of other HAPs. Similarly, non-methane and non-ethane hydrocarbons are representative of VOCs from natural gas-fired engines and turbines. Emission standards and testing for additional VOC and HAP compounds, which are only emitted in trace amounts, are not warranted.

**269. Comment**: Facility monitoring and standard reporting of small, medium and large facilities is needed. (42, 54)

***Response***: The final GP-5 includes comprehensive emission standards, testing, monitoring, recordkeeping and reporting requirements.

The Department reevaluated the malfunction notification requirements. The Department has revised the condition in the final GP-5 pertaining to malfunction notifications in the event of imminent danger as follows:

> *Malfunctions. The owner or operator shall notify the Department by telephone within twenty-four (24) hours of the discovery of any malfunction at a natural gas compression and/or processing facility operating pursuant to this General Permit, or any malfunction of pollution control equipment associated with a facility, which results in, or may possibly be resulting in, the emission of air contaminants in excess of any applicable limitation specified herein. Following the telephone notification, a written notice also be submitted to DEP as specified below.*
>
> > *If the owner or operator is unable to provide notification by telephone to the appropriate Regional Office within twenty-four (24) hours of discovery of a malfunction due to a weekend or holiday, the notification shall be made to the Department by no later than 4 p.m. on the first business day for the Department following the weekend or holiday.*
>
> *Any malfunction that poses an imminent danger to the public health, safety, welfare, or environment shall be reported by telephone to the Department and the County Emergency Management Agency immediately after the discovery of an incident. The owner or operator shall submit a written report of instances of such malfunctions to the Department within three (3) business days of the telephone report.*
>
> *Unless otherwise required by this General Permit, any other malfunctions shall be reported to the Department, in writing, within five (5) business days of malfunction discovery.*

**270. Comment**: The commentator wants to voice his demands for best available technology and most stringent standards, even on "small" sources of pollution. (43)

***Response***: The final GP-5 includes appropriate emission limitations reflective of best available technology for all applicable sources located at natural gas compression and/or processing facilities. In addition, the final GP-5 is applicable only to non-major facilities.

**271. Comment**: Non-road engines are not addressed within the scope of the GP-5. The GP-11 [RE: Notice of Intent to Reopen Public Comment Period on Proposed Revisions to the General Plan Approval and/or General Operating Permit for Non road Engines [BAQ-GPA/GP11] Published at 40 Pa.B 6336] had a public comment period close May 26, 2011. I am wondering, what is the status of those revisions, as there continues to be industry technological advances that would provide better protections of our air resources. (44)

***Response***: Non-road engines are outside the scope of GP-5. However, the Department has proposed revisions to Item #38 (oil and gas exploration, development, and production facilities and associated equipment) of the exemption list for public comment in the February 2, 2013 issue of the *Pennsylvania Bulletin*. The proposed revisions will exempt non-road engines meeting specific criteria.

**272. Comment**: 2012 Draft GP-5 grants the operator of a compressor station a waiver on emissions limits during start-up and shut-down events. Nevertheless, section A 6 (b) (i) (the facility shall be "Operated in such a manner as to not cause air pollution") does apply during periods of start-up and shut-down. Indeed, section A 6 (b) (i) applies at all times and circumstances. Accordingly, GP-5 should specify that all abnormal events, including but not limited to malfunction, start-up, shut-down, blowdown, and pressure relief must be logged, these logs must be transmitted periodically to the DEP where they must become available to the public as part of the File Review materials, and all DEP personnel conducting complaint inspections must check these logs for correlation with the complaint, and note any such correlation in all inspection reports. (45)

***Response***: While the final GP-5 does not require any specific emission limitations during start-up and shutdown periods, the emissions from all the sources located at the facility, including during periods of start-up, shutdown, and malfunction, must be accounted in the 12-month rolling sum of facility-wide emissions to demonstrate compliance with the facility-wide emission limitations in the final GP-5.

The Department requires that all malfunctions be reported in accordance with the malfunction notice requirements contained in GP-5. The written notices are public record.

The Department presently attempts to conduct a Full Compliance Evaluation inspection of each facility operating under General Permit at least once within each five-year General Permit registration period, as staffing and resources allow. Among the elements Department personnel are required to complete in a Full Compliance Evaluation, are a file review and determinations of compliance with all applicable requirements including regulatory requirements and permit conditions, for each air contamination source at the facility. A complaint investigation is more typically directed at identifying and addressing the specific emission source or sources responsible for the complaint, and may or may not include a review of the owner or operator's periodic required submittals, as the unique circumstances of the case may warrant.

**273. Comment**: Commentator strongly endorses the "no detectable emissions" standard as found in Section E, Condition 2(b)(ii). However, commentator asks what this term means, and why this standard is not enforced throughout GP-5. Emissions visible using a FLIR camera is clearly detectable. FLIR photography has thus been clearly established as BAT for LDAR. This finding must be incorporated throughout GP-5. Specifically:

•FLIR photography must be accepted as prima facie evidence of a potential violation under section A 6 (b) (i).

•Where emissions detected by FLIR photography can reasonably be associated with emissions causing malodors, FLIR photography must be accepted as prima facie evidence of a possible violation under sections A 6 (b) (iii) and F 1 (e).

•FLIR photography or its equivalent must be incorporated into all complaint inspections of compressor stations, and all such photography must be included in File Review materials as part of the inspection report.

•Where citizen or other 3rd party FLIR photography evidence (or evidence from comparable technology) is available, it must be accepted as potential evidence of emissions, must result in an immediate complaint inspection, and be incorporated into File Review materials along with comparable material from DEP or the facility operator. (45)

***Response***: The "no detectable emissions" requirement in Section E, condition 2(b)(ii) in the proposed GP-5 was established for a pressure storage vessel that is designed to operate as a closed system. It is not practical to apply this standard for each source covered under GP-5. Any leak detected by a forward look infrared ("FLIR") camera and/or audible, visual, and olfactory ("AVO") inspections is considered a leak.

In addition to air contaminant emissions, FLIR photography may detect sources of heat and emissions of water vapor or steam. Only an adequately trained FLIR operator, who is also trained and experienced in sources and control of air pollution and administration of the Department's Air Quality Rules and regulations, and who has first-hand knowledge of the circumstances that existed during the FLIR recording event, can be fully assured of the implications of its content, as it may relate to the Conditions of the General Permit or the Air Quality Rules and regulations of the Department. The Department will not commit to unilaterally accept FLIR photography as prima facie evidence of a potential violation under sections A 6 (b) (i).

The plain wording of the malodor regulation, 25 Pa. Code §123.31 (relating to *Limitations)*, and the requirements for demonstrating a malodor, established by Environmental Hearing Board precedent, preclude the Department from committing to accepting FLIR photography as having a significant connection with malodors beyond identifying possible sources worthy of further investigation, since the determination of a malodor requires demonstration of an emission causing annoyance or discomfort to the public, and agreement by the Department that the odor constitutes a malodor.

The Department's Field Operations, Regional Air Quality Programs presently own only five FLIR cameras, and have a very limited number of field personnel trained in their use, and the Department's budget is severely constrained. The Department will not commit in this General Permit to purchase additional cameras or training, or to have a FLIR camera with a trained operator at every inspection.

The Department's resources and staffing allocations are not sufficient to enable it to commit to conduct an immediate complaint inspection in response to citizen or other 3rd party FLIR photography evidence that might constitute potential evidence of emissions from air contamination sources covered by the General Permit.

**274. Comment**: Regarding Section I, Condition 2(a), commentator reads this passage as prohibiting the use of open impoundments to contain flowback and produced water during well completion. The use of impoundments rather than enclosed vessels to contain flowback and produced water is common and continues to the present day. While the meaning of the word 'storage vessel' from 2012 Draft GP-5 implies an enclosed vessel — thus precluding an open impoundment — it would be better if this is made explicit. Commentator suggests that DEP amend the definition of 'Storage vessel' in Section A 2 and substitute for the words "A tank or other vessel" the words "An enclosed tank or other enclosed vessel". I 2 (a) should be amended to specifically state that an impoundment may not be used for this purpose. (45)

***Response***: As discussed in the response to Comment #5, the final GP-5 is not applicable to wellheads.

**275. Comment**: GP-5 follows in your tradition of putting gas company profits before all else - public health and safety, the environment and the public's right to comment on permits. (46)

***Response***: The Department disagrees. The final GP-5 includes comprehensive emission standards, testing, monitoring, recordkeeping and reporting requirements. The Department has followed the public participation requirement in accordance with 25 Pa. Code Section 127.612 related to Public Notice and Review Period. The proposed GP-5 was published in the *Pennsylvania Bulletin* and in newspapers soliciting public comments. We received comments from 255 commentators, including individuals, environmental advocacy groups, equipment vendors, regulated industries, environmental professionals, and EPA. The Department has reviewed the comments and has finalized GP-5.

**276. Comment**: PA DEP should not under any circumstances be granted the authority of discretion to determine whether or not a facility is exempt from the GP-5. If this were allowed, the permit would be essentially useless for achieving the goals of improved public health and cleaner air. (50, 54, 55-255)

***Response***: The Department disagrees with the commentators. 25 Pa. Code §127.14 grants the Department the authority to exempt a source or class of sources from permitting requirements. The Department has determined that certain sources of limited duration and/or sources of minor significance do not require plan approval and/or operating permit. These sources are included in the exemption list. Therefore, GP-5 is not applicable to sources that are exempted from permitting requirements.

**277. Comment**: The sources covered by both the existing and proposed revision to GP-5 are not well-suited for the general permitting program because the source category definition is vague, individual sources are subject to significant variation, and the permitting process often involves complex, case-by-case analyses. (7)
Compressor stations are not well-suited for general permit permits. DEP should remove compressor stations from the GP-5 source category. By requiring compressor stations to receive full plan approvals, the Department will have more time to perform a source determination analysis and the public will once again have an opportunity to provide input regarding agency actions related to these facilities. The Ohio EPA recently finalized an oil and gas well site general permit that may serve as a guide should DEP decide to eliminate compressor stations from GP-5. (7)

***Response***: The Department determined that the sources located at a source category such as natural gas compression and/or processing facilities are a collection similar in nature and can be regulated with standardized specifications and conditions. Section 504(d) of the Clean Air Act allows the permitting authority, after notice and opportunity for public hearing, to issue a general permit covering numerous similar sources. In addition, 25 Pa. Code §127.611 allows the Department to issue or modify a general plan approval or general operating permit for any category of stationary air contamination source if the Department determines that sources in the category are similar and can be adequately regulated using standardized specifications and conditions. Therefore, GP-5 is consistent with Section 504(d) of the CAA and 25 Pa. Code §127.611.

When the DEP first proposes a general permit, a public comment period is provided as required under 25 *Pennsylvania Code*, Section 127.612 (relating to public notice and review period). The public comments period is also provided for subsequent modifications of General Permit. This comment period is to allow public participation in the development of the specific requirements contained within the general permit. The public comment provisions are only applicable when the DEP first proposes or proposes revisions to the general permit. The DEP then finalizes the general permit for use by anyone who can comply with the specific provisions of the general permit.

When the owner or operator of a facility seeks authorization to use GP-5, the owner or operator must demonstrate to the DEP that the source they wish to install meets the requirements specified by GP-5. If the application satisfactorily demonstrates that the source would comply with all the terms and conditions of GP-5, the DEP authorizes the owner or operator to use GP-5. Because the terms and conditions of GP-5 cannot be modified during the authorization to use GP-5, the public comment provisions under Section 127.612 are not applicable prior to each authorization to use GP-5. However, the Department publishes a notice of each authorization to use GP-5 into the *Pennsylvania Bulletin.*

The proposed GP-5 was published in the *Pennsylvania Bulletin* and in newspapers soliciting public comments. The Department has received comments from 255 commentators, including individuals, environmental advocacy groups, equipment vendors, regulated industries, environmental professionals, and EPA. The Department has reviewed the comments and has finalized GP-5 after consideration of the comments.

Ohio EPA and West Virginia DEQ have finalized general permits for this source category.