

UGRB Air Quality Citizens Advisory Task Force
Option Ideas
May 30, 2012

On the following pages are a number of ideas for reducing ozone levels in the Upper Green River Basin that were generated by individual Task Force members (and in one case, a small group of Task Force members) between May 9 and May 30, 2012. These ideas will be considered by the entire Task Force when generating recommendations to the Wyoming DEQ. The Task Force has yet to evaluate and discuss all of the ideas listed here, and as of this date, none have been endorsed by the group.

Options Generated at May 9, 2012 Meeting (During the “Objectives” Discussion)

- 1) Require no-bleed pneumatics for grandfathered equipment
- 2) Require pitless operations (everything in nonattainment area)
- 3) Leak detection and repair (LDAR) to verify emission levels in all areas
- 4) Use a short-term strategy to reduce industrial sources of NOx from:
 - Permitted sources
 - Non-stationary sources
 - Grandfathered sources
- 5) Use a short-term strategy to reduce industrial sources of reactive/aromatic VOCs from:
 - Permitted sources
 - Non-stationary sources
 - Grandfathered sources
- 6) Site preparation: reduce activity to reduce NOx and VOC
- 7) Equipment maintenance: Establish work practices
- 8) Drilling: reduce NOx and VOCs
 - SCRs and natural gas engines
 - Natural gas engines
 - Electrification
 - Reducing pit emissions
- 9) Well Completion/Workover: Reduce NOx and VOCs
 - Observe ozone action days
 - Green completions
 - Minimize venting
 - Imp. Engines on frac fleet
- 10) Production: Reduce NOx and VOCs
 - Tanks / Dehys / Engines / Pneumatics
 - Centralize facilities
 - Reduce fugitives
- 11) Gas to Market: Reduce NOx and VOCs
 - Compressor facilities – engines

Options Generated via E-mail Correspondence May 17 – 25, 2012

1. Continue implementing the current Interim Emission Offset Policy for Permitted Ozone Precursor Emission Sources in Sublette County
2. Enhance the current Interim Emission Offset Policy for Permitted Ozone Precursor Emission Sources in Sublette County" by:
 - increasing the offset ratios,
 - "retiring" credits through buyback or other means to accelerate emission reductions while preserving and/or enhancing socioeconomic conditions in the area
3. Control Currently Uncontrolled Grandfathered Sources through Additional Regulation and/or Economic Incentives
4. Control Permit-Exempt Non-Road Mobile Emission Sources Through Additional Regulation and/or Economic Incentives
5. Bring all facilities to the same control levels as is required for new wells
6. Develop permitting strategies to [prevent, reduce] emissions from future sources such as the NPL, PXP etc in order to solve this air problem
7. Address compressor emissions (a major source of precursor emissions)
8. Address emissions resulting from the handling of condensate
9. Control all currently previously uncontrolled sources--grandfathered or exempt included
10. Consider ways to control mobile sources including generator motors
11. Reduce emissions from the Pinedale Anticline Disposal Site
12. Reduce emissions from evaporation pits in the county as well as on Calpet Rd.
13. Reduce emissions from old equipment/facilities/locations in LaBarge and other older project areas (retrofit)
14. Improve monitoring and reporting of emissions (VOCs, NOX, and possibly other forms of potentially hazardous emissions) to motivate behavior change
 - Atmospheric scientists design a systematic monitoring scheme
 - Implement a public reporting mechanism (e.g., a report card)
 - Combine monitoring with graduated standards
15. Assess annual pollution emission fees for permitted sources in the non-attainment area of \$20,000 per ton NOx, \$10,000 per ton VOC (or higher if necessary)

16. Have retail and private gasoline refueling stations retrofit dispensing nozzles with vapor control boots
17. The DEQ should determine maximum wintertime VOC and NOx levels (quantities) that can be reached before a NAAQS violation would occur. Treat this as a “cap”

Recommendations for Controlling Ozone in the Upper Green River Basin
Bruce Pendery

1. DEQ should implement the offsets policy but it should be updated to ensure the offsets are still appropriate/valid based on current science and information. Apply the offsets policy to all permitted emissions sources in the UGRB.
2. DEQ should determine worst-case maximum wintertime VOC and NOx levels (expressed as concentrations and quantities) that can be reached before a NAAQS violation would occur. This information should be compared to inventoried or monitored ozone or ozone precursor levels and the results should be publicized. Use these data to promote emissions reductions.
3. DEQ should convert the minor source oil and gas presumptive BACT guidelines to LAER or RACT requirements for minor source oil and gas emissions in the UGRB so as to achieve greater levels of emissions control.
4. The use of liquids gathering systems should be increased—they should be extended beyond the JPAD. The BLM has authority to supplement NEPA analyses to put these requirements in place.
5. DEQ should regulate produced water or storage facilities as potential air pollution sources, particularly the Pinedale Anticline Facility.
6. DEQ should regulate all existing oil and gas facilities in the UGRB, including “grandfathered” emissions sources. Regulation should be to the standards applicable in the JPAD, and the focus should be on VOC emissions from these sources as they are significant contributors to VOC emissions in the UGRB.
7. DEQ should focus regulatory and permitting efforts on the following oil and gas emissions sources:
 - a. NOx: drill rigs, compressors, well completions, and vehicle traffic.
 - b. VOC: storage tanks, dehydrators, pneumatic pumps, fugitives (BTEX), and truck loading.
8. DEQ and BLM should require Table 3 of the Joint Fact Finding Document for all emissions sources in the UGRB and/or as record of decision components in NEPA analyses or conditions of approval for APDs.
9. DEQ should require other emissions control measures for non-oil and gas emissions sources, such as gasoline vapor recovery technology, as determined by DEQ to be necessary, effective, practical, and economical.

10. DEQ and other agencies should improve current monitoring, inventory, and modeling systems and processes, including providing for public reporting of these data. Ensure monitoring is done in the areas most likely to be contributing to the problems. Use these data to promote emissions reductions.

**Draft Recommendations from
Shane DeForest, Angela Zivkovich, Dave Hohl, John Anderson and Carmel Kail**

Scheduling/timing/realization of benefits is key to any recommendations developed.

The Marginal period ends in 2015 and begins with the good winter we just had in 2011/12.

The demonstration of attainment will use the average of 3 years and any demonstration would include completed QA QC'd inventory data

Local economies are lacking in diversity such as to be able to absorb significant consequences from failing to get out of non-attainment and the population is not contented to continue in the current pattern.

Failure to get out of non-attainment within the 3 year period will result in direct measurable adverse consequences to development and production and the connected economic stability and reliability in the local area

VOC Recommendations

1. Grandfathered operations
 - a. Develop and implement a rule for minor source categories establishing RACT for selected sources
 - i. Use a phased-in approach with retrofits occurring over several years
 - ii. In this strategy focus first on the largest source categories first and work in descending order.
 - b. Develop and coordinate a cost sharing structure with State and County governments to facilitate the retrofitting of uncontrolled sources with updated technology
 - i. Prioritize cost sharing funds to the sources emitting the top % of VOCs within the non-attainment area regardless of location and owner.
 - ii. Schedule to address 15% of these sources within the first year, 25% of these sources within 2 years and 50% of these sources within 3 years
 - c. Additional reductions from this longer term initiative would focus on achieving 100% conversion on 100% of the top emission sources within 10 years.

NOX recommendations

1. Develop and implement a rule for non-mobile sources specifying the use of most current technology

- a. Specify tier 2 with SCR or better for drill rigs.
- b. Establish baseline for completions/frac equipment
- c. Controls under this rule would be in place by the end of 2013 or 2014.

1st Tier Suggestions from Steff Kessler

1. Require grandfathered or unpermitted sources to meet current best available control technologies (BACT) as required for new sources in the Jonah and Anticline fields (this addresses the largest uncontrolled sources of VOCs in the airshed – potentially 7,000 tons of VOCs saved annually). Four categories of types of sources make up the bulk of these emissions – pneumatic pumps, dehydration units, fugitives and tanks.
2. Require that future development in the non-Jonah/Pinedale field area use SCRs on their drilling rigs, per the requirement now for the Anticline. This would address new NOx emissions from this area.
3. Since high NOx emissions are more associated with the JPDA versus the non-JPDA area, look at the categories of sources there with highest NOx emissions there and add controls for those (compressors, completions, heaters ...)
4. Don't forget the commercial oil field waste/water treatment facilities – Dr. Field's research showed that these are high emitters (VOCs?) I believe some of these may be grandfathered and all are regulated under the water quality division only through a construction permit? What are we missing here?
5. Where possible, it may be useful to concentrate more on those VOC BTEX/aromatic spectrum of the VOC emissions...but I'm hesitant to throw all our eggs in this VOC basket only since the science is just emerging on this – not definitive.

Options Generated During the May 30, 2012 Meeting

1. Phasing retrofits (of grandfathered facilities) percentages per year. Start big sources and work to small. (We have interpreted this to mean that retrofits on grandfathered facilities should be phased in based on tonnage of emissions, targeting high emitters first and working toward smaller emitters.)
2. DEQ should announce rulemakings by fall 2012 to create incentives for voluntary reductions, such as pneumatics.
3. Upgrade P-BACT to eliminate routine venting and other upgrades. Then apply as RACT rule to grandfathered facilities.
4. Area wide cap of emissions.
5. Monitor liquids gathering system for leaks. Provide for a way to back track to find leaks (multiple meters).
6. Hire another DEQ personnel solely to manage the UGRB air quality issues, perhaps for five years.
7. "Programmatic" offset policies and solutions need to be considered along with specific emissions control measures.
8. Implement a staged development plan.
9. Aggregate all minor (permitted and unpermitted mobile) sources within the UGRB.
10. DEQ should develop and enforce minimum emission and operation standards for exposed produced and drilling water ponds.
11. Retire all pre-March 2011 VOC/NOx "credits."
12. Shift to pit-less operations.
13. DEQ should present to the Task Force rough estimates for equipment changes and cost per ton of NOx and VOC reductions in 10% increments. The Task Force can then examine and evaluate these for reasonableness.
14. Use increased monitoring to target and inform actions designed to reduce NOx and VOC emissions.