

BLM Colorado Air Quality

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Outline

I. Air 101

II. History of BLM Air Resources Management

III. Components of the CARPP

- A. Modeling - CARMMS
- B. Implementation and Permitting
- C. Monitoring
- D. Evaluation

IV. Incorporation into RMPs

Air 101 - Air Resources at the BLM

- Increasingly complex and critical air resource issues
- Increase in challenges, protests, and litigation from interest groups regarding air quality analyses
- Controversy has impaired the BLM's ability to implement decisions
- Changing air quality regulatory standards and new policy direction

Air 101 - Emissions and Impacts

Examples of BLM authorized activities impacting air resources

- Oil and Gas Development
- Mineral and Coal Mining
- OHV Activities / Organized Events
- Prescribed Fires / Wildland Fires
- Renewable Energy Development
- Grazing Management



Air 101 - Air Pollutants of Concern

○ **Criteria Pollutants**

- Carbon Monoxide (CO)
- Nitrogen Dioxide (NO₂)
- Particulate Matter (PM)
- Ozone (O₃)
- Sulfur Dioxide (SO₂)
- Lead



○ **Air Toxics**

- Hazardous Air Pollutants (HAPs)
- Volatile Organic Compounds (VOCs)



○ **Greenhouse Gases**

- Carbon Dioxide (CO₂)
- Methane (CH₄)
- Nitrous Oxide (N₂O)



○ **Air Quality Related Values (AQRVs)**

- Visibility
- Nitrogen and Sulfur Deposition

Air 101 - Air Quality Regulations and Policy

Federal Land Planning Management Act (FLPMA) of 1976

- Sec. 102 (a) (8): the public lands be managed in a manner that will *protect the quality of* scientific, scenic, historical, ecological, environmental, *air and atmospheric*, water resource, and archeological *values...*
- Sec. 202(c)(8): In the development and revision of land use plans, the Secretary shall - *provide for compliance* with applicable pollution control laws, including State and Federal air, water, noise, or other pollution standards or implementation plans

Air 101 - Air Quality Regulations and Policy

The BLM does not regulate air quality.

Regulation is the responsibility of EPA and the state.

- **Clean Air Act (CAA) of 1970, CAA Amendment of 1977 and 1990**
 - Authorized comprehensive state and Federal air quality regulations
 - Initiated National Ambient Air Quality Standards (NAAQS), State Implementation Plans (SIPs), New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAPs)
- **National Environmental Policy Act (NEPA) of 1970**
 - Disclosure of impacts
 - Minimizing adverse impacts
- **DOI/USFS/EPA Air Quality Memorandum of Understanding (MOU) for Federal Oil and Gas Decisions, signed June 2011**

Air 101 - Protecting Air Quality

BLM is addressing air resources by increasing emphasis on:

- encouraging the use proactive measures that reduce traditional pollutant and GHG emissions to the atmosphere;
- collaborating on regional air resource assessments;
- monitoring and providing effective data management;
- improving relationships with other agencies and stakeholders;
- providing access to sufficient expertise so managers can make informed and effective decisions, and
- increasing employee awareness of air resource issues and impacts.

Progression of Air Resources Analysis at the BLM

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- Different Federal Land Management agencies and EPA raise concerns on the adequacy of BLM RMP air analysis
 - Air Resources MOU is developed to create a process of collaboration on air analysis
 - Meanwhile, BLM CO had already initiated multiple RMPs and had included models in some (CRV, White River O&G Amendment, San Juan LRMP)
 - RMPs that fall under the Air Resources MOU are initiated and begin to consider modeling options (i.e. Grand Junction RMP)

Regional Strategy

When one tugs at a single thing in nature, he finds it attached to the rest of the world. ~John Muir

- Air Quality is a cumulative effect by nature
 - Geographic scope of analysis is anywhere from local to regional and global scales depending on the pollutant and source
 - Cumulative analysis must capture all relevant emissions sources (even beyond RMP boundaries)
- Air issues should be examined outside of the RMP so we are not bound by alternatives, requires an iterative approach and continuous tiering to be successful
 - Creates a consistent approach across the state
 - Allows the BLM to adapt to changing conditions
 - Adaptive management allows the BLM to address office specific concerns based on impacts analysis for their actions

Progression of Air Resources Analysis at the BLM

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- BLM begins developing a strategy to complete regional modeling after RMP completion and incorporate the results into future management decisions
 - The Air Resources Management Strategy (ARMS) is conceived!
 - Discussions begin with EPA over the adequacy of the RMP and ARMS to address their concerns
 - Approx 12 months of negotiation later the BLM and EPA reach agreement on the CARPP

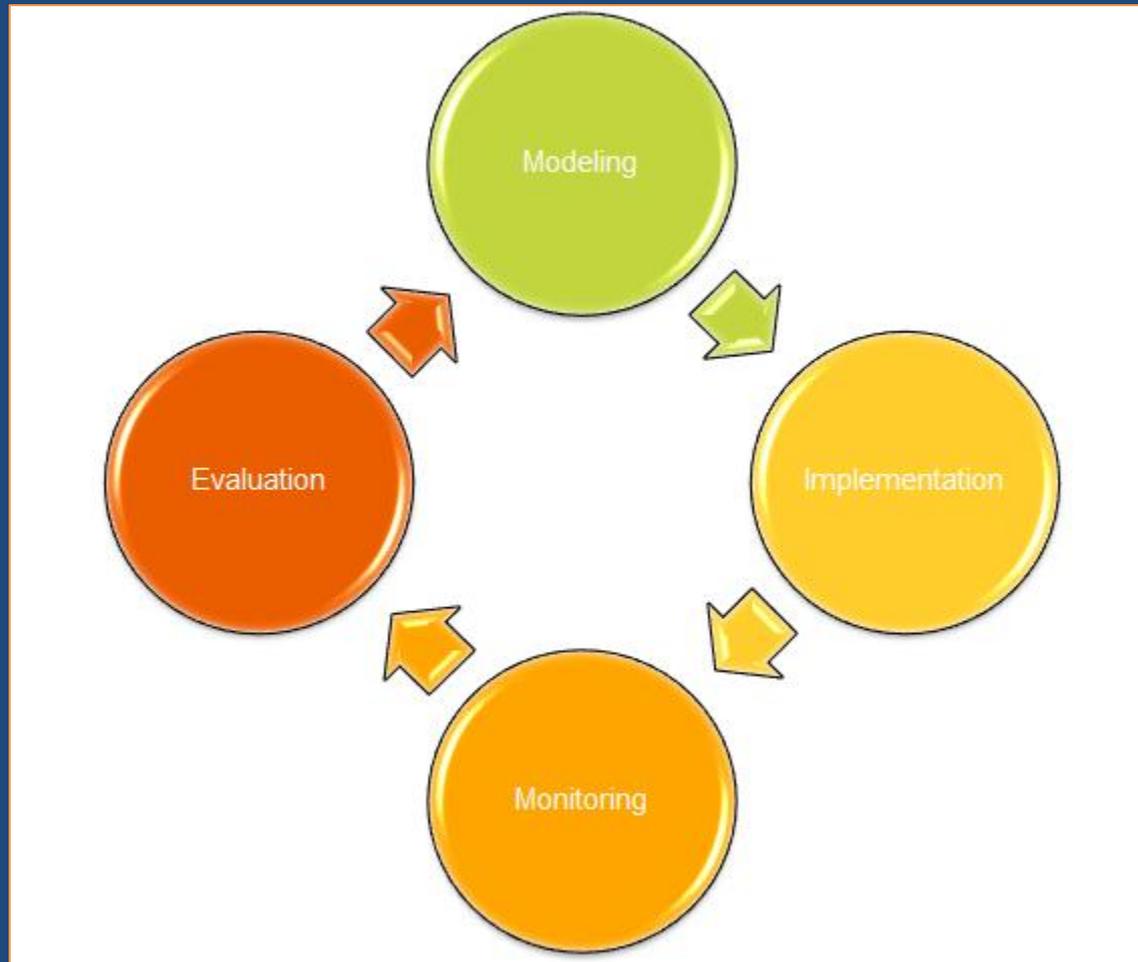
Comprehensive Air Resources Protection Protocol (CARPP)

- The CARPP outlines a protocol to:
 - address air quality issues identified by the BLM, or public scoping, within NEPA; and
 - clarify how air resources goals and objectives, will or are, being achieved in the context of management actions set forth in BLM Colorado RMPs
- The CARPP is not a decision document, but rather a strategy to address air resource concerns consistently throughout BLM Colorado

Interagency Air Resources Collaboration

- ◎ No single agency has all the necessary tools/authority to solve these complex issues alone, we must act together
- ◎ BLM should take a leadership position but promote a level playing field
- ◎ The plan identifies coordination with these agencies and others through the Air Quality MOU and Interagency Efforts in hopes to lead those agencies to be mutually responsible for addressing air impacts

Adaptive Strategy



Modeling Overview

- What is modeling?
 - Mathematical simulations of the fate and transport of air pollutants as they form, react with the environment and disperse through the Earth's atmosphere.
- Why do we need modeling?
 - Modeling is the best way air quality specialists can evaluate future air quality impacts of proposed air pollutant emissions sources.
 - Modeling provides us an incremental impacts look compared to baseline conditions for each projected project and can even provide valuable information of how much of current air quality concentrations (i.e. baseline conditions) are related to particular groups of air pollutant emissions sources.

Basic Types of Modeling Analyses

◦ Regional Grid Model:

- Covers regions or continents and includes huge databases of air pollutant emissions sources (i.e. emissions inventories).
- Used to model ozone concentrations as well as other pollutants and Air Quality Related Values (AQRVs) such as visibility and deposition.
- Usually performed when the proposed project or plan includes many additional air pollutant sources or high levels of emissions, or the proposed activities will be located in sensitive areas for air quality (i.e. non-attainment).
- Currently resource and computational intensive that requires contractor assistance.

Regional Model

Colorado Air Resources Management Modeling Study (CARMMS)

CARMMS	Existing Models
2011 Base Year	2008 Base Year
5-10 year projection	20 year projection
1 meteorological year	1 meteorological week for ozone
Current RFDs & 5 year avg	20 yr RFDs from Alternatives
PGM for all Pollutants and AQRVs	PGM for ozone, CALPUFF for others
Scenarios to determine acceptable levels	Scenarios based on alternatives
Gives us an air emissions "budget"	Shows significant impacts

Benefits of the CARMMS

- Comprehensive study that will be used to satisfy requirements for evaluating project-specific and cumulative impacts for current and future RMPs / EISs / EAs.
- Overall look at the sensitivity of the atmosphere with respect to specific emissions source groups (i.e. oil and gas fields) as well as overall region-wide increases and decreases in emissions.
- Allow us to see what impacts are for project-only sources within the overall cumulative impacts analysis.
- The output / modeling results are not hard truth, but rather gives us an idea of the increase or decrease in air pollutant concentrations with respect to baseline conditions (actual monitored values).

III.C Modeling (CARMMS)

- Summary of future scenarios:
 - Projected RFD (upper-bound emissions)
 - COSO developed RFD using past 5-year average oil and gas development data (lower-bound emissions)
 - Projected RFD with additional emissions controls (mid-level emissions)
- Note: All other future emissions sources will be held the same / static for each future modeling scenario.

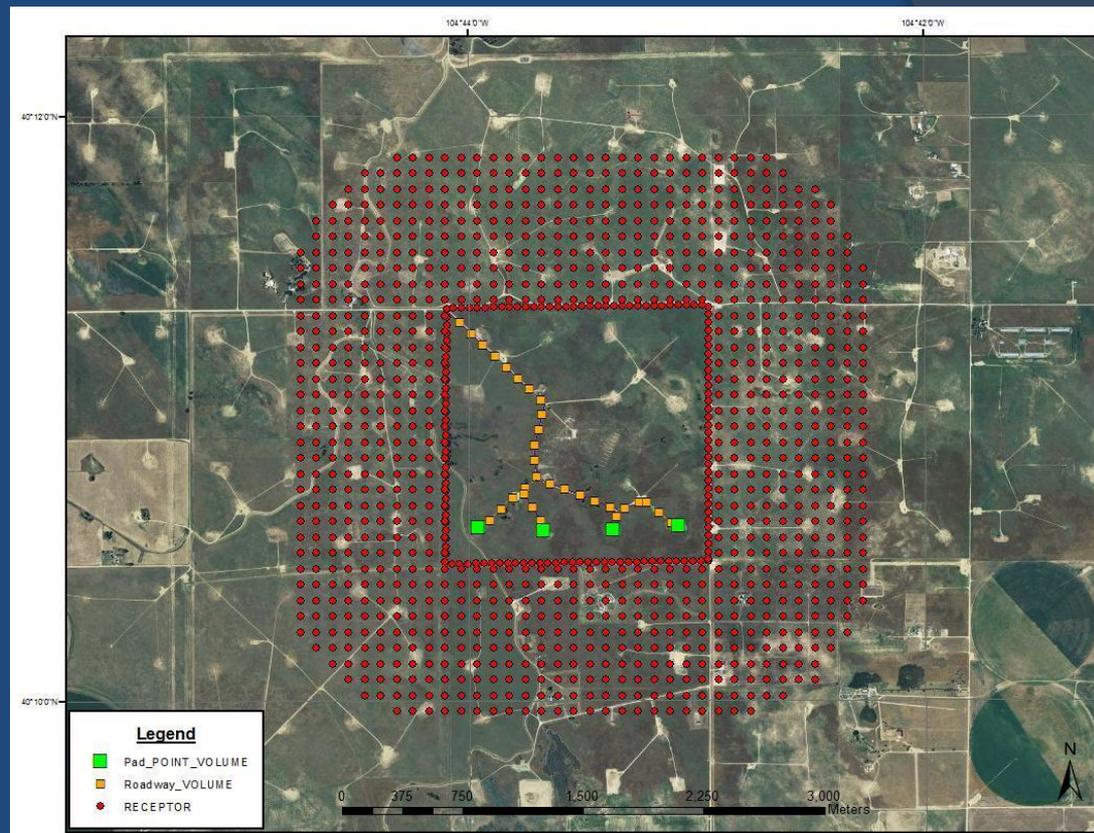
Evaluating and Updating the CARMMS

The BLM anticipates that this platform will be updated every few years to address:

- new U.S. and regional datasets / information
- actual changes in other emissions inventories to account for U.S.-wide emissions increases or decreases
- any deviations from our initial emissions projections
- Annual and cumulative (total sum of annual budgets) budgets will be created using CARMMS, and the BLM will evaluate changes in emissions associated with its authorized activities as well as regional emissions inventories on an annual basis to assess where we are within the projected allowances.

Near-Field Impacts Assessment

- Within 50 kilometers of the proposed source (s).
- Evaluate air quality impacts (except ozone) at ambient air boundary / fence-line locations. Also, assess impacts at nearby residences or towns.
- Relatively quick and can be completed within BLM Colorado Office.
- Used for site-specific impacts of specific project



This figure shows near-field modeling layout for multi-well pad EA in RGFO:

Implementation - Oil and Gas Management

- Apply Lease Notice across the board for all future lease sales
- BLM will consider the following factors to determine the level of analysis needed at the development stage:
 - Proposed Action
 - Location
 - Affected Environment and Modeled conditions
 - Scoping Issues

Implementation - Emissions Inventories

Site Specific NEPA Analysis

- In order to complete NEPA analysis, the BLM will request Emissions Inventories from proponents of Applications for Permits to Drill (APDs)
- Data from proponents will be used to run BLM emissions calculators (tag permitted emissions for NAA GC)
- Results from calculators will be used in NEPA analysis and to determine if additional near-field modeling is needed
- See APD Flowchart

Implementation - Emissions Inventories

- Emissions inventories used in NEPA analysis will be continuously summed (annually) across each FO to compare with regional modeling analysis levels (temporally sensitive)
- Project emissions must be within assumption parameters of the regional model inputs to provide reasonable basis for relying on model results for cumulative impacts analysis*

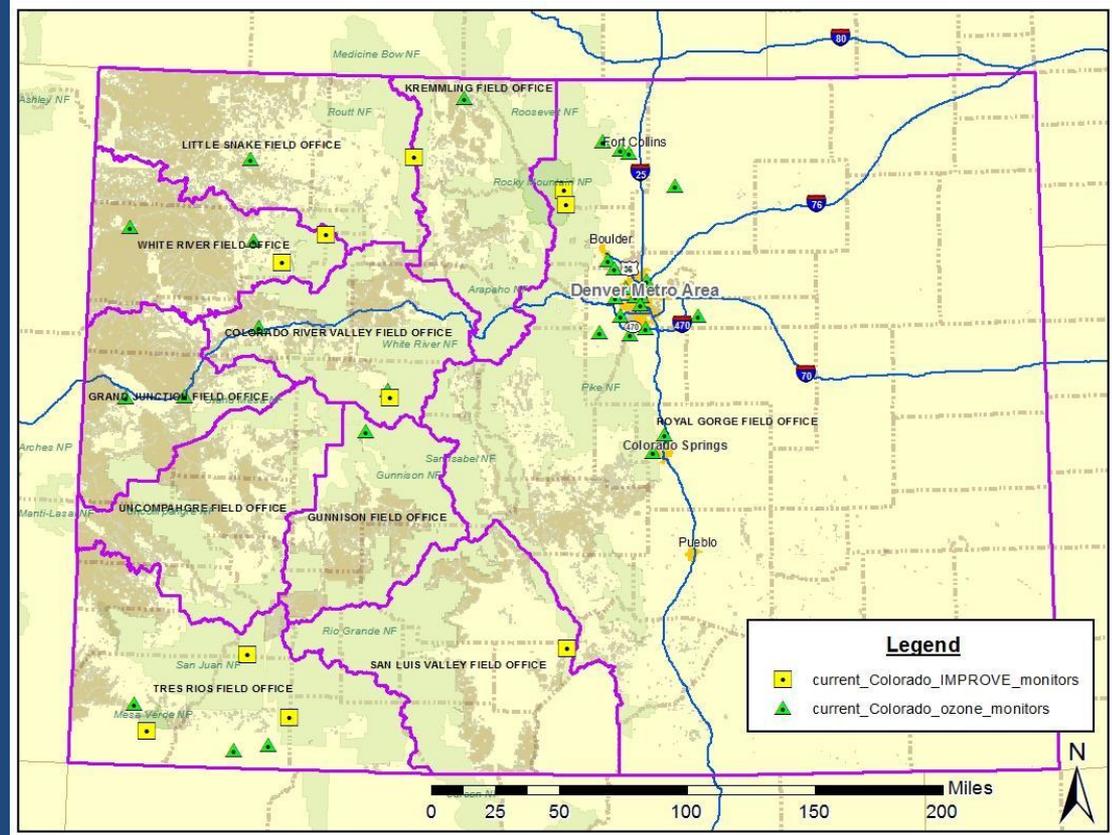
Implementation - Potential Mitigation

- ◎ The BLM may implement reasonable mitigation, control measures, and design features through appropriate mechanisms as provided for by law and consistent with lease rights and obligations.
 - lease stipulations, notices to lessees, conditions of approval
- ◎ Mitigation measures applied will be based on NEPA analysis and to support minimizing adverse impacts to air quality.
- ◎ The BLM may manage the pace, place, density, and intensity of leasing and/or development to meet air quality goals and objectives as defined under any applicable RMP

Monitoring

Background:

- Several networks (CDPHE, NPS, FS, BLM, Private) with varying regulatory usefulness supporting data gathering for NAQQS and AQRVs
- BLM sponsored (\$\$\$) monitors include Rangely and Meeker (NAAQS & Met only)



This map shows locations of Colorado-based IMPROVE (visibility) and ozone monitors for recent year datasets:

Evaluation

Where are we in the "budget"?

Is our analysis still adequate?

Do we need additional modeling?

- Emissions Tracking
- Prescriptive Model Validation
- Responding to Monitored Exceedances of the NAAQS
 - QA/QC
 - Screening Analysis
 - Enforcement
 - Contingency Planning
- Evaluating Projected Future Development/Emissions
- Review CARPP for effectiveness - Annual Report

Incorporation into RMPs

Chapter 2 language

Goal Statement: Protect air resources from adverse impacts associated with BLM authorized / permitted actions in accordance with the methodology and provisions outlined in the Comprehensive Air Resource Protection Protocol (CARPP).

Objective: Compliance with NAAQS and AQRVs

Management Actions:

- Commitment to participate in future modeling
- Lease Notice
- COAs
- Cooperation with other agencies (FLF & MOU)
- Adaptive management

**Add the
CARPP as an
Appendix**

Air Resources Website

Coming soon

CARPP

Annual Reports

Reference Materials

Air MOU

Modeling Reports

Analysis

WebApp



Questions?