

Crop Residue Burning Operating Guide



State of Idaho
Department of Environmental Quality



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Prepared by

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Acronyms, Abbreviations, and Symbols

µg	micrograms
CRB	crop residue burning
CRP	Conservation Reserve Program
CREP	Conservation Reserve Enhancement Program
DEQ	Idaho Department of Environmental Quality
EDMS	electronic data management system
ISP	institutions with sensitive populations
m ³	cubic meters
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NWS	National Weather Service
O ₃	ozone
PM _{2.5}	particulate matter less than 2.5 microns in diameter
PM ₁₀	particulate matter less than 10 microns in diameter
ppb	parts per billion
SIP	State Implementation Plan
SMA	smoke management area

1 General Program Overview

This operating guide describes implementation of the crop residue burning (CRB) smoke management program. The guide provides details on the overall and day-to-day operation of the program, including grower and Idaho Department of Environmental Quality (DEQ) requirements, CRB program guidelines, and program evaluation and annual review requirements. The appendices contain useful reference tools such as standard operating procedures for DEQ staff. The CRB program is dynamic and continually improving, and this operating guide will be reviewed on an annual basis and revised as necessary. A summary of operating guide changes will be in the last appendix of this document.

DEQ's CRB program and this operating guide do not apply to crop residue burning within reservation boundaries in Idaho other than where DEQ implements the CRB program for the Kootenai Tribe per the *Memorandum of Agreement between the Idaho State Department of Environmental Quality and the Kootenai Tribe of Idaho Relating to the Smoke Management Program*, November 2008. Interested parties should contact individual tribes for information on crop residue burning on reservations in Idaho.

This operating guide refers to all persons who conduct crop residue burning as "growers." However, this does not mean that only growers may conduct crop residue burning. Any person may conduct crop residue burning so long as the burning is conducted in accordance with the requirements of the CRB program, CRB rule (IDAPA 58.01.01.617–624), and State Implementation Plan (SIP).

This guide includes the commitments made during the crop residue disposal negotiation process and memorialized in Idaho Code § 39-114 (House Bill 557), CRB rule, and 2018 SIP update. The guidelines and procedures are described in the following sections and appendices.

1.1 Burning Subject to DEQ's Crop Residue Burning Program

The following burning is regulated under DEQ's CRB program, and growers must comply with the rules and regulations of the program:

- Residue from traditional crops—Includes, but is not limited to, cereal grain, row crops, alfalfa, hay, Kentucky blue grass, and other grass seed varieties.
- Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP) lands—Includes the burning of CRP and CREP land while the land remains in the programs, and when the land is being taken out of the program to return to agricultural production.
- Pasture—Grazing lands comprised of introduced or domesticated native forage species that are used primarily for livestock production. Lands receive periodic renovation and/or cultural treatments such as tillage, fertilization, mowing, and weed control and may be irrigated (US Department of Agriculture, Natural Resources Conservation Service, *National Range and Pasture Handbook*, December 2003).

- Wildlife habitat areas or habitat improvement areas including planted nonnative vegetation or food crops that provide forage.
- Weed patches within a crop field.
- Spot and bale burning.
- Propane flaming.

1.1.1 DEQ Requirements per Rules and Statute

DEQ must follow these requirements when approving crop residue burns. Program guidelines are outlined in section 3.

- Approve or deny requests to burn:
 - To approve a request to burn, DEQ must determine that ambient air quality levels meet both of the following criteria:
 - 1) Do not exceed 90% of the ozone national ambient air quality standard (NAAQS) and 75% of the level of any other NAAQS on any day and are not projected to exceed such level over the next 24 hours (IDAPA 58.01.01.621).
 - 2) Have not reached, and are not forecast to reach and persist at, 80% of the 1-hour action criteria for particulate matter identified in "Air Pollution Emergency Rule" (IDAPA 58.01.01.550), "Criteria for Defining Levels within Stages" (IDAPA 58.01.01.556), and "Burn Determination" (IDAPA 58.01.01.621). Eighty percent of the 1-hour action criteria for fine particulate matter (PM_{2.5}) is currently equal to 64 micrograms per cubic meter (µg/m³).
 - May not approve crop residue burning on weekends, federal or state holidays, after sunset or before sunrise, or during an episode of air stagnation or degraded air quality (IDAPA 58.01.01.622.01).
 - May not approve crop residue burning within 3 miles of institutions with sensitive populations (ISPs) when surface wind speeds exceed 12 miles per hour (mph) at the field (IDAPA 58.01.01.621.01).
- Consider the following parameters when making a burn decision (section 3.2) (IDAPA 58.01.01.621.01):
 - Expected emissions from all burns proposed for the same date
 - Proximity and emissions from other burns within the area
 - Moisture content of the crop residue
 - Acreage, crop type, and fuel characteristics
 - Meteorological conditions
 - Proximity to ISPs
 - Proximity to public roadways and airports
 - Any other factors relevant to preventing exceedances of the program concentration thresholds or action levels defined by the statute, CRB rule, or SIP
- Designate burn or no burn days, post the burn decision daily on the website, and offer an email update service with the following information (IDAPA 58.01.01.623):
 - Burn or no burn determination

- Locations of proposed burns and number of acres permitted to be burned in each county
- Meteorological conditions and real-time ambient air quality monitoring data
- Toll-free hotline number to receive requests for information
- Prepare an annual report that includes, at a minimum, an analysis of exceedances of the program concentration thresholds that were reasonably suspected to have been caused or contributed by approved crop residue burning and an assessment of the circumstances around any reported endangerment to human health associated with approved crop residue burning. The report must also include recommended revisions to the CRB rule or this operating guide deemed necessary to prevent future exceedances of the program concentration thresholds (IDAPA 58.01.01.622.02). To fulfill the annual reporting requirements, DEQ implements an enhanced documentation process for instances when air quality monitoring levels reach trigger thresholds (section 3.7).
- Assemble an advisory committee consisting of representatives from environmental organizations, grower organizations, tribal organizations, health organizations, Idaho State Department of Agriculture, DEQ, and others to discuss the CRB program (IDAPA 58.01.01.622.03).
- DEQ has no authority or explicit responsibility for fire safety or prevention related to crop residue burns outside of “Preventative Measures” (IDAPA 58.01.01.619.05). The person conducting the burn is responsible for obtaining all required permits, taking all appropriate fire safety measures, providing appropriate fire safety equipment, and overseeing the burn until the fire is out. If the fire escapes, the person conducting the burn can be held liable for property damage and fire suppression costs. Failure to control a fire being used to treat crop residue is a violation of General Permit Condition 2.

1.1.2 Permit by Rule

The permit by rule consists of three parts: registration, notification of final burn approval (posted online) and burn fee.

DEQ provides the following documents during the burn season:

- “Registration Receipt and Initial Permit Requirements” document, which acknowledges receipt of registration and provides the initial permit requirements for each field. This document does not grant the recipient approval to burn.
- Final burn approval permit is available on DEQ’s website after approval to burn is granted. The permit may include additional requirements or conditions.
- Burn fee invoice. The grower will receive an annual invoice for the total acreage burned. A spot and bale burn permit fee is due at the time of registration.

The notification of final burn approval posted online is the only document that authorizes the grower to burn the crop residue. It is imperative that Seasonal Smoke Specialists or anyone completing the task of contacting the permittee ensure that all permit conditions are understood by the permittee.

1.2 DEQ Staff Roles and Responsibilities

The following sections describe the roles and responsibilities of DEQ staff during the burn season and throughout the year.

1.2.1 Smoke Management Supervisor

DEQ employs one Smoke Management Supervisor who works for the Air Quality Planning Bureau. The Smoke Management Supervisor is responsible for smoke management for all types of allowable forms of open burning statewide on lands outside the five tribal reservations. The Smoke Management Supervisor ensures the program implementation complies with the statute, CRB rules, and SIP.

1.2.2 CRB Smoke Management Analyst

The CRB Smoke Management Analyst performs CRB program functions and is the primary contact for the CRB program. The CRB Smoke Management Analyst reviews registrations, makes the final burn decision, and coordinates with the meteorologists, Seasonal Smoke Specialists, and regional office staff. Appendix A provides a complete list of responsibilities and procedures.

1.2.3 Seasonal Smoke Specialists

DEQ's Seasonal Smoke Specialists work out of the regional offices. Some regional offices also use permanent staff to carry out Seasonal Smoke Specialist duties in their region during the burning seasons. The Seasonal Smoke Specialists are the primary point of contact for growers during the burn season and are responsible for observing and documenting burns. Appendix B provides a complete list of responsibilities and procedures.

1.2.4 Regional Office

DEQ will ensure each of DEQ's six regional offices have staff assigned responsibility for tasks that support the CRB program. The regional office staff is responsible for supervising and deploying Seasonal Smoke Specialists and serves as an additional point of contact for growers and public. Appendix C provides a list of responsibilities and procedures.

1.2.5 Meteorologist

DEQ's meteorologists provide fire weather and smoke dispersion forecasting and support for the burn decision process. The meteorologist provides a daily smoke dispersion forecast for northern and southern Idaho and participates in the daily CRB coordination calls during the fall season. The meteorologist is available to provide specific field forecasts as requested and provides support to CRB staff throughout the burn day.

1.3 Program Evaluation and Annual Review

DEQ is required to review the CRB program and this operating guide annually. DEQ staff continually review air quality and burn decision data to determine the efficacy of the program. The following are examples of evaluation and analysis that take place annually as needed:

- Days with approved CRB that had elevated air pollutant concentrations will be analyzed to determine whether the CRB may have caused or contributed to the measured concentration.
- Days with approved CRB that had low air pollutant concentrations will be analyzed to determine which parameters may have contributed to that day's good smoke dispersion characteristics.

Program feedback and recommendations will be sought from the public, participating growers, the US Environmental Protection Agency, fire districts, tribes, and other smoke management agencies.

Although the program undergoes this thorough annual review, DEQ staff also strive to improve program operations. Burns are continuously monitored throughout the day to determine how well they are going and if unexpected weather conditions or smoke management issues occur, why they have occurred. This information will help staff make necessary adjustments in the decision-making process for subsequent burn days.

2 Grower Requirements

2.1 Grower Requirements for CRB Activities

Growers must complete the following activities to burn crop residue. Section 2 requirements are primarily accommodated in the [grower online tool](#).

- Register for a permit before the proposed burn date. IDAPA 58.01.01.619 requires registration at least 30 days in advance; however, review times are typically less, and DEQ can often accommodate less than 30-days advance notice when resources are available. The following information must be included in the registration:
 - Location of the field.
 - Applicant information including name, address, and telephone number.
 - Identify the person who will conduct the burning and provide a portable form of communication (e.g., cell phone number).
 - Plot plan showing the field location and property lines in relation to the nearest residential, public, and commercial properties and public roads.
 - Type of crop residue, acreage, and fuel characteristics of the proposed burn.
 - Fire prevention measures that will be available.
 - Requested date that the field will be available to burn.

- Obtain all necessary local and/or state fire safety permits. As a convenience to the grower, DEQ has coordinated with the Idaho Department of Lands to generate a fire safety permit automatically through DEQ's online application.
- Growers and burn managers must successfully complete the CRB training before burning and renew the training every 5 years.
- When a specific field is ready to burn, place it on the ready-to-burn list. Complete this step through the Grower Online Tool or contact the Seasonal Smoke Specialist or regional office staff assigned to CRB tasks.
 - Fields must be placed on the ready-to-burn list the day before the burn to be eligible for burning the next business day. To provide adequate public notification, DEQ only considers fields for burning that have been on the ready-to-burn list for at least 24 hours. Exceptions to this rule include application failures, communication/implementation errors between the grower and DEQ, and smoke dispersion considerations pending a meteorological evaluation by staff meteorologists.
- Contact the appropriate agency, such as the state or local highway district, to determine if any requirements for public roadway safety must be considered if you are burning near a roadway. Avoiding impacts on public roadways, IDAPA 58.01.01.621.02.g (proximity to public roadways considerations), is a critical factor in determining an appropriate burn day.
- Obtain approval from DEQ and follow all permit conditions on the day of the burn. Approval must be given before ignition.
- Carry a portable form of communication, which was identified on the initial registration, during the burn activity. If the cell number or communication tool has changed since the registration, the grower must contact DEQ with updated information.
- Burn crop residue only in the field where it was generated.
- Submit a postburn report. If the grower fails to submit a postburn report, they risk losing priority for their next burn. The postburn report must be submitted using either the online tool (preferred) or by communication with the DEQ staff (Seasonal Smoke Specialist or regional office) before the end of the business day if the grower wants an opportunity to burn the next day.
- A \$2 fee per acre burned applies to crop residue burning.

2.1.1 Grower Submittal of Registration and Fees

Registration and fee payment is available within the [grower's online tool](#). Additional information is found at [Crop Residue Burning](#).

Growers must register their fields before the proposed burn date. Registrations are accepted online, and growers must submit a signed copy of the registration form as soon as possible. The regional office staff and CRB Smoke Management Analyst are available to assist growers who do not have internet access or are having trouble navigating the online registration process. The following information is required for registration:

- Location of the field(s) in the form of latitude and longitude and county (online registration supports mapping capabilities to fulfill the latitude and longitude requirement).
- Applicant information (and person conducting the burn, if not the same)—name, mailing address, email address, and contact phone number.
- Portable form of communication, such as the grower’s cell phone number.
- Plot plan showing the location of the field(s), property lines, and relative locations of residential, public, and commercial properties and public roads (online registration supports mapping capabilities to fulfill the plot plan requirement).
- Type of crop residue, acreage, and fuel characteristics.
- Fire prevention measures.
- Proposed date when grower is anticipating being ready to burn residue.

Any additional information that would be helpful to DEQ when making a burn decision should also be included on the registration form. This information may include special topographical features (e.g., canyon rims), special conditions (e.g., specific wind direction needed, prior burn knowledge), and any known ISPs.

CRB field burn fees will be invoiced and mailed out the first workweek of January each year. Growers may pay fees online, by mail, or by hand delivery to the State Office or the nearest DEQ regional office. Send signed the registration and fee to the State Office at:

Idaho Department of Environmental Quality
CRB Program
1410 N. Hilton St.
Boise, ID 83706-1255

Fees received must be processed by DEQ’s fiscal office and may take up to 10 business days to be applied to the grower’s account.

2.1.2 Grower Training

Growers must successfully complete a CRB training session provided by DEQ or complete the online CRB training before being approved to burn crop residue, burn spots and bales, or conduct propane flaming. Refresher training must be completed at least every 5 years. Training covers the following topics:

- Air quality protection and smoke management
- Open burning rules and CRB rules
- Grower responsibilities and requirements
- DEQ responsibilities and requirements
- Ignition and burning techniques for good smoke management
- Weather conditions and how it relates to smoke management considerations

The training is offered periodically through the regional offices based upon demand and online at [Crop Residue Burning in Idaho Grower Training](#).

2.1.3 Notification of “Ready to Burn”

When a grower is ready to burn a registered field, notify DEQ either online or by phone so the field can be listed as “ready to burn.” Once the grower has notified DEQ that they are ready to burn (preferably 2–3 days before the field is ready), the field will be placed on the ready-to-burn list for burn approvals. The CRB online application will not allow a field to be placed on the ready-to-burn list if the grower or burn manager does not have a valid CRB training date. The ready-to-burn list will be managed by regional office staff so that only growers who are truly ready to burn are on the list.

2.1.4 Burn Day Activities for Growers

Since DEQ must operate the CRB program to protect public health and the environment, growers must remain as flexible as possible to have the greatest opportunity to burn their fields. DEQ will attempt to find appropriate burn days for all fields that growers desire to burn; however, instances will occur when the requests to burn exceed the smoke-carrying capacity of the atmosphere, or a specific field may require an uncommon wind direction to be safely burned within the confines of the rules.

DEQ will attempt to provide growers with as much notice of pending burn approval as possible. DEQ normally makes the final burn decision and specific burn approvals between 9:00 a.m. and 11:00 a.m. on the day of the burn. Growers should expect DEQ Seasonal Smoke Specialists to be in regular contact with them to ensure coordination and availability are optimum.

The Seasonal Smoke Specialist will notify the grower of the final approval the morning of the burn. When DEQ has given final burn approval for a field, the grower will be contacted before 11:00 a.m. If the grower is ready to conduct the burn, the Seasonal Smoke Specialist will issue the permit, which contains the field-specific permit requirements, and add additional permit requirements (if any) during the final burn approval. If the grower cannot conduct the burn that day, they should tell the Seasonal Smoke Specialist as soon as possible so the field can be placed back on the ready-to-burn list, if desired. Regular contact with the Seasonal Smoke Specialists will help to ensure availability to burn is known well in advance to optimize program efficiencies.

During the morning notification, the Seasonal Smoke Specialist will ask the permittee if they understand all the listed permit conditions, highlighting any specific conditions such as verbal/written approval or time in which smoke must no longer be emitted. The final notifications of burn approval will be posted on DEQ’s website along with any additional permit requirements under which the burn is approved.

The grower is required to abide by all permit requirements and may be subject to an enforcement action for failure to comply with any applicable statute, rule, or permit requirement. Section 3.8 provides information on how DEQ addresses compliance and enforcement. The grower may be required, as part of the burn approval, to conduct a test burn before additional acres are approved to be burned. **DEQ staff must be present at all test burns to evaluate smoke dispersion.**

During the burn, the grower must be reachable via cell phone or another predetermined form of portable communication. The grower is responsible for shutting down burns when required to do so by the Seasonal Smoke Specialist. If DEQ determines that the burn is having, or will have, an adverse impact on ISPs, DEQ may require the grower to stop ignition immediately, so the fire burns down. More fuel cannot be added or ignited when a stop ignition requirement has been communicated.

2.2 Grower Requirements for Spot and Bale Burning

The spot and baled agricultural residue burn permit (spot and bale burn permit) can be used to burn small areas of residue or weeds or equivalent piled or baled residue under the following conditions:

- No more than 1 acre of spots and/or equivalent piled or baled agricultural residue may be burned per day. For this permit, 2 tons of piled or baled agricultural residue is equivalent to 1 acre of spots.
 - A spot or pile burn may include weed patches, spots of heavy residue, equipment plugs or dumps, pivot corners, and very small pastures but does not include the open burning of wind rows.
 - Baled agricultural residue may be burned to dispose of broken, mildewed, diseased, or otherwise pest-ridden bales still in the field where they were generated. Once a bale has been removed from the field, it cannot be returned to the field and then burned. If the grower has a significant disease or pest problem that cannot be addressed under the spot and bale rule limitations, the grower could consider burning under “Infectious Waste Burning” (IDAPA 58.01.01.616).
- No more than 10 acres of spots and/or equivalent piled or baled agricultural residue may be burned per calendar year, per permit.
- Burning under the spot and bale burn permit is only be allowed on DEQ-designated burn days for the county where the field is located and within the designated burn window. Spot and bale burns cannot smolder and generate smoke outside of the designated burn window. See [DEQ’s Burn Decisions](#).
- Burning under a spot and bale burn permit may be allowed on weekdays, weekends, and holidays.
- All burning must be conducted in accordance with the permit issued by DEQ. The permit includes general requirements that apply to all burning conducted under the spot and bale burn permit and field-specific requirements due to location (e.g., proximity to a school).
- The permittee must record the date, time frame, type of burn, type of crop, and amount burned on the date of the burn. Records must be retained for 2 years and made available to DEQ upon request. DEQ provides an online recordkeeping program within the grower’s account.
- A spot and bale burn permit is valid for the calendar year. All permits issued in a given calendar year expire on December 31 of that calendar year.

- The permittee must attend a CRB training session provided by DEQ that is offered periodically through the regional offices or online at [Crop Residue Burning in Idaho Grower Training](#).

2.2.1 Spot and Baled Agriculture Residue Burn Permit Registration and Fees

Registration and fee payment is available with the [grower's online tool](#). Additional permit and grower information is found at [Crop Residue Burning](#).

Submit a registration using DEQ-supplied forms to DEQ at least 14 days before the first desired burn date of the calendar year. The registration must include the following information:

- The location of each field where the grower wants to conduct a spot or bale burn.
- The applicant's name, mailing address, telephone number, and cell phone number or other form of portable communication.

Pay a nonrefundable permit fee of \$20 to DEQ at least 14 days before the first desired burn date of the calendar year. Growers may pay fees online, by mail, or by hand delivery to the State Office or the nearest DEQ regional office. Send the signed registration and fee to the State Office (see section 2.1.1). All fees received must be processed by DEQ's fiscal office and may take up to 10 business days to be applied to the grower's account.

2.3 Grower Requirements for Propane Flaming

The propane flaming permit only applies to very specific activities. Propane flaming is the brief use of flame-generating equipment to apply flame and/or heat to the topsoil of a cultivated field of preemerged or plowed-under crop residue with less than 550 pounds of burnable, nongreen residue per acre. Propane flaming is allowed to control diseases, insects, pests, and weed emergence and must be conducted on the field where the residue was generated.

Unlike other types of DEQ-regulated crop residue burning, propane flaming, as defined above, does not require growers to register fields or pay a fee. Instead, growers have a permit by rule if they comply with the following requirements (IDAPA 58.01.01.624.04 and 624.05):

- The permittee must ensure that adequate measures are taken so the burn does not create a hazard for travel on a public roadway.
- Propane flaming is only be allowed on DEQ-designated burn days for the county where the field is located and within the designated burn window. Burns cannot smolder and generate smoke outside of the designated burn window. See [DEQ's Burn Decisions](#).
- Burning conducted under a propane flaming permit may be allowed on weekdays, weekends, and holidays.
- The permittee must record the date, time frame, type of burn, crop type, and amount burned on the date of the burn. Records must be retained for 2 years and made available to DEQ upon request.
- The person conducting the burning must carry a portable form of communication such as a cell phone to receive information necessary to protect air quality.
- The permittee must attend the DEQ's [Crop Residue Burning in Idaho Grower Training](#).

- All persons intending to conduct propane flaming must obtain any additional permits from federal, state, or local fire control authorities before burning. DEQ's spot and bale burning web application assists growers with obtaining Idaho Department of Lands burn permits.

Propane Flaming Burning Restrictions

- Burning is not allowed if the proposed burn location is within 3 miles of an ISP, and the surface wind speed is greater than 12 mph, or if the smoke is adversely impacting or expected to adversely impact an ISP.
- All open burning, including propane flaming, is prohibited when DEQ issues an air quality emergency episode notice as defined by IDAPA 58.01.01.552.
- Tires and other restricted materials described in IDAPA 58.01.01.603 are not allowed for ignition in fields.

3 DEQ Program Guidelines

3.1 DEQ Processing of Registrations

The CRB Smoke Management Analyst will review the registration information submitted to determine whether it is accurate and complete. If additional information is needed, the CRB Smoke Management Analyst will contact the grower or request regional office staff to make contact to obtain the necessary information.

The CRB Smoke Management Analyst will review the registrations to develop the initial permit requirements in accordance with applicable rules and procedures. The CRB database identifies ISPs located within 3 miles of each field, as well as other special features, such as populated areas, public roads, and airfields. DEQ may also choose to include ISPs or other features that are farther than 3 miles from the field if the CRB Smoke Management Analyst, with consultation from the regional office, deems this an appropriate consideration. This decision may be made for large fields, types of crop residue that generate heavy smoke, growers that have not demonstrated good burning practices in the past or are new to the program, areas with specific terrain or microclimates, or DEQ experiences that may require a higher level of protection for ISPs. DEQ will add permit requirements that are based on the field location. These requirements are not expected to change from year to year. These field-specific permit requirements will remain attached to the field and will be applied every time the field is burned. The CRB Smoke Management Analyst will revise the permit conditions as needed.

Once the CRB Smoke Management Analyst has reviewed the registration, they will send the "Registration Receipt and Initial Permit Requirements" document and cover letter to the grower via email or postal service. This document verifies with the grower that the information submitted is complete, the registration has been accepted by DEQ, and the registration requirements have been met. This document will also include the general permit conditions that apply to all crop residue burning, the field-specific requirements added by the CRB Smoke

Management Analyst, and a map of the field in relation to nearby ISPs. The regional office and Seasonal Smoke Specialist for the appropriate region will be notified that the registration has been approved and instructed to contact the grower before the requested burn date.

The “Registration Receipt and Initial Permit Requirements” document is NOT a final approval to burn.

3.2 Burn Decisions Criteria

DEQ considers several parameters and associated factors to make a sound decision about whether to allow the burning of each individual field. Generally, no single parameter should be the basis for the burn decision, but a combination of parameters allows DEQ to ensure the best possible conditions for smoke management. Even when air quality monitoring data remain in the good range, meteorological forecasts or observed weather conditions may be such that burning cannot be allowed due to poor dispersion characteristics. Conversely, air quality may be in the moderate category, and meteorological forecasts or observed weather and fuel conditions may be such that limited burning can be allowed.

The CRB Smoke Management Analyst is responsible for making the preliminary and final burn decisions for each county. Burn decisions are based on a review of current weather observations and forecast meteorology, air quality conditions, fuel and soil moisture levels, other sources of smoke emissions, and burn recommendations provided by DEQ meteorologists. The burn decision process during the fall burn season includes a daily coordination call for both northern and southern Idaho. During the daily coordination calls, the Seasonal Smoke Specialists and regional office staff should assist the CRB Smoke Management Analyst by providing input based upon local knowledge and experience and their interactions with growers. The DEQ meteorologists and CRB Smoke Management Analyst will, in return, provide insight for the Seasonal Smoke Specialists and regional office staff to consider while approving burns if a burn day is declared. Seasonal Smoke Specialists should remain in touch with growers to understand which growers are truly ready to burn and to relay burn approvals to the growers in a timely manner. Figure 1 shows this burn decision process in a flowchart.

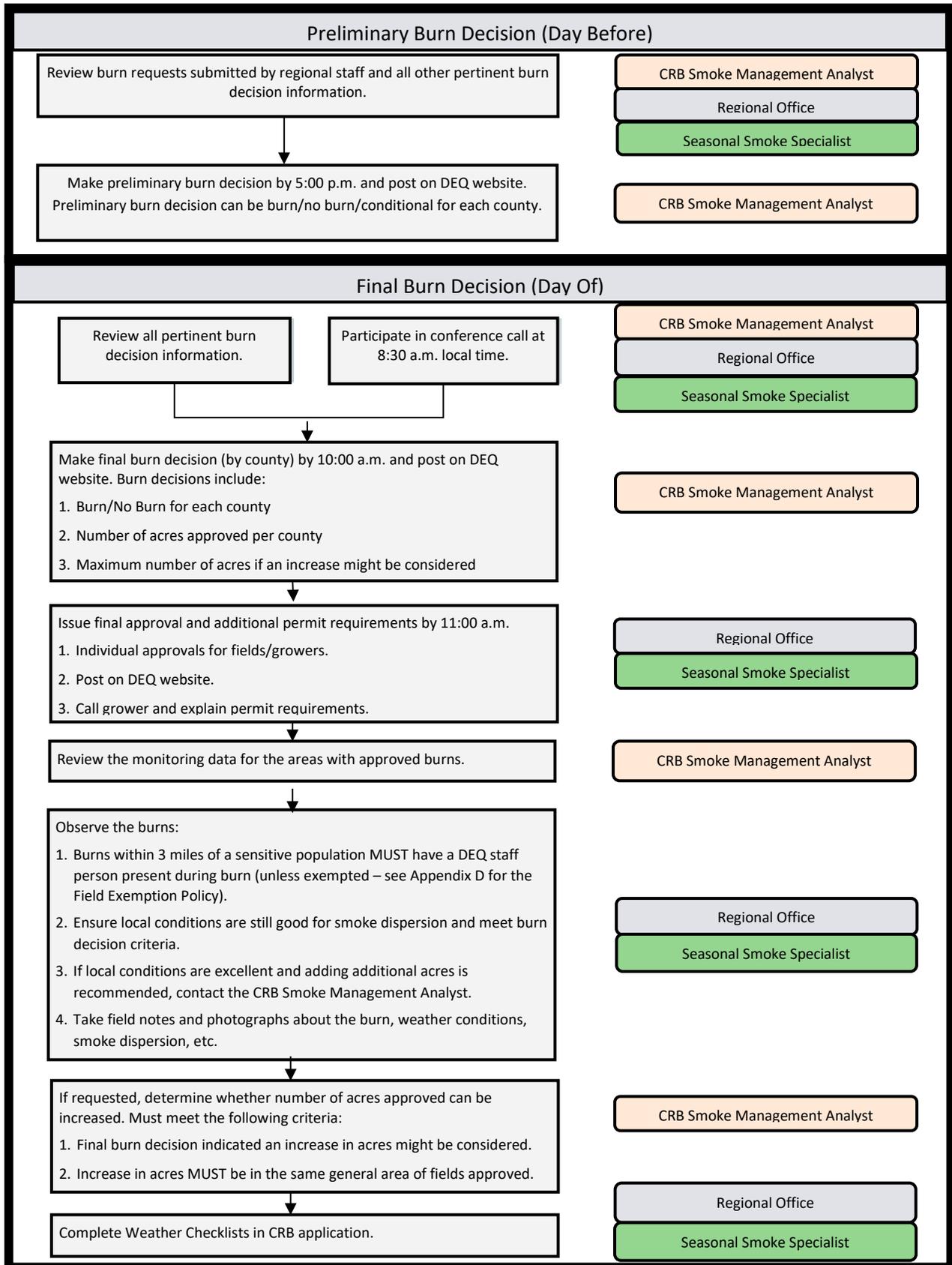


Figure 1. Burn decision process.

The preliminary burn decision is issued the day before the burn. For a Monday burn day, the preliminary burn decision is made on the prior Friday. Preliminary burn decisions may consist of a burn, no burn, or conditional burn decision. A conditional burn decision may be issued when the forecast does not clearly indicate either a burn or no burn determination. A preliminary burn decision of no burn may not be reevaluated during the final burn decision—the final burn decision must remain as no burn. **Therefore, a preliminary no burn decision should only be issued when the CRB Smoke Management Analyst is confident that the following day will be unsuitable for burning and/or no requests to burn are expected.**

Final burn decisions may consist of a determination of burn or no burn and must include the number of approvable acres for each county. Final burn decisions should also include other pertinent information such as the approved burn window, whether metered burning will be occurring or test-burns are to be conducted, and if additional acreage may be approved pending satisfactory results from the initial acreage or test burns.

Test burns are used to assess the dispersion conditions in a specific area with similar ventilation or dispersion conditions, especially near difficult areas such as canyon rims or towns or during periods of limited or uncertain dispersion. **Test burns should not normally be conducted at fields located within 3 miles of ISPs. Use caution with any test burns that are within 3 miles of an ISP.** Test burns should be large enough to obtain a good assessment of the dispersion conditions representative of an area but not so large that adverse impacts become likely if conditions are worse than expected. Test burns should generally be approximately 40–80 acres. Test burns must be observed by DEQ staff. If test burns yield good dispersion, additional burning may be approved for the area that the test burn represents.

Metering is used when dispersion conditions are limited. Metering allows the field staff to hold off on approving additional acreage when the airshed becomes overloaded with smoke. Metering occurs by including a permit condition that allows the grower to burn only after verbal or written (text or email) approval by DEQ (usually field staff) based on observed dispersion conditions from earlier approved burns. The goal is to avoid overburdening the airshed. Metering can be applied to all or some of the permits in a specific area.

3.2.1 Smoke Management Areas

To address the diverse topography, climate, soils, and crops throughout the state, DEQ has developed smoke management areas (SMAs) that divide the state into more manageable units. Figure 2 shows the SMAs and county boundaries. These SMAs are often further refined by forecast zones to accommodate terrain or field staff assignments to improve program efficacy.

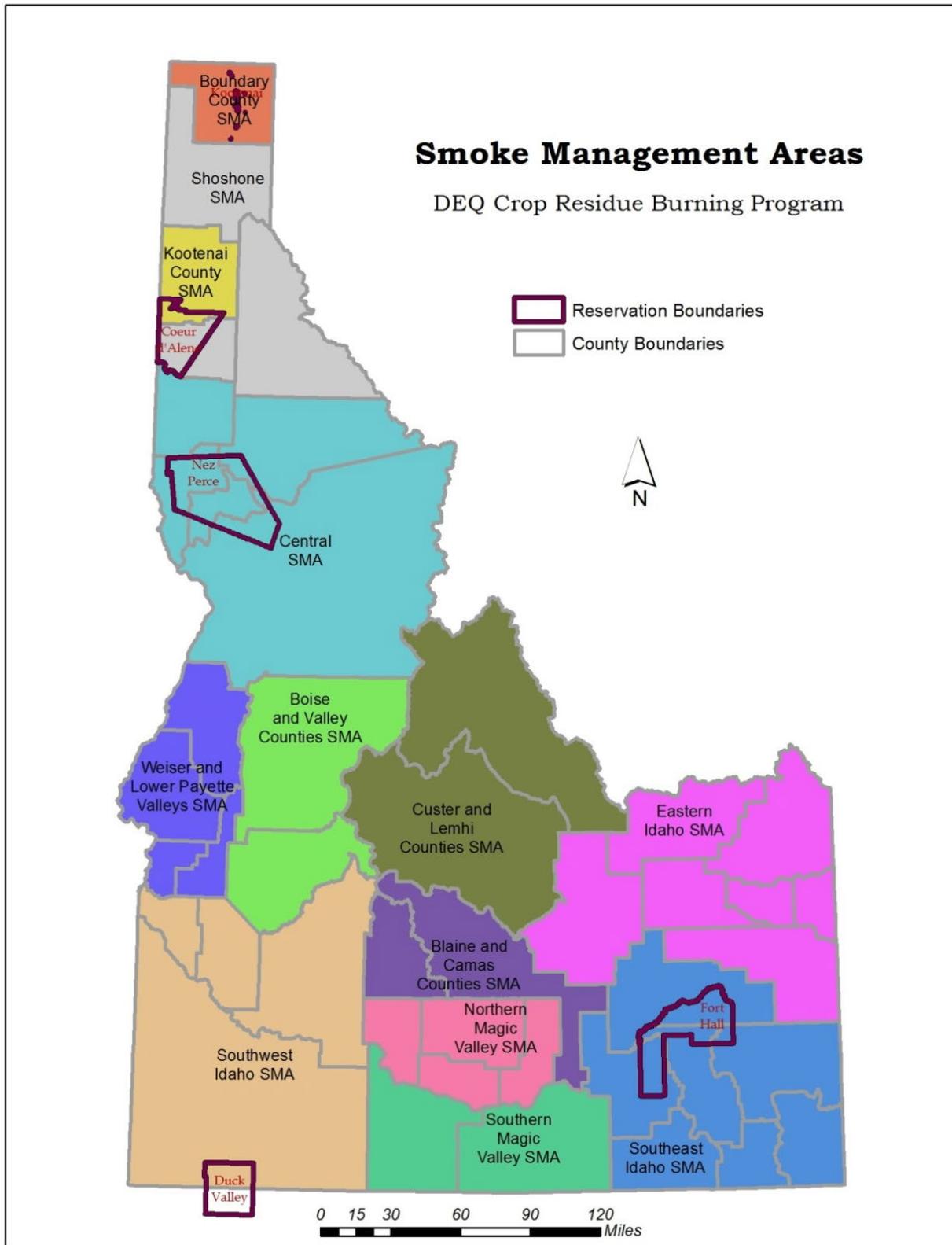


Figure 2. Smoke management areas.

3.2.2 Air Quality Criteria

To approve a request to burn, DEQ must determine that ambient air quality levels meet the criteria outlined in section 1.1.1.

The pollutants of concern for crop residue burning are particulate matter less than 2.5 microns in diameter or less than 10 microns in diameter (PM_{2.5} and PM₁₀, respectively) and ozone. If applicable monitoring data are not available, visibility may be considered as a component of the burn decision process. To protect the NAAQS, if visibility is deteriorated and expected to remain so throughout the day, a no burn decision can be made. When considering burn decisions influenced by visibility, it is important to note that the combination of water and particulate matter in the atmosphere dramatically reduces visibility, which can lead to inaccurate conclusions about particulate matter concentrations. Be cautious when using visibility criteria as part of a no burn decision when relative humidity is greater than 65% and discuss visibility observations with the CRB Smoke Management Analyst or meteorologist.

3.2.3 Meteorological Conditions

Table 1 lists the meteorological parameters that DEQ reviews and evaluates when making a burn decision. The goal is to ensure good smoke management (i.e., smoke that rises from the ground and remains aloft, disperses within the mixing layer, and drifts away from populated areas and ISPs with the transport winds). The information in Table 1 is intended for guidance only in identifying no burn days and conditional burn days (when a limited number of acres may be approved).

The information needed to evaluate these parameters may be obtained from a combination of several sources, including weather forecasts and summaries of current conditions.

Table 1. Burn decision meteorological parameters.

Parameter	Burn Day	Conditional Burn Day	No Burn Day
Ventilation	“Good” to “Excellent” ventilation is preferred; however, if ventilation is “Good” or “Excellent,” check to ensure surface wind speeds are <12 miles per hour (mph).	“Good” to “Excellent” ventilation may be unacceptable if surface winds are >12 mph. Burning under “Limited” ventilation may be acceptable only if other criteria are met and burning proceeds with caution. “Poor” ventilation should be avoided unless there is good vertical convection with enough fuel and/or wind to carry the fire and good transport winds aloft.	“Poor” ventilation should be avoided.
Cloud cover	Mostly sunny to partly cloudy is typically best.	Clear bright skies may indicate a high-pressure system with stagnant conditions. Ensure other criteria are met if this is the case. Cloudy conditions may be acceptable if clouds are high, and all other criteria are met.	Mostly cloudy conditions with low clouds should be avoided.
Surface wind speed (sustained)	Moderate winds, 3 to 8 mph are preferred.	Calm or near calm winds should be avoided. Light winds <3 mph generally are insufficient to carry the fire. However, sunshine and abundant/dry fuel, especially on a hill, may result in good rise for lighter winds <3 mph. Winds 8–12 mph may be ok if there is strong sunshine to maximize vertical convection, but proceed with caution.	Burning is not allowed at fields located within 3 miles of an ISP when wind speeds exceed 12 mph. Winds >12 mph should be avoided even in remote areas for fire safety reasons.
Surface wind direction	Avoid institutions with sensitive populations, populated areas, and nearby public roadways, etc. If possible, also avoid large bodies of water and large canyons/valleys. Be aware of typical wind shifting patterns in an area and atypical forecast wind shifts.	N/A	It is critical to avoid cities and institutions with sensitive populations.
Transport wind speed (at 850 millibar level or about 5,000 feet AGL)	7–20 mph is preferred.	Use caution with transport winds that are <7 mph or >20 mph.	Upwind of cities and institutions with sensitive populations, transport winds >20 mph should be avoided.

Parameter	Burn Day	Conditional Burn Day	No Burn Day
Transport wind direction	Avoid institutions with sensitive populations, populated areas, and nearby public roadways, airports, etc.	Avoid transport winds taking smoke towards cities and institutions with sensitive populations unless ventilation is “Good” to “Excellent.”	It is most critical to avoid cities and institutions with sensitive populations at all times.
Mixing height	Greater than 5,000 feet above ground level is desired.	With mixing heights of 1,000–5,000 feet, caution should be used. If transport winds will transport smoke over large bodies of water and large canyons/valleys, avoid burning if mixing height is less than 5,000 feet.	Avoid burning if the mixing height is <1,000 feet above ground level.
Relative humidity	15%–45% relative humidity is the ideal range.	Relative humidity <15% is acceptable if fire control/safety concerns with surrounding fuels are low. Relative humidity between 45% and 60% may inhibit plume rise and smoke dispersion. For bluegrass, relative humidity >30% may inhibit plume rise and smoke dispersion.	Relative humidity >60% should be avoided as it may inhibit smoke dispersion and may leave unburned materials.
Inversion conditions There are two types of inversions (radiation and subsidence), and they should both generally be avoided.	Typically, burns should occur after 10:00 a.m. and be completed before 5:00 p.m. to avoid trapping the smoke in mountain valleys by radiation inversions. Weather forecasts and hourly ventilation indices will dictate these start and stop times	Radiation Inversion—This is a surface-based inversion that exists on most mornings and evenings, particularly when daytime heating is strong. Burning should not be permitted before the inversion has mixed out unless transport conditions after breakup would best protect population centers and burning during an inversion does not cause adverse impacts. A sufficient amount of time should be allowed at the end of the burn day for any residual smoke to disperse before a radiation inversion returns.	Subsidence Inversion—When a strong high-pressure system is present with clear skies, hot air subsides, causing stable air and poor dispersion. This condition is easy to forecast, and a no burn day should be called when a strong high-pressure system is over the region.

Burning when a subsidence inversion is present should only be approved after careful consideration. For radiation inversions, burning should generally not be permitted before an inversion has mixed out. Occasionally, the Seasonal Smoke Specialist, under the close guidance of the CRB Smoke Management Analyst and DEQ meteorologists, may allow ignition before the inversion mixing out to promote optimum transport after mix-out and ensure protection of populated areas.

For example, north of Grangeville, afternoon transport winds typically carry smoke from burns on the Camas Prairie in a southerly direction, which poses a significant risk of adversely impacting Grangeville. However, the transport winds immediately following the morning inversion mix-out typically blow to the east. Because of this tendency, a burn may be approved to start in the morning so that smoke would rise to the inversion layer where it would remain until the inversion mixed out. The initial transport of the smoke would then be to the east, followed sometime later by a shift to the south. Having already drifted some distance to the east, smoke movement to the south would not impact Grangeville. Other early burn windows exist throughout the state.

Care must be taken when using this technique to determine that the mixing height prior to the inversion mix-out is adequate to hold the smoke generated from the burn without causing an adverse impact.

This practice should be used only after conducting sufficient evaluation to understand local wind patterns and temperature profiles to ensure the expected result. A Seasonal Smoke Specialist wishing to use this practice must first work with the CRB Smoke Management Analyst and meteorologists to conduct the necessary evaluation and documentation.

3.2.4 Other Relevant Factors

The following are additional factors that should be considered when making a burn decision:

- **Burning method**—Burning method includes both the ignition method (e.g., matches or lighters, propane torches, modified harrow rakes, or diesel burners), the number of ignitors on the field, and the pattern of lighting. Generally, hotter fires will result in less smoke production and better smoke lift.
- **Fuel type, size, and arrangement**—These characteristics also affect smoke emissions. Generally, denser fuel results in more smoke production. Fuel density can change by crop type and variety (e.g., wheat stubble is typically less dense than bluegrass residue and certain wheat or bluegrass varieties can be denser than others).
- **Fuel loading**—This is the amount of residue that is available to be burned per acre. Generally, greater fuel loading equates to more smoke.
- **Fuel moisture**—Fuel moisture content depends upon fuel type, recent precipitation, and relative humidity. To promote a hot burn and good plume rise, the fuel moisture should be as low as possible throughout the residue layer. Generally, higher fuel moisture levels will result in more smoke and reduced plume rise.

- **Soil moisture**—Moisture from the soil will cool the smoke and result in a reduced plume rise.
- **Red Flag Warnings**—DEQ will not approve burns during a National Weather Service (NWS)-issued Red Flag Warning. If burning is approved to take place before a warning takes effect, caution must be used, and all burns must be extinguished before the warning takes effect.

3.3 Making a Burn Decision

The CRB Smoke Management Analyst makes preliminary and final burn decisions (i.e., burn/no burn/conditional burn day) for each county. The number of approved acres must also be included for final burn decisions. The CRB Smoke Management Analyst's burn decision responsibilities are outlined in Appendix A.

3.4 Field Approval Process

The Seasonal Smoke Specialists, with assistance from the CRB Smoke Management Analyst and the Regional Office Analyst, will determine which fields to approve for burning. Seasonal Smoke Specialists and Regional Office Analysts field approval responsibilities are outlined in Appendix B and Appendix C. The field approval must be consistent with the burn decision and is highly dependent on grower availability.

The field approval process is based on which fields are appropriate to burn with the forecast conditions. After all other factors have been evaluated, the length of time a field has been registered should be considered a factor in the approval decision. Care should be taken to avoid overloading an airshed with smoke from too many approved burns in the same airshed or additional burning activity from other sources that will contribute to a buildup. Safeguards are in place, such as the coordination call and in-field observations, to help ensure an airshed is not overloaded. Use of the metering process that includes a verbal or written (text or email) approval requirement in the permit before ignition will also protect the airshed. To implement this safeguard, smoke specialists or regional staff must be in the field observing burn activity during burn days.

The following factors should also be considered when determining which fields to approve for a given burn day:

- **Burning near canyon rims**—These burns should only be conducted when both surface and transport winds are blowing away from the canyon.
- **Burning near large bodies of water**—These burns should only be conducted when both the surface and transport winds are blowing away from the water.
- **Favorable winds**—Some areas have predictable wind patterns, including predominant wind directions, wind shifts, and diurnal (daily) patterns. In these areas, burns may be timed to take advantage of such patterns, and priority for burn approval may be appropriate if these conditions are forecast.

- **Burn location relative to ISPs**—Most burning should be conducted so that surface and transport winds carry smoke away from ISPs. This restriction will usually be included in the initial permit conditions. Consideration should also be given to the hours of operation at the ISP (e.g., a school that may be out of session on a particular day). In these cases, priority for burn approval may be given to those fields that can be burned with no risk to the sensitive population.
- **Elevation and field aspect**—Elevation should be considered regarding the mixing height. An elevated field may be just below the top of the mixed layer, resulting in little room for the smoke plume to disperse within the layer.
- **Infestation issues**—Fields that need to be burned due to infestations should be considered for approval priority to minimize the threat of the infestation worsening or spreading. Discussions with the grower and local Idaho State Department of Agriculture representatives should occur in these instances.

3.5 Public Notification of Burn Approvals

DEQ will notify the public of approved burns by posting the following burn decision information on the website:

- Whether a given day is a burn or no burn day.
- The location and number of acres permitted to be burned.
- The location and amount of additional acres that may be added, if applicable, pending adequate results from test burns.
- Meteorological conditions and any other real-time ambient air quality monitoring data.

The public can receive burn decision information, provide a comment, or submit a complaint using DEQ's toll-free hotline at (800) 345-1007 or online at [DEQ's Burn Decisions](#). The hotline is shared with the Nez Perce Tribe and the Coeur d'Alene Tribe. DEQ also sends a listserv email to announce that a burn decision has been made. Additional notifications may be required in some regions to address specific local conditions. For example, DEQ's Coeur d'Alene Regional Office must contact the Kootenai Tribe directly to notify them of burn approvals in the Kootenai River Valley of the Boundary County SMA. DEQ implements the CRB program for growers burning inside reservation and allotment lands of the Kootenai Tribe in accordance with the memorandum of understanding (EDMS 2008AAD54).

3.6 Field Observations

Seasonal Smoke Specialists should be in the field observing burns on all days when burning is approved in their SMAs, and all burns within 3 miles of an ISP must be observed unless an exemption has been requested and approved. Appendix B provides details on field observation activity. Whenever a field located within 3 miles of an ISP is approved to be burned without DEQ observation, DEQ must contact the ISP before ignition with the date, time, and location of the burn and contact information for the appropriate DEQ regional office and the CRB Smoke Management Analyst. As a critical part of DEQ's surveillance effort, Seasonal Smoke Specialists are also expected to periodically make field observations on days when no burn approvals are

issued, but conditions may seem conducive to potential unapproved CRB activity. Opportunities for outreach and education can occur during these observational periods.

Appendix D provides the field observation exemption criteria.

3.7 Enhanced Documentation

DEQ established procedures to ensure the provisions of IDAPA 58.01.01.621 and the SIP are met. Section 1.1.1 provides specific IDAPA 58.01.01.621 criteria. The pollutant concentration thresholds that trigger preburn and postburn enhanced documentation are shown in Table 2. Additional details on enhanced documentation are found in Appendix E.

The purpose of enhanced documentation is fourfold: (1) provide additional documentation of the burn approval decision-making process when air pollution monitoring levels exceed threshold levels before the start of a burn (preburn enhanced documentation); (2) document events surrounding elevated air quality concentrations measured after the start of a burn (postburn enhanced documentation) if the approved burn was deemed to have potentially caused or contributed to the measured concentration or possible adverse impacts or public roadway safety hazards; (3) evaluate the success of a burn that may help to enhance program implementation, and (4) establish additional field-specific permit conditions when appropriate.

Table 2. Enhanced documentation trigger levels for PM_{2.5} and ozone.

Averaging Period and Pollutant	Preburn Level	Postburn Level
1-hour PM _{2.5}	N/A	64 µg/m ³
4-hour PM _{2.5}	22 µg/m ³	32 µg/m ³
24-hour PM _{2.5}	16 µg/m ³ (Air Quality Index = 59)	26 µg/m ³ (Air Quality Index = 80)
8-hour ozone	N/A	63 ppb (Air Quality Index = 77)

Note: µg/m³ = micrograms per cubic meter; ppb = parts per billion

3.8 Complaint Response, Compliance, and Enforcement

The regional offices are responsible for responding to all CRB complaints, investigate all apparent CRB violations, and refer apparent violations to the State Office for formal enforcement consideration, when appropriate. The CRB Smoke Management Analyst will be consulted about suitable enforcement responses to help maintain consistency throughout the state. The CRB Smoke Management Analyst is available to assist in the documentation process when needed. Appendix F provides information about determining compliance with permit conditions. DEQ receives complaints through the toll-free hotline, DEQ's web submittal process, or directly to regional offices by phone or in-person contact.

To maintain consistency in all regions and ensure compliance with the applicable state rules, regional office staff address all CRB complaints in the following manner:

- Respond to all CRB complaints as soon as practicable; ideally, this should be the same day as the complaint is received. Complaint must be addressed no later than the next business day after it is received.
- Log all CRB-related complaints into the DEQ complaint tracking system, including complaints received through the toll-free hotline, in-person contact, or website. Documenting all complaints about CRB activity, whether these complaints are directly attributed to CRB activity or ultimately proven not a CRB impact, is critical to understanding smoke behavior, public perception, or needed outreach.
- Document, as appropriate, information pertaining to the complaint, including law enforcement or fire agency reports, physical evidence, photos, Global Positioning System locations, field descriptions, or statements.
 - All specific complaint allegations must be addressed with data pertinent to the complaint. For example, when a complainant states burning occurred after the approved burn window, the complaint response must address the allegation directly by providing findings specifically addressing timing of burn activity. Information might come directly from in-field observations by Seasonal Smoke Specialists, web cam images, or from a subsequent interview of the grower if no other evidence is available.
 - A determination of compliance, if possible, must be provided. For example, if the complainant states smoke crossed the county border and impacted their residence, the response must include the field observations compiled during the day. This observation could support the complaint or may serve to dismiss the complaint.
- When an apparent CRB violation is observed, the regional office should identify, verify, and secure the information and evidence necessary to support enforcement activities. The regional office staff should consult with the CRB Smoke Management Analyst immediately when violations occur to help determine the appropriate enforcement action for the violation. Enforcement guidance and procedures are found in the policy, *Air Quality Guidelines and Procedures for Issuing Notices of Violation*, July 2021.
- The CRB Smoke Management Analyst will track completeness and direct regional staff if a complaint response has not been addressed within 2 days of receiving the complaint.
- The complaint response must conform to DEQ's compliance program requirements.

Appendix A. Standard Operating Procedures for CRB Smoke Management Analyst

The CRB Smoke Management Analyst implements all aspects of the CRB program and is expected to know all the roles and facets of the operating guide and appendices.

General Tasks

- Review and process registration forms.
- Support CRB program enforcement activities. Serve as the main point of contact for the CRB program with the air quality enforcement program.
- Compile data and complete the annual report.
- Provide support to regional offices.
- Keep the Smoke Management Supervisor informed of issues as necessary.
- Assist with outreach activities.
- Develop, propose, and promote program improvements to Smoke Management Supervisor.
- Develop annual training for CRB staff.

Daily Burn Decision Tasks—Day Before Burn

1. Review current monitor readings and trends for particulate matter and ozone within the SMA. Compare current readings to the regulations (i.e., 90% of the ozone NAAQS, 75% of any other NAAQS, and 80% of the 1-hour trigger for particulate matter).
 - 64 $\mu\text{g}/\text{m}^3$ for $\text{PM}_{2.5}$ (1-hour average)
 - 26 $\mu\text{g}/\text{m}^3$ for $\text{PM}_{2.5}$ (24-hour average)
 - 112 $\mu\text{g}/\text{m}^3$ for PM_{10} (24-hour average)
 - 63 parts per billion (ppb) for ozone (8-hour average)

Note: A no burn decision may be made at this point and the following steps will not be needed.

2. Briefly review meteorological forecast models, tools, and real-time data.
3. Review wildland fire and prescribed burn information.
4. Make preliminary burn decision (burn/no burn/conditional) for each county based on the information and tools reviewed.

Daily Burn Decision Tasks—Day of Burn

1. Review the preliminary burn decision. If it was no burn, no further action is needed.
2. Review current $\text{PM}_{2.5}$ and ozone monitor readings and trends within the SMA for the following data.
 - Current 1-hour, 4-hour, and 24-hour average $\text{PM}_{2.5}$ concentrations
 - Current 1-hour and forecast 8-hour ozone concentration

3. Compare monitoring data to trigger levels for enhanced documentation. Notify the Seasonal Smoke Specialists and/or regional office when trigger levels for enhanced documentation have been reached.
4. Compare data to the regulations (i.e., 90% of the ozone NAAQS, 75% of any other NAAQS, and 80% of the 1-hour trigger level for particulate matter).
 - 64 $\mu\text{g}/\text{m}^3$ for $\text{PM}_{2.5}$ (1-hour average)
 - 26 $\mu\text{g}/\text{m}^3$ for $\text{PM}_{2.5}$ (24-hour average)
 - 112 $\mu\text{g}/\text{m}^3$ for PM_{10} (24-hour average)
 - 63 ppb for ozone (8-hour average)

Note: A no burn decision may be made at this point and the following steps will not be needed.

5. Review meteorological forecast and coordinate with the DEQ meteorologist for real-time data in accordance with DEQ's CRB burn decision standard operating procedure.
6. Review wildland fire and prescribed burn information.
7. Review the ready-to-burn fields, noting field locations and size for each SMA.
8. Review the smoke dispersion forecast from the meteorologists (available by 8:00 a.m.) during the fall burn season or the NWS forecast if the meteorologists' forecast is unavailable.
9. Submit proposed burn decision. An email will be sent to recipients on the distribution list upon submission.
10. Host daily coordination calls with the meteorologists, regional office staff, Seasonal Smoke Specialists, and other smoke managers at 8:30 a.m. local time.
11. Make the final burn decision for each county (burn/no burn and number of acres) based on review of information and consultation with regional office staff by 10:00 a.m. local time.
12. Throughout the burn day, monitor the air quality and coordinate with DEQ meteorologists for real-time conditions. If air quality and/or meteorological conditions result in the burn decision being changed during the day, proper documentation should be maintained to support decisions to increase or decrease the acres to be burned. An increase in acres during the burn day is only allowed if it was noted in the final burn decision. If the burn decision changes, coordinate with the regional office staff to document the change as follows:
 - Thoroughly document the reasons and conditions supporting the change.
 - Ensure all applicable staff is updated.
 - Continue to monitor air quality conditions.

Appendix B. Standard Operating Procedures for CRB Seasonal Smoke Specialists

Seasonal Smoke Specialists are expected to understand section 3 of the *Crop Residue Burning Program operating guide* and be familiar with sections 1 and 2 to effectively and efficiently implement their CRB program responsibilities.

General Tasks

- Attend the preseason training session. Note: Staff must not carry out Seasonal Smoke Specialists duties independently without completing training.
- Serve as primary point of contact for assigned growers during the burn season.
- Assist the Regional Office Analyst with complaint response, enforcement activities, investigation of apparent violations, and development of enforcement referral packages as directed. Seasonal Smoke Specialists may be requested to assist with compliance and enforcement, the primary duties are coordinating program-related burning (section 3.8 provides complaint response and enforcement activities).
- Assist with outreach efforts and grower training as directed. This effort will likely occur early in the season when more flexibility in weekly scheduling is available.

Daily Burn Day Tasks—Day Before Burn

1. Provide input on the preliminary burn decision if needed.
2. Review and maintain the ready-to-burn list and plan the following day. Communicate directly with growers to secure reasonable assurance for the next day's planning.

Daily Burn Day Tasks—Day of Burn

1. Review the ready-to-burn list. Growers must have fields on the ready-to-burn list before noon local time the day before they would like to burn. Have an idea about who may want to burn that day.
2. Check the pollutant data, visibility conditions, and be aware of fire safety issues.
3. Review the meteorologists' forecast (available by 8:00 a.m.) during the fall burn season or the NWS forecast discussion if the meteorologists' forecast is unavailable.
4. Based on relevant weather and fuel factors, propose requested acres by county, in writing (text or email), to the CRB Smoke Management Analyst (by 8:30 a.m.). This notification can also be done the day before.
 - To ensure efficient coordination, include the Smoke Management Supervisor, regional air quality manager, and staff meteorologists in these communications.
 - Outside of the fall burn season, the CRB Smoke Management Analyst will respond to your burn request by 9:30 a.m. local time with the final burn decision. The final burn decision will include a brief air quality and weather discussion, burn window, and burn decision acres. Based on burn decision, determine what fields will be approved to burn. Approval priority is as follows:

- Favorable conditions exist for sensitive areas
 - Forecast conditions favor the unique/specific requirements for the area
 - Date of burn requests
5. Participate in daily CRB coordination calls (fall burn season). Be prepared to discuss who may want to burn that day and potential acreages. During the morning coordination call discussions, be prepared to give feedback about the previous day's forecast based on field observations of smoke behavior.
 6. Based on the burn decision, determine what fields will be approved to burn. Approval priority will be as follows:
 - Favorable conditions exist for sensitive areas (e.g., fields near towns, roads, and canyons) and ISPs.
 - The forecast conditions favor the unique or specific requirements of the area to be burned.
 - The earliest burn requests received from growers. Considerations on when fields are actually ready to burn should be included.
 7. Post the notifications of final approval and contact the approved growers to notify them of final approval. Seasonal Smoke Specialists must supply the grower with the following information:
 - Approved burn window or ignition time.
 - Approved burn locations or specific field.
 - Specific permit requirements (conditions) for the burn (e.g., expected wind direction or speed, any conditions necessary to protect ISPs, or potential for rain).
 - Other relevant information such as if final verbal/written approval is needed and ensuring smoke is no longer emitted after burn window ends.
 - Document communications with growers and all the burn approvals and denials.
 - Submit preburn enhanced documentation as needed before the start of the burn.
 - Verify regional burn information is correct on [DEQ's Burn Decisions](#) webpage.
 8. Print, download, or create weather checklists (field notes) for fields that you will observe. This step can be done on the previous afternoon or evening to expedite morning deployment.
 9. Attend ISP burns unless you have requested an exemption from the CRB Smoke Management Analyst or Regional Office Analyst, and an exemption has been granted by the CRB program staff. If ISP fields are not being burned that day, attend burns that are not sensitive in nature.
 10. Receive updated instructions for the day from the regional office. These instructions may include driving to the burn location to monitor burns, responding to complaints, or investigating illegal burns.
 11. When in the field, be aware of current atmospheric conditions that may affect burning (e.g., incoming storms or changes in temperature, humidity, wind speed and direction, cloud type, and visibility conditions) and the effects of the surrounding terrain. Record field

conditions and observations. Records must meet minimum requirements. Be aware of the weather checklist requirements.

12. If meteorological conditions in the field differ from the forecast, contact a staff meteorologist for an updated spot forecast. If conditions deteriorate, the Seasonal Smoke Specialist has the authority to require withholding of additional fuel to cause the fire to burn out and excluding additional burning for the day. Contact the growers if or when they are affected by deteriorated conditions.
13. The only time permit conditions might change is when an on-site Seasonal Smoke Specialist or Regional Office Analyst identifies permit conditions that are inaccurate due to an error during the registration process or because they are not representative of conditions in the field. In such instances, the field staff must contact the CRB Smoke Management Analyst to change the permit conditions and a corrected permit authorizing burning be reissued. If the CRB Smoke Management Analyst is unavailable, the burn must either proceed according to the existing permit conditions or not take place at all.
14. Remain in contact with growers throughout the day either by cell phone or in person. Acreage of burn may be increased (an increase must be in accordance with the acreage listed on the final burn decision) or decreased during the burn day, depending on improving or deteriorating conditions. The CRB Smoke Management Analyst or assigned designee has the authority to increase acreage. If acreage is increased, the Seasonal Smoke Specialist will be contacted with the necessary information.
15. Compile field notes within 1 week of observations and submit into the application at least monthly.
 - When adding multiple fields to the field notes and selecting print, there is a map, and specific burn restrictions for each field. There is only one section for field, weather, and smoke observations. Users can edit comments in the remarks section. PDFs, word documents, and Excel files can be uploaded.
 - Blank copies of field notes are available in the application. The template is found on the field notes page in the upper right-hand corner (the printer icon).
16. Track completion of postburn reports. Postburn reports should be completed within 24 hours. Staff should work with growers to complete postburn reports. If the grower fails to submit a postburn report, they risk losing priority for their next burn. The following additional information must be entered for the postburn report if postburn report is being completed by a DEQ staff member:
 - Number of acres burned.
 - Comments about how the burn went (Did the weather forecast verify? Did smoke dissipate well?)
 - Provide feedback and describe if the program was effective or ineffective and make suggestions for improvement.
 - Date of burn.
 - Date postburn report was submitted.
 - Name of staff submitting postburn report.

17. Follow up on new registrations (incomplete registrations and grower training).
18. Start preparing for the next day by reviewing forecast and fields on the ready-to-burn list. Move growers to the ready-to-burn list when requested.
19. Complete postburn-enhanced documentation as required. Note: Postburn-enhanced documentation should be submitted within 2 days. You will receive a notice on your landing page and by email if you need to complete postburn reports and enhanced documentation.

Appendix C. Standard Operating Procedures for Regional Office Staff Assigned to CRB Tasks

A Regional Office Analyst may have some or all the duties listed in Appendix B for the Seasonal Smoke Specialist if no specialist is assigned to the region, the specialist is unavailable, or activity levels exceed current Seasonal Smoke Specialists staffing. Routine responsibilities include the following.

General Tasks

- Train, supervise, and deploy Seasonal Smoke Specialists.
- **Note: regional office supervisors are responsible for ensuring Seasonal Smoke Specialists are available to receive program training. The CRB program provides an annual training session for all CRB staff. If this training cannot be attended, an alternative training curriculum will be developed for this responsibility. Supervisors must work with the program office if an alternative training is necessary.**
- Primary responsibility to respond to complaints received from regional activity per section 3.8 requirements.
- Investigate apparent violations or allegations of violation.
- Develop enforcement referral packages for potential violations per program practices.
- Operate seasonal monitors according to requirements of existing standard operating procedures.
- Implement outreach efforts, including reaching out to individual growers, grower groups, local fire departments, and ISPs.

Day Before Burn

1. Provide input to the preliminary burn decision as needed.

Day of Burn

1. Review the forecast from the staff meteorologist (available by 8:00 a.m. local time) during the fall burn season or the NWS forecast discussion if the meteorologists' forecast is unavailable.
2. Participate in daily CRB coordination calls with meteorologists, CRB Smoke Management Analyst, Seasonal Smoke Specialists, and regional office supervisors and staff at 8:30 a.m. local time.
3. During the daily CRB coordination call, discussions about smoke behavior and weather forecast validation from the previous day will occur. Be prepared to share specific smoke descriptions and feedback about the previous day's forecast.
4. Provide input on the final burn decision as needed.
5. Support field staff during burn day.

Appendix D. Standard Operating Procedures for Field Observations Exemptions

Field staff is expected to observe burns when burning is approved in the region. Anytime field staff will not be present for burning, discuss with the CRB Smoke Management Analyst before the burn decision. The following categories of burns have specific requirements for DEQ observation:

- **Test burns**—Field staff *must* observe all test burns.
- **Burns located within 1 mile of an ISP**—Field staff must observe all crop residue burns within 1 mile of an ISP. Exemptions to this requirement must be preapproved by the CRB Smoke Management Analyst or assigned designee. Exemption requests must be completed in the CRB application. The CRB Smoke Management Analyst will review and approve or deny the request.
- **Burns located between 1 and 3 miles from an ISP**—For fields 20 acres or smaller, field staff must observe these burns unless regional office staff have evaluated the proposed burn and have documented the justification that it is not necessary to observe the burn. Justification must be based on the parameters described below and documented on the exemption request form in the CRB application.

For fields larger than 20 acres, field staff must observe these burns. Exemptions to this requirement must be preapproved by the CRB Smoke Management Analyst or assigned designee. Exemption requests must be completed in the CRB application. The CRB Smoke Management Analyst will review and approve or deny the request.

- **Burns located beyond 3 miles of an ISP**—Field staff is expected to be in the field observing burns when burning is approved in their SMA. Exemptions to this requirement must be discussed with the CRB Smoke Management Analyst or assigned designee before the final burn decision. Exemption requests must have documentation, such as email communication or phone log notes. The exemption documentation form is not necessary for fields burns located beyond 3 miles of an ISP.

Factors used to justify the exemptions may include, but are not limited to, the following:

- Fields considered to have a low risk of causing adverse impacts to an ISP.
- Fields located in remote areas where weather and terrain conditions are known to provide excellent dispersion conditions.
- Burning will be conducted by a highly proficient and adequately trained person with a history of complying with DEQ rules and implementing effective smoke management techniques.
- Total acreage approved for burning in the area is de minimis per modeled impact analysis.
- The SMA does not have a history of grower noncompliance with program requirements.

Exemption Parameters

The following parameters should be evaluated to determine the risk of a particular burn and whether it needs to be observed by DEQ staff:

- **Person conducting the burn**—The experience and proficiency of the person conducting the burn should be considered. Growers who have a history of using good burning techniques and have demonstrated good judgment in conducting past burns may be considered for burning without DEQ observation. Growers who are new to the program or who have a history of using unreliable or ineffective burning techniques or have not demonstrated good judgment should not be considered for burning without DEQ observation.
- **Forecast meteorological conditions**—Forecast meteorological conditions that should be considered in determining the relative risk that a particular burn may pose to an ISP include the following:
 - Surface wind speed and direction
 - Transport wind speed and direction
 - Mixing height and ventilation
 - Air temperature
 - Relative humidity
 - Inversion strength and timing of the mix-out
 - Elevation of ISP relative to field location
 - Confidence in forecast meteorological conditions
- **Field conditions**—Field conditions that should be considered in determining how well a particular field may be expected to burn include the following:
 - Crop type
 - Fuel load
 - Fuel moisture
 - Soil moisture
 - Past successful or unsuccessful attempts to burn the particular field
- **Terrain, local conditions, and monitoring network**—Knowledge of terrain and other local conditions should be considered, including how terrain, predominant wind patterns, and local diurnal patterns may affect smoke behavior. Air quality monitors located at ISPs may be factored into the decision-making process.

Appendix E. Standard Operating Procedures for Enhanced Documentation

Preburn enhanced documentation is only required when burning will be approved or when burning has been approved but has not yet commenced and either of the following two conditions occur:

- The rolling 4-hour average PM_{2.5} concentration equals or exceeds 22 µg/m³ any time from 5:00 a.m. up to the start of the burn.
- The rolling 24-hour average PM_{2.5} concentration equals or exceeds 16 µg/m³ any time from 5:00 a.m. up to the start of the burn.

Postburn enhanced documentation is **only required when burning has been approved and has occurred** and any one of the following occurs:

- The 1-hour average PM_{2.5} concentration equals or exceeds 64 µg/m³ any time after the start of the burn through 10:00 p.m. on the day of the burn.
- The rolling 4-hour average PM_{2.5} concentration equals or exceeds 32 µg/m³ any time after the start of the burn through 10:00 p.m. on the day of the burn.
- The 24-hour average PM_{2.5} concentration equals or exceeds 26 µg/m³ during the burn day (midnight to midnight).
- The 8-hour average ozone concentration equals or exceeds 63 ppb any time after the start of the burn to midnight.

DEQ Staff Responsibilities

The CRB Smoke Management Analyst is responsible for the following tasks regarding enhanced documentation:

- Review the monitoring data before the morning burn decision to determine whether any preburn trigger levels have been exceeded.
- Notify the applicable regional office staff of instances when approved burns will require preburn enhanced documentation.
- Track the monitoring data throughout the day and notify the applicable regional office staff of any enhanced documentation criteria that were triggered during the burn day. This criteria may consist of preburn triggers exceeded before the start of the burn or postburn triggers exceeded after the burn was started.
- For any 8-hour ozone concentration exceedance, the CRB Smoke Management Analyst or regional ozone forecaster are responsible for completing enhanced documentation if the forecast allows burning to occur, but concentrations for the burn day exceed the criteria for restricting burning.
- Participate in postburn enhanced documentation development to identify changes to the decision process or new field specific requirements needed to improve the overall decision making for the area or specific field.
- Ensure enhanced documentation is completed in the CRB application.

Regional office staff are responsible for the following tasks:

- Complete enhanced documentation within the CRB application for all applicable burns. If enhanced documentation is necessary for a given field, it will be flagged on the regional home page in the CRB application.
 - Preburn enhanced documentation, when required, must be completed before the final burn approval. If the preburn enhanced documentation requirement is triggered after the final burn approval but before the start of the burn, the preburn enhanced documentation should be completed while the information remains fresh (typically within a day or two). Preburn enhanced documentation is limited and explains why burning should be approved, such as ventilation is expected to clear the airshed before burning starts.
 - Postburn enhanced documentation should be completed within 2 days to ensure relevant conditions are captured, and archived meteorological forecast data from outside sources is available if needed. Contact ISPs if necessary. Immediate feedback from representatives of ISPs will be more valuable than feedback after several days or weeks. The Regional Office Analyst or field staff must attempt to contact ISPs within 1 day of possible impact. Refer to the enhanced documentation in section 3.7 while completing these forms to ensure the proper level of information is included in this document.

Preburn Enhanced Documentation

Preburn enhanced documentation must be completed when DEQ will be providing, or has provided, final burn approval and a measured pollutant concentration in the area exceeds a preburn trigger level shown in section 3.7, Table 2. Preburn enhanced documentation requires DEQ to evaluate elevated pollutant concentrations in the area before the start of the burn and assess how smoke from the approved burning will affect the concentrations. Preburn enhanced documentation, when triggered, must be completed before the final burn approval, and the final burn approval must be based on the enhanced documentation assessment. If the trigger occurred after final burn approval but before the start of the burn, enhanced documentation should be completed as soon as possible. For a final burn approval to be made, the assessment must be that smoke from the approved burn would not cause or contribute to a measured concentration above a program concentration limit and would not result in an adverse impact.

Preburn enhanced documentation is required when a trigger limit is met any time from 5:00 a.m. up to the start of the burn.

Postburn Enhanced Documentation

Postburn enhanced documentation must be completed when an approved crop residue burn could reasonably be suspected of causing or contributing to a possible adverse impact, public roadway safety hazard, or when a measured pollutant concentration has exceeded a trigger level (section 3.7, Table 2). A notification will be posted on the region's home page of the CRB application if a field(s) requires postburn enhanced documentation. Postburn enhanced documentation protocol requires DEQ to review and document the following:

- Forecast and observed monitoring data
- Other potential sources of air pollutants
- Forecast and observed meteorological conditions
- Unique or unanticipated events or circumstances
- Decision-making process
- Determination on whether smoke from approved burning affected pollutant concentrations.

When required, postburn enhanced documentation should be completed within 2 days following the burn so that details are not forgotten, and the assessment can be used quickly as a learning tool for future burn decisions.

Postburn enhanced documentation is required when a 1-hour or 4-hour PM_{2.5} trigger limit is met or exceeded any time from the start of the burn until 10:00 p.m. on the burn day or a 24-hour PM_{2.5} trigger, or 8-hour ozone trigger is met any time from the start of the burn until midnight.

The purpose of evaluating and determining whether an adverse impact to an ISP occurred is to gauge how well implementation of the program complies with the SIP and to provide information for improving burn decisions. **DEQ currently conducts enhanced evaluation and documentation when smoke dispersion does not go as planned.** All CRB seasonal monitors in the state are within 3 miles of ISPs except for the Porthill monitor. To improve the burn decisions, DEQ will consider all monitors when evaluating if the enhanced documentation requirement has been triggered. DEQ will use the following procedure to evaluate whether an adverse impact at an ISP occurred.

- When a monitor is present and the maximum hourly PM_{2.5} concentration is below 20 µg/m³ (or visibility is at least 10 miles if no monitor is available):
 - Conclude that no adverse impact occurred.
 - No additional documentation needed unless DEQ received a complaint from an ISP.
 - If a complaint was received from an ISP, full evaluation and enhanced documentation will be completed. If a complaint was received from a non-ISP, it will be addressed through the DEQ complaint tracker.
- When a monitor is present and the maximum hourly PM_{2.5} concentration is between 20 µg/m³ and 26.2 µg/m³:
 - Conclude adverse impact unlikely.
 - Brief evaluation needed to determine whether an adverse impact occurred. The following items will be reviewed for the evaluation:
 - Weather and air quality monitoring data
 - Field notes
 - If a complaint was received from an ISP, full enhanced documentation and evaluation will be completed.
- When a monitor is present and the maximum hourly PM_{2.5} concentration is greater than 26.2 µg/m³ (or visibility is less than 10 miles if no monitor is present):

- Adverse impact possible.
- Full evaluation and enhanced documentation will include review of the following:
 - Monitoring data
 - Weather data
 - Field notes
 - Contact with the ISP—The ISP will be asked questions identified on the enhanced documentation form and the responses documented.
 - Burn decisions
 - Smoke dispersion forecasts
 - Expected smoke behavior for the day
 - Smoke behavior observed
 - Forward trajectory analysis
 - Recommended/adopted changes

Tracking Enhanced Documentation and Impacts to ISPs

Events that trigger enhanced documentation are tracked in the CRB application. Trigger events are recorded and completed enhanced documentation is tracked to provide a process that efficiently documents situations where circumstances unrelated to the approved burning trigger enhanced documentation.

DEQ should note if an ISP is impacted repeatedly and evaluate the burn decision and burn approval decision involved with those impacts to avoid further impacts to the ISP. Limiting impacts to ISPs is a critical function of the enhanced documentation process.

The tracking log includes date, monitor locations, burn location, trigger reason, brief description, ISPs affected, type of enhanced documentation, responsible staff, completion date, and summary.

Monitors

Table E-1 lists the PM_{2.5} and ozone monitors that should be reviewed for evaluating compliance with the enhanced documentation standards described above.

Table E-1. Crop residue burning program air quality monitors.

Site Name	Location	Pollutants ^a	Smoke Management Area
<i>DEQ Boise Regional Office Monitors</i>			
Garden Valley	Garden Valley	PM _{2.5}	
McCall USFS	McCall	PM _{2.5}	Boise and Valley Counties
Idaho City	Idaho City	PM _{2.5}	
Fire Station #5	Boise	PM ₁₀	
Nampa	Nampa	PM _{2.5} / PM ₁₀	
Garden City	Boise	PM _{2.5}	Southwest Idaho
White Pine Elementary	Boise	O ₃ (seasonal)	
St. Luke’s	Meridian	O ₃ / PM _{2.5}	

Appendix E. Standard Operating Procedures for Enhanced Documentation

Site Name	Location	Pollutants ^a	Smoke Management Area
Weiser High School	Weiser	PM _{2.5} (seasonal)	Weiser and Lower Payette Valleys
<i>DEQ Twin Falls Regional Office Monitors</i>			
Rock Creek	Twin Falls	PM _{2.5}	Southern Magic Valley
Paul Elementary School	Paul	PM _{2.5} (seasonal)	Northern Magic Valley
Ketchum	Ketchum	PM _{2.5}	Blaine and Camas Counties
<i>DEQ Idaho Falls Regional Office Monitors</i>			
Idaho Falls	Idaho Falls	PM _{2.5}	Eastern Idaho
Rexburg	Rexburg	PM _{2.5} (seasonal)	
Salmon	Salmon	PM _{2.5}	Custer and Lemhi Counties
<i>DEQ Pocatello Regional Office Monitors</i>			
Pocatello	Pocatello	O ₃ / PM _{2.5} / PM ₁₀	Southeast Idaho
Soda Springs	Soda Springs	PM _{2.5} (seasonal)	
Preston	Preston	PM _{2.5}	
<i>DEQ Lewiston Regional Office Monitors</i>			
Grangeville	Grangeville	PM _{2.5}	Central
Cottonwood	Cottonwood	PM _{2.5} (seasonal)	
Potlatch	Potlatch	PM _{2.5} (seasonal)	
Juliaetta	Kendrick	PM _{2.5} (seasonal)	
Moscow	Moscow	PM _{2.5}	
Lewiston	Lewiston	PM _{2.5}	
Kamiah ^b	Kamiah	O ₃	
<i>DEQ Coeur d'Alene Regional Office Monitors</i>			
Nursery Road	Coeur d'Alene	PM _{2.5}	Kootenai County
Sandpoint	Sandpoint	PM _{2.5} / PM ₁₀	Shoshone
Pinehurst	Pinehurst	PM _{2.5} / PM ₁₀	
St. Maries	St. Maries	PM _{2.5}	
Mt. Hall	Copeland	PM _{2.5} (seasonal)	Boundary County
Bonnars Ferry ^c	Kootenai Tribe Mission	PM _{2.5}	
Porthill	Canadian Border	PM _{2.5} (seasonal)	
<i>National Park Service Monitors</i>			
Yellowstone	Yellowstone National Park	O ₃	Multiple smoke management areas
Craters of the Moon	Craters of the Moon	O ₃	
<i>Utah Department of Environmental Quality Monitors</i>			
Cache County	Logan, Smithfield	O ₃ / PM _{2.5}	Southeast Idaho
Box Elder County	Brigham City	O ₃	Southeast Idaho
<i>Washington Department of Ecology Monitors</i>			
Colbert-Greenbluff Road	Spokane	O ₃	Kootenai County

a. PM_{2.5} = particulate matter less than 2.5 microns in diameter; O₃ = ozone; PM₁₀ = particulate matter less than 10 microns in diameter

b. Monitor operated by Nez Perce Tribe.

c. Monitor operated by Kootenai Tribe.

Appendix F. Standard Operating Procedures for Determining Compliance with Permit Conditions

This appendix provides a detailed description of how the DEQ determines compliance with permit conditions. Permit conditions are an important part of proper smoke management. Failure by the grower to comply with permit conditions may result in enforcement actions. Any enforcement action by DEQ will, at a minimum, require the issuance of a notice to comply. A regional notice of violation, or consent order, civil or criminal charges, and monetary penalties are all potential outcomes of documentable violation. Work with the CRB and Compliance programs to determine the appropriate level of enforcement action.

A Seasonal Smoke Specialist or regional office staff on site at a burn might identify permit conditions that are inaccurate due to an error during the registration review process or because they are not representative of the conditions in the field. If this occurs, the on-site DEQ staff **must** contact the CRB Smoke Management Analyst before ignition to have the permit conditions changed. If they are unable to contact the CRB Smoke Management Analyst (e.g., lack of cell service, analysts not available), the grower can proceed with the burn as specified on the current permit or not conduct the burn at all.

Permit Conditions

Wind Speed—CRB permits often contain a condition that restricts burning if “sustained surface wind speeds” are above 12 mph. This condition restricts burning during those times when strong surface winds could blow smoke along the ground toward ISPs, populated areas, public roadways, or other features that should be protected. DEQ is required to restrict burning at fields that are within 3 miles of an ISP when the sustained surface wind speed exceeds 12 mph. DEQ may also choose to include a wind speed restriction on fields that are near roadways, airfields, or populated areas to better protect these features. DEQ defines sustained wind speed as the average wind speed over a continuous 2-minute period.

Wind Direction—CRB permits often contain a condition that restricts burning if the surface wind is from a particular direction or combination of directions. This condition restricts burning during those times when the wind could carry smoke toward ISPs, populated areas, public roadways, or other features that should be protected.

DEQ uses the 4 cardinal wind directions and 12 intercardinal wind directions (north-northeast, northeast, east-northeast, east-southeast, southeast, south-southeast, south-southwest, southwest, west-southwest, west-northwest, northwest, and north-northwest) to describe the wind direction restrictions. The restriction includes the listed direction plus or minus 11.25 degrees. For example, if a permit condition restricts burning when winds are from the west-southwest (i.e., 247.5 degrees), burning is restricted when the sustained wind direction is anywhere from 236.25 to 258.75 degrees. To simplify these guidelines, DEQ has rounded these numbers to the nearest degree (Figure F-1).

Direction	Degree Range	
	From	To
North (N)	349°	<11
North-northeast (NNE)	11°	<34
Northeast (NE)	34°	<56
East-northeast (ENE)	56°	<79
East (E)	79°	<101
East-southeast (ESE)	101°	<124
Southeast (SE)	124°	<146
South-southeast (SSE)	146°	<169
South (S)	169°	<191
South-southwest (SSW)	191°	<214
Southwest (SW)	214°	<236
West-southwest (WSW)	236°	<259
West (W)	259°	<281
West-northwest (WNW)	281°	<304
Northwest (NW)	304°	<326
North-northwest (NNW)	326°	<349

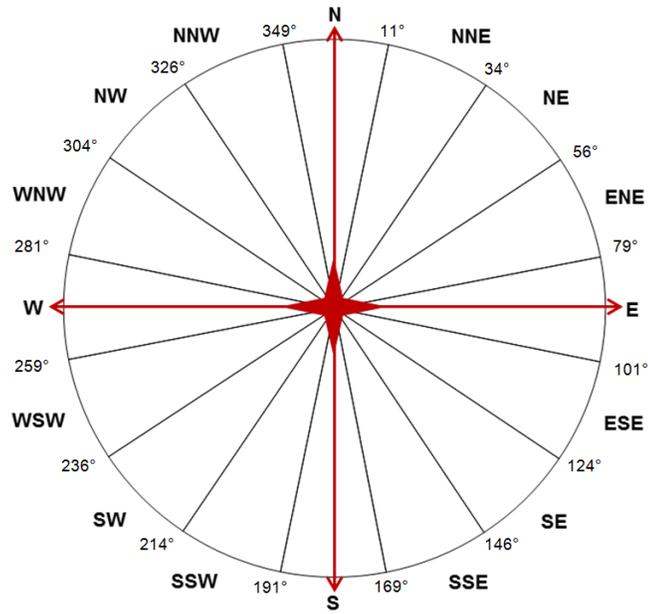


Figure F-1. Compass directions for wind direction permit condition compliance.

Burn Window—When DEQ issues a CRB permit, a start time and end time (burn window) will be specified. The burn window is based on several smoke management factors, including forecast mixing height and ventilation, forecast wind speeds and directions, forecast relative humidity, and other relevant factors. The burn window limits burning to the portion of the day when smoke from the burn is expected to disperse without causing an impact to the environment or public health. Burns may not be ignited before the start time and must be completed (fire out) by the end time.

Visibility Hazard on a Public Roadway—The following procedure is used to evaluate whether smoke from an approved burn has created a hazardous condition for travel on a public roadway.

DEQ documents any observations of smoke on a public roadway while field staff observes crop residue burns. DEQ staff will not observe all burns that are near public roadways but will observe burns that have been determined to pose a risk of creating a hazardous condition for travel on a public roadway.

Note: Before conducting burning adjacent to a state highway or interstate, the permittee should consult with the appropriate transportation agency (such as the Idaho Transportation Department) about obtaining a Right-of-Way Permit with an approved traffic control plan.

DEQ uses the stopping sight distance as a function of speed information (Table F-1) to determine if smoke is creating a hazardous condition for travel on a public roadway. If visibility is greater than the appropriate stopping sight distance, crop residue burning did not result in a hazardous condition. If visibility is less than the stopping sight distance for the appropriate speed limit, DEQ will determine whether the grower has an approved traffic control plan for burning and has followed that plan. If the grower has an approved traffic control plan in place

and followed the plan, the grower will be deemed in compliance with the permit requirement. If the grower did not have an approved traffic control plan or did not follow the plan, the grower will be deemed to be in violation of the permit requirement.

Table F-1. Stopping sight distance as a function of speed.

Speed (miles per hour)	Stopping Sight Distance (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

Source: *Manual on Uniform Traffic Control Devices for Streets and Highways*. 2009 Edition. Table 6C-2 (page 555). US Department of Transportation, Federal Highway Administration. <http://mutcd.fhwa.dot.gov>.

Appendix G. Summary of Operating Guide Changes

This appendix provides a brief summary of changes made from the previous version of the *Crop Residue Burning Program Operating Guide*. Simple changes to wording meant to provide improved clarity and understanding for DEQ staff implementation or updating outdated information such as hyperlinks or web page references are not identified in this summary. This summary lists minor process changes that were made to align with forecasting tools, measurement standards, newly available agency tools, and where responsibilities have been shifted due to resources analysis or process improvements identified throughout the year.

Before incorporating any changes, each operating guide change is reviewed to determine if it could be considered a SIP or rule change. SIP- and rule-related changes are never made without extensive planning and rulemaking efforts with the advisory committee and other stakeholder involvement. Changes to any SIP-required conditions, if occurring, are explicitly identified.

- Updated language to clarify current processes
- Rearranged the flow of information in the document.
- Moved staff processes from main document to appendices.
- Added color-coded labels to the appendices.

SIP and rule related changes: none.