Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Matthew H. Mead, Governor

Todd Parfitt, Director

MEMORANDUM

TO: Air Quality Advisory Board

FROM: Jeni Cederle, Andrew Keyfauver, Mark Smith, Air Quality Division

DATE: June 13, 2014

RE: Wyoming Air Quality Standards and Regulations, Chapter 8, Nonattainment Area Regulations, Section 6, Requirements for existing oil and gas production facilities or sources in the Upper Green River Basin; Statement of Basis

The Wyoming Department of Environmental Quality – Air Quality Division (AQD) has announced proposed rulemaking for the Upper Green River Basin (UGRB) ozone nonattainment area. The proposed rule will establish requirements for existing oil and gas production facilities located in the UGRB ozone nonattainment area.

The UGRB area was designated by the Environmental Protection Agency (EPA) as "Marginal" nonattainment for the 8-hour ozone National Ambient Air Quality Standards (NAAQS) of 0.075 ppm on July 20, 2012. There has been much work done by the AQD to address this ozone nonattainment status prior to this designation. Some of this work includes the creation of the Interim Policy on Demonstration of Compliance with Wyoming Air Quality Standards and Regulations (WAQSR) Chapter 6, Section 2(c)(ii) for Sources in Sublette County (Interim Policy), increased monitoring, and detailed emission inventories. This process included stakeholder involvement since 2006 including the formation of the UGRB Air Quality Citizens Advisory Task Force (Task Force) in early 2012 that functioned into late 2012.

On March 11, 2013, the AQD released the UGRB Ozone Strategy which provided information about AQD's overall ozone reduction plan and included recommendations provided by the Task Force. One of the ten incorporated Task Force recommendations was to develop and implement rules, regulations, and/or policy to reduce emissions from existing oil and gas stationary sources throughout the nonattainment area. The AQD determined that in order to address the recommendation through the UGRB Ozone Strategy, the Division would need to "gather and evaluate information (e.g., emission inventory, relevant permitting actions, relevant field studies, compliance information and research) to evaluate control strategies in a group reasonably achievable control technology (RACT)-like process including rulemaking for existing upstream and midstream oil and gas sources (Listed as Task Force recommendations #1, #2, and #6)."

In order to assess emissions, the AQD conducted an evaluation of the best available information at the time, which was a quality assured 2011 emissions inventory for the UGRB. As part of the evaluation, the AQD grouped or counted the emissions at each facility or source that fell into an emission threshold irrespective of whether the sources were uncontrolled or controlled. Groups were based on equipment or emission type, for example volatile organic compound (VOC) emissions from dehydration units (dehys), and are shown in the following table.

Summary of VOC Emission Inventory Threshold Grouping/Counts [1]								
Source	≥10 tpy	≥8 tpy	≥6 tpy	≥5 tpy	≥4 tpy [2]	≥3 tpy	<3 tpy	Source Total
Tanks	14	22	27	32	37	53	2640	2693
Dehys	4	9	23	242	294	430	1597	2027
Pumps	3	4	5	5	6	334	3172	3506
Controllers	3	6	20	26	29	51	2387	2438
Fugitives	2	2	2	143	143	143	4932	5075

[1] Sources in each grouping represent both uncontrolled and controlled facilities.
[2] September 2013 O&G guidance established a control threshold of 4 tpy for areas outside JPAD/NPL or require a BACT analysis for source without a defined presumptive BACT for new and modified sources.

Based on the above table, the emission inventory evaluation for VOCs shows that the majority of emissions are emitted at rates less than three (3) tons per year from each source category whether they are uncontrolled or controlled. For example, ninety-eight percent of tanks have VOC emissions less than 3 tpy.

In addition to VOC emissions, the AQD looked at stationary engines where the AQD has regulatory authority to control emissions to evaluate nitrogen oxide (NO_x) emissions. NO_x emissions from the engines were grouped into emission thresholds based on their underlying new source review (NSR) permit. Using information pulled from NSR permits, for engines identified in the 2011 emission inventory, the following table shows that ninety-three (93) engines were permitted as emitting greater than one (1) gram per horsepower-hour (g/hp-hr) of NO_x. A detailed evaluation of this grouping/count indicated that twenty-seven (27) of the greater than 1 g/hp-hr engines were permitted for limited use or designated as emergency engines with limited operating hours. Of the remaining engines greater than one (1) g/hp-hr which are not permitted as limited use or emergency, industry has lowered emissions from a majority of these units since the 2011 emission inventory.

Summary of NO_x Emission Inventory Threshold Grouping/Count				
Source	≥2 g/hp-hr	≥1.5 g/hp-hr	≥1 g/hp-hr	<1 g/hp-hr
Engines	37	48	93	95

From this emissions inventory evaluation, the AQD concluded that potential emission reductions from existing sources may not be as large as some may have anticipated via a group RACT-Like process.

On September 24, 2013, the AQD released an updated UGRB Ozone Strategy. As part of this strategy, the rulemaking subject area for existing upstream and midstream oil and gas sources evolved based on the information gathered under the previous strategy. The updated objective was to "evaluate control strategies and regulatory options to reduce emissions from existing upstream and midstream oil and gas sources as well as evaluate regulatory options to address new growth. In addition, the AQD was to consider more permanent mechanisms that will function effectively and preserve the current New Source Review permitting processes of WAQSR Chapter 6, Section 2 (Listed as Task Force recommendations #1, #2, and #6)."

The AQD evaluated various options for emission reductions in the UGRB, and these options could be categorized as being either technology or emission budget focused. A technology driven option is an option that was considered to focus on specific equipment or a control type. For example, a dehydration unit and its respective emission controls would be considered technology driven. An emission budget option is considered to be a strategy that focuses primarily on emissions as a whole in the UGRB and not on a single source type. For example, requiring emission reductions from a baseline period is an example of an emission budget option.

Based on all available information, the AQD determined that the best approach for bringing the UGRB back into attainment for ozone is one that includes a technology as well as an emission budget option. Therefore, the Division is approaching the rulemaking subject area of the UGRB Ozone Strategy in a phased approach, the first phase being a technology option, and the second phase being an emission budget option for the UGRB. This phased approach to rulemaking is highlighted in the latest UGRB Ozone Strategy released on April 22, 2014.

In evaluating the options for Phase I (technology driven) rulemaking, the AQD considered factors such as VOC reactivities, timing for implementation and current Best Available Control Technology (BACT) requirements for new and modified sources in the UGRB. After evaluation of all factors, the AQD determined that leveraging the latest Oil and Gas (O&G) Guidance (September 2013) would address a significant number of areas for Phase I. One such area is that the O&G Guidance requires control on dehydration units with at least 4 tons per year of uncontrolled VOCs. This would, in part, address controlling the most reactive VOCs in the UGRB contributing to ozone formation, such as benzene and toluene for example. Additionally, it may also require existing sources with emissions controls to continue to utilize controls for a longer duration of time because a previously issued permit may have allowed VOC emission controls to be removed at higher emission thresholds (e.g., 8 tpy of VOCs). Leveraging the O&G Guidance will also provide familiarity to the regulated community as the concepts utilized in the Guidance act as a foundation in this rule.

Based on the limited number of sources that would potentially require controls as required by the rule, the AQD determined that utilizing the cost to control evaluation data from the latest O&G Guidance revision already provides comparable cost information for retrofitting existing sources in the UGRB. This is due to the fact that the emission inventory evaluation identified that a small number of sources would potentially require controls (e.g., less than 1 percent of tanks in the UGRB have VOC emissions greater than 4 tons per year). The AQD also utilized the January 1, 2014 compliance date from the O&G Guidance (September 2013) to define an existing source trigger date in the UGRB. Use of the January 1, 2014 compliance date will prevent an applicability gap from being created where a source would fall into either being subject to the Phase I rule as an existing source or being considered a new/modified source and be subject to the latest BACT requirements.

The O&G Guidance for the UGRB was leveraged as a template to formulate a regulatory option that will address emissions from existing oil and gas production sources or facilities in the UGRB ozone nonattainment area. Sources identified as existing in Phase I will be held to similar control strategies and emission thresholds (i.e., subject to a control threshold of 4 tpy of VOC emissions) as new and/or modified sources permitted under the O&G Guidance (September 2013). The AQD considers this a positive outcome as the regulated community in the UGRB would be on a level playing field, and this starting point could be leveraged in Phase II (emission budget) for the UGRB.