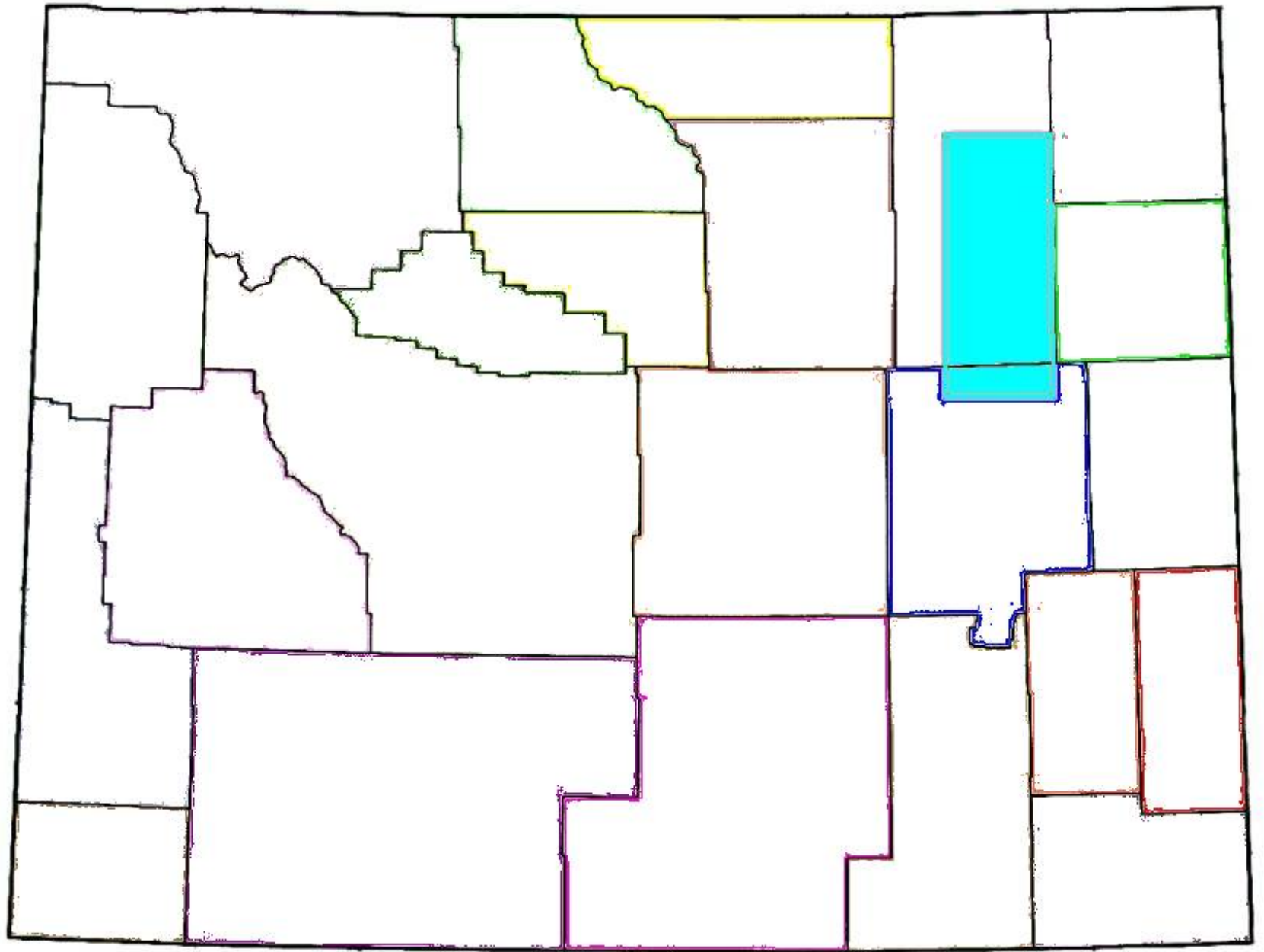


# Natural Events Action Plan for the Powder River Basin

Air Quality Division  
Department of Environmental Quality

Developed in cooperation with the Wyoming Mining Association's  
Regulatory Affairs Committee





# Background Information

- There are approximately 60 reference and equivalent method PM<sub>10</sub> monitors located in the Powder River Basin (PRB).
- Since 2001 a number of exceedances of the 24-hour PM<sub>10</sub> National Ambient Air Quality Standard (NAAQS) have occurred in the Powder River Basin in Wyoming.
- The majority of the exceedances have been the result of high wind conditions that have been exacerbated by an ongoing drought.
- EPA has recognized that there are uncontrollable natural events that can cause or significantly contribute to short-term, elevated PM<sub>10</sub> levels.
- EPA issued a Natural Events Policy (NEP) on May 30, 1996 to address this issue.



# Natural Events Policy

- Addresses uncontrollable natural events such as volcanic/seismic activity, wild fires and high winds that can result in adverse impacts to the NAAQS.
- Set forth procedures for protecting public health through the development of a Natural Events Action Plan (NEAP) which requires the use of Best Available Control Measures (BACM) for human-generated particulate emissions in the area of concern.
- Allows for the flagging of elevated monitoring data resulting from a natural event, provided BACM has been implemented, such that the event might be excluded in a determination of the region's air quality.



# NEP Guiding Principals

- Protection of the public health is the highest priority for Federal and State air pollution control agencies.
- The public must be informed whenever the air quality in an area is unhealthy.
- All valid air quality monitoring data is to be submitted to the EPA Air Quality System (AQS) and made available for public access.
- Reasonable measures for safeguarding public health must be taken regardless of the source of  $PM_{10}$  emissions.
- Emission controls should be applied to sources that contribute to exceedances of the  $PM_{10}$  NAAQS when those controls will result in fewer violations of the standards.



# Natural Events Action Plan (NEAP)

Recognizing the need to protect public health in the area where the exceedances are occurring, the Air Quality Division, with cooperation from the mining companies in the PRB, has prepared a NEAP based upon EPA's Natural Events Policy guidance. The purpose of the plan is to:

1. Educate the public about the problem.
2. Mitigate health impacts on exposed populations during future events, and
3. Identify and implement Best Available Control Measures (BACM) for significant anthropogenic sources of windblown dust.



# Public Education Program

- The Air Quality Division has met with the Campbell County Commissioners, the Wyoming Mining Association and interested stakeholders to discuss problems associated with elevated levels of PM<sub>10</sub> emissions.
- A plan has been proposed for notifying the public when a high wind event resulting in elevated levels of windblown dust might occur.
- Steps have been identified and/or taken to control dust emissions during future high wind events.
- A description of how to minimize the public's exposure to high concentrations of PM<sub>10</sub> emissions has been prepared.
- A task force is being formed to address potential anthropogenic sources that have not been identified and addressed by the NEAP.



# Definitions

- **High Wind Event** – When average wind speeds of 20 mph or greater are present. The trigger level for mines to implement reactionary control measures.
- **High Wind Alert** – When average wind speeds of 30 mph or greater are forecast by the National Weather Service; forecast winds trigger the issuance of a Blowing Dust Health Advisory Alert.
- **Blowing Dust Health Advisory Alert** – Public notification that a high wind/blowing dust alert is imminent or is currently taking place.



# Public Notification

- A Blowing Dust Health Advisory Alert has been defined as the public notification of the occurrence or expected occurrence of hourly wind speeds that will exceed 30 mph.
- A Blowing Dust Health Advisory Alert will be called, issued and discontinued based on wind forecasts from the National Weather Service in Rapid City, SD.
- The public will be advised of the following precautions:  
“Elderly citizens, young children, and individuals with respiratory problems should avoid excessive physical exertion and minimize outdoor activities. Although these are the people most susceptible to health impacts, it is recommended that everyone take precautions to avoid exposure to poor air quality conditions.”



# Implementation of Control Measures

- The current NEAP plan focuses on measures to control  $PM_{10}$  emissions from coal mining sources since it is the ambient monitoring systems around these large surface coal mines that have experienced exceedances of the 24-hour NAAQS.
- Any non-coal sources that are demonstrated to contribute to elevated measurements in the area of concern will be addressed separately, or will be included as a future update to the Natural Events Action Plan.



# Implementation of Control Measures

- The area defined by this plan covers 2,340 square miles. Often, the conditions on one end of the PRB might be quite different than conditions found 80 miles away at the other end.
- The mines have an expansive particulate monitoring network and include “real time” TEOM monitors at a number of locations. Additionally, most of the mines also have meteorological monitoring stations which provide site-specific information on weather conditions at the mines.
- As a result, the mines are qualified to quickly recognize and react to a high wind event, even if it has not been forecast by the National Weather Service.

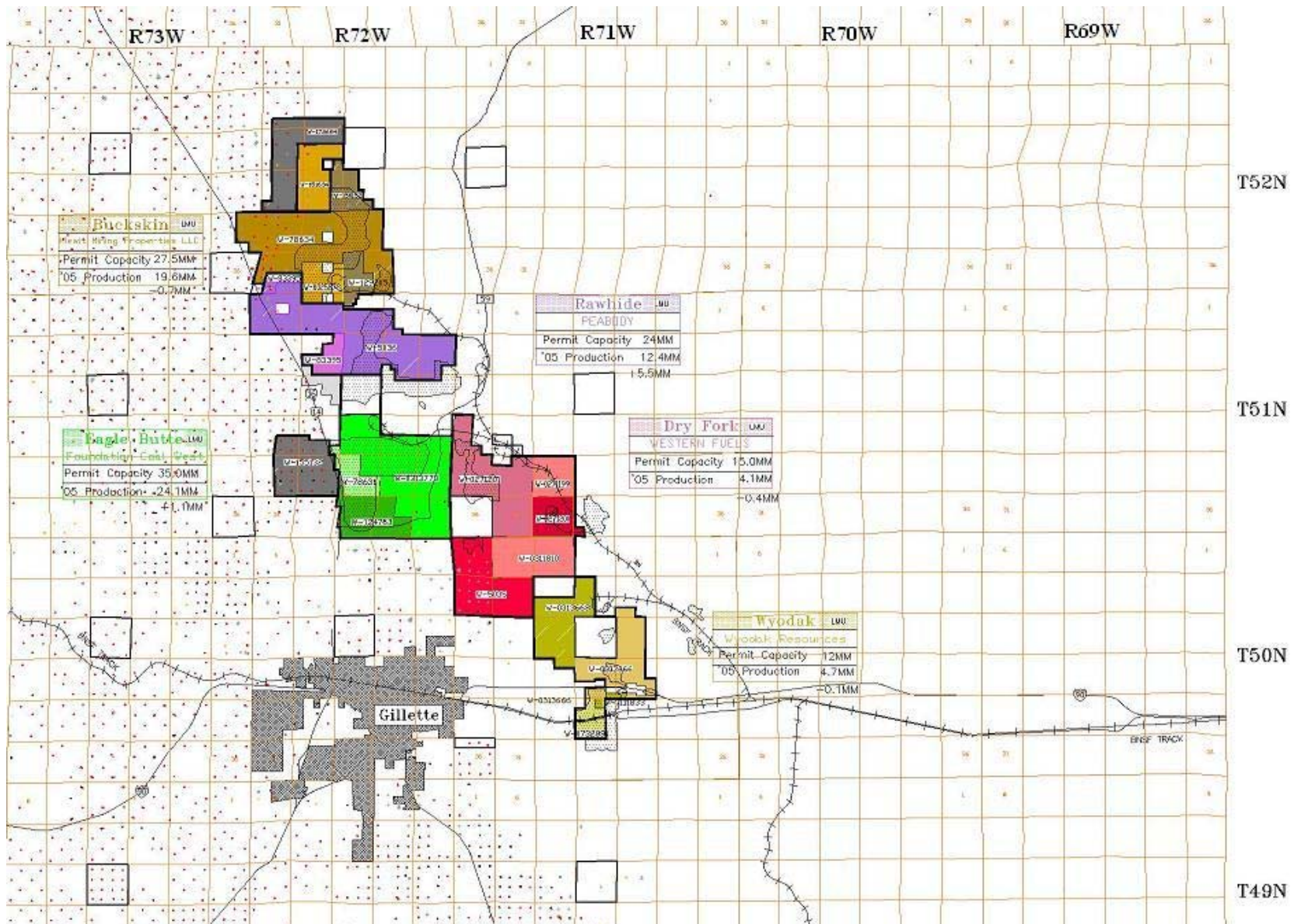


# Implementation of Control Measures

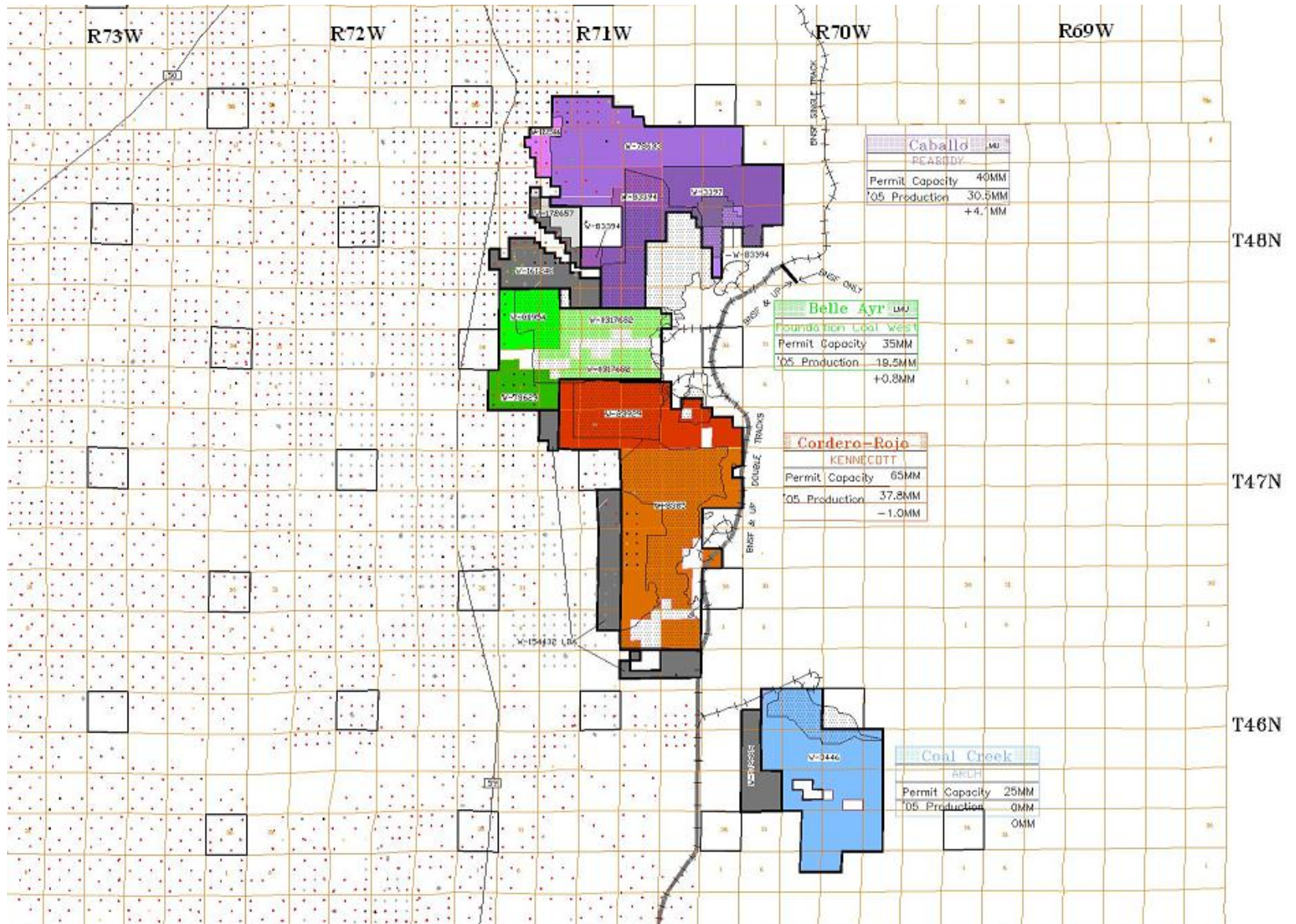
- The Division has proposed to split the Powder River Basin area into three sub-regions to more effectively manage control measures from so the mining companies with their variable operations.
  - ▶ The North PRB consisting of the Buckskin, Rawhide, Eagle Butte, Dry Fork, Ft. Union, and Wyodak mines.
  - ▶ The Central PRB consisting of the Caballo, Belle Ayr, Cordero Rojo, and Coal Creek mines.
  - ▶ The South PRB consisting of the Jacobs Ranch, Black Thunder, North Rochelle, North Antelope/Rochelle, and Antelope mines.



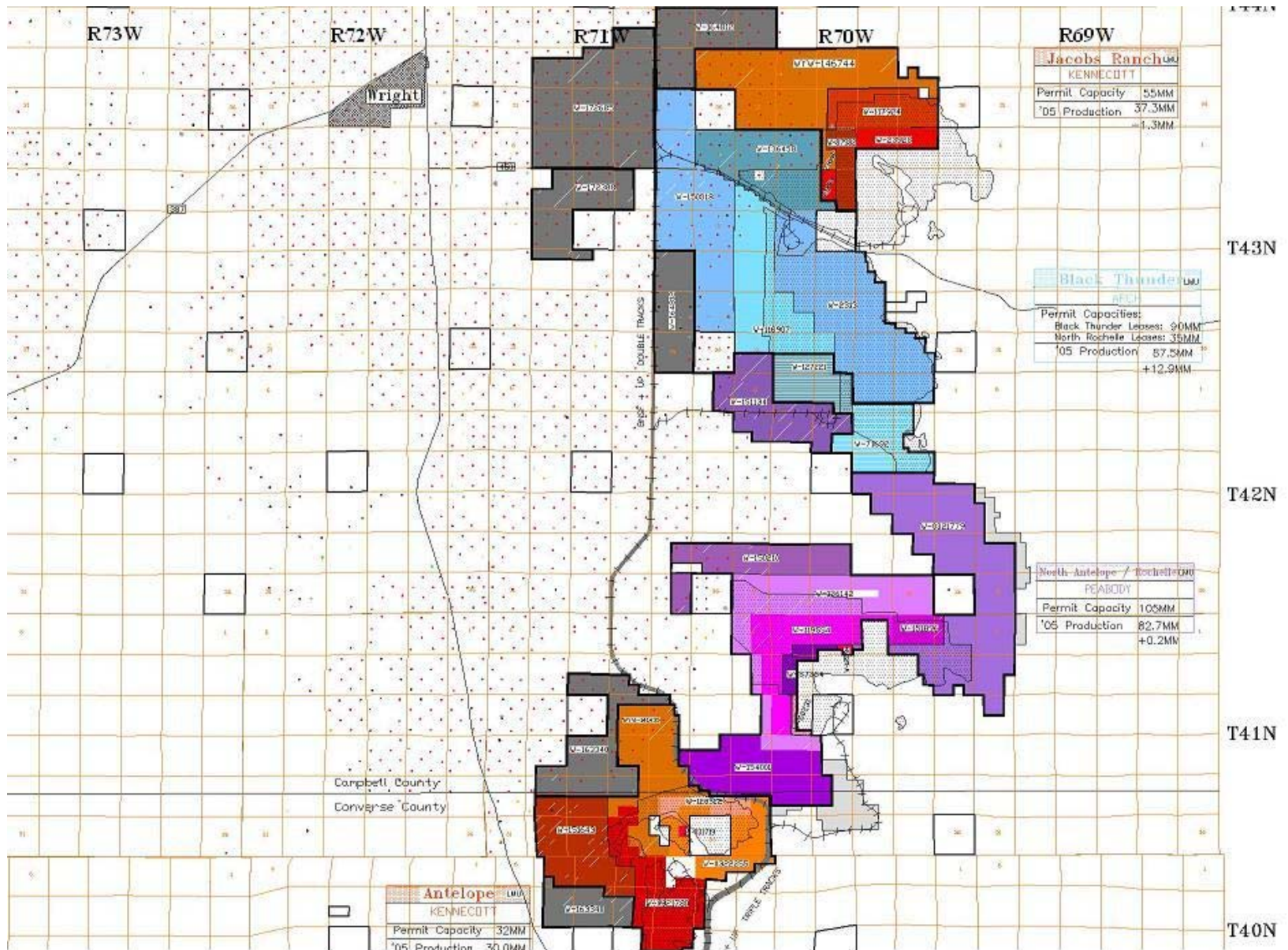
# Coal Mine Locations in the Northern Powder River Basin



# Coal Mine Locations in the Central Powder River Basin



# Coal Mine Locations in the Southern Powder River Basin



# Implementation of Control Measures

- The Air Quality Division and the individual mines are responsible for monitoring the forecasts on the NWS website to identify possible high wind events (winds which meet or exceed 20 mph hourly wind speeds). <http://www.crh.noaa.gov/ifps/gridpoint.php?site=unr>
- The NWS forecasts of elevated wind speeds will trigger increased surveillance by mine-site personnel.
- Mines with continuous PM<sub>10</sub> instruments will monitor concentrations in near real-time and notify adjacent mines if levels are trending toward exceedance levels.
- Based on values obtained from local meteorological instruments, the mines will implement reactionary control measures during high wind events.
- Mines with written mitigative response plans will implement those plans during high wind events.



# Implementation of Control Measures

Three types of controls have been categorized for the PRB Coal Mines.

1. Best Available Control Technology (BACT) – The control measures which are identified for each specific mine during the air quality permitting process.
2. Best Available Control Measures (BACM) – Control measures that are not permit requirements, but must be employed continuously to be effective during a high wind event. Generally, these controls address large contiguous disturbed areas that are potentially a source of fugitive dust.
3. Reactionary Measures – Actions or activities that can be conducted or modified on a temporary basis to reduce emissions during the high wind event or alert.



# Rejected Control Measures

- Suspension of Blasting. This process is dangerous and can disrupt normal mine activities and traffic.
- Establishment of windbreaks. Requires extraordinary effort to establish and maintain windbreaks.
- Use of sprinkler systems. Availability of water is a problem. Freezing and equipment breakage is an issue during cold weather.
- Supplemental irrigation. There is an insufficient water supply generally for irrigation. The method has been demonstrated to be detrimental to the re-establishment of native vegetation.
- Paving mine haul roads. Technologically infeasible considering the size and loads of the equipment using the roads.



# Where do we go from here?

- We are accepting public comment regarding the plan for the next 30 days. Written comments can be submitted to me at:

Michael Stoll

Air Quality Division

Herschler Building, 2<sup>nd</sup> Floor East

122 West 25<sup>th</sup> Street

Cheyenne, Wyoming 82002

If you were unable to get a copy of the written plan today, it is available on the Divisions website: <http://deq.state.wy.us/aqd/>



# Where do we go from here?

- A final version of this plan will be submitted to EPA for review and acceptance.
- Periodic Evaluations are required to:
  - Assess and review conditions that may be continuing to cause exceedances of the NAAQS
  - Review the status of implementation of the NEAP, and
  - Review the adequacy of the actions being implemented.

The Division will review the effectiveness of the Powder River Basin's Natural Events Action Plan at least every 5 years.



Questions?

