Bureau of Land Management – Utah

AIR RESOURCE MANAGEMENT STRATEGY (ARMS)

NINE MILE CANYON AIR MONITORING SITE

Utah BLM Air Resource Management Strategy

Introduction

The Bureau of Land Management (BLM) initiates and authorizes activities that can affect air resources by releasing pollutants to the atmosphere. The Federal Land Policy Management Act (FLPMA) assigns the BLM a clear and unique responsibility to protect air and atmospheric values on the public lands and, at a minimum, requires the BLM to ensure compliance with the Clean Air Act (CAA). BLM's air resource management activities are also guided by State and local air quality regulations developed in conjunction with State Implementation Plans (SIP) approved by the Environmental Protection Agency (EPA). In addition, the National Environmental Policy Act (NEPA) requires the BLM to analyze potential environmental impacts of actions it initiates or authorizes and to discuss means to mitigate adverse environmental impacts. In response to the requirements and intent of this guiding legislation the Utah BLM has prepared this Air Resource Management Strategy (ARMS). Finally, the ARMS will ensure Utah BLM NEPA analysis is consistent with the National MOU Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions through the NEPA Process (MOU).

ARMS GOAL

Proactively manage air quality and atmospheric values during land management planning and when authorizing uses of the public lands while maintaining BLM's multiple-use management responsibilities

Because air pollution does not stop at county or state lines the science and practice of air pollution control has been moving to managing air quality on an airshed basis, rather than limiting management based on political boundaries. A core concept of airshed management is the "one atmosphere" approach, which addresses all pollutants of concern in an area holistically, rather than addressing each separately which can be inefficient and counter-productive. Another core concept of the airshed management approach is to engage the community, residents, businesses, and local and state governments in decisions about the best course for protecting air quality. To that end BLM Utah actively seeks out and participates in collaborative airshed management partnerships.

ARMS OBJECTIVES

- Ensure that air quality on BLM managed lands complies with Clean Air Act National Ambient Air Quality Standards, and that activities authorized by BLM do not lead to exceedances of these standards on BLM or adjacent lands.
- Ensure Air Quality Related Values in Class 1 and sensitive Class II areas in Utah and adjacent states are not adversely impacted by activities authorized by BLM.
- Work collaboratively and in partnerships with others to bring about the best achievable air quality within BLM lands and Utah in general.
- Provide greater certainty and transparency for agencies, project proponents, and the public regarding the conduct and review of air quality and AQRV impact analyses in the NEPA process, and the application of mitigation.
- Maintain an effective air pollutant monitoring network on BLM lands in Utah.
- Promote education and awareness of air resources on BLM lands.

Decisions about managing air resources must be made based on a good scientific understanding of airsheds and the pollutants in them. This includes improving our knowledge of air resource conditions through increased monitoring, and increasing BLM's ability to conduct regional landscape scale modeling to assess impacts to air quality. Developing regional, multiple-source impact assessments from BLM and non-BLM activities improves the ability of BLM and other federal and non-federal parties to assess impacts to air resources in Utah and take appropriate management actions, and will help support the application of uniform emission controls basin-wide, regardless of jurisdiction. Additionally the application of air pollution controls should be based on a sound scientific analysis and applied uniformly across source categories. This ensures that strategies designed to meet BLM's responsibilities and resource management objectives will be effective, consistent, and demonstrable.

There are four main elements of the ARMS: airshed management, NEPA analysis and coordination, air monitoring, and public education and awareness. As an integrated and comprehensive strategy each element informs the other and is in turn dependent on each element being firmly rooted in good science and sound applied practices. The purpose of this document is to outline the functions and roles of these elements and how they will integrate into the overall management strategy.

Airshed Management

BLM Utah will consider the potential effects of BLM projects, programs, and activities on air quality at the planning, leasing, and project level as appropriate. This includes NEPA documents associated with Resource Management Plans, and evaluating the potential impacts, if appropriate, of proposed actions and activities. Examples of such activities include: energy and mineral resource development, hazardous materials management, land use authorizations, smoke management, recreational uses, and transportation management. The primary tool BLM Utah will use to conduct long range air resource planning will be regional photochemical modeling utilizing a reusable modeling framework.

In addition to considering air quality in the planning and authorization stages, BLM Utah will actively manage air resources through the application of appropriate air pollution controls and technology. Consistent with BLM's authority to require air pollution controls on unpermitted and/or non-regulated sources, BLM Utah will consider and implement air pollution control requirements on relevant authorized activities. The implementation of these controls may take the form of lease stipulations, conditions of approval, best management practices and/or applicant committed measures, as appropriate based on need and authority. Air pollution control requirements and mitigation will be based on sound scientific evaluations, current air quality information, and be consistent with accepted practices and control technologies.

Finally, BLM Utah will incorporate and practice an adaptive management strategy related to energy development (particularly for oil and gas development) in airsheds with identified air resource concerns. The adaptive management strategy will be informed by ongoing monitoring and analysis, and be designed to proactively respond in a timely and effective fashion to new information and understanding as it relates to existing and planned energy development and its impact on air resources.

Regional Modeling

BLM Utah has undertaken the development of a nested regional scale photochemical grid model (PGM) to examine the cumulative and project-specific direct and indirect air quality impacts of planned and reasonably foreseeable development (RFD) in Utah, and to assess a range of development scenarios and the effectiveness of potential control strategies.

The intent of this modeling exercise is to define a scenario under which energy development can be demonstrated by modeling to attain ambient air quality goals and objectives. Another purpose of this modeling is to use the modeling platform to inform NEPA analysis related to energy development that require air quality analysis and help define more targeted mitigation strategies that could be utilized across oil and gas sources. When used for NEPA the modeling will disclose direct and indirect impacts and be isolated from the regional modeling to address NEPA requirements. The PGM will examine cumulative, direct, and indirect impacts associated with BLM activities, consistent with the MOU, and would be relied upon by NEPA documents for oil and gas planning, leasing, or field development, including exploration, development, and production in Utah.

The modeling analysis may be used to infer potential impact(s) for a new or modified project without the need for additional air quality analyses. It may also be used as a modeling platform to conduct a more refined analysis for planning, leasing, or project specific analysis of direct and indirect impacts. All RFD contained within the modeled scope of development of the PGM would be managed and operationally constrained by the parameters contained in the modeled scope of development. This would include such development and operational aspects as minimum pollution controls, pace of development, and density of development. The PGM will address NEPA requirements to examine cumulative impacts associated with BLM activities, and would be relied on by specific project level EIS's, pre-leasing analysis, and Resource Management Plans (RMP) in Utah.

Development of this modeling platform will provide a comprehensive "best science" road map for future development and air resource management that can be proactively used to address potential air resource impacts before they become regulatory issues. It is BLM Utah's intention that this modeling will take the place of the current practice of developing and running duplicative new PGM's to analyze project specific cumulative and incremental impact analyses. This will result in a quicker, more predictable, and most importantly, scientifically defensible level of analysis that can be used for both planning level management and NEPA purposes.

The development and execution of a PGM on the scale and complexity of this proposal is necessarily a challenging technical exercise. BLM Utah will utilize the expertise of an interagency air resources technical advisory group (described in the NEPA section) to guide the development of this modeling platform. Future model updates will also be managed through the air resources technical advisory group. While many of the specific technical considerations related to this modeling will be decided at a later date through the work of the air resources workgroup, some general statements of intent and scope can be made at this time to further define BLM's intention and direction related to this management strategy.

1. The cumulative modeling analysis described herein is intended to be a Reusable Modeling Framework (RMF), which refers to an existing air quality modeling analysis with underlying emission inventories, regional meteorology, and appropriate growth

factors (oil/gas emissions) that are applicable to new or modified project proposals. The modeling analysis may be used to infer potential impact(s) for a new or modified project without the need for additional air quality analyses, or conversely may be used as a modeling platform to conduct a more refined analysis for project specific analysis.

2. BLM Utah will own the model and associated input files. This will make future updates and scenario run applications cheaper and timelier then initiating new contracts or model development. BLM will make the data developed and maintained for the RMF available to the Federal Leadership Forum 3-State Study and other air quality related exercises.

3. The emission inventory and development projections used for the model will be reviewed and updated on a three year basis consistent with EPA's National Emission Inventory (NEI) updates. If the emission inventory or development scenarios have changed substantially a new modeling analysis will be conducted as necessary to evaluate the new information. In some cases emissions inventories and subsequent modeling may be updated on a more frequent basis (e.g. annual project-specific inventories).

4. The model is intended to address cumulative impact analysis for air resources regionally, and as such will cover all field offices across Utah.

5. Results of the modeling analysis and management decisions derived from this analysis could be used to amend existing Resource Management Plans, plus would guide and advise the development of future Resource Management Planning activities. In addition, the modeling analysis may be used to inform and direct adaptive management strategies contained in Records of Decision and other NEPA related documents, including those governing lease sales.

6. Cumulative impacts from criteria pollutants on both National Ambient Air Quality Standards and Air Quality Related Values would be evaluated by the PGM. The analysis of air quality and AQRVs impacts will be done in accordance with current technical standards, guidance, and practices.

7. The modeling domain will include a 4km fine grid covering most of Utah. Additional finer grids may be nested in the 4km grid to address specific areas or issues of concern (i.e. winter ozone formation). Figure 1 is a rough conceptual picture of this proposed domain, and will be subject to review and modification by the air quality workgroup.

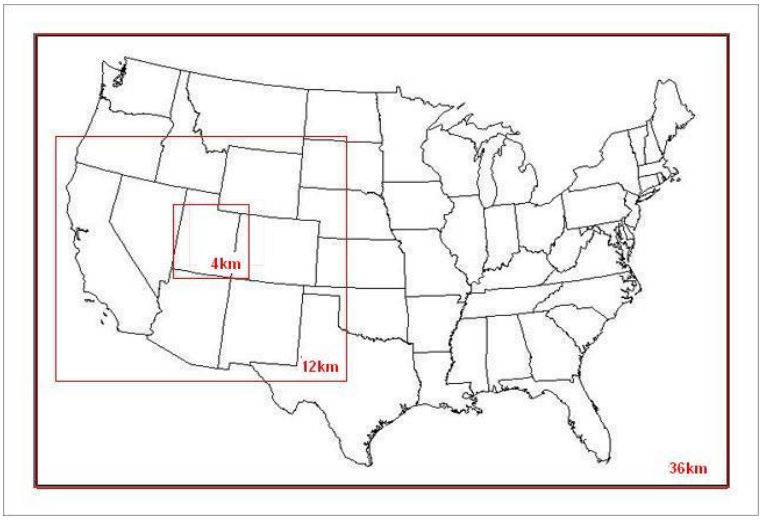
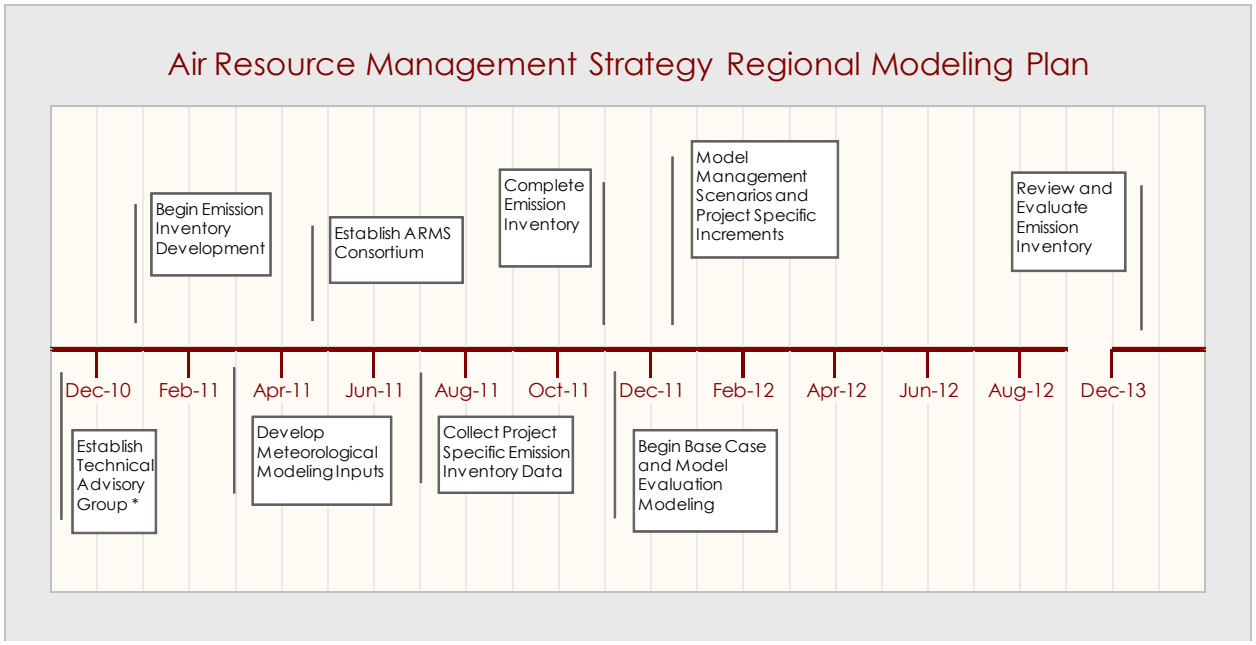


Figure 1

8. BLM Utah will actively seek out partnerships with other federal land managers such as the Forest Service, National Park Service, Fish and Wildlife Service, Bureau of Indian Affairs, and states in developing a regional model that might be useful to their needs also and could be incorporated into their management structures.

Tentative Timeline

The following timeline represents estimates on when keys tasks associated with development and application of the ARMS and associated photochemical modeling will be completed.



Air Pollution Controls

As a non-regulatory discretionary agency BLM can tailor management practices, including air pollution controls, to project specific issues. In some instances it may make sense for BLM to require a uniform set of controls across a source category to address recognized resource issues that are occurring on a regional or landscape level. Emissions from oil and gas development on the Colorado Plateau are likely contributing to monitored elevated levels of ozone; in some locations at levels above the NAAQS. To address this problem, and contingent on BLM's authority to require air pollution controls on unpermitted and/or non-regulated sources, BLM Utah would require a minimum set of uniform controls for all oil and gas operations subject to BLM Utah's authorization process.

Minimum Air Pollution Controls for Oil and Gas Operations

- Tier II or better drilling rig engines
- Stationary internal combustion engine standard of 2g NOx/bhp-hr for engines <300HP and 1g NOx/bhp-hr for engines >300HP
- Low bleed or no bleed pneumatic pump valves
- Dehydrator VOC emission controls to +95% efficiency
- Tank VOC emission controls to +90% efficiency
- Leak detection inspection and maintenance

As these minimum controls would be applied uniformly to all oil and gas operations subject to BLM Utah's authorization, cumulative modeling of this source category would include this level of control for all future modeling. In some cases additional controls may be required to address either site specific air quality issues or regional air quality problems associated with oil and gas activities. BLM Utah would then require one or more enhanced air pollution control technologies be utilized as a mitigation measure. Since these controls may not be able to be uniformly applied across the entire source category due to considerations such as infrastructure development (e.g. field electrification) or operational parameters (e.g. minimum gas production for pipeline feasibility), enhanced controls would be evaluated on a project specific basis.

Enhanced Air Pollution Controls for Oil and Gas Operations

- Field electrification
- Electric drilling rigs
- Selective catalytic reduction on drilling rigs and stationary engines
- Reduced rate of development
- Green completions
- Centralization of gathering facilities
- Seasonal response plan
- Emission offsets

This enhanced control list is not meant to be inclusive, and BLM Utah will evaluate and consider other controls and guidance when making enhanced control determinations. Examples include EPA's Gas Star Program and the Four Corners Air Quality Task Force Report of Mitigation Options.

Adaptive Management

Adaptive management is not a reason to forgo careful consideration of the potential impacts of proposed actions, but is rather recognition that there may be times where it is not possible to fully evaluate or predict impacts and that subsequent research may provide better answers and methods to address current or future resource problems. For example, in Utah winter ozone formation associated with oil and gas development is a newly recognized problem. Unfortunately the current state-of-the-science does not allow for comprehensive modeling of this phenomenon, nor are the mechanisms and contributors to this ozone formation well understood. It is anticipated that these technical issues will be resolved in the near future, and decisions made today may need to be revaluated in light of the findings from this ongoing research., Adaptive management recognizes the need to allow for flexibility and modification in future operation and implementation of actions approved today.

Adaptive management is also based on the concept of "predict, mitigate, implement, monitor, and adapt". For airsheds and pollutants of concern, BLM Utah through our ARMS and associated NEPA processes will predict resource impacts, then apply and implement appropriate mitigation. Subsequent to authorization, BLM Utah will require or conduct defined monitoring to evaluate the effectiveness of the mitigation. If monitoring reveals the mitigation is not accomplishing the expected results, or new information becomes available that more clearly focuses how mitigation should be conducted, then BLM will “adapt” both existing and proposed authorizations to implement these determinations. This may take the form of additional controls, changes in the scope and/or pace of projects, additional monitoring, other as yet envisioned actions, or an update of the adaptive management evaluation.

The following events or actions may trigger the implementation of adaptive management strategies, including subsequent modeling analysis informed by periodic emission inventory review:

1) EPA designates the area “nonattainment” for ozone
2) There is a monitored ozone standard exceedance
3) The Air Resources Management Strategy (ARMS) modeling shows that additional mitigation is needed to prevent future ozone exceedances, or
4) The Air Resource Technical Advisory Group (RTAG) establishes industry-wide mitigation requirements through ongoing modeling.

Specific actions BLM Utah will implement as part of our air resource program to support adaptive management are outlined below. How this will be used in NEPA will be covered in the NEPA Analysis and Coordination section of this document.

Adaptive Management Actions

- Triennial review of emissions inventories associated with airsheds of concern and specific large NEPA project authorizations to evaluate accuracy of predicted emissions levels and inform adaptive management actions.
- Subject to the triennial emission inventory review, or when significant new major projects are proposed not covered by prior regional modeling, BLM will conduct new regional modeling to evaluate the impacts and appropriate management actions.
- Maintain air monitoring for pollutants of concern in affected airsheds, and require project specific air monitoring for pollutants of concern where appropriate (i.e. no existing monitoring network).
- Compile and report on a yearly basis results of air monitoring, emission inventory analysis, and any supporting materials for interagency and public review.

- Support and participate in ongoing research to analyze air resource issues associated with BLM lands and/or management decisions.

NEPA Analysis and Coordination

The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment (40 CFR 1500.1(c)). To accomplish this, BLM Utah follows the procedures outlined in the BLM NEPA Manual Handbook (H-1790-1), the Council on Environmental Quality's (CEQ) NEPA regulations (40 CFR Parts 1500–1508) and the Department of the Interior NEPA manual. In addition, the ARMS NEPA guidance borrows heavily from the recently developed National MOU Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions through the NEPA Process. Furthermore, the BLM Utah has considered earlier NEPA improvement efforts made during their collaboration with the Federal Leadership Forum, including: "Effects Analysis, Reasonably Foreseeable Development Scenarios, and Cumulative Impact Analysis for Oil and Gas Activities on Federal Lands In the Rocky Mountain Region, August, 2002. The ARMS NEPA guidance is intended to refine existing agency guidance and procedures as it relates to air quality analysis and mitigation, and is not intended nor should be construed to require actions beyond or in conflict with the overarching guidance and procedures detailed in the documents above or otherwise prescribed by Federal law, policy, and/or guidance.

Air Resource Technical Advisory Group

A main goal of the ARMS NEPA guidance is to provide greater certainty and transparency for agencies, project proponents, and the public regarding the conduct and review of air quality and AQRV impact analyses in the NEPA process, and the application of controls and mitigation. One of the ways this will be accomplished is by emphasizing collaboration in the preparation of NEPA documents. To that end, BLM Utah has formed a technical advisory group (RTAG) composed of technical and policy experts from BLM, EPA, USFS, NPS, the Utah Department of Air Quality (UDAQ), and other Federal or Tribal stakeholders. The RTAG works to reach consensus on monitoring and modeling protocols, makes recommendations on appropriate mitigation strategies, and identifies air resource issues needing further attention.

To meet the goal of improving certainty and transparency, early and effective consultation is essential. The RTAG will be the primary venue for communicating upcoming NEPA projects with potential air resources issues to other Federal Agencies. This may include project specific Environmental Impact Statements and Environmental Assessments, Resource Management Plans, Leasing Plans, and programmatic NEPA documents. Communication will take the form of an updated NEPA Review Sheet that will be distributed to members of the RTAG prior to each meeting.

When reviewing and advising NEPA related air quality analysis, BLM Utah will work with the RTAG to determine the appropriate:

a. Affected environment information to include in the baseline assessment;
b. Impact assessment methodology, assumptions, and scale (e.g. local and/or regional);
c. RFD assumptions;
d. Baseline and post-project monitoring protocols;

e. Adaptive management; and/or
f. Mitigation.

In addition to the above tasks, the RTAG will review any annual project-specific emissions inventories prepared pursuant to adaptive management strategies required by project-specific NEPA and provide recommendations on whether a "substantial increase" in emission has occurred, and what appropriate enhanced mitigation may be required to address any emission increases. The RTAG will also periodically review the enhanced mitigation list and regional air monitoring and provide suggestions on updates and/or improvements.

Analytical Procedures

NEPA analysis by definition is action-specific and each analysis is unique to the specific set of issues associated with the action. Therefore a priori determination by the ARMS of what analytical techniques and methodologies will be used for all future NEPA is not feasible or desirable. Some general guiding principles can be defined however to guide and inform the decision making process on how air resource analysis will be conducted. For instance a commitment that the analysis of air quality and AQRVs impacts will be done in accordance with current technical standards, guidance, and practices can be applied to all future NEPA analysis without reservation. Following are general guidelines on determining when and to what extent air resources will be analyzed under NEPA.

Emission Inventories

BLM Utah requires, when feasible, an emissions inventory for all projects where air quality has been identified as having a potential impact. Oil and gas projects will require an emission inventory in all cases when an RFD number of wells is defined. Subsequent level of analysis decisions will be based in part on quantitative information contained in the emission inventories. Basing level of analysis decisions on quantifiable emission inventory data will provide a defendable and scientifically justifiable methodology for these decisions.

Modeling Analysis

BLM will conduct air quality modeling analysis if a proposed action meets at least one of the criteria in subparagraph (a) *and* at least one of the criteria in subparagraph (b) below:

a. *Emissions/Impacts* - the proposed action:
   - Is anticipated to cause a substantial increase in emissions based on a BLM approved emissions inventory; or
   - Will materially contribute to potential adverse cumulative air quality impacts.

b. *Geographic Location* - the proposed action is in:
   - Proximity to a Class I or sensitive Class II Area; or
   - A Non-Attainment or Maintenance Area; or
   - An area expected to exceed the NAAQS or PSD increment based on:
     - monitored or previously modeled values for the area;
     - proximity to designated Non-Attainment or Maintenance Areas; or
     - emissions for the proposed action based on a BLM approved emissions inventory.

When conducting air quality modeling analysis, BLM will:

- Use appropriate tools and resources consistent with the best science, technical guidance, and rules;
- Build on existing air quality analyses, when appropriate;
- Seek concurrence from interested RTAG members; and
- Document its decisions.

If an air quality modeling analysis exists that addresses and describes the impacts for an area under consideration, or a completed regional air quality assessment can provide equivalent information, and is sufficient to enable BLM to access impacts of the proposed action, additional air quality modeling will not be required for specific actions. BLM in consultation with the RTAG will choose the appropriate approach. To meet the goal of promoting and supporting a regional perspective for air quality analysis, BLM will pursue programmatic NEPA evaluations for federal oil and gas decisions, such as the regional modeling proposed under the ARMS, as appropriate.

Modeling will not be required if BLM in consultation with the RTAG demonstrates that, due to design features or mitigation measures that will be implemented, the proposed action will not cause a substantial increase in emissions and will not contribute to potential adverse air quality impacts.

Model Selection

BLM Utah will only accept EPA approved models for conducting modeling analysis. If multiple approved models can provide equivalent information, BLM in consultation with the RTAG will choose the appropriate approach. BLM Utah will also use the guidance presented in the Appendix to the MOU: Analysis Approaches to Evaluate Air Quality for NEPA Decisions Regarding Federal Oil & Gas. There are three general categories of air quality models used in NEPA: near-field models, far-field models, and photochemical models. Each will be described below along with their appropriate application in the ARMS.

Near-field Modeling

Near-field models are used to evaluate actions likely to result in local air quality impacts at transport distances less than 50km. These models will typically be used to conduct local scale modeling analysis with emission estimates, meteorological, and geographic information for single sources. They may also be used when the local air quality impact potential is estimated to be high. Near-field models include: AERMOD / AERSCREEN, VISCREEN, and PLUVUE II.

Far-field Modeling

Far-field models are used to evaluate actions that contain single (or small group) source scenarios at transport distances greater than 50km. These models are conducive to providing regional assessments of cumulative and incremental impacts. Typically project specific emission information will be needed, along with more regional meteorological and geographic information. Currently available far-field models include: CALPUFF and SCIPUFF.

Photochemical Modeling

Photochemical models are used to conduct regional scale modeling with project specific emission, meteorological, and geographic information with complex photochemical processes. This approach utilizes a regional scale one atmosphere simulation of a wide variety of pollutants with a large geographic extent. Emissions are gridded, allow for chemical transformation, and offer a variety of transportation mechanisms to address near and far-field transport. Impact estimates are generated for ambient concentration, atmospheric deposition, and AQRVs. Project-specific direct and indirect impacts will be determined using the ARMS regional photochemical model, either through a model sensitivity simulation, or by running the regional model utilizing source apportionment. Photochemical models include: CMAQ and CAMx.

Additional Analytical Components and Procedures

In addition to the emission inventory and modeling guidelines outlined above, BLM will include the following components and procedures in air resource NEPA analysis when appropriate:

1. A comparison of action-specific impacts with the PSD increment levels will be presented to better understand impacts to Class I Areas. The comparison is for informational purposes and is not a formal PSD increment analysis nor is it intended to replace such an analysis.

2. A near-field analysis of Hazardous Air Pollutant (HAP) concentrations based on generally accepted exposure levels.

3. BLM will comply with the CAA conformity requirements under Section 176, 42 U.S.C. § 7506, and corresponding regulations at 40 CFR § 93.150 *et. seq*., where applicable.

4. Science-based threshold values and methodologies will be used when assessing impacts to AQRVs. When assessing potential impacts to AQRVs, BLM will apply BLM threshold values and methodologies for BLM administered lands, and will apply Federal Land Managers' Air Quality Related Values Work Group (FLAG) values and methodologies for FWS, NPS, and FS administered lands

5. BLM will identify, consider, and discuss in the body of the NEPA document:

    - Analysis results for both sets of threshold values to facilitate comparison of the results;

    - The relevant Federal Land Manager's views about: (a) the nature of impacts to AQRVs on the affected Federal Land Manager's land and (b) potential mitigation measures.

<u>Mitigation</u>

BLM will identify reasonable mitigation and control measures and design features to address adverse air quality or AQRV impacts in the NEPA process. Mitigation and control measures can include: best management practices, control technologies, design features, and pace of development. BLM will decide on the appropriate mitigation measures to reduce or

eliminate adverse impacts* to AQRVs identified in the NEPA process and will describe them in the NEPA decision document.

To the extent allowed by law and consistent with lease rights and obligations, BLM will:

- Implement reasonable mitigation and control measures through appropriate mechanisms, including lease stipulations and conditions of approval, notices to lessees, and permit terms and conditions;
- Take appropriate steps to retain the ability to implement additional reasonable mitigation and control measures for permitted operations;
- Work to implement additional reasonable mitigation and control measures and design features to reduce future emissions from permitted operations.

Adaptive Management

Adaptive management in NEPA is basically a process to monitor and adjust NEPA mitigation measures due to changing conditions. The goal of adaptive management is to achieve desired outcomes by implementing changes or modifications without reinitiating the NEPA process. Adaptive management recognizes that over a project's life, changes in conditions (environmental or human-derived) can negate any environmental protections envisioned in the original analysis. Adaptive management is applied to NEPA through a continuous improvement process applied to monitoring and adaptation in NEPA-derived mitigation measures. Figure 2 is a schematic representation of the adaptive management process as it applies to NEPA.

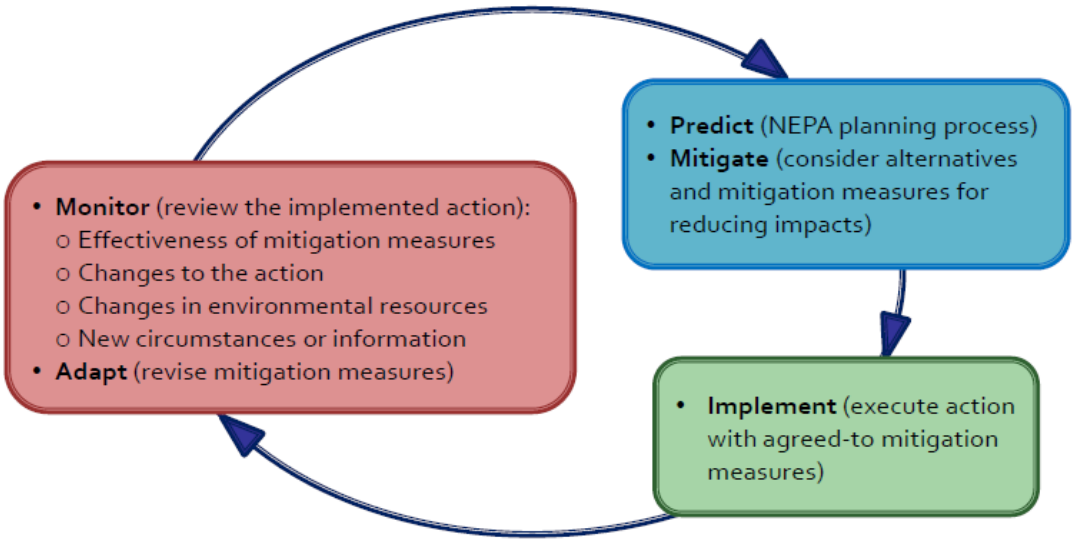


Figure 2

BLM Utah will consider adaptive management as an air resource mitigation measure for project specific NEPA when future environmental conditions and/or a projects potential impact

on those conditions cannot be determined adequately with current information. Examples might include projects in areas that are seeing rapidly changing ambient air quality conditions, or where the future emission inventory cannot be determined adequately due to unknown variables, such as gas well forecast production vs. actual production.

Adaptive management as a mitigation measure will be based on outcome-based performance thresholds relevant to the air resource issue of concern (e.g. ambient monitored values, emission inventory changes, etc.), and will incorporate a monitoring plan that examines the environmental effects of the action to determine whether adjustments are necessary to avoid unpredicted effects. While it may not be possible to predict all adaptive management response to future events, BLM will strive to include adaptive measures that could be used within the range of alternatives whose impacts are analyzed, or specifically identify and analyze each of the adaptive measures as an alternative or part of an alternative. Project specific adaptive management criteria will be developed in consultation with the RTAG as part of the review process.

When adaptive management has been chosen as a mitigation measure the following components will be included and described in the relevant NEPA document:

- The proposed adaptive management approach
- How the approach is reflected in the alternatives being considered
- The monitoring protocol
- The desired outcome
- The performance measures that will determine whether the desired outcome is being achieved or an adaptive action is needed, and
- The factors for determining whether additional NEPA review is needed.

Contingency Plan

In the event project-specific NEPA modeling under the ARMS is not available for any reason, then air quality analysis conducted for specific projects will follow the guidance otherwise given in the ARMS, be consistent with the National MOU Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions through the NEPA Process, and be performed in close consultation with the RTAG to determine appropriate analytical procedures, mitigation, and adaptive management requirements.

Air Monitoring

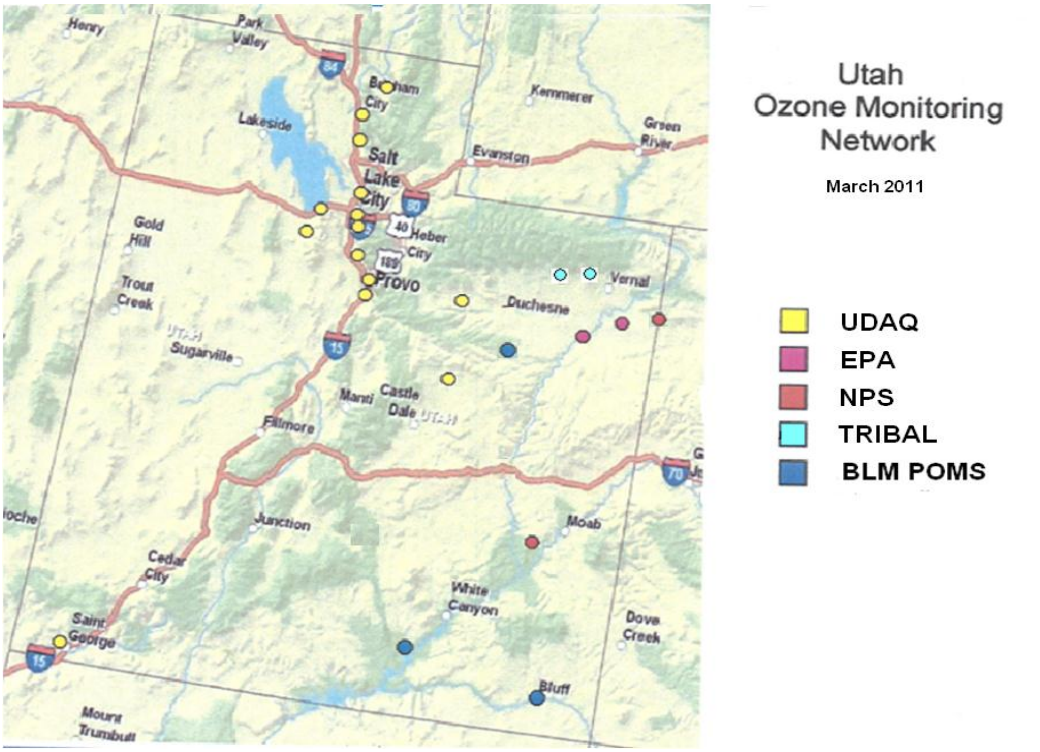
The foundation for a well-developed air quality management program begins with a representative ambient monitoring network. BLM Utah has implemented an air resource monitoring program to supplement the existing air monitoring networks operated by UDAQ, NPS, USFS, EPA, industry and the tribes. The monitoring network is operated in close coordination with UDAQ, and utilizes methods and quality control standards set by EPA and other federal agencies.

The air resource monitoring program objectives are:

- Collect ambient air quality information for background and inventory purposes
- Evaluate air quality trends associated with BLM authorizations and activities
- Provide a quantitative measure for administration, agencies, and general public

- Validate modeling performance

BLM Utah will continue to work with the Federal Leadership Forum (FLF) on the Three-State Study Pilot Project, a component of which includes enhanced air monitoring in Utah. In conjunction with this effort, BLM Utah funded the installation of a Federal Reference Monitoring (FRM) site in Fruitland, Utah for ozone, nitrogen oxides, and meteorology. In addition two other similar FRM sites in Utah will be funded through EPA funds associated with the FLF proposal. These three new sites will supplement the existing ozone monitoring network in Utah (Figure 3), and will also be part of a larger air monitoring effort coordinated through the FLF. In addition to the proposed and existing FRM monitoring, BLM Utah has purchased and is operating three portable ozone monitoring stations (POMS) that will be deployed on an as needed basis throughout the state. Initial POMS sites identified in conjunction with FLF and UDAQ are shown in blue on the site map in Figure 3. The purpose of performing O3 monitoring with the POMs is to spatially determine O3 concentrations, evaluate air quality trends and validate model performance. This may include identifying areas that additional monitoring should be explored with the RTAG. BLM Utah also operates an extensive network of climate monitoring stations throughout the state that can be used to inform airshed management issues. Data collected by BLM Utah air monitoring efforts will follow accepted quality control procedures, be presented and reviewed by the RTAG, and be made publically available.



(Figure 3)

Public Education and Awareness

As a public agency BLM is committed to complete transparency and believes in an informed and aware public. While air resource issues can be highly technical and complex, BLM Utah will make every effort to inform and educate the public about air resource issues on public

lands and how we are managing the resource. Beyond the disclosure inherent in NEPA documents produced by BLM, two main venues will be used to disseminate air resource information to the public and other interested parties: a BLM Utah air resource web page, and a BLM Utah annual air resource report.

BLM Utah Air Resource Web Page

BLM Utah has developed an air quality and climate data web page linked from the Utah BLM home page. Currently under development is an interactive map linked to air and climate data that will allow the user to access monitoring data collected by BLM in Utah. Future plans include posting the ARMS on this page, links to ongoing studies and research relevant to BLM and Utah, and as a way to disseminate the annual air resources report.

BLM Utah Air Quality and Climate web page

http://www.blm.gov/ut/st/en/prog/more/air_quality.html

BLM Utah Annual Air Resource Report

BLM Utah will produce an annual report on air resource and climate related issues. The first report is planned for spring of 2012 covering the 2011 calendar year. Items envisioned to be included in the annual report are:

- BLM air monitoring activities during the year
- Summary of air monitoring data collected
- Trend analysis on air quality issues of concern
- Topical reports on air quality issues of interest or concern
- Air resource management plans and issues for the coming year.

Glossary

Airshed: A geographic area that, because of topography, meteorology, and/or climate, is frequently affected by the same air mass.

Ambient Air: The air occurring at a particular time and place outside of structures. Often used interchangeably with "outdoor air."

Air Quality Related Value (AQRV): A resource, as identified by a Federal Land Manager (FLM) for one or more Federal areas, that may be adversely affected by a change in air quality. The resource may include visibility or a specific scenic, cultural, physical, biological, ecological, or recreational resource identified by the FLM for a particular area. "These values include visibility and those scenic, cultural, biological, and recreation resources of an area that are affected by air quality" (43 Fed. Reg. 15016).

Attainment Area: A geographical area identified to have air quality as good as, or better than, the National Ambient Air Quality Standards (NAAQS). An area may be an attainment area for one pollutant and a nonattainment area for others.

Biogenic Source: Biological sources such as plants and animals that emit air pollutants such as volatile organic compounds (VOC). Examples of biogenic sources include animal management operations, and oak and pine tree forests.

Class 1 Area: As defined in the Clean Air Act, the following areas that were in existence as of August 7, 1977: national parks over 6,000 acres, national wilderness areas and national memorial parks over 5,000 acres, and international parks.

Conformity: A demonstration of whether a federally-supported activity is consistent with the State Implementation Plan (SIP) -- per Section 176 (c) of the Clean Air Act.

Dispersion Model: A mathematical relationship between emissions and air quality which simulates on a computer the transport, dispersion, and transformation of compounds emitted into the air.

Emission Inventory: An estimate of the amount of pollutants emitted into the atmosphere from major mobile, stationary, area-wide, and natural source categories over a specific period of time such as a day or a year.

Inversion: A layer of warm air in the atmosphere that prevents the rise of cooling air and traps pollutants beneath it.

National Ambient Air Quality Standards (NAAQS): Standards established by the United States EPA that apply for outdoor air throughout the country. There are two types of NAAQS. Primary standards set limits to protect public health and secondary standards set limits to protect public welfare.

Nitrogen Oxides (Oxides of Nitrogen, NOx): A general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO_2) and other oxides of nitrogen. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant, and may result in numerous adverse health effects.

Nonattainment Area: A geographic area identified by the EPA as not meeting the NAAQS for a given pollutant.

Ozone: A strong smelling, pale blue, reactive toxic chemical gas consisting of three oxygen atoms. It is a product of the photochemical process involving the sun's energy and ozone precursors, such as hydrocarbons and nitrogen oxides. Ozone exists in the upper atmosphere ozone layer (stratospheric ozone) as well as at the Earth's surface in the troposphere (ozone). Ozone in the troposphere causes numerous adverse health and is a criteria air pollutant.

Ozone Precursors: Chemicals such as non-methane hydrocarbons and nitrogen oxides, occurring either naturally or as a result of human activities, which contribute to the formation of ozone.

Particulate Matter (PM): Any material, except pure water, that exists in the solid or liquid state in the atmosphere. The size of particulate matter can vary from coarse, wind-blown dust particles to fine particle combustion products.

PM2.5: Includes tiny particles with an aerodynamic diameter less than or equal to a nominal 2.5 microns. This fraction of particulate matter penetrates most deeply into the lungs.PM2.5 also is a major contributor to visibility reduction.

PM10 (Particulate Matter): A criteria air pollutant consisting of small particles with an aerodynamic diameter less than or equal to a nominal 10 microns (about 1/7 the diameter of a single human hair). Their small size allows them to make their way to the air sacs deep within the lungs where they may be deposited and result in adverse health effects. PM10 also contributes to visibility reduction.

Prevention of Significant Deterioration (PSD): A permitting program for new and modified stationary sources of air pollution located in an area that attains or is unclassified for national ambient air quality standards. The PSD program is designed to ensure that air quality does not degrade beyond those air quality standards or beyond specified incremental amounts. The PSD permitting process requires new and modified facilities above a specified size threshold to be carefully reviewed prior to construction for air quality impacts. PSD also requires those facilities to apply controls to minimize emissions of air pollutants.

State Implementation Plan (SIP): A plan prepared by states and submitted to EPA describing how each area will attain and maintain national ambient air quality standards. SIPs include the technical foundation for understanding the air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

Volatile Organic Compounds (VOCs): Carbon-containing compounds that evaporate into the air (with a few exceptions). VOCs contribute to the formation of ozone and / or may themselves be toxic. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints.

Acronyms

AQRV	Air Quality Related Value
ARMS	Air Resource Management Strategy
BLM	Bureau of Land Management
CAA	Clean Air Act
CEQ	Council on Environmental Quality
EPA	Environmental Protection Agency
FLAG	Federal Land Managers' Air Quality Related Values Work Group
FLF	Federal Leadership Forum
FLM	Federal Land Manager
FRM	Federal Reference Method
FWS	Fish and Wildlife Service
NAAQS	National Ambient Air Quality Standards
NEI	National Emission Inventory
NEPA	National Environmental Policy Act
NPS	National Park Service
PGM	Photochemical Grid Model
POMS	Portable Ozone Monitoring Station
PSD	Prevention of Significant Deterioration
RFD	Reasonably Foreseeable Development
RMF	Reusable Modeling Framework
RMP	Resource Management Plan
RTAG	Resource Technical Advisory Group
SIP	State Implementation Plan
UDAQ	Utah Department of Air Quality
USFS	U.S. Forest Service