# TITLE 18. ENVIRONMENTAL QUALITY CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY AIR POLLUTION CONTROL

### ARTICLE 15. FOREST AND RANGE MANAGEMENT BURNS

#### R18-2-1501. Definitions

In addition to the definitions contained in A.R.S. '49-501 and R18-2-101, in this Article:

- 1. AActivity fuels@means those fuels created by human activities such as thinning or logging.
- 2. "ADEQ" means the Department of Environmental Quality.
- 3. AAnnual emissions goal@means the annual establishment in cooperation with the F/SLM=s, under R18-2-1503(G), of a planned quantifiable value of emissions reduction from prescribed fires and fuels management activities.
- 4. ABurn plan@means the ADEQ form that includes information on the conditions under which a burn will occur with details of the burn and smoke management prescriptions.
- 5. "Burn prescription" means, with regard to a burn project, the pre-determined area, fuel, and weather conditions required to attain planned resource management objectives.
- 6. "Burn project" means an active or planned prescribed burn, including a wildland fire use incident.
- 7. "Duff" means forest floor material consisting of decomposing needles and other natural materials.
- 8. AEmission reduction techniques (ERT)@means methods for controlling emissions from prescribed fires to minimize the amount of emission output per unit of area burned.
- 9. AFederal land manager (FLM)@means any department, agency, or agent of the federal government, including the following:
  - a. United States Forest Service,
  - b. United States Fish and Wildlife Service,
  - c. National Park Service,
  - d. Bureau of Land Management,
  - e. Bureau of Reclamation,
  - f. Department of Defense,
  - g. Bureau of Indian Affairs, and
  - h. Natural Resources Conservation Service.
- 10. "F/SLM" means a federal land manager or a state land manager.
- 11. "Local fire management officer" means a person designated by a F/SLM as responsible for fire management in a local district or area.
- 12. "Mop-up" means the act of extinguishing or removing burning material from a prescribed fire to reduce smoke

- impacts.
- 13. "National Wildfire Coordinating Group" means the national inter-agency group of federal and state land managers that shares similar wildfire suppression programs and has established standardized inter-agency training courses and qualifications for fire management positions.
- 14. ANon-burning alternatives to fire@means techniques that replace fire for at least five years as a means to treat activity fuels created to achieve a particular land management objective (e.g., reduction of fuel-loading, manipulation of fuels, enhancement of wildlife habitat, and ecosystem restoration). These alternatives are not used in conjunction with fire. Techniques used in conjunction with fire are referred to as emission reduction techniques (ERTs).
- 15. "Planned resource management objectives" means public interest goals in support of land management agency objectives including silviculture, wildlife habitat management, grazing enhancement, fire hazard reduction, wilderness management, cultural scene maintenance, weed abatement, watershed rehabilitation, vegetative manipulation, and disease and pest prevention.
- 16. "Prescribed burning" means the controlled application of fire to wildland fuels that are in either a natural or modified state, under certain burn and smoke management prescription conditions that have been specified by the land manager in charge of or assisting the burn, to attain planned resource management objectives. Prescribed burning does not include a fire set or permitted by a public officer to provide instruction in fire fighting methods, or construction or residential burning under R18-2-602.
- 17. "Prescribed fire manager" means a person designated by a F/SLM as responsible for prescribed burning for that land manager.
- 18. "Smoke management prescription" means the predetermined meteorological conditions that affect smoke transport and dispersion under which a burn could occur without adversely affecting public health and welfare.
- 19. ASmoke management techniques@(SMT) means management and dispersion practices used during a prescribed burn or wildland fire use incident which affect the direction, duration, height, or density of smoke.
- 20. "Smoke management unit" means any of the geographic areas defined by ADEQ whose area is based on primary watershed boundaries and whose outline is determined by diurnal windflow patterns that allow smoke to follow predictable drainage patterns. A map of the state divided into 44 the smoke management units is on file with ADEO.
- 21. "State land manager (SLM)" means any department, agency, or political subdivision of the state government including the following:
  - State Land Department, a.
  - b. Department of Transportation,
  - Department of Game and Fish, and c.

- d. Parks Department.
- 22. "Wildfire" means an unplanned wildland fire subject to appropriate control measures. Wildfires include those incidents where suppression may be limited for safety, economic, or resource concerns.
- AWildland fire use@means a wildland fire that is ignited by natural causes, such as lightning, and is managed using the same controls and for the same planned resource management objectives as prescribed burning.

# R18-2-1502. Applicability

- **A.** A F/SLM that is conducting or assisting a prescribed burn shall follow the requirements of this Article.
- **B.** A private or municipal burner with whom ADEQ has entered into a memorandum of agreement shall follow the requirements of this Article.
- C. The provisions of this Article apply to all areas of the state except Indian Trust lands. All federally-managed lands and all state lands, parks, and forests are under the jurisdiction of ADEQ in matters relating to air pollution from prescribed burning.
- **D.** Notwithstanding subsection (C), ADEQ and any Indian tribe may enter into a memorandum of agreement to implement this Article.
- **E.** ADEQ and any private or municipal prescribed burner may enter into a memorandum of agreement to implement this Article.

### R18-2-1503. Annual Registration, Program Evaluation and Planning

- A. Each F/SLM shall register annually with ADEQ<sub>7</sub> on a form prescribed by ADEQ, all planned burn projects, including areas planned for wildland fire use.
- **B.** Each planned year extends from January 1 of the registration year to December 31 of the same year. Each F/SLM shall use best efforts to register before December 31 and no later than January 31 of each year.
- **C.** A F/SLM shall include the following information on the registration form:
  - 1. The F/SLM's name, address, and business telephone number;
  - 2. The name, address, and business telephone number of an air quality representative who will provide technical support to ADEQ for decisions regarding prescribed burning. The same air quality representative may be selected by more than one F/SLM;
  - 3. All prescribed burn projects and potential wildland fire use areas planned for the next year;
  - 4. Maximum project and annual acres to be burned, maximum daily acres to be burned, fuel types within project area, and planned use of emission reduction techniques to support the annual emissions goal for each prescribed burn project;

- 5. Planned use of any smoke management techniques for each prescribed burn project;
- 6. Maximum project and annual acres projected to be burned, maximum daily acres projected to be burned, and a map of the anticipated project area, fuel types and loading within the planned area for an area the F/SLM anticipates for wildland fire use;
- 7. A list of all burn projects that were completed during the previous year;
- 8. Project area for treatment, treatment type, fuel types to be treated, and activity fuel loading to support the annual emissions goal for areas to be treated using non-burning alternatives to fire; and
- 9. The area treated using non-burning alternatives to fire during the previous year including the number of acres, the specific types of alternatives utilized, and the location of these areas.
- **D.** After consultation with the F/SLM, ADEQ may request additional information for registration of prescribed burns and wildland fire use to support regional coordination of smoke management, annual emission goal setting using ERTs, and non-burning alternatives to fire.
- **E.** A F/SLM may amend a registration at any time with a written submission to ADEQ.
- ADEQ accepts a facsimile or other electronic method as a means of complying with the deadline for registration. If an electronic means is used, the F/SLM shall deliver the original paper registration form to ADEQ for its records. ADEQ shall acknowledge in writing the receipt of each registration.
- ADEQ shall hold a meeting after January 31 and before April 1 of each year between ADEQ and F/SLM=s to evaluate the program and cooperatively establish the annual emission goal. The annual emission goal shall be developed to minimize prescribed fire emissions to the maximum extent feasible using emission reduction techniques and alternatives to burning subject to economic, technical, and safety feasibility criteria, and consistent with land management objectives.
- **H.** At least once every five years, ADEQ shall request long-term projections of future prescribed fire and wildland fire use activity from the F/SLMs to support planning for visibility impairment and assessment of other air quality concerns by ADEQ.

### R18-2-1504. Prescribed Burn Plan

Each F/SLM planning a prescribed burn shall complete and submit to ADEQ the "Burn Plan" form supplied by ADEQ no later than 14 days before the date on which the F/SLM requests permission to burn. ADEQ shall consider the information supplied on the Burn Plan Form as binding conditions under which the burn shall be conducted. A Burn Plan shall be maintained by ADEQ until notification from the F/SLM of the completion of the burn project. Revisions to the Burn Plan for a burn project shall be submitted in writing no later than 14 days before the date on which the F/SLM requests permission to burn. To facilitate the Daily Burn authorization process

under R18-2-1505, the F/SLM shall include on the Burn Plan form:

- 1. An emergency telephone number that is answered 24 hours a day, seven days a week;
- 2. Burn prescription;
- 3. Smoke management prescription;
- 4. The number of acres to be burned, the quantity and type of fuel, type of burn, and the ignition technique to be used;
- 5. The land management objective or purpose for the burn such as restoration or maintenance of ecological function and indicators of fire resiliency;
- 6. A map depicting the potential impact of the smoke unless waived either orally or in writing by ADEQ.

  The potential impact shall be determined by mapping both the daytime and nighttime smoke path and down-drainage flow for 15 miles from the burn site, with smoke-sensitive areas delineated. The map shall use the appropriate scale to show the impacts of the smoke adequately;
- 7. Modeling of smoke impacts unless waived either orally or in writing by ADEQ, for burns greater than 250 acres per day, or greater than 50 acres per day if the burn is within 15 miles of a Class I Area, an area that is non-attainment for particulates, a carbon monoxide non-attainment area, or other smoke-sensitive area. In consultation with the F/SLM, ADEQ shall provide guidelines on modeling;
- 8. The name of the official submitting the Burn Plan on behalf of the F/SLM; and
- 9. After consultation with the F/SLM, any other information to support the Burn Plan needed by ADEQ to assist in the Daily Burn authorization process for smoke management purposes or assessment of contribution to visibility impairment of Class I areas.

# R18-2-1505. Prescribed Burn Requests and Authorization

- **A.** Each F/SLM planning a prescribed burn, shall complete and submit to ADEQ the "Daily Burn Request" form supplied by ADEQ. The Daily Burn Request form shall include:
  - 1. The contact information of the F/SLM conducting the burn;
  - 2. Each day of the burn;
  - 3. The area to be burned on the day for which the Burn Request is submitted, with reference to the Burn Plan, including size, legal location to the section, and latitude and longitude to the minute;
  - 4. Projected smoke impacts; and
  - 5. Any local conditions or circumstances known to the F/SLM that, if conveyed to ADEQ, could impact the Daily Burn authorization process.
- **B.** After consultation with the F/SLM, ADEQ may request additional information related to the burn, meteorological, smoke dispersion, or air quality conditions to supplement the Daily Burn Request form and to aid in the Daily Burn

- authorization process.
- C. The F/SLM shall submit the Daily Burn Request form to ADEQ as expeditiously as practicable, but no later than 2 p.m. of the business day preceding the burn. An original form, a facsimile, or an electronic information transfer are acceptable submittals.
- **D.** An F/SLM shall not ignite a prescribed burn without receiving the approval of ADEQ, as follows:
  - ADEQ shall approve, approve with conditions, or disapprove a burn on the same business day as the Burn Request submittal.
  - If ADEQ fails to address a Burn Request by 10 p.m. of the business day on which the request is submitted, the Burn Request is approved by default after the burner makes a good faith effort to contact ADEQ to confirm that the Burn Request was received.
  - ADEQ may communicate its decision by verbal, written, or electronic means. ADEQ shall provide a
    written or electronic reply if requested by the F/SLM.
- E. If weather conditions cease to conform to those in the smoke management prescription of either the Burn Plan or an Approval with Conditions, the F/SLM shall take appropriate action to reduce further smoke impacts, ensure safe and appropriate fire control, and notify the public when necessary. After consultation with ADEQ, the smoke management prescription or burn plan may be modified.
- **F.** The F/SLM shall ensure that there is appropriate signage and notification to protect public safety on transportation corridors including roadways and airports during a prescribed fire.

## **R18-2-1506.** Smoke Dispersion Evaluation

ADEQ shall approve, approve with conditions, or disapprove a Daily Burn Request submitted under R18-2-1505, by using the following factors for each smoke management unit:

- Analysis of the emissions from burns in progress and residual emissions from previous burns on a day-today basis;
- 2. Analysis of emissions from active wildland fire use incidents, and active multiple-day burns, and consideration of potential long-term emissions estimates;
- 3. Analysis of the emissions from wildfires greater than 100 acres and consideration of their potential long-term growth;
- 4. Local burn conditions;
- 5. Burn prescription and smoke management prescription from the applicable Burn Plan;
- 6. Existing and predicted local air quality;
- 7. Local and synoptic meteorological conditions;

- 8. Type and location of areas to be burned;
- 9. Protection of the national visibility goal for Class I Areas under ' 169A(a)(1) of the Act and 40 CFR 51.309;
- 10. Assessment of duration and intensity of smoke emissions to minimize cumulative impacts;
- 11. Minimization of smoke impacts in Class I Areas, areas that are non-attainment for particulate matter, carbon monoxide non-attainment areas, or other smoke-sensitive areas; and
- 12. Protection of the National Ambient Air Quality Standards.

# R18-2-1507. Prescribed Burn Accomplishment; Wildfire Reporting

- A. Each F/SLM conducting a prescribed burn shall complete and submit to ADEQ the "Burn Accomplishment" form supplied by ADEQ. For each burn approval, the F/SLM shall submit a Burn Accomplishment form to ADEQ by 2 p.m. of the business day following the approved burn. The F/SLM shall include the following information on the Burn Accomplishment form:
  - 1. Any known conditions or circumstances that could impact the Daily Burn decision process;
  - 2. The date, location, fuel type, fuel loading, and acreage accomplishments;
  - 3. The ERTs and SMTs described in R18-2-1509 and R18-2-1510, respectively, and may include any further ERTs and SMTs that become available, that the F/SLM used to reduce emissions or manage the smoke from the burn.
- **B.** The F/SLM shall submit the Burn Accomplishment form as an original form, a facsimile, or an electronic information transfer.
- **C.** ADEQ shall maintain a record of Burn Requests, Burn Approvals/Conditional Approvals/Denials and Burn Accomplishments for five years.
- D. The F/SLM in whose jurisdiction a wildfire occurs shall make available to ADEQ no later than the day after the activity all required information for wildfire incidents that burned more than 100 acres per day in timber or slash fuels or 300 acres per day in brush or grass fuels. For each day of a wildfire incident that exceeds the daily activity threshold, the F/SLM shall provide the location, an estimate of predominant fuel type and quantity consumed, and an estimate of the area blackened that day.

# R18-2-1508. Wildland Fire Use: Plan, Authorization; Monitoring; Inter-agency Consultation; Status Reporting

A. In order for ADEQ to participate in the wildland fire use decision-making process, the F/SLM shall notify ADEQ as soon as practicable of any wildland fire use incident projected to attain or attaining a size of 50 acres of timber

- fuel or 250 acres of brush or grass fuel.
- B. For each wildland fire use incident that has been declared as such by the F/SLM, the F/SLM shall complete and submit to ADEQ a Wildland Fire Use Burn Plan in a format approved by ADEQ in cooperation with the F/SLM. The F/SLM shall submit the Wildland Fire Use Burn Plan to ADEQ as soon as practicable but no later than 72 hours after the wildland fire use incident is declared or under consideration for such designation. The F/SLM shall include the following information in the Wildland Fire Use Burn Plan:
  - 1. An emergency telephone number that is answered 24 hours a day, seven days a week;
  - 2. Anticipated burn prescription;
  - 3. Anticipated smoke management prescription;
  - 4. The estimated daily number of acres, quantity, and type of fuel to be burned;
  - 5. The anticipated maximum allowable perimeter or size with map;
  - 6. Information on the condition of the area to be burned, such as whether it is in maintenance or restoration, its ecological function, and other indicators of fire resiliency;
  - 7. The anticipated duration of the wildland fire use incident;
  - 8. The anticipated long-range weather trends for the site;
  - 9. A map depicting the potential impact of the smoke. The potential impact shall be determined by mapping both the daytime and nighttime smoke path and down-drainage flow for 15 miles from the wildland fire use incident, with smoke-sensitive areas delineated. Mapping is mandatory unless waived either orally or in writing by ADEQ. The map shall use the appropriate scale to show the impacts of the smoke adequately; and
  - 10. Modeling or monitoring of smoke impacts, if requested by ADEQ after consultation with the F/SLM.
- C. ADEQ shall approve or disapprove a Wildland Fire Use Burn Plan within three hours of receipt. ADEQ shall consult directly with the requesting F/SLM before disapproving a Wildland Fire Use Burn Plan. If ADEQ fails to address the Wildland Fire Use Burn Plan within the time allotted, the Plan is approved by default under the condition that the F/SLM makes a good faith effort to contact ADEQ to confirm that the Plan was received. Approval by ADEQ of a Wildland Fire Use Burn Plan is binding upon ADEQ for the duration of the wildland fire use incident unless smoke from the incident creates a threat to public health or welfare. If a threat to public health or welfare is created, ADEQ shall consult with the F/SLM regarding the situation and develop a joint action plan for reducing further smoke impacts.
- D. The F/SLM shall submit a Daily Status Report for each wildland fire use incident to ADEQ for each day of the burn that the fire burns more than 100 acres in timber or slash fuels or 300 acres in brush or grass fuels. The F/SLM shall include a synopsis of smoke behavior, future daily anticipated growth, and location of the activity of the wildland fire use incident in the Daily Status Report.

- E. The F/SLM shall consult with ADEQ prior to initiating human-made ignition on the wildland fire use incident when greater than 250 acres is anticipated to be burned by the ignition. Emergency human-made ignition on the incident for protection of public or fire-fighter safety does not require consultation with ADEQ regardless of the size of the area to be burned.
- **F.** The F/SLM shall ensure that there is appropriate signage and notification to protect public safety on transportation corridors including roadways and airports during a wildland fire use incident.

# R18-2-1509. Emission Reduction Techniques

- **A.** Each F/SLM conducting a prescribed burn shall implement as many Emission Reduction Techniques as are feasible subject to economic, technical, and safety feasibility criteria, and land management objectives.
- **B.** Emission Reduction Techniques include:
  - Reducing biomass to be burned by use of techniques such as yarding or consolidation of unmerchandisable material, multi-product timber sales, or public firewood access, when economically feasible.
  - Reducing biomass to be burned by fuel exclusion practices such as preventing the fire from consuming dead snags or dead and downed woody material through lining, application of fire-retardant foam, or water;
  - Using mass ignition techniques such as aerial ignition by helicopter to produce high intensity fires of high fuel density areas such as logging slash decks
  - 4. Burning only fuels essential to meet resource management objectives;
  - Minimizing consumption and smoldering by burning under conditions of high fuel moisture of duff and litter;
  - Minimizing fuel consumption and smoldering by burning under conditions of high fuel moisture of large woody fuels;
  - Minimizing soil content when slash piles are constructed by using brush blades on material-moving equipment and by constructing piles under dry soil conditions or by using hand piling methods;
  - 8. Burning fuels in piles;
  - 9. Using a backing fire in grass fuels;
  - Burning fuels with an air curtain destructor, as defined in R18-2-101, operated according to manufacturer specifications and meeting applicable state or local opacity requirements;
  - 11. Extinguishing or mopping-up of smoldering fuels;
  - 12. Chunking of piles and other consolidations of burning material to enhance flaming and fuel consumption,

and to minimize smoke production;

- 13. Burning before litter fall;
- 14. Burning before green-up of fuels;
- 15. Burning before recently cut large fuels cure in areas with activity; and
- 16. Burning just before precipitation to reduce fuel smoldering and consumption.

### **R18-2-1510.** Smoke Management Techniques

- **A.** Each F/SLM conducting a prescribed burn shall implement as many Smoke Management Techniques as are feasible subject to economic, technical, and safety feasibility criteria, and land management objectives.
- **B.** Smoke management techniques include:
  - 1. Burning from March 15 through September 15, when meteorological conditions allow for good smoke dispersion;
  - 2. Igniting burns under good-to-excellent ventilation conditions;
  - 3. Suspending operations under poor smoke dispersion conditions;
  - 4. Considering smoke impacts on local community activities and land users;
  - 5. Burning piles when other burns are not feasible, such as when snow or rain is present;
  - 6. Using mass ignition techniques such as aerial ignition by helicopter to produce high intensity fires with short duration impacts;
  - 7. Using all opportunities that meet the burn prescription and all burn locations to spread smoke impacts over a broader time period and geographic area;
  - 8. Burning during optimum mid-day dispersion hours, with all ignitions in a burn unit completed by 3 p.m. to prevent trapping smoke in inversions or diurnal windflow patterns;
  - Providing information on the adverse impacts of using green or wet wood as fuel when public firewood access is allowed;
  - 10. Implementing maintenance burning in a periodic rotation to shorten prescribed fire duration and to reduce excessive fuel accumulations that could result in excessive smoke production in a wildfire; and
  - 11. Using wildland fire-use strategies to shift smoke into more favorable smoke dispersion seasons.

### **R18-2-1511.** Monitoring

A. ADEQ may require a F/SLM to monitor air quality before or during a prescribed burn or a wildland fire use incident if necessary to assess smoke impacts. Air quality monitoring may be conducted using both federal and non-federal reference method as well as other techniques.

- B. ADEQ may require a F/SLM to monitor weather before or during a prescribed burn or a wildland fire use incident, if necessary to predict or assess smoke impacts. After consultation with the F/SLM, ADEQ may also require the F/SLM to establish burn site or area-representative remote automated weather stations or their equivalent, having telemetry that allows retrieval on a real-time basis by ADEQ. An F/SLM shall give ADEQ notice and an opportunity to comment before making any change to a long-term established remote automated weather station.
- C. A F/SLM shall employ the following types of monitoring, unless waived by ADEQ, for burns greater than 250 acres per day, or greater than 50 acres per day if the burn is within 15 miles of a Class I Area, an area that is non-attainment for particulate matter, a carbon monoxide, or ozone, or other smoke-sensitive area:
  - 1. Smoke plume measurements, using a format supplied by ADEQ; and
  - 2. The release of pilot balloons (PIBALs) at the burn site to verify needed wind speed, direction, and stability.

Instead of pilot balloons, a test burn at the burn site may be used for specific prescribed burns on a case-by-case basis as approved by ADEQ, to verify needed wind speed, direction, and stability.

- **D.** An F/SLM shall make monitoring information required under subsection (C) available to ADEQ on the business day following the burn ignition.
- **E.** The F/SLM shall keep on file for one year following the burn date any monitoring information required under this Section.

### **R18-2-1512.** Burner Qualifications

- A. All burn projects shall be conducted by personnel trained in prescribed fire and smoke management techniques as required by the F/SLM in charge of the burn and established by National Wildfire Coordinating Group training qualifications.
- **B.** A Prescribed Fire Boss or other local Fire Management Officer of the F/SLM having jurisdiction over prescribed burns shall have smoke management training obtained through one of the following:
  - Successful completion of a National Wildfire Coordinating Group or F/SLM-equivalent course addressing smoke management; or
  - 2. Attendance at an ADEQ-approved smoke management workshop.

# R18-2-1513. Public Notification and Awareness Program; Regional Coordination

**A.** The Director shall conduct a public education and awareness program in cooperation with F/SLMs and other interested parties to inform the general public of the smoke management program described by this Article. The program shall include smoke impacts from prescribed fires and the role of prescribed fire in natural ecosystems.

**B.** ADEQ shall make annual registration, prescribed burn approval, and wildfire and wildland fire use activity information readily available to the public and to facilitate regional coordination efforts and public notification.

### R18-2-1514. Surveillance and Enforcement

- An F/SLM conducting a prescribed burn shall permit ADEQ to enter and inspect burn sites unannounced to verify the accuracy of the Daily Burn Request, Burn Plan, or Accomplishment data as well as matching burn approval with actual conditions, smoke dispersion, and air quality impacts. On-ground site inspection procedures and aerial surveillance shall be coordinated by ADEQ and the F/SLM for safety purposes.
- **B.** ADEQ may use remote automated weather station data if necessary to verify current and previous meteorological conditions at or near the burn site.
- C. ADEQ may audit burn accomplishment data, smoke dispersion measurements, or weather measurements from previously conducted burns, if necessary to verify conformity with, or deviation from, procedures and authorizations approved by ADEQ.
- Deviation from procedures and authorizations approved by ADEQ constitute a violation of this Article. Violations may require containment or mop-up of any active burns and may also require, in the Director's discretion, a five-day moratorium on ignitions by the responsible F/SLM. Violations of this Article are also subject to a civil penalty of not more than \$10,000 per day per violation under A.R.S. ' 49-463.

# R18-2-1515. Forms; Electronic Copies; Information Transfers

- A. ADEQ shall make available on paper and in electronically-readable format any form required to be developed by ADEQ and completed by a F/SLM.
- **B.** After consultation with an F/SLM, ADEQ may require the F/SLM to provide data in a manner that facilitates electronic transfers of information.