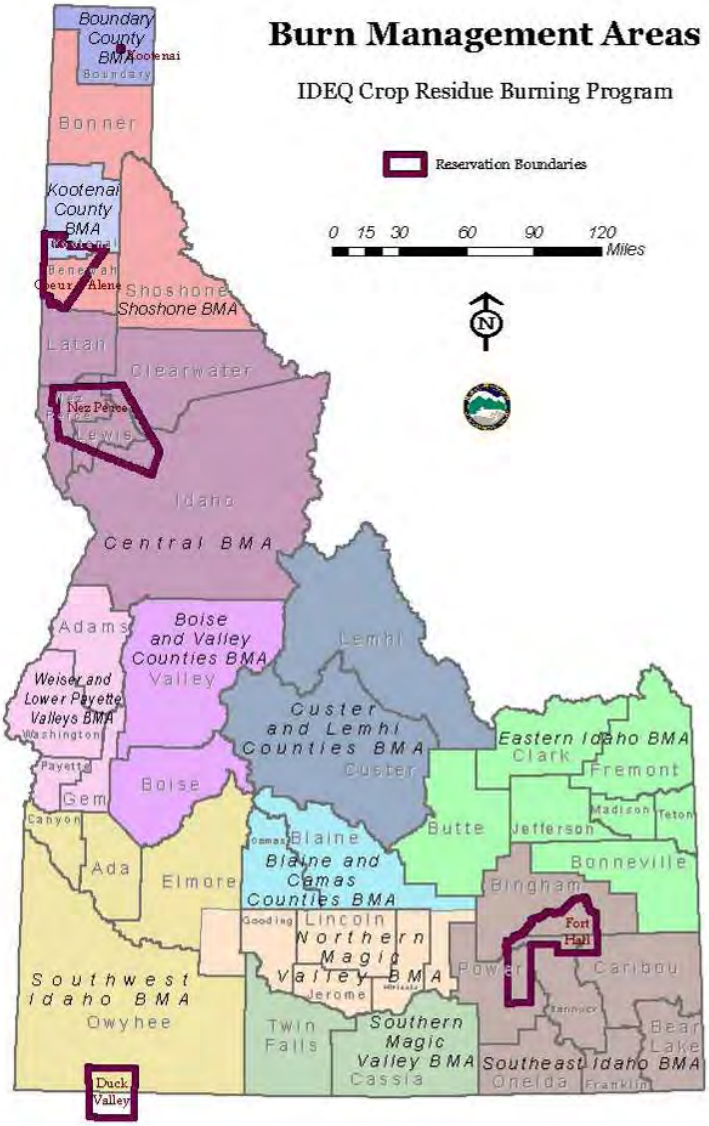
Crop Residue Burning Program

2008 Annual Report



Idaho Department of Environmental Quality
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Executive Summary

In 2008, Idaho implemented a restructured and revised Crop Residue Burning (CRB) program. The changes resulted from a legal action which challenged that Idaho had not met all requirements of the federal Clean Air Act when allowing field burning under State Rules. Idaho made modifications in statute and Air Quality Rules to resolve the legal challenge. The result is that Idaho now has a more restrictive statewide Crop Residue Burning program, designed to be more protective of human health and make implementation of the program more open or transparent for the public. Administration of the CRB program was moved from Idaho State Department of Agriculture to Idaho Department of Environmental Quality. The legislature provided general funds to cover costs of the CRB program with a budget of just over $600,000 the first year and a continuing budget of just under $420,000 for subsequent years. Because the CRB program had to be approved by the US Environmental Protection Agency prior to implementation, actual field burning could not begin before the first week of September. Thus, this year's abbreviated program implementation schedule should be considered indicative but not fully representative of what the program will be in coming years.

In this first year of the new CRB program, DEQ hired and trained several new permanent and seasonal employees. DEQ also purchased and deployed 7 new air quality monitoring stations. An Operating Guide was developed to provide standardized performance information for employees and to document for the public how DEQ would administrate the new program.

To provide adequate protection of air quality while implementing a Crop Residue Burning Program, Idaho developed "Program Air Quality Limits" for both short term and longer term exposures to particulate matter ($PM_{2.5}$) and ozone. The new CRB program also had to be especially protective of Institutions with Sensitive Populations; this such as schools, hospitals and nursing homes. Special burn approval procedures were developed and documented in the Operating Guide

DEQ developed and deployed an on-line system that provided information and administrative websites. Citizens could use the website to access information of where local field burning would occur each day. DEQ smoke managers had web pages that provided coordinating information for making proper daily burn decisions and regulating the burning in accord with program design and authority.

Idaho continued to stress outreach on the CRB program. Approximately $20,000 was spent on outreach using all public media. DEQ also developed targeted brochures and conducted informational meetings to grower organizations. Idaho's Agricultural Extension Offices also provided assistance.

Idaho's CRB program follows DEQ's normal authority to issue permits by rule. Thus with fairly simple application procedures, growers could quickly obtain permission to burn crop residues via an on-line registration system. Growers were required to take CRB burner training and submit registration fees of $2.00 per acre; both of which were also facilitated on-line. Field registrations were required to be made 30 days in advance of burning. This lead time was required to allow DEQ to properly coordinate the hundreds of fields that need to be burned and better serve growers as well as protect air quality.

DEQ's smoke managers worked in close coordination with those of the Nez Perce and Coeur d'Alene Tribes as well as the State of Washington. DEQ shared a contract to provide high quality professional meteorological forecasts with the Tribes as well. Twice daily, the smoke weather forecasts were received by all the smoke managers and twice daily, conference calls were held to coordinate the burn decisions. Each burn decision was predicated on the forecast information, ambient air quality measurements, expected emissions from other burning activity, the number of acres and nature of fuel, and the proximity to roadways, air ports and institutions with sensitive populations. Burn decisions for the following day were then posted to the CRB website and growers were notified individually.

Complaint response is a critical part of any smoke management program. DEQ used a common contractor in cooperation with the Nez Perce and Coeur d'Alene Tribes to receive and log complaints via a toll-free phone hotline. DEQ regards complaints as part of the information feed-back system for the program. Like ambient monitoring, or meteorological data, complaints offer a chance for smoke managers to know how the public regards program implementation.

The acres registered and burned in the abbreviated 2008 CRB season were well below acreages seen in previous burn years. The acres burned in 2008 were also below acres registered suggesting that even with knowledge of a shortened burn season before them, growers may have been more hopeful about what could be burned this year then was feasible overall.

Statewide Summary for northern and southern Idaho				
	total acres			Percentage of paid acres burned
	registered	paid	burned	
Northern Idaho	33705	29070	22684	78%
Southern Idaho	18443	14152	10962	77%
TOTAL	52148	43222	33646	78%

Statewide Summary by Crop Type				
	total acres			Percentage of paid acres burned
Crop Type	registered	paid	burned	
cereal grain	41107	32322	26018	80%
CRP	1750	1750	805	46%
legumes	31	31	30	97%
other	1806	1723	962	56%
turf grass	7453	7396	5830	79%

During the CRB season, there were 18 instances where ambient monitors recorded values above the Program Air Quality Limits. None of the instances where the $PM_{2.5}$ limit was exceeded could be attributed to CRB burning. The one instance of surpassing the ozone program limit occurred on a burn day in southwest Idaho.

Over 500 calls came into the hotline; of these, about 2.5% were actual complaints against CRB smoke. All complaints were followed up by DEQ staff. The information was used to make program improvements and some actually resulted in follow up compliance and enforcement

actions. In calendar year 2008, DEQ pursued 3 formal enforcement cases on CRB Rule non-compliance before September, and 9 cases after September 2nd.

After the close of the CRB burn season, DEQ staff met to do an internal review and critique the fist year's performance. Several recommendations were developed that covered both program implementation and DEQ procedures:

Program implementation:

Modify burn decision process and communication

Include pasture in CRB program

Allow the burning of hay bales (under very strict requirements) within CRB program

Improve permit conditions

Define adversely affected

Development of burning BMPs

Develop test for grower training and require 90% for passing

DEQ procedures:

Improved enhanced documentation process

Define/refine roles and responsibilities

Improve complaint process and documentation

Improve documentation of field observations

Improve cellular communications for northern Idaho

1. Introduction

This report reviews and analyzes the Idaho Department of Environmental Quality's (DEQ) Crop Residue Burning (CRB) program for the fall 2008 burn season, September 2 – October 31, 2008. DEQ is required, by rule (IDAPA 58.01.01.622.02), to prepare an annual report that includes, at a minimum, an analysis of the causes of any exceedance of the program-defined concentration limits, and an assessment of the circumstances associated with any reported endangerment to human health associated with a burn. This report also includes recommended program changes deemed necessary to prevent future exceedances of the program-defined concentration limits.

2. Overview of Program

Idaho's Crop Residue Burning program has a long and rather troubled history. Litigation challenging the basic rule allowing for crop residue burning resulted in a court decision and follow-on ban of such burning in Idaho in 2007. Governor Otter called for the growers and activists to join with state regulators to negotiate a solution for crop residue burning. The negotiation process began in earnest in July. A number of meetings were held to identify the issues and find common ground. The goal of the meetings was to design a program that was protective of public health, transparent to the public, and restored the use of fire as a tool for agricultural community.

Agreement was reached on December 19, 2007. This agreement identified the points that must be included in the new crop residue burning program. The following are the key points of the agreement:

- Operate the program consistently statewide
- Model the program after the Nez Perce Tribe program
- Make CRB a transparent program in the manner of the State of Washington
- Ensure adequacy of air quality monitoring
- Build in cooperation with other regional smoke managers
- Establish an annual and ongoing review process
- Require a revised air quality analysis if bluegrass (turf grass) burning exceeds 20,000 acres statewide

Through the first half of 2008, Idaho changed its statutes and air quality rules to reflect the agreement and satisfy the court decision, and allow the CRB program to move forward.

DEQ also developed the CRB Operating Guide to serve as the main program smoke management implementation tool. The guide describes the overall and day-to-day operation in detail. Since the CRB program is designed to be dynamic, the guide will be reviewed and improved each year as DEQ and stakeholders gain expertise through experience with and refinement of forecast tools.

Approval of DEQ's CRB program by the U.S. Environmental Protection Agency (EPA) was effective September 1, 2008. Since that date fell on a holiday, the first day that DEQ was

authorized to approve a burn was September 2, 2008. Registrations were accepted online and on hard copy starting August 1, 2008.

The remainder of this section discusses specific program requirements and how DEQ implemented them.

Air quality requirements

DEQ is prohibited from approving a burn if it determines that ambient air quality levels:

- Have reached, or are forecasted to reach and persist at, 80% of the 1-hour action criteria for particulate matter. The most pertinent CRB program concentration limit related to 1-hour action criteria is
    - $PM_{2.5}$ 1-hour average is not to exceed 64 $\mu g/m^3$
- Are exceeding, or are expected to exceed, 75% of any national ambient air quality standard (NAAQS) on any day, and these levels are projected to continue or recur over at least the next 24 hours. Thus, the most pertinent CRB program concentration limits related to NAAQS are
    - $PM_{2.5}$ 24-hour average is not to exceed 26 $\mu g/m^3$
    - Ozone 8-hour average is not to exceed 0.056 ppm

Institutions with sensitive populations

The following types of facilities are considered institutions with sensitive populations:

- Schools while in session
- Hospitals
- Residential health care facilities for children, the elderly, or infirm persons, including
    - Nursing homes
    - Assisted living centers

State air quality rules require DEQ to approve a burn only when institutions with sensitive populations will not be adversely impacted by the burn and the smoke plume is not predicted to impact such institutions (IDAPA 58.01.01.621.f).

DEQ is specifically prohibited from approving a burn if the field is located within 3 miles of any institution with a sensitive population and sustained surface wind speeds are expected to exceed 12 mph at the field. DEQ may approve a burn if the wind speeds are forecasted to be below 12 mph; however, the grower is required to ensure that the actual sustained wind speed at ignition is below 12 mph.

The list of schools used by the CRB program in 2008 was taken from the Idaho Educational Directory 2006-2007, revised on May 7, 2007. The list of hospitals, residential health care facilities, nursing homes, and assisted living centers was taken from the Statewide Listings from the Idaho Department of Health and Welfare, Facility Standards, dated July 1, 2008.

Permit-by-rule

DEQ's CRB program is a permit-by-rule program. Growers must meet several requirements before they can obtain approval from DEQ to burn crop residue.

Growers must register their field(s) to burn at least 30 days prior to the burn date they propose. They must also submit the registration fee payment of $2 per acre to be burned to DEQ, at least 7 days prior to their proposed burn date. Growers must also attend a crop residue burning training session prior to receiving approval to burn, and attend a refresher training session every five years.

In addition to obtaining DEQ's CRB permit, growers are also required to obtain all other applicable local or State fire safety permits.

Burn decision

When making a burn decision, DEQ will consider, at a minimum, the following parameters:

- Expected emissions from all burns proposed
- Proximity and strength of other burns
- Moisture content of crop residue material
- Acreage, crop type, and fuel characteristics
- Meteorological conditions
- Proximity to institutions with sensitive populations
- Proximity to public roadways
- Proximity to airports
- Any other factors relevant to preventing exceedances of the program concentration limits and/or action levels defined by statute, rule, and/or any state implementation plan (SIP).

Transparency of program

Transparency of the CRB program is critical for its success. As stated above, transparency was one of the December 2007 agreement points. DEQ implemented several tools to ensure transparency, the main one being the DEQ CRB Web site. DEQ provides information on whether a given day is a burn or no burn day, the location and number of acres permitted to be burned on any burn day, meteorological conditions, and real time air quality monitoring data.

Enhanced documentation

DEQ agreed to implement a process for enhanced documentation of the burn/no burn decision that will be triggered by air quality monitoring data. This process is based on the "red sheet/yellow sheet" process used by the Washington Department of Ecology. This enhanced documentation process provides additional justification for burn approval if monitor values are elevated. This process also provides an analysis of burns if the monitor values were elevated during or after a burn.

A yellow sheet is required when:

- The 24-hour average $PM_{2.5}$ value equals or exceeds 16 $\mu g/m^3$ for the day prior to the final burn decision, or
- The 2-hour average $PM_{2.5}$ value equals or exceeds 22 $\mu g/m^3$ any time during the 6 hours prior to the final burn decision.

A red sheet is required when:

- A yellow sheet was completed ***and*** the 2-hour average exceeds 32 $\mu g/m^3$ any time during the 20 hours after the final burn decision on a burn day.

Further, DEQ developed a "purple sheet" for instances in which a monitor value equals or exceeds a 2-hour-average trigger after the burn occurs. A purple sheet is required when:

- No yellow sheet was issued and there was a monitor value recorded that is above the red sheet trigger of the 2-hour average of 32 $\mu g/m^3$.

Compliance and enforcement

DEQ's existing compliance and enforcement program for the air quality division is used for the CRB program. Since 2008 was the first year of this CRB program, DEQ focused on compliance assistance. DEQ's goal was to educate the growers about their permits and requirements and help them ensure compliance. This was particularly important in southern Idaho, where a regulated crop residue burning program was relatively new. In those instances where enforcement was appropriate, DEQ used both informal and formal enforcement tools. An example of an informal enforcement tool is a warning letter, and a formal enforcement tool would be a notice of violation. The severity of the non-compliance and potential for harm determine which tool is appropriate. Each case of non-compliance is evaluated individually.

Limit on quantity of turf grass acres burned

As stated above, the number of acres of turf grass that can be burned each year is limited to 20,000 acres. If an increase in this number is desired, DEQ must submit a SIP revision to EPA for approval.

3. Outreach for 2008 Season

Outreach is an important component of the CRB program. DEQ's outreach effort had two main objectives: public awareness and grower education. This program function was multifaceted, relying on a variety of methods to reach the citizens of Idaho. Most outreach activities began in late June after DEQ's seasonal burn coordinators had started working. Outreach efforts consisted of the following:

- paid radio announcements
- television public service announcement (in conjunction with the U.S. Bureau of Land Management)
- newspaper advertisements
- opinion editorials
- brochures
- letters to legislators
- Web site and email list service (listserv)
- toll-free CRB hotline for public questions, complaints, and burn decision information (cost-shared with Nez Perce Tribe)
- toll-free DEQ hotline for growers

- grower training workshops
- direct communication with fire and sheriff departments

While some of the same techniques were used for public and grower outreach, the focus of the messages was different. For the public, the focus was on protection of public health; the focus for growers was education and compliance.

3.1 Public Outreach

Brochure

DEQ developed an informational brochure for the public. The message of this brochure was three-fold: regulation of crop residue burning, access to information on burning, and protection against smoke impacts. The brochure emphasized that the main goal of the CRB program is to be protective of public health while enabling growers to burn under specific conditions.

The informational brochures were distributed to a variety of locations such as:

- University of Idaho Extension offices
- Seed companies
- Local diners
- Feed stores
- Local government offices (including fire departments)
- Hardware stores

Telephone hotline

In cooperation with the Nez Perce tribe, DEQ provided a toll-free telephone hotline with a familiar number (800/345-1007) that provided the public a venue to submit questions, comments, and complaints and receive burn decision information. This is commonly known as the CRB hotline and uses the same toll-free number used by the Department of Agriculture during previous crop residue burning seasons. While this hotline is well known and used in the northern portion of the state, it was not used much in southern Idaho. This is not to say that the CRB hotline is not effective, it just indicates that more time is needed for the public in southern Idaho to become familiar with the CRB hotline. Most comments and complaints for southern Idaho came directly to the DEQ regional offices and did not come through the hotline.

Newspapers

DEQ sent out news releases about the CRB program to all newspapers throughout the state. Since DEQ could not guarantee that any given newspaper would print the news release, DEQ also paid for advertisements in a number of newspapers. Paid advertisements were placed in the following newspapers that have an agricultural focus:

- The Aberdeen Times
- Ag Weekly
- Capital Press Agriculture Weekly

- Intermountain Farm and Ranch
- Times-News

The advertisements were short, and provided information for the public and growers, directing readers to consult the Web site for additional information. In addition, DEQ submitted an opinion editorial to the newspapers, which was written by Toni Hardesty, the director of DEQ.

Direct communication with fire and sheriff departments

DEQ sent letters directly to all fire chiefs and sheriffs' departments throughout the state, to inform them of the new CRB program, its requirements, and the consequences for non-compliance, and to ask for their assistance in obtaining compliance with the program. Some DEQ staff were able to visit the fire chiefs and sheriffs' departments in person. DEQ also offered our assistance for dealing with illegal open burning incidents. Most citizens in the state of Idaho do not call DEQ prior to burning; they call their local fire and sheriff departments. These offices are often seen as one of the first lines of communication, and as such, are critical to the CRB program, especially in southern Idaho where the program is so new.

Legislative communications

Letters were sent to state legislators informing them of the new policies, procedures, and regulations of the crop residue burning program.

Television public service announcements (PSAs)

DEQ, in conjunction with the U.S. Bureau of Land Management (BLM) ran a television PSA that explained the CRB program and the requirement to obtain a permit, plus emphasized prevention of uncontrolled fire. DEQ did not develop this PSA, nor pay to air it. This was funded by the BLM Fire Prevention Group in eastern Idaho, and is a prime example of the cooperative working relationship of those who deal with fire and smoke management.

Web site and email list service (listserv)

The DEQ Web site was not only the most complete but the most critical tool for all members of the public interested in the crop residue burning program. The Web site allowed for complete transparency of the program, publicly specifying locations of burns, permits, crop types, and the daily burn/no burn decisions for each by county, plus weather and air quality information. The Web site also directed citizens to resources where they could get additional information. Members of the public were able to sign up for a listserv that would automatically send them an e-mail notification of any update to the burn decisions.

3.2 Grower Outreach

Training

Compliance with the DEQ CRB program requires that growers complete specific CRB training once every 5 years. Crop residue disposal (CRD) burning training from the Idaho State Department of Agriculture (ISDA) completed within the last 5 years was accepted. DEQ provided both "in person" and online training. In person trainings were provided throughout the state, in 14 separate training locations (see Table 1 for details). These training sessions were

designed to educate growers about their responsibilities for burning within the constraints of the program. Topics covered at these sessions included registration, permitting process, permit requirements, best burning practices, agency responsibilities, air quality issues, and health impacts of smoke.

Table 1. DEQ "in-person" training locations

City	DEQ Burn Management Area
Grangeville	Central
Moscow	Central
Bonners Ferry	Boundary
Caldwell	Southwest Idaho
Weiser	Weiser and Lower Payette Valleys
Twin Falls	Southern Magic Valley
Burley	Northern Magic Valley
Shoshone	Shoshone
Idaho Falls	Eastern Idaho
Rexburg	Eastern Idaho
American Falls	Southeast Idaho
Pocatello	Southeast Idaho
Soda Springs	Southeast Idaho
Preston	Southeast Idaho

The in-person training outreach in northern Idaho was conducted in cooperation with Nez Perce Grain Growers Association, Natural Resource Conservation Service (NRCS), Jacklin Seed, Seeds Inc., Idaho Grain Producers Association, Associated Management Group, Farm Bureau, Idaho State Department of Agriculture, North Idaho Farmers Association, Boundary County Grain Growers Association, and University of Idaho Extension offices. For much of southern Idaho, the trainings were conducted in cooperation with the University of Idaho Extension offices.

As of October 31, 2008, 1,075 growers had met the training requirement, which includes ISDA CRD training since 2003. Of the 1,075 participants, 26% participated in the DEQ CRB grower training program; 15% of currently trained growers will need to retake the grower training prior to the 2009 burn season.

Newsletters and email lists

With assistance of the NRCS, Farm Service Agency, and Idaho Farm Bureau, many growers were reached via newsletters or e-mail that came directly from these agencies. This method helped increase awareness of the CRB program and came directly through communication channels that the growers were already familiar with. Idaho Farm Bureau Quarterly ran an opinion editorial piece discussing the CRB program, written by Toni Hardesty, DEQ Director; this publication is distributed to 62,500 homes in the state.

Radio campaign

The purpose of the radio campaign was to reach the grower community through specific agricultural programming. Radio spots were aired adjacent to routine agricultural programming of the Idaho Farm Bureau report and the Idaho agricultural news. DEQ ran a total of 640 radio spots, which typically aired Monday through Friday between 5:30 am and 7:00 pm from July 28,

2008, through September 15, 2008. Table 2 lists radio markets and stations where specific agricultural programming was used to maximize outreach to the growers.

Table 2. Radio campaign details

Market	Station	Total Spots
Spokane	KGA-AM	40
Spokane	KQNT-AM	16
Twin Falls	KLIX-AM	40
Boise	KFXD-AM	40
Sun Valley/ Hailey	KECH-FM	40
Mt. Home	KMIH-AM	40
Burley	KBAR-AM	40
Jerome	KART-AM	40
Pocatello	KZBQ-FM	40
Idaho Falls	KID-AM	40
Lewiston/ Clarkston	KRLC-AM	40
Lewiston/ Clarkston	KOZE-AM	40
Orofino	KLER-AM	40
Grangeville	KORT-AM	40
Montpelier	KVSI-1450	40
Preston	KACH-134C	40
Moscow	KRPL-AM	40
Total Number of Spots		**640**

Brochure

DEQ developed a separate informational brochure, for growers throughout the state. This brochure focused on: crop residue burning conditions, procedures growers must follow, and permit-by-rule instructions. The main goal of the CRB program is to be protective of public health while enabling growers to burn under specific conditions. These informational brochures were distributed to a variety of locations in communities as listed above under the brochure section of public outreach.

Telephone hotline

DEQ operated a second toll-free hotline, known as the CRB Grower Hotline (866/224-2456). This is the same toll-free number as used by the Department of Agriculture during previous crop residue burning seasons. This CRB grower hotline provided another means for growers to contact program representatives with any questions, comments, and concerns. This hotline was very effective in providing help to the growers with the registration process, paying fees, submitting post-burn reports, and getting general questions answered.

Newspapers

The news releases, advertisements, and opinion editorials discussed in the public outreach section also apply to grower outreach.

Direct communication with fire and sheriff departments

The letters to the fire chiefs and sheriffs' departments discussed in the public outreach section also apply to the grower outreach.

Television public service announcements (PSAs)

The television PSA discussed in the public outreach section also applies to grower outreach.

Web site

The DEQ Web site was not only the most complete but the most critical component and informational tool for the growers participating in the crop residue burning program. Growers were able to register and submit fees, as well as take the required training course, all online. The rule (IDAPA 58.01.01.621.02) requires DEQ to "post on its Web site written notification of burn approvals and any specific conditions under which the burn is approved." This written notification, along with a phone call to the grower, provides the official allowance for the grower to burn the designated crop residue.

4. Analysis of Fall Season

DEQ divided the state into 13 burn management areas (BMAs), based on similarity of meteorological and topographical conditions as well as proximity to regional office staff members. Figure 1 delineates the 13 BMAs designated for the CRB program. In three BMAs – Shoshone County, Custer and Lemhi Counties, and Boise and Valley Counties – no fields were registered for the fall 2008 burn season. Therefore, these BMAs are not discussed further.

DEQ evaluated the 2008 fall burn season for compliance with the CRB program concentration limits. All instances in which DEQ monitors recorded values above the CRB program limits were evaluated to determine whether crop residue burning was the cause.

A summary of the fall burn season for each BMA is presented below. These summaries include area geography; air quality; acreage; and complaints, compliance, and enforcement.

4.1 Compliance with CRB Air Quality Program Limits

As stated in Section 2, the CRB program must comply with program concentration limits, based on DEQ monitoring. DEQ air quality monitors recorded values above the following program concentration limits:

1-hour $PM_{2.5}$ (64 $\mu g/m^3$) – 12 values recorded above the limit

24-hour $PM_{2.5}$ (26.25 $\mu g/m^3$) – 5 values recorded above the limit

8-hour ozone (0.056 ppm) – 1 value recorded above the limit

Each of these instances was evaluated to determine whether these values were caused by crop residue burning, and the results of those evaluations are included in this section.

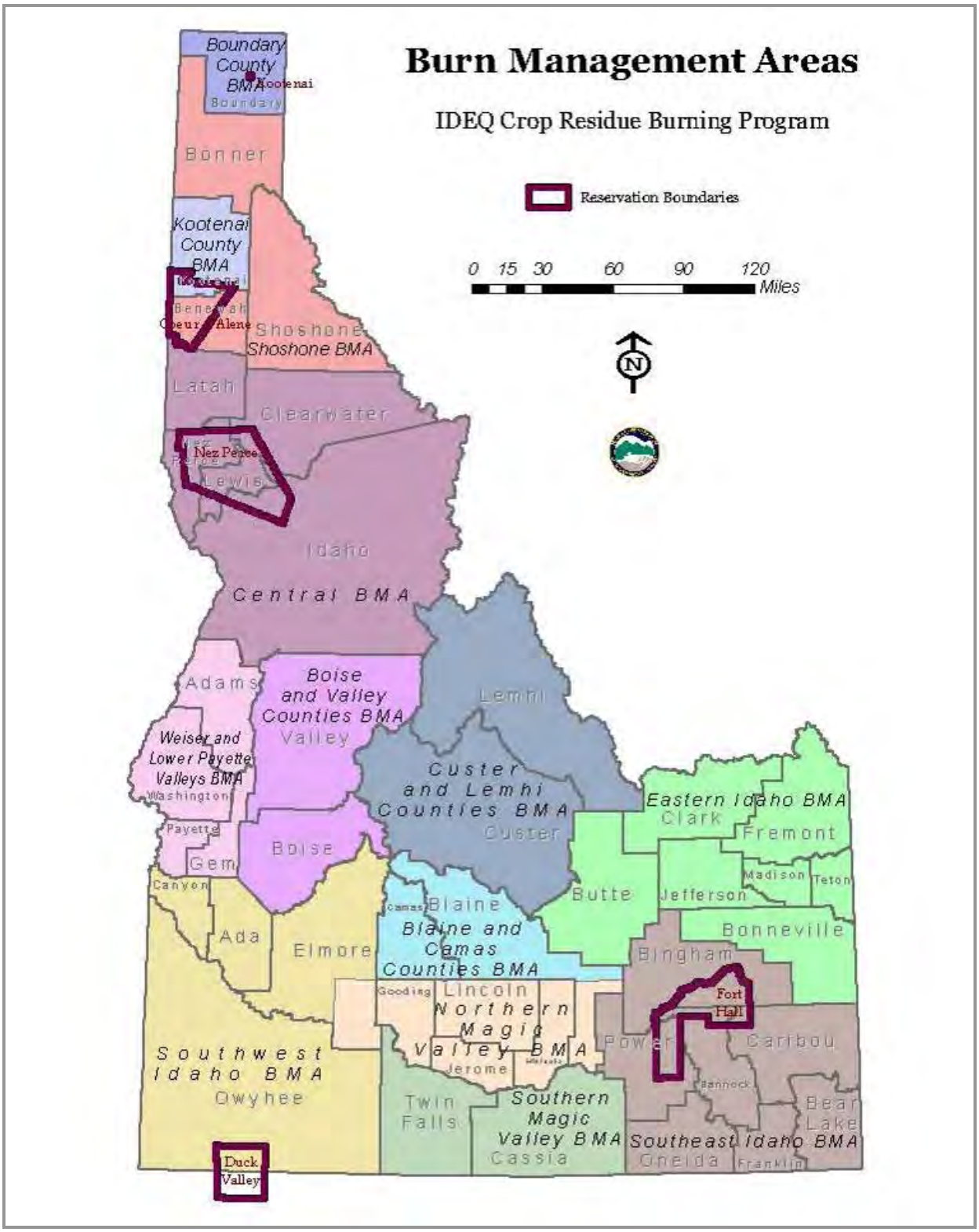


Figure 1. The 13 burn management areas for the crop residue burning program.

4.1.1 1-hour $PM_{2.5}$ program limit

During the fall burn season of 2008, DEQ monitors recorded 12 values above the 1-hour $PM_{2.5}$ program limit of 64 *µg/m*^{3} .

September 6 – Pocatello $PM_{2.5}$ monitor
190.4 µg/m^3 *at 13:00 – 1-hour average*

September 6 was a no burn day for the Southeast Idaho BMA. This 1-hour episode occurred during the first week of the 2008 burn season. DEQ did not approve any burning of crop residue until September 12 in the Southeast Idaho burn management area. The data below, taken from the Pocatello monitor for September 6 for the hours before and after this 1-hour spike, show that this spike was caused by a very short-term emission source near the monitor. On September 6, the Pocatello area (valley) experienced a weak south to southeast wind, contributing to down-valley air flow out to the Snake River Plain. Between 11:00 and 13:00, the wind direction reversed and a plume from the large industrial source at the edge of the valley was detected.

September 6 Hour	**Pocatello monitor µg/m^3 (1-hour)**
16:00	1.9
15:00	1.8
14:00	9.7
13:00	190.4
12:00	5.5
11:00	7.3
10:00	10.2

September 19 – Pocatello PM2.5 monitor
94.2 µg/m3 at 08:00 – 1-hour average

September 19 was a burn day for the Southeast Idaho BMA, and the only approved burn was 234 acres of Conservation Reserve Program (CRP) lands at a location about 30 miles south of American Falls and 55 miles from the Pocatello monitor. This CRP burn was ignited 2 hours after the elevated concentration was detected; therefore, it could not have caused this 1-hour spike.

The previous day, September 18, 50 acres of cereal grain were burned, about 6 miles north of Blackfoot in the Rose area. The winds during and after the burn on September 18 were from the southerly direction until 04:00 (4:00 am) on September 19. In the Pocatello area at 08:00, the valley was experiencing out-valley flow to the Snake River Plain. The data below is taken from the Pocatello monitor for September 19 for the hours before and after this spike. The spike was attributable to localized sources, which this could have been railroad activities or diesel truck/heavy equipment operations near the monitor. It was also noted, on September 19, that the Pocatello area was not impacted by smoke.

September 19 Hour	**Pocatello monitor µg/m^3 (1-hour)**
12:00	10.2

September 19 Hour	Pocatello monitor µg/m^3 (1-hour)
11:00	10.4
10:00	13.7
09:00	56.6
08:00	94.2
07:00	6.7
06:00	6

September 20 – Pocatello PM2.5 monitor
85.0 µg/m3 at 04:00 – 1-hour average

September 20 was a no burn day for the Southeast Idaho BMA. As stated above, 234 acres of CRP lands were burned on September 19, about 30 miles south of American Falls and 55 miles from the Pocatello monitor. This burn was ignited after 10:00. Pocatello and the Rockland Valley are separated by complex terrain, consisting of two mountain ranges (the Deep Creek Mountains and the Bannock Mountain Range) and the Arbon Valley. From 15:00 (3:00 pm) on September 19 until 12:00 (noon) on September 20, the Pocatello area was experiencing light out-valley flow to the Snake River Plain. This indicates that a localized source of air pollution contributed to the spike on the monitor. This could have been due to railroad activities or diesel truck/heavy equipment operations near the monitor. The data below is taken from the Pocatello monitor for September 20 for the hours before and after this spike.

September 20 Hour	Pocatello monitor µg/m^3 (1-hour)
07:00	1.8
06:00	3.5
05:00	21.5
04:00	85
03:00	34.5
02:00	41.7
01:00	3.9
00:00	4.3

October 21 – Grangeville PM2.5 monitor
79.4 µg/m3 at 20:00 – 1-hour average
74.1 µg/m3 at 21:00 – 1-hour average

October 21 was a no-burn day for all of the Central BMA. DEQ-approved burning occurred 4 days earlier in the Central BMA, with 314 acres burned in the Camas Prairie sub-airshed on October 17. The maximum 1-hour $PM_{2.5}$ value recorded in the Camas Prairie sub-airshed between October 17 and 21 was 13 µg/m^3 at 07:00 on October 20. This indicates that a localized source of air pollution contributed to the spike on the monitor. This could have been due to wood smoke from the town.

October 21 Date	Hour	Clearwater monitor µg/m^3 (1-hour)	Grangeville monitor µg/m^3 (1-hour)
October 22	03:00	4	33.1
	02:00	4	8.5
	01:00	5.3	1.2
	00:00	4.1	2.4
October 21	23:00	4.5	-4.1
	22:00	3.6	-9.3
	21:00	3.5	74.1
	20:00	4.4	79.4
	19:00	4.5	28.3
	18:00	3.9	17.7
	17:00	3	10.1
	16:00	2.6	1.1
	15:00	2.6	2

October 24 – Twin Falls PM2.5 monitor
66 µg/m3 at 10:00 – 1-hour average

October 24 was a burn day in the Southern Magic Valley BMA. At a location less than a mile south of Kimberly and about 4.5 miles southeast of Twin Falls, 4 acres of legumes were burned. These 4 acres were ignited after 13:00; therefore, this burn could not have caused this spike. 20 acres were burned 4 days prior to this, on October 20. The maximum 1-hour $PM_{2.5}$ value recorded on the Twin Falls monitor between October 20 and 24 was 29.9 µg/m^3 at 19:00 on October 23. This indicates that a localized source of air pollution contributed to this spike.

October 24 Hour	Twin Falls monitor µg/m^3 (1-hour)
14:00	6.5
13:00	5.6
12:00	1
11:00	5.9
10:00	66
09:00	13.7
08:00	18.9
07:00	25
06:00	12.7
05:00	4
04:00	19.7

October 31 – Clearwater PM2.5 monitor
71.7 µg/m3 at 10:00 – 1-hour average
75.9 µg/m3 at 11:00 – 1-hour average
76.3 µg/m3 at 12:00 – 1-hour average
104 µg/m3 at 15:00 – 1-hour average
166.5 µg/m3 at 16:00 – 1-hour average
140.1 µg/m3 at 17:00 – 1-hour average

October 31 was a no burn day in the Camas Prairie sub-airshed in the Central BMA. At a location approximately 5 miles west of Grangeville, 30 acres were burned on the previous day, October 30. On October 30, the Grangeville monitor was located between the burn and the Clearwater monitor. The maximum 1-hour concentration that was recorded on either monitor in this sub-airshed, after ignition at 12:00, was 15.8 µg/m^3 at 18:00. DEQ determined that these were isolated incidences that were not a direct result of crop residue burning.

Date	Hour	Clearwater monitor µg/m^3 (1-hour)	Grangeville monitor µg/m^3 (1-hour)
Oct 31 2008	23:00	10.9	5.4
	22:00	12.7	7
	21:00	13	6.1
	20:00	8.9	6.2
	19:00	12.3	11.5
	18:00	31.7	3.6
	17:00	140.1	9.7
	16:00	166.5	14.3
	15:00	104	3
	14:00	43.7	3.5
	13:00	46.1	5.9
	12:00	76.3	5.3
	11:00	75.9	12.4
	10:00	71.7	-1
	09:00	7.5	5.5
	08:00	9	6.9
	07:00	8.2	10.8
	06:00	7.8	4.4
	05:00	8.1	8.6
	04:00	8.2	3.8
	03:00	7.7	3.1
	02:00	8	6.3
	01:00	8.6	6.4
	00:00	7.7	14.5

Date	Hour	Clearwater monitor µg/m^3 (1-hour)	Grangeville monitor µg/m^3 (1-hour)
Oct 30 2008	23:00	7.9	6
	22:00	8.7	12.6
	21:00	9.1	8.9
	20:00	10.9	8.3
	19:00	11.8	7.7
	18:00	15.8	5.3
	17:00	9.6	4.2
	16:00	8.2	13.3
	15:00	8.3	12
	14:00	9.2	-2.5
	13:00	9.7	3
	12:00	10.5	7.3
	11:00	12	5.2
	10:00	11.7	6
	09:00	18.2	6.6
	08:00	17.3	8.7
	07:00	17.9	7.5
	06:00	16.3	5.1
	05:00	14.1	7.5
	04:00	12.3	10.1
	03:00	13.2	10.6
	02:00	14.6	10.6
	01:00	16.2	4.9
	00:00	17.6	6.8

4.1.2 24-hour $PM_{2.5}$ program limit

During the 2008 fall burn season, DEQ monitors recorded 5 values greater than the 24-hour $PM_{2.5}$ program limit of 26.25 µg/m$^{3.}$

October 28 – Coeur d'Alene PM2.5 monitor
26.7 µg/m3 – 24-hour average

October 30 – Coeur d'Alene PM2.5 monitor
26.7 µg/m3 – 24-hour average

October 30 – Sandpoint PM2.5 monitor
27.3 µg/m3 – 24-hour average

October 31 – Coeur d'Alene PM2.5 monitor
30.1 µg/m3 – 24-hour average

These values occurred on no burn days in the Kootenai County BMA. The last DEQ-approved burn day for this BMA was October 2.

Date	Coeur d'Alene µg/m^3 (24-hour)	Sandpoint µg/m^3 (24-hour)
27-Oct	15.1	14.2
28-Oct	26.7	16.9
29-Oct	17.6	25.5
30-Oct	26.7	27.3
31-Oct	30.1	21.3

October 31 – Clearwater PM2.5 monitor
37.3 µg/m3 – 24-hour average

October 31 was a no burn day for the Central BMA. The previous day, October 30, 30 acres were burned. Based on the discussion above for the 1-hour $PM_{2.5}$ values, DEQ determined that this was an isolated incident that was not a direct result of crop residue burning.

Date	Clearwater µg/m3 (24-hour)	Grangeville µg/m3 (24-hour)
29-Oct	14.9	6.7
30-Oct	12.5	7.3
31-Oct	37.3	6.8

4.1.3 8-hour average ozone program limit

During the fall burn season of 2008, DEQ monitors recorded one value greater than the 8-hour-average ozone program limit of 0.056 ppm.

September 16 – Whitney ozone monitor
58 ppb – maximum daily 8-hour average

September 16 was a burn day for the Southwest Idaho BMA. About 10 miles northwest of Nampa, 19 acres were burned. The burn was ignited at 13:30 and extinguished (no smoke) at

14:30. The winds were generally from the southeast during the burn and from the northwest after the burn. The 1-hour and 8-hour rolling average ozone data on September 16, from the Whitney monitor, is included below. The temperature in the valley was between 85 and 90 °F, with the wind speed below 3 mph. These conditions enhance the formation of ozone in the Treasure Valley. The smoke from this burn could have contributed to the increase in ozone concentration in the Nampa area. However, the ozone concentrations were already beginning to increase prior to the burn.

September 19 Hour	1-hour (ppb)	8-hour (ppb)
23:00	1	29
22:00	6	37
21:00	2	43
20:00	2	50
19:00	25	56
18:00	60	58
17:00	68	55
16:00	66	49
15:00	64	42
14:00	59	34
13:00	56	26
12:00	48	20
11:00	43	16
10:00	33	12
09:00	23	8
08:00	6	6
07:00	1	5
06:00	1	5
05:00	6	6
04:00	11	6
03:00	11	6
02:00	6	9
01:00	6	16
00:00	1	23

4.2 Meteorological and Burn Decision Forecasts

Before the start of the CRB Program 2008 season, Idaho DEQ started making “dry run” forecasts. These forecasts started on August 18 and were made twice daily for two weeks before the program started on September 2. The forecasts consisted of a preliminary evening forecast plus a final morning forecast for potential burn days. Crop residue burning is not allowed on weekends or holidays.

DEQ worked with Bennett Fire Weather Services, the meteorological contractor for the CRB program. Each weekday, Mr. Bennett e-mailed two meteorological forecasts to all DEQ CRB staff, at 8:00 AM and 3:00 PM local time. Each e-mailed forecast was followed by a conference call during which the weather forecast and burn decisions for the day were discussed.

4.3 Complaints

Complaint response is a critical part of any smoke management program. Like information from ambient monitoring, or meteorological data, complaints provide smoke managers with information, to help them understand how the public regards program implementation. DEQ did not focus on the number of complaints, but rather the location and content and used information from the complaints to improve future burn decisions.

As discussed in the public outreach section above, DEQ used a familiar toll-free hotline number for the public to submit questions, comments, and complaints. DEQ, in cooperation with Nez Perce and the Coeur d'Alene Tribes, contracted with a contractor to answer the calls. Brief information from each contact made on the hotline was immediately e-mailed to all CRB staff throughout Idaho. Complaints received through the hotline answered by the contractor included non-CRB related complaints as well. The following information was collected from the callers:

- Name
- Phone number
- Call back requested?
- City
- State
- County
- Do you see smoke from your location?
- Is the smoke at your location?
- Brief description of the problem

Table 3 summarizes the number of calls received on the hotline.

DEQ also received questions, comments, and complaints in the regional offices. The majority of these complaints were entered into DEQ's Complaint Tracking System. However, some complaints and DEQ's responses were recorded using other methods, such as in field notes. In some cases, CRB-related complaints initially received by the hotline and referred to the regional office, were also entered into DEQ's Complaint Tracking System by regional office staff.

Due to the varying methods of documenting and tracking the complaints, DEQ does not have an exact number of CRB-related complaints received during the 2008 burn season. However, all CRB-related complaints were addressed in a timely manner. DEQ will develop procedures to improve this process and ensure that all CRB-related complaints are tracked consistently throughout the state.

Complaints were not initially categorized as belonging to any given BMA, they were just registered and responded to. Staff decisions about who should respond to each complaint started the process of assigning each one to the most appropriate BMA. Later, any remaining complaints were assigned to individual BMAs for final resolution. Pertinent details of noteworthy complaints and a summary of all complaints for each BMA is included with each BMA's fall season analysis provided in this report.

The hotline system does not separate the calls according to state and tribal boundaries; therefore, DEQ coordinated closely with the Nez Perce Tribe to ensure all calls were addressed. This was achieved by a routine followup call to the agencies if there were any questions about where the complaint call or the smoke reported originated from.

Table 3. Summary of calls to the CRB hotline in 2008.

Month	Number Of Callers That Listened to the Answering Message	Number of Callers That Hung Up After the Answering Message	Number Of Callers That Selected "Speak With an Operator"*	Number Of Callers That Selected "Nez Perce Tribe Burn Decision"	Number Of Callers That Selected "North Idaho Burn Decision"	Number Of Callers That Selected "South Idaho Burn Decision"
August	88	35	6	46	1	0
September	285	74	34	54	85	38
October	164	30	7	52	59	16
November	43	15	2	20	6	0
OVERALL TOTALS	**580**	**154**	**49**	**172**	**151**	**54**

* Callers who chose to speak with an operator could register a complaint, ask a question, or make a comment, which was then immediately communicated by e-mail to pre-identified staff.

4.4 Ambient Air Quality Monitoring

Timelines for implementing the 2008 CRB season's monitoring program were very tight. The seven nephelometers and associated shelters needed were ordered on July 1, which was the beginning of DEQ's fiscal year, and thus, the earliest possible date. Although both vendors generally need 6-8 week lead times, they each made a strong effort to ship the units to DEQ by the third week of August. Unfortunately, five of the seven nephelometers either arrived defective or failed shortly after deployment and were sent back to the manufacturer. To compensate, DEQ borrowed two nephelometers from the Washington Department of Ecology for use by the Lewiston Regional Office staff, and deployed two eBams (portable $PM_{2.5}$ monitors) to monitoring locations in Weiser and Paul. Data from the eBams were collected and evaluated on days when burn decisions were made. However, eBam data were not collected by DEQ's central data acquisition system due to hardware restrictions. Considerable downtime was experienced and data gaps are prevalent for the Weiser and Paul sites. During the evaluation of the Weiser data, DEQ determined that no valid data was collected from either the eBam or the nephelometer.

Training for the installation and operation of the nephelometers was conducted in Coeur d'Alene on August 21, 2008. DEQ's Coeur d'Alene Regional Office staff have been operating nephelometers for a number of years and thus were selected to share their experience with other Regional Office staff. Upon receiving instruments and shelters, regional office staff found that items from the comprehensive list of accessories required for instrument and shelter setup (e.g., tubing and brackets) were not included with the shipments, so they had to improvise.

At the fall 2008 monitoring meeting in November, monitoring staff addressed the issues with the CRB monitoring program staff. Monitoring staff identified the concern that expectations for data compilation, validation, and editing were not clearly stated and understood. As a result, decisions were made to create a CRB sampling analysis plan to clarify data handling procedures and quality control criteria. Monitoring staff are currently performing off-season maintenance on the instruments and preparing to re-deploy them for the 2009 season. Refresher training is planned for the spring 2009 monitoring meeting, and implementation dates are scheduled for March 1, 2009, through October 31, 2009.

DEQ purchased and installed three new $PM_{2.5}$ real-time monitors for CRB program use in northern Idaho. These monitors were located in the Central BMA in Kendrick, Potlatch, and Clearwater. Using existing $PM_{2.5}$ real-time monitoring equipment, another monitor was installed in Boundary County.

In addition, DEQ contracted with the Canadian government's Environment Canada office in British Columbia to operate a real-time continuous $PM_{2.5}$ monitor (a Tapered Element Oscillating Microbalance [TEOM] unit) approximately 1 kilometer north of the Canadian border. These locations were chosen because they represent populations impacted by past crop residue burning. Figure 2 shows locations of the $PM_{2.5}$ monitors in the Central BMA; Figure 3 shows locations of the $PM_{2.5}$ monitors in the northern BMAs (Boundary County, Kootenai County, and Shoshone) used during the fall burn season. Throughout northern Idaho, the Coeur d'Alene, Kootenai, and Nez Perce Tribes operate five $PM_{2.5}$ monitors, at the locations shown on Figures 2 and 3. The DEQ CRB program used data from these monitoring stations to aid the burn decision process.

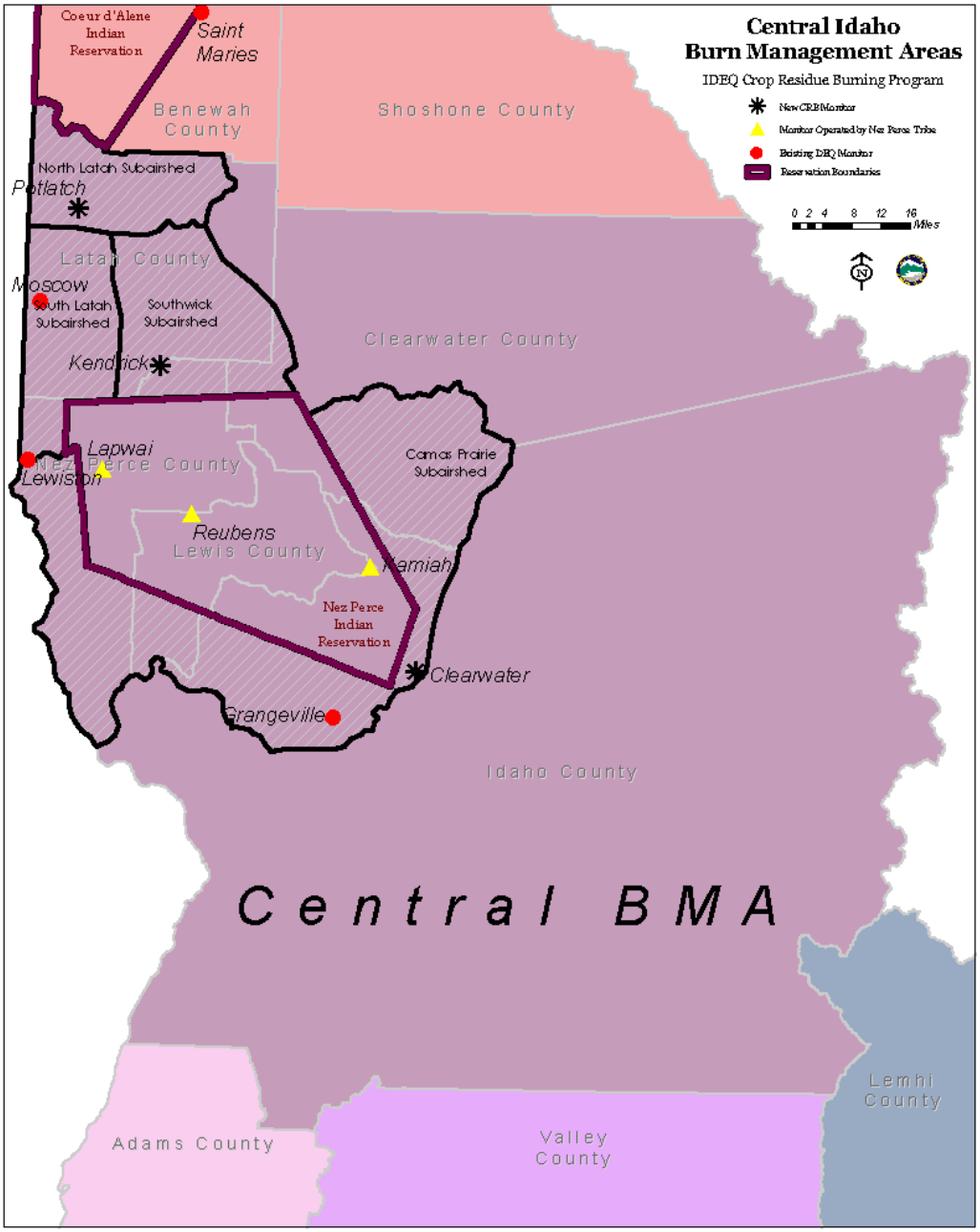


Figure 2. $PM_{2.5}$ monitor locations and sub-airshed boundaries (solid black outlines) for the Central Burn Management Area.

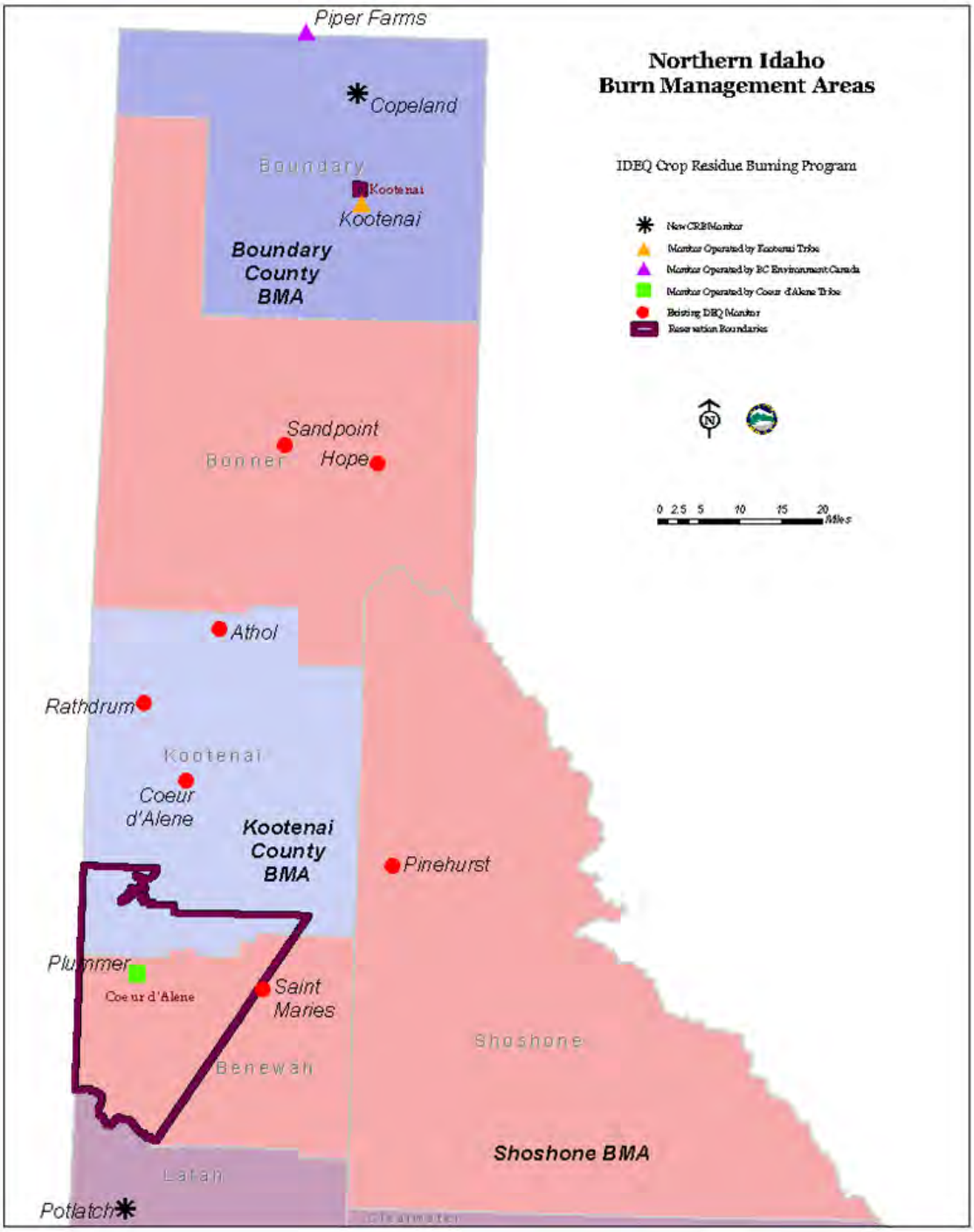


Figure 3. $PM_{2.5}$ monitor locations for northern Idaho Burn Management Areas.

For the CRB program in southern Idaho, DEQ purchased and installed four new $PM_{2.5}$ real-time monitors. These monitors were located in Weiser, Paul, Soda Springs, and Rexburg. Similar to those in northern Idaho, these locations were chosen because they represented populations that have been impacted by past crop residue burning. DEQ also used four existing $PM_{2.5}$ monitors in southern Idaho. Figure 4 shows the $PM_{2.5}$ monitor locations in the southern BMAs used during the fall 2008 burn season.

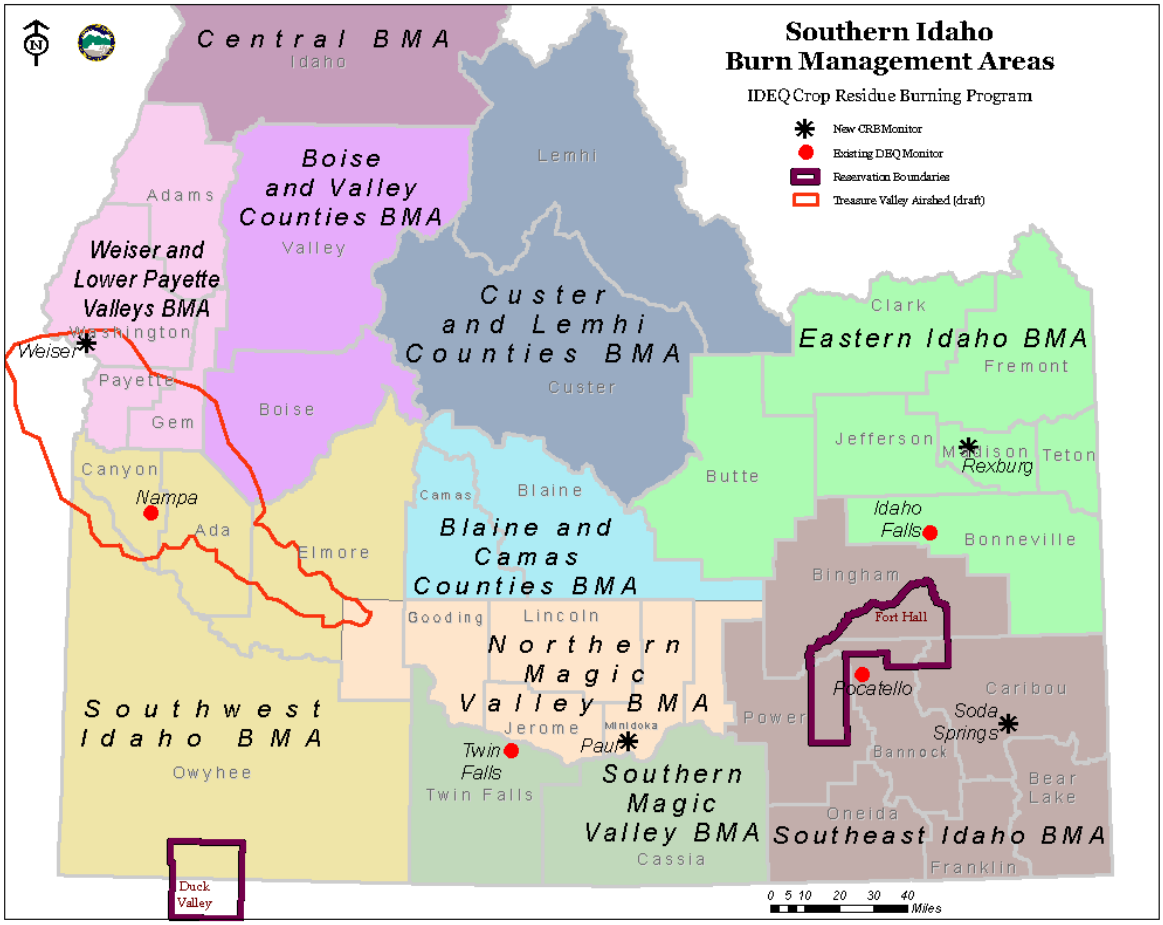


Figure 4. $PM_{2.5}$ monitor locations for southern Idaho Burn Management Areas.

4.5 Northern Idaho Summaries

Crop residue burning in northern Idaho occurred in the Boundary County, Kootenai County, and Central BMAs. In the past, this was the area of primary focus for the CRB program operated by Idaho Department of Agriculture; thus, growers and the public were much more aware of State field burning regulations.

4.5.1 Northern Idaho Meteorology Summary

This section provides a brief summary of the meteorological conditions in northern Idaho for the 2008 burn season. Since this burn season started September 2, this summary only includes September and October.

The graphic images used to illustrate meteorological conditions in September and October represent conditions either near the surface (ground level) or some distance above the surface. Distances above the surface are expressed in millibars, which is are units of atmospheric pressure, not of linear distance. The images were produced using the computer-based modeling system known as MM5 (the full name of MM5 is Fifth-Generation NCAR / Penn State Mesoscale Model).

4.5.1.1 September 2008

Through the first week of September, high pressure continued to build off the west coast. This weather pattern kept a colder air mass over the northern Idaho airsheds and left mixing heights rather low. Transport winds were strong enough to generate ample dispersion on recommended burn days. The cool weather pattern on September 3, illustrated in Figure 5, continued for much of the first week of September. The high off the west coast was "blocked" into position, which left much of northern Idaho in a cooler northwest-to-west flow aloft. Minor weather disturbances moved southeast through southern British Columbia and into northern Idaho.

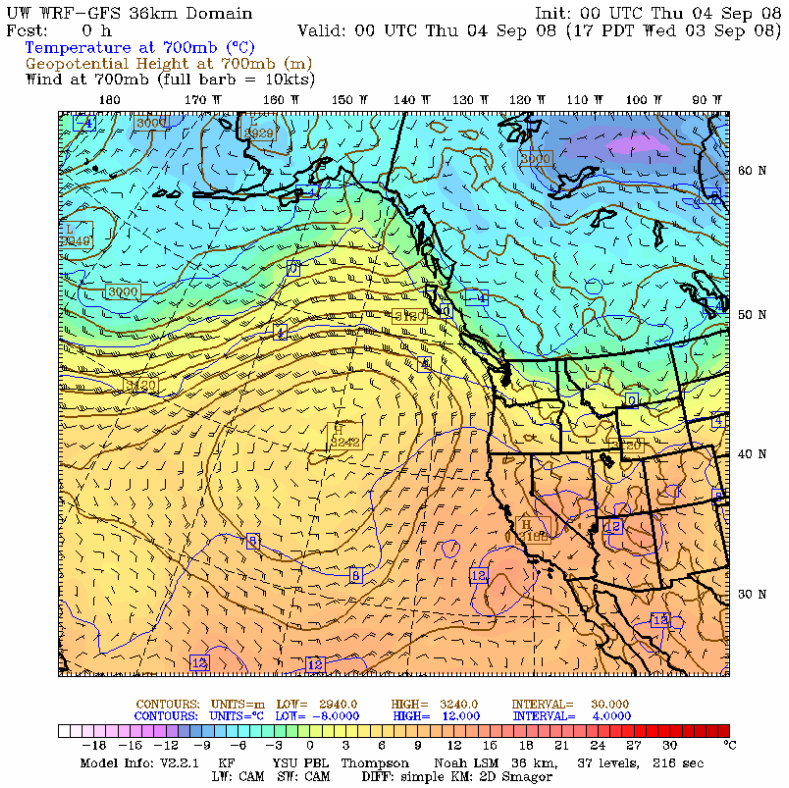


Figure 5. 700 millibar MM5 graphic for September 3, 2008.

Figure 6 shows that this same weather pattern remained into the second week of September, leaving northern Idaho in an "on again/off again" weather pattern. The high-pressure ridge that was entrenched off the west coast finally started moving east later in the second week of the month. The ridge would eventually lay over into Idaho and Montana, keeping the northerly cool branch of the jet stream north of Idaho.

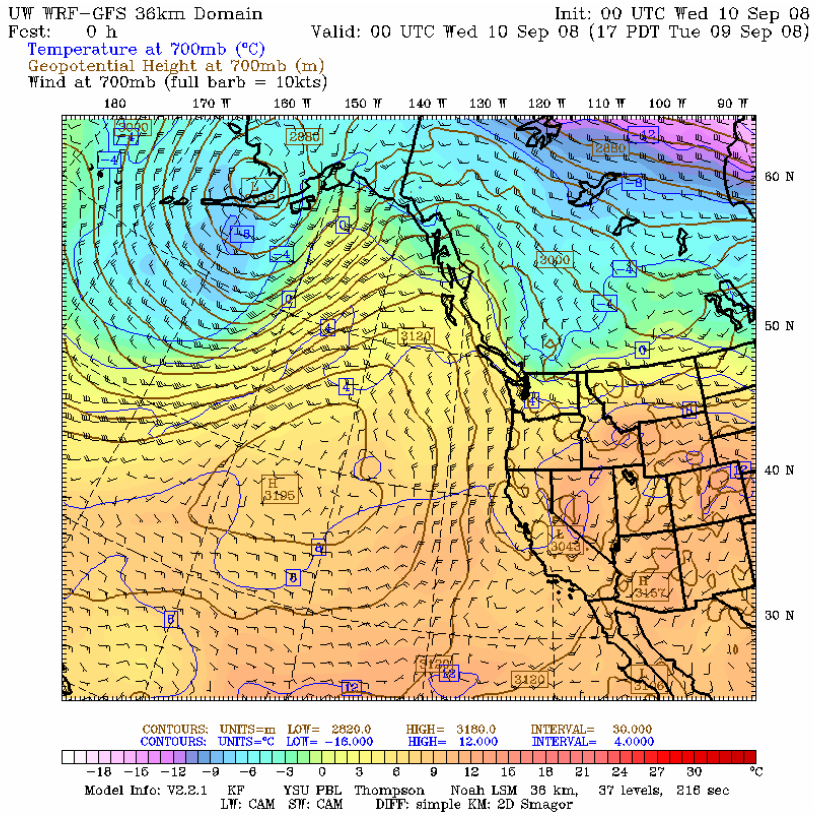


Figure 6. 700 millibar MM5 graphic for September 9, 2008.

This weather pattern shift would gradually allow higher pressure from over the Four Corners area of the southwest U.S. to ridge north into northern Idaho. The Four Corners high-pressure cell usually becomes the dominant weather feature over all of the west coast in September. This year, it occurred later as the northern branch of the jet stream remained in place over southern British Columbia for the first two weeks of September. This transient or progressive weather pattern for the first two weeks of September was not a factor in poor field burning; on the contrary, mixing heights were quite low as a result of the colder air, but the air mass was somewhat unstable and transport winds were generally stronger than expected due to the close proximity to the northern branch of the jet stream. By the third week of September, a major change or shift in the upper level weather pattern was underway. A very strong upper level high-pressure cell centered over the U.S. southwest desert would become the dominant weather feature for the next week. Generally at that time of year, mid-September, days are becoming shorter and temperatures are beginning to get cooler. Surface-based temperature inversions tend to become stronger as the sun angle decreases rapidly.

Figure 7 shows that the ridge remained in place until the end of the third week of September. The dominant high pressure did finally break down over the weekend of the 20th-21st, as a series of Pacific storms pummeled the high-pressure ridge to flatten out the ridge and allow a cooler and more unstable air mass into northern Idaho. Figure 8 shows the cooler air mass over the Inland Northwest (eastern Washington, northern Idaho, and western Montana) during this flattening phase of the high-pressure ridge. This flat-wave high-pressure ridge remained over northern Idaho until late in the third week, when the high pressure ridge re-asserted itself to become dominant once again.

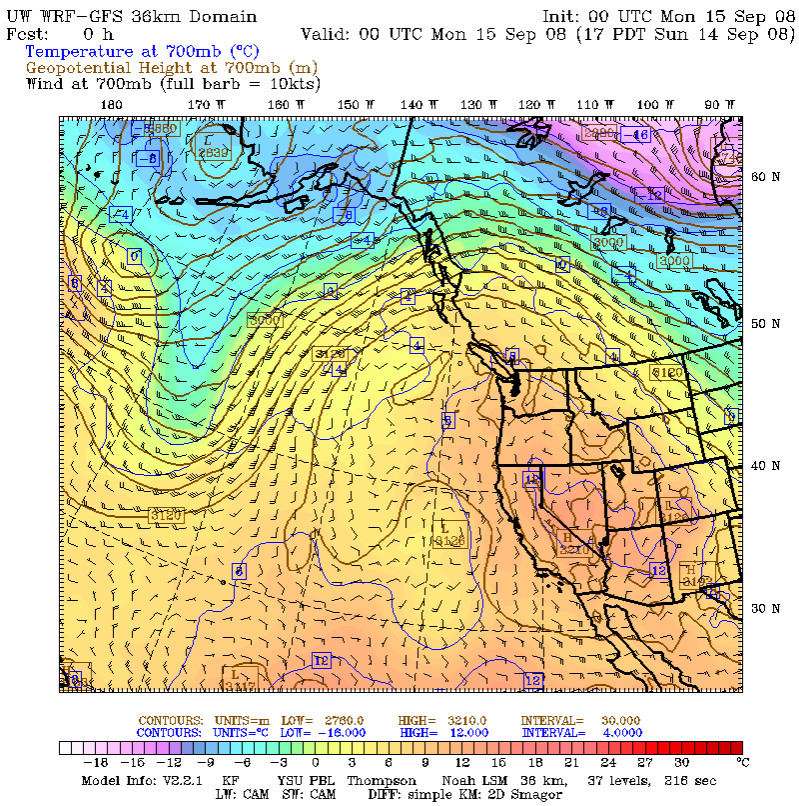


Figure 7. 700 millibar MM5 graphic for September 14, 2008

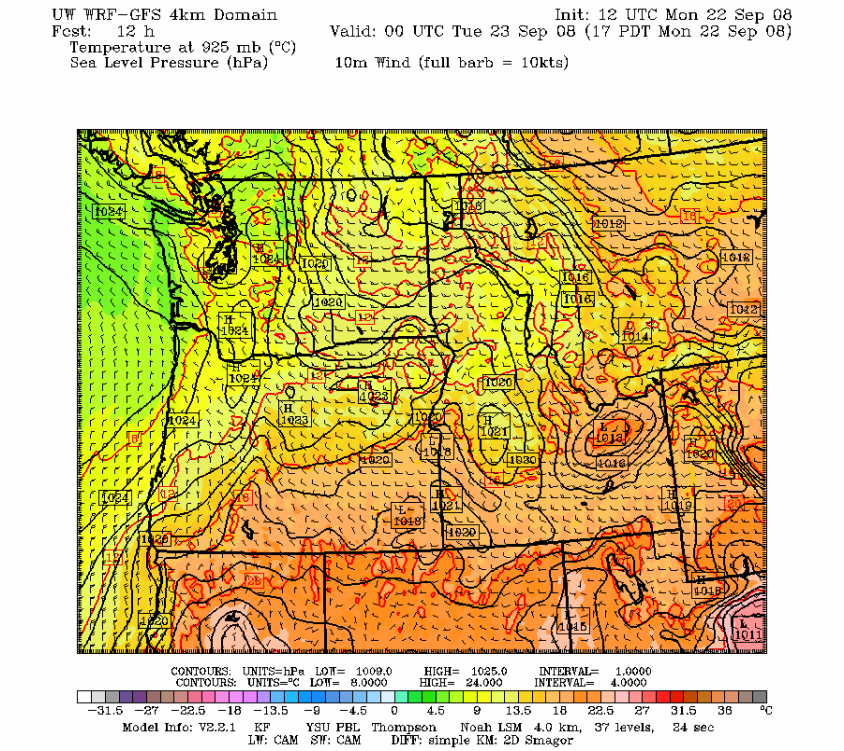


Figure 8. Surface MM5 graphic for September 22, 2008

Figure 9 shows the strength of the dominant high-pressure ridge that developed over the entire Pacific Northwest, once again. This high-pressure ridge remained the dominant weather feature for the rest of September and through the first few days of October.

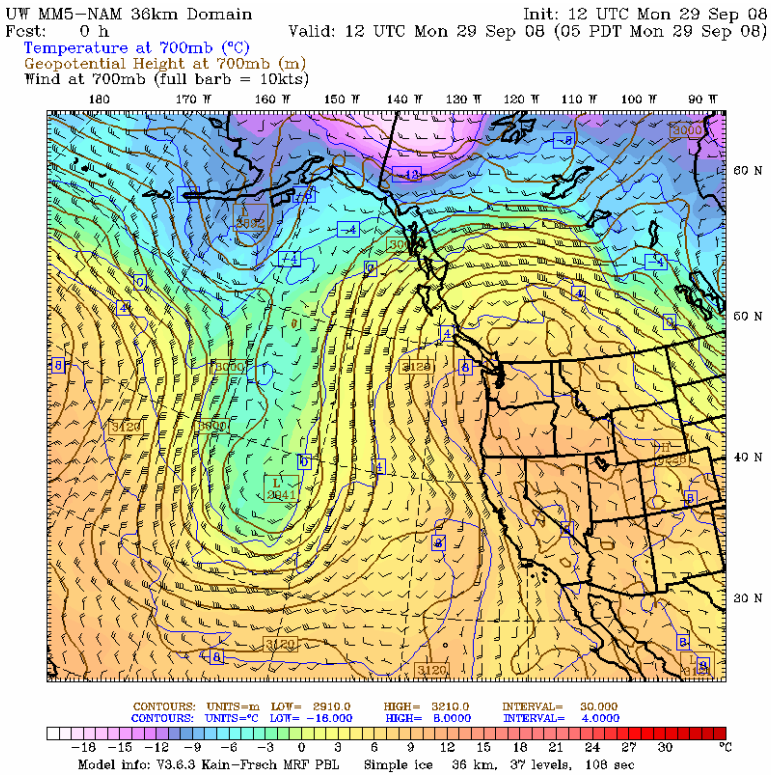


Figure 9. 700 millibar MM5 graphic for September 29, 2008.

4.5.1.2 October 2008

The October field burning started out under sunny skies and daytime temperatures that were warm for the time of the year. The weather pattern was still dominated by the high-pressure cell centered over the desert southwest and ridging north into southern and central British Columbia. This late season fair-weather pattern allowed DEQ to approve burns in some of the more difficult burn areas. The pattern was about to change, however, in the first few days of October. Figure 9 shows very cold air diving into the low off the west coast. The coldest air was near the Aleutians and moving into the Gulf of Alaska. By late in the first week of October, these storms would begin to impact and break down the strong high-pressure ridge over northern Idaho. Figure 10, for October 2, shows this breakdown in progress. The cold air mass was sweeping into northern Idaho airsheds as a weak surface front mixed the low level air mass to provide an excellent burn day. This series of Pacific storms would be the leading cause of eventually bringing the 2008 field burning season to an end.

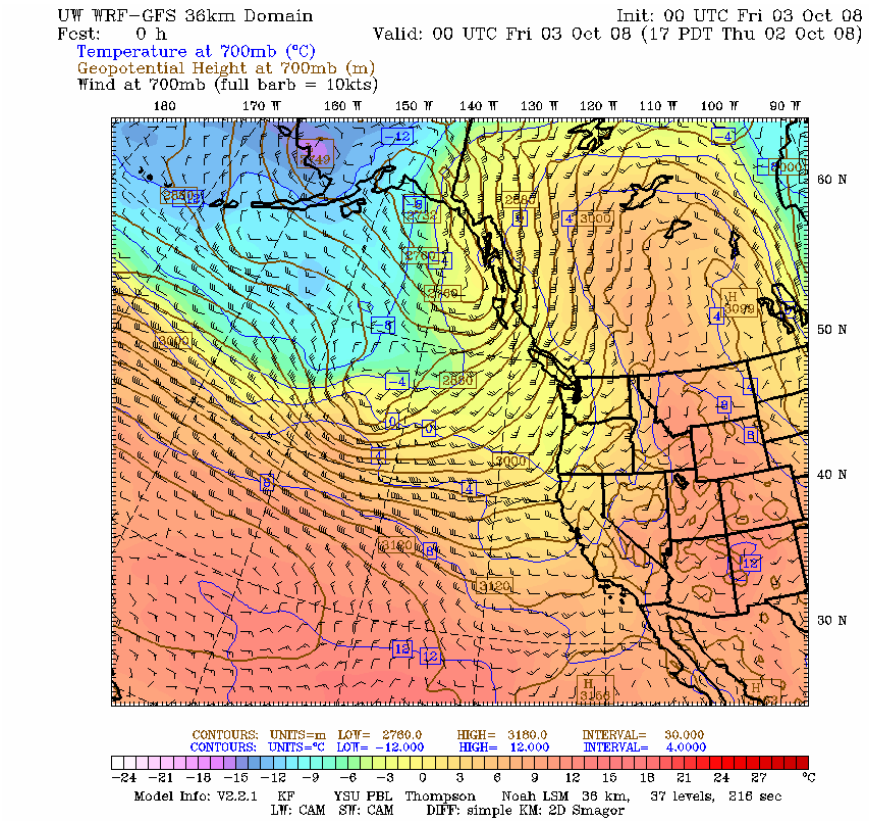


Figure 10. 700 millibar MM5 graphic for October 2, 2008

Figure 11, a satellite picture from the early morning on October 3, shows the first and second weather-producing fronts that signaled the end of the high-pressure ridge over the northern Idaho airsheds. The cold upper trough sent surges of moisture-laden air into northern Idaho as the jet stream sagged across Washington and Idaho.

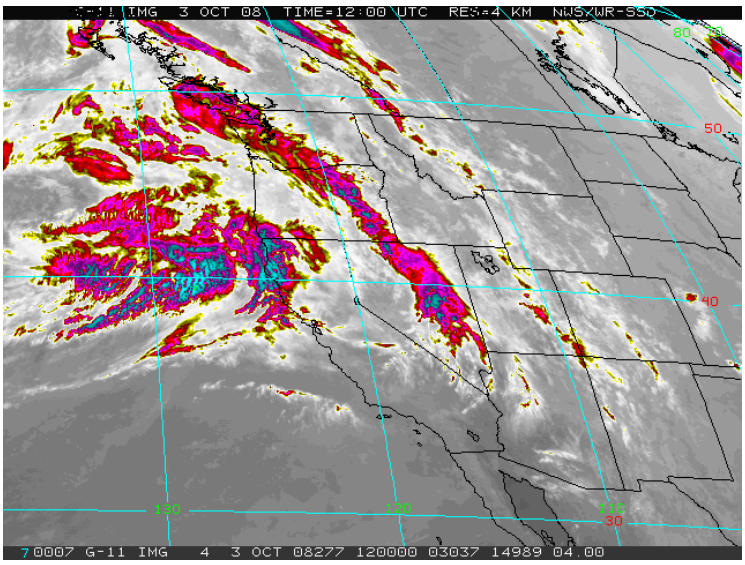


Figure 11. Satellite image for early morning, October 3, 2008

The strong jet stream winds brought a series of Pacific storms onshore during the second and third weeks of October. Weak flat high pressure did occur in between weather systems, allowing the fields to dry out. This was the general weather pattern for the last week of the fall 2008 burn season, as seen in Figure 12.

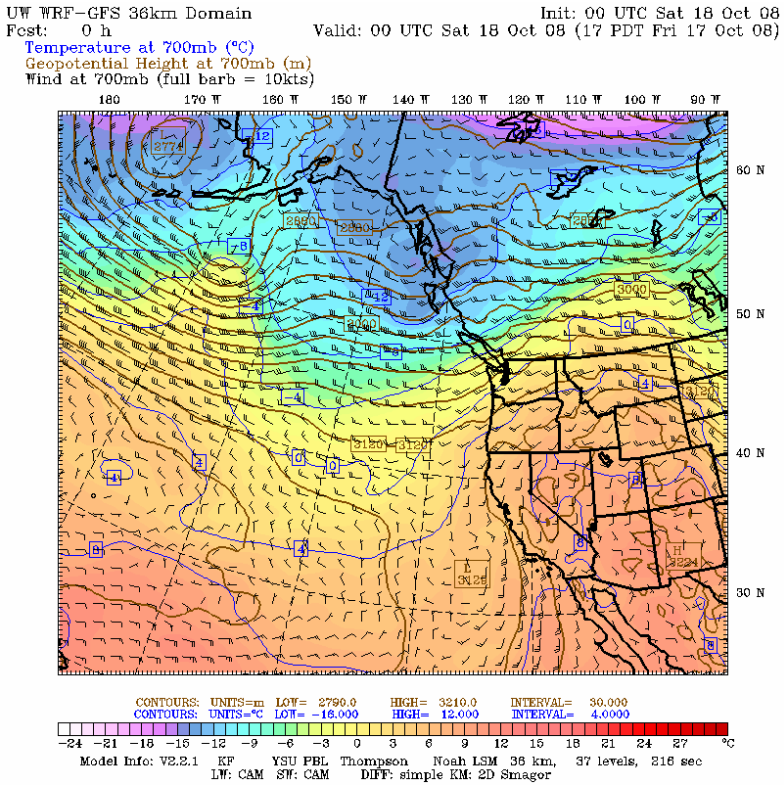


Figure 12. 700 millibar MM5 graphic for October 17, 2008

4.5.2 Central Burn Management Area

The central BMA was originally defined to manage burning throughout the entire Clearwater Airshed. However, during the burn season, DEQ determined that dividing the BMA into 4 sub-airsheds was better for smoke management. Figure 2 shows the four sub-airsheds used for the Central BMA.

4.5.2.1 Area Geography

The central BMA, also known as the Clearwater Airshed, includes the Idaho Counties of Latah, Nez Perce, Lewis, and Clearwater, and also encompasses the Nez Perce Indian Reservation. This airshed is generally characterized by rolling prairies and tablelands of moderate relief, relatively flat with valleys, canyons, and buttes. The Clearwater River and its tributaries separate the Palouse Prairie located to the north and the Camas Prairie located to the south, with drainages deeply incising layers of bedded basalt. The two major field-burning areas are these two prairies. The Palouse Prairie encompasses Latah and western Clearwater counties. Air quality protection in this area is under the jurisdiction of the State of Idaho. The Camas Prairie encompasses the Nez Perce Reservation; wherein, air quality protection is under the jurisdiction of the Nez Perce

Tribe and EPA. The State of Idaho is responsible for air quality issues on the Camas Prairie outside of the Reservation boundaries.

Palouse topography primarily consists of rolling hills. Moving east from the Idaho/ Washington border, there are canyons and other topographical features that are challenging for smoke managers. The Camas Prairie is a relatively level plateau flanked by mountain foothills to the east and south, and steep canyons to the west and north, which can pose significant problems for smoke management. Several drainage breaks and buttes lend variety to the Camas Prairie's topography.

Managing smoke in areas with many different micro-profiles in a relatively small area is very difficult. Different topographical profiles and the proximity of communities to fields burned annually are major reasons why sophisticated smoke management is required for north central Idaho.

4.5.2.2 Air Quality

Within the Clearwater Airshed, three $PM_{2.5}$ real-time air quality monitors are maintained by the Nez Perce Tribe, and six by DEQ. Data from the monitor operated in Lewiston was used when making the daily burn decisions but is not included in the evaluation. The Lewiston monitor is heavily influenced by local emissions and is not representative of impacts from crop residue burning.

Four yellow sheets (9/9, 9/18, 9/30, 10/30) and no red sheets were completed for the fall 2008 burn season. Some of the yellow sheets were completed even though the burn decision was for a no-burn day.

Two purple sheets (9/25, 10/14) were completed in 2008, all of which were related to crop residue burning. While some purple sheets were a result of wind switches or other meteorological variables, some resulted from inadequate ignition methods or insufficient fuel loads. For example, burning a field with low fuel load does not create sufficient heat to allow the smoke to rise high enough to reach the transport winds.

During the evaluation of the monitoring data in relation to the number and location of burned acres, DEQ determined that the following enhanced documentation was required. As seen below, DEQ did not always complete enhanced documentation when required and completed some when not required.

YELLOW SHEET REQUIRED

September 18 – 2-hour rolling average at Kendrick monitor – completed as required

October 15 – 2-hour rolling average at Kendrick

PURPLE SHEET REQUIRED

October 9 – 2-hour rolling average at Potlatch monitor –

September 25 – 2-hour rolling average at Kendrick monitor – completed as required

September 25 – 2-hour rolling average at Grangeville monitor –

October 31 – 2-hour rolling average at Clearwater monitor –

Although some burn decisions caused increased particulate levels, there were days when significant numbers of acres were burned and air quality remained good. On these days, the meteorological conditions were highly conducive for burning. For example, approximately 12,000 acres were burned on October 2, 2008, including eastern Washington counties, and DEQ and Tribe-managed areas within the Clearwater Airshed. The highest 1-hour $PM_{2.5}$ average concentration recorded on any monitor was less than 15µg/ m^3. The following paragraph summarizes the meteorological condition for this day.

Thursday, October 2, became one of those rare October burn days when all things meteorologically came together. The air mass over northern Idaho was warm and stable. A weakening Pacific cold front was trying to buck into the formidable high-pressure ridge over the region. The ridge axis had moved into Montana while the cold front was providing ample mechanical mixing for a good "lifting" day. Mixing heights ranged around 5,000-6,000 feet above ground level (AGL) over the northern airsheds and around 7,000-8,000 feet AGL on the Camas and Weippe Prairies over the remainder of Idaho County. Winds aloft and in the transport layer were from the southwest, generally in the 10-20 mph range. The approaching Pacific cold front provided the vertical mixing needed to allow the smoke to rise into the well-mixed transport layer. Dispersion of field burning smoke was maximized by the frontal lift and ample transport winds available to move smoke northeast and disperse it. Ventilation was excellent as well, after the morning inversion broke around 11 am to 12 noon.

Appendix B contains a comparison of the acres burned in the Central BMA and the 1-hour, 2-hour, and 24-hour $PM_{2.5}$ average concentrations. The comparison is based on the four sub-airsheds. Data from those monitors located in or used for burn decisions in each sub-airshed are compared to the number of acres burned in that sub-airshed.

4.5.2.3 Total Acreage and Number of Burn Days

In the Central BMA, 17,447 total acres were burned on 27 burn days. There was a total of 4,570 acres, for which registration was completed and fees paid, that were not burned due to grower choice or changing weather conditions being unsuitable for burning. Table 4 presents the summary of acres by crop type. The number of acres approved and burned for each burn day in all of the Central BMA is presented in Table 5.

Table 4. Summary of acres by crop type for the Central BMA.

Crop Type	Acres Registered	Acres Paid	Acres Burned
Cereal Grain	18604	14311	11534
Conservation Reserve Program	508	508	357
Legumes	1	1	0
Other	467	463	387
Turf Grass	6791	6734	5168
TOTAL	**26372**	**22017**	**17447**

Table 5. Burn Decisions and acres burned for the Central BMA.

Day of Week	Date	Number of acres approved	Number of acres burned
T	9/2/2008	202	202
W	9/3/2008	215	205
Th	9/4/2008	550	272
F	9/5/2008	383	383

Day of Week	Date	Number of acres approved	Number of acres burned
M	9/8/2008	66	66
W	9/10/2008	1491	1051
Th	9/11/2008	629	452
F	9/12/2008	1514	1114
W	9/17/2008	95	95
Th	9/18/2008	901	808
W	9/24/2008	1164	1034
Th	9/25/2008	4320	3015
T	9/30/2008	637	560
W	10/1/2008	694	524
Th	10/2/2008	7004	4143
F	10/3/2008	1425	1053
W	10/8/2008	2186	611
Th	10/9/2008	461	151
F	10/10/2008	295	0
T	10/14/2008	1152	291
W	10/15/2008	480	258
F	10/17/2008	1009	567
Th	10/23/2008	25	25
F	10/24/2008	177	177
M	10/27/2008	383	52
T	10/28/2008	409	179
W	10/29/2008	48	0
Th	10/30/2008	351	138
Th	11/20/2008	20	20
	TOTAL	**28287**	**17446**

4.5.2.4 Complaints, Compliance and Enforcement

A total of 21 complaints were received during the fall 2008 burn season for the Central BMA. Four complaints provided sufficient detail such that DEQ was able to link the complaint to crop residue burning. The remaining complaints included observations, questions, or were about smoke impacts from other sources.

Of the four detailed complaints received for this BMA, three originated from north and south Latah County sub-airsheds. Of these, two provided sufficient information such that DEQ was able to take action to prevent further degradation in air quality. Although monitor readings in the area of the complaints were below program concentration limits, the smoke was projected to continue to disperse in the general direction of an institution with a sensitive population; therefore, DEQ required the burns be shut down. One grower, after receiving direction from DEQ to not add any more fuel to the burn, called the local fire department and had two full size fire trucks come and extinguish the fire. This action was not required by DEQ; however, it did improve the air quality.

The fourth complaint originated in the Southwick sub-airshed; specifically, the town of Kendrick. The impact to Kendrick was a result of a burn located next to a canyon rim that experienced a surface wind direction switch which caused the smoke to drop into the canyon. Information provided in the complaint allowed DEQ to improve subsequent burn decisions

during the burn season and a change in the techniques used by the grower to burn the field properly.

There were no compliance or enforcement actions in the Central BMA.

4.5.3 Kootenai County Burn Management Area

4.5.3.1 Area Geography

The Kootenai County BMA includes the Rathdrum Prairie and Rose Lake areas. The Rathdrum Prairie is an area of irrigated agricultural fields and other rural land in Kootenai County. The Rathdrum Prairie is bordered to the north by the city of Rathdrum, to the east by the city of Hayden, and to the south by the cities of Post Falls and Coeur d'Alene. The grass fields located on the prairie are nearly surrounded with urbanized cities and growing rural residential communities. The Rose Lake area is on the eastern edge of Kootenai County and includes the Chain Lakes area, following the Coeur d'Alene River as it flows into Lake Coeur d'Alene. It is very difficult for a smoke manager to predict how smoke will move from the fields and whether it will disperse quickly, to choose times of minimal impact to the public. One small change in the weather, or field condition such as fuel moisture, can result in an unexpected and undesirable smoke impact to a downwind area.

4.5.3.2 Air Quality

Air quality monitors used during the burn decisions for the Rathdrum Prairie are located in Coeur d'Alene, Rathdrum, Athol, and Hope. In addition, data from the Sandpoint monitor is included in this evaluation due to air quality impacts from past burn seasons.

The Rathdrum Prairie burns were conducted with little or no impacts recorded by the monitoring network. The Rose Lake burn occurred on October 2 which produced noticeable near-field impacts, as documented by field staff. Improved ignition techniques are needed to ensure these impacts are minimized next season. A significant smoke impact occurred in Pinehurst on October 2. Evaluation of wind direction, speed, and source strength indicate the smoke was likely attributed to acreage burned within the boundaries of the Coeur d'Alene Tribe Reservation combined with the Rose Lake 40-acre burn.

In Kootenai County, air quality continues to be less impacted by field burning than by regional prescribed fire activity. No yellow sheet, red sheet, or purple sheets were completed for the 2008 CRB season for Kootenai County.

During the evaluation of the monitoring data in relation to the number and location of burned acres, DEQ determined the following enhanced documentation was required:

PURPLE SHEET REQUIRED

October 2 – 2-hour rolling average at Sandpoint monitor

Appendix C contains a comparison of the acres burned in the Kootenai County BMA and the 8-hour ozone, and 1-hour, 2-hour, and 24-hour $PM_{2.5}$ average concentrations.

4.5.3.3 Total Acreage and Number of Burn Days

For the Kootenai County BMA, DEQ approved four burn days from September 2 through October 2, 2008. Only three days were utilized by the growers. A total of 595 acres were

burned, which represents 100% of the acres registered. Table 6 presents the summary of acres by crop type. The number of acres approved and burned for each burn day in the Kootenai County BMA is presented in Table 7.

Table 6. Summary of acres by crop type for the Kootenai County BMA.

Crop Type	Acres Registered	Acres Paid	Acres Burned
Cereal Grain	148	148	148
Conservation Reserve Program	—	—	—
Legumes	—	—	—
Other	—	—	—
Turf Grass	447	447	447
TOTAL	**595**	**595**	**595**

Table 7. Burn decisions and acres burned for the Kootenai County BMA.

Day of Week	Date	Number of acres approved	Number of acres burned
T	9/9/2008	407	407
F	9/12/2008	148	148
Th	10/2/2008	40	40
	TOTAL	**595**	**595**

4.5.3.4 Complaints, Compliance and Enforcement

DEQ received three complaints from this BMA and one resulted in the issuance of a Warning Letter for protection of public roadways. Two of these complaints indicated a smoke "smell." Information from the third complaint will be used to adjust future field ignition timing.

4.5.4 Boundary County Burn Management Area

The majority of the CRB activity in Boundary County occurs in the Kootenai River Valley bottom lands. The Kootenai River Valley is the major agricultural area in Boundary County, with rich farmland along the flat river bottoms and adjacent benches.

4.5.4.1 Area Geography

The Selkirk Range is located on the west side and creates a dramatic valley boundary, rising more than 3,000 feet above the valley floor within one mile of the western edge of the valley. The mountain peaks are at 6,000 to 6,800 feet throughout the north/south-oriented range. The eastern boundary is similar to the west, with ridge tops at 4,000 to 6,000 feet. These geographic features have a strong influence on the local weather patterns and play a significant role in the agricultural smoke management program. The primary smoke management challenge in Boundary County continues to be the impact terrain has on localized weather and the dispersion of smoke. The Kootenai River Valley, where most of the burning occurs, has steep drainages that create localized gap winds and wind patterns. The Kootenai River runs from east to west as it passes through the city of Bonners Ferry and then turns to the north/northwest as it flows approximately 25 miles up to British Columbia.

4.5.4.2 Air Quality

Locations of $PM_{2.5}$ air quality monitors for this BMA include: Copeland Nephelometer, Kootenai Tribe Nephelometer (KTOI), and BC Environment Canada $PM_{2.5}$ TEOM. Two impacts required

purple sheet documentation. Both these impacts were registered on the BC Environment Canada $PM_{2.5}$ TEOM located at Piper Farms south of Creston, British Columbia (BC). Neither of these impacts exceeded any program concentration limits stated in Section 2; however, they were substantial enough (50µg/m^3) to warrant enhanced documentation. Minimal impacts (15µg/m^3) were recorded on the KTOI monitor after ignition of fields located in the southernmost portion of the valley on one occasion. Air quality impacts from CRB activity remain less than those impacts consistently observed from regional prescribed fire activity in this area. No yellow sheet or red sheet documentation was completed for the 2008 CRB season.

During the evaluation of the monitoring data in relation to the number and location of burned acres, DEQ determined the following enhanced documentation was required.

PURPLE SHEET REQUIRED

September 15 – 2-hour rolling average at BC Environment Canada monitor – completed as required

October 2 – 2-hour rolling average at BC Environment Canada monitor – completed as required

Appendix C contains a comparison of the acres burned in the Boundary County BMA and the 1-hour, 2-hour, and 24-hour $PM_{2.5}$ average concentrations.

4.5.4.3 Total Acreage and Number of Burn Days

Growers utilized ten burn days from September 3, through October 8, 2008. In the Boundary County BMA, 4,642 acres were burned. There were a total of 1,816 acres, for which registration was completed and fees were paid, that were not burned due to grower choice or changing weather conditions being not suitable for burning or ventilation. “No burn” days were declared due to weather conditions being not suitable for burning, including poor ventilation, National Weather Service “red flag warnings,” high relative humidity, and/or high fuel moisture.

Table 8 presents the summary of acres by crop type. The number of acres approved and burned for each burn day in the Boundary County BMA is presented in Table 9.

Table 8. Summary of acres by crop type for the Boundary County BMA.

Crop Type	Acres Registered	Acres Paid	Acres Burned
Cereal Grain	5974	5694	4427
Conservation Reserve Program	—	—	—
Legumes	—	—	—
Other	549	549	0
Turf Grass	215	215	215
TOTAL	**6738**	**6458**	**4642**

Table 9. Burn decisions and acres burned for the Boundary County BMA.

Day of Week	Date	Number of acres approved	Number of acres burned
W	9/3/2008	545	545
M	9/8/2008	160	160
T	9/9/2008	750	750
Th	9/11/2008	180	180
F	9/12/2008	956	956
M	9/15/2008	448	448

Day of Week	Date	Number of acres approved	Number of acres burned
Th	10/2/2008	1133	1133
F	10/3/2008	150	150
W	10/8/2008	650	320
	TOTAL	**4972**	**4642**

4.5.4.4 Complaints, Compliance and Enforcement

DEQ received four complaints for this BMA. Three originated from BC, Canada. Of these, two were very specific and the information provided by the complainant resulted in appreciable improvement to subsequent burn decisions. The third complaint from BC was more generic and therefore was not as directly helpful to the program. The fourth complaint was received on October 28. No fields were approved by DEQ for ignition on this day. This complaint and follow-up investigation resulted in two referrals for formal enforcement. These enforcement referrals are in the process of review.

4.6 Southern Idaho Summaries

The Idaho State Department of Agriculture reported 372,000 acres of winter wheat were harvested in southern Idaho in 2007. A dramatic increase in the total number of acres burned during the spring and summer peak burn seasons is expected in Southern Idaho. This is due in part to the fact that burning in 2009 will occur over a full calendar year and awareness of the crop residue burning program will have increased.

For southern Idaho, a total of 10,962 acres were burned in 2008, representing a 77% burn completion rate, and leaving 3,190 acres unburned. The unburned acres were due to either grower choice or meteorological conditions unsuitable for burning.

Most burning occurred in the Snake River Plain ecoregion of southern Idaho. The Snake River Plain is characterized by plains and low hills. It is considerably lower and less rugged than the surrounding ecoregions. Crop residue burning occurred in six of nine BMAs along the Snake River Plain. Approved crop residue burning may occur year-round, but the typical burning seasons are March through April and mid-July through mid-October. Growers generally will spot-burn throughout the calendar year, depending on the crop and noxious weed infestations.

4.6.1 Southern Idaho Meteorology Summary

4.6.1.1 September 2008

Operational crop residue burn forecasts and recommendations began September 2. At this time, a rather weak weather pattern was over the southern Idaho burn management areas, after the passage of a strong cold front during the preceding weekend. By the middle of the first week, the cold air mass had moved east into Wyoming and the Dakotas, while high pressure was building into the eastern Pacific. Figure 13 shows the high pressure ridging into southern Idaho with west to northwest winds aloft over the airsheds. Wildfires were at a minimum over southern Idaho as the progressive weather pattern continued to keep monsoonal moisture shearing east before moving into Idaho.

Figure 13 shows the surface weather pattern on September 3 had the warmer surface air mass moving into the airsheds. On this day, the cooler air remained aloft. The cooling with altitude yielded good surface lift and mixing in the mixed layer aloft. Model and actual soundings

depicted the surface-based instability quite well, similar to what you would see in the middle of the summer with thermally-induced lower pressure at the surface providing the initial lift. Subsiding air within the ridge, however, did limit mixing heights.

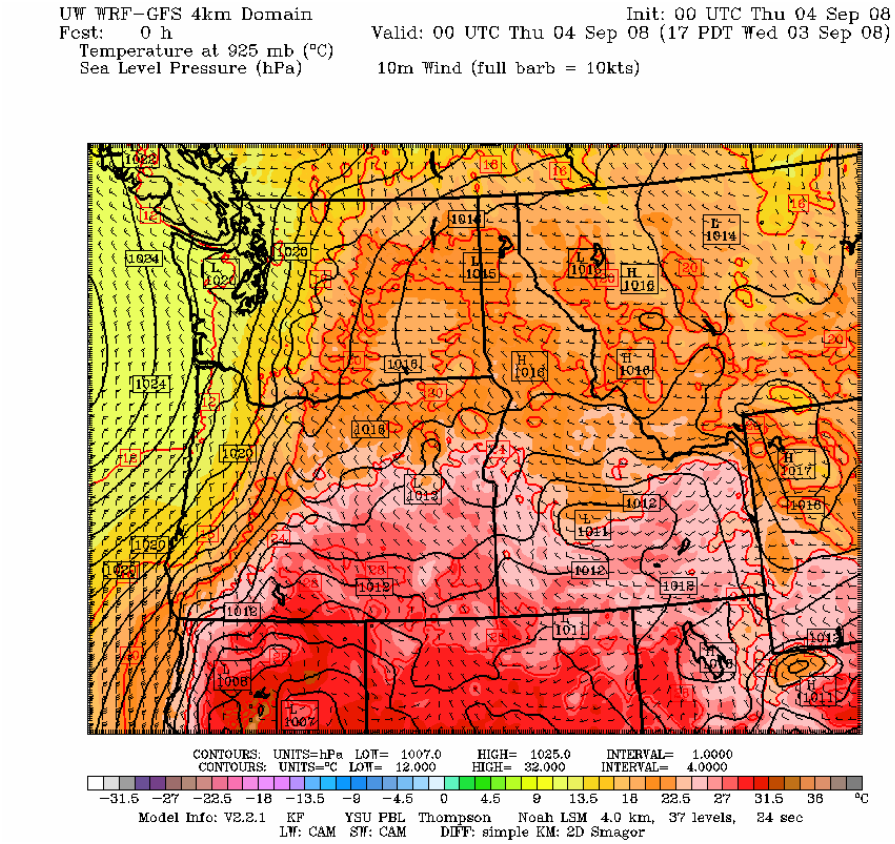


Figure 13. Surface level MM5 graphic for September 3, 2008.

The weather patterns aloft and at the surface were dominated by the offshore high-pressure ridge through the first week of September. By the second week of September, another weak upper trough flattened the high-pressure ridge and moved into the southern Idaho airsheds. This weak trough with a flattened high pressure ridge lasted through the second week. By the third week of September, a very strong full-latitude high-pressure ridge moved over the entire western U.S. This formidable high-pressure ridge brought a warming air mass and subsiding air over the entire southern Idaho airsheds. The high-pressure ridge dominated the weather through the third week of September.

By the last full week of September, we reverted back to a more progressive weather pattern as the jet stream winds aloft moved south of their usual position over central British Columbia. Figure 14 shows the 300 millibar jet stream winds digging down over the southern Idaho airsheds with a cold upper trough. This cold weather pattern is similar to the previous features and moved quickly east by mid-week as higher pressure again moved into the airsheds.

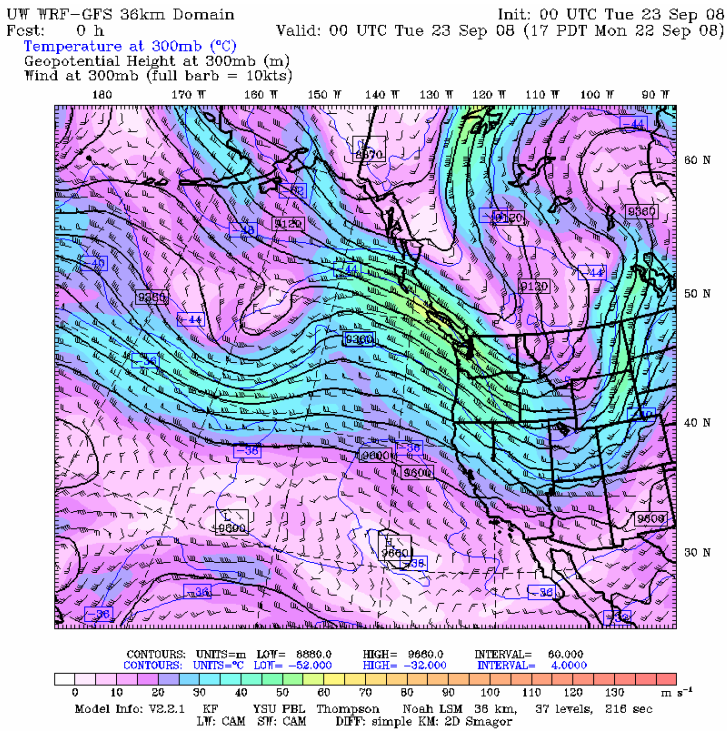


Figure 14. 300 millibar MM5 graphic for September 22, 2008.

Figure 15 shows the effect a strong upper-level feature can have on the surface pattern, even through mixing heights in the cooler air were at a minimum. This ventilation graphic combines Planetary Boundary Layer (PBL) height and 20-meter surface wind. Mixing at all levels of the lower and upper atmosphere became enhanced, prompting the question of how high of a sustained surface windspeed can occur and still have safe burning. On this particular day, surface winds were above safe burning criteria established by DEQ.

Toward the end of September, the cold upper level trough slowly filled and moved east into Wyoming, allowing another upper-level ridge to move from off the Pacific Coast into southern Idaho. This high-pressure ridge remained the dominant weather feature for southern Idaho for the remainder of September.

Again, the subsiding effects of the high-pressure ridge kept an inversion aloft over the airsheds, thereby limiting the mixing heights. Winds both aloft and at the surface were generally light as the ridge was blocked into position.

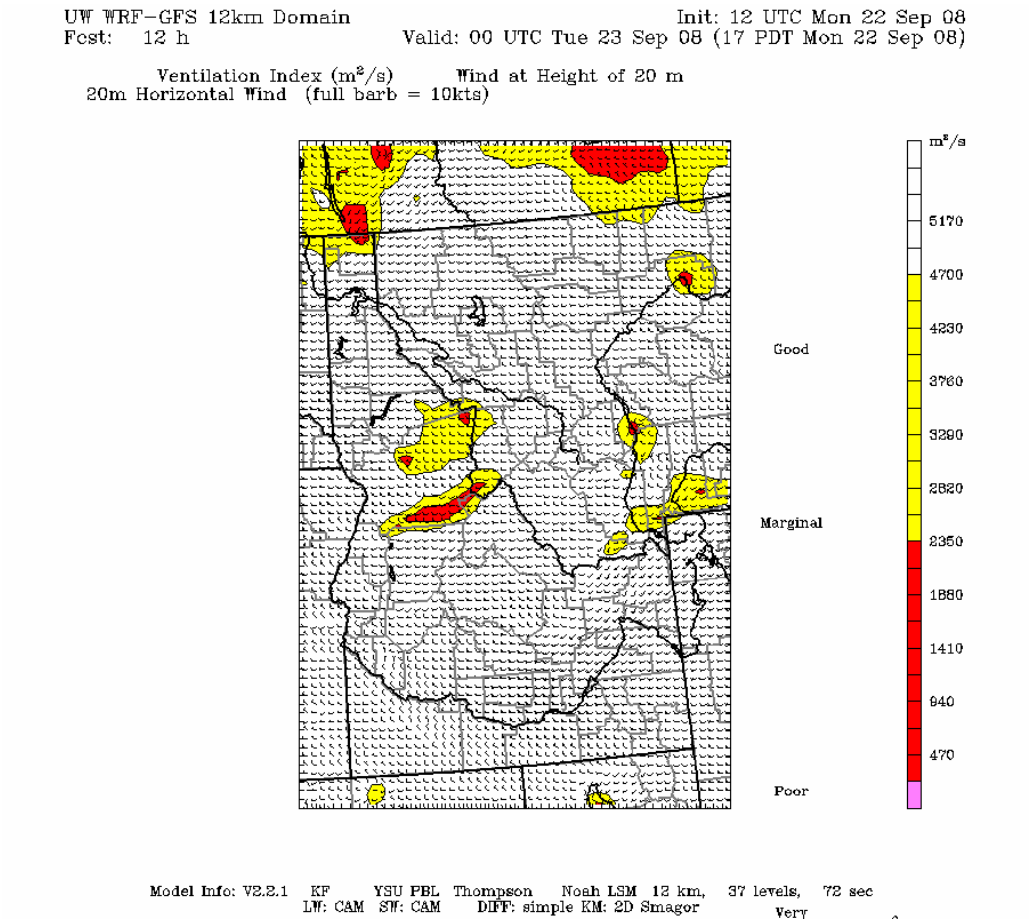


Figure 15. MM5 ventilation index for September 22, 2008.

4.6.1.2 October 2008

Figure 9 (page 28) shows that the strong upper-level ridge gradually moved east by the beginning of October, as the weather pattern began to shift back to a progressive state. Another weak upper-level trough moved into southern Idaho during the first week of October. The summer type weather pattern broke down rapidly as a series of Pacific storms were lined up across the northeast Pacific and Gulf of Alaska. This progressive weather pattern remained over southern Idaho until the end of the second week of October. After that second weekend in October, another high pressure ridge moved over the Great Basin, allowing for some scattered burning. The high-pressure ridge moved over eastern Idaho. Figure 16 shows this clearly, as higher surface pressure over the Eastern Idaho BMA, and a warmer thermally-induced air mass sitting over the Southwest BMA.

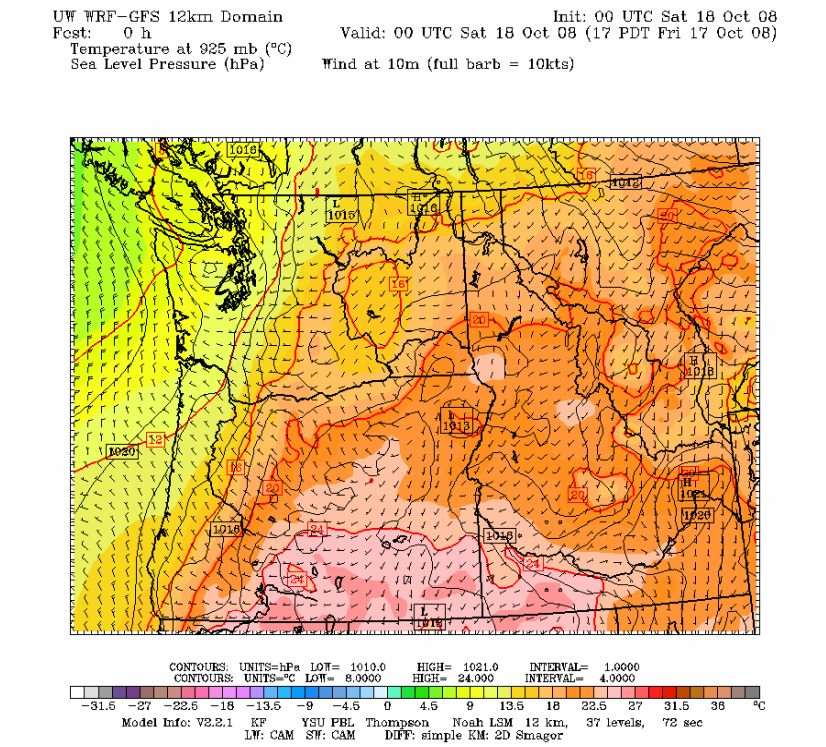


Figure 16. MM5 surface level graphic for October 17, 2008.

4.6.2 Southwest Idaho Burn Management Area

The Southwest Idaho BMA includes Canyon, Ada, Elmore, and Owyhee counties. This BMA is bordered by the state of Oregon to the west and bisected by the Snake and the Boise rivers. Burning in this BMA primarily occurred in the vicinity of Homedale in northwest Owyhee County, throughout Canyon County, and in western Ada County. The crops burned were primarily cereal grain stubble and alfalfa seed residue.

4.6.2.1 Area Geography

The Southwest Idaho BMA covers a total of 12,462 square miles and includes complex terrain in the northern foothills of Ada County and the Owyhee uplands in the south. This area is part of both the Snake River Plain and Northern Basin and Range ecoregions. This area is well known for seed production and contains Idaho's largest population centers, in Ada and eastern Canyon counties. Residue burning was conducted primarily where irrigation for row crop agriculture is available. Smoke produced from wildfires and agricultural burns to the west is funneled through this area. This impacts the air quality of the Treasure Valley.

Within the Southwest Idaho BMA, there are seven reservoirs. Arrowrock and Lucky Peak reservoirs are located in the foothills northeast of Boise. These reservoirs may influence smoke produced from wildfires to the north or planetary boundary layer smoke coming from the south and west. Lake Lowell is located in south central Canyon County; this reservoir does play a part in influencing smoke dispersion in the area. Anderson Ranch, Long Tom, and Little Camas reservoirs are located northeast of Mountain Home; their effect on agricultural smoke dispersion is unknown. C.J. Strike Reservoir is located south of Mountain Home; its effect on agricultural smoke dispersion is also unknown.

4.6.2.2 Air Quality

Three PM2.5 air quality monitors are located in the Southwest Idaho BMA. The Nampa monitor is located nearly 30 miles east of where most burning occurred, but is the closest monitor in the area. The other two monitors are located further east, in Boise. There were two ozone monitors operating during the burn season in the Treasure Valley. Ozone concentrations were monitored and consideration given in daily burn decisions. The Treasure Valley experiences many inversions and air stagnation periods that affect pollutant concentrations and, ultimately, burn decisions. High-pressure systems prove to be the meteorological feature that influences burn days. When high pressure is overhead, air stagnation in the valley drives ozone and PM2.5 concentrations up, thus degrading the air quality.

Local city and county ordinances restrict all open burning, including CRB, when the air quality index (AQI), as issued by DEQ, is greater than 60. An AQI of 60 equates to 63 ppb ozone 8-hour average concentration and 19.5 $\mu g/m^3$ $PM_{2.5}$ 24-hour average concentration. When local burn restrictions are triggered, DEQ issues a no-burn day for CRB for all areas within the Treasure Valley airshed.

The maximum 1-hour $PM_{2.5}$ concentration measured during the fall 2008 burn season in this BMA was 50.3 $\mu g/m^3$ on September 18 at 20:00 (8:00 pm). The average 1-hour concentration measured during this time period was 14.3 $\mu g/m^3$. The maximum 24-hour average $PM_{2.5}$ concentration during the burn season was 23.5 $\mu g/m^3$.

The highest 1-hour concentrations were measured during the late evening and early morning hours. This is attributed to the nocturnal inversions as temperatures in the valley are cool, trapping pollutants near the ground. Due to the location of the Nampa monitor, several diurnal peaks in the $PM_{2.5}$ concentrations are attributed to traffic patterns.

One yellow sheet and one red sheet were completed for the September 30 burn day in the Southwest Idaho BMA. These were triggered by concentrations measured by the Nampa monitor located downwind of the proposed burns. Acres approved were located west-southwest of the Nampa monitor and winds were forecasted from the south-southeast, dispersing the smoke away from populated areas. The number of acres approved for burning were limited on these days, and no impact occurred during or after the burn. The elevated $PM_{2.5}$ concentrations that occurred before and after the burns were attributed to commuting traffic closer to the monitor.

During the evaluation of the monitoring data in relation to the number and location of burned acres, DEQ determined that the following enhanced documentation was required.

YELLOW SHEET REQUIRED

September 5 – 2-hour rolling average at Nampa monitor

September 16 – 2-hour rolling average at Nampa monitor

September 30 – 2-hour and 24-hour rolling averages at Nampa monitor – completed as required

October 2 – 2-hour rolling average at Nampa monitor

RED SHEET REQUIRED

September 30 – 2-hour rolling average at Nampa monitor – completed as required

PURPLE SHEET REQUIRED

September 12 – 2-hour rolling average at Nampa monitor –

September 15 – 2-hour rolling average at Nampa monitor –

Ozone monitors in the Treasure Valley recorded one value above the 8-hour ozone program concentration limit. No values were recorded above the 1-hour and 24-hour $PM_{2.5}$ program concentration limits.

Appendix D contains a comparison of the acres burned in the Southwest Idaho BMA and the 8-hour ozone, 1-hour, 2-hour, and 24-hour $PM_{2.5}$ rolling average concentrations.

4.6.2.3 Total Acreage and Number of Burn Days

In the Southwest Idaho BMA, growers utilized nine burn days from September 4 through October 17, 2008. A total of 337 acres, for which registration was completed and fees were paid, were burned, leaving 93 acres unburned due to grower choice or weather conditions unsuitable for burning. Fifteen "no burn" days were declared due to lack of registered fields, one due to air quality, and nine due to meteorological conditions not suitable for burning (i.e., relative humidity higher than 35%, poor ventilation, low transport winds, or dense cloud cover).

Table 10 presents the summary of acres by crop type. The number of acres approved and burned for each burn day in the Southwest Idaho BMA is presented in Table 11.

Table 10. Summary of acres by crop type for the Southwest Idaho BMA.

Crop Type	Acres Registered	Acres Paid	Acres Burned
Cereal Grain	3630	3630	3335
Conservation Reserve Program	1242	1242	448
Legumes	—	—	—
Other	—	—	—
Turf Grass	—	—	—
TOTAL	**4872**	**4872**	**3783**

Table 11. Burn decisions and acres burned for Southwest Idaho BMA

Day of Week	Date	Number of acres approved	Number of acres burned
Th	9/4/2008	7	7
F	9/5/2008	25	25
F	9/12/2008	104	79
M	9/15/2008	78	78
T	9/16/2008	19	19
Th	9/18/2008	32	0
T	9/30/2008	50	38
W	10/1/2008	26	0
Th	10/2/2008	12	12
W	10/8/2008	24	24
F	10/17/2008	55	55
	TOTAL	**432**	**337**

4.6.2.4 Complaints, Compliance and Enforcement

DEQ received three complaints from this BMA. One follow-up investigation resulted in an enforcement referral. This is still in the DEQ enforcement process.

4.6.3 Southern Magic Valley Burn Management Area

The Southern Magic Valley BMA includes Twin Falls and Cassia counties. Burning occurred throughout the BMA, but was in large part conducted in the vicinity of Twin Falls. The primary crop burned was cereal grain stubble.

4.6.3.1 Area Geography

The Southern Magic Valley BMA covers 4,508 square miles and includes portions of the Snake River Plain and aspects of the Northern Basin and Range. Southern Magic Valley is home to the largest population in the Magic Valley subregion. The Magic Valley subregion of the Snake River Plain ecoregion is named for the irrigation canals that transformed the region into a productive agricultural valley. Elevation varies from 3,200 to 4,500 feet. The arid soils require irrigation to grow commercial crops. Many canals, reservoirs, and diversions supply water to the region's pastureland and cropland. Small grains, alfalfa, sugar beets, potatoes, and beans are grown. This area is becoming known for its growing dairy industry.

There are three reservoirs in this BMA. None had an influence on smoke dispersion, but the potential exists. The Cedar Creek, Salmon Falls, and Lower Goose Creek reservoirs are all located in the southern portions of Twin Falls and Cassia counties, well south of where burning occurred.

4.6.3.2 Air Quality

Due to the homogenous topography of the area, Magic Valley does not experience inversion effects to the magnitude of the Treasure Valley, nor do they have concerns with ozone formation and ozone attainment status. Air quality trends in this area are diurnally influenced. Higher concentrations of particulates are seen during night-time hours when a nocturnal inversion is present. Southern Magic Valley has one $PM_{2.5}$ air quality monitor located in Twin Falls. The Twin Falls monitor location is subject to brief periods of localized impact throughout the year.

The maximum 1-hour $PM_{2.5}$ concentration measured during the fall 2008 burn season in the Southern Magic Valley BMA was 66 $\mu g/m^3$ on October 4 at 22:00 (10:00 pm). The average 1-hour concentration measured during the same time period was 8.1 $\mu g/m^3$, and the maximum 24-hour $PM_{2.5}$ concentration during the burn season was 19.8 $\mu g/m^3$.

The highest 1-hour concentrations were measured during the late evening hours. These events are attributed to localized residential wood stove smoke.

Yellow sheets were completed for the October 28 and 29 burn days. Four hours before the burn decision was made, $PM_{2.5}$ 1-hour concentrations ranged from 16.4 $\mu g/m^3$ to 24.2 $\mu g/m^3$. The elevated concentrations are attributed to wood stove smoke from a residential area located less than 100 yards from the location of the monitor.

During the evaluation of the monitoring data in relation to the number and location of burned acres, DEQ determined that the following enhanced documentation was required.

YELLOW SHEET REQUIRED

September 15 – 2-hour rolling average at Twin Falls monitor

October 24 – 2-hour rolling average at Twin Falls monitor

October 29 – 2-hour rolling average at Twin Falls monitor – completed as required

PURPLE SHEET REQUIRED

October 28 – 2-hour rolling average at Twin Falls monitor

The Twin Falls monitor recorded one 1-hour average $PM_{2.5}$ concentration above the 1-hour $PM_{2.5}$ program concentration limit.

Appendix E contains a comparison of the acres burned in the Southern Magic Valley BMA and the 1-hour, 2-hour, and 24-hour average $PM_{2.5}$ concentrations.

4.6.3.3 Total Acreage and Number of Burn Days

DEQ approved 12 burn days from September 15 through October 29, 2008. During this period, 629 acres, for which registration was completed and fees were paid, were burned, leaving 413 acres unburned due to grower choice or weather conditions unsuitable for burning. Twenty-one "no burn" days were declared due to lack of registered fields, one for poor air quality, and four due to meteorological conditions not suitable for burning such as poor ventilation and/or high winds. Three no burn days were due to registered fields not being ready.

Table 12 presents the summary of acres by crop type. The number of acres approved and burned for each burn day in the Southern Magic Valley BMA is presented in Table 13.

Table 12. Summary of acres by crop type for the Southern Magic Valley BMA.

Crop Type	Acres Registered	Acres Paid	Acres Burned
Cereal Grain	1285	1012	599
Conservation Reserve Program	—	—	—
Legumes	10	10	10
Other	94	20	20
Turf Grass	—	—	—
TOTAL	**1389**	**1042**	**629**

Table 13. Burn decisions and acres burned for Southern Magic Valley BMA.

Day of Week	Date	Number of acres approved	Number of acres burned
M	9/15/2008	435	200
T	9/16/2008	144	0
W	9/17/2008	144	144
F	9/19/2008	297	192
Th	9/25/2008	180	34
F	9/26/2008	80	0
W	10/1/2008	10	9
M	10/20/2008	20	20
F	10/24/2008	10	4
T	10/28/2008	20	5
W	10/29/2008	21	21
	TOTAL	**1361**	**629**

4.6.3.4 Complaints, Compliance and Enforcement

DEQ received no complaints from the Southern Magic Valley BMA and no cases have been referred for formal enforcement.

4.6.4 Northern Magic Valley Burn Management Area

Northern Magic Valley BMA includes southeast Elmore County, Gooding, Lincoln, Jerome, and Minidoka Counties, and the Blaine County panhandle. Burning was dispersed throughout the BMA. The primary crop burned was cereal grain stubble.

4.6.4.1 Area Geography

Northern Magic Valley accounts for 2,542 square miles. The lava beds in the northeast portion divide the area, restricting agriculture to the remainder of the BMA. This area is entirely in the Snake River ecoregion and is considered the heart of the Magic Valley subregion that shares agricultural similarities to Southern Magic Valley. Mountain Home Uplands, Semiarid Foothills, Eastern Snake River Basalt Plains, and Lava Field sub-regions of the Snake River Plain ecoregion make up the Northern Magic Valley BMA.

There are three reservoirs located in this BMA. Bray Lake Reservoir is located northwest of Gooding. Its effects on smoke dispersion are unknown. Wilson Lake Reservoir, located west of Paul, and Lake Walcott Reservoir, located east of Rupert, do influence smoke dispersion. These reservoirs are in dense agricultural areas.

4.6.4.2 Air Quality

The Northern Magic Valley BMA and Southern Magic Valley BMA are characteristically similar as far as air quality trends. However, the Northern Magic Valley BMA is much less populated. Air quality impacts can occur from agriculture practices like particulates produced from tilling practices and burning; there are also a few industrial sources, plus transportation. Air quality trends in this area are diurnally influenced. Higher concentrations of particulates are seen during night-time hours when a nocturnal inversion is present.

Burning was not approved on September 2 and 3, due to an inoperable monitor. Burning commenced September 4, 2008, with operational use of the $PM_{2.5}$ monitor located in Paul, which is the single $PM_{2.5}$ air quality monitor in the Northern Magic Valley.

The maximum 1-hour average $PM_{2.5}$ concentration measured during the peak burning season, spanning a total of 39 days, was 21 $\mu g/m^3$ on October 1 at 21:00 (9:00 pm). The maximum 24-hour $PM_{2.5}$ concentrations during this period was 12.3 $\mu g/m^3$.

The highest 1-hour concentrations were measured during the late evening hours. These events are attributed to localized residential wood stove smoke.

A yellow sheet was completed for the October 28 burn day. Four hours before the burn decision was made, $PM_{2.5}$ 1-hour concentrations ranged from 16.4 $\mu g/m^3$ to 24.2 $\mu g/m^3$. The elevated concentrations were attributed to residential wood stove smoke from a trailer park located less than 100 yards from the location of the monitor.

During the evaluation of the monitoring data in relation to the number and location of burned acres, DEQ determined that the following enhanced documentation was required.

PURPLE SHEET REQUIRED

October 28 – 2-hour rolling average at Twin Falls monitor

Appendix F contains a comparison of the acres burned in the Northern Magic Valley BMA and the 1-hour, 2-hour, and 24-hour average $PM_{2.5}$ concentrations.

4.6.4.3 Total Acreage and Number of Burn Days

DEQ approved 16 burn days from September 4 through October 28, 2008. A total of 4,037 acres, for which registration was completed and fees were paid, were burned; leaving 1214 acres unburned due to grower choice or meteorological conditions not suitable for burning. A total of 24 "no burn" days were declared; 10 due to lack of registered fields, two for lack of air quality monitor availability, 12 due to meteorological conditions not suitable for burning (i.e. relative humidity higher than 35%, poor ventilation, low transport winds, and high fuel and/or soil moisture).

Table 14 presents the summary of acres by crop type. The number of acres approved and burned for each burn day in the Northern Magic Valley BMA is presented in Table 15.

Table 14. Summary of acres by crop type for the Northern Magic Valley BMA

Crop Type	Acres Registered	Acres Paid	Acres Burned
Cereal Grain	7906	4817	3739
Conservation Reserve Program	—	—	—
Legumes	—	—	—
Other	434	434	298
Turf Grass	—	—	—
TOTAL	**8340**	**5251**	**4037**

Table 15. Burn decision and acres burned for Northern Magic Valley BMA

Day of Week	Date	Number of acres approved	Number of acres burned
Th	9/4/2008	409	409
F	9/5/2008	480	240
M	9/8/2008	553	553
T	9/9/2008	751	751
W	9/10/2008	548	548
Th	9/11/2008	247	247
F	9/12/2008	413	408
T	9/16/2008	267	267
W	9/17/2008	120	120
Th	9/25/2008	466	248
F	9/26/2008	95	35
W	10/1/2008	110	100
Th	10/2/2008	101	101
T	10/28/2008	10	10
	TOTAL	**4570**	**4037**

4.6.4.4 Complaints, Compliance and Enforcement

DEQ did not receive any complaints from the public for this BMA. Two non-compliance cases identified by DEQ field staff were referred for formal enforcement.

4.6.5 Southeast Idaho Burn Management Area

The Southeast Idaho BMA includes Bingham, Power, Bannock, Caribou, Oneida, Franklin, and Bear Lake counties. Burning was dispersed through out the BMA. The primary crops burned were cereal grain stubble. Burning may occur year-round, but the typical burning season is projected to be March through April and mid July through mid-October.

4.6.5.1 Area Geography

The Southeast Idaho BMA covers a total of 9,428 square miles; the topography in the area is considered complex with the exception of the Snake River Plain. This BMA includes the Snake River Plain and the Caribou Highlands. This portion of the state is known for phosphate mining and production as well as agricultural production of wheat, potatoes, and sugar beets.

There are several mountain ranges within southeastern Idaho, and these north/south-running ridges, with their valleys, dominate the landscape. Also within southeastern Idaho, there are two large water supply reservoirs, one in the Snake River Plain and the other located in the Caribou Highlands: the American Falls reservoir and the Blackfoot reservoir. Both of these reservoirs play a part in influencing smoke dispersion in the area. A majority of the farming occurs along the Snake River Plain and in the Caribou Highland valleys. This BMA is bordered to the South by the State of Utah and to the East by the State of Wyoming.

Burning in the Southeast Idaho BMA occurred primarily areas in the vicinity of Rockland and in the vicinity of Soda Springs. This BMA's agricultural practices are fairly diverse, ranging from dry land crops in the mountain valleys to irrigated farms along the Snake River plain.

Burning occurred most frequently in the higher elevations of the Caribou Highlands valleys and the Rockland highway corridor where the terrain is more complex and dry-land farming occurs at 5500 feet to 5800 feet. In these areas, there are typically cooler air temperatures, higher relative humidity, and stronger nocturnal inversions than in the Snake River Plain. There was also greater potential for morning dew on the fuels that needed to be considered for ignition times. Synoptic-scale winds aloft that parallel the valley, synonymous with unstable atmospheric conditions in these regions, often resulted in higher surface winds that consistently yielded better ventilation values for smoke management but risky conditions for fire behavior. The winds in these areas tended to an obstacle to on-site ignition approval. During the day, ventilation attributed to radiation heating of the slopes contributed to better ventilation of the smoke.

4.6.5.2 Air Quality

$PM_{2.5}$ real-time air quality monitors are located in Pocatello and Soda Springs. The maximum 1-hour average $PM_{2.5}$ concentration measured during the fall 2008 burn season was 190.4 $\mu g/m^3$ on September 6 at 13:00. The maximum 24-hour $PM_{2.5}$ concentration during this period was 14.2 $\mu g/m^3$.

One yellow sheet was completed for the September 19 burn day for the Pocatello $PM_{2.5}$ monitor.

During the evaluation of the monitoring data in relation to the number and location of burned acres, DEQ determined that the following enhanced documentation was required.

YELLOW SHEET REQUIRED

September 19 – 2-hour rolling average at Pocatello monitor – completed as required

RED SHEET REQUIRED

September 19 – 2-hour rolling average at Pocatello monitor

The Pocatello monitor recorded three 1-hour average concentrations above the 1-hour PM2.5 program concentration limit. Appendix G contains a comparison of the acres burned in the Southeast Idaho BMA and the 1-hour, 2-hour, and 24-hour average $PM_{2.5}$ concentrations.

4.6.5.3 Total Acreage and Number of Burn Days

DEQ issued fourteen burn days from September 12, 2008, through October 10, 2008. A total of 3,783 acres, for which registration was completed and fees were paid, were burned; leaving 1,089 acres unburned due to grower choice or changing weather conditions not suitable for burning or ventilation. Fifteen "no burn" days were declared due to lack of registered fields, seven due to inadequate weather conditions not suitable for burning due to high wind speeds, high relative humidity, or fuel moisture that was too high. Seven days were declared "no burn" days due to the registered fields not being ready.

Table 16 presents the summary of acres by crop type. The number of acres approved and burned for each burn day in the Southeast Idaho BMA is presented in Table 17.

Table 16. Summary of acres by crop type for the Southeast Idaho BMA.

Crop Type	Acres Registered	Acres Paid	Acres Burned
Cereal Grain	3630	3630	3335
Conservation Reserve Program	1242	1242	448
Legumes	—	—	—
Other	—	—	—
Turf Grass	—	—	—
TOTAL	**4872**	**4872**	**3783**

Table 17. Burn decisions and acres burned for Southeast Idaho BMA.

Day of Week	Date	Number of acres approved	Number of acres burned
F	9/12/2008	390	390
Th	9/18/2008	50	50
F	9/19/2008	235	234
T	9/23/2008	1100	934
F	9/26/2008	710	610
M	9/29/2008	230	230
T	9/30/2008	500	435
W	10/1/2008	225	25
Th	10/2/2008	320	320
F	10/3/2008	250	250
W	10/8/2008	175	175
Th	10/9/2008	70	60
W	10/22/2008	70	70
	TOTAL	**4324**	**3783**

4.6.5.4 Complaints, Compliance and Enforcement

DEQ received no complaints from this BMA. Two cases of non-compliance have been referred for formal enforcement. These are cases where DEQ staff identified the potential violations first-hand. One of these enforcement cases was due to non-compliance with the program as whole, while the other was a violation of the permit issued to the grower.

4.6.6 Eastern Idaho Burn Management Area

The Eastern Idaho BMA includes Clark, Fremont, Butte, Jefferson, Madison, Teton, and Bonneville counties. Burning was primarily conducted in Jefferson and Bonneville counties. The primary crops that were burned were cereal grain stubble. Burning may occur year-round, but the typical burning season is projected to be March through April and mid-July through mid-October.

4.6.6.1 Area Geography

This BMA is very similar in nature to the Southeastern Idaho BMA, simply because it also encompasses the Snake River Plain. This area is better known as the Yellowstone-Teton region and serves as a gateway to several popular recreation areas. Eastern Idaho is intersected by several rivers and the Palisades Reservoir, which can influence smoke dispersion. This BMA is well known for it Upper Snake River Plain farming of sugar beets, wheat, and potato crops. The topography is complex on the eastern edge along the Wyoming border; otherwise, the area is relatively flat in the plain with rolling hills.

Burning was conducted primarily along the Snake River plain, where irrigation for row crop agriculture was available. The most prominent factor considered in this area was the effects of building surface winds.

4.6.6.2 Air Quality

$PM_{2.5}$ real-time air quality monitors are located in Idaho Falls and Rexburg. The maximum 1-hour average $PM_{2.5}$ concentration measured during the burn season was 36.1 µg/m^3 on October 3 at 16:00. The maximum 24-hour $PM_{2.5}$ concentration during this period was 13.4 µg/m^3. Model trends indicate the mixing height decreases and the nocturnal inversion begins to build as the sun sets and radiation heating of the earth's surface deteriorates. This caused higher $PM_{2.5}$ 2-hour averages as local sources and dust concentrated to the surface during the night-time hours.

No yellow, red, or purple sheets were completed for this BMA.

During the evaluation of the monitoring data in relation to the number and location of burned acres, DEQ determined that the following enhanced documentation was required.

YELLOW SHEET REQUIRED

October 2 – 2-hour rolling average at Idaho Falls monitor

Appendix H contains a comparison of the acres burned in the Eastern Idaho BMA and the 1-hour, 2-hour, and 24-hour average PM2.5 concentrations.

4.6.6.3 Total Acreage and Number of Burn Days

DEQ approved eighteen burn days from September 5, 2008, through October 28, 2008. A total of 2,135 acres, for which registration was complete and fees paid, were burned; leaving 288 acres unburned due to grower choice or changing weather conditions not suitable for burning or ventilation. Eight "no burn" days were declared due to lack of registered fields, eight due to inadequate weather conditions not suitable for burning including poor ventilation, National Weather Service "red flag warnings", high relative humidity, and/or high fuel moisture. Three days were declared "no burn" days due to the registered fields were not ready.

Table 18 presents the summary of acres by crop type. The number of acres approved and burned for each burn day in the Eastern Idaho BMA is presented in Table 19.

Table 18. Summary of acres by crop type for the Eastern Idaho BMA.

Crop Type	Acres Registered	Acres Paid	Acres Burned
Cereal Grain	3260	2423	2135
Conservation Reserve Program	—	—	—
Legumes	—	—	—
Other	5	—	—
Turf Grass	—	—	—
TOTAL	**3265**	**2423**	**2135**

Table 19. Burn decisions and acres burned for Eastern Idaho BMA

Day of Week	Date	Number of acres approved	Number of acres burned
F	9/5/2008	67	67
M	9/8/2008	92	92
M	9/15/2008	53	53
W	9/17/2008	241	241
Th	9/18/2008	335	290
F	9/19/2008	137	137
W	9/24/2008	64	64
F	9/26/2008	219	219
M	9/29/2008	227	227
Th	10/2/2008	370	370
F	10/3/2008	50	50
W	10/8/2008	205	186
F	10/10/2008	45	20
F	10/17/2008	40	40
M	10/20/2008	12	12
F	10/24/2008	55	55
T	10/28/2008	12	12
	TOTAL	**2224**	**2135**

4.6.6.4 Complaints, Compliance and Enforcement

DEQ received one complaint from this BMA that was investigated with no further course of action. One case has been referred for formal enforcement that DEQ received notification of from a news article.

4.6.7 Weiser and Lower Payette Valleys Burn Management Area

The Weiser and Lower Payette BMA includes Adams, Washington, Payette and Gem counties. This BMA is bordered by the state of Oregon to the west and is bisected by the Snake and Payette rivers. Burning was primarily conducted in the vicinities of the cities of Weiser, New Plymouth, and Emmett, on the leeward side of complex terrain. The primary crops burned were native grass seed, cereal grain stubble, and some vegetable seed commodities. Burning may occur year-round, but the typical burning season is projected to be March through April and mid-July through mid-October. Growers may spot-burn throughout the calendar year, depending on the crop and noxious weed infestations.

4.6.7.1 Area Geography

The Weiser and Lower Payette Valleys BMA totals 3,820 square miles. This BMA is comprised of the Blue Mountains, portions of Northern Rockies, and Snake River Plain ecoregions. This area is very similar to the Southwest Idaho BMA; sharing Semiarid Foothill, Unwooded Alkaline Foothill, and Treasure Valley sub-regions of the Snake River Plain ecoregions. Agricultural burning occurred in the areas with similar characteristics of the Treasure Valley subregion. This BMA is actually part of the Treasure Valley airshed.

4.6.7.2 Air Quality

The $PM_{2.5}$ air quality monitor was located in Weiser. The Nampa monitor was also used for burn decisions in the BMA. Prevailing winds can carry smoke toward population centers of Nampa, Caldwell, and Boise. Burns in Oregon, on the west bank of the Snake River, can affect the air quality of this BMA and the Treasure Valley airshed. When making burn decisions for this BMA, the diurnal effects were analyzed to mitigate Oregon agricultural smoke, wildfire smoke from California, and transportation impacts.

During early September, there were a number of high-pressure days that led to stagnant air quality in the Treasure Valley. There were also some air quality impacts from the fires in Northern California wildland fires and Oregon agriculture fires. During the quality assurance evaluation following the agricultural burn season, DEQ found the data from the monitor located in Weiser were invalid. DEQ used data from the Nampa monitor to evaluate potential impacts.

The maximum 1-hour $PM_{2.5}$ concentration measured during the peak burning season, spanning 20 days, was 50.3 $\mu g/m^3$ on September 18 at 20:00. The average 1-hour concentration measured during the peak burning season was 14.3 $\mu g/m^3$. The maximum 24-hour average $PM_{2.5}$ concentration during the burn season was23.5 $\mu g/m^3$.

The highest 1-hour concentrations were measured during the late evening and early morning hours. This is attributed to nocturnal inversions as temperatures in the valley cool, trapping pollutants near the ground. Due to the location of the Nampa monitor, several diurnal peaks in the $PM_{2.5}$ concentrations are attributed to commuting traffic patterns.

No yellow, red, or purple sheets were completed for the fall 2008 burn season in this BMA.

During the evaluation of the monitoring data in relation to the number and location of burned acres, DEQ determined that the following enhanced documentation was required.

YELLOW SHEET REQUIRED

September 4 – 24-hour average at Nampa monitor
September 29 – 24-hour average at Nampa monitor
October 1 – 2-hour and 24-hour average at Nampa monitor

PURPLE SHEET REQUIRED

September 15 – 2-hour rolling average at Nampa monitor

Appendix I contains a comparison of the acres burned in the Weiser and Lower Payette Valleys BMA, and the 1-hour, 2-hour, and 24-hour average $PM_{2.5}$ concentrations.

4.6.7.3 Total Acreage and Number of Burn Days

DEQ approved four burn days in this BMA from September 4, 2008, through October 1, 2008. A total of 40 acres, for which registration was completed and fees paid, were burned; leaving 94 acres unburned due to grower choice or weather not suitable for burning. One "no burn" day was declared due to poor ventilation and 39 due to a lack of registered fields.

Table 20 presents the summary of acres by crop type. The number of acres approved and burned for each burn day in the Weiser and Lower Payette Valleys BMA is presented in Table 21.

Table 20. Summary of acres by crop type for the Weiser and Lower Payette Valleys BMA.

Crop Type	Acres Registered	Acres Paid	Acres Burned
Cereal Grain	106	106	12
Conservation Reserve Program	—	—	—
Legumes	—	—	—
Other	28	28	28
Turf Grass	—	—	—
TOTAL	**134**	**134**	**40**

Table 21. Burn decisions and acres burned for Weiser and Payette Valleys BMA

Day of Week	Date	Number of acres approved	Number of acres burned
Th	9/4/2008	18	18
M	9/15/2008	10	10
M	9/29/2008	19	4
W	10/1/2008	9	9
	TOTAL	**56**	**40**

4.6.7.4 Complaints

DEQ received two complaints from the Weiser and Lower Payette Valleys BMA, and one has been referred for formal enforcement action.

5. Recommended Improvements

This section provides recommendations for improvements, which are divided into two general categories: program implementation. and DEQ procedures. Those recommendations for program implementation would directly impact both the growers and public, while the recommendations for DEQ procedures would impact only DEQ staff and would improve the existing implementation design.

5.1 Program implementation

Modify burn decision process and communication

The current burn decision process requires DEQ to preliminarily approve specific fields the night before the proposed burn date, and then give final approval, if possible, the morning of. Using this method, DEQ is not able to adjust field locations if the forecast changes. For example, DEQ could approve fields north of a town the night before based on winds forecasted from the south; however, the forecast or observed winds on the day of, could actually be from the north. Instead of approving burning of the fields south of the town, DEQ would issue a no-burn day for the area.

DEQ recommends developing a process that provides DEQ the flexibility to approve different fields based on the monitoring and meteorological data, and to increase or decrease the number of acres approved in a county during the burn day.

Specifically, DEQ proposes modifying the burn decision process and communication as follows:

- A registration receipt and initial permit requirements document would be given to the grower for a specific field(s) when their registration is accepted. This document would include specific permit conditions that do not depend on the day or time of the burn. The registration receipt and initial permit requirements document would be mailed to the grower.
- When the grower has notified DEQ that they are ready to burn and have paid sufficient fees they are eligible for final approval to burn that field. At this time, the field is posted to “map of fields awaiting final burn approval” on the Web site for the public. This posting will include the registration receipt and initial permit requirements document.
- DEQ’s preliminary burn decision, made each evening for the next day, would consist of the number of acres approved per county, along with a description of the general location of the fields, and the meteorological forecast.
- DEQ’s final burn decision for the "day of" would show the number of acres per county with final approval, the meteorological forecast, and specific approved fields with their locations show on the “final approval” map on the website.
- On the preliminary and final burn decision notices, DEQ would state whether an increase in acres during the burn day is being considered; this would include a maximum number of acres that will not be exceeded. All increases or decreases in acres burned during the

day would require approval by the smoke management analyst and would include fields in the same area of currently approved burns.

Include pasture in CRB program

Under certain conditions, pasture burning is used to manage the plant community by improving the vigor of desirable species and controlling undesirable species, especially invasive and noxious weeds. This practice can reduce the need for chemical use and also aid in the protection of soil and water resources. DEQ received a letter from the Natural Resources Conservation Service that states the definition of crop residue does not preclude the burning of pasture, since harvest can be accomplished by grazing animals as well as machine. These burns would be very similar to burning of Conservation Reserve Program lands. DEQ assumes that pasture forage is valuable and, as such, would not be burned annually nor frivolously, so this should not constitute a significant increase in acres burned in Idaho.

Allow the burning of hay bales (under very strict requirements) within CRB program

During the fall 2008 burn season, DEQ became aware that burning hay bales that have broken open on the field is common practice. When a hay bale breaks on the field where it was harvested, the growers are limited in options to deal with it. Since the material in the broken hay bale is the same as the residue on the field, the potential emissions and air quality impact would be similar.

DEQ proposes to allow the burning of broken hay bales under the following strict requirements:

- The broken hay bale must have remained on the field where it was produced. It cannot have been removed from the field and then returned.
- The hay bale must not be at the edge of the field ready for transport.
- The residue must be evenly distributed to allow for adequate combustion with no smoldering.
- The burn is not allowed to smolder. The burn must be completed (no smoke) by the time indicated on the permit.
- The residue must not contain any of the material listed under IDAPA 58.01.01.603.01.
- DEQ will consider broken hay bales separately during burn decisions. Depending on the location, this type of burn may need a better than average smoke dispersion day.

Improve permit conditions

DEQ developed generic language for several permit requirements. However, that language was unclear and did not help ensure compliance. DEQ proposes adding the following requirements to all permits:

- **Public roadway safety** – The applicant shall have adequate measures readily available to ensure the burn does not create a hazard for travel on a public roadway. Adequate roadway safety measures are determined by the local law enforcement agency.
- **Protection of institutions with sensitive populations** – No burning if winds are expected to carry the smoke toward any institution(s) with sensitive population.

- **Fire safety measures** – The applicant shall have adequate fire safety measures readily available at the field before, during, and after the burn. Adequate fire safety measures are determined by the local fire safety agency.

Define adversely affected

IDAPA 58.01.01.621.01.f states that DEQ shall not authorize a burn if conditions are such that institutions with sensitive populations will be adversely impacted or when the plume is predicted to impact such institutions. The definition of "adversely impacted" is open to interpretation. DEQ needs to develop a basic understanding of this phrase that can be clearly communicated to all stakeholders.

Development of best management practices for burning

During this past burn season, DEQ became aware of varying methods of ignition. These ranged from dropping matches in the field to using drip torches. DEQ also found the residue load and stubble height varied greatly. Some growers baled their field and then burned the stubble. The ignition method, residue load, and stubble height greatly influence the quality of the burn and final smoke dispersion. DEQ did not take these factors into account when approving an individual field to burn because this information was not available.

Washington Department of Ecology has developed best management practices for residue loading for a good burn. These include minimum residue loads required for burn approval.

DEQ proposes two alternatives for incorporating these factors into the program; the first is DEQ's preferred alternative.

- Develop permit requirements for all permits that include the following:
    - Minimum residue load and/or stubble height.
    - Acceptable methods of ignition and minimum number of people needed to perform ignition.
- Request the following information on the registration form, to be used in the burn approval process:
    - Residue load and stubble height.
    - Ignition method and number of people to be used for performing ignition.

Develop test for grower training and require 90% correct answers

Many growers took advantage of the online grower training. However, DEQ found that the grower understanding of the CRB program was significantly less for those using the online training compared to those who attended in-person training. There were two incidents during the 2008 burning season where growers that participated in the online grower training caused escaped burns. Offering online grower training is important for those growers unable to attend in-person training. DEQ proposes to revise the grower training program to include ignition techniques and emphasize the importance of fire safety measures. This new version will include an exam that participants will be required to pass with a 90% or better score, to receive certification. This exam will be used for both the online and in-person training.

5.2 DEQ procedures

The tasks identified below are those changes that DEQ intends to accomplish prior to the 2009 fall burn season. These tasks would improve DEQ's ability to fully implement the CRB program, and ensure compliance with all program concentration limits.

Improved enhanced documentation process

During this evaluation, DEQ determined that the current process for providing enhanced documentation did not work as anticipated. The enhanced documentation was not always completed as required and sometimes it was completed when not required.

DEQ will write procedures that will detail when enhanced documentation is required, and how to complete the required form. This procedure will specify who is responsible for the documentation, how it is triggered, what information is required, and where to store the document.

DEQ will also develop trigger values for ozone to be used in the Southwest Idaho, Weiser and Lower Payette Valleys, and Kootenai County BMAs.

Define/refine roles and responsibilities

Throughout the fall 2008 burn season, DEQ became aware that the roles and responsibilities for all staff involved in the CRB program were not completely clear. Even though these are defined in the CRB Operating Guide, they were not easily implemented. One issue was the confusion of division of responsibilities between the smoke management analyst and regional office staff. For example, it was unclear which staff member was responsible for completing enhanced documentation. Another issue identified was inconsistency in following procedures.

Prior to the fall 2009 burn season, DEQ will develop and implement a certification course for all DEQ staff involved in the CRB program, including the seasonal field staff. This course will cover the burn approval process; use of the administrative tools, laptops, and handheld field equipment; documentation of field observations; fire weather; and smoke dispersion. All DEQ staff involved in the CRB program will be required to receive certification prior to the fall burn season.

Improve complaint process and documentation

As discussed in Section 4.3, DEQ is not able to provide an exact number of CRB-related complaints received during the burn season. DEQ is confident that all complaints received were documented and responded to in a timely manner. However, the methods used varied among the regional offices.

DEQ will develop a procedure requiring all CRB-related complaints to be entered in the DEQ Complaint Tracking System. This includes complaints received through the hotline and responded to by DEQ staff. This will allow the CRB program to focus on the content of the complaints rather than just the number of complaints. This will also help to distinguish CRB-related complaints from other smoke-related complaints.

Improve documentation of field observations

DEQ staff, both permanent and seasonal, did a very good job observing burns. However, the method used to document these observations was not consistent across the state. Some staff used the weather checklist form created for this. Other just made notations in a notebook. DEQ staff

also had difficulty storing the documentation in electronic form in a location accessible by all staff.

DEQ will implement a procedure that requires all field observation documentation to be stored electronically in a central location within 2 days of the observation. This can include scanned versions of handwritten notes.

Improve cellular communications for northern Idaho

DEQ staff in north Idaho had difficulty staying in contact with other DEQ staff as well as with the growers. DEQ will be evaluating other options for communication in this area. Options include other cellular companies or hand-held radios.

5.3 Additional Recommendations from Advisory Committee

The Crop Residue Advisory Committee met on February 17, 2009. During this meeting, DEQ presented a summary of the 2008 burn season as well as the recommendation listed above. The advisory committee made the following recommendations to the DEQ Director for improving the program:

- Consistency of permits needs attention
- Provide method for flexibility on allowable acreages
- DEQ should evaluate “impacts” to institutions with sensitive populations
- Develop guidelines/procedures for spot burns
- Standardize complaint tracking
- DEQ needs to make outreach to institutions with sensitive populations
- DEQ should consider consolidation of CRB/IDL permits
- DEQ needs to improve enhanced documentation procedures
- Develop a method to record CRB burns onto WRAP fire emissions tracking (FETS) database and website
- Implement staff recommendations in Section #5 of this annual report.

6. Conclusions

Overall, DEQ considered the first burn season of the CRB program a success. Even though DEQ air quality monitors recorded values above the CRB program concentration limits for 8-hour ozone and 1-hour and 24-hour average $PM_{2.5}$, none of these occurrences were a direct result of crop residue burning approved by DEQ.

Overall, 78% of the acres that were registered and paid for were burned. About two-thirds of all acres were located in north Idaho with the remainder in south Idaho.

DEQ recommends several improvements to the program implementation and DEQ procedures, to help ensure continuing compliance with the Rules for the Control of Air Pollution in Idaho and the State Implementation Plan.

Appendix A

Summary

of

Complaints

Summary of complaints submitted through PASSWORD

	DATE	TIME	CALL BACK	CITY	STATE	COUNTY	ARE YOU EXPERIENCING SMOKE IN YOUR AREA?	DO YOU SEE SMOKE FROM YOUR LOCATION?	DESCRIPTION OF PROBLEM
1	08/06/2008	10:37a	NO	WOODLAND	ID	IDAHO	YES	YES	THICK SMOKE, GETS WORSE AND THEN BETTER,MAKING IT DIFFICULT TO BREATHE
2	08/07/2008	09:04a	NO	KAMIAH	ID	IDAHO	YES	YES	HAD TO CLOSE THE WINDOWS BECAUSE THE SMOKE WAS COMING IN, AND IT WAS VERY HOT OUTSIDE. GET IT RIGHT
3	08/13/2008	08 03p	NO	ROCKFORD BAY	ID	KOOTENAI	YES	YES	BIG FIELD BURN RIGHT ACROSS THE BAY FROM THEM, CAUSING HER FRIEND TO HAVE ALLERGIC REACTIONS
4	08/18/2008	09:11a		KAMIAH	ID	IDAHO COUNTY	YES		A LOT OFSMOKE THIS AM, HAD TO SHUT WINDOWS UP.
5	08/18/2008	10:50a	YES	KOOSKIA	ID	IDAHO COUNTY	YES	YES	SMOKE IS REALLY BAD CAN'T EVEN SEE MOUNTAINS TO THE EAST
6	08/19/2008	08:26a	YES	HOPE	ID	BONNER	YES	NO	HAS PEOPLE FROM LA VISITING, CANCELLED $400 BOAT TOUR DUE TO THE SMOKE, HEADACHES, NASUEA
7	08/29/2008	11:48a	NO	RURAL	ID	IDAHO	YES	NO	FIELD BURNING. WOULD LIKE IT INVESTIGATED SW OF WINOWA, BUTTE. TRSQ: R2E, 31N,NOT SURE OF SECTION
8	09/09/2008	09:42a	YES	MOSCOW	ID	LATAH	YES	YES	HAS HEART PROBLEMS A LOT OF SMOKE IN AREA NOW
9	09/09/2008	02:15p	YES	HARRISON	ID	KOOTENAI	YES	YES	WE ARE SEEING SMOKE
10	09/09/2008	02:22p	YES	RATHDRUM	ID	KOOTENAI	YES	YES	ALOT OFSMOKE WITH NO FLAGGERS
11	09/09/2008	03:14p	YES	RATHDRUM	ID	KOOTENAI	NO	NO	AT GARWOOD ELEMENTARY SCHOOL, CAN SMELL SMOKE
12	09/09/2008	03:46p	YES	HARRISON	ID	KOOTENAI	YES	YES	CAN SEE SMOKE ON THE LAKE
13	09/09/2008	06:39p	YES	POST FALLS	ID	KOOTENAI	YES	YES	FIELD SMOKE AROUND HOUSE, PLEASE CALL
14	09/10/2008	12:44p	YES	CLEARWATER	ID	IDAHO	YES	NO	SMOKE SO THICK LAST TWO DAYS. FINALLY CLEARED UP AND NOW HUGE CLOUD OF SMOKE DIRECTLY TO THE WEST ON NEZ PERCE
15	09/10/2008	04:08p	NO	GRANGEVILLE	ID	IDAHO	YES	NO	SOMEONE IS BURNING AT TOLO LAKE, NON RESERVATION. WILL BE CHECKING THE WEBSITE.
16	09/10/2008	04:37p		MOSCOW	ID	LATAH	YES	YES	SKIES ARE VERY SMOKEY
17	09/11/2008	12:18p	NO	GRANGVILLE	ID	IDAHO	YES	NO	FIELD BURNING NOT AT RESERVATION AT ROCKY CANNON AND COTTONWOOD BUTTE
18	09/12/2008	07:57a	YES	MOSCOW	ID	LATAH	YES	YES	INHALING SMOKE, SPENT YESTERDAY AT SACRED HEART IN SPOKANE, CAME HOME TODAY ENGULFED IN SMOKE, AFFECTING MY BREATHING AND HEART. MRS. MURRAY IS HAVING PROBLEMS ALSO, HER NAME ISLYNN, EVERY AM I TAKE A WALK AND CANNOT DO THE WALK
19	09/12/2008	09:21a	NO	MOSCOW	ID	LATAH	YES		WIFE IS COUGHING DUE TO SMOKE
20	09/12/2008	02:01p	YES	HARRISON	ID	KOOTENAI	YES	YES	SO SMOKEY THAT HE IS TASTING THE SMOKE PLEASE CALL
21	09/12/2008	02:10p	YES	TEKOA	WA	WHITMAN	YES	YES	JUST WIPED OF DECK AND NOW IS COVERED
22	09/15/2008	09:29a	YES	MOSCOW	ID	LATAH	YES	YES	EVERY MORNING THERE IS SMOKE IN THE AREA PLEASE CALL
23	09/15/2008	05:05p	YES	CRESTON	BC		YES	NO	SMOKE HIT AT 2PM
24	09/17/2008	11:49a	YES	MOSCOW	ID	LATAH	YES		SKY ISVERY DIRTY & IS BAD FOR YOUR HEALTH
25	09/17/2008	04:18p							CALLING TO COMPLAIN ABOUT BURNING THAT IS GOING ON, IS NOT HAPPY AT ALL. HE WOULD NOT GIVE ME ANY INFORMATION. SO HE SAID HE WILL BE CALLING BACK.
26	09/18/2008	09:33a	NO	MOSCOW	ID	LATAH	YES	YES	ALOT OFSMOKE IN THE AIR
27	09/18/2008	11:27a	YES	MOSCOW	ID	LATAH	YES	YES	BROWN IS HAZE, SMELLS SMOKY OUTSIDE, PRISONER AT HOME. NO DIFFERENCE WITH NEW PROGRAM
28	09/18/2008	03:36p	YES	HARRISON	ID	KOOTENAI	YES	YES	LIVESON LAKE ALL HIS YARD FURNITURE ISCOVERED W/SOOT & LAKE IS JUST HAZYLOOKING BOTH TOWARDS CDA AND HARRISON
29	09/18/2008	03:36p	NO	COEUR D ALENE	ID	KOOTENAI	YES	YES	SMOKE HAS BEEN DRIFTING IN SINCE EARLY THIS MORNING AND NOW IS GETTTING WORSE
30	09/18/2008	03:48p	YES	KENDRICK	ID	LATAH	NO	NO	CAN SMELL SMOKE
31	09/19/2008	08:17a	NO	COEUR D ALENE	ID	KOOTENAI			THEY LIVE IN MICA FLATS. HUSBAND HAS ASTHMA AND HE HAS ALREADY HAD BREATHING TREATMENT DECLINED ANY OTHER INFORMATION
32	09/19/2008	08:29a	YES	MOSCOW	ID	LATAH	YES	YES	SMOKE IS EVERYWHERE, PROBABLY THE SMOKIEST DAY THIS YEAR
33	09/19/2008	08:53a	NO	LENORE	ID	CLEARWATER	YES	YES	HAVING UPPER RESPIRATORY SYSTEMS DUE TO THIS BURNING. THE WHOLE FAMILY IS HAVING PROBLEMS
34	09/19/2008	09:29a	YES	ORFINO	ID	CLEARWATER	YES		SEEING ALOT OF SMOKE LAST NIGHT AND THIS MORNING

	DATE	TIME	CALL BACK	CITY	STATE	COUNTY	ARE YOU EXPERIENCING SMOKE IN YOUR AREA?	DO YOU SEE SMOKE FROM YOUR LOCATION?	DESCRIPTION OF PROBLEM
35	09/19/2008	11:58a	NO	SPOKANE	WA	SPOKANE	NO	NO	I AM HIGHLY ALLERGIC TO SMOKE, HAVE ASTHMA, I AM NOT ABLE TO BREATHE, HAVING ASTHMA ATTACKS. WANTS YOU TO STOP BURNING
36	09/19/2008	12:43p	NO	HOPE	ID	BONNER	YES	YES	I WAS PLANNING ON A NICE SUNNY MORNING AND THE SMOKE IS SO BAD WE ARE NOT ABLE TO SEE ANYTHING.
37	09/25/2008	08:53a	YES	ORFINO	ID	CLEARWATER			ALMOST NO VISIBILITY OVER LOOKING AIRPORT. WONDERING HOW MANY FIRES CAN BE BURNING AT ONE TIME. WE COUNTED 8 FIRES AT ONE TIME AND THE AIR IS SO THICK IT IS HARD TO BREATHE PLEASE CALL.
38	09/25/2008	02:13p	YES	GRANGEVILLE	ID		YES		SMOKE BOTHERING ME, JUST WANTS TO KNOW IF A LEGIMATE BURN, PLEASE CALL
39	09/27/2008	08:04a	NO	OROFINO	ID	CLEARWATER	YES	YES	A LOT OF SMOKE IN AREA, SUN CAN'T EVEN COME THRU AND IT BOTHERS ME
40	09/28/2008	08:19a	NO	OROFINO	ID	CLEARWATER	YES	YES	A LOT OF SMOKE AND CAN SMELL IT. IT REALLY BOTHERS ME
41	09/29/2008	10:10a	NO	OROFINO	ID	CLEARWATER	YES	YES	SO SMOKEY I CAN HARDLY SEE THE MOUNTAINS
42	09/30/2008	08:02a	NO	OROFINO	ID	CLEARWATER	YES		SEEING HEAVY SMOKE AND AIR SMELLS
43	10/02/2008	12:48p	NO	POTLATCH	ID	LATAH	YES	YES	ON HIGHWAY 6 COMING INTO POTLATCH, SMOKE IS VERY BAD. I CAN SMELL AND SEE IT AND IT LOOKS LIKE ITS HEADING FOR THE SCHOOL IN POTLACH.
44	10/02/2008	02:07p		CRESTON	BC	CANADA	YES	YES	LOOKS LIKE ITS COMING FROM THE SOUTH CAN BARELY SEE THE MOUNTAINS.
45	10/14/2008	02:18p	YES	NEAR POTLATCH	ID	LATAH COUNTY	YES	YES	NOT IN A CITY NOW, NEAR POTLATCH, VERY SMOKEY AND VERY HAZY, SMOKE IS IN MY CAR AS I AM DRIVING. SMOKE HEADING TOWARDS POTLACH.
46	10/27/2008	10:14a	YES	CLEARWATER	ID	IDAHO COUNTY	YES	YES	OVERWHELMING SMOKE, JUST LIKE HAVING CAMP FIRE IN HER BACKYARD.
47	10/29/2008	09:44a	NO	CLEARWATER	ID	IDAHO COUNTY	YES	YES	VERY HAZY, LOOKS LIKE SMOKE IS STILL COMING FROM SAME BURN AS 2 DAYS AGO.
48	10/30/2008	10:30a	YES	CREESTON	BC	BRITISH COLUMBIA	YES		SMOKE IS SO THICK COMING FROM THE NORTH SHE CAN'T SEE ANYTHING.
49	10/31/2008	12:19p	YES	GRANGEVILLE	ID	IDAHO	YES	NO	SEEING A FIELD BEING BURNED AND I UNDERSTAND THIS IS A NO BURN DAY ALSO YESTERDAY THERE WAS A FIELD BEING BURNED WITH A VERY THICK SMOKE
50	11/04/2008	04:15p	YES	COOLIN	ID	BONNER	YES	YES	BAD ASTHMA, HAS HAD TO LEAVE TOWN FOR THE LAST TWO WEEKS WHILE RECOVERING FROM SURGERY, NO VISIBILITY FOR ABOUT 30 MILES, WOULD LIKE SOMEONE TO CALL HIM REGARDING THIS AS HIS FAMILY'S SUFFERING CELL PHONE NUMBER
51	11/22/2008	09:34a	NO	GRANGEVILLE	ID	IDAHO	YES	YES	SOUTH OF ROCKY CANYON 1/4 -1/2 MILE WEST OF LAKE RD

Complaints received by DEQ

These complaints were either directly received by DEQ or were received through PASSWORD and entered into DEQ's complaint tracking database. Therefore, there may be duplicate complaints listed in this table and the previous table.

	Location	DEQ Regional Office	Date Received
1		BRO	9/4/2008
2	Moscow, ID	LRO	9/9/2008
3	Clearwater, ID	LRO	9/10/2008
4		LRO	9/11/2008
5		LRO	9/12/2008
6	North of Middleton	BRO	9/15/2008
7	East of Kooskia	LRO	9/17/2008
8	New Plymouth	BRO	9/18/2008
9	8 mi up Cedar Ridge	LRO	9/18/2008
10	Kendrick	LRO	9/18/2008
11		LRO	9/19/2008
12		LRO	9/19/2008
13		LRO	9/19/2008
14		LRO	9/19/2008
15	Lewisville, ID 83431	IFRO	9/30/2008
16		LRO	10/2/2008
17	Princeton	LRO	10/7/2008
18	Potlatch	LRO	10/14/2008
19	Bonners Ferry, ID	CRO	10/28/2008
20		LRO	10/31/2008

Appendix B

Air Quality Evaluation

of the

Central BMA

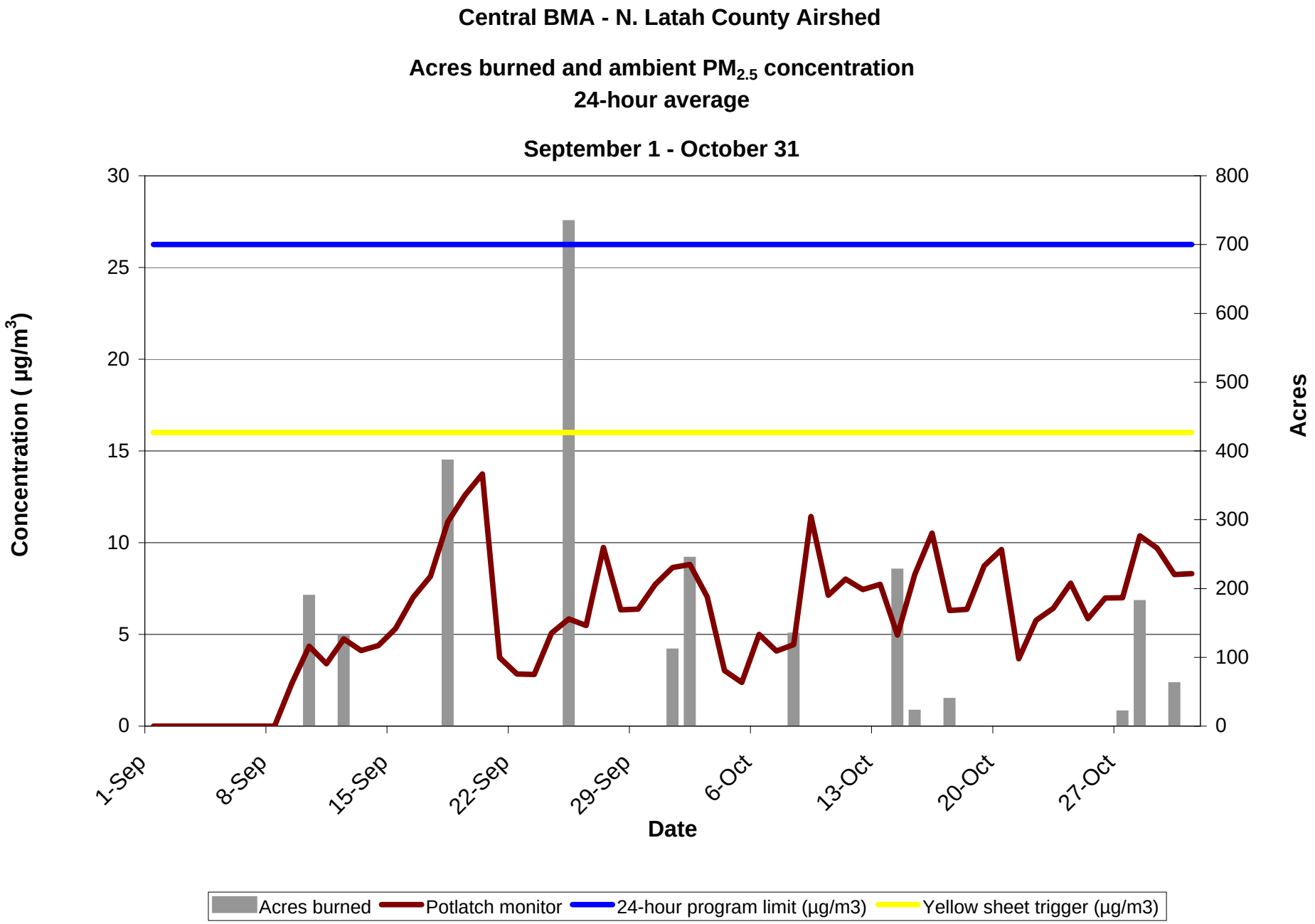
Sub-airsheds

North Idaho County
South Idaho County
Southwick
Camas Prairie

North Idaho County

Sub-airshed

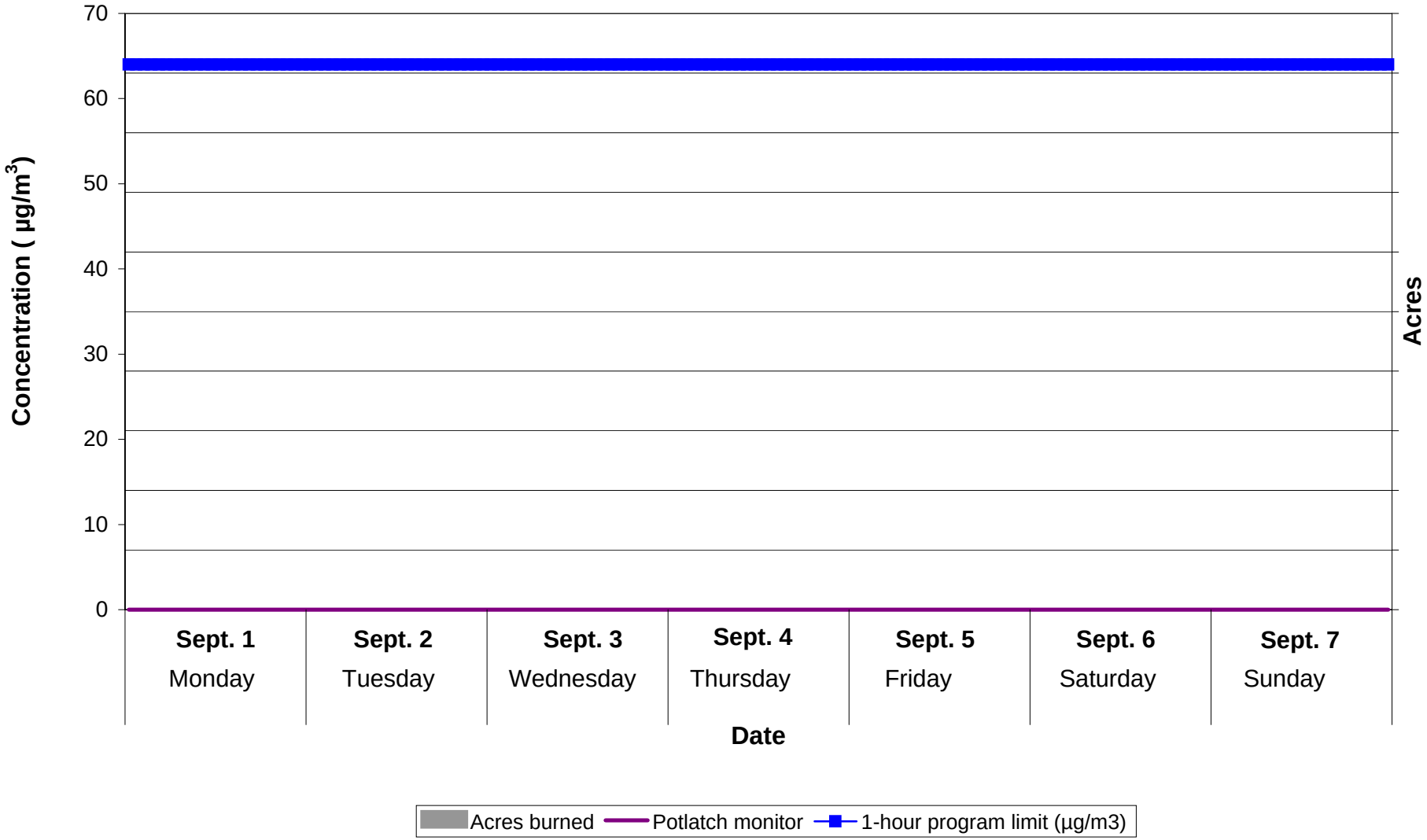
Burn Decisions and Acres Burned - N. Idaho County Airshed		
Day of Week	**Date**	**# acres burned**
T	9/2/2008	0.00
W	9/3/2008	0.00
Th	9/4/2008	0.00
F	9/5/2008	0.00
Sa	9/6/2008	
Su	9/7/2008	
M	9/8/2008	0.00
T	9/9/2008	
W	9/10/2008	187.00
Th	9/11/2008	0.00
F	9/12/2008	128.50
Sa	9/13/2008	
Su	9/14/2008	
M	9/15/2008	
T	9/16/2008	
W	9/17/2008	0.00
Th	9/18/2008	383.30
F	9/19/2008	
Sa	9/20/2008	
Su	9/21/2008	
M	9/22/2008	
T	9/23/2008	
W	9/24/2008	0.00
Th	9/25/2008	731.60
F	9/26/2008	
Sa	9/27/2008	
Su	9/28/2008	
M	9/29/2008	
T	9/30/2008	0.00
W	10/1/2008	109.00
Th	10/2/2008	242.20
F	10/3/2008	0.00
Sa	10/4/2008	
Su	10/5/2008	
M	10/6/2008	
T	10/7/2008	
W	10/8/2008	132.00
Th	10/9/2008	0.00
F	10/10/2008	
Sa	10/11/2008	
Su	10/12/2008	
M	10/13/2008	
T	10/14/2008	225.00
W	10/15/2008	20.00
Th	10/16/2008	
F	10/17/2008	37.00
Sa	10/18/2008	
Su	10/19/2008	
M	10/20/2008	
T	10/21/2008	
W	10/22/2008	
Th	10/23/2008	0.00
F	10/24/2008	0.00
Sa	10/25/2008	
Su	10/26/2008	
M	10/27/2008	19.00
T	10/28/2008	179.40
W	10/29/2008	0.00
Th	10/30/2008	60.00
F	10/31/2008	0
	TOTAL	**2454**

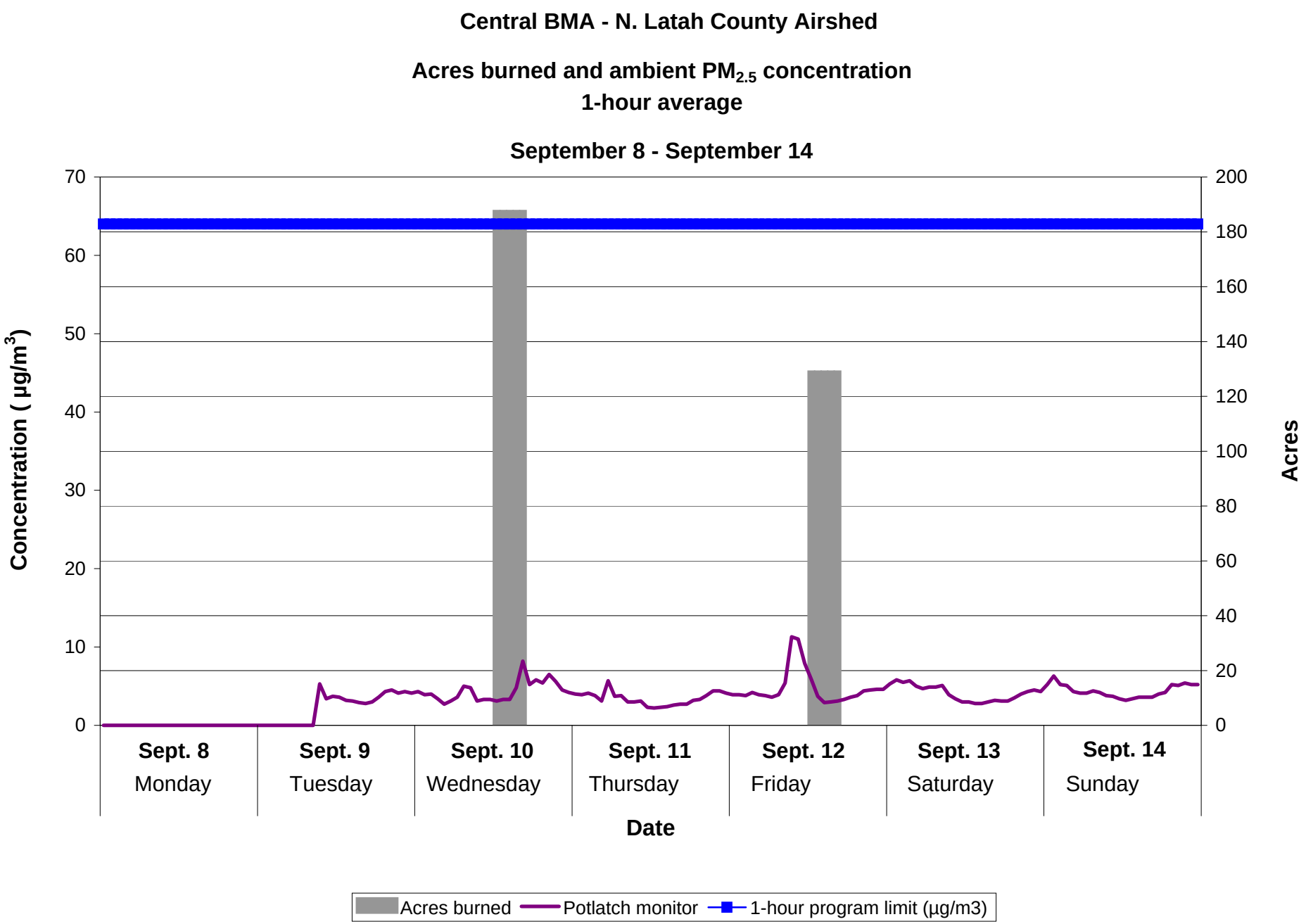

Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
24-hour average
September 1 - October 31
Concentration (µg/m3)
Acres
Date
1-Sep
8-Sep
15-Sep
22-Sep
29-Sep
6-Oct
13-Oct
20-Oct
27-Oct
Acres burned
Potlatch monitor
24-hour program limit (µg/m3)
Yellow sheet trigger (µg/m3)

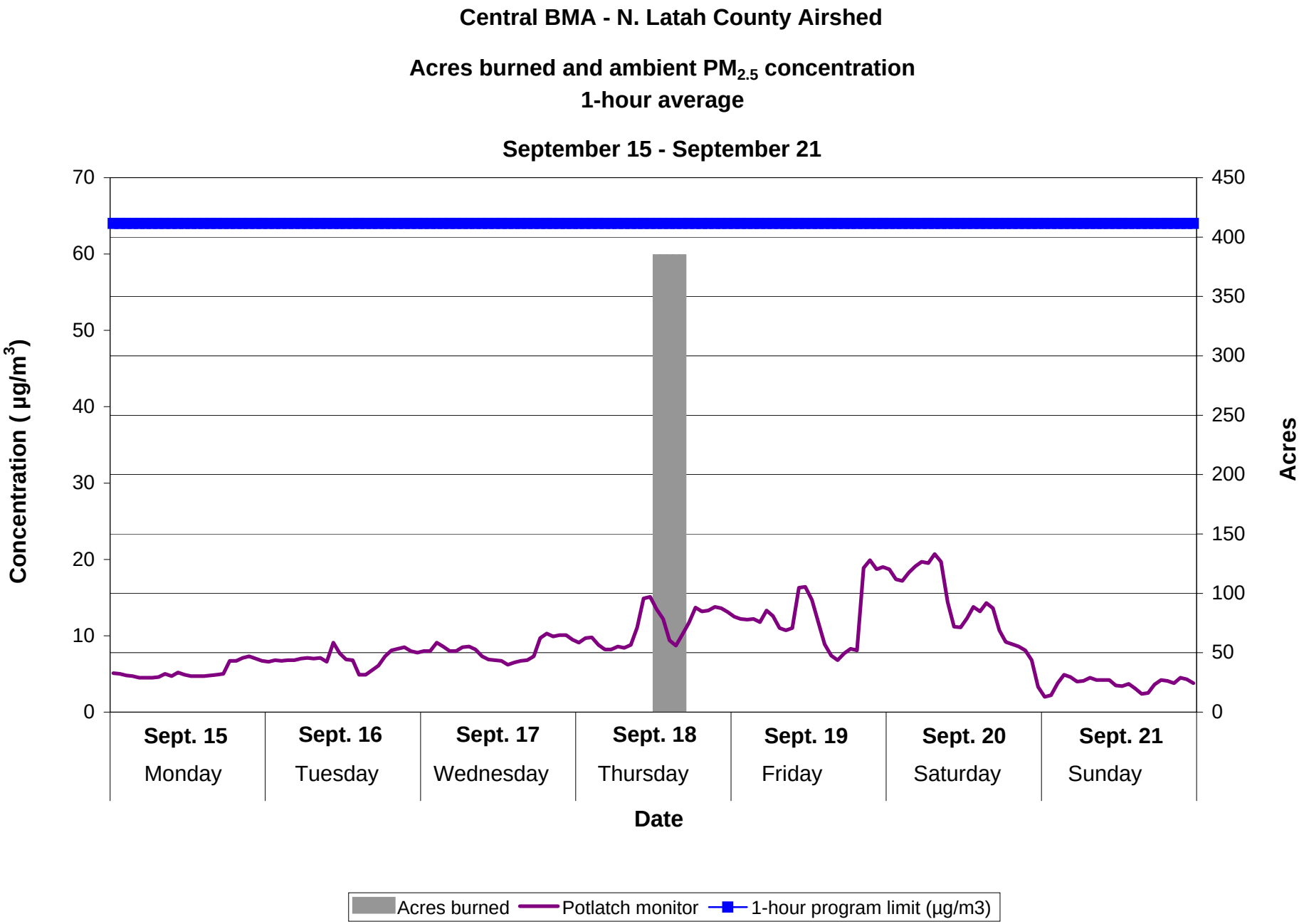
Central BMA - N. Latah County Airshed

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

September 1 - September 7



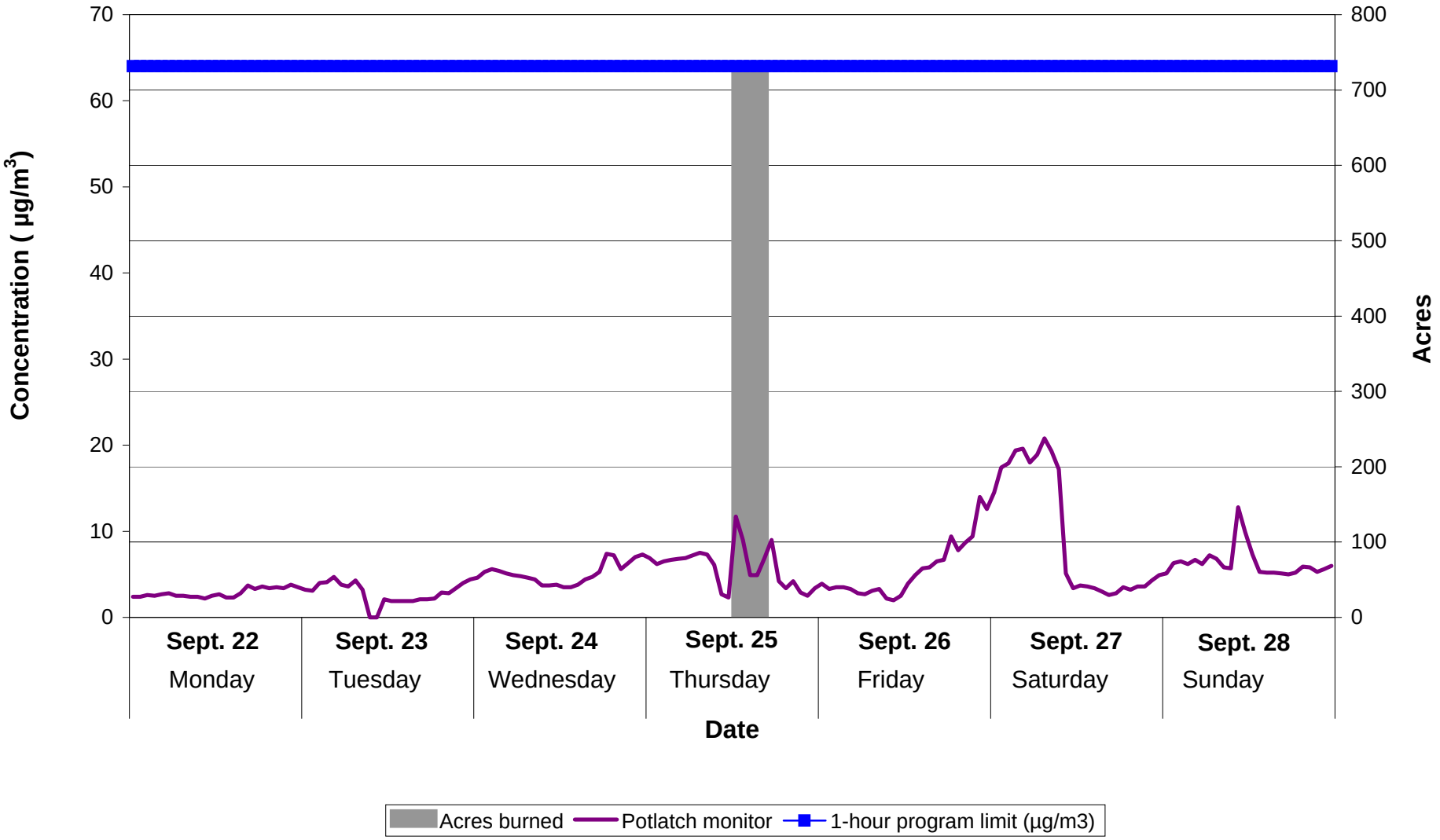

Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 8 - September 14
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
200
180
160
140
120
100
80
60
40
20
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Potlatch monitor
1-hour program limit (µg/m3)

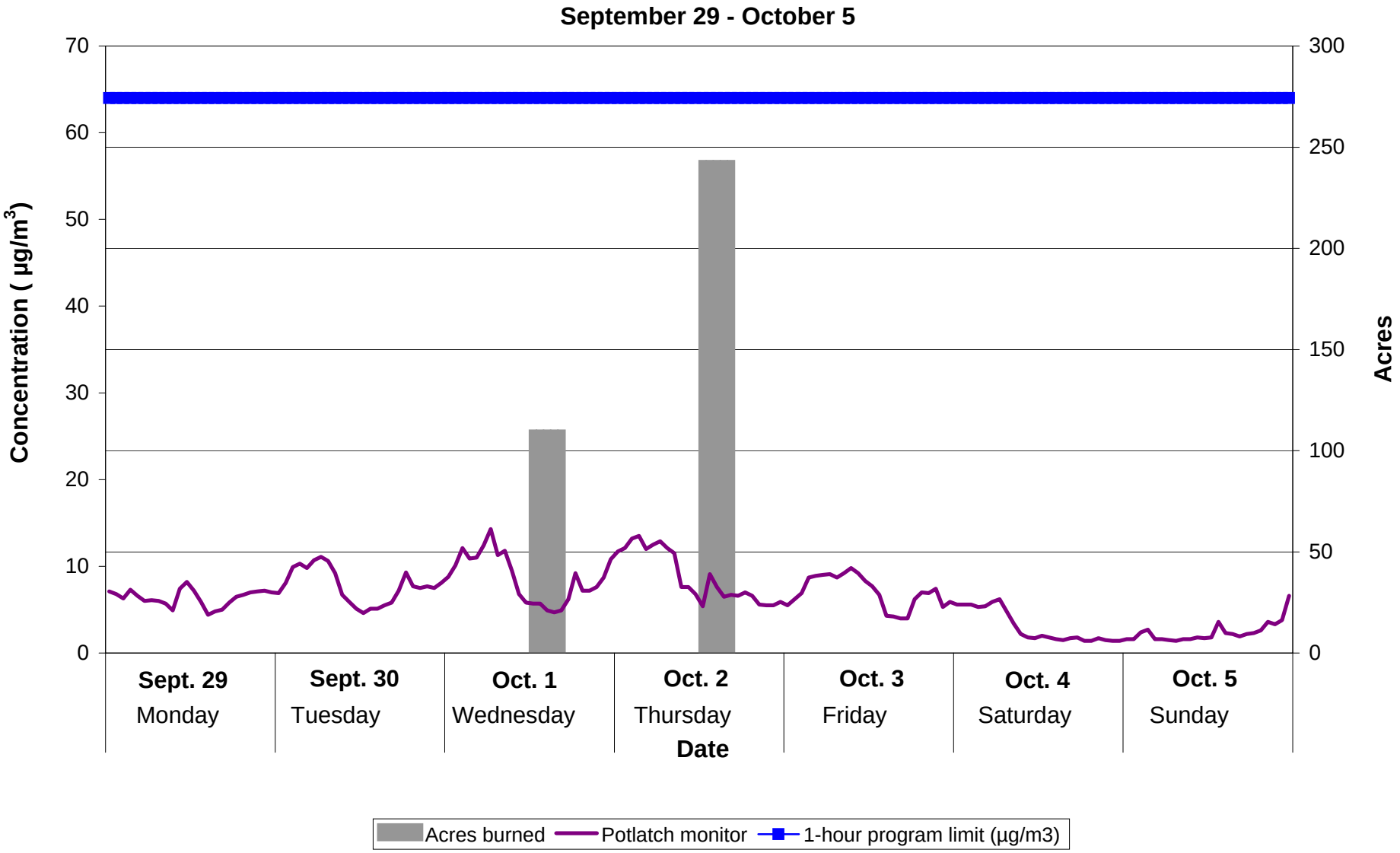

Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 15 - September 21
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
450
400
350
300
250
200
150
100
50
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Potlatch monitor
1-hour program limit (µg/m3)

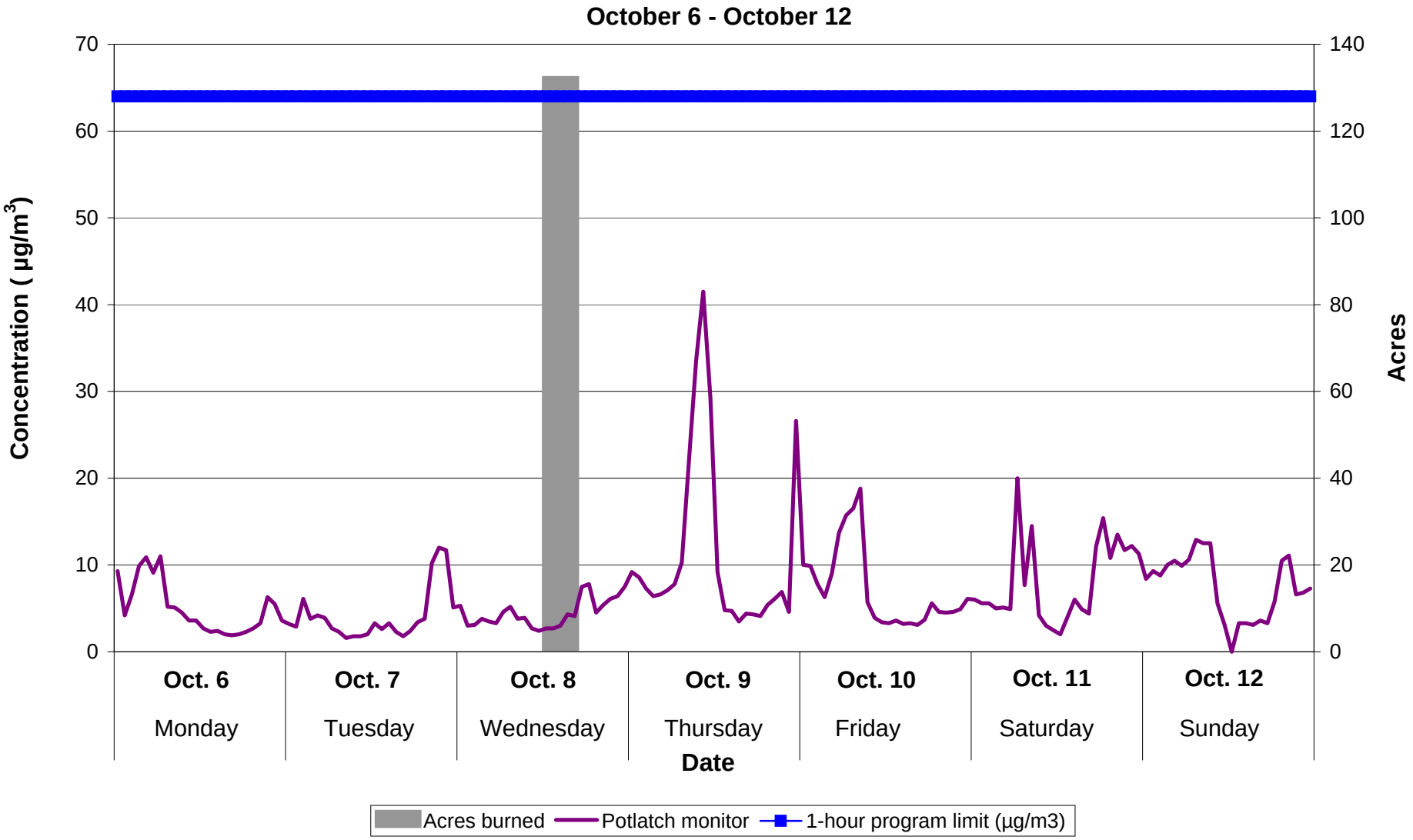
Central BMA - N. Latah County Airshed

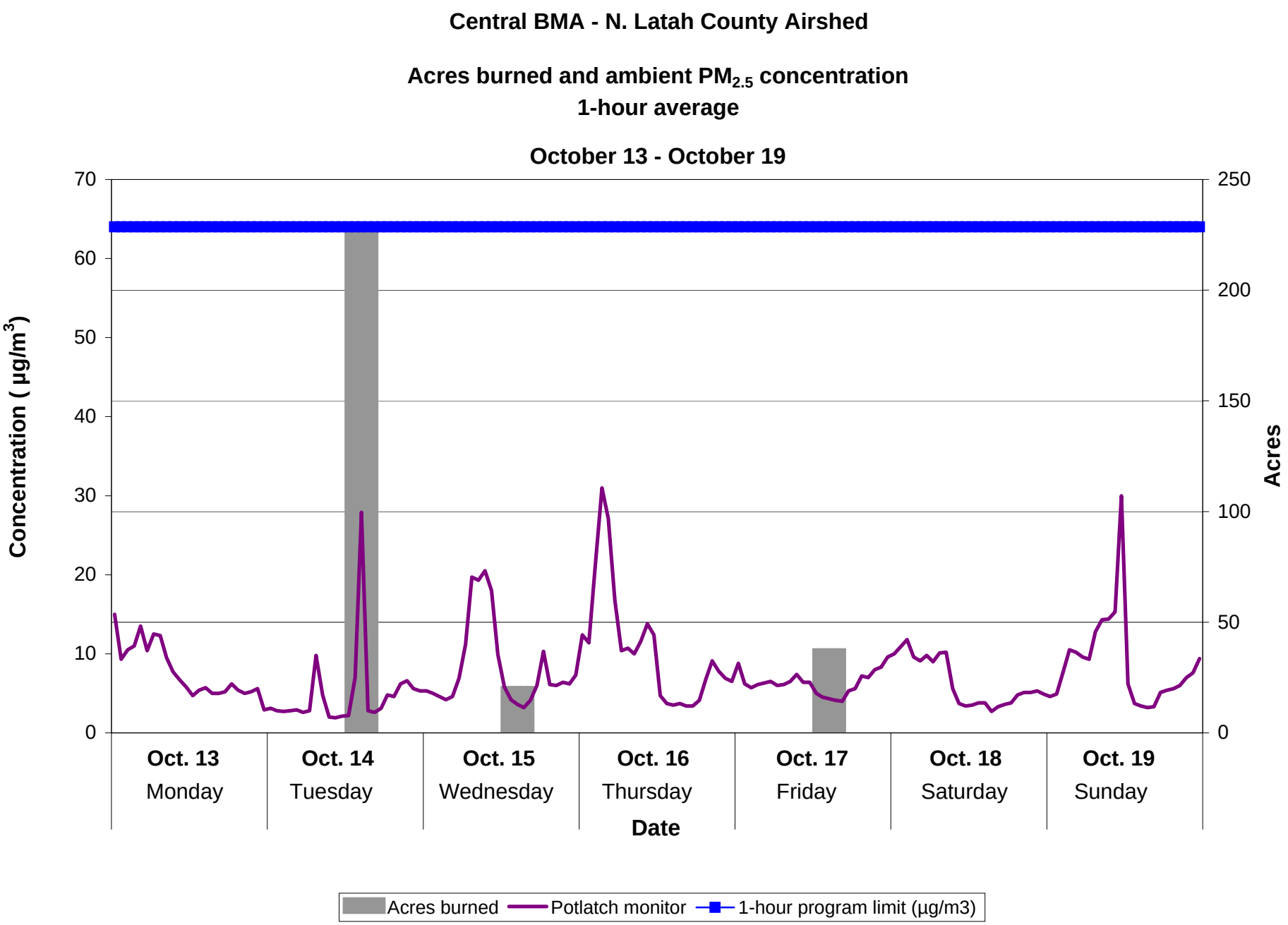
Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

September 22 - September 28




Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 29 - October 5
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
300
250
200
150
100
50
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Potlatch monitor
1-hour program limit (µg/m3)

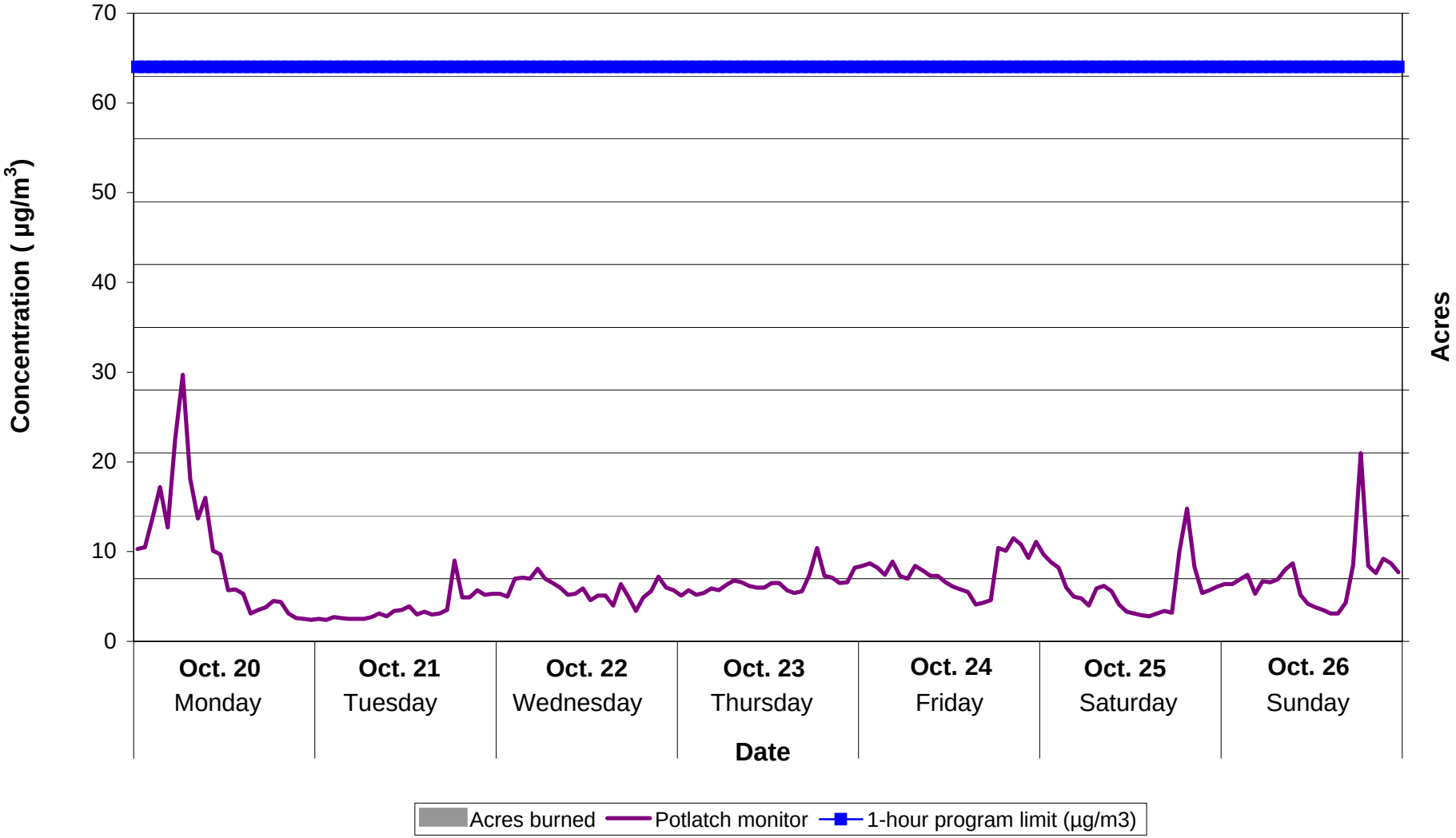

Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 6 - October 12
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
140
120
100
80
60
40
20
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Potlatch monitor
1-hour program limit (µg/m3)

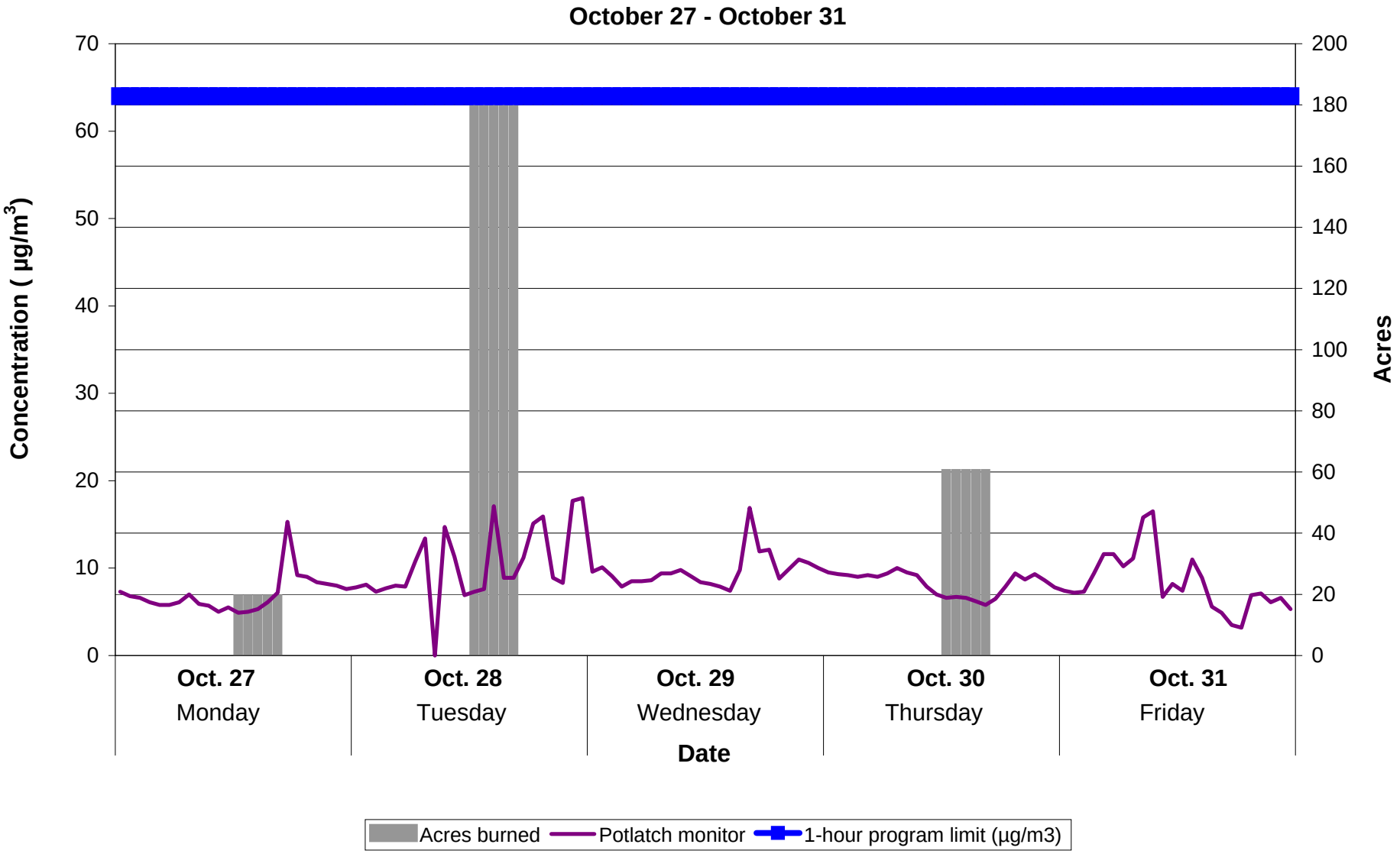

Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 13 - October 19
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
250
200
150
100
50
0
Oct. 13
Monday
Oct. 14
Tuesday
Oct. 15
Wednesday
Oct. 16
Thursday
Oct. 17
Friday
Oct. 18
Saturday
Oct. 19
Sunday
Date
Acres burned
Potlatch monitor
1-hour program limit (µg/m3)

Central BMA - N. Latah County Airshed

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

October 20 - October 26

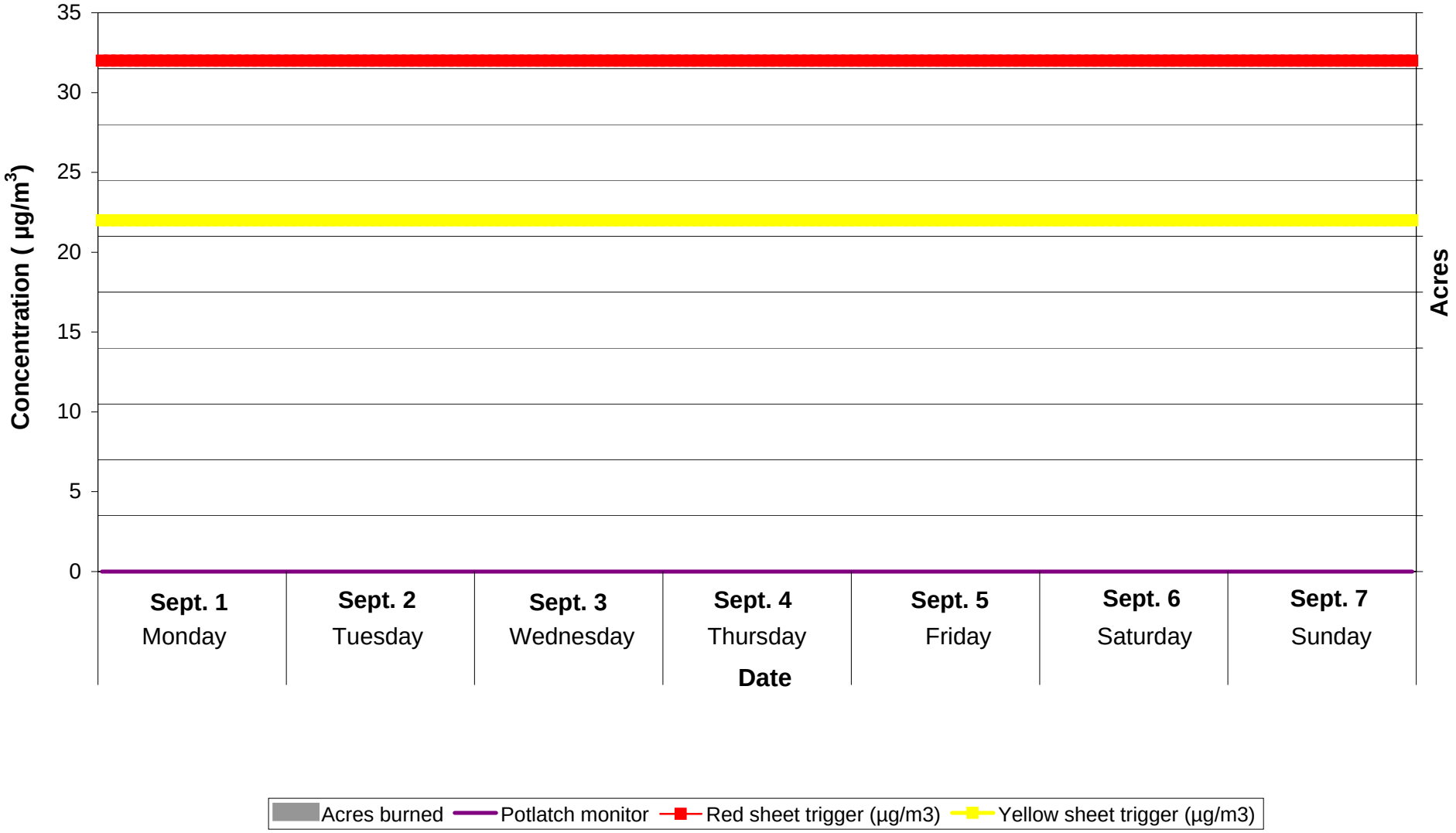


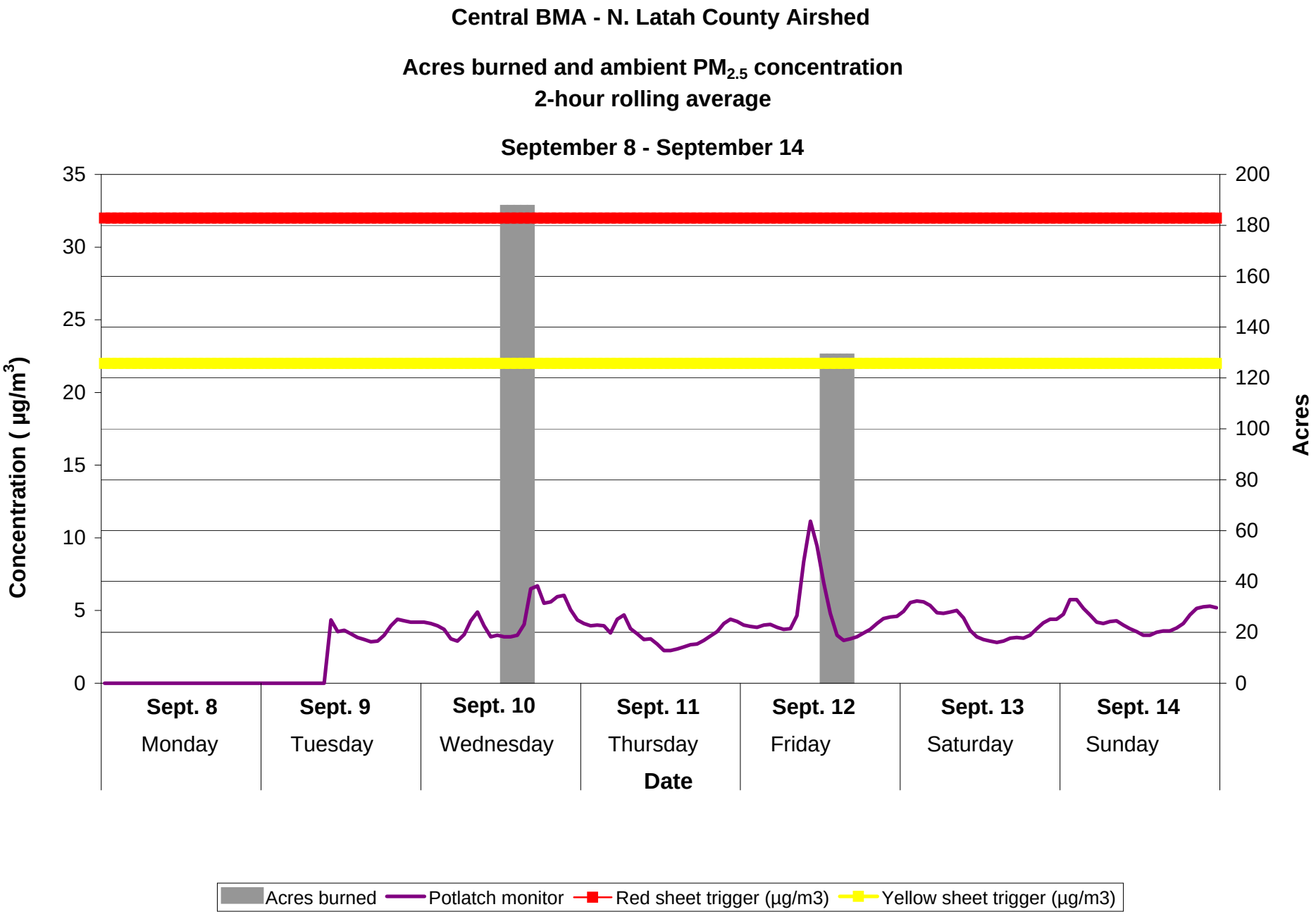

Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 27 - October 31
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
200
180
160
140
120
100
80
60
40
20
0
Oct. 27
Monday
Oct. 28
Tuesday
Oct. 29
Wednesday
Oct. 30
Thursday
Oct. 31
Friday
Date
Acres burned
Potlatch monitor
1-hour program limit (µg/m3)

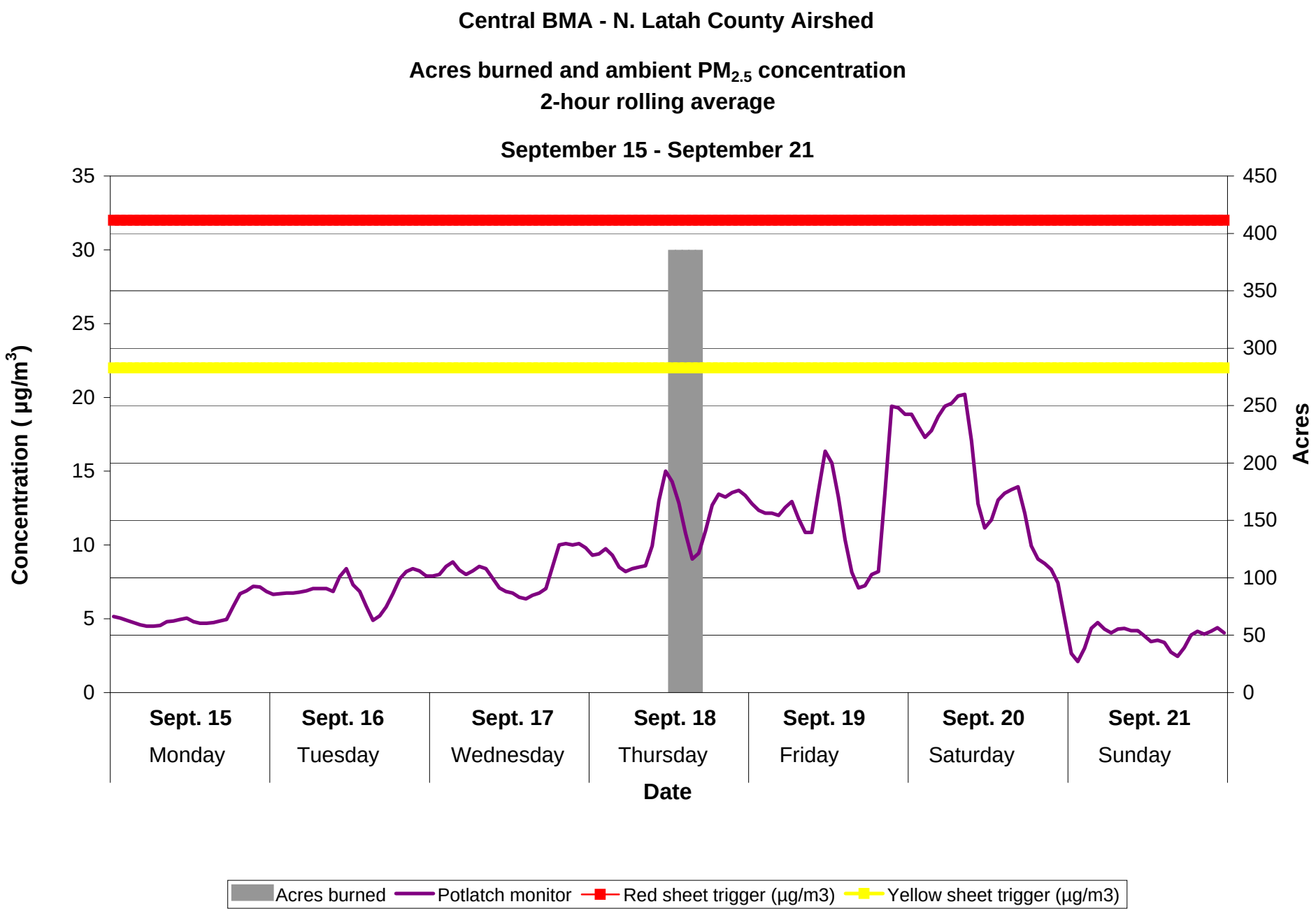
Central BMA - N. Latah County Airshed

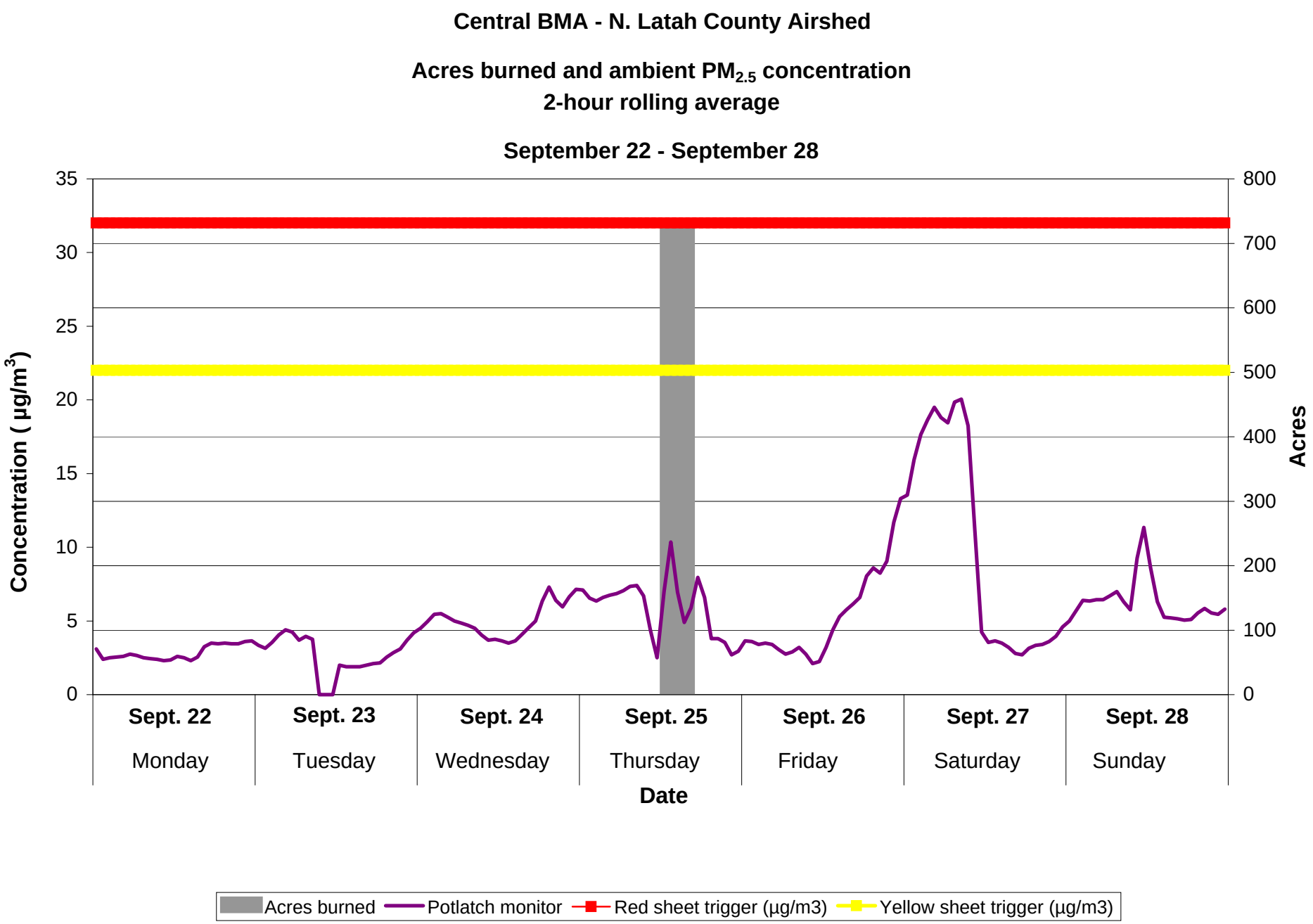
Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

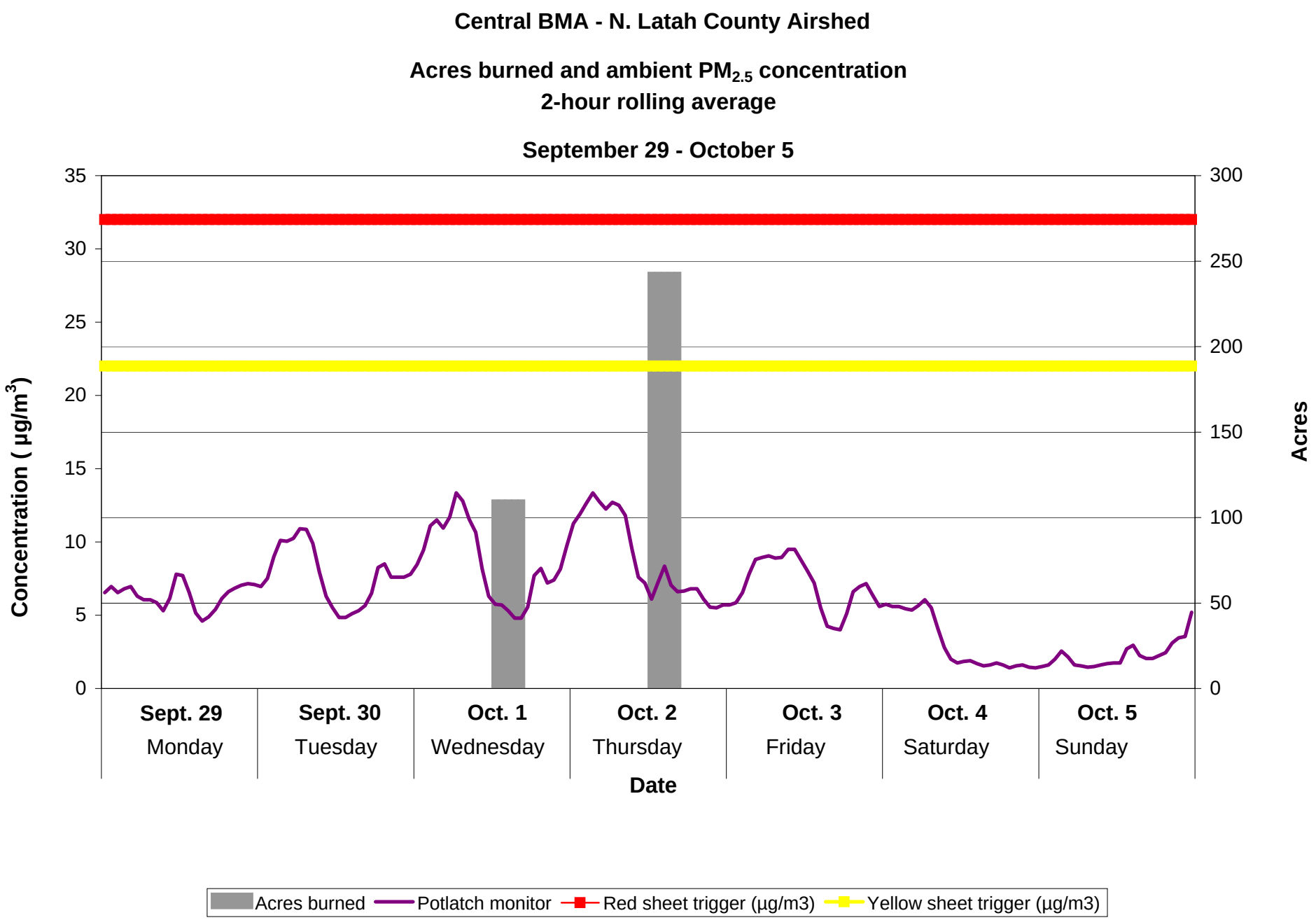
September 1 - September 7

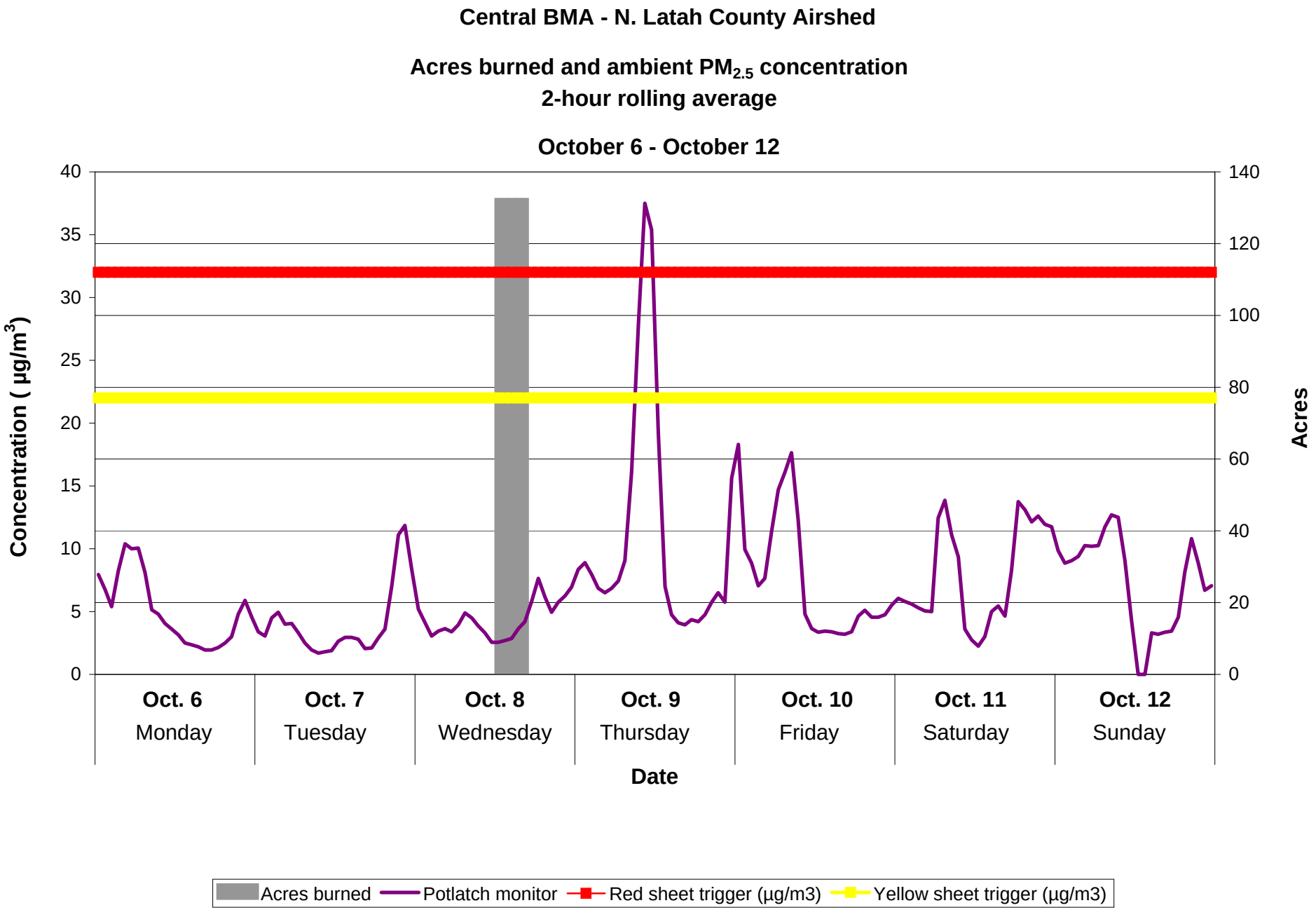


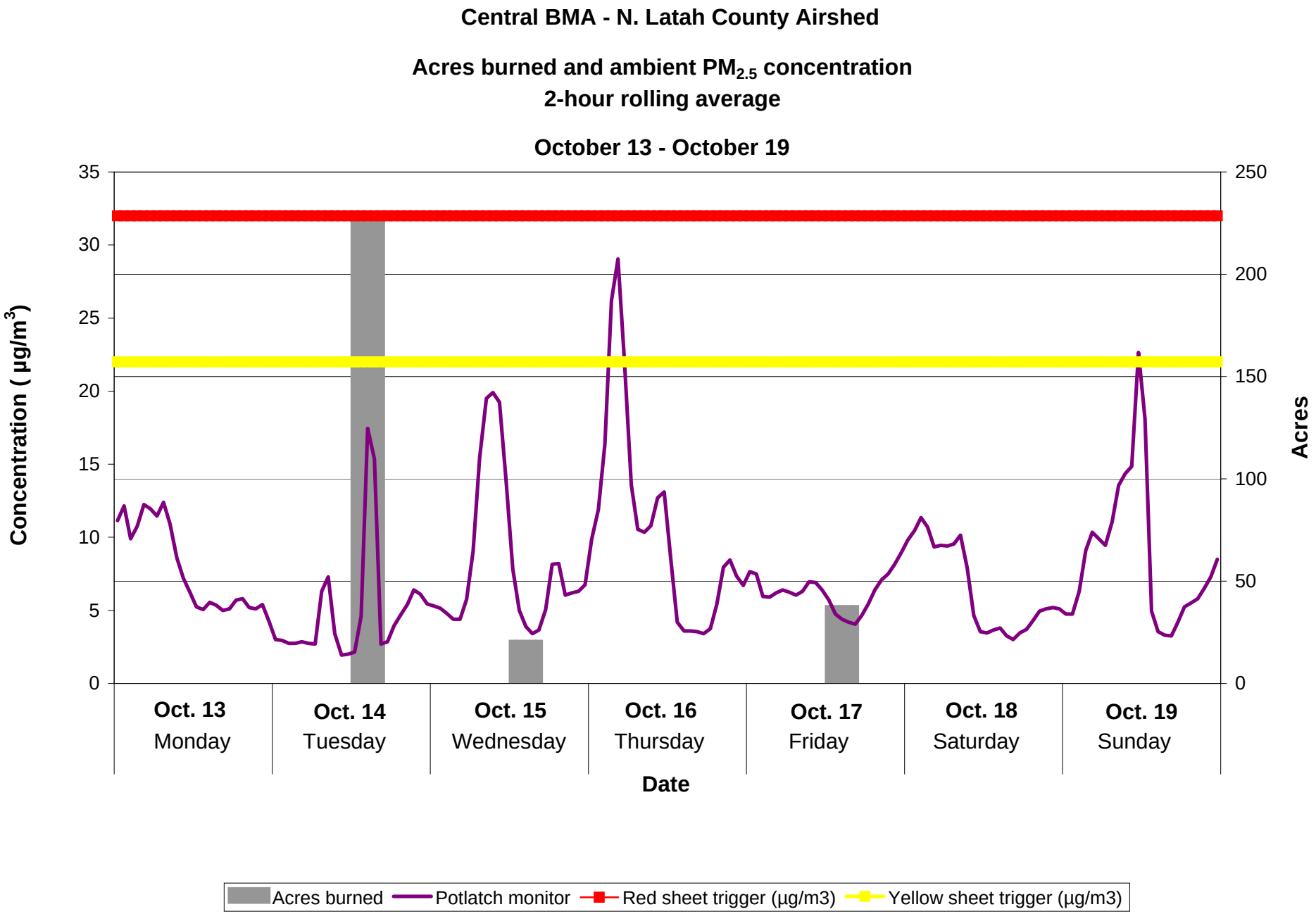

Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 8 - September 14
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
200
180
160
140
120
100
80
60
40
20
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Potlatch monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 15 - September 21
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
450
400
350
300
250
200
150
100
50
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Potlatch monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 22 - September 28
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
800
700
600
500
400
300
200
100
0
Sept. 22
Monday
Sept. 23
Tuesday
Sept. 24
Wednesday
Sept. 25
Thursday
Sept. 26
Friday
Sept. 27
Saturday
Sept. 28
Sunday
Date
Acres burned
Potlatch monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 29 - October 5
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
300
250
200
150
100
50
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Potlatch monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

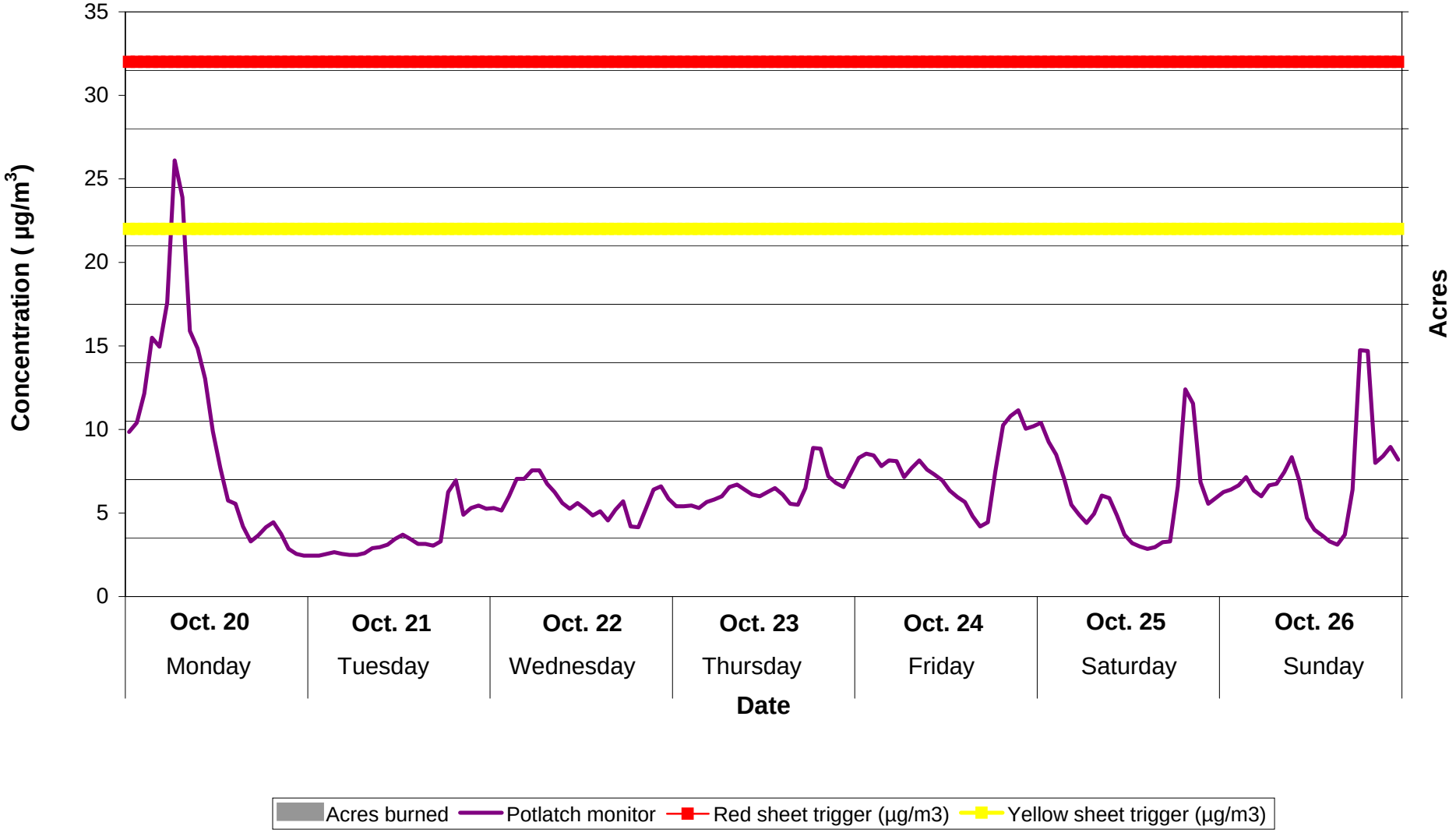

Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 6 - October 12
Concentration (µg/m3)
Acres
40
35
30
25
20
15
10
5
0
140
120
100
80
60
40
20
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Potlatch monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

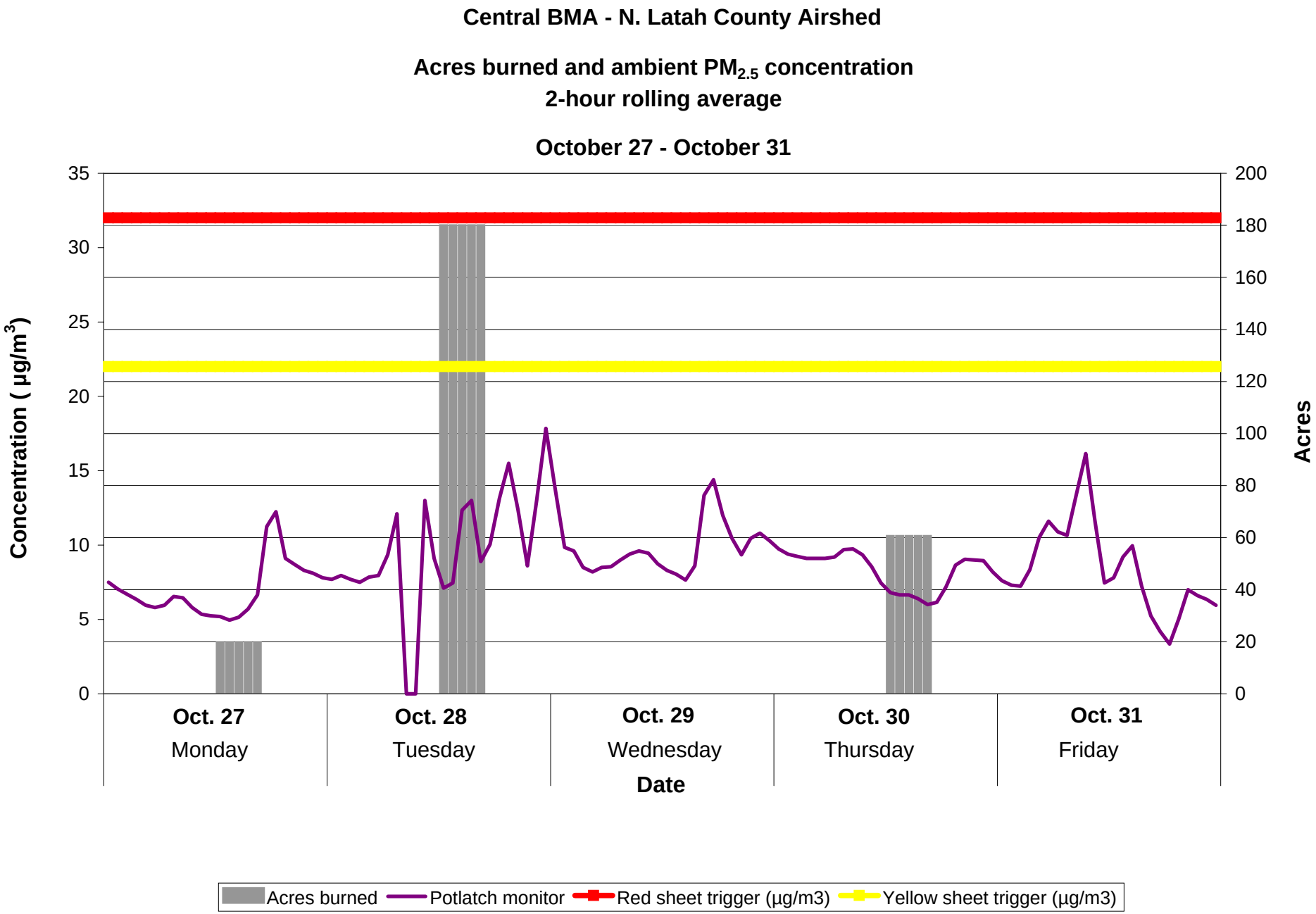

Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 13 - October 19
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
250
200
150
100
50
0
Oct. 13
Monday
Oct. 14
Tuesday
Oct. 15
Wednesday
Oct. 16
Thursday
Oct. 17
Friday
Oct. 18
Saturday
Oct. 19
Sunday
Date
Acres burned
Potlatch monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Central BMA - N. Latah County Airshed

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 20 - October 26

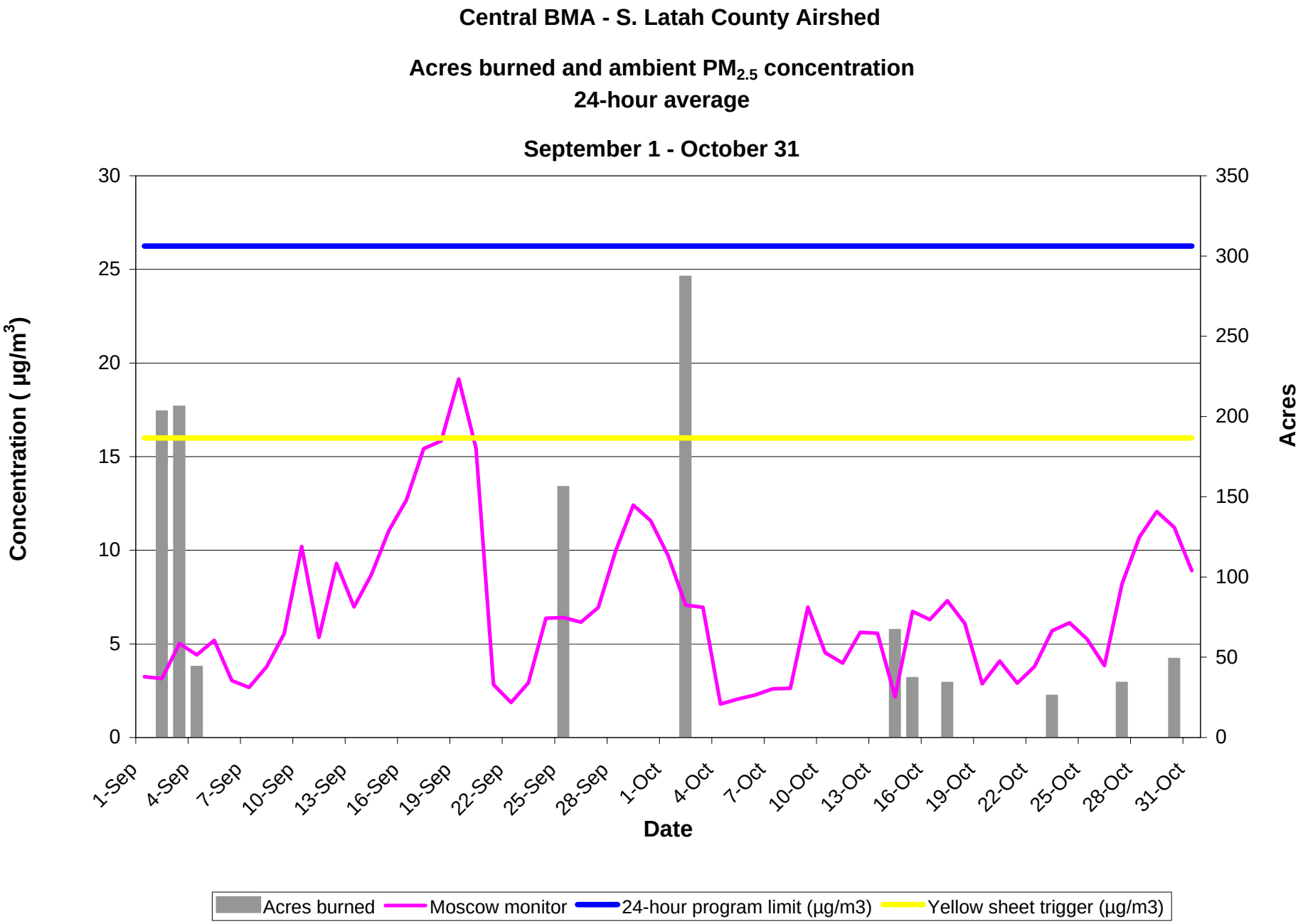


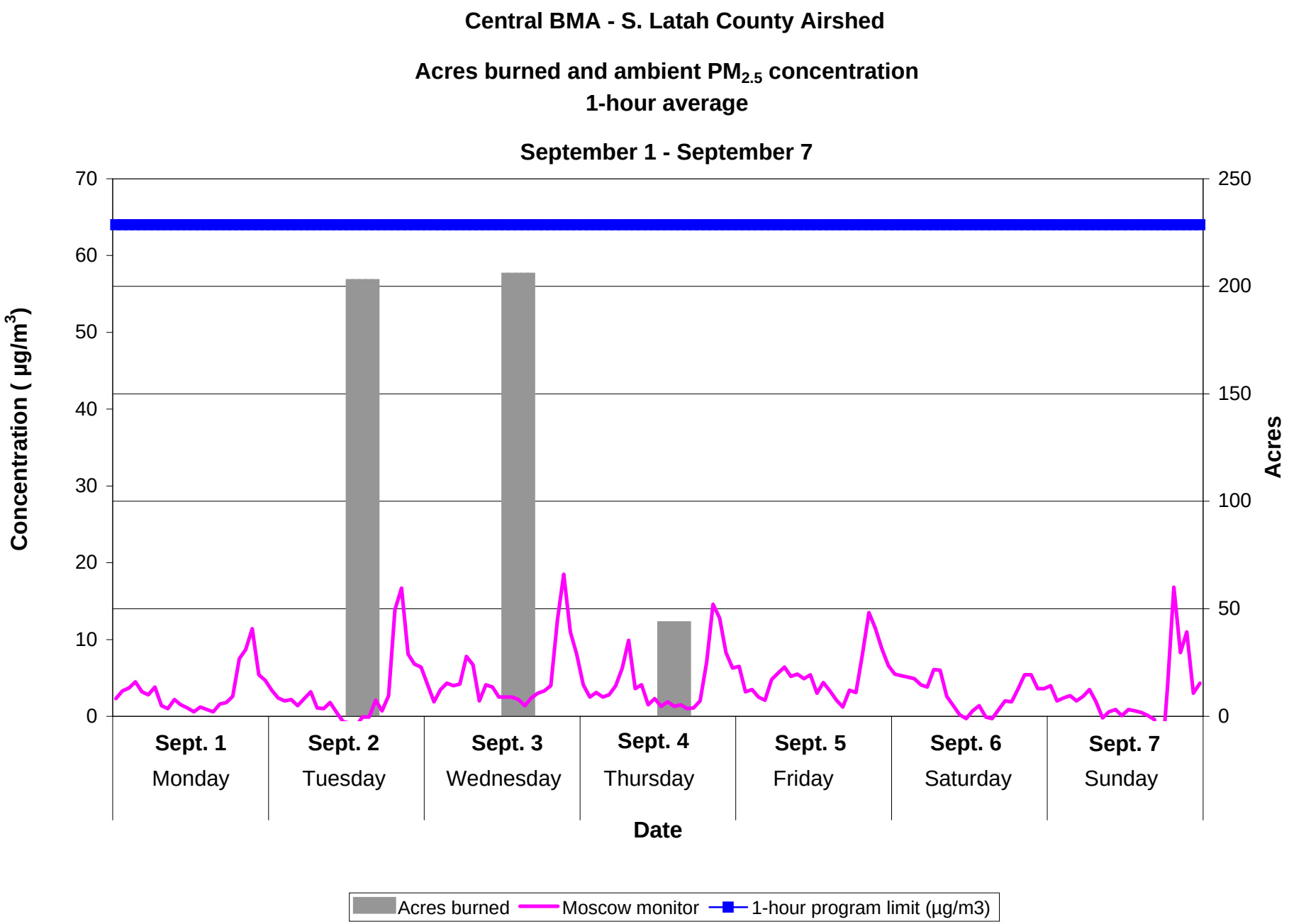

Central BMA - N. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 27 - October 31
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
200
180
160
140
120
100
80
60
40
20
0
Oct. 27
Monday
Oct. 28
Tuesday
Oct. 29
Wednesday
Oct. 30
Thursday
Oct. 31
Friday
Date
Acres burned
Potlatch monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

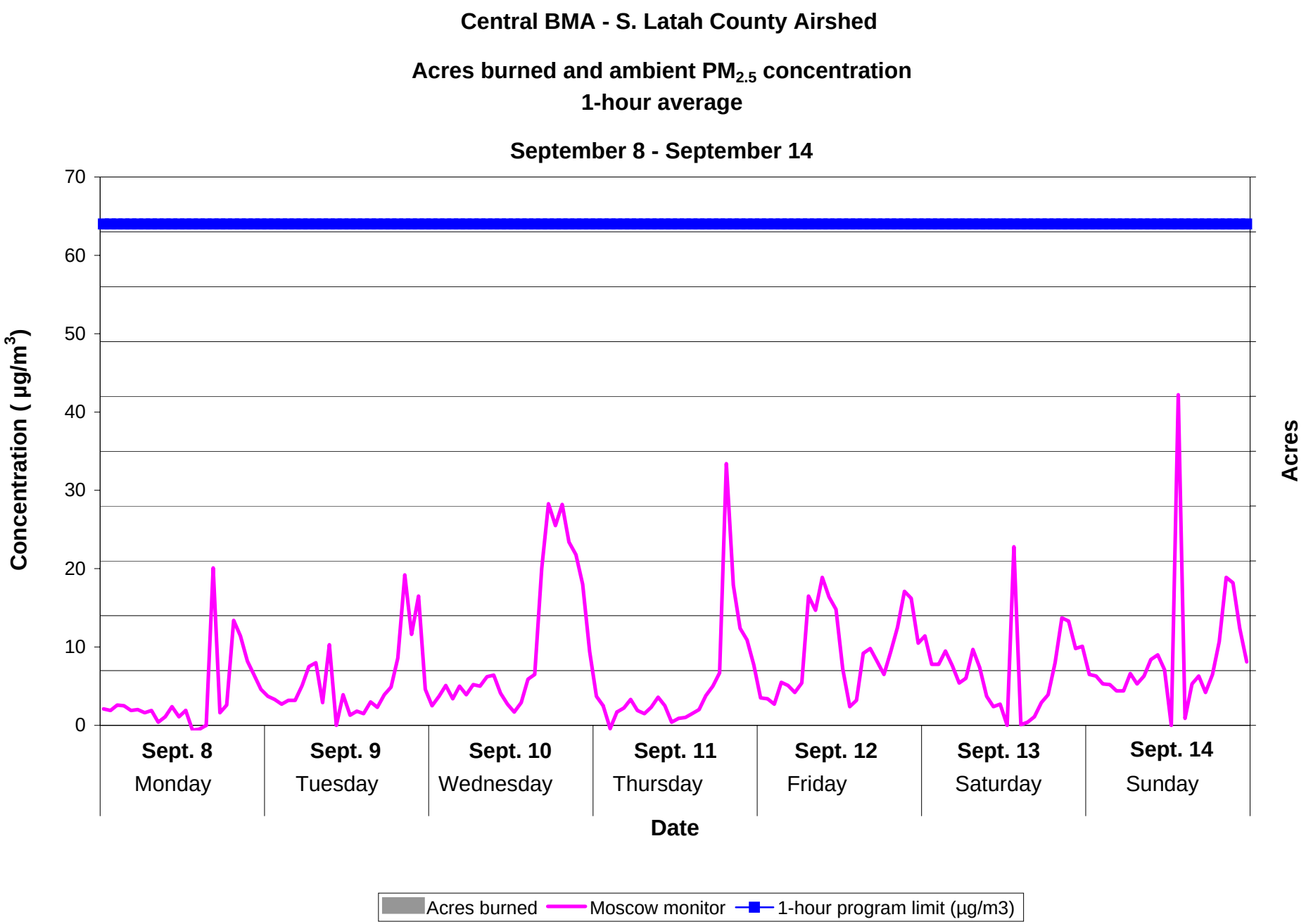
South Idaho County

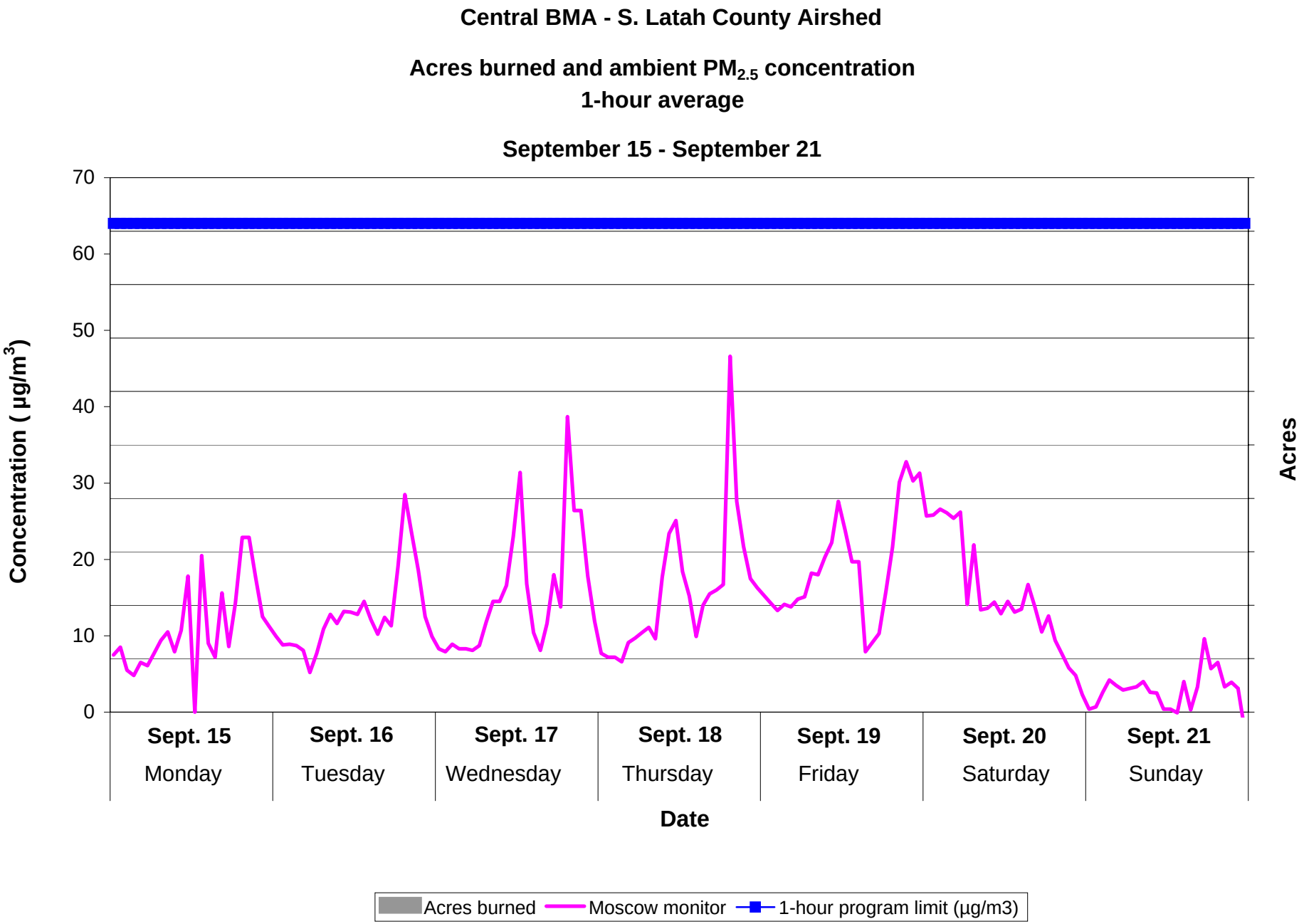
Sub-airshed

Burn Decisions and Acres Burned - S. Latah County Airshed		
Day of Week	**Date**	**# acres burned**
T	9/2/2008	202.10
W	9/3/2008	205.00
Th	9/4/2008	43.00
F	9/5/2008	0.00
Sa	9/6/2008	
Su	9/7/2008	
M	9/8/2008	0.00
T	9/9/2008	
W	9/10/2008	0.00
Th	9/11/2008	0.00
F	9/12/2008	0.00
Sa	9/13/2008	
Su	9/14/2008	
M	9/15/2008	
T	9/16/2008	
W	9/17/2008	0.00
Th	9/18/2008	0.00
F	9/19/2008	
Sa	9/20/2008	
Su	9/21/2008	
M	9/22/2008	
T	9/23/2008	
W	9/24/2008	0.00
Th	9/25/2008	155.00
F	9/26/2008	
Sa	9/27/2008	
Su	9/28/2008	
M	9/29/2008	
T	9/30/2008	0.00
W	10/1/2008	0.00
Th	10/2/2008	286.00
F	10/3/2008	0.00
Sa	10/4/2008	
Su	10/5/2008	
M	10/6/2008	
T	10/7/2008	
W	10/8/2008	0.00
Th	10/9/2008	0.00
F	10/10/2008	0.00
Sa	10/11/2008	
Su	10/12/2008	
M	10/13/2008	
T	10/14/2008	66.00
W	10/15/2008	36.00
Th	10/16/2008	
F	10/17/2008	33.00
Sa	10/18/2008	
Su	10/19/2008	
M	10/20/2008	
T	10/21/2008	
W	10/22/2008	
Th	10/23/2008	25.00
F	10/24/2008	0.00
Sa	10/25/2008	
Su	10/26/2008	
M	10/27/2008	33.00
T	10/28/2008	0.00
W	10/29/2008	0.00
Th	10/30/2008	48.00
F	10/31/2008	0
	TOTAL	**1132**


Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
24-hour average
September 1 - October 31
Concentration (µg/m3)
Acres
Date
0
5
10
15
20
25
30
0
50
100
150
200
250
300
350
1-Sep
4-Sep
7-Sep
10-Sep
13-Sep
16-Sep
19-Sep
22-Sep
25-Sep
28-Sep
1-Oct
4-Oct
7-Oct
10-Oct
13-Oct
16-Oct
19-Oct
22-Oct
25-Oct
28-Oct
31-Oct
Acres burned
Moscow monitor
24-hour program limit (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 1 - September 7
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
250
200
150
100
50
0
Sept. 1
Monday
Sept. 2
Tuesday
Sept. 3
Wednesday
Sept. 4
Thursday
Sept. 5
Friday
Sept. 6
Saturday
Sept. 7
Sunday
Date
Acres burned
Moscow monitor
1-hour program limit (µg/m3)

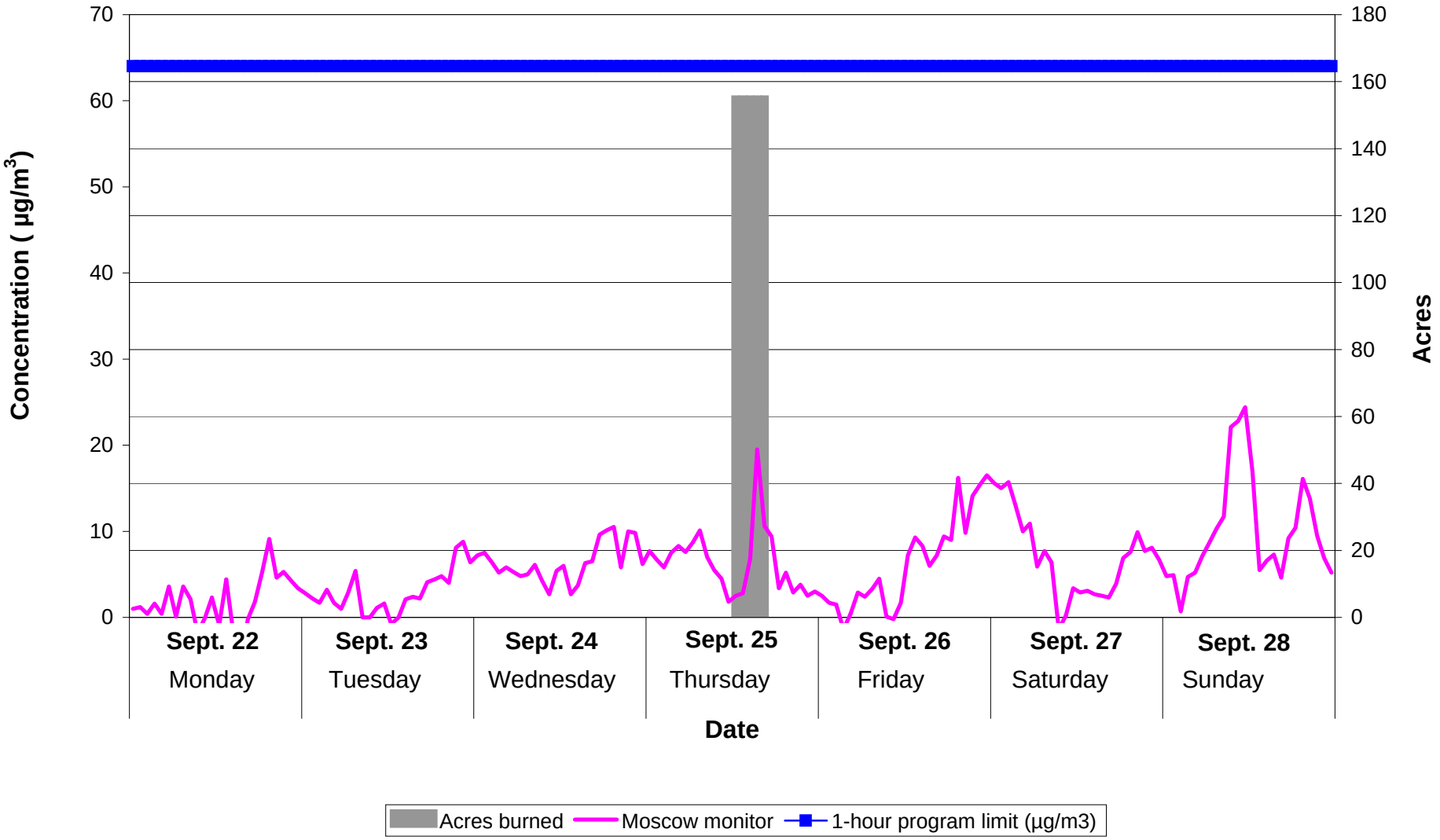

Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 8 - September 14
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Moscow monitor
1-hour program limit (µg/m3)

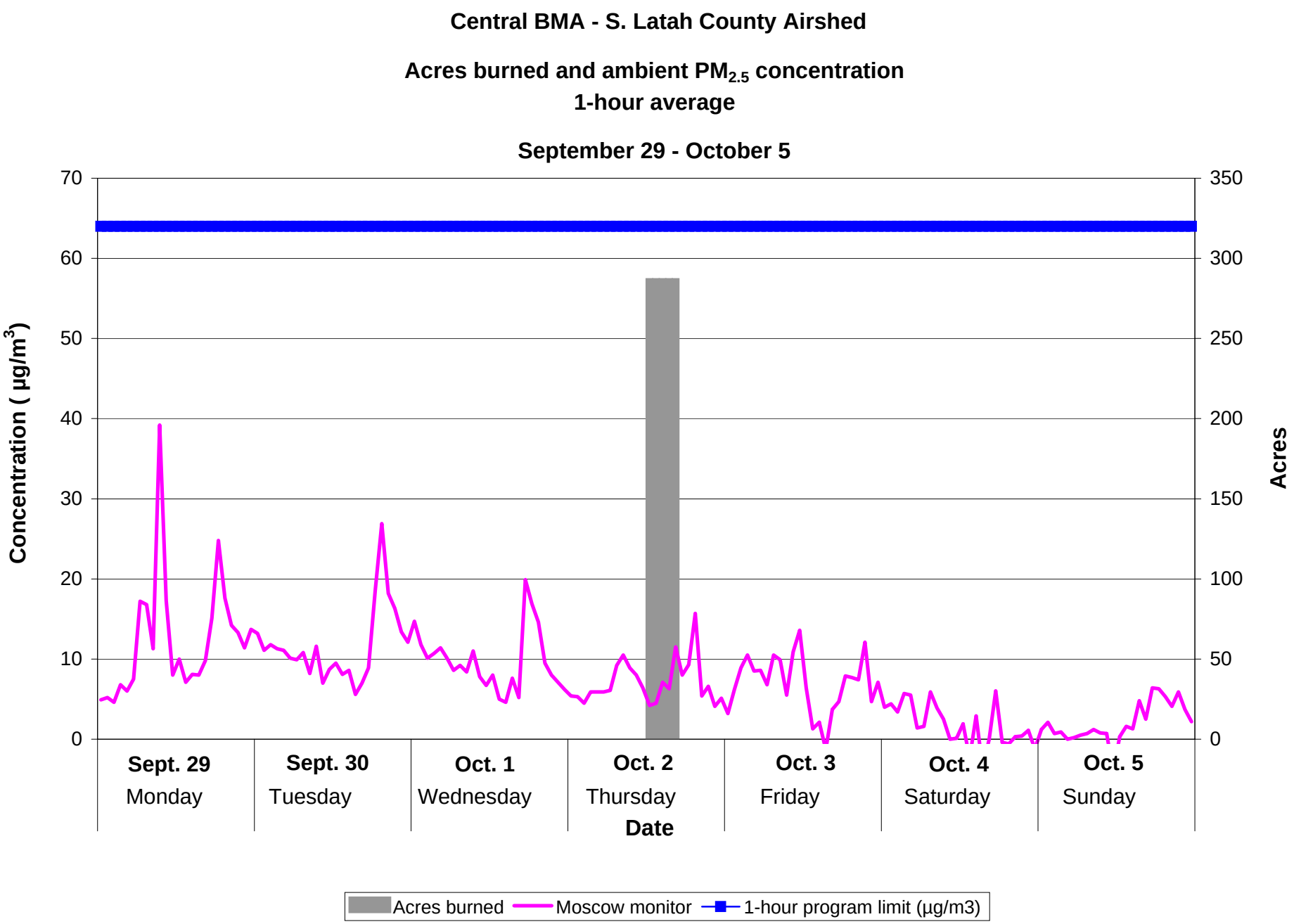

Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 15 - September 21
Concentration (µg/m3)
70
60
50
40
30
20
10
0
Acres
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Moscow monitor
1-hour program limit (µg/m3)

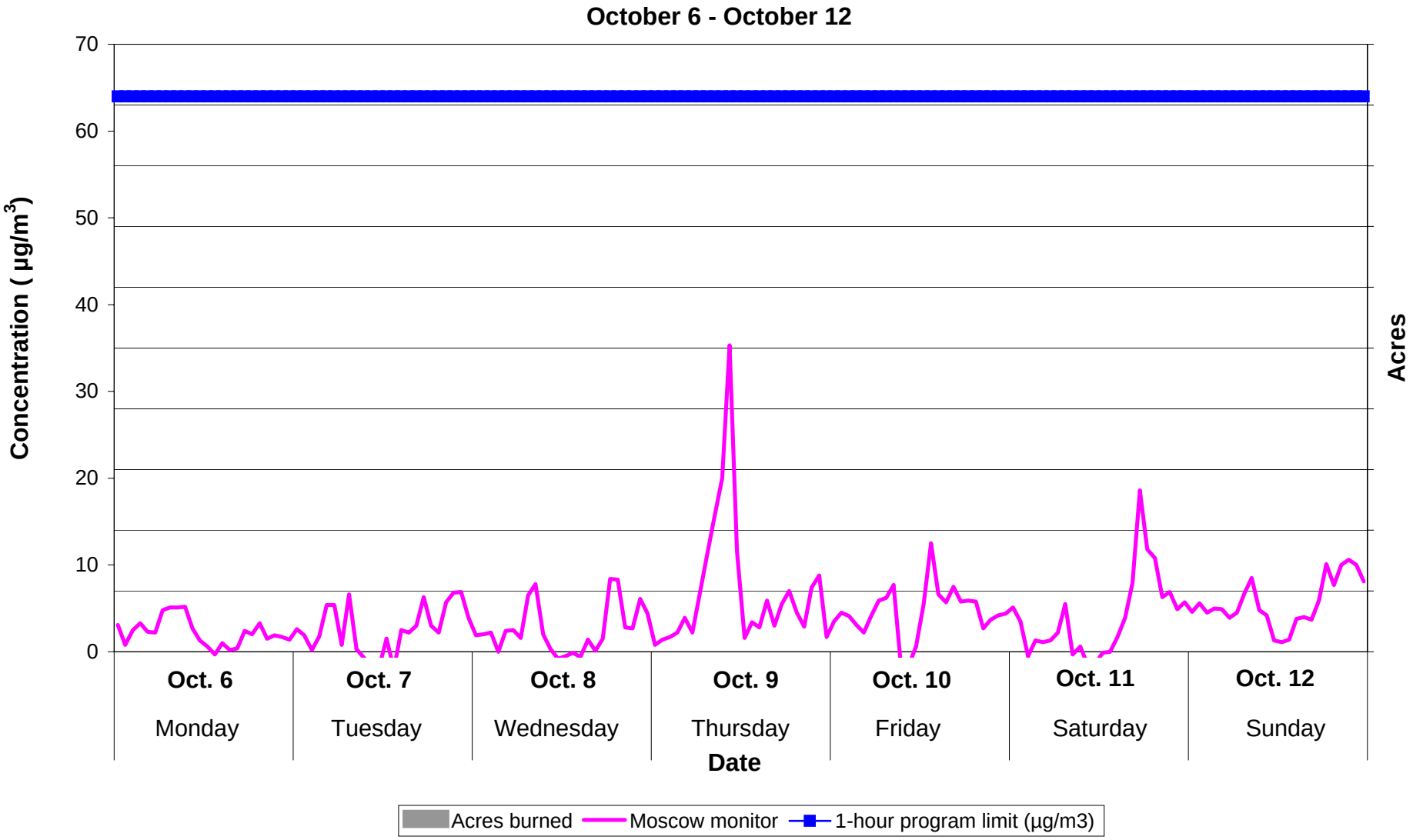
Central BMA - S. Latah County Airshed

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

September 22 - September 28



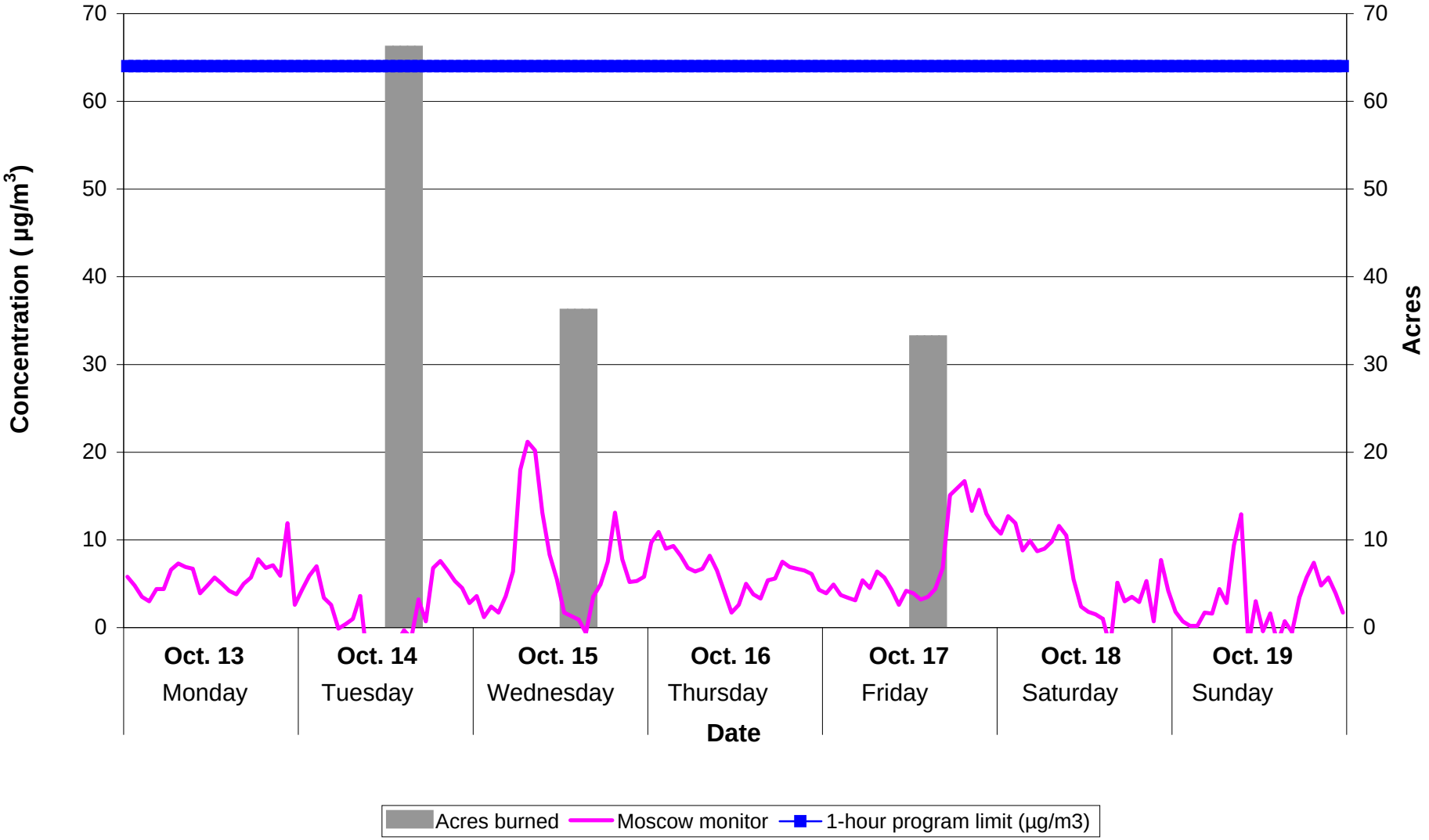

Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 29 - October 5
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
350
300
250
200
150
100
50
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Moscow monitor
1-hour program limit (µg/m3)

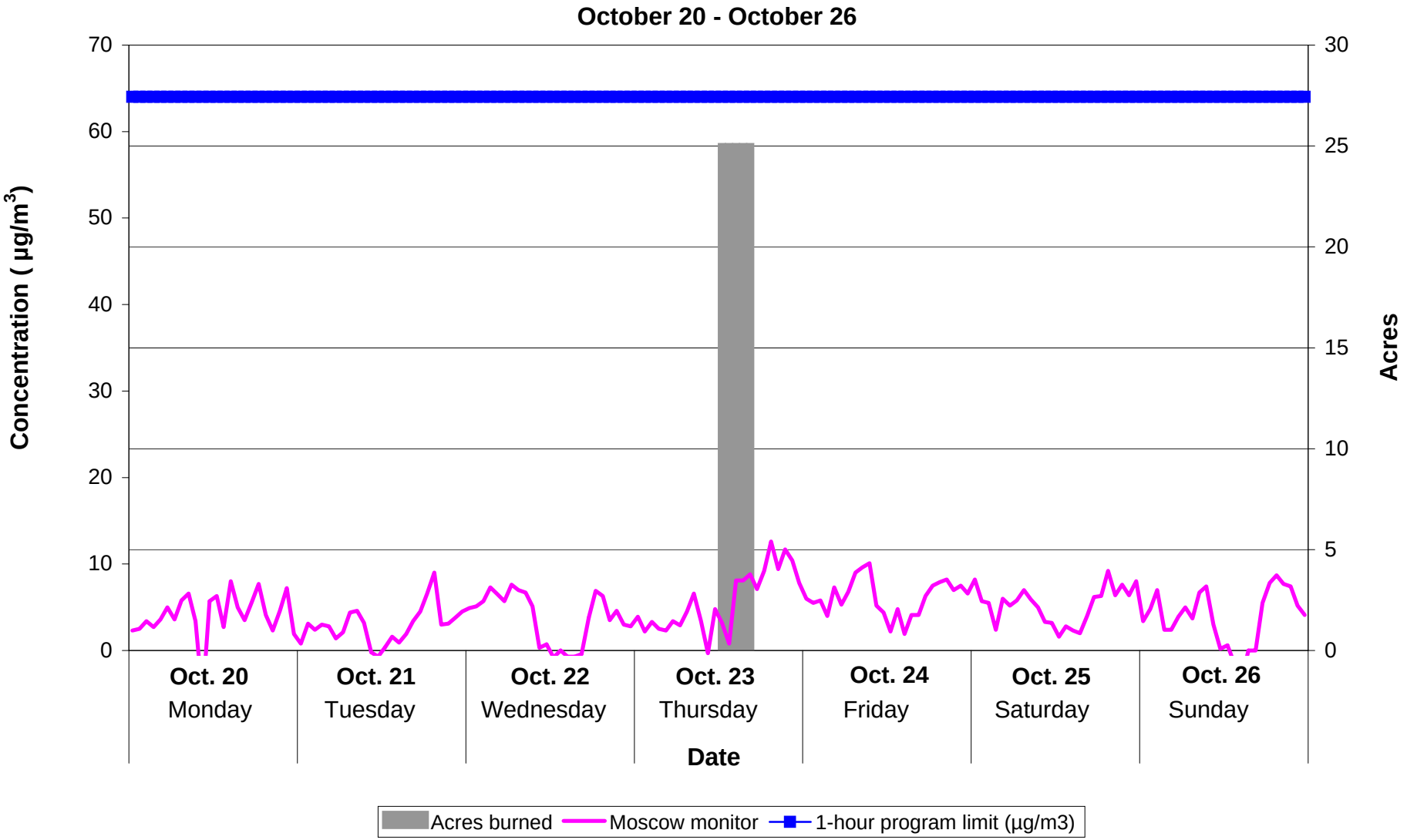

Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 6 - October 12
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Moscow monitor
1-hour program limit (µg/m3)

Central BMA - S. Latah County Airshed

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

October 13 - October 19

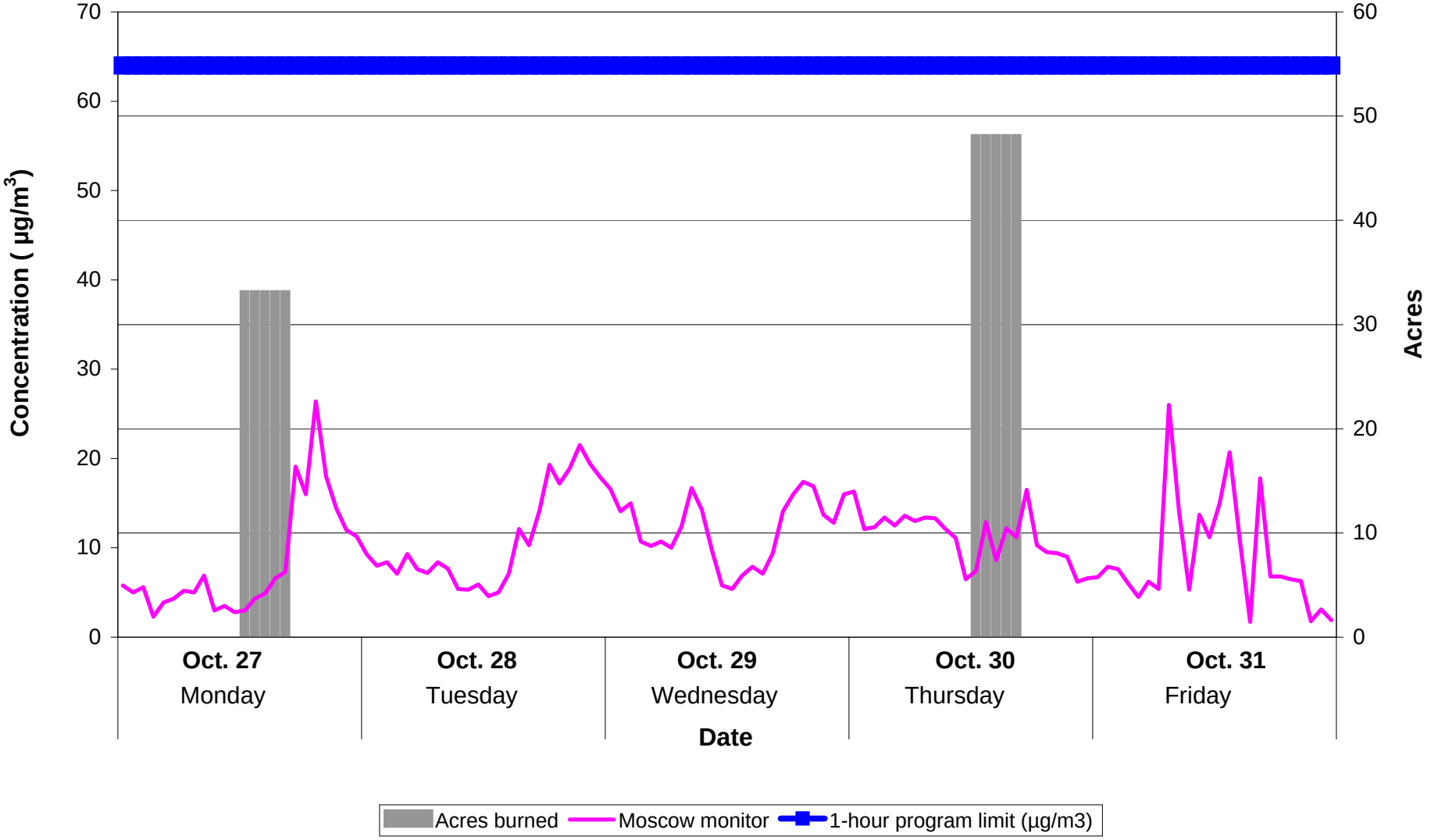


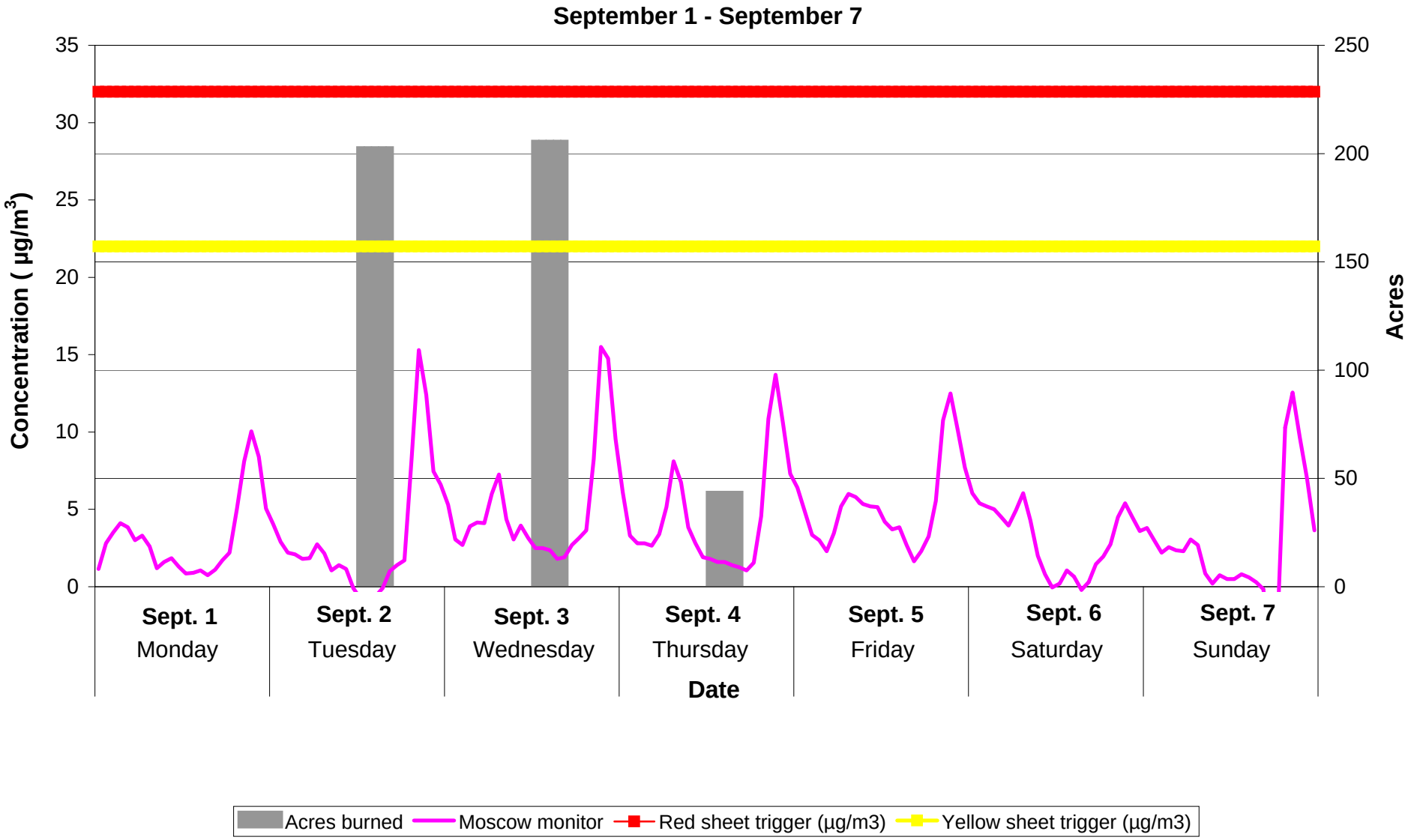

Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 20 - October 26
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
30
25
20
15
10
5
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Moscow monitor
1-hour program limit (µg/m3)

Central BMA - S. Latah County Airshed

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

October 27 - October 31

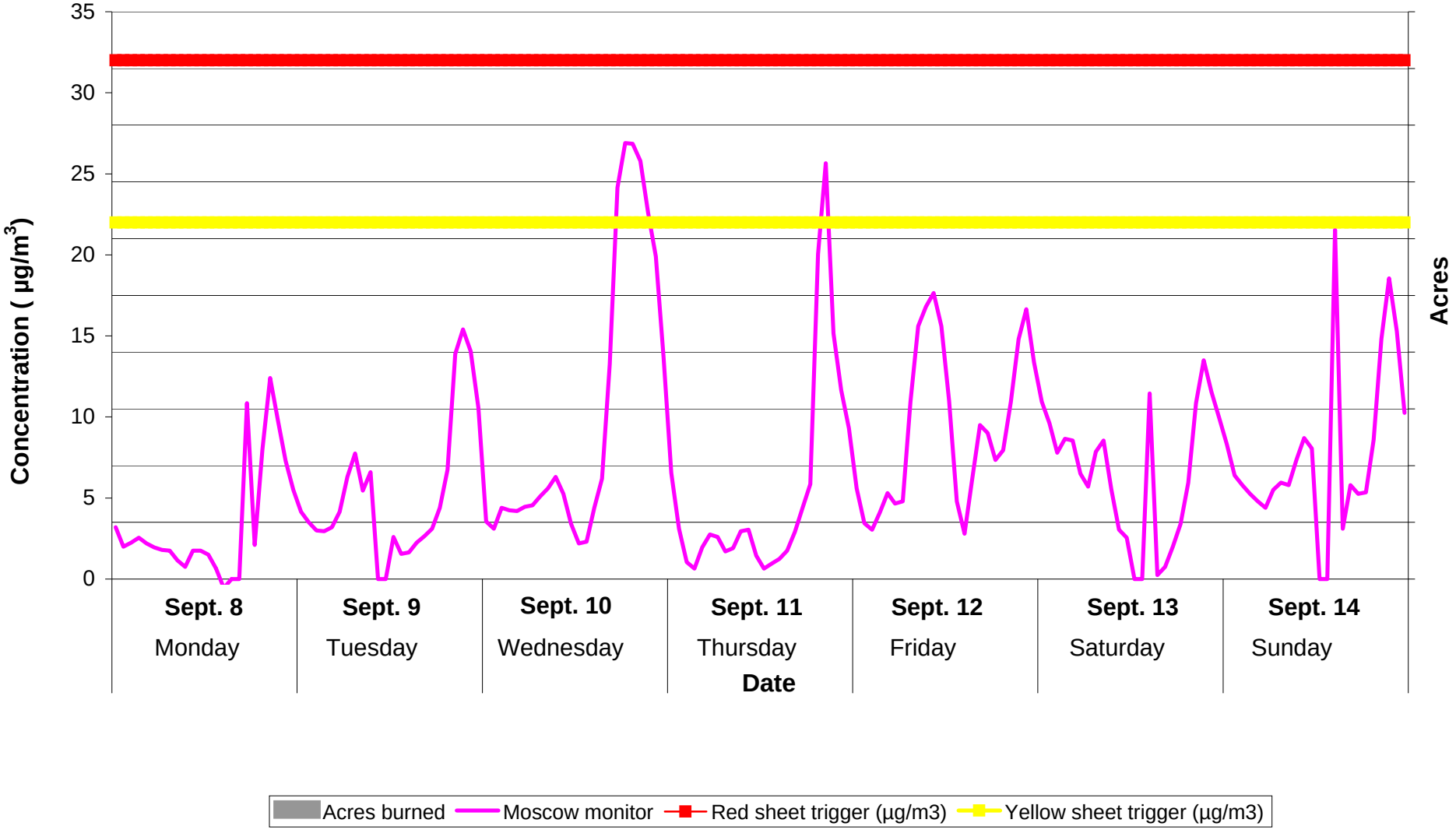


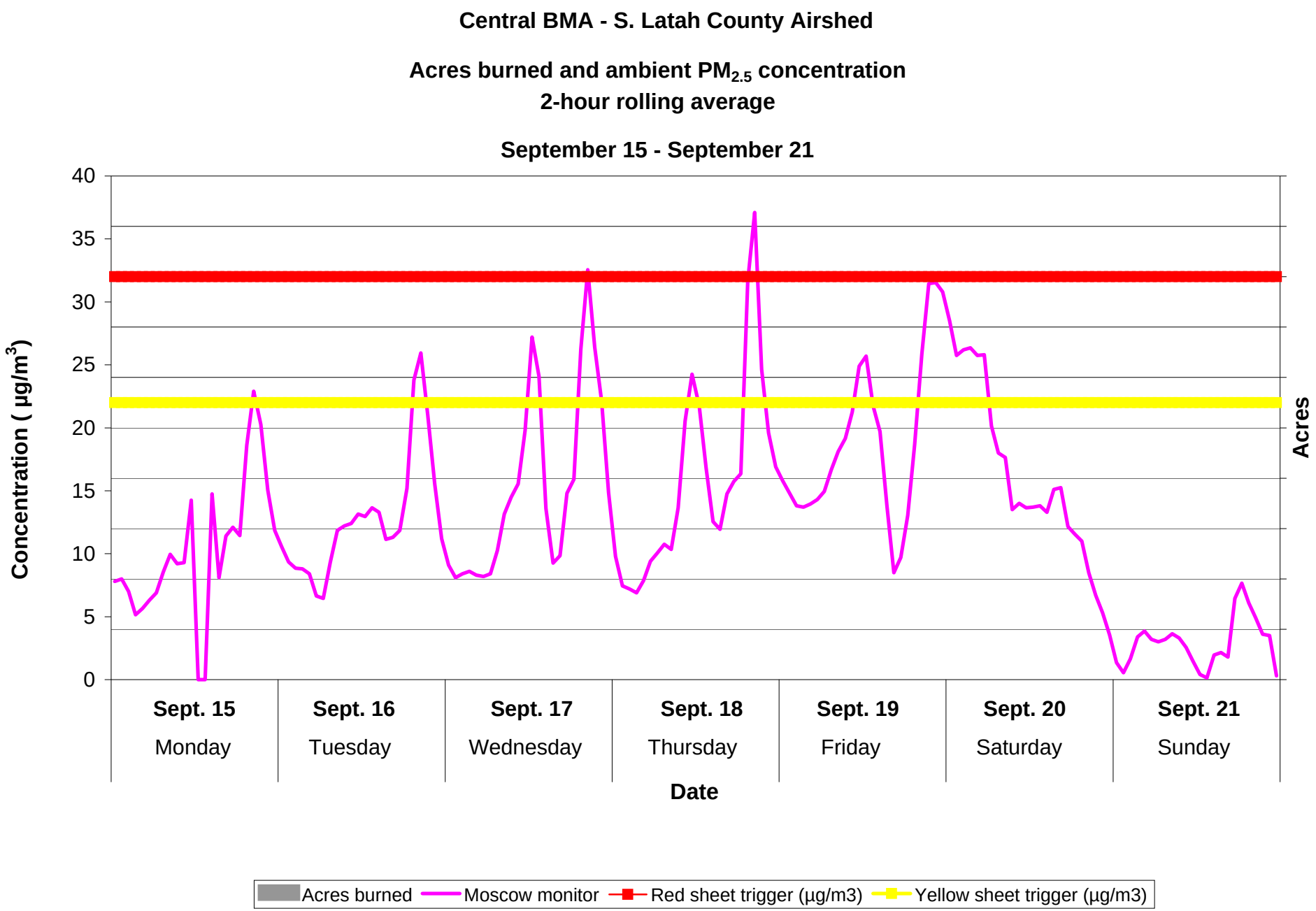

Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 1 - September 7
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
250
200
150
100
50
0
Sept. 1
Monday
Sept. 2
Tuesday
Sept. 3
Wednesday
Sept. 4
Thursday
Sept. 5
Friday
Sept. 6
Saturday
Sept. 7
Sunday
Date
Acres burned
Moscow monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

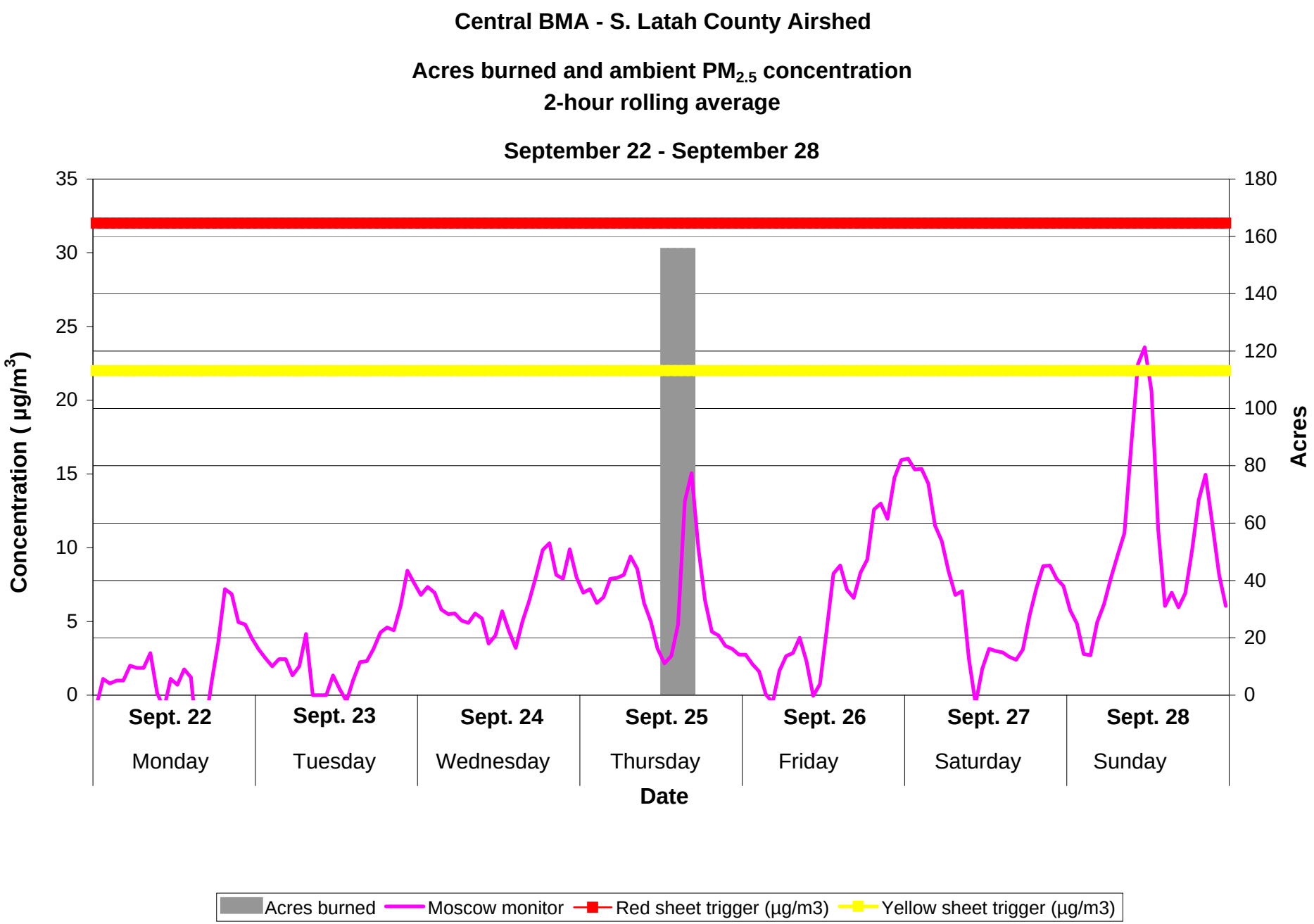
Central BMA - S. Latah County Airshed

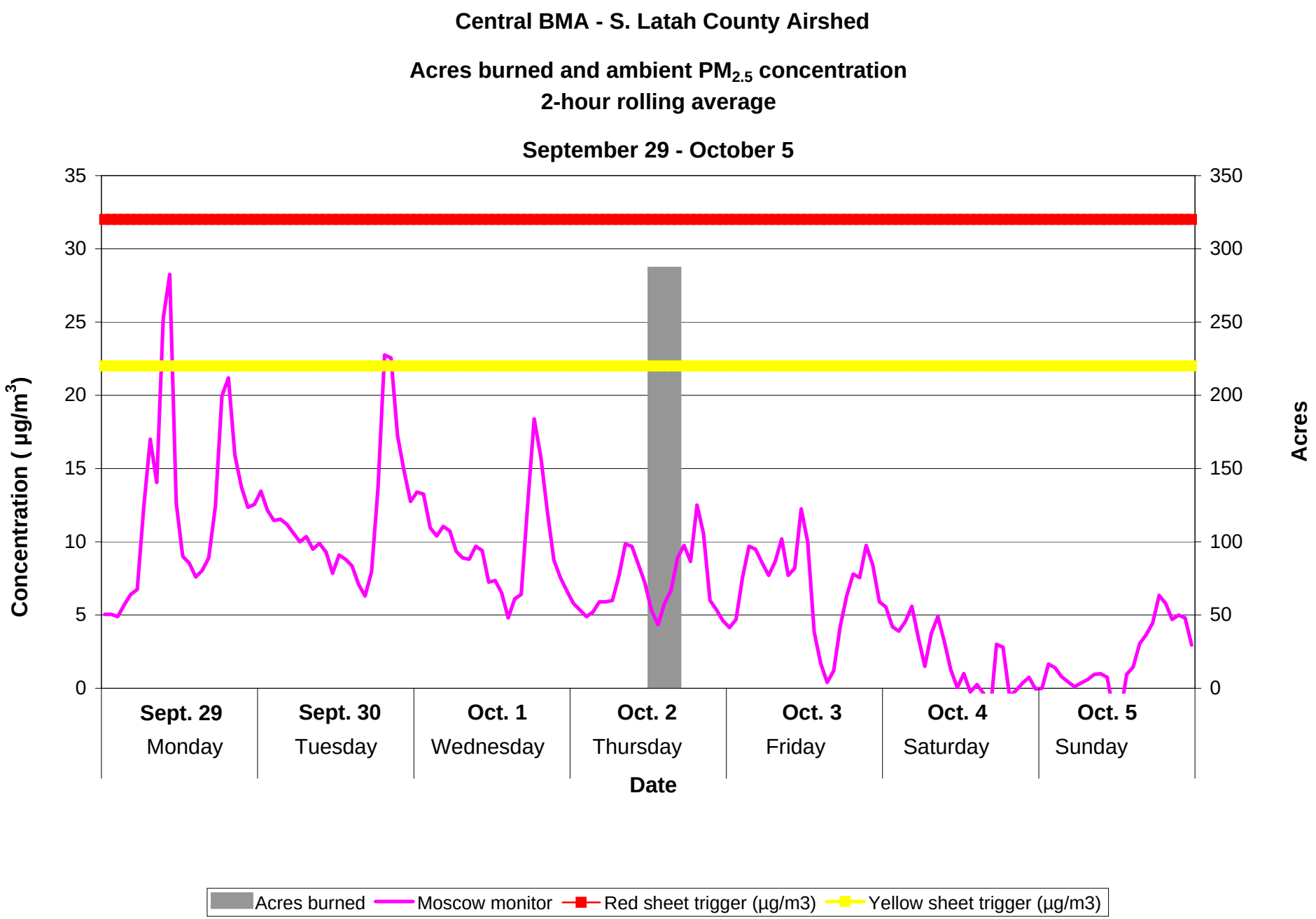
Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

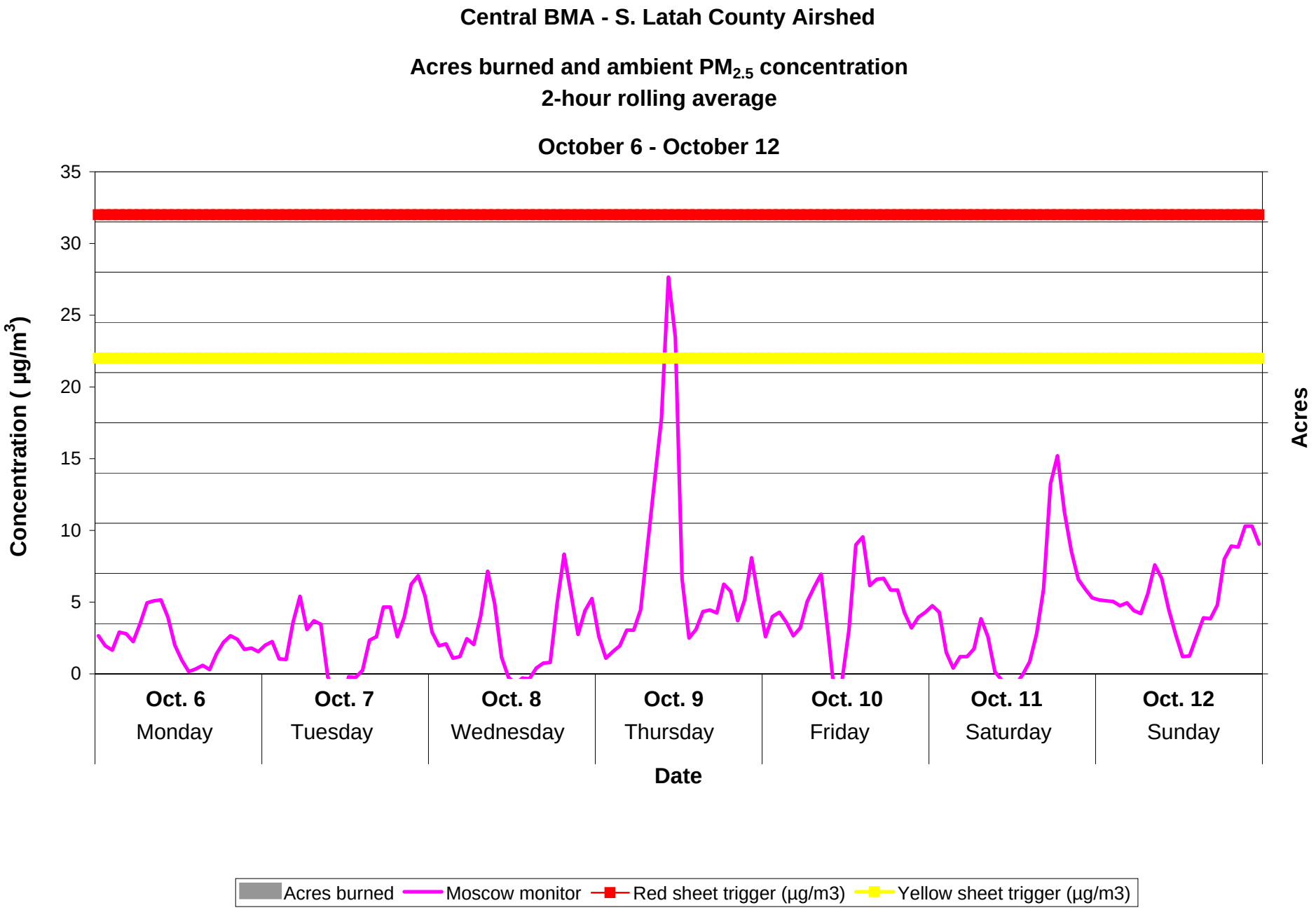
September 8 - September 14

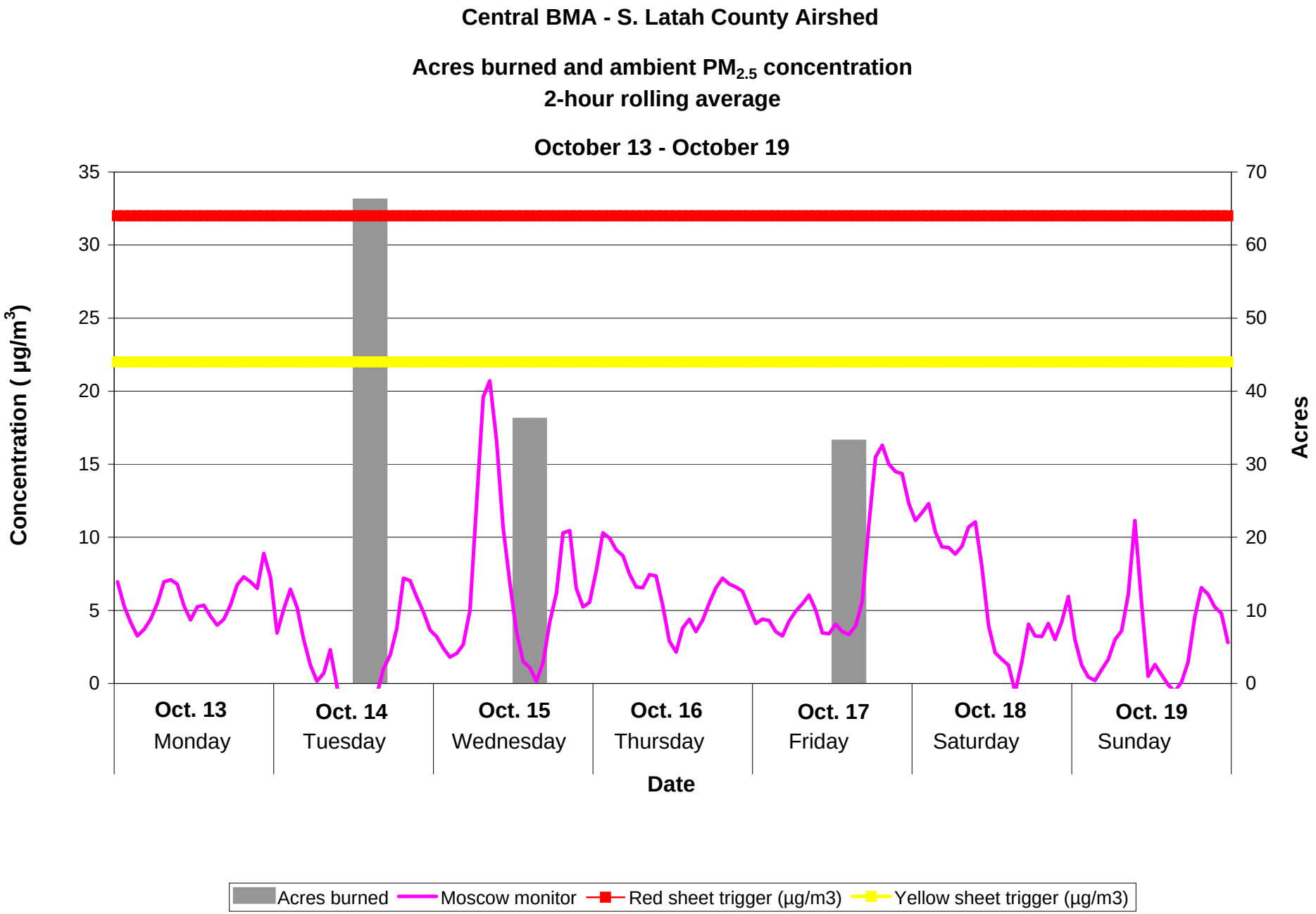


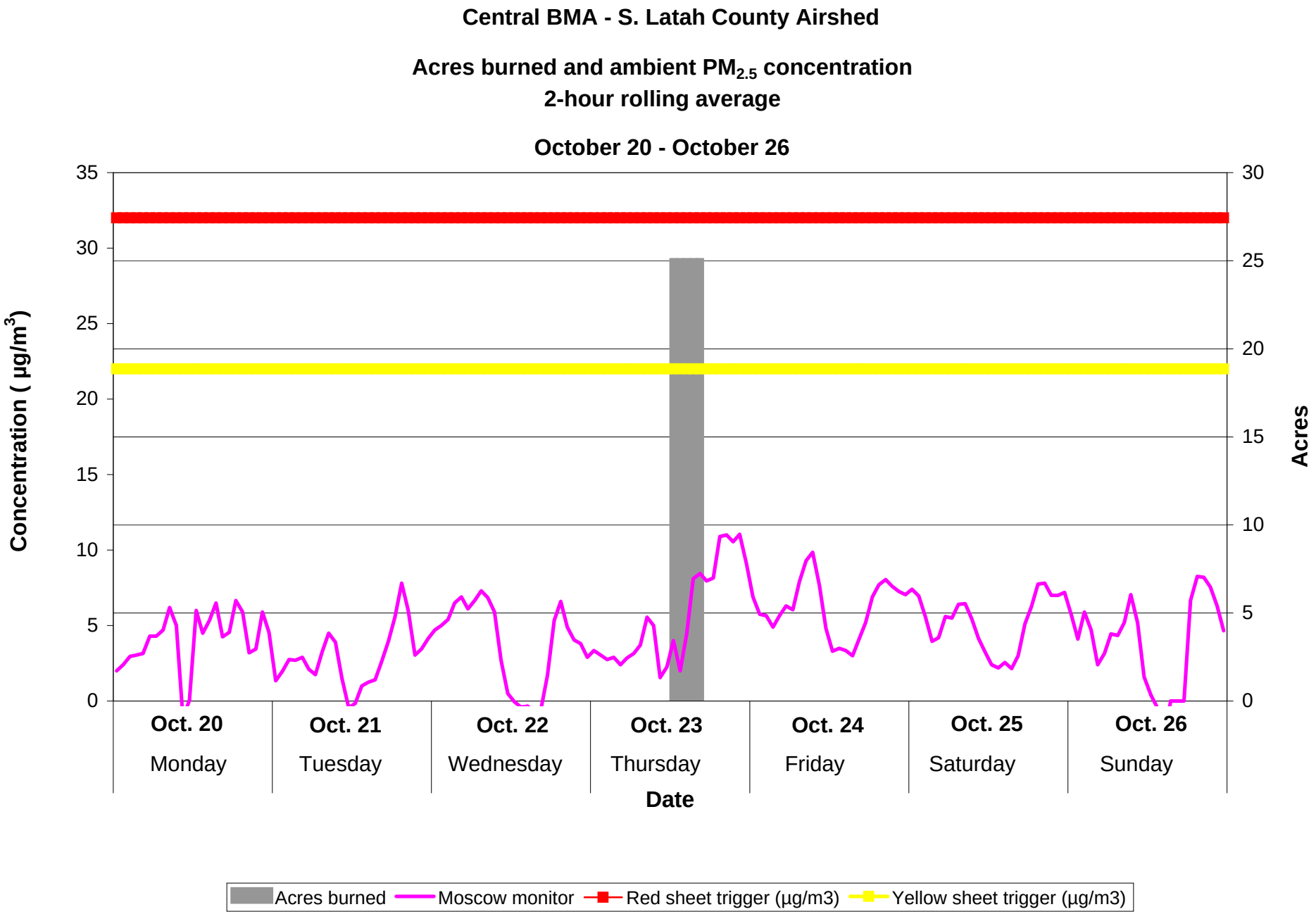

Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 15 - September 21
Concentration (µg/m3)
Acres
40
35
30
25
20
15
10
5
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Moscow monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 22 - September 28
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
180
160
140
120
100
80
60
40
20
0
Sept. 22
Monday
Sept. 23
Tuesday
Sept. 24
Wednesday
Sept. 25
Thursday
Sept. 26
Friday
Sept. 27
Saturday
Sept. 28
Sunday
Date
Acres burned
Moscow monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 29 - October 5
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
350
300
250
200
150
100
50
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Moscow monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 6 - October 12
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Moscow monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

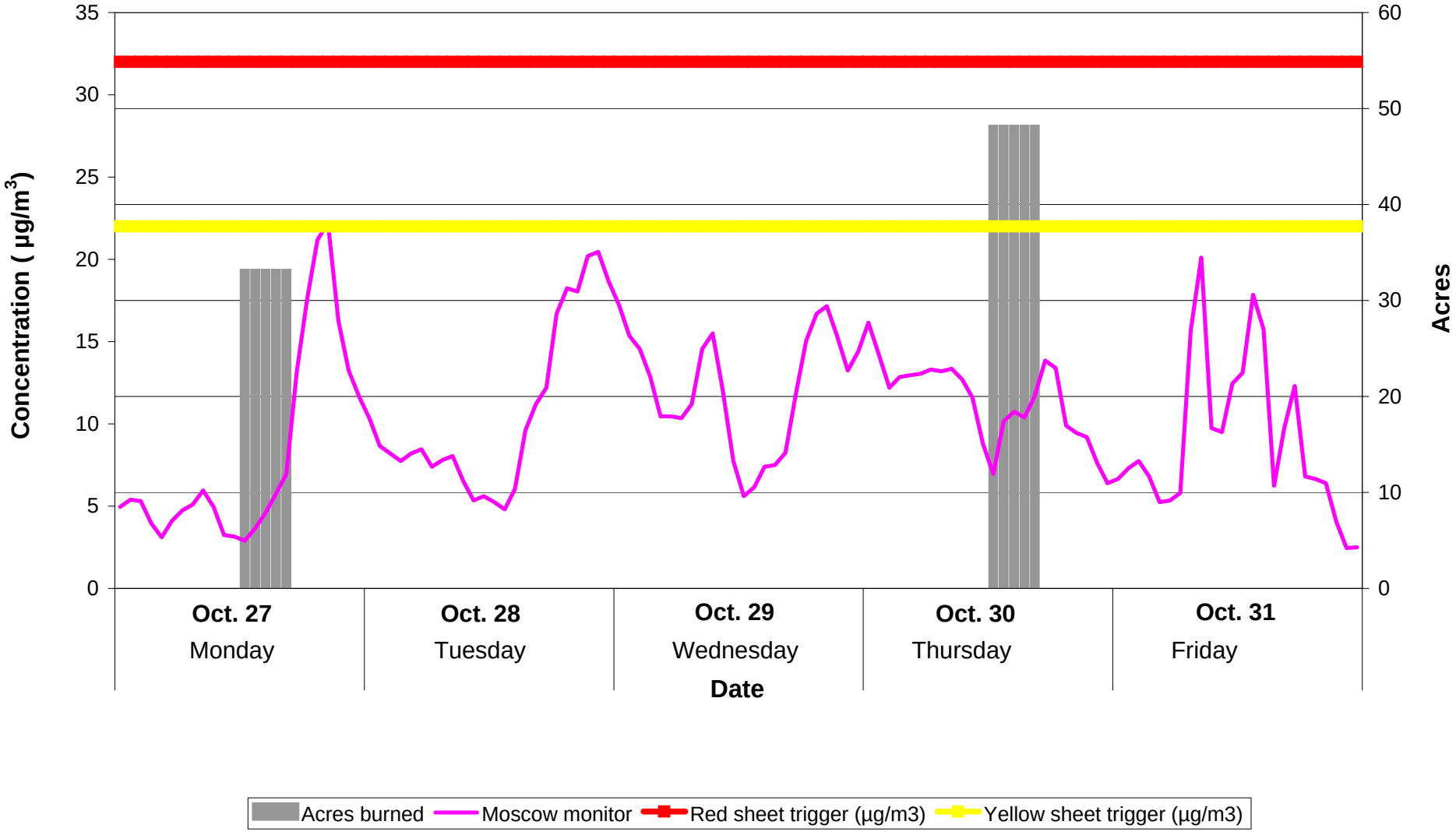

Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 13 - October 19
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
70
60
50
40
30
20
10
0
Oct. 13
Monday
Oct. 14
Tuesday
Oct. 15
Wednesday
Oct. 16
Thursday
Oct. 17
Friday
Oct. 18
Saturday
Oct. 19
Sunday
Date
Acres burned
Moscow monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - S. Latah County Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 20 - October 26
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
30
25
20
15
10
5
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Moscow monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Central BMA - S. Latah County Airshed

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

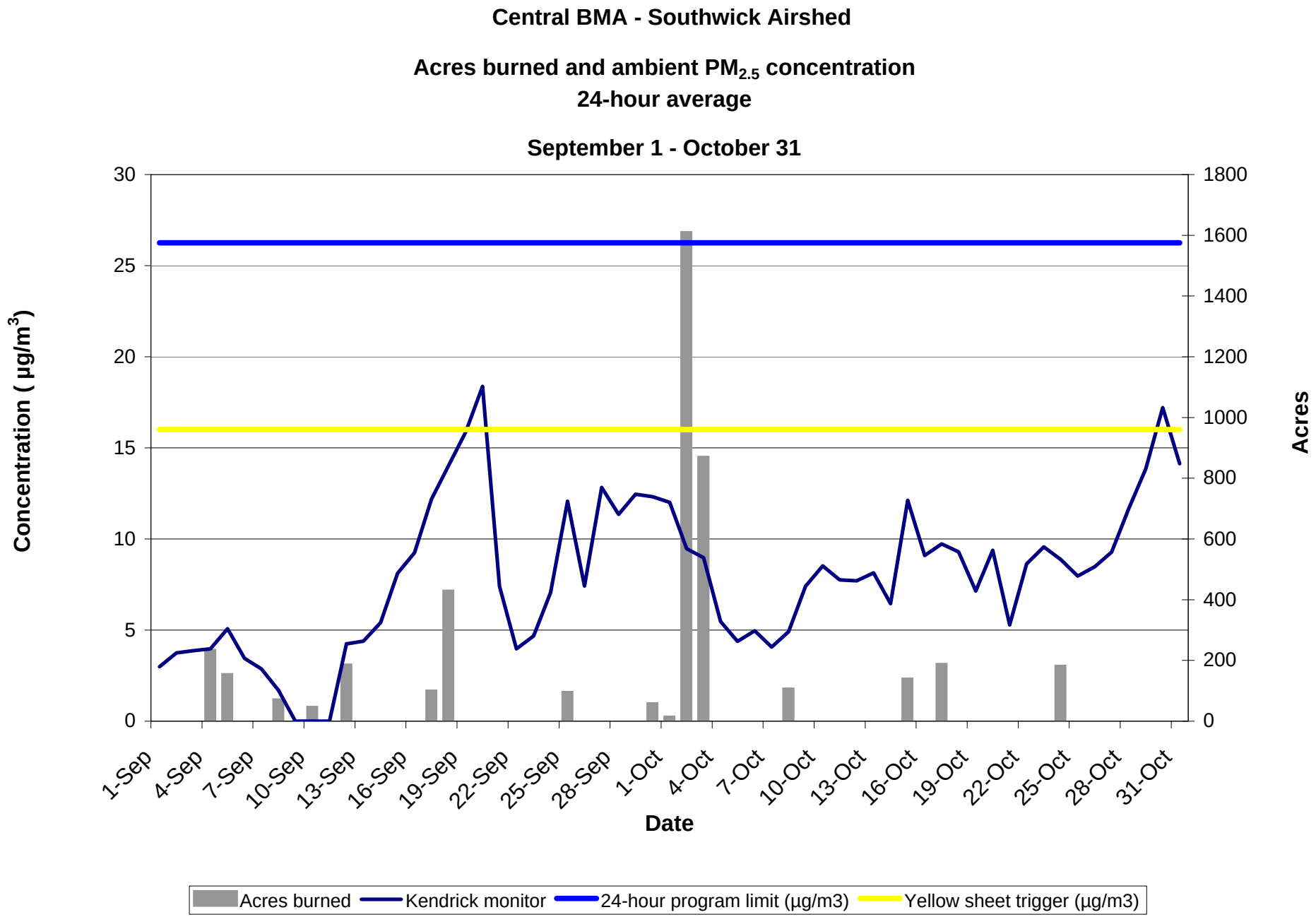
October 27 - October 31

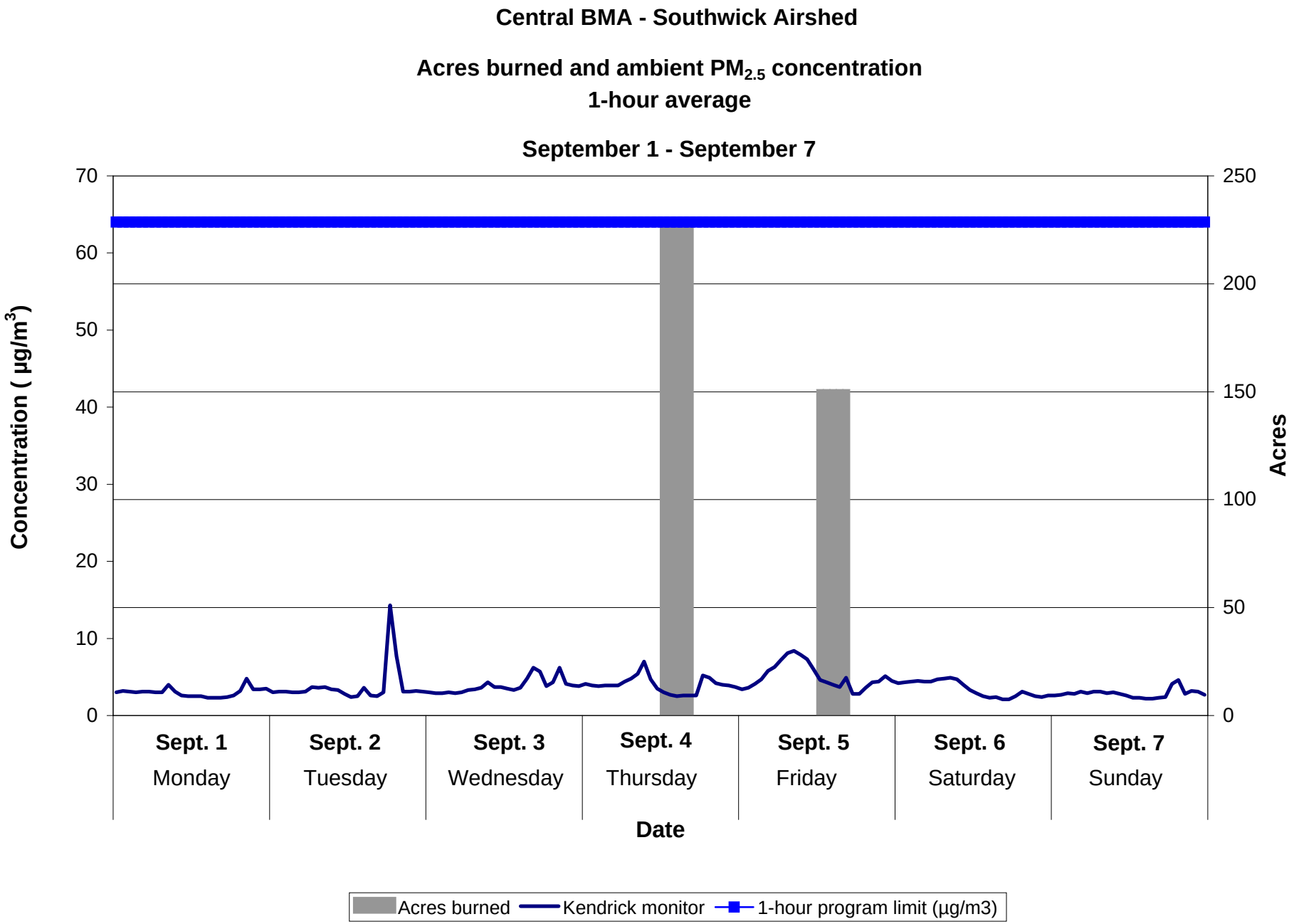


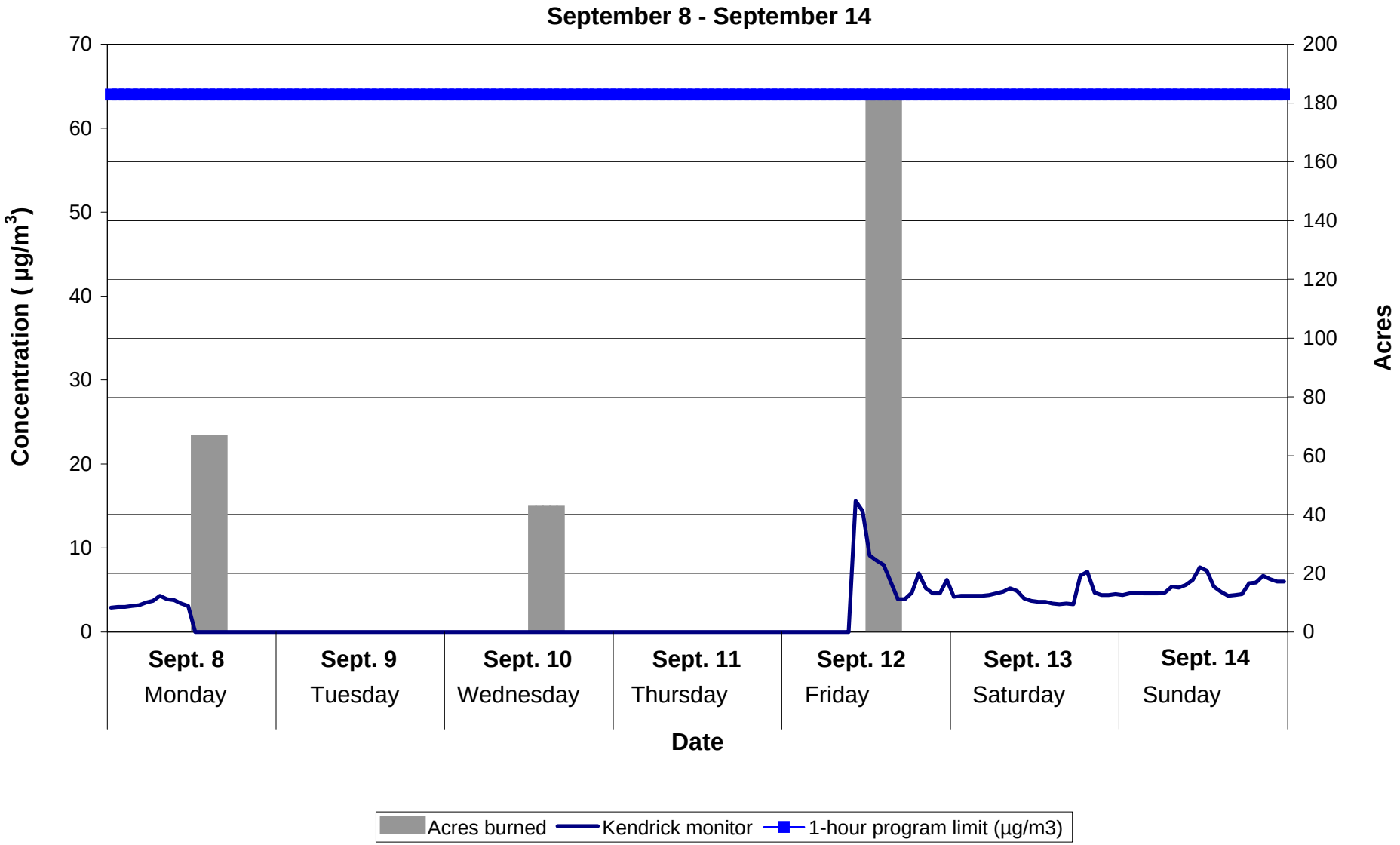
Southwick

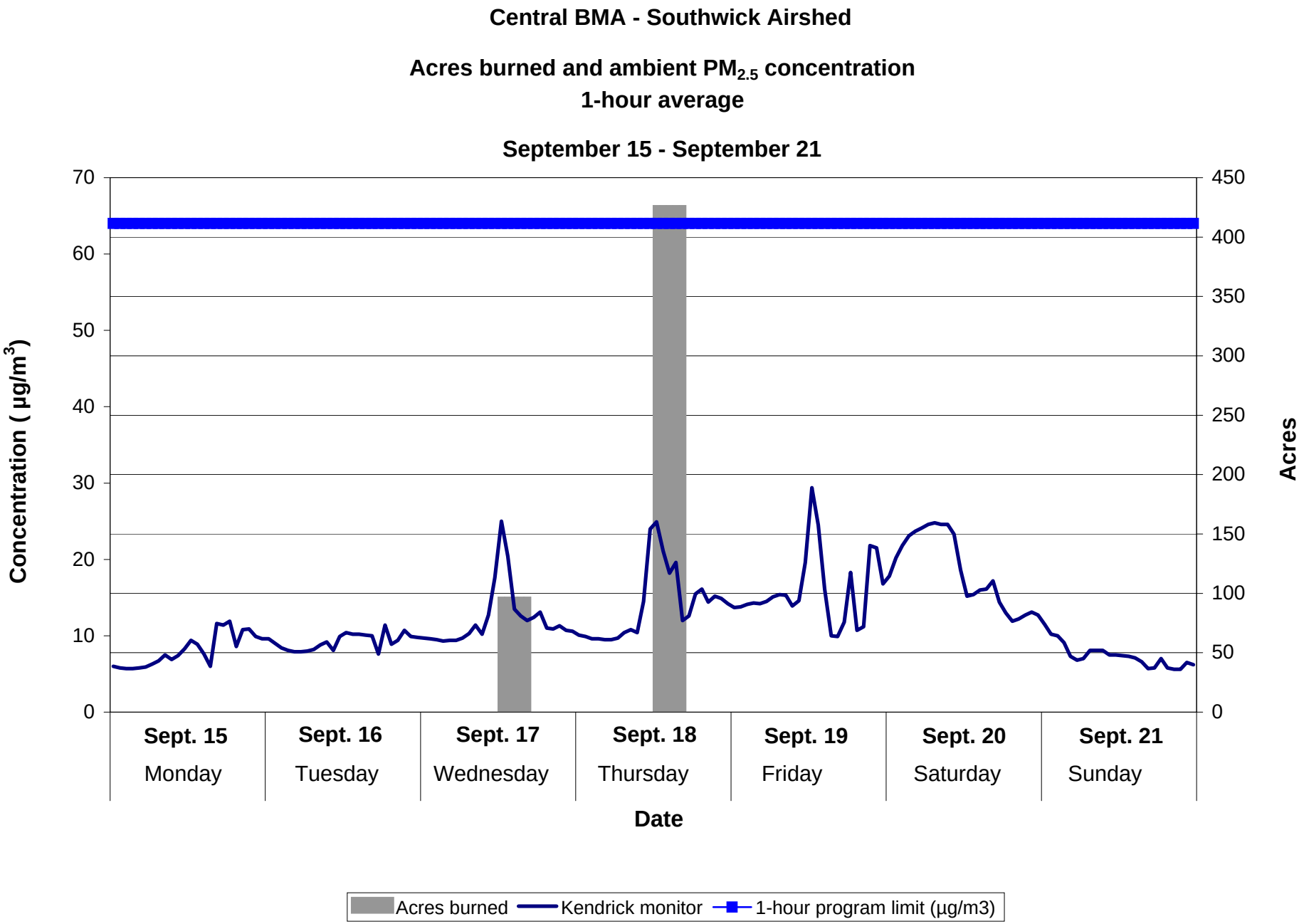
Sub-airshed

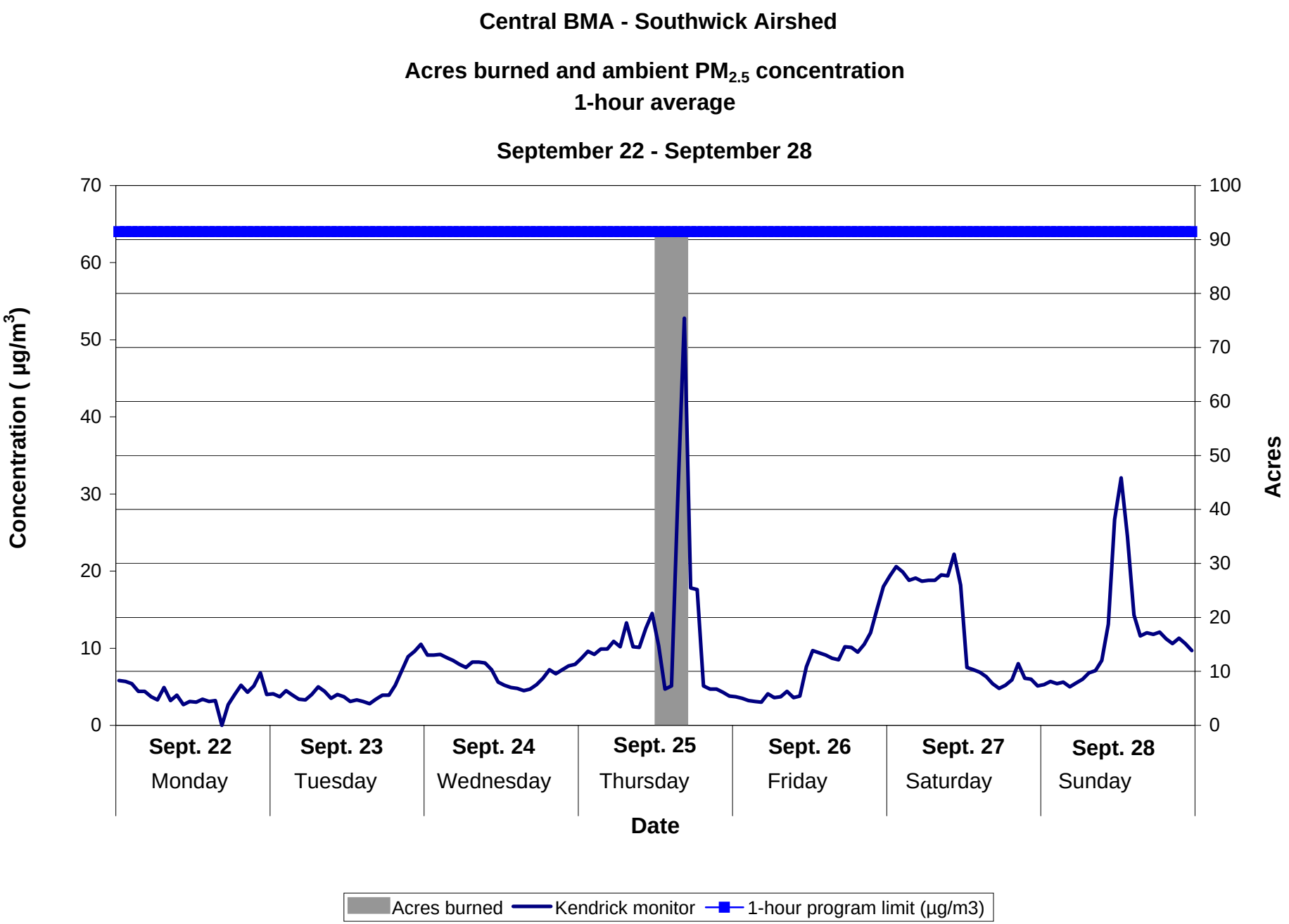
Burn Decisions and Acres Burned - Southwick Airshed		
Day of Week	**Date**	**# acres burned**
T	9/2/2008	0.00
W	9/3/2008	0.00
Th	9/4/2008	229.00
F	9/5/2008	150.00
Sa	9/6/2008	
Su	9/7/2008	
M	9/8/2008	66.00
T	9/9/2008	
W	9/10/2008	42.00
Th	9/11/2008	0.00
F	9/12/2008	180.60
Sa	9/13/2008	
Su	9/14/2008	
M	9/15/2008	
T	9/16/2008	
W	9/17/2008	95.00
Th	9/18/2008	424.60
F	9/19/2008	
Sa	9/20/2008	
Su	9/21/2008	
M	9/22/2008	
T	9/23/2008	
W	9/24/2008	0.00
Th	9/25/2008	91.00
F	9/26/2008	
Sa	9/27/2008	
Su	9/28/2008	
M	9/29/2008	
T	9/30/2008	53.30
W	10/1/2008	10.00
Th	10/2/2008	1604.94
F	10/3/2008	865.00
Sa	10/4/2008	
Su	10/5/2008	
M	10/6/2008	
T	10/7/2008	
W	10/8/2008	101.80
Th	10/9/2008	0.00
F	10/10/2008	0.00
Sa	10/11/2008	
Su	10/12/2008	
M	10/13/2008	
T	10/14/2008	0.00
W	10/15/2008	135.00
Th	10/16/2008	
F	10/17/2008	183.00
Sa	10/18/2008	
Su	10/19/2008	
M	10/20/2008	
T	10/21/2008	
W	10/22/2008	
Th	10/23/2008	0.00
F	10/24/2008	177.00
Sa	10/25/2008	
Su	10/26/2008	
M	10/27/2008	0.00
T	10/28/2008	0.00
W	10/29/2008	0.00
Th	10/30/2008	0.00
F	10/31/2008	0
	TOTAL	**4408**


Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
24-hour average
September 1 - October 31
Concentration (µg/m3)
Acres
Date
30
25
20
15
10
5
0
1800
1600
1400
1200
1000
800
600
400
200
0
1-Sep
4-Sep
7-Sep
10-Sep
13-Sep
16-Sep
19-Sep
22-Sep
25-Sep
28-Sep
1-Oct
4-Oct
7-Oct
10-Oct
13-Oct
16-Oct
19-Oct
22-Oct
25-Oct
28-Oct
31-Oct
Acres burned
Kendrick monitor
24-hour program limit (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 1 - September 7
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
250
200
150
100
50
0
Sept. 1
Monday
Sept. 2
Tuesday
Sept. 3
Wednesday
Sept. 4
Thursday
Sept. 5
Friday
Sept. 6
Saturday
Sept. 7
Sunday
Date
Acres burned
Kendrick monitor
1-hour program limit (µg/m3)


Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 8 - September 14
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
200
180
160
140
120
100
80
60
40
20
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Kendrick monitor
1-hour program limit (µg/m3)

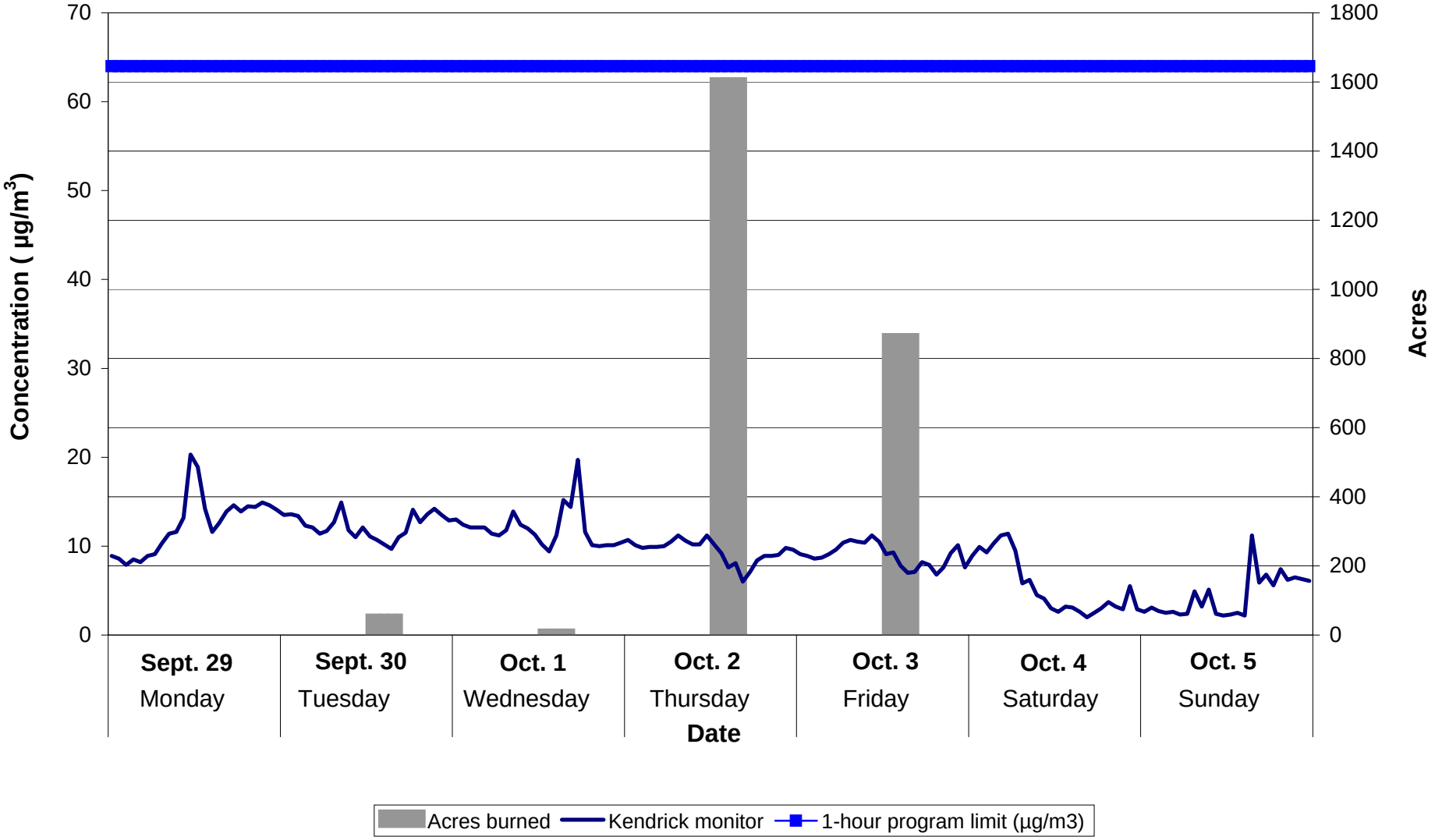

Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 15 - September 21
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
450
400
350
300
250
200
150
100
50
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Kendrick monitor
1-hour program limit (µg/m3)

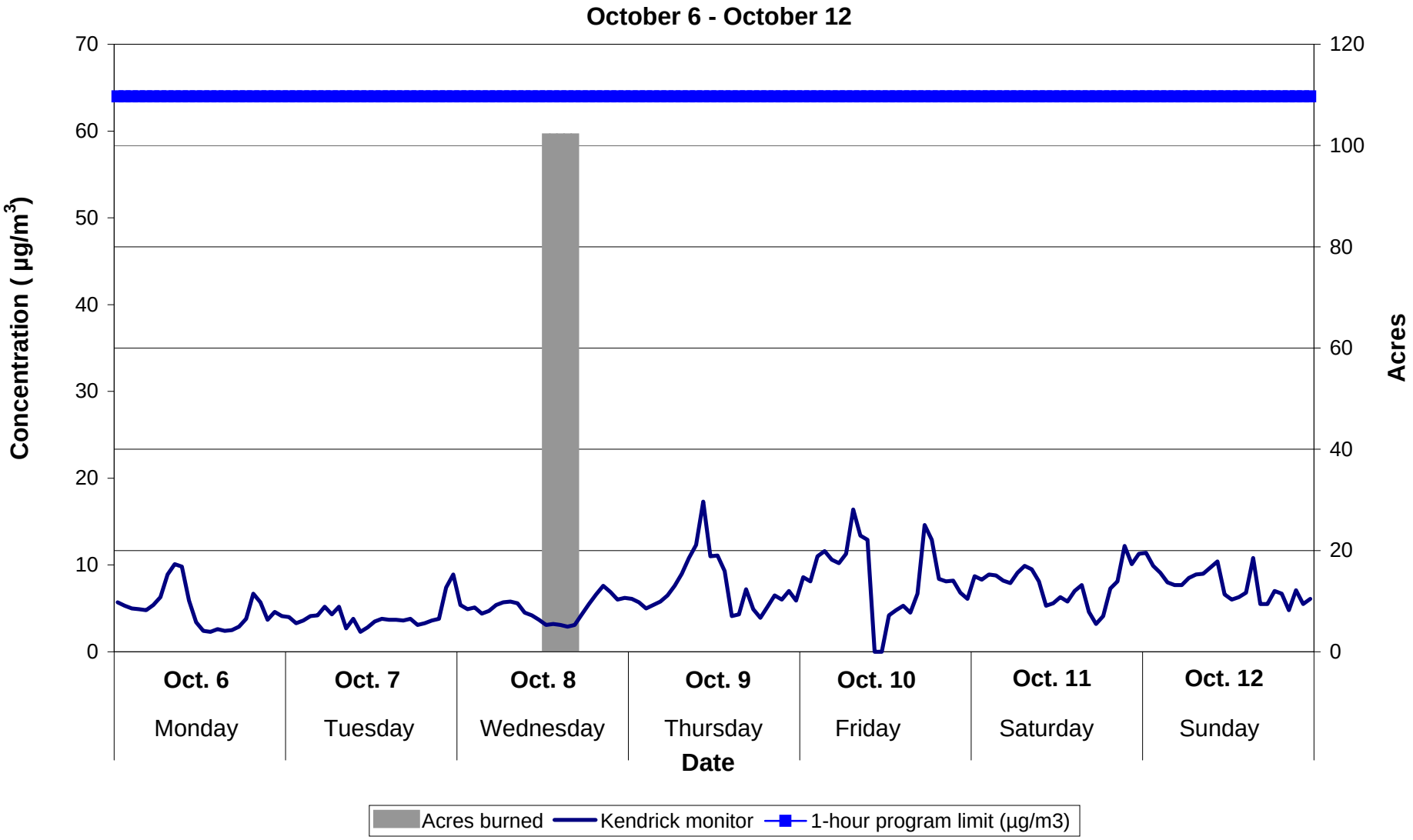

Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 22 - September 28
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
100
90
80
70
60
50
40
30
20
10
0
Sept. 22
Monday
Sept. 23
Tuesday
Sept. 24
Wednesday
Sept. 25
Thursday
Sept. 26
Friday
Sept. 27
Saturday
Sept. 28
Sunday
Date
Acres burned
Kendrick monitor
1-hour program limit (µg/m3)

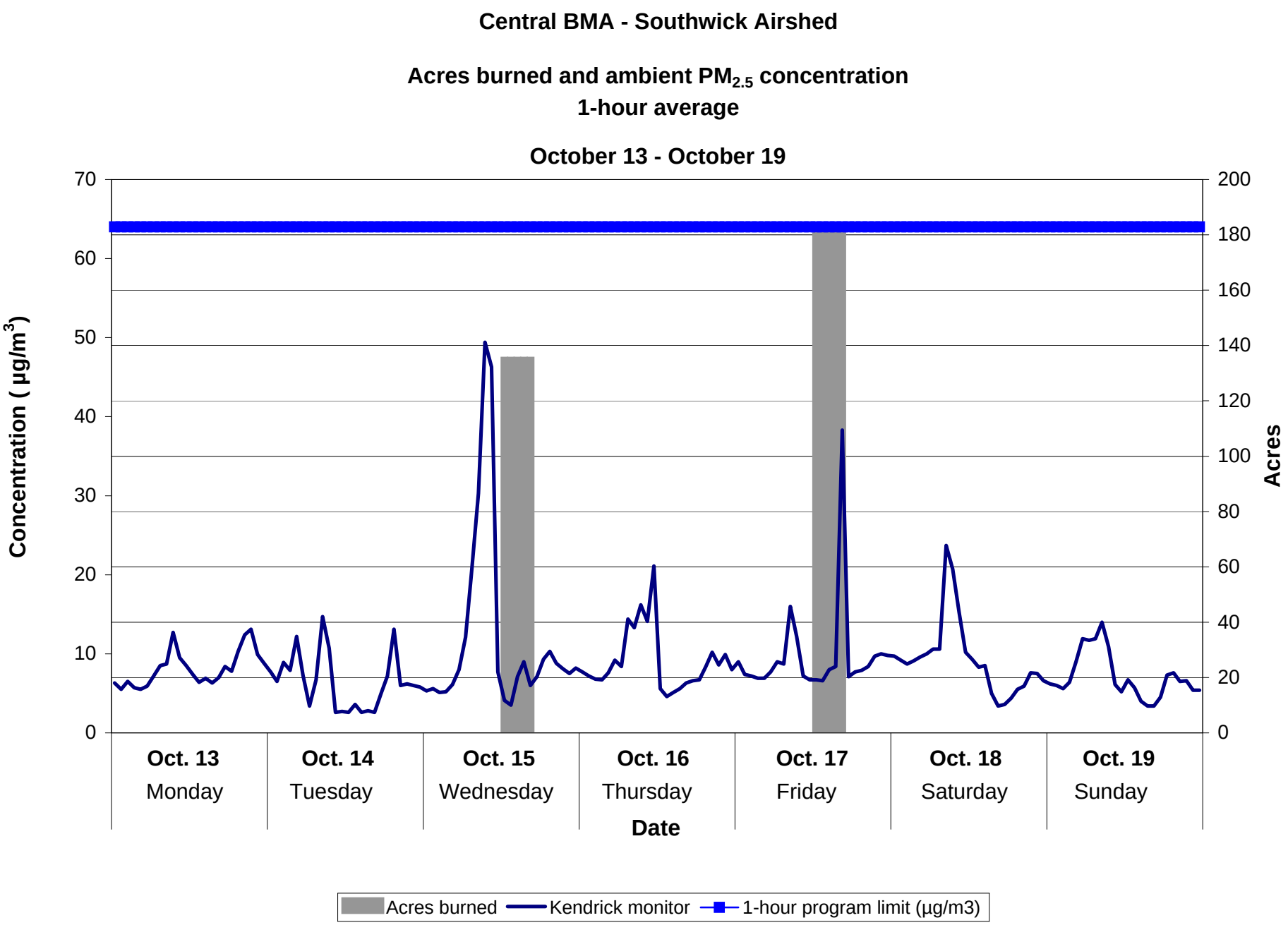
Central BMA - Southwick Airshed

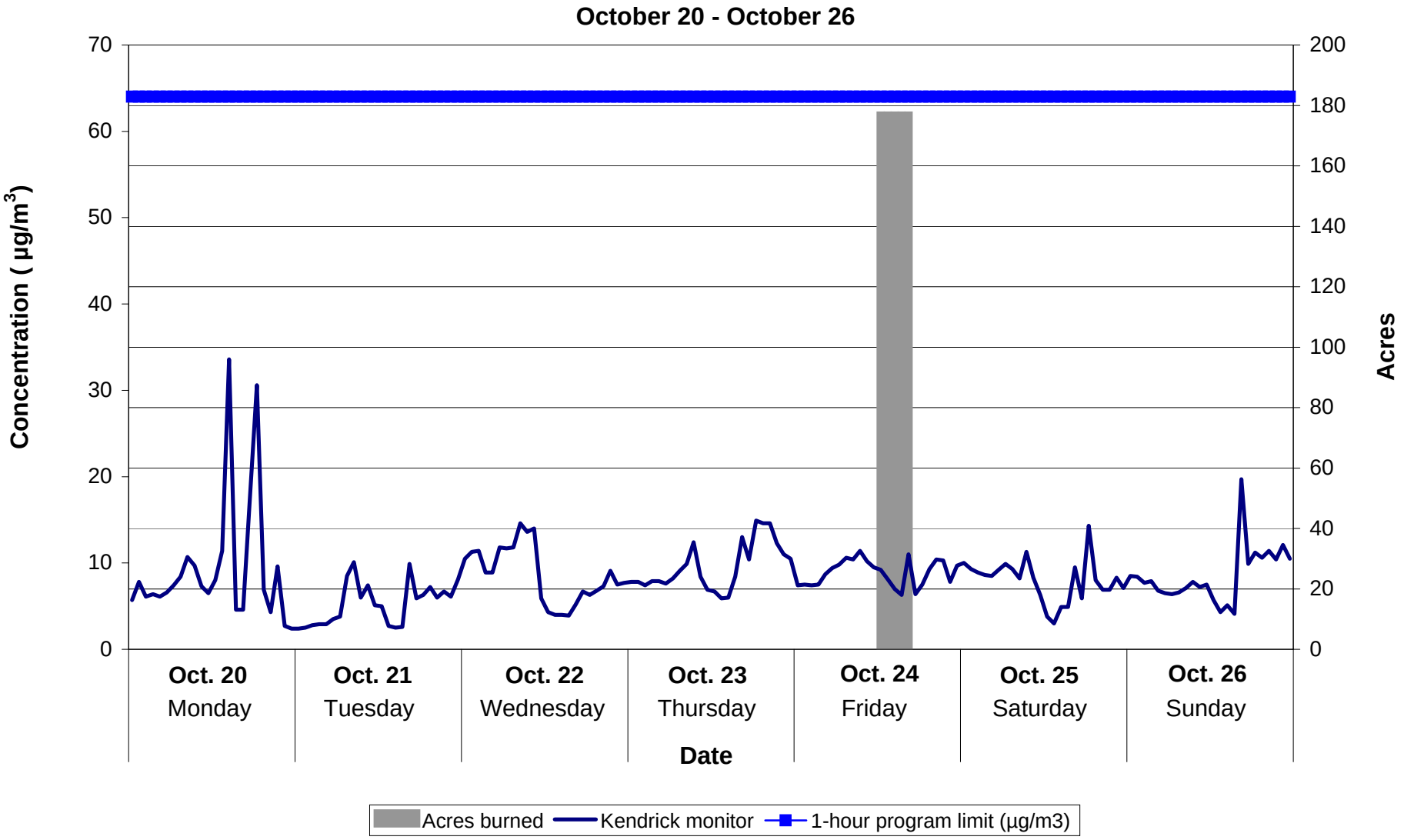
Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

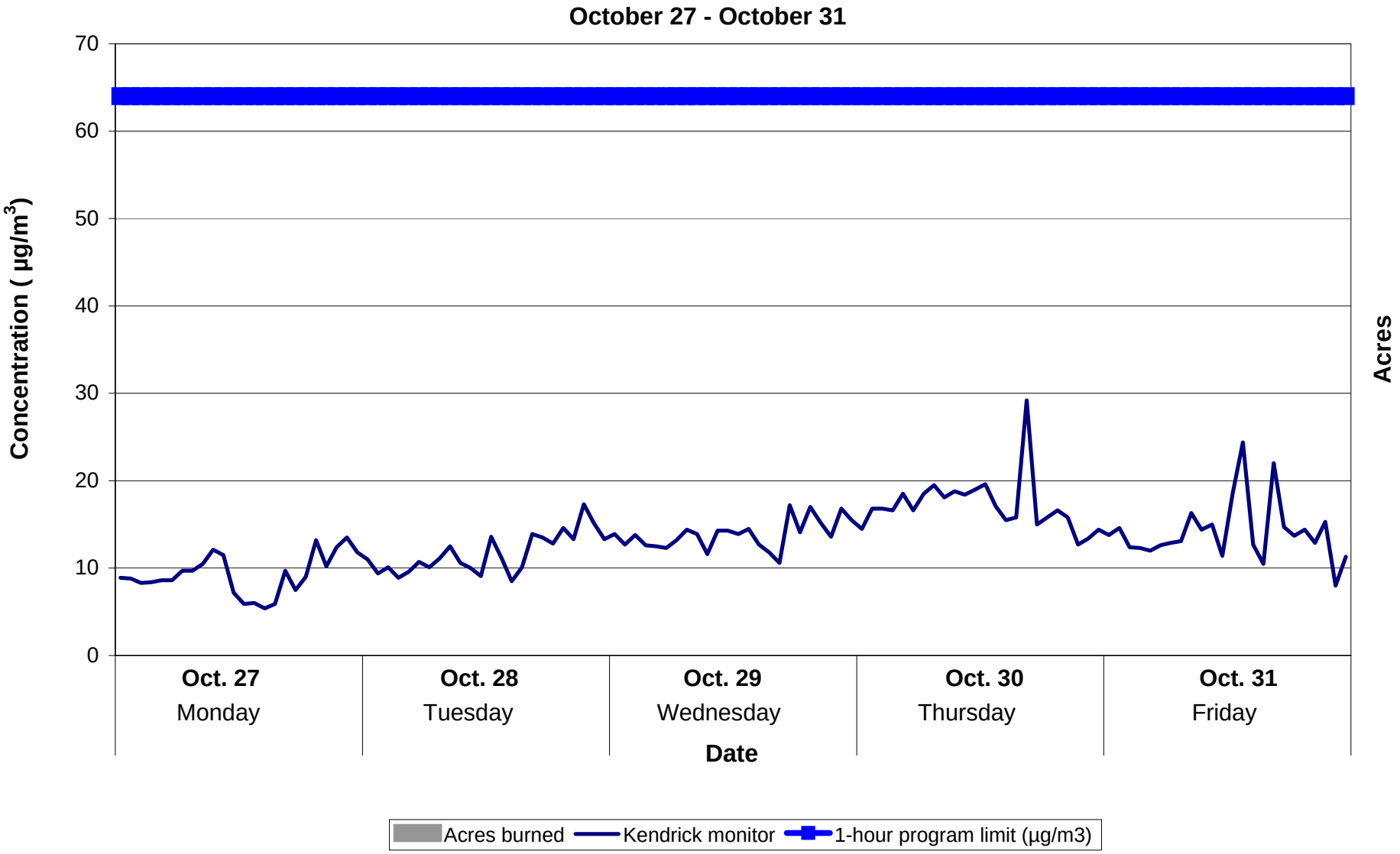
September 29 - October 5




Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 6 - October 12
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
120
100
80
60
40
20
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Kendrick monitor
1-hour program limit (µg/m3)


Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 13 - October 19
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
200
180
160
140
120
100
80
60
40
20
0
Oct. 13
Monday
Oct. 14
Tuesday
Oct. 15
Wednesday
Oct. 16
Thursday
Oct. 17
Friday
Oct. 18
Saturday
Oct. 19
Sunday
Date
Acres burned
Kendrick monitor
1-hour program limit (µg/m3)

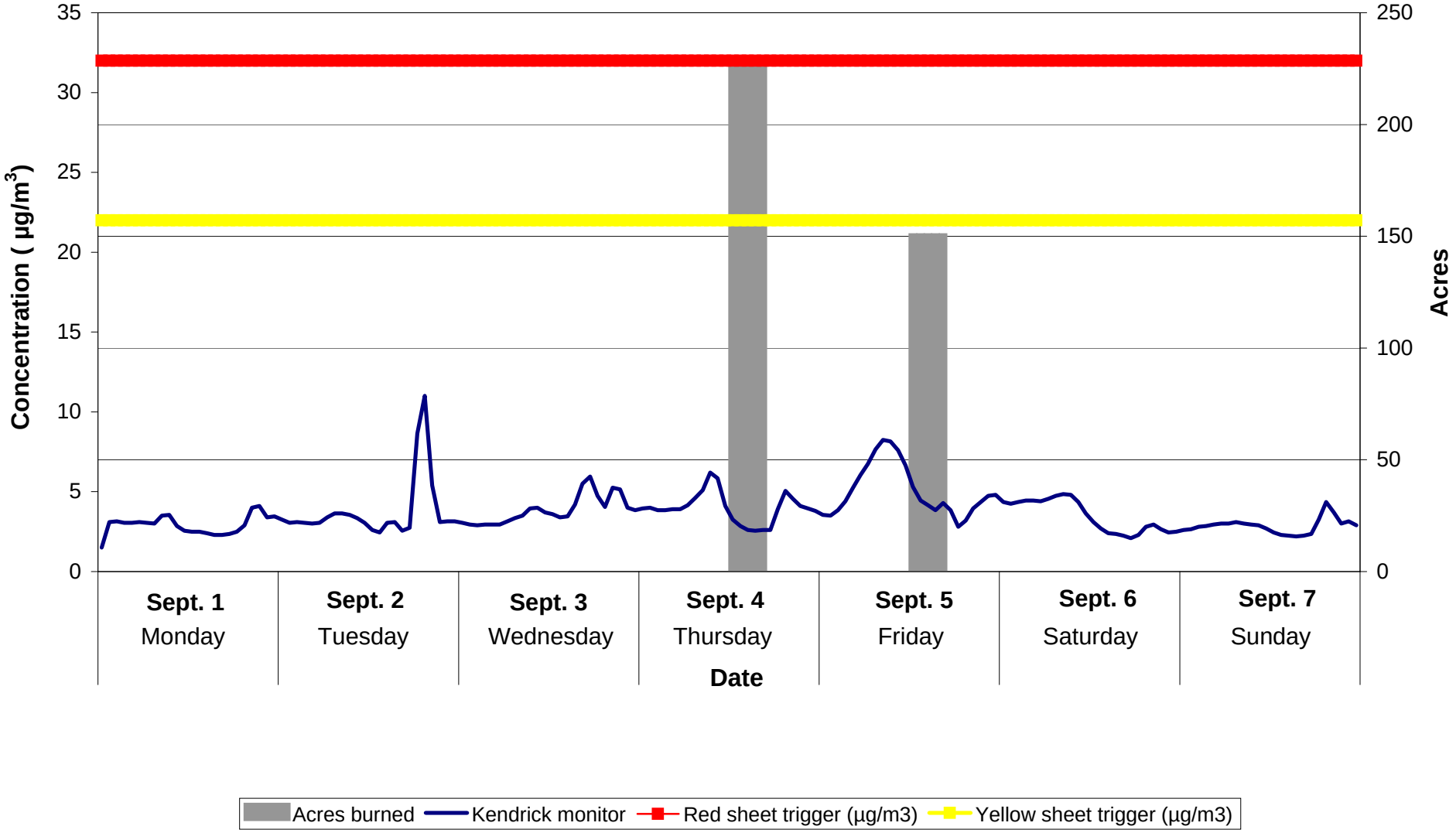

Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 20 - October 26
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
200
180
160
140
120
100
80
60
40
20
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Kendrick monitor
1-hour program limit (µg/m3)

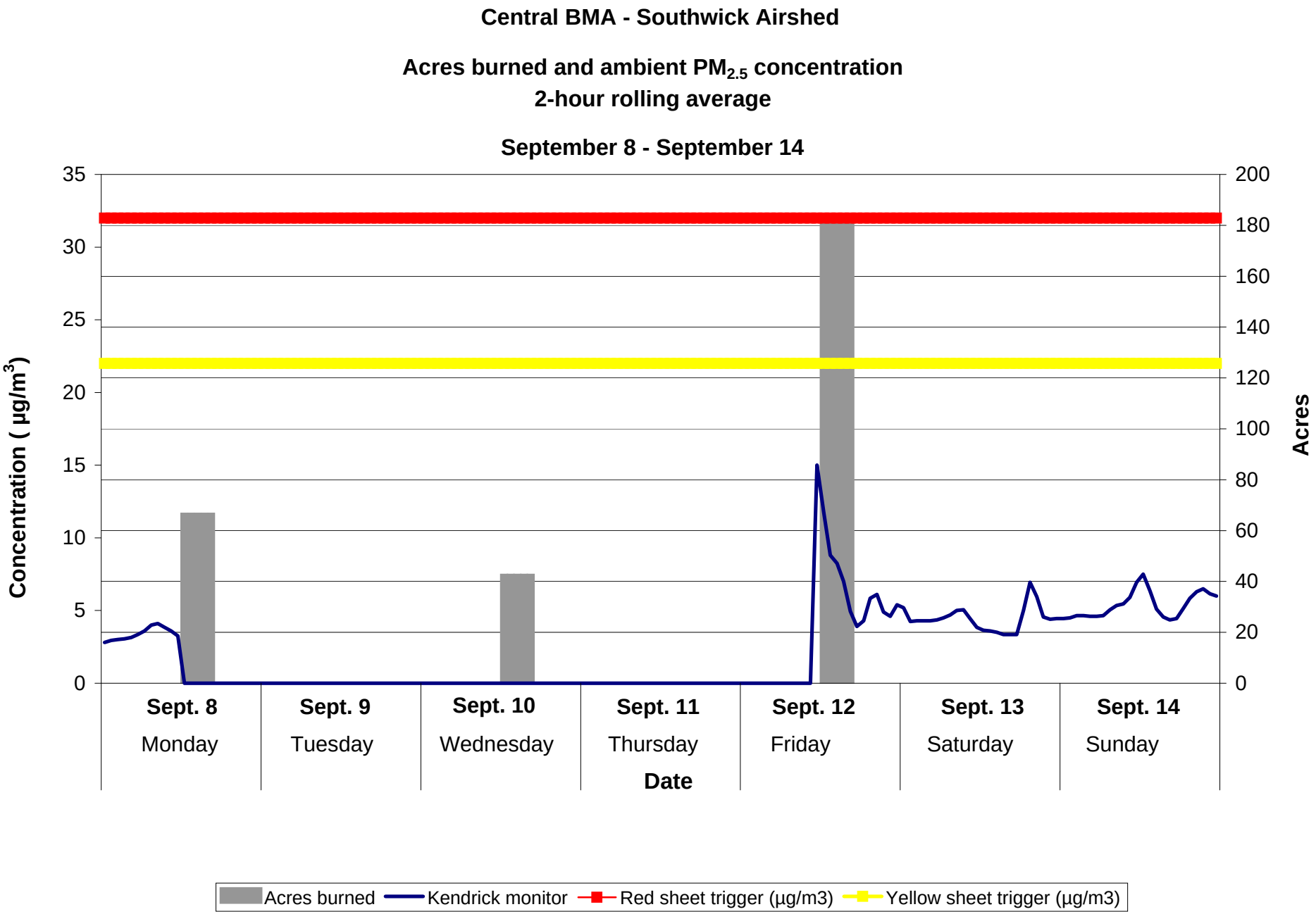

Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 27 - October 31
Concentration (µg/m3)
70
60
50
40
30
20
10
0
Acres
Oct. 27
Monday
Oct. 28
Tuesday
Oct. 29
Wednesday
Oct. 30
Thursday
Oct. 31
Friday
Date
Acres burned
Kendrick monitor
1-hour program limit (µg/m3)

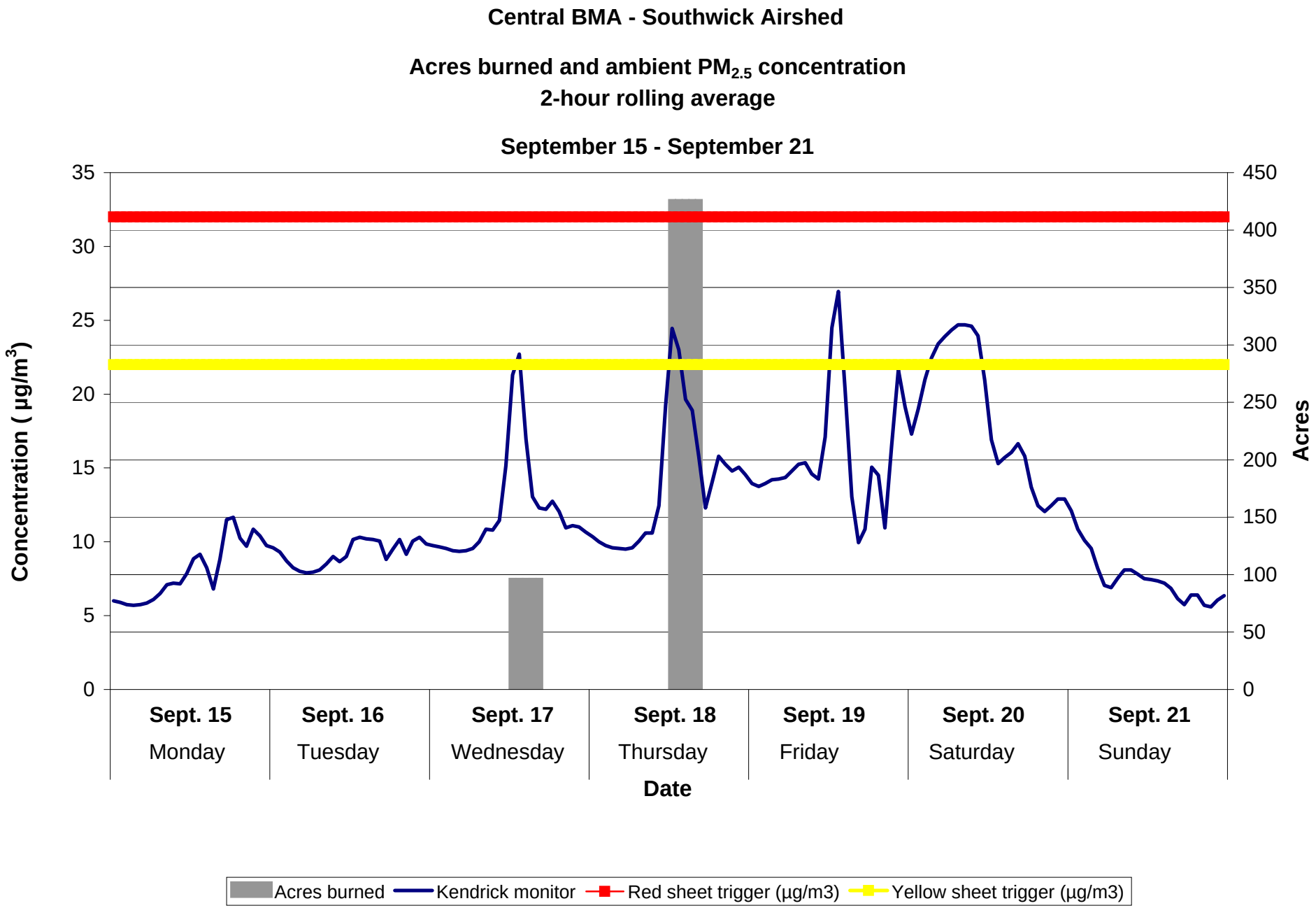
Central BMA - Southwick Airshed

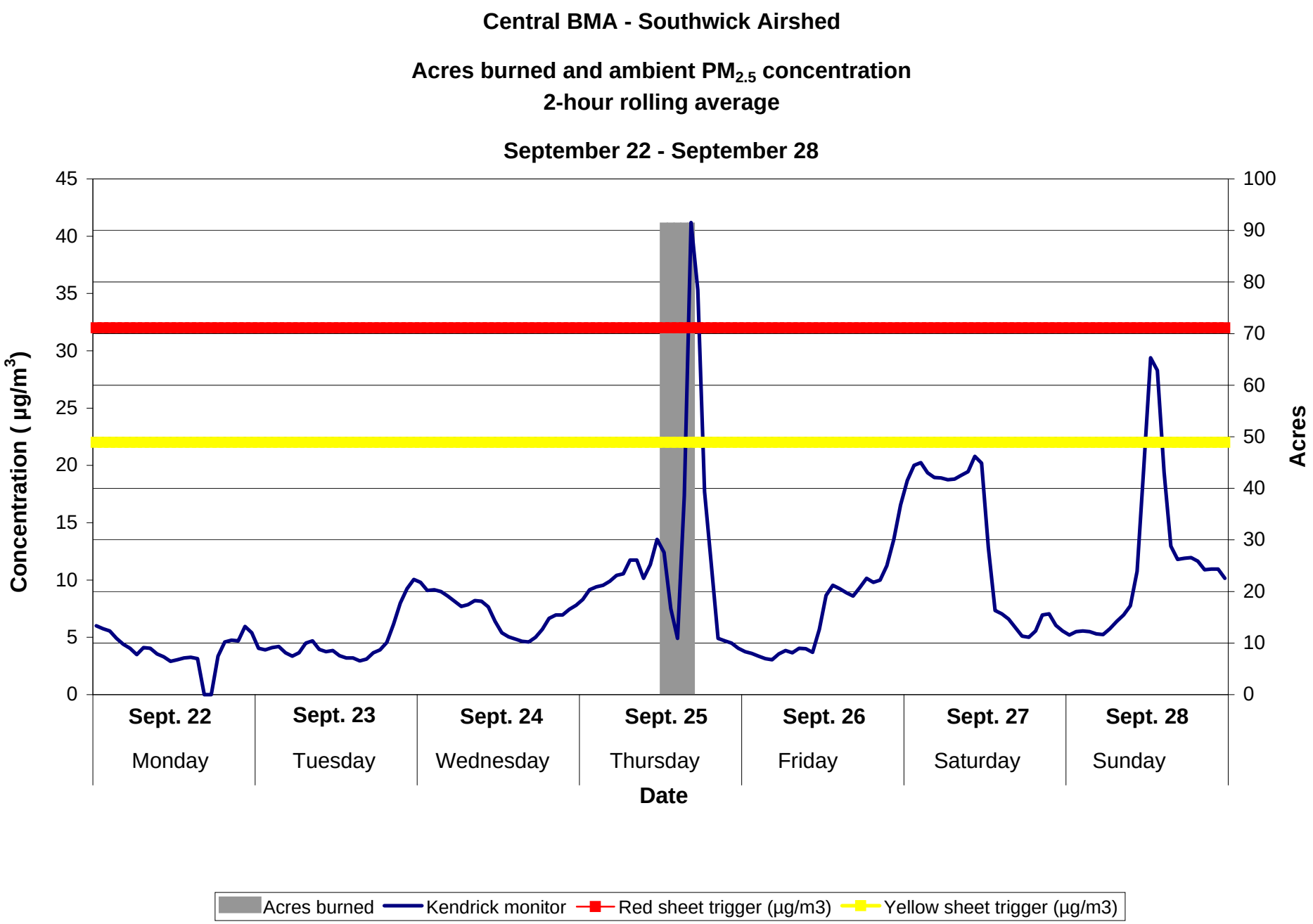
Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

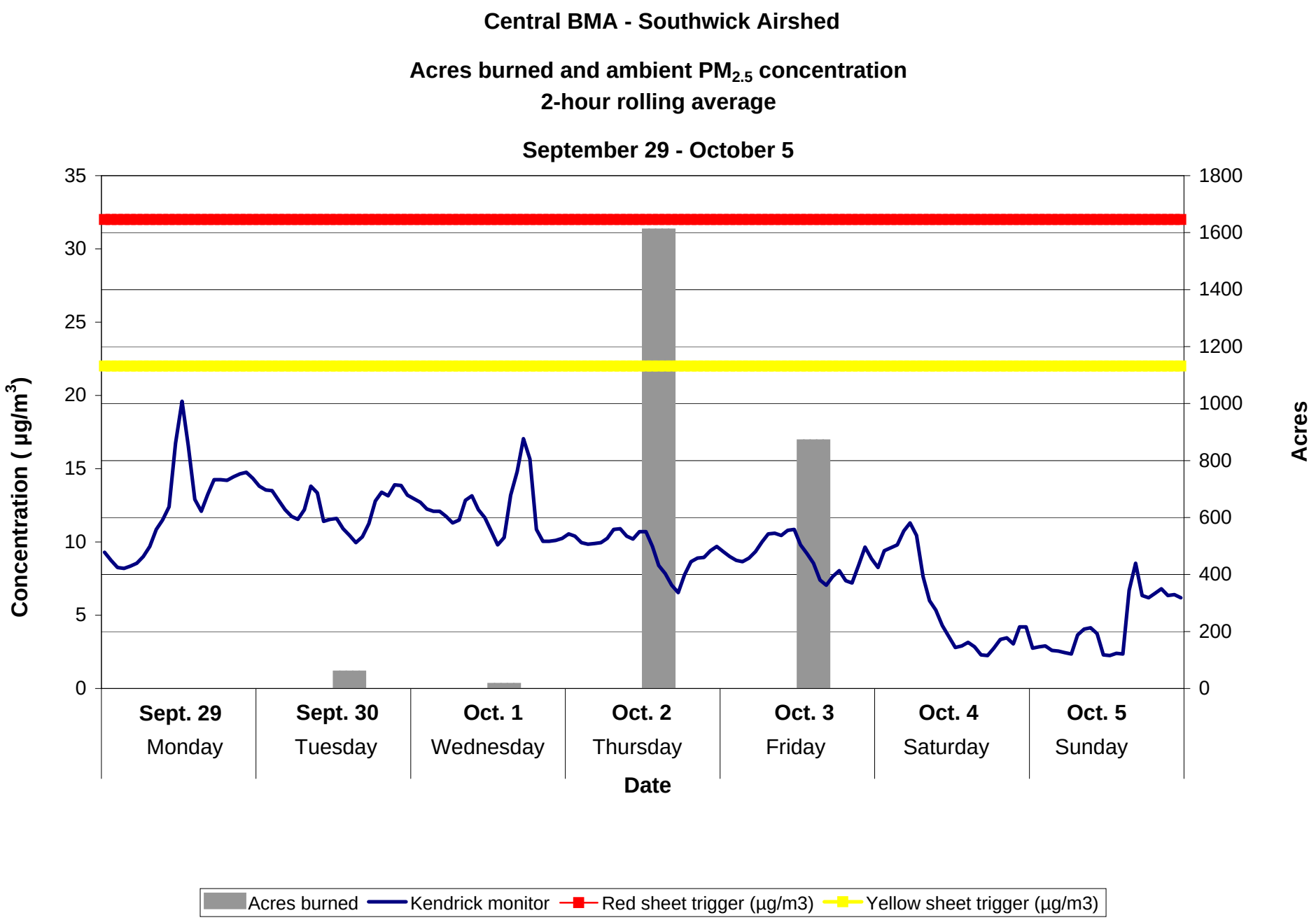
September 1 - September 7

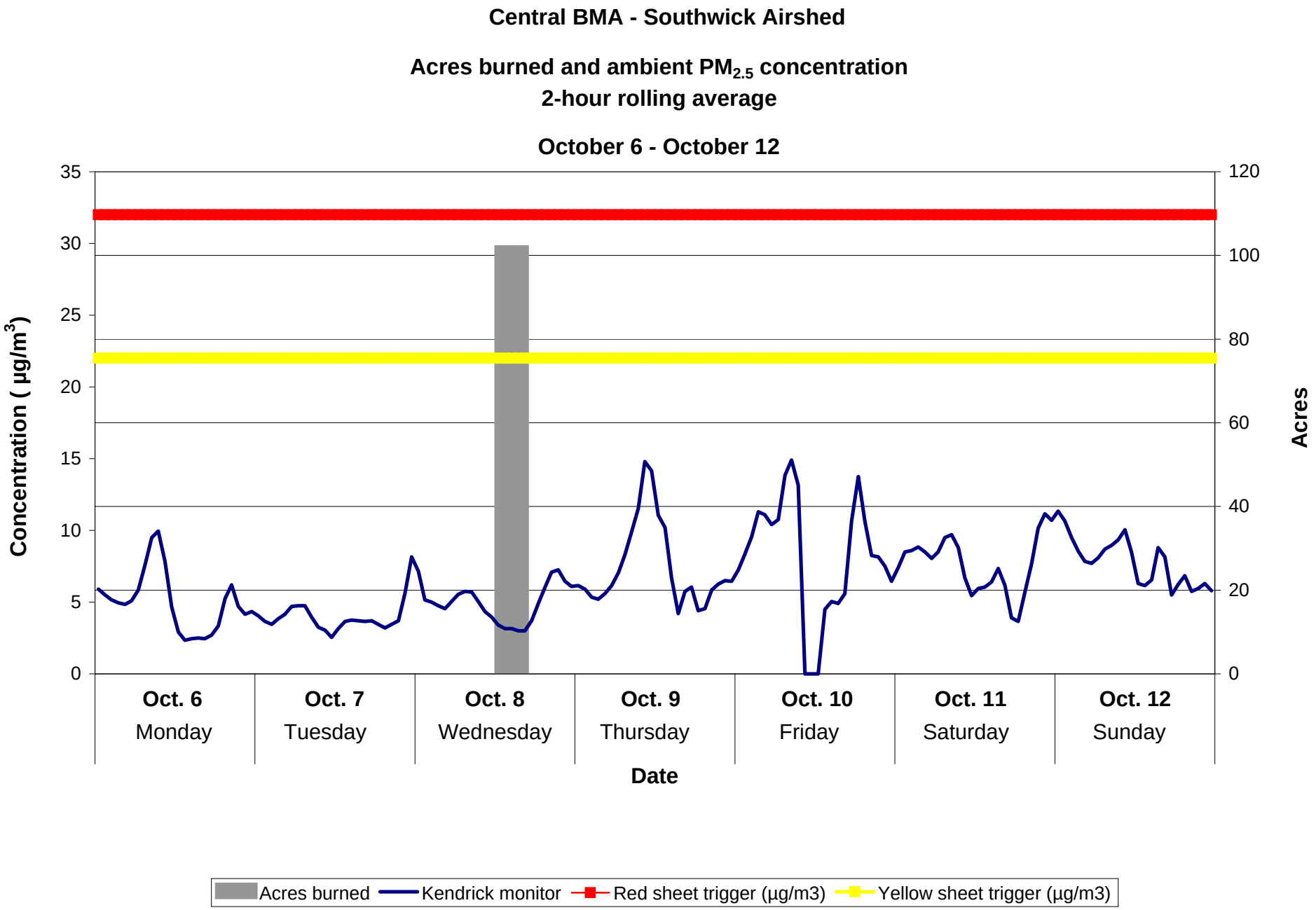


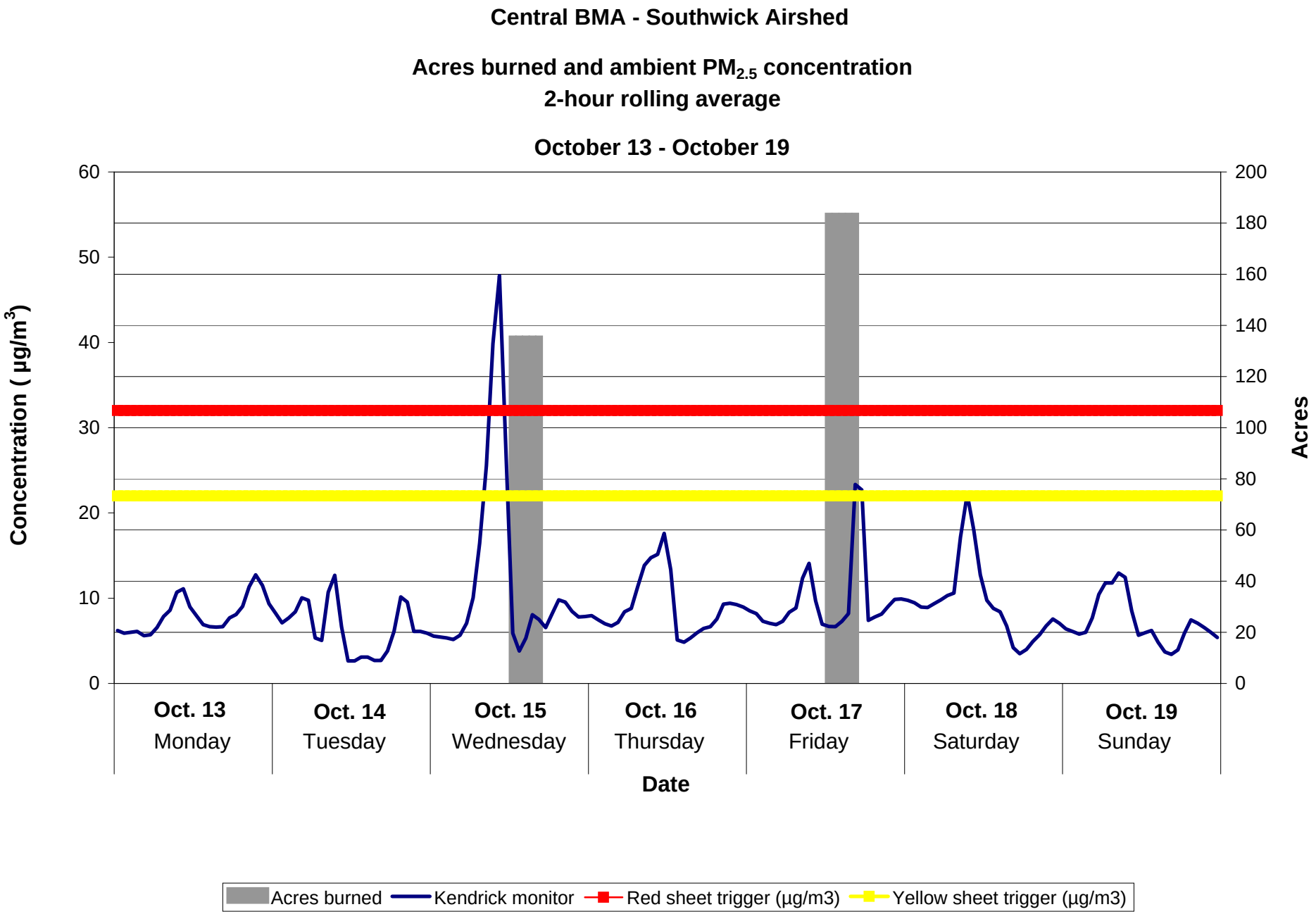

Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 8 - September 14
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
200
180
160
140
120
100
80
60
40
20
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Kendrick monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

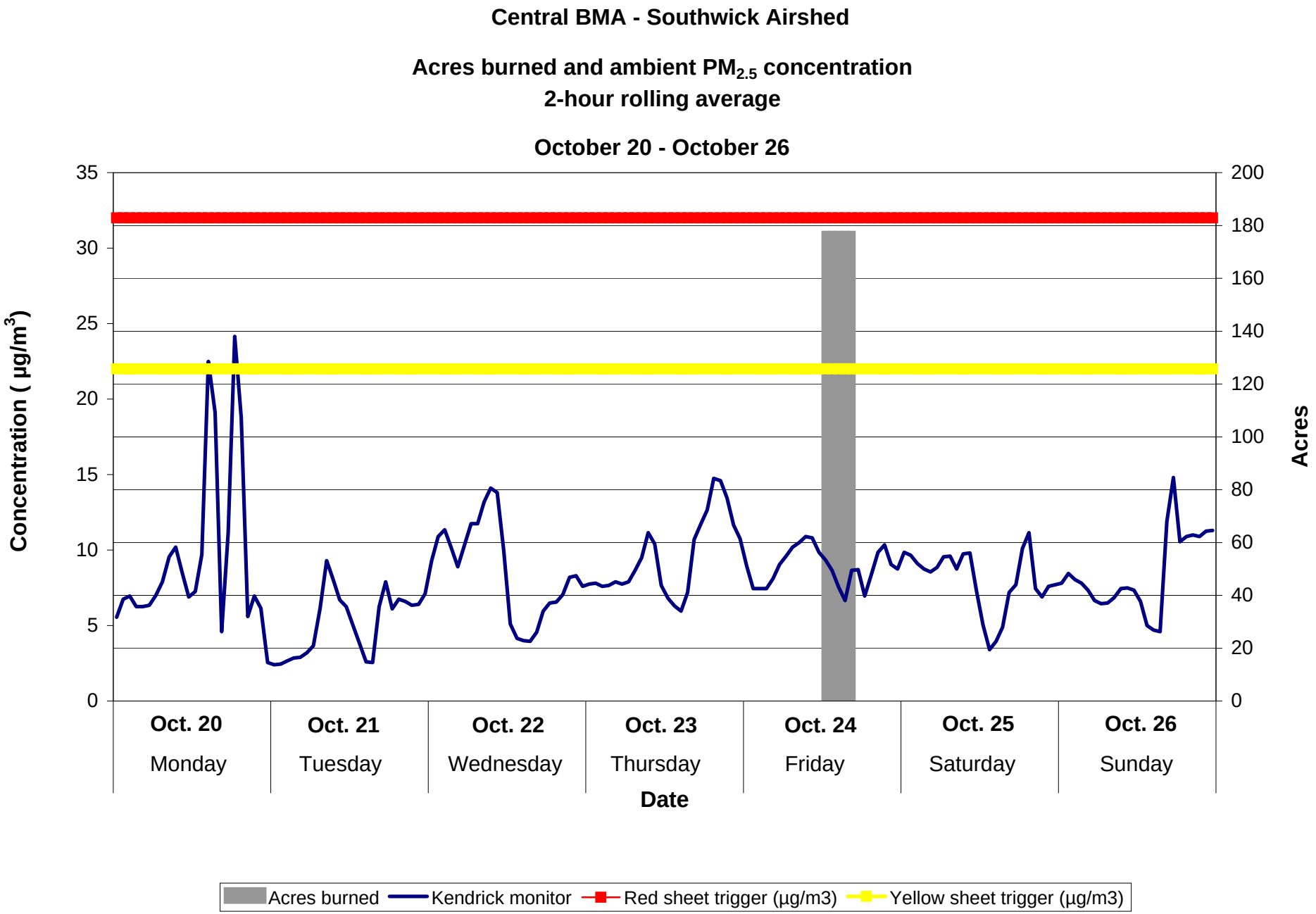

Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 15 - September 21
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
450
400
350
300
250
200
150
100
50
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Kendrick monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

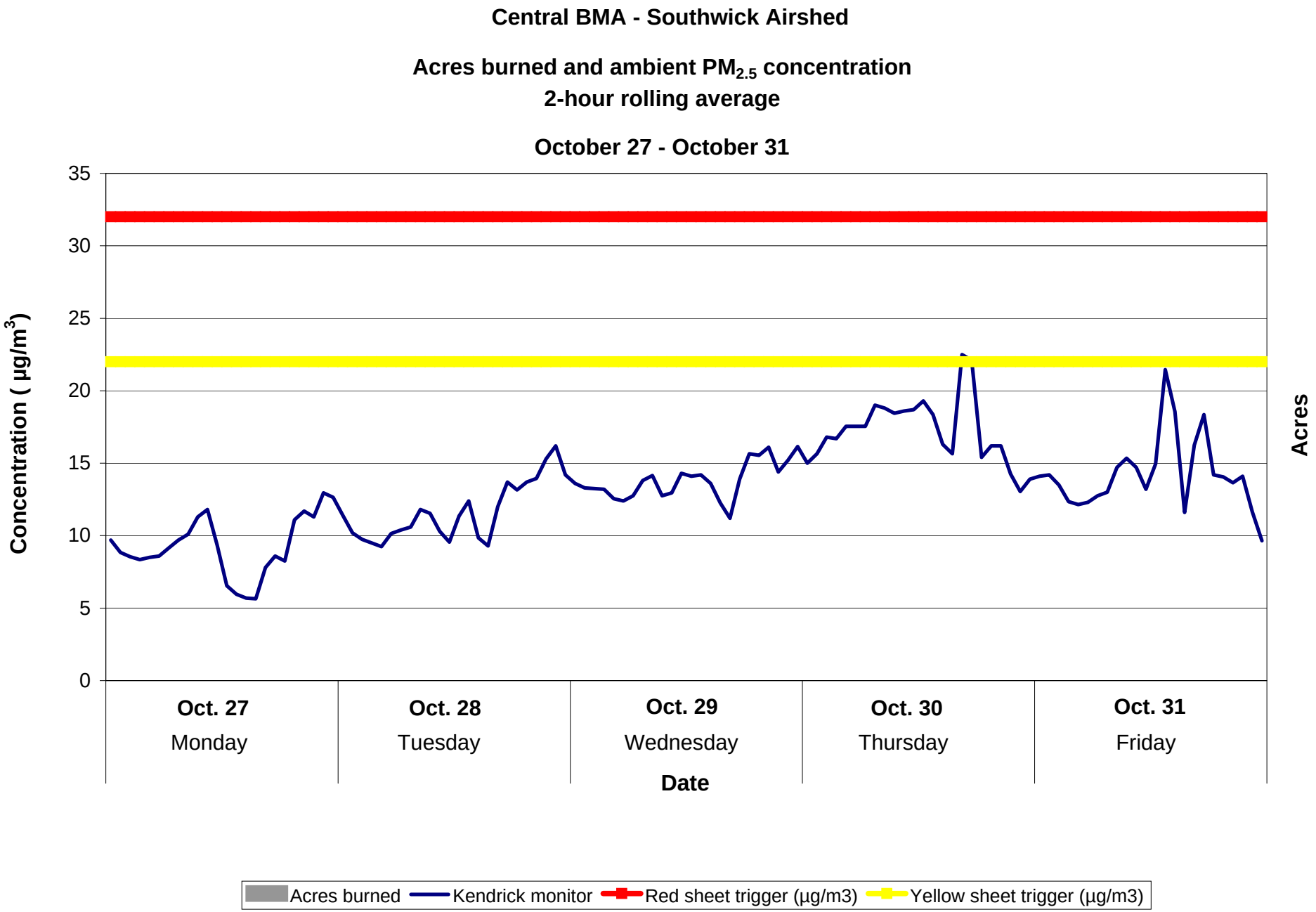

Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 22 - September 28
Concentration (µg/m3)
Acres
45
40
35
30
25
20
15
10
5
0
100
90
80
70
60
50
40
30
20
10
0
Sept. 22
Monday
Sept. 23
Tuesday
Sept. 24
Wednesday
Sept. 25
Thursday
Sept. 26
Friday
Sept. 27
Saturday
Sept. 28
Sunday
Date
Acres burned
Kendrick monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 29 - October 5
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
1800
1600
1400
1200
1000
800
600
400
200
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Kendrick monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 6 - October 12
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
120
100
80
60
40
20
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Kendrick monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 13 - October 19
Concentration (µg/m3)
Acres
60
50
40
30
20
10
0
200
180
160
140
120
100
80
60
40
20
0
Oct. 13
Monday
Oct. 14
Tuesday
Oct. 15
Wednesday
Oct. 16
Thursday
Oct. 17
Friday
Oct. 18
Saturday
Oct. 19
Sunday
Date
Acres burned
Kendrick monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

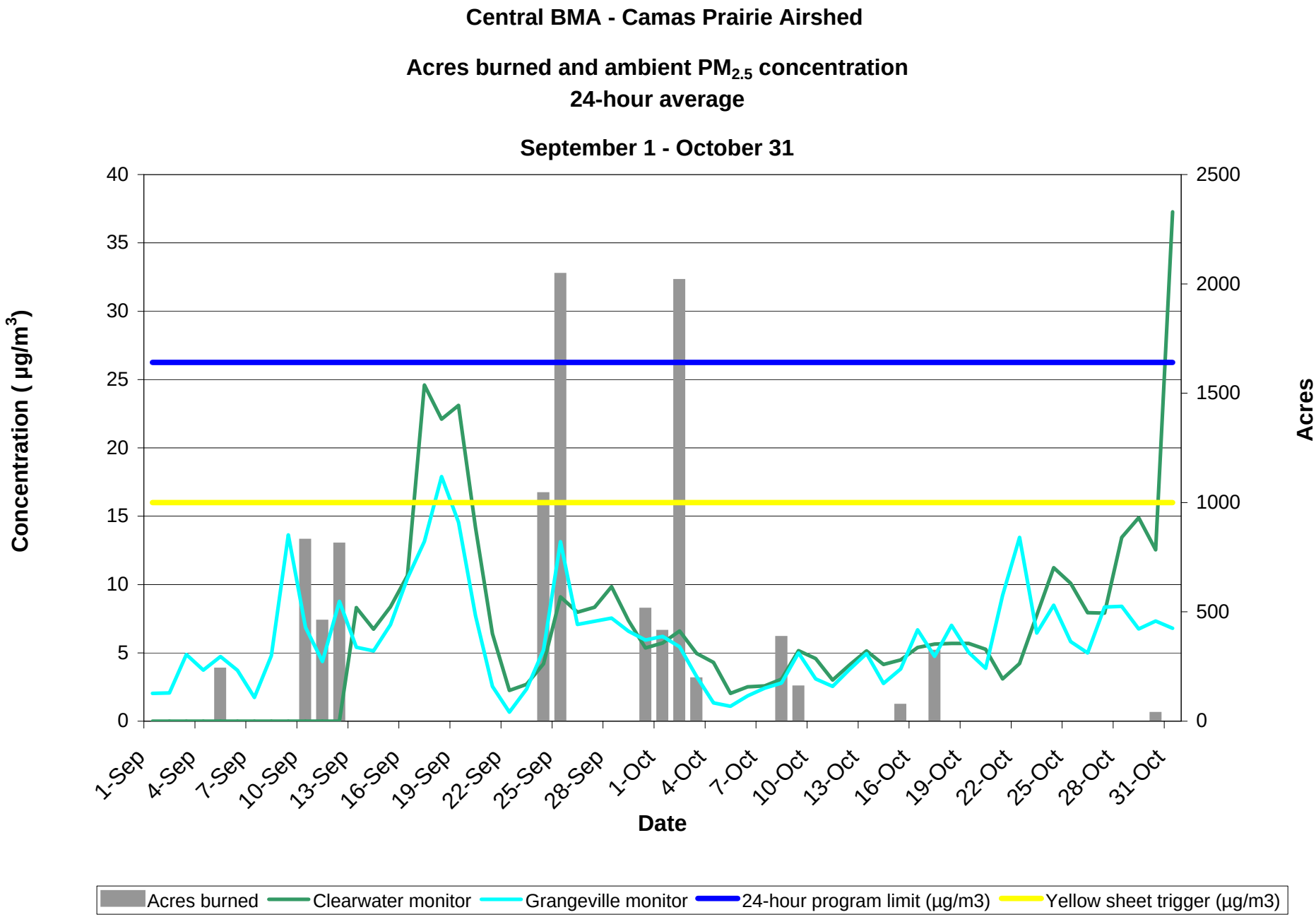

Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 20 - October 26
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
200
180
160
140
120
100
80
60
40
20
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Kendrick monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

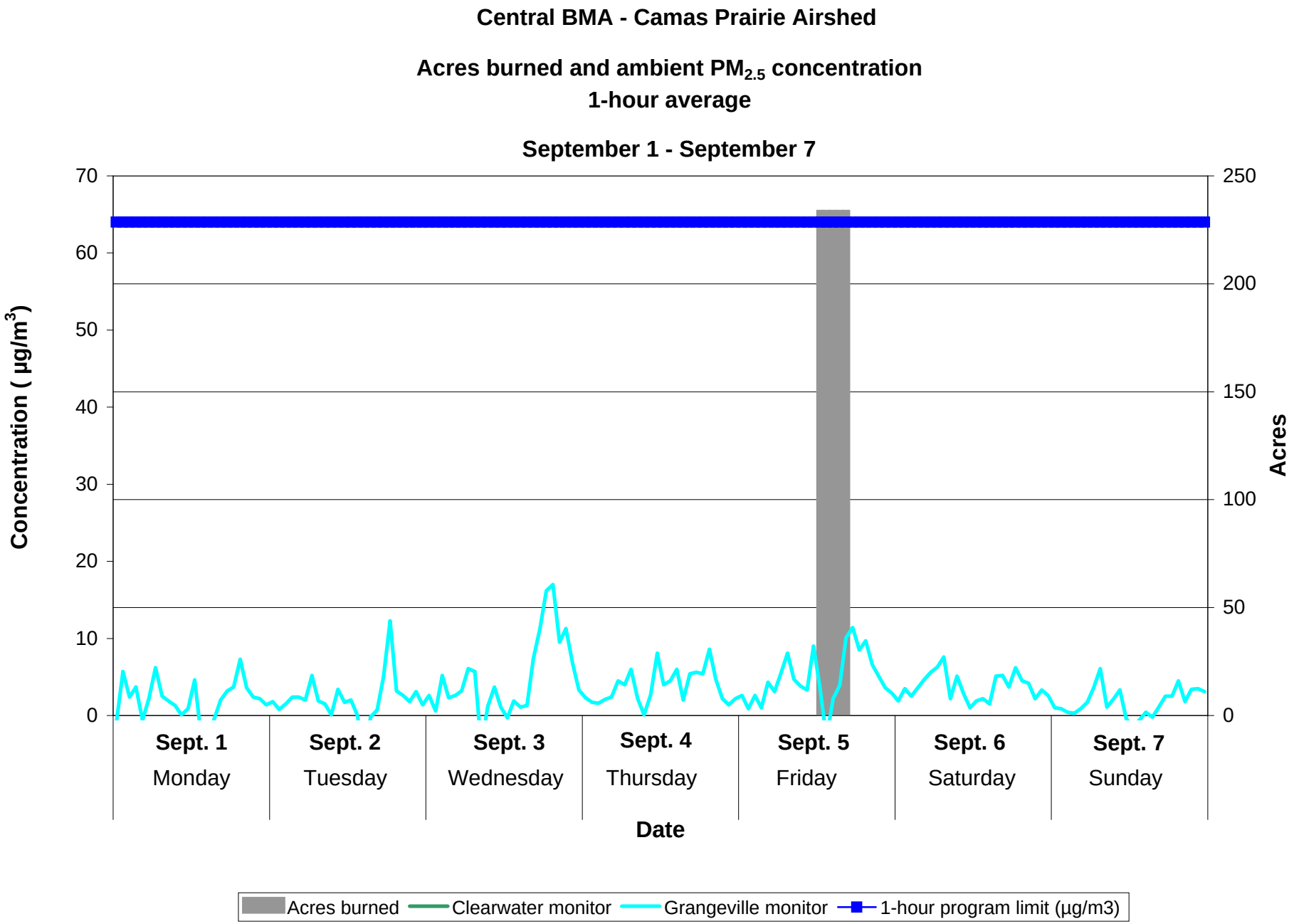

Central BMA - Southwick Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 27 - October 31
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
Oct. 27
Monday
Oct. 28
Tuesday
Oct. 29
Wednesday
Oct. 30
Thursday
Oct. 31
Friday
Date
Acres burned
Kendrick monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

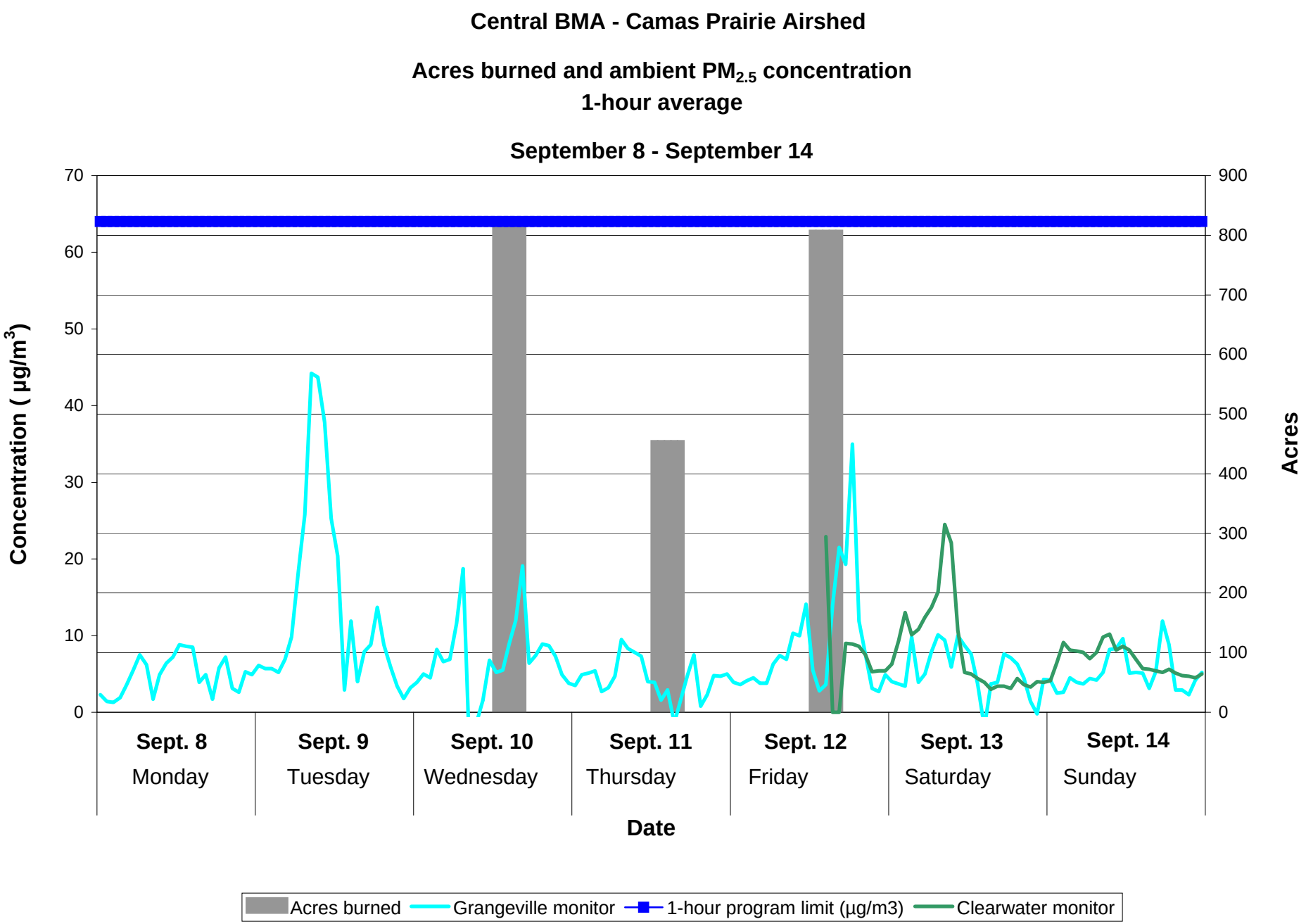
Camas Prairie

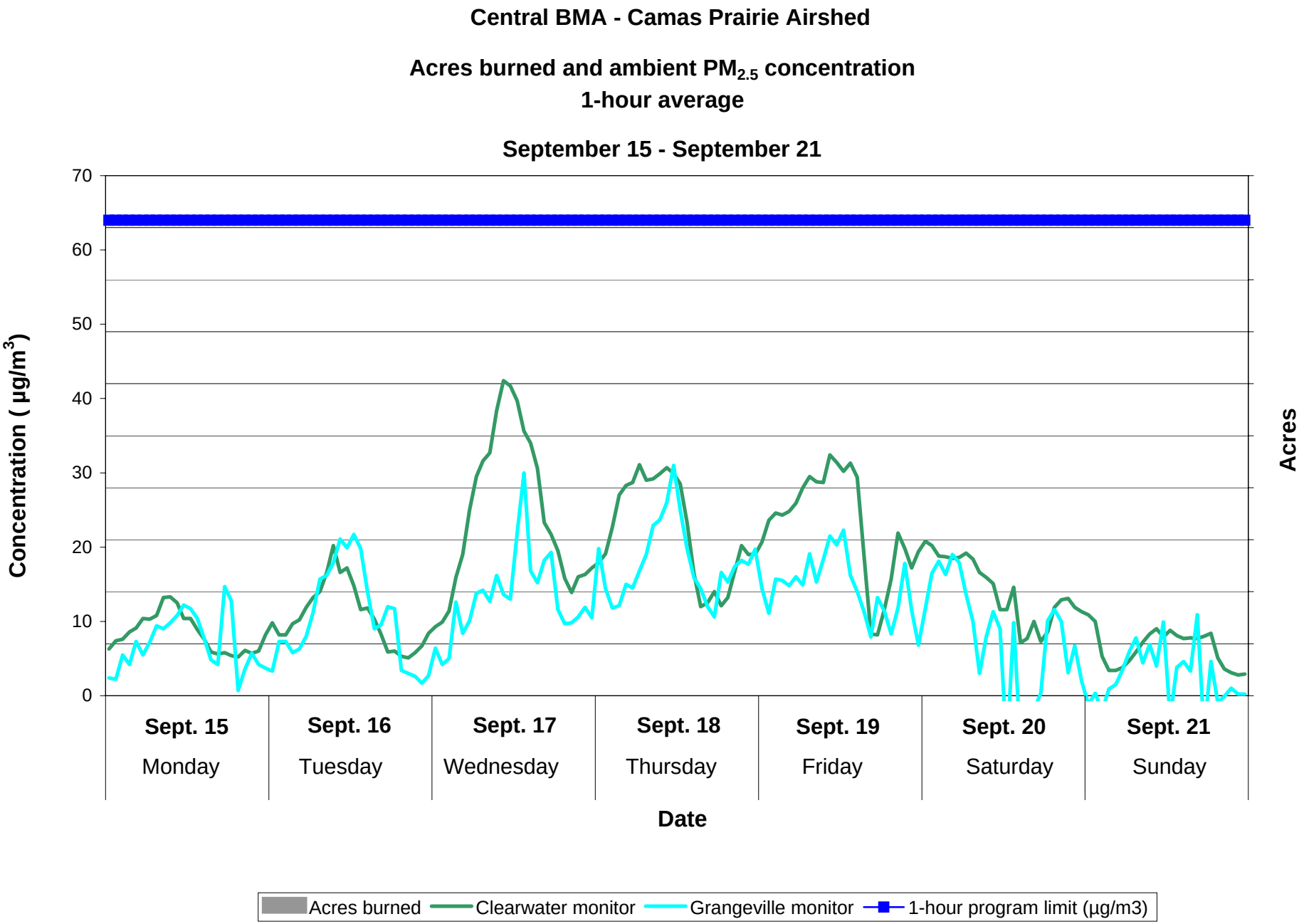
Sub-airshed

Burn Decisions and Acres Burned - Camas Prairie Airshed		
Day of Week	**Date**	**# acres burned**
T	9/2/2008	0.00
W	9/3/2008	0.00
Th	9/4/2008	0.00
F	9/5/2008	233.00
Sa	9/6/2008	
Su	9/7/2008	
M	9/8/2008	0.00
T	9/9/2008	
W	9/10/2008	821.90
Th	9/11/2008	452.00
F	9/12/2008	804.90
Sa	9/13/2008	
Su	9/14/2008	
M	9/15/2008	
T	9/16/2008	
W	9/17/2008	0.00
Th	9/18/2008	0.00
F	9/19/2008	
Sa	9/20/2008	
Su	9/21/2008	
M	9/22/2008	
T	9/23/2008	
W	9/24/2008	1034.46
Th	9/25/2008	2037.40
F	9/26/2008	
Sa	9/27/2008	
Su	9/28/2008	
M	9/29/2008	
T	9/30/2008	506.20
W	10/1/2008	405.00
Th	10/2/2008	2009.86
F	10/3/2008	188.00
Sa	10/4/2008	
Su	10/5/2008	
M	10/6/2008	
T	10/7/2008	
W	10/8/2008	377.00
Th	10/9/2008	151.00
F	10/10/2008	0.00
Sa	10/11/2008	
Su	10/12/2008	
M	10/13/2008	
T	10/14/2008	0.00
W	10/15/2008	67.33
Th	10/16/2008	
F	10/17/2008	314.00
Sa	10/18/2008	
Su	10/19/2008	
M	10/20/2008	
T	10/21/2008	
W	10/22/2008	
Th	10/23/2008	0.00
F	10/24/2008	0.00
Sa	10/25/2008	
Su	10/26/2008	
M	10/27/2008	0.00
T	10/28/2008	0.00
W	10/29/2008	0.00
Th	10/30/2008	30.00
F	10/31/2008	0
	TOTAL	**9432**


Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
24-hour average
September 1 - October 31
Concentration (µg/m3)
Acres
Date
0
5
10
15
20
25
30
35
40
0
500
1000
1500
2000
2500
1-Sep
4-Sep
7-Sep
10-Sep
13-Sep
16-Sep
19-Sep
22-Sep
25-Sep
28-Sep
1-Oct
4-Oct
7-Oct
10-Oct
13-Oct
16-Oct
19-Oct
22-Oct
25-Oct
28-Oct
31-Oct
Acres burned
Clearwater monitor
Grangeville monitor
24-hour program limit (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 1 - September 7
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
250
200
150
100
50
0
Sept. 1
Monday
Sept. 2
Tuesday
Sept. 3
Wednesday
Sept. 4
Thursday
Sept. 5
Friday
Sept. 6
Saturday
Sept. 7
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
1-hour program limit (µg/m3)

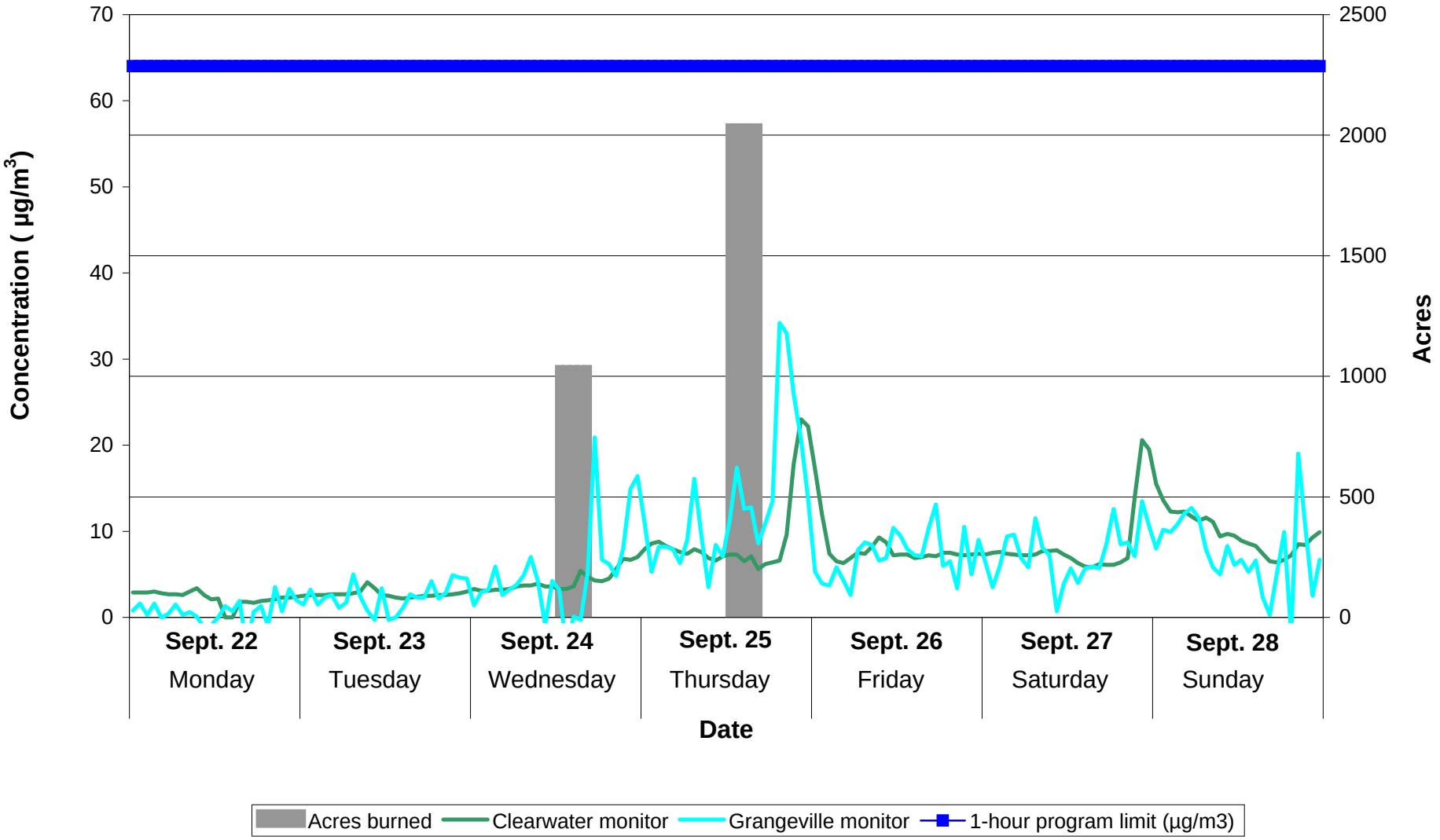

Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 8 - September 14
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
900
800
700
600
500
400
300
200
100
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Grangeville monitor
1-hour program limit (µg/m3)
Clearwater monitor

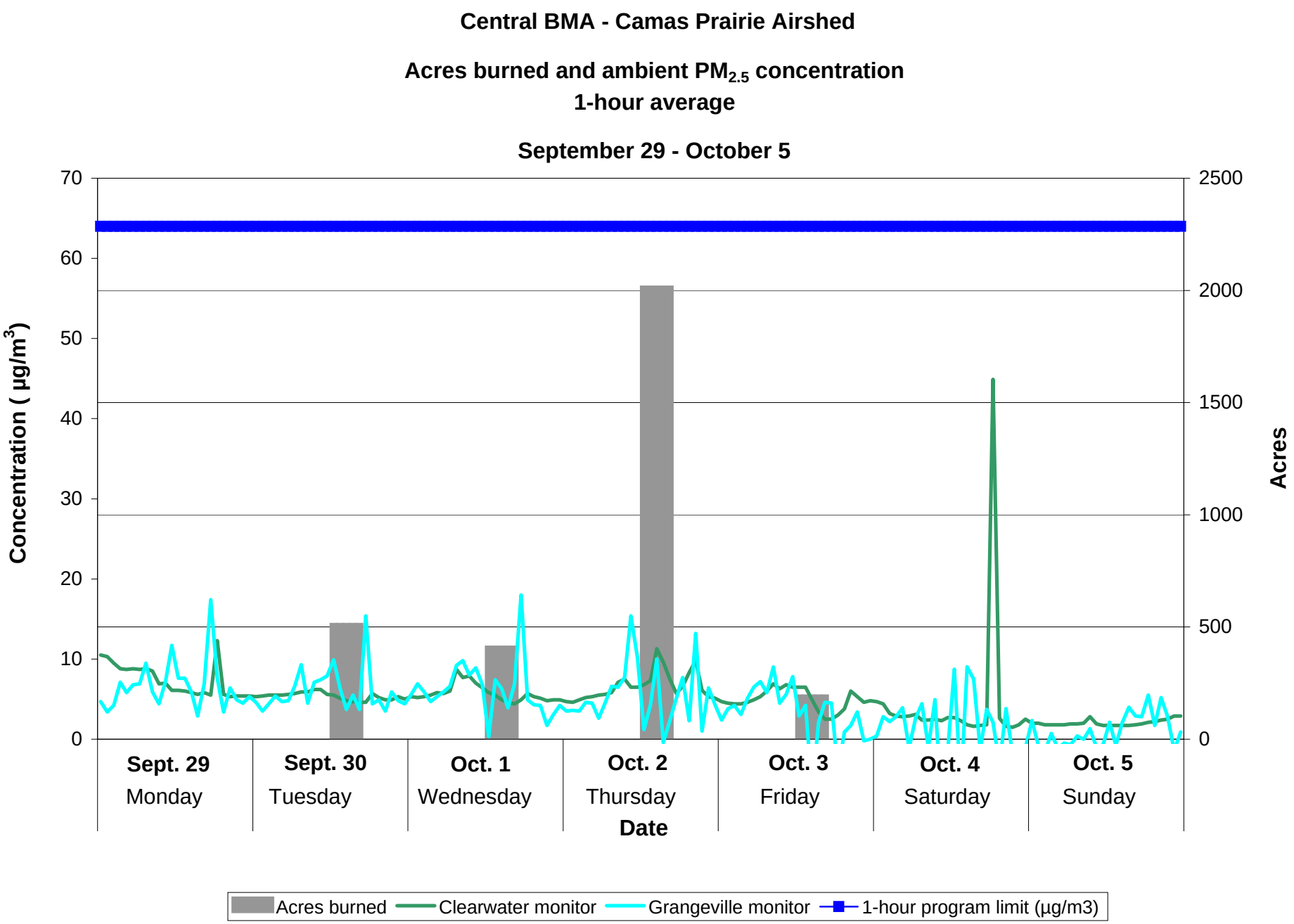

Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 15 - September 21
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
1-hour program limit (µg/m3)

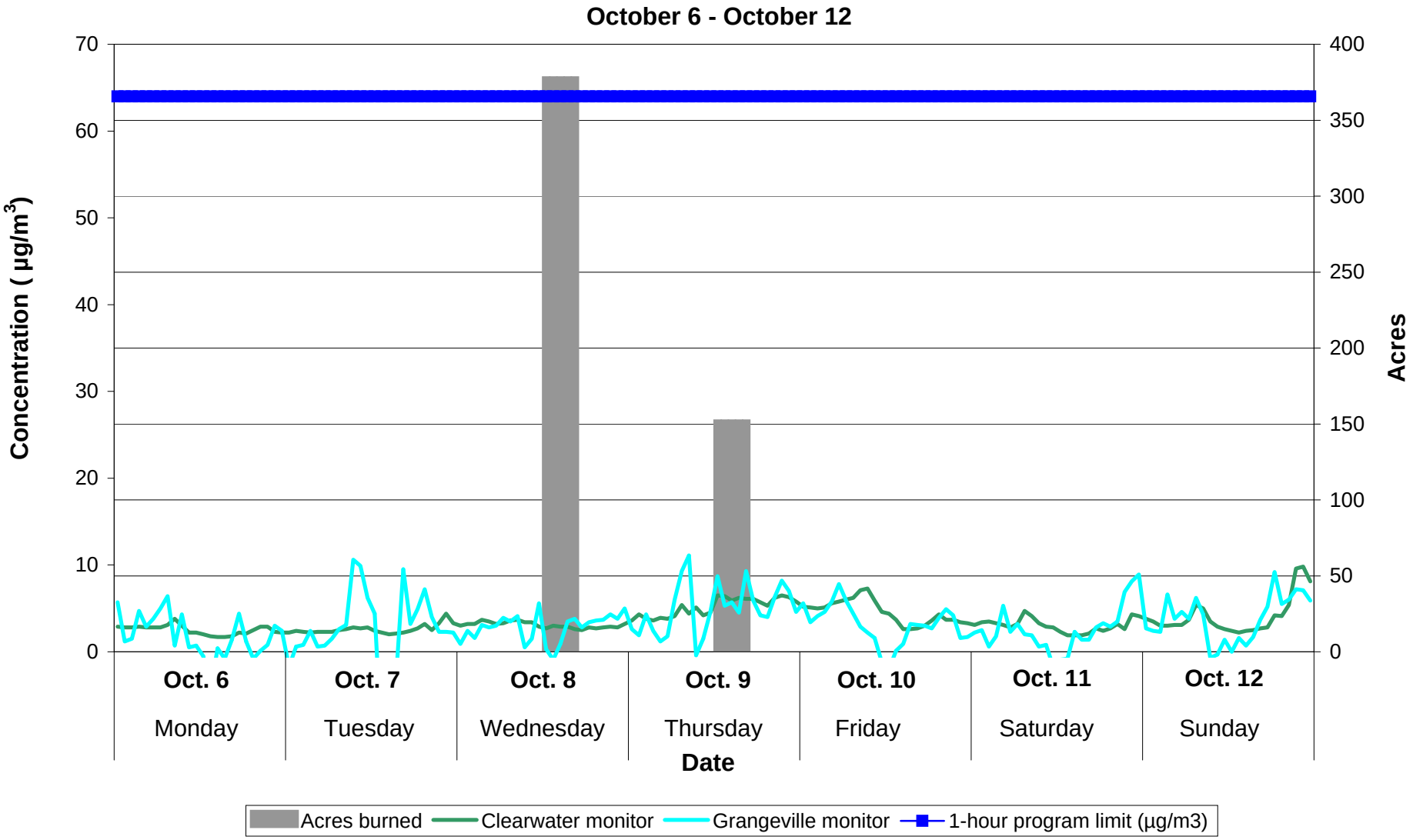
Central BMA - Camas Prairie Airshed

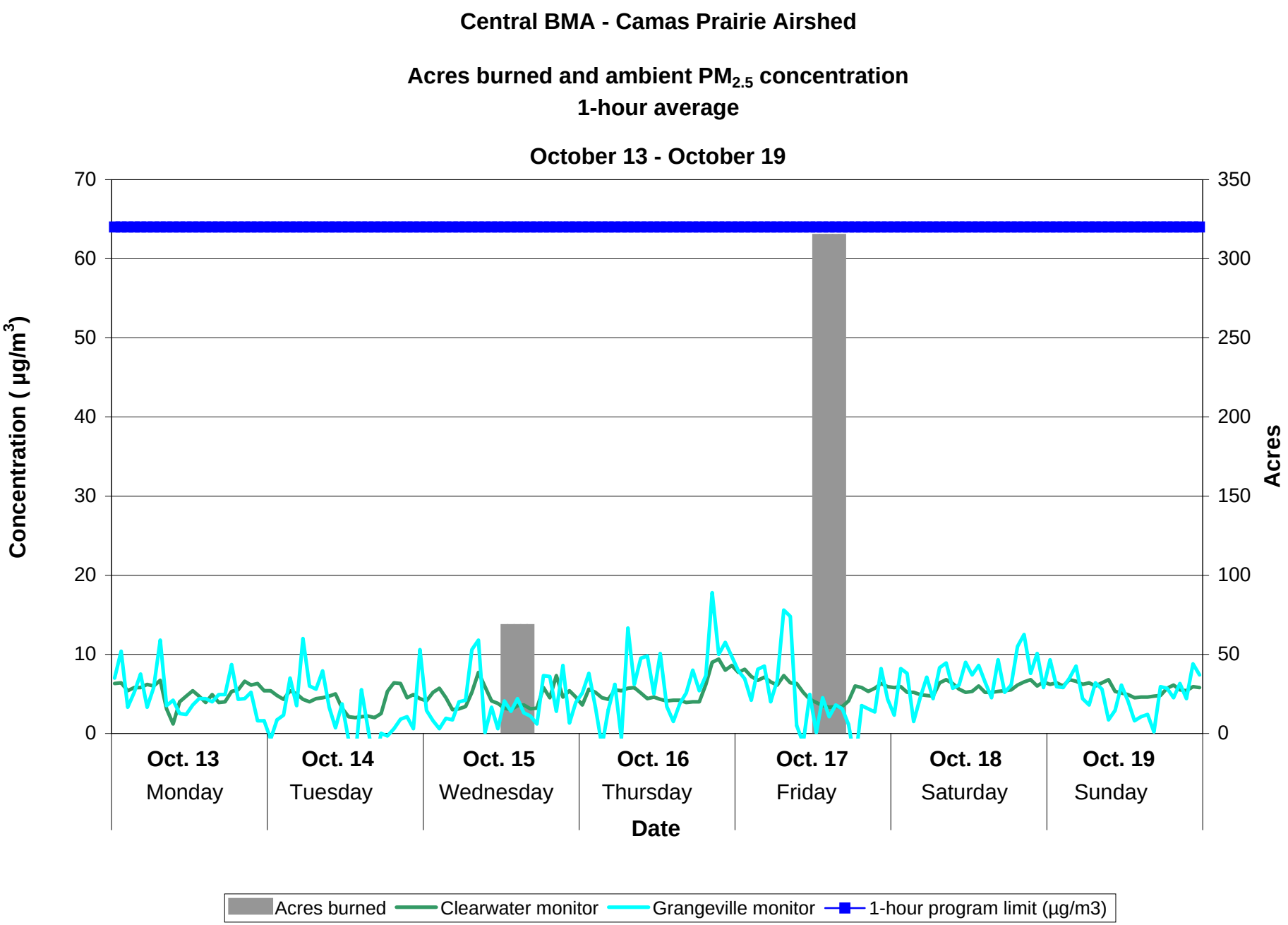
Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

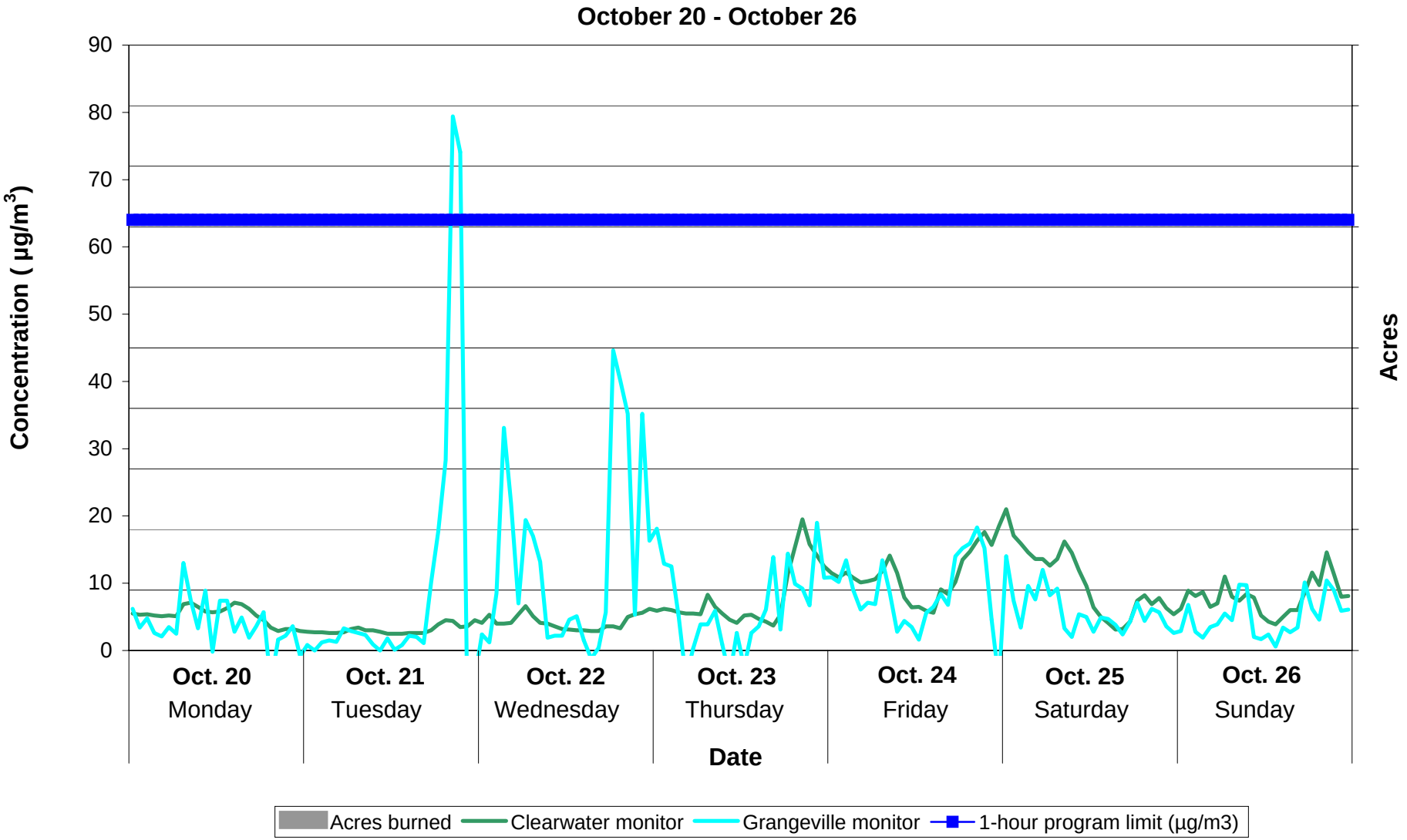
September 22 - September 28

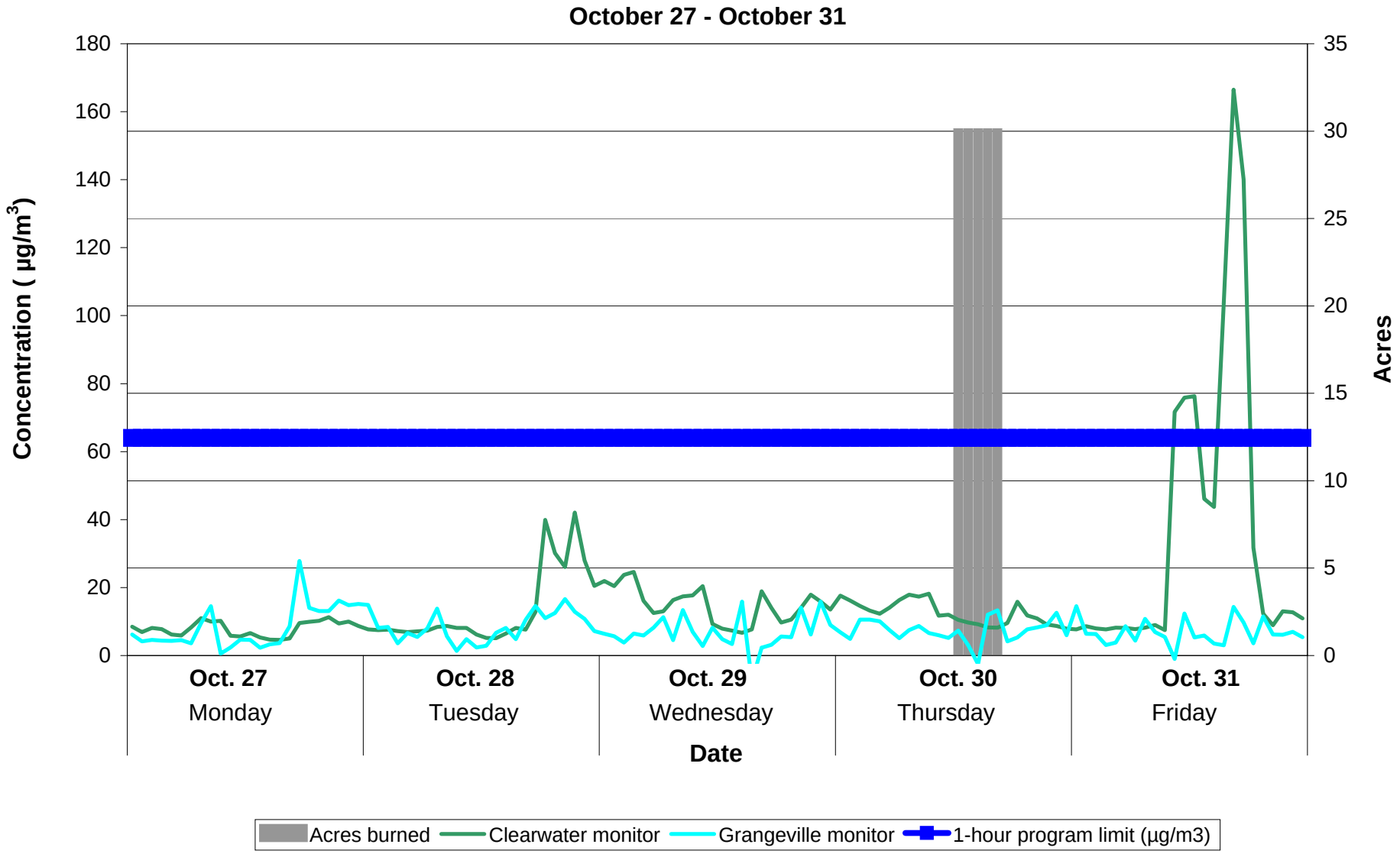


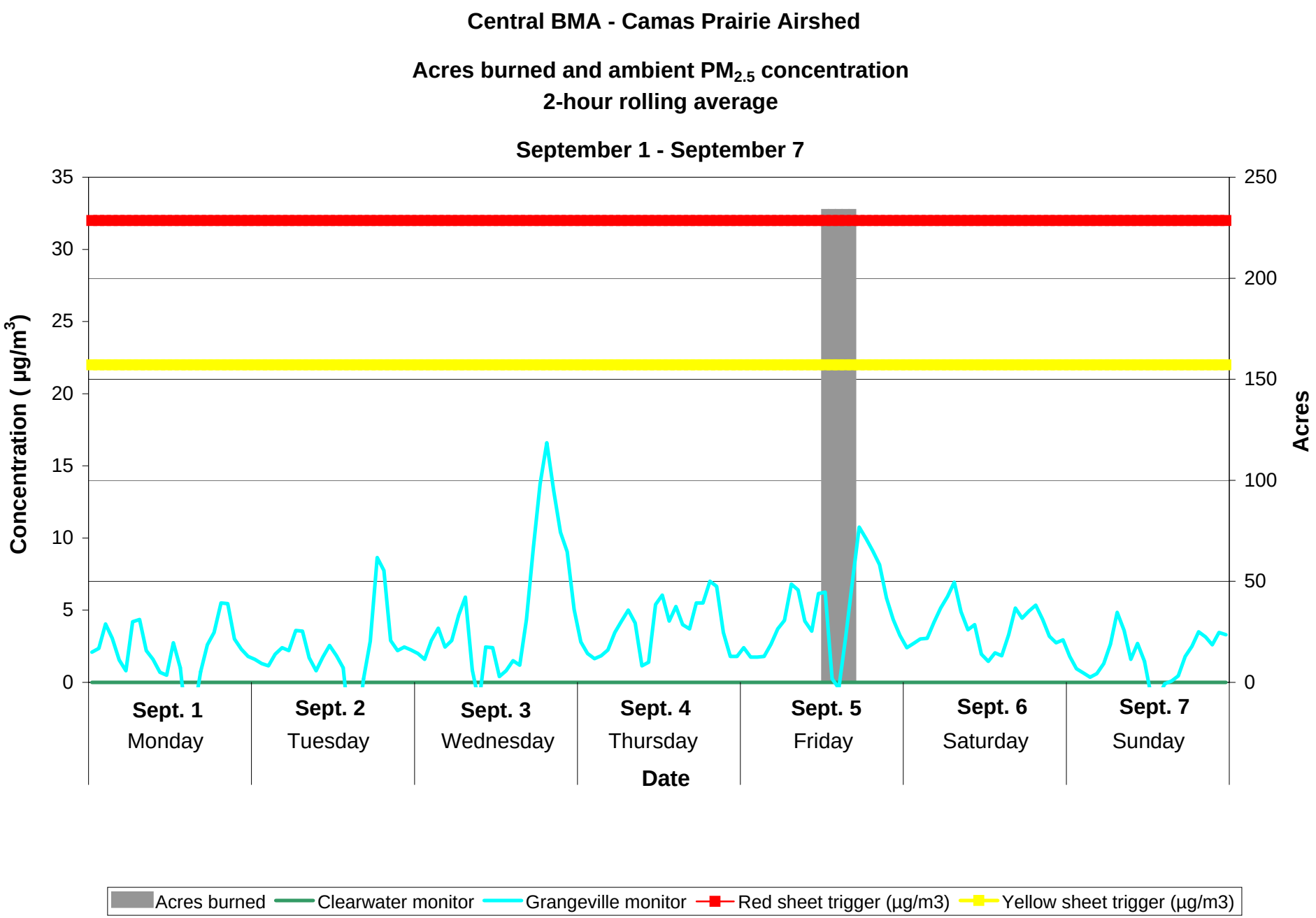

Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
September 29 - October 5
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
2500
2000
1500
1000
500
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
1-hour program limit (µg/m3)

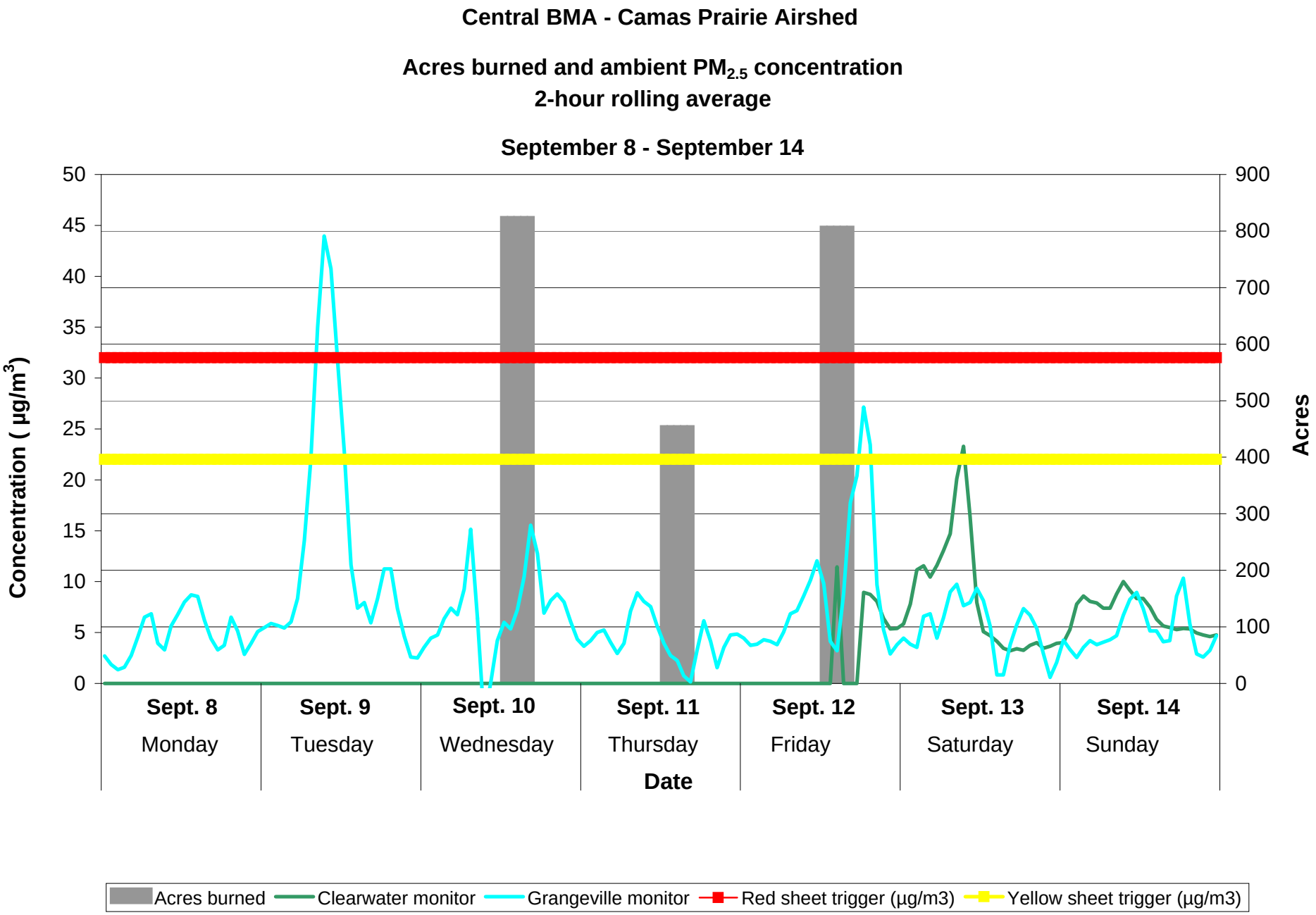

Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 6 - October 12
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
400
350
300
250
200
150
100
50
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
1-hour program limit (µg/m3)

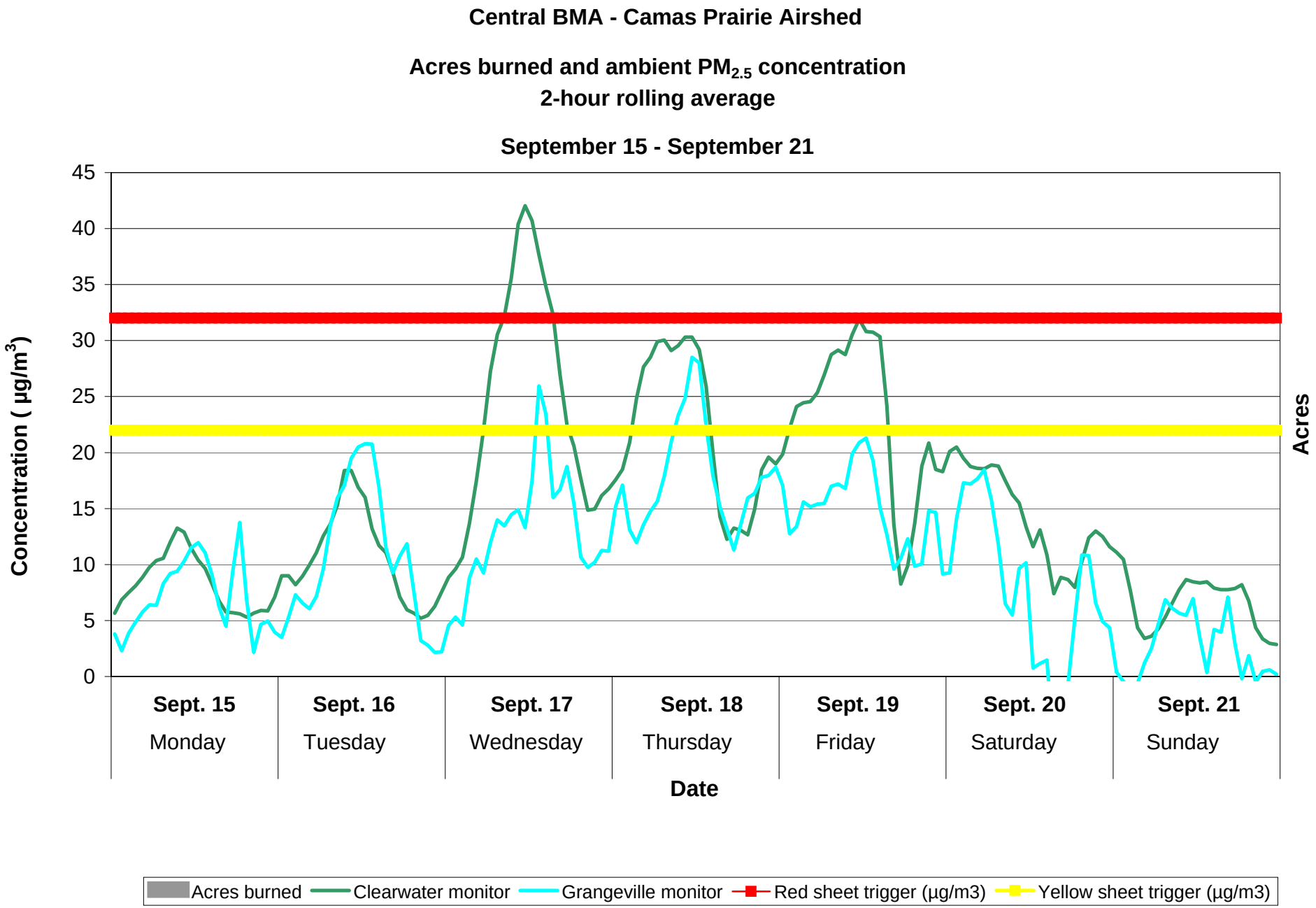

Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 13 - October 19
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
350
300
250
200
150
100
50
0
Oct. 13
Monday
Oct. 14
Tuesday
Oct. 15
Wednesday
Oct. 16
Thursday
Oct. 17
Friday
Oct. 18
Saturday
Oct. 19
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
1-hour program limit (µg/m3)


Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 20 - October 26
Concentration (µg/m3)
Acres
90
80
70
60
50
40
30
20
10
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
1-hour program limit (µg/m3)


Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
1-hour average
October 27 - October 31
Concentration (µg/m3)
Acres
180
160
140
120
100
80
60
40
20
0
35
30
25
20
15
10
5
0
Oct. 27
Monday
Oct. 28
Tuesday
Oct. 29
Wednesday
Oct. 30
Thursday
Oct. 31
Friday
Date
Acres burned
Clearwater monitor
Grangeville monitor
1-hour program limit (µg/m3)


Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 1 - September 7
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
250
200
150
100
50
0
Sept. 1
Monday
Sept. 2
Tuesday
Sept. 3
Wednesday
Sept. 4
Thursday
Sept. 5
Friday
Sept. 6
Saturday
Sept. 7
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

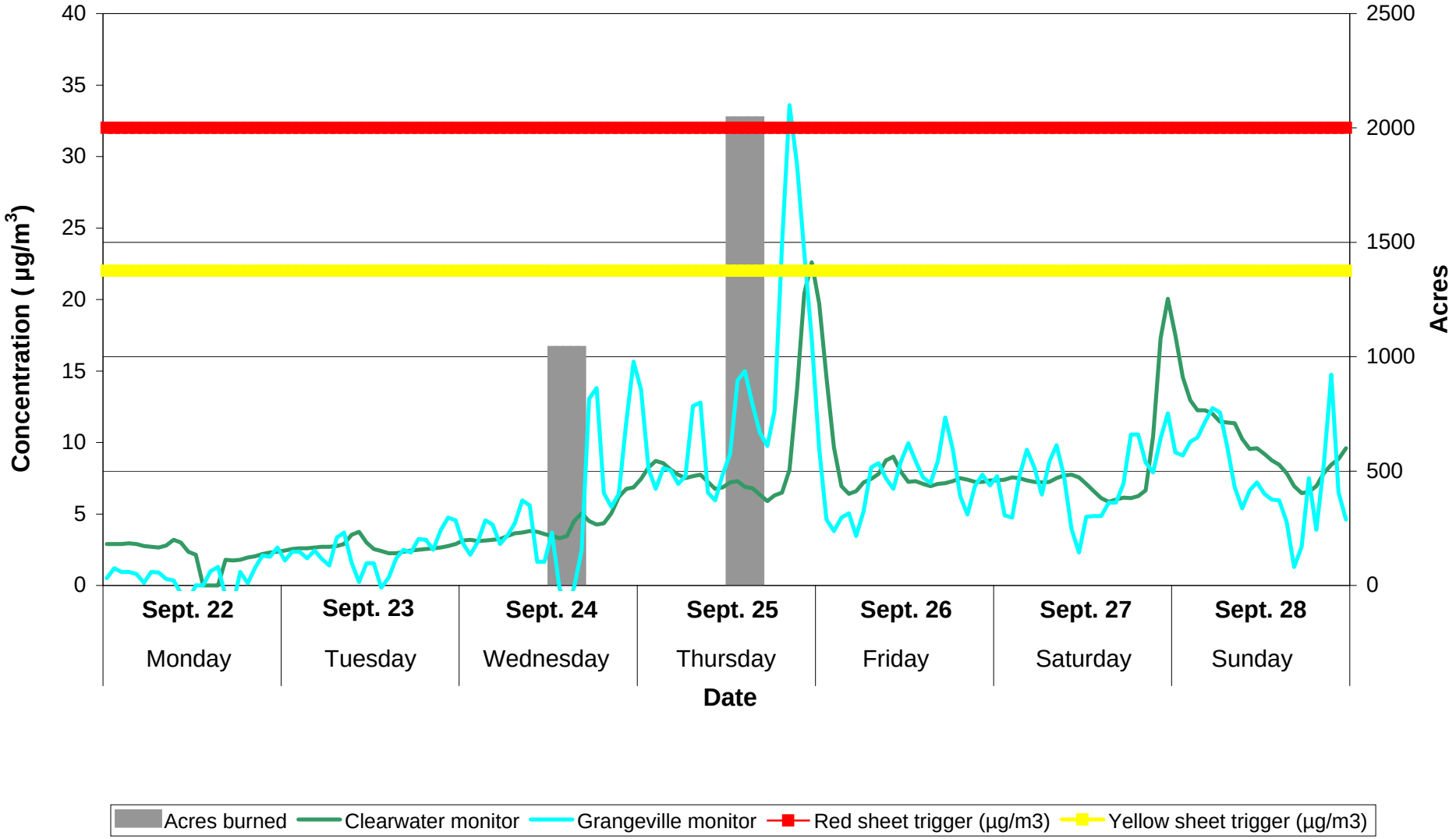

Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 8 - September 14
Concentration (µg/m3)
Acres
50
45
40
35
30
25
20
15
10
5
0
900
800
700
600
500
400
300
200
100
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

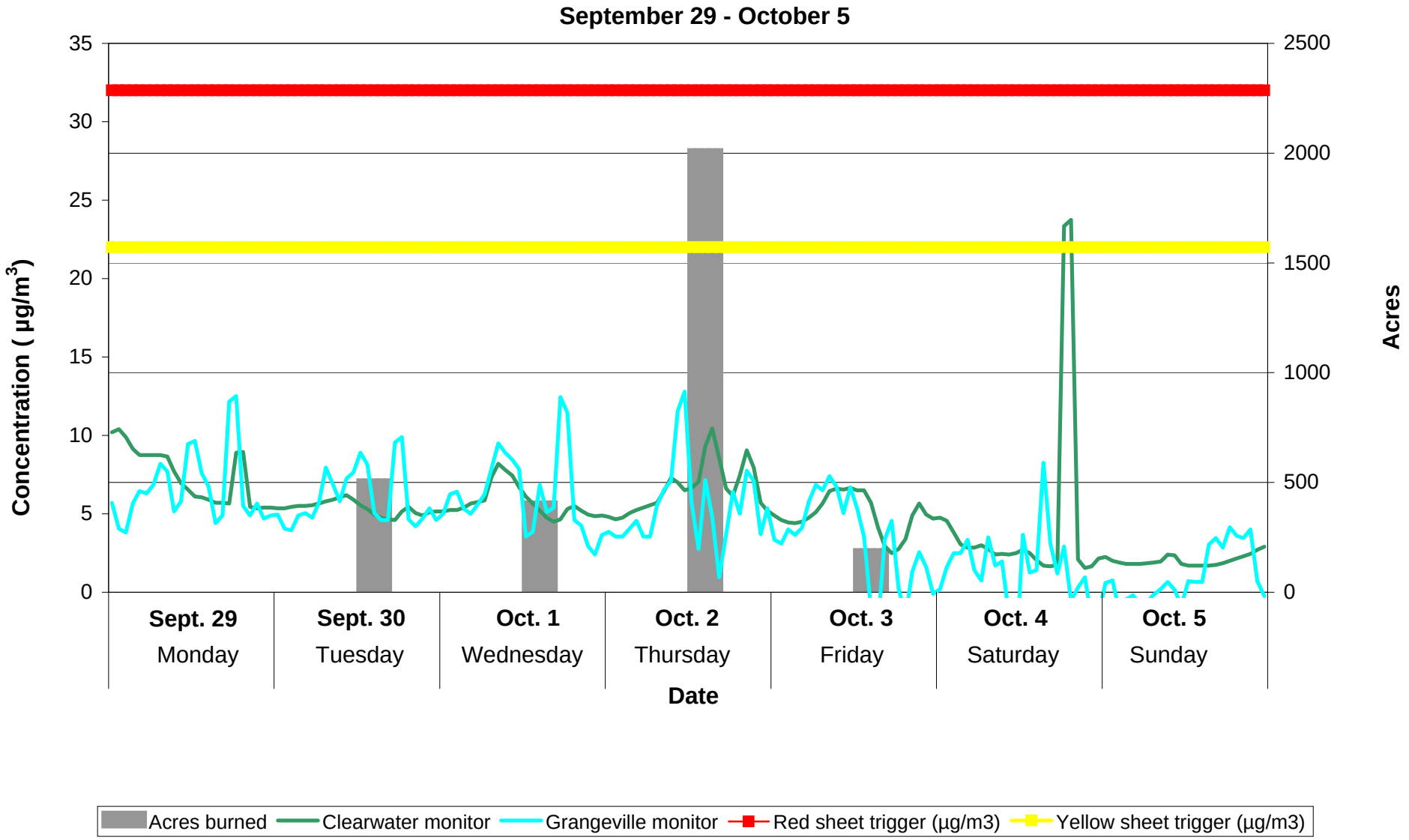

Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 15 - September 21
Concentration (µg/m3)
Acres
45
40
35
30
25
20
15
10
5
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

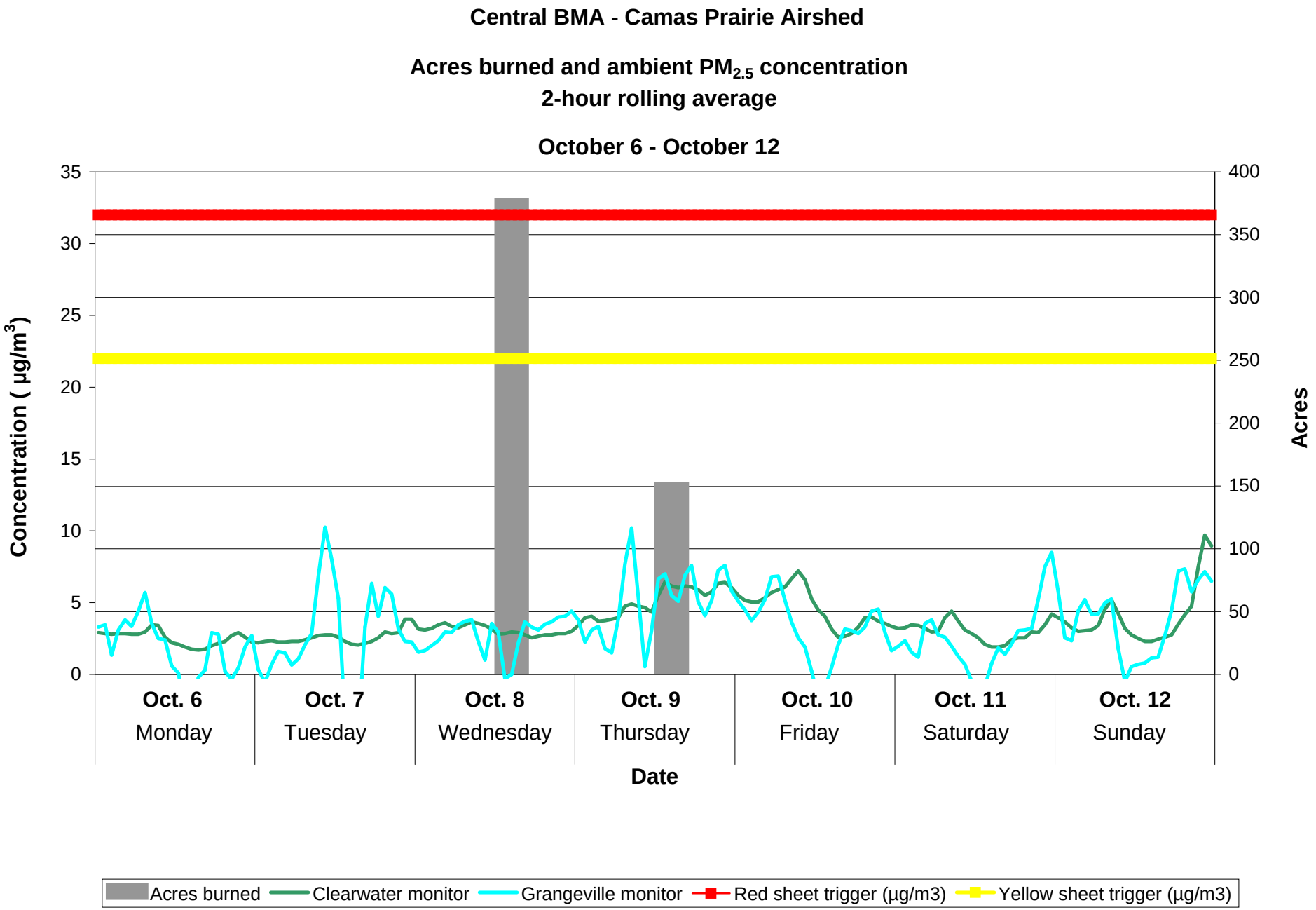
Central BMA - Camas Prairie Airshed

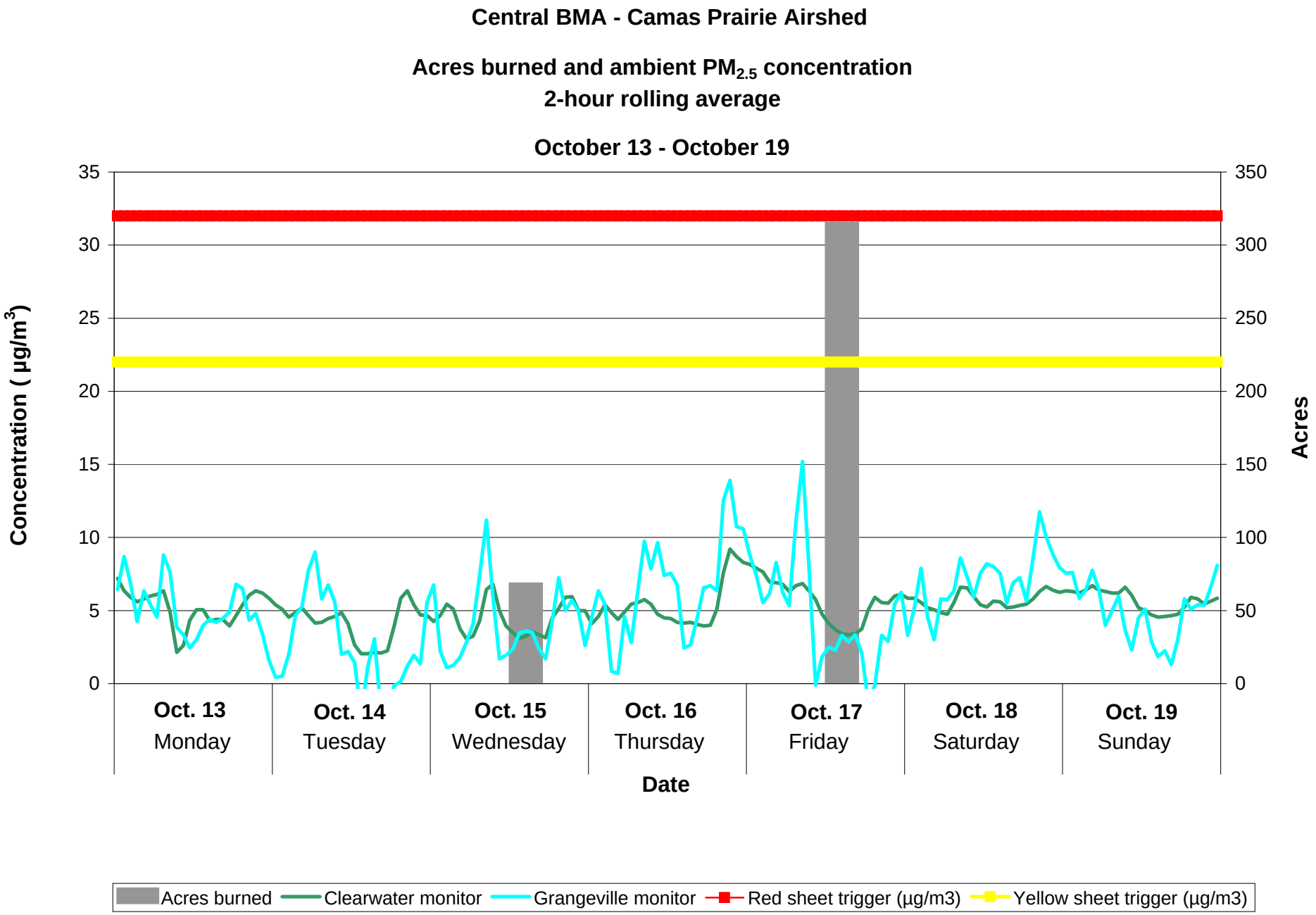
Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 22 - September 28




Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 29 - October 5
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
2500
2000
1500
1000
500
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

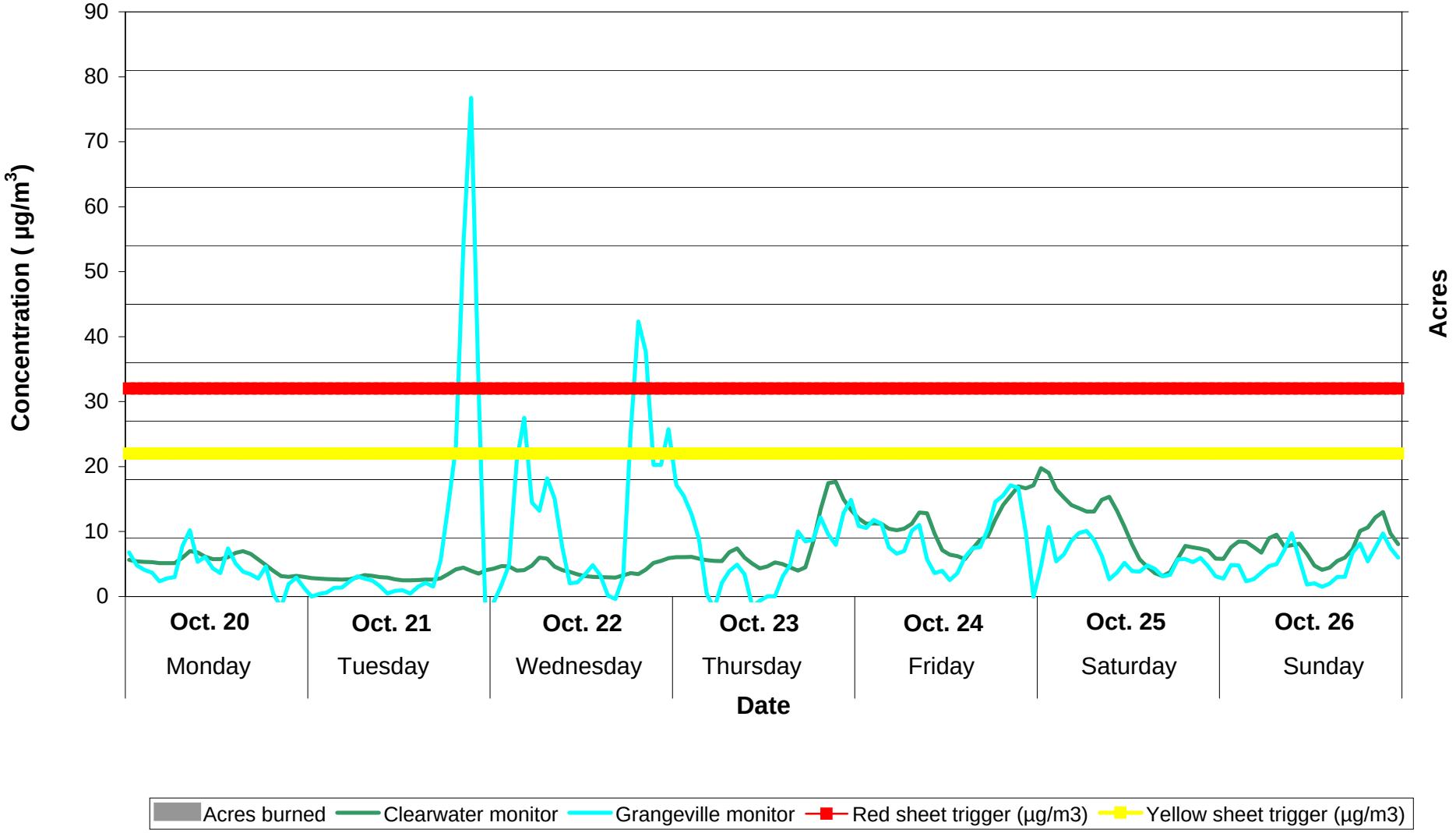

Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 6 - October 12
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
400
350
300
250
200
150
100
50
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Central BMA - Camas Prairie Airshed
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 13 - October 19
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
350
300
250
200
150
100
50
0
Oct. 13
Monday
Oct. 14
Tuesday
Oct. 15
Wednesday
Oct. 16
Thursday
Oct. 17
Friday
Oct. 18
Saturday
Oct. 19
Sunday
Date
Acres burned
Clearwater monitor
Grangeville monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Central BMA - Camas Prairie Airshed

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

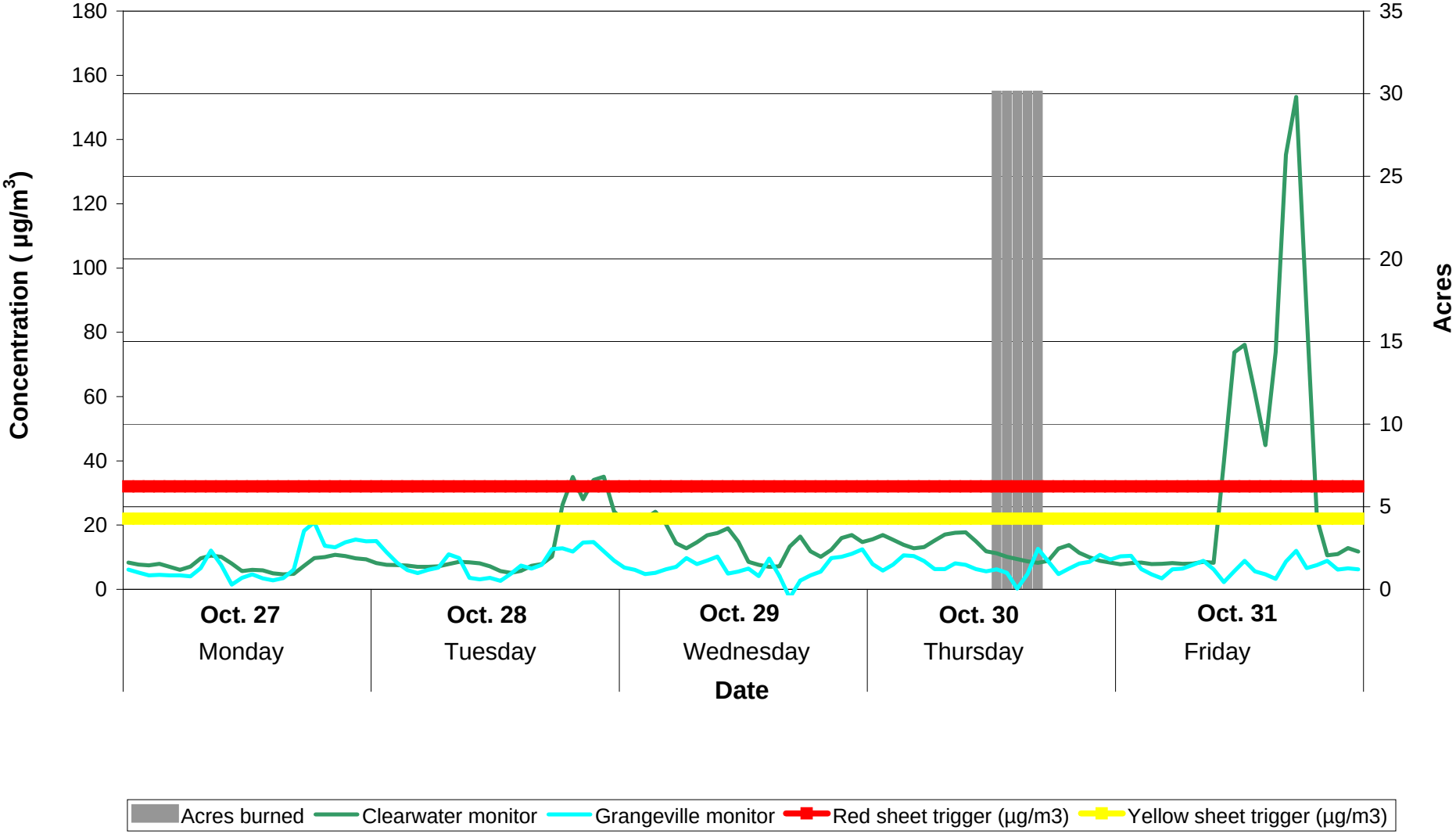
October 20 - October 26



Central BMA - Camas Prairie Airshed

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 27 - October 31



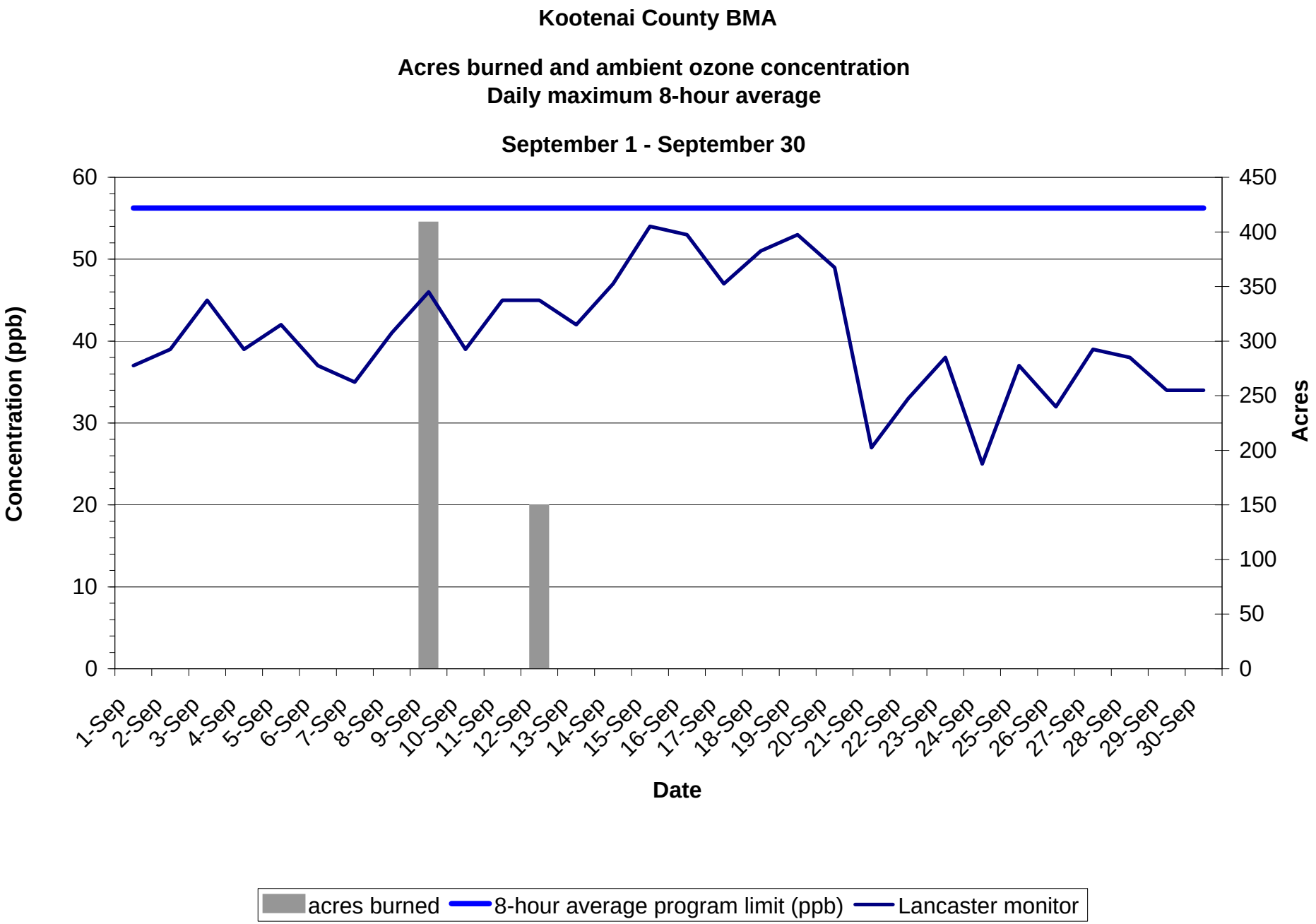
Appendix C

Air Quality Evaluation

of the

Kootenai County BMA

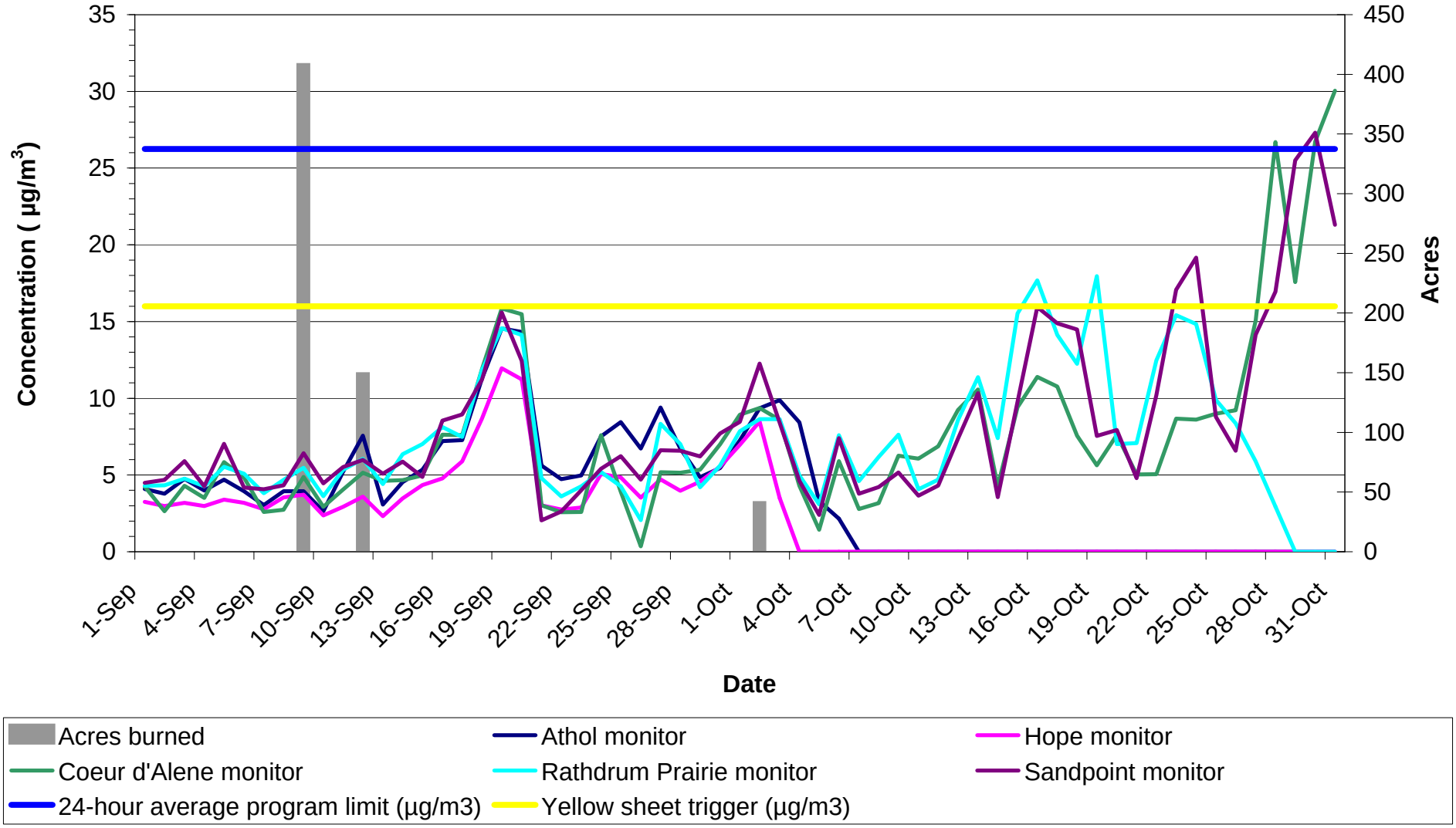
Burn Decisions and Acres Burned - Kootenai County BMA			
Day of Week	**Date**	**# acres approved**	**# acres burned**
T	9/2/2008		
W	9/3/2008		
Th	9/4/2008		
F	9/5/2008		
Sa	9/6/2008		
Su	9/7/2008		
M	9/8/2008		
T	9/9/2008	407	407
W	9/10/2008		
Th	9/11/2008		
F	9/12/2008	148	148
Sa	9/13/2008		
Su	9/14/2008		
M	9/15/2008		
T	9/16/2008		
W	9/17/2008		
Th	9/18/2008		
F	9/19/2008		
Sa	9/20/2008		
Su	9/21/2008		
M	9/22/2008		
T	9/23/2008		
W	9/24/2008		
Th	9/25/2008		
F	9/26/2008		
Sa	9/27/2008		
Su	9/28/2008		
M	9/29/2008		
T	9/30/2008		
W	10/1/2008		
Th	10/2/2008	40	40
F	10/3/2008		
Sa	10/4/2008		
Su	10/5/2008		
M	10/6/2008		
T	10/7/2008		
W	10/8/2008		
Th	10/9/2008		
F	10/10/2008		
Sa	10/11/2008		
Su	10/12/2008		
M	10/13/2008		
T	10/14/2008		
W	10/15/2008		
Th	10/16/2008		
F	10/17/2008		
Sa	10/18/2008		
Su	10/19/2008		
M	10/20/2008		
T	10/21/2008		
W	10/22/2008		
Th	10/23/2008		
F	10/24/2008		
Sa	10/25/2008		
Su	10/26/2008		
M	10/27/2008		
T	10/28/2008		
W	10/29/2008		
Th	10/30/2008		
F	10/31/2008		
	TOTAL	**595**	**595**


Kootenai County BMA
Acres burned and ambient ozone concentration
Daily maximum 8-hour average
September 1 - September 30
Concentration (ppb)
Acres
Date
0
10
20
30
40
50
60
0
50
100
150
200
250
300
350
400
450
1-Sep
2-Sep
3-Sep
4-Sep
5-Sep
6-Sep
7-Sep
8-Sep
9-Sep
10-Sep
11-Sep
12-Sep
13-Sep
14-Sep
15-Sep
16-Sep
17-Sep
18-Sep
19-Sep
20-Sep
21-Sep
22-Sep
23-Sep
24-Sep
25-Sep
26-Sep
27-Sep
28-Sep
29-Sep
30-Sep
acres burned
8-hour average program limit (ppb)
Lancaster monitor

Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
24-hour average

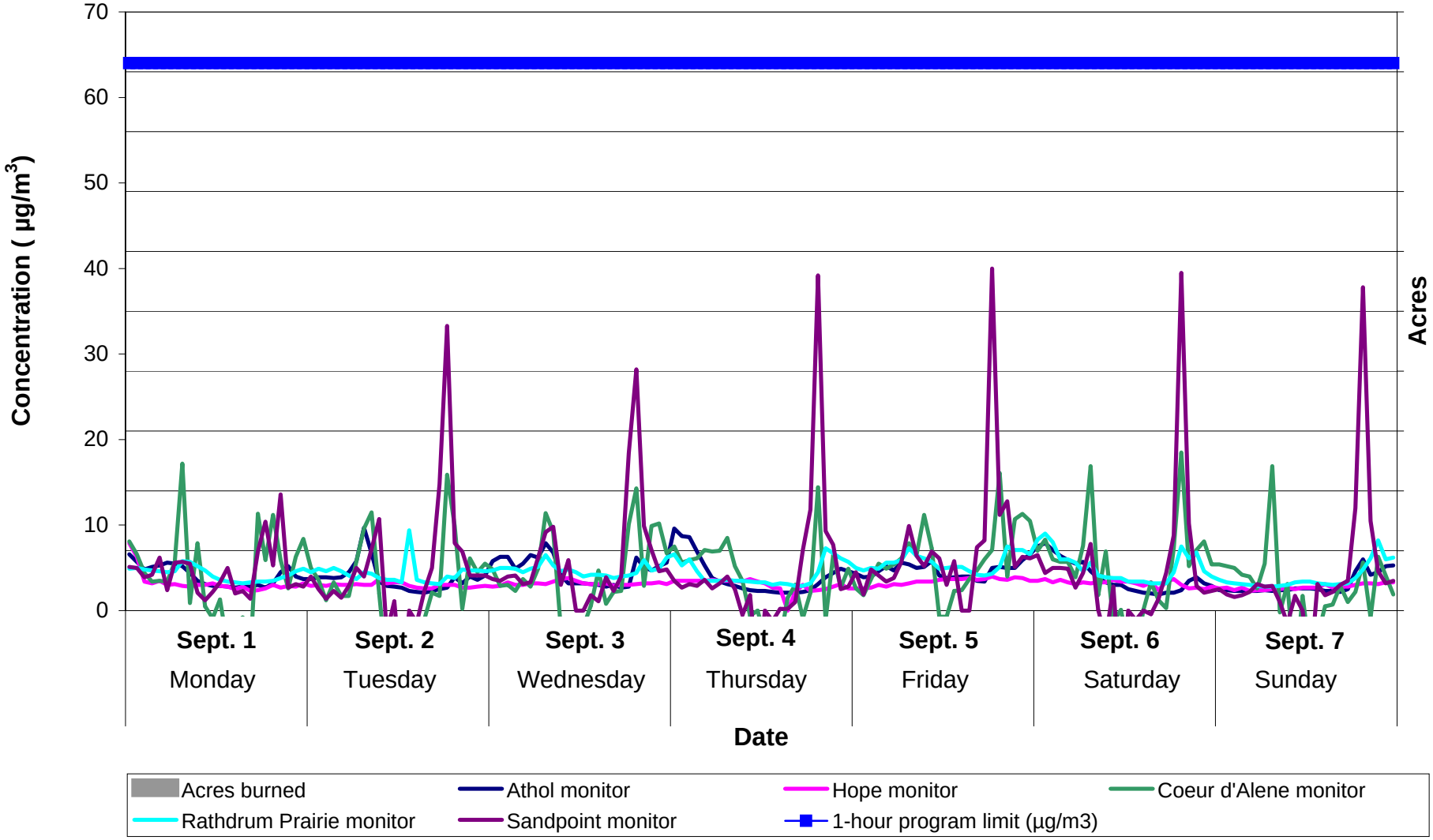
September 1 - October 31

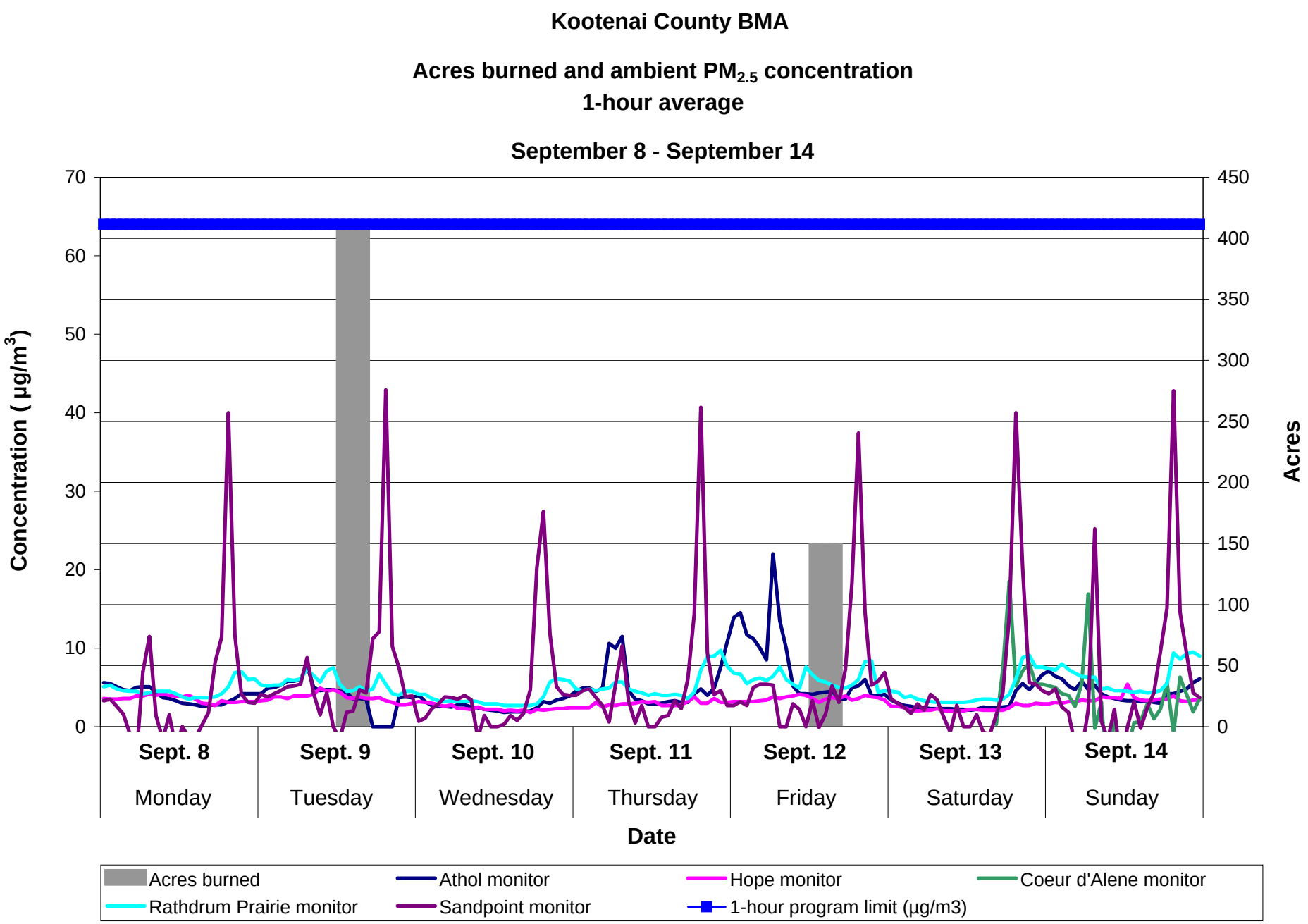


Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

September 1 - September 7

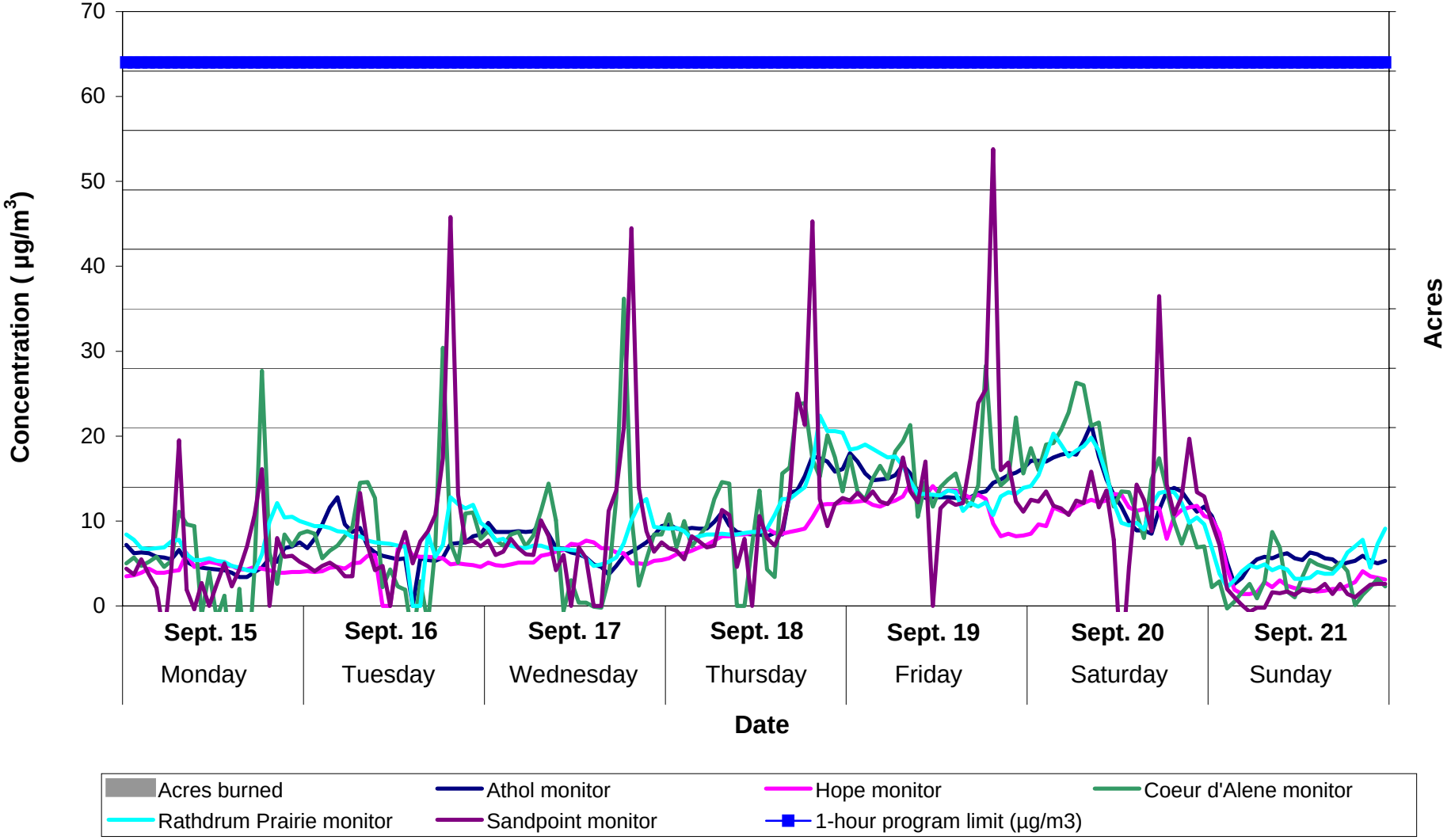



Kootenai County BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 8 - September 14
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
450
400
350
300
250
200
150
100
50
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Athol monitor
Hope monitor
Coeur d'Alene monitor
Rathdrum Prairie monitor
Sandpoint monitor
1-hour program limit (µg/m3)

Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

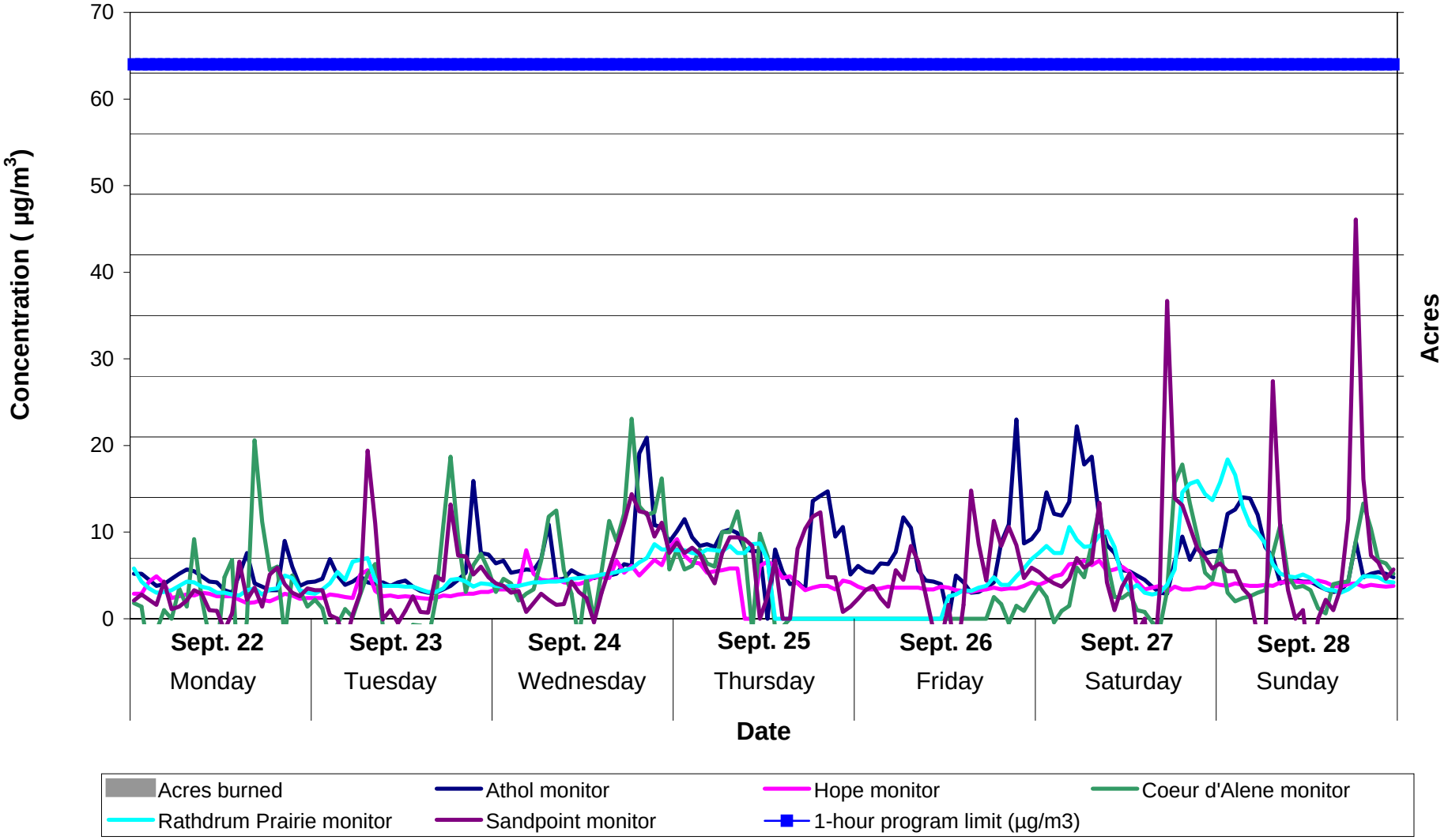
September 15 - September 21



Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

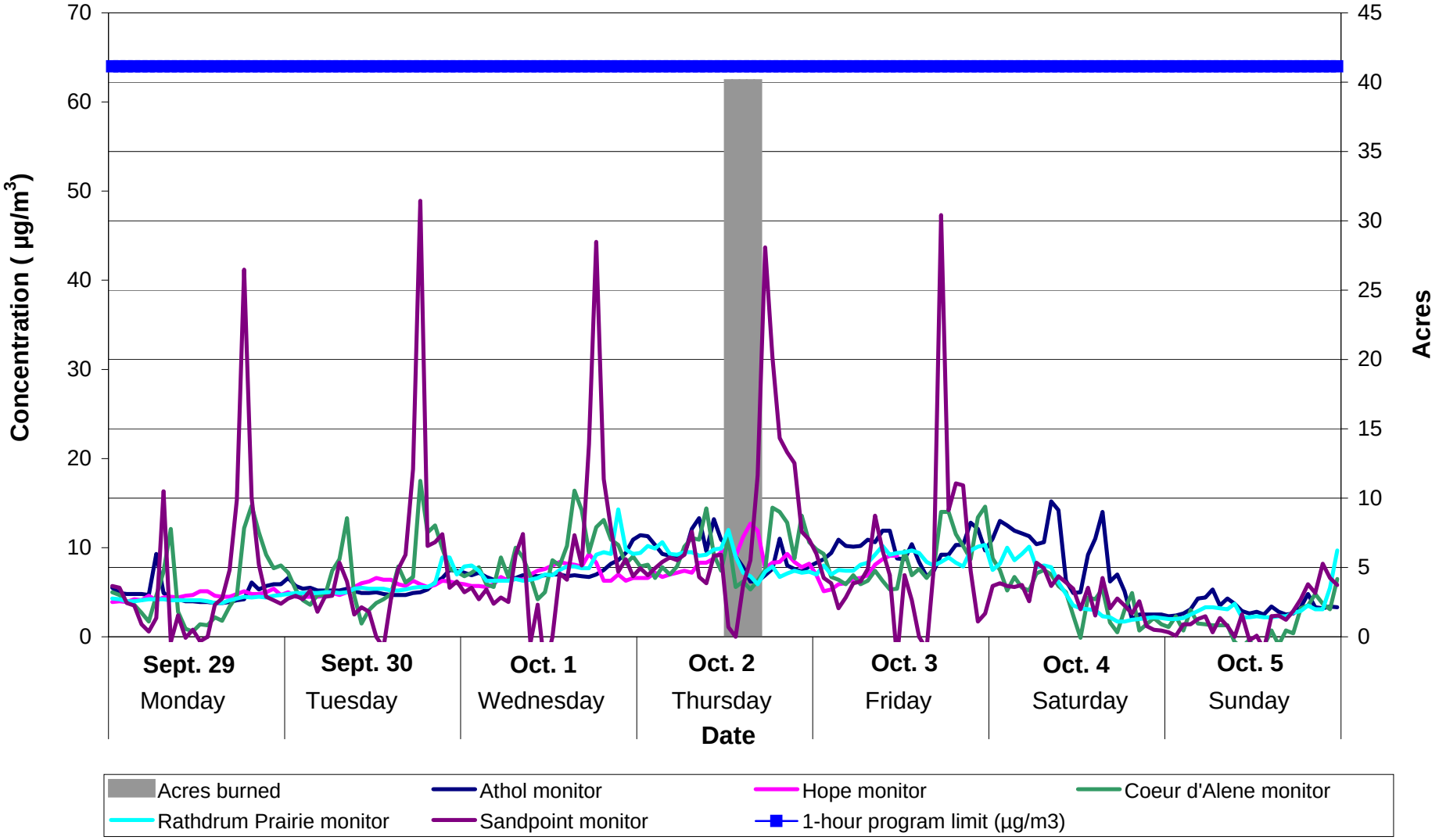
September 22 - September 28



Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

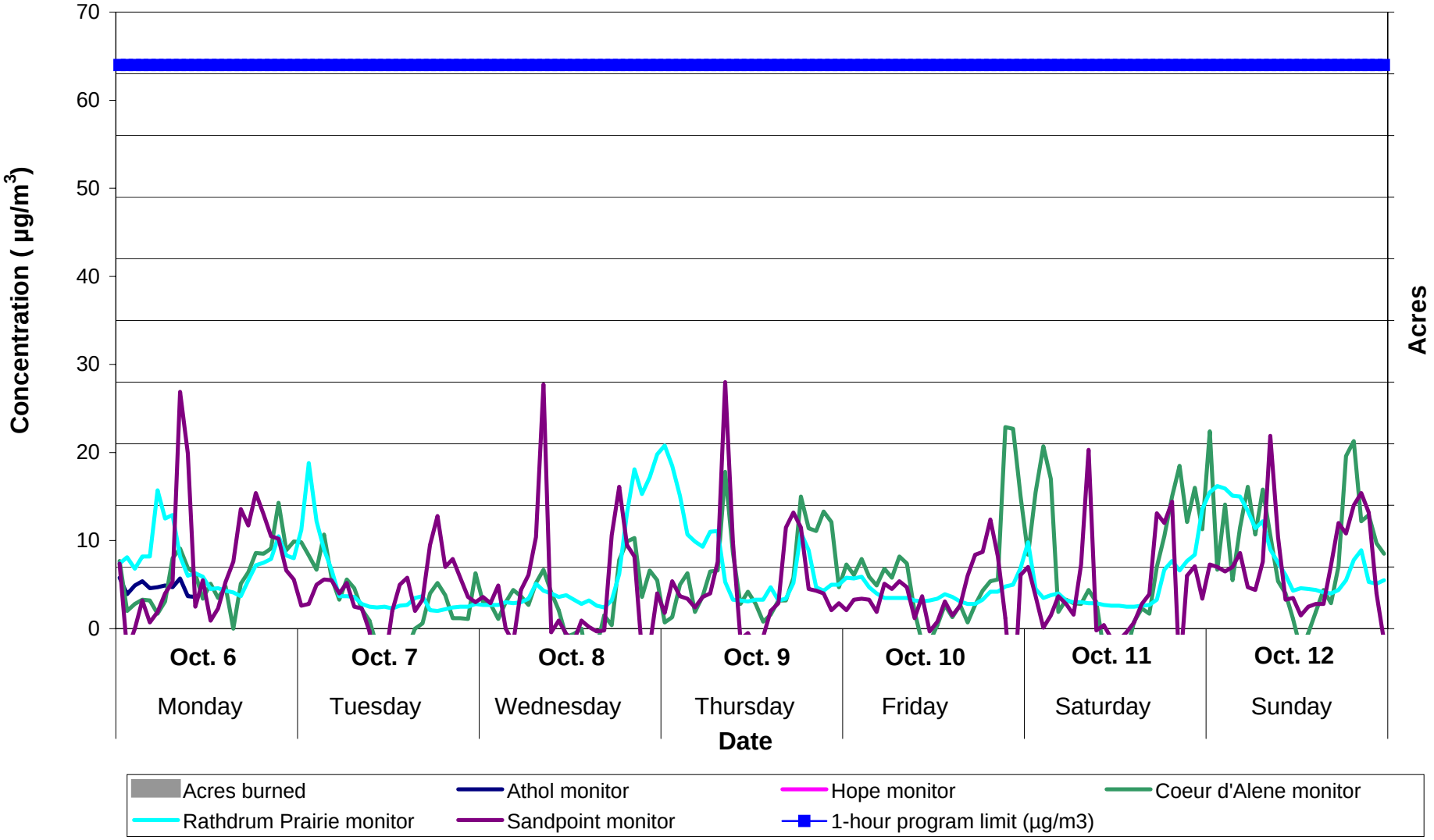
September 29 - October 5



Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

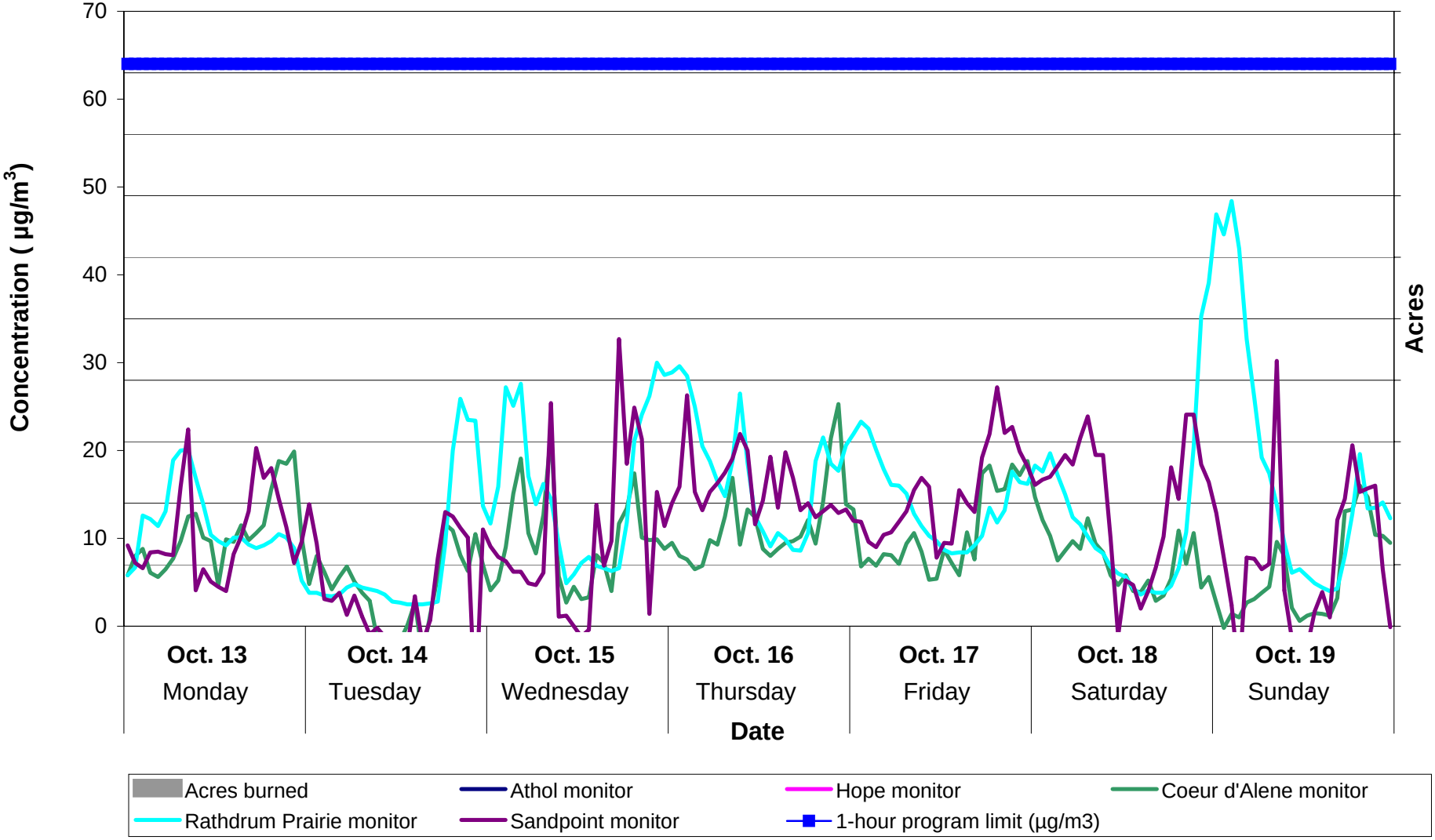
October 6 - October 12



Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

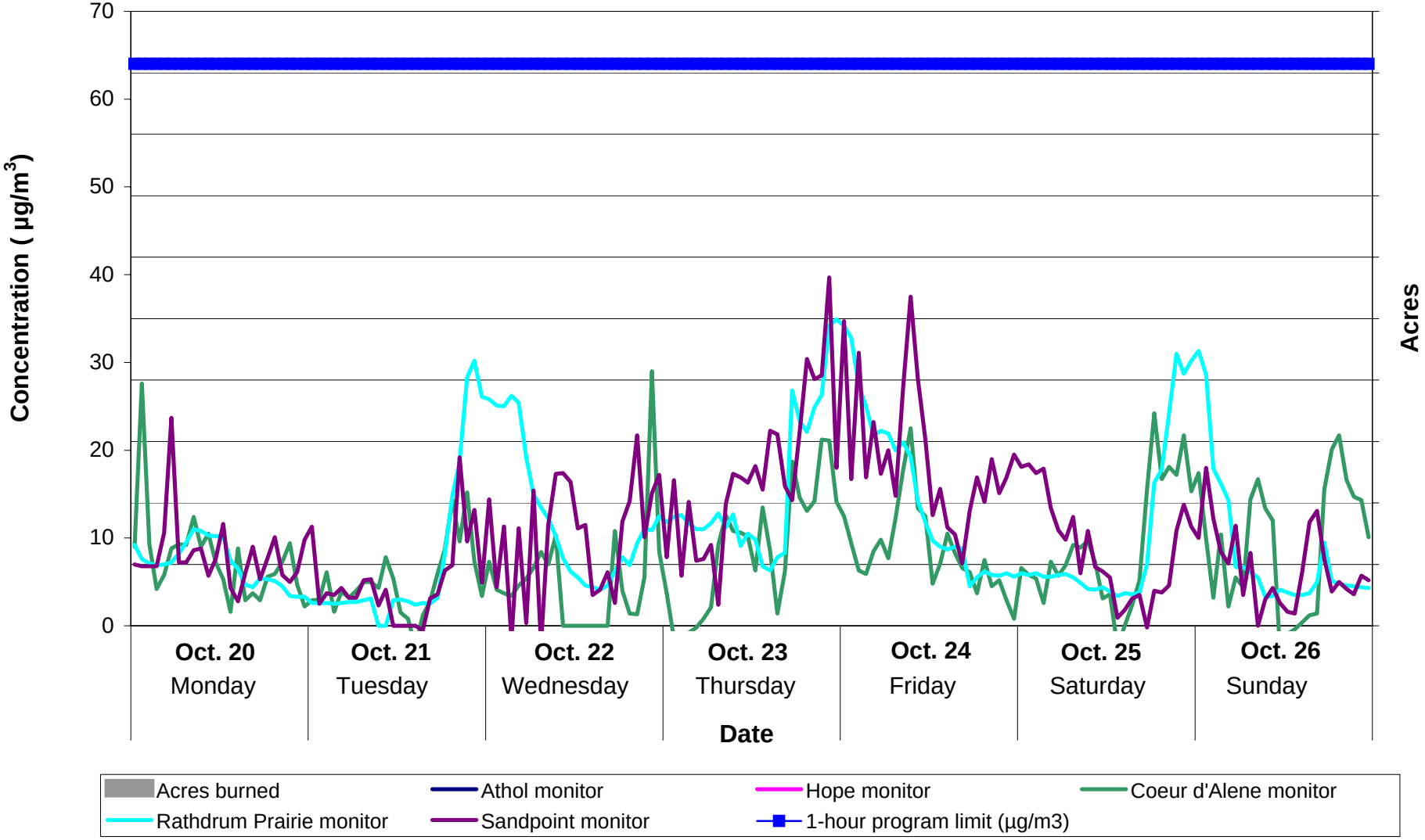
October 13 - October 19



Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

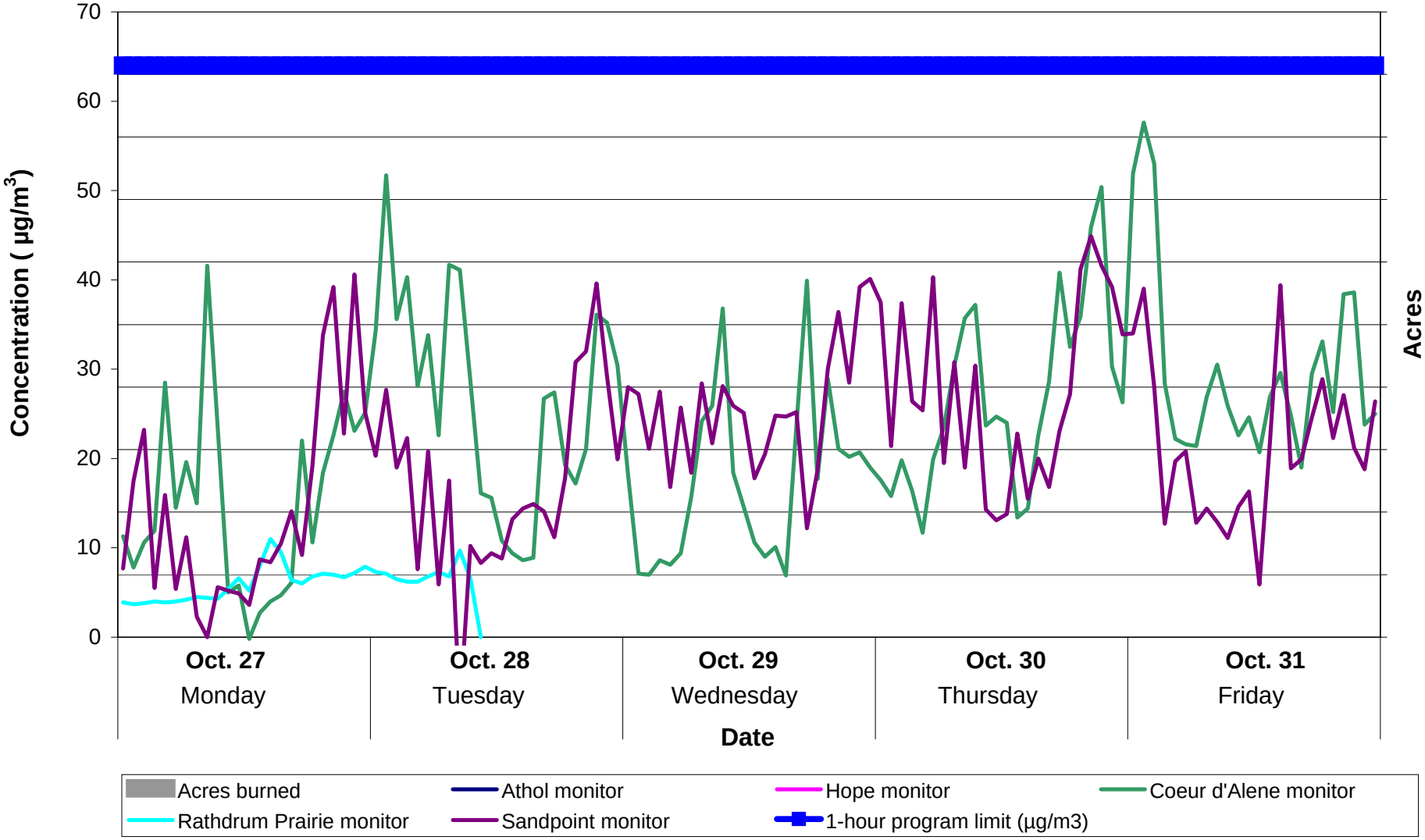
October 20 - October 26



Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

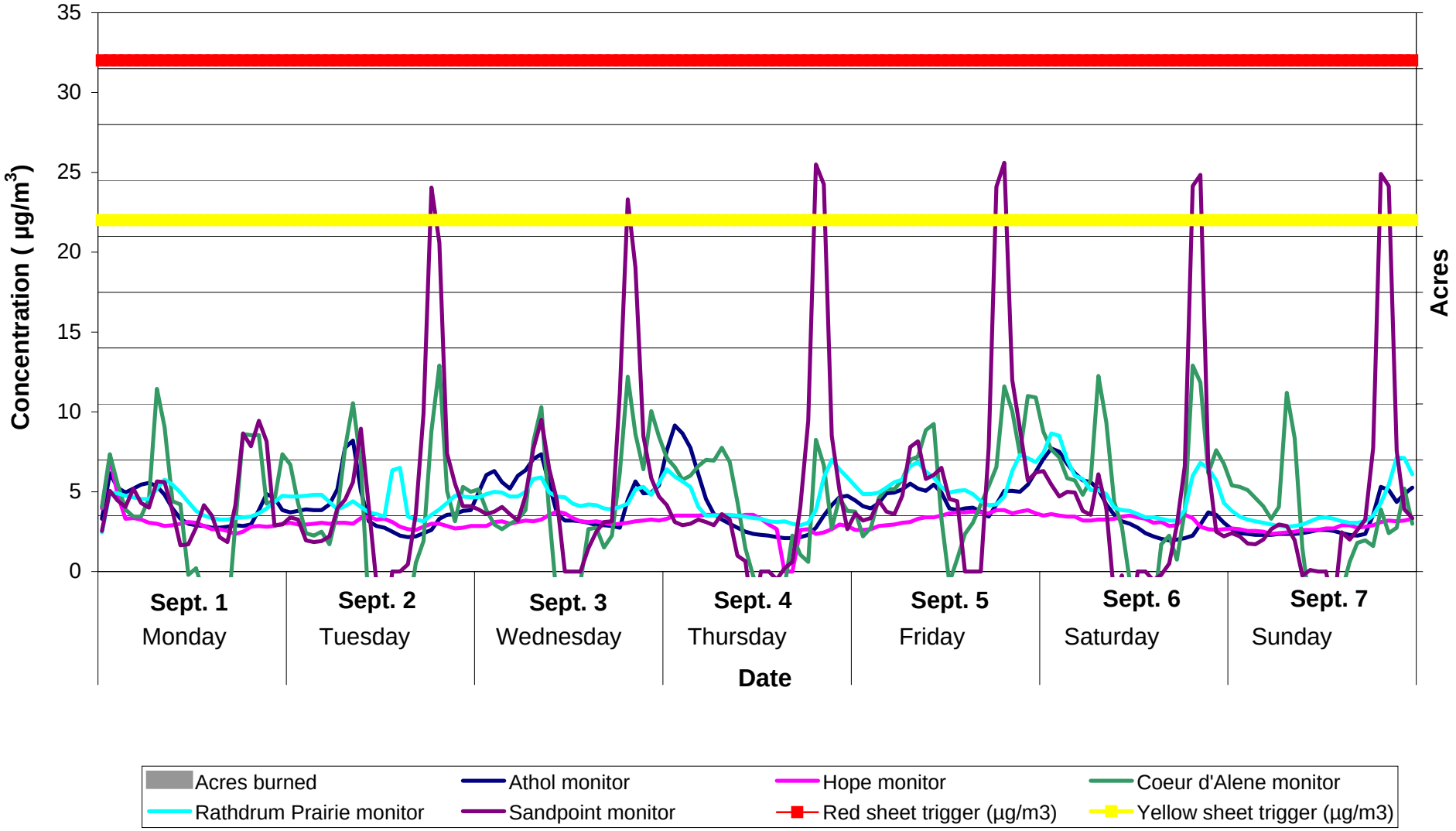
October 27 - October 31

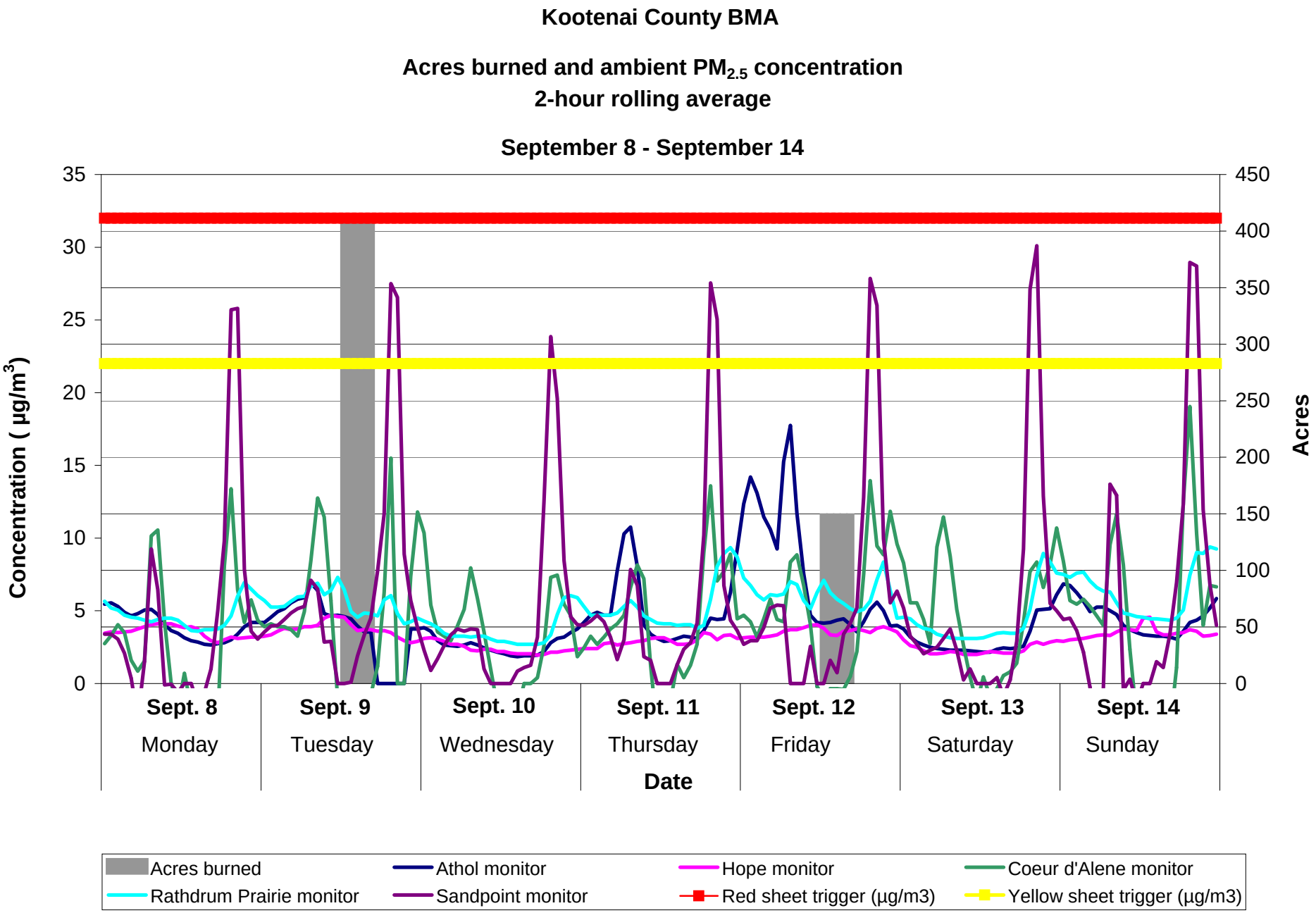


Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 1 - September 7

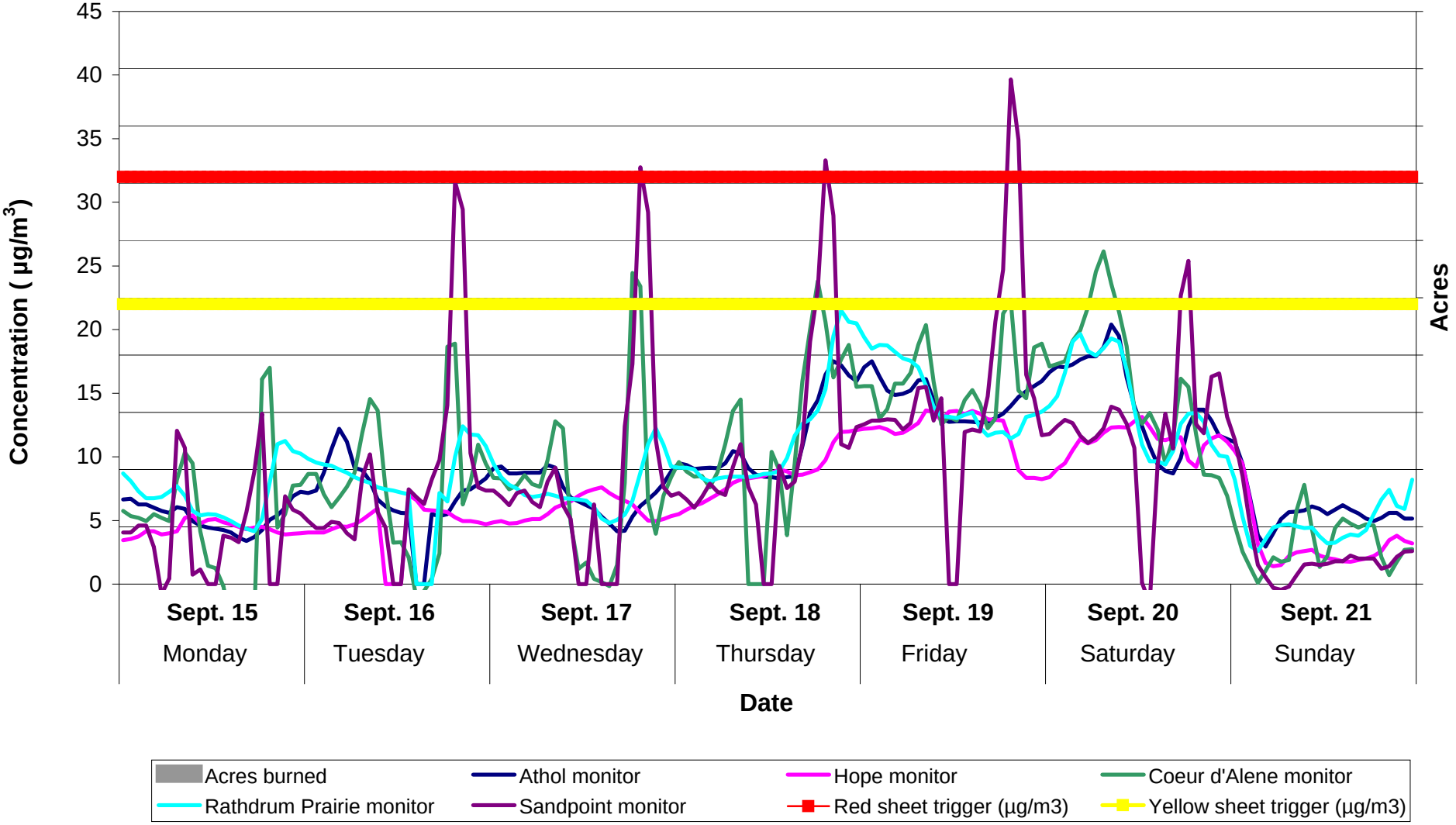



Kootenai County BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 8 - September 14
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
450
400
350
300
250
200
150
100
50
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Athol monitor
Hope monitor
Coeur d'Alene monitor
Rathdrum Prairie monitor
Sandpoint monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

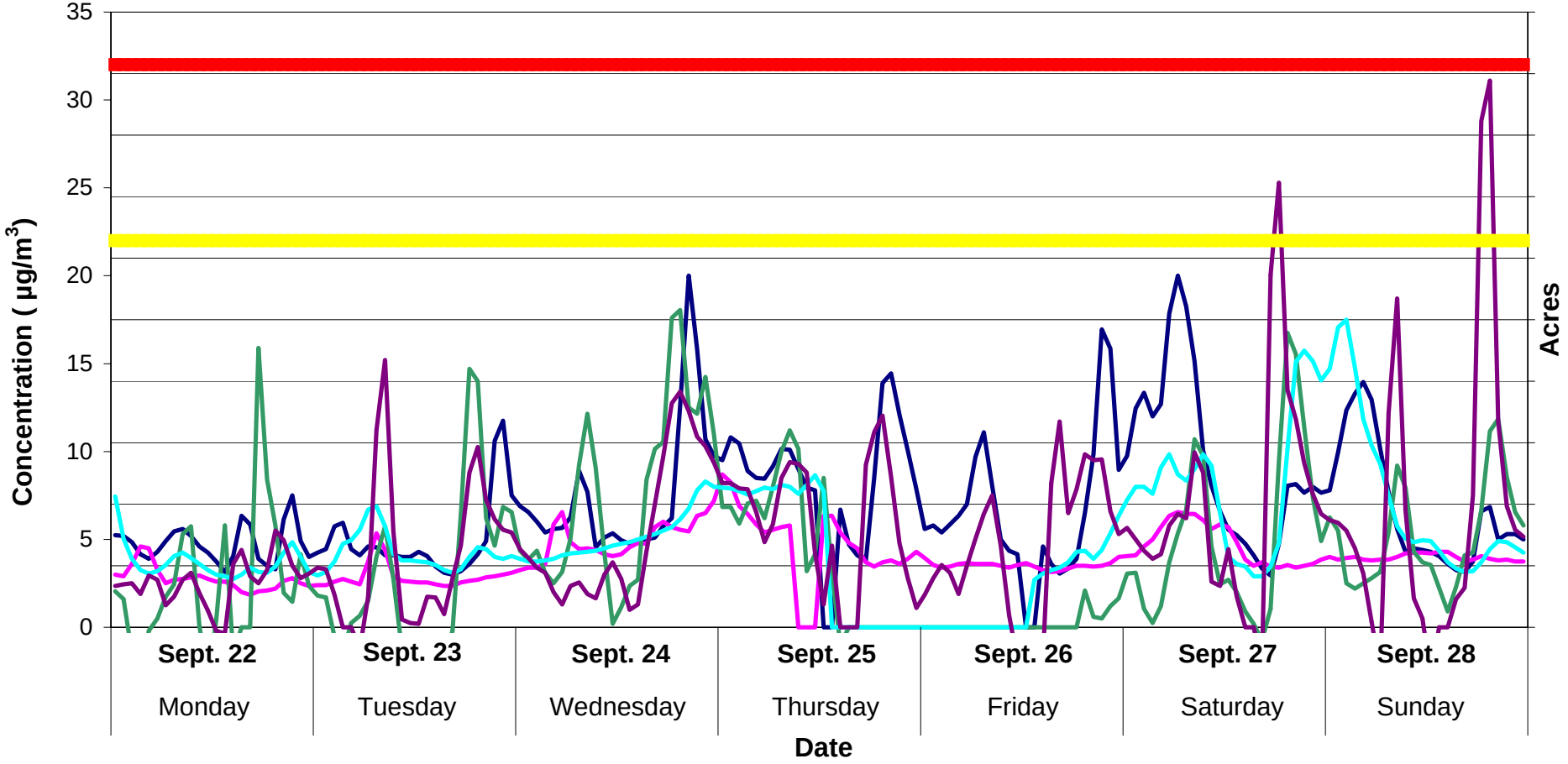
September 15 - September 21



Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 22 - September 28

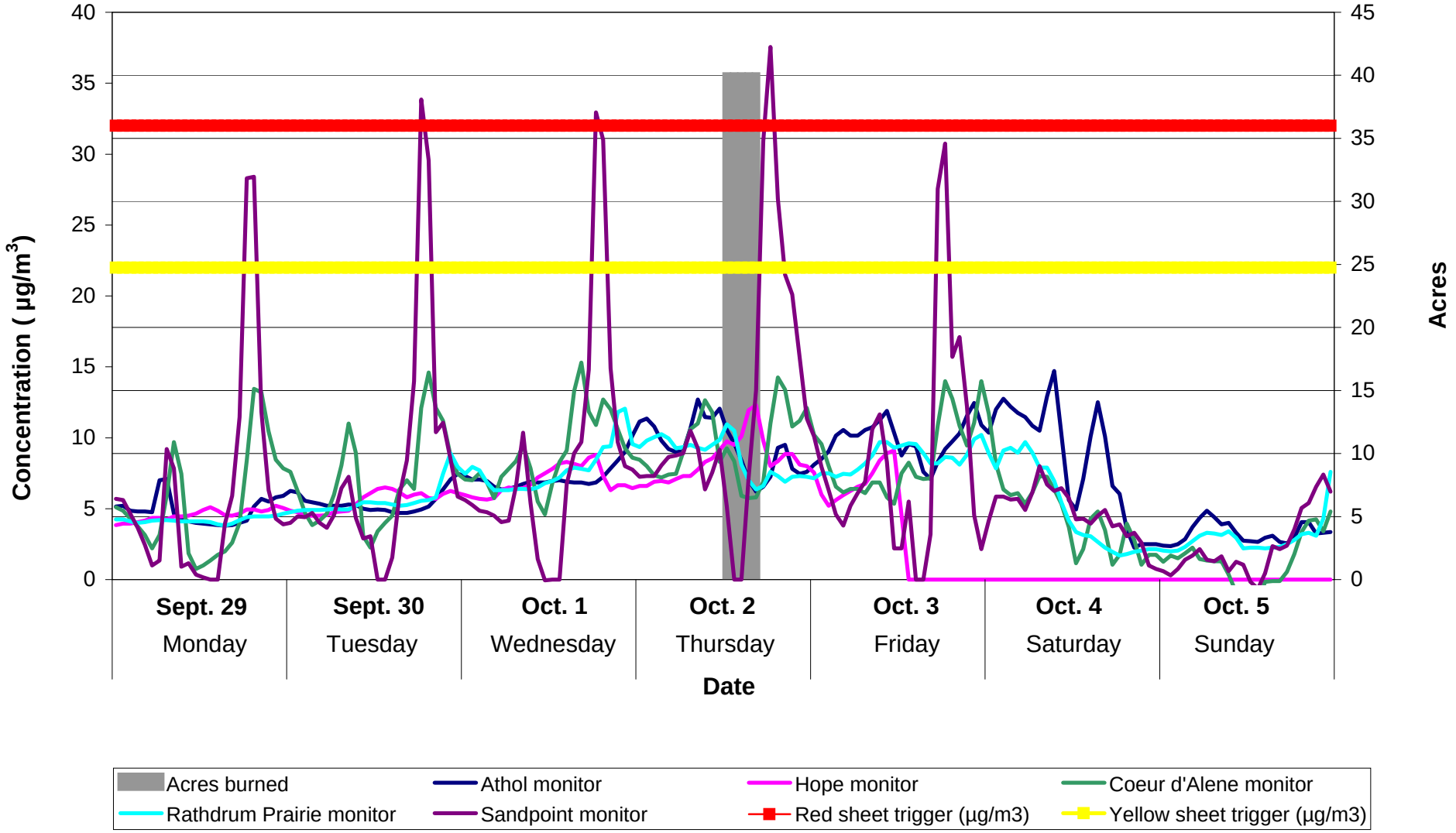


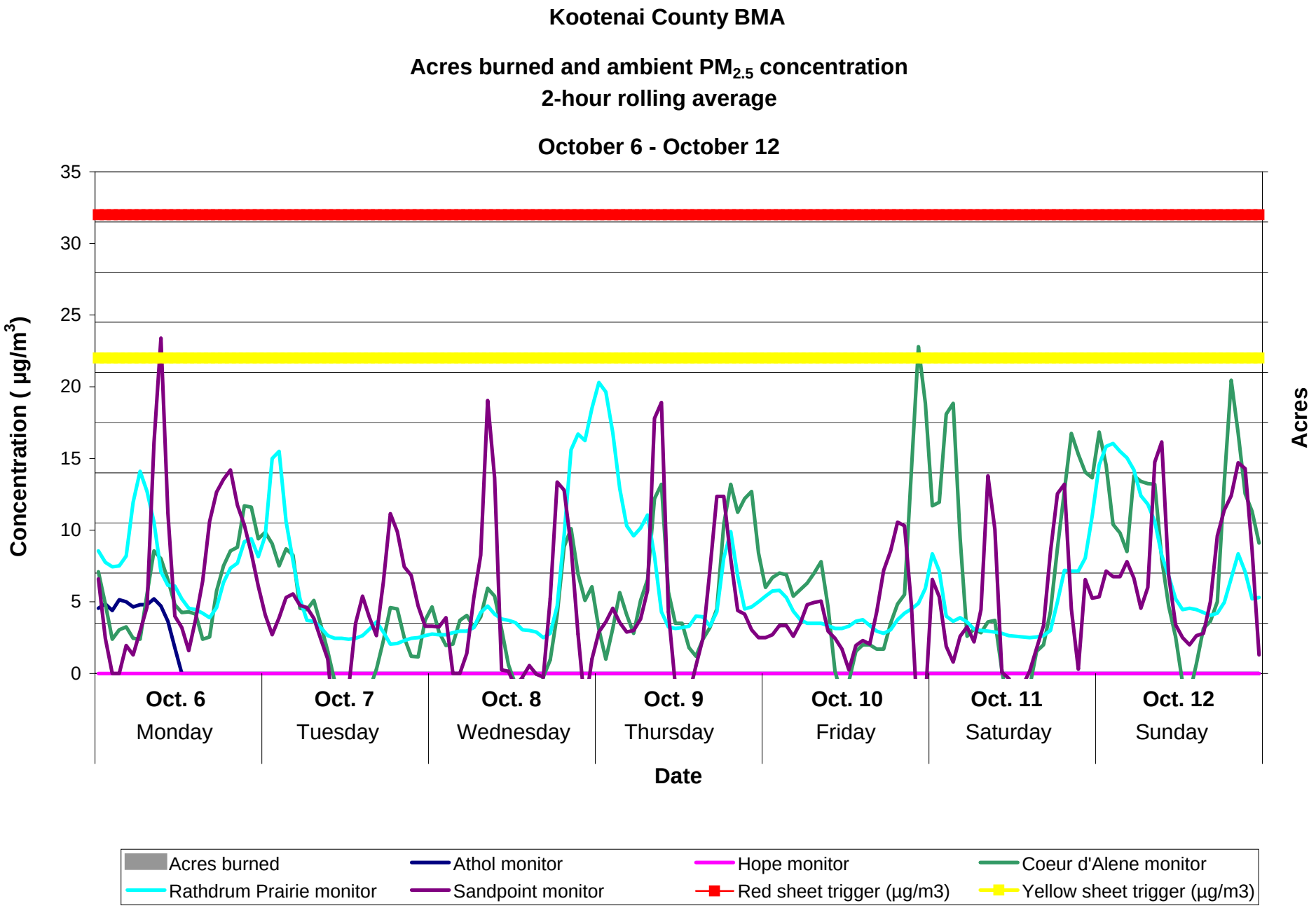
Acres burned | Athol monitor | Hope monitor | Coeur d'Alene monitor
Rathdrum Prairie monitor | Sandpoint monitor | Red sheet trigger (µg/m3) | Yellow sheet trigger (µg/m3)

Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 29 - October 5

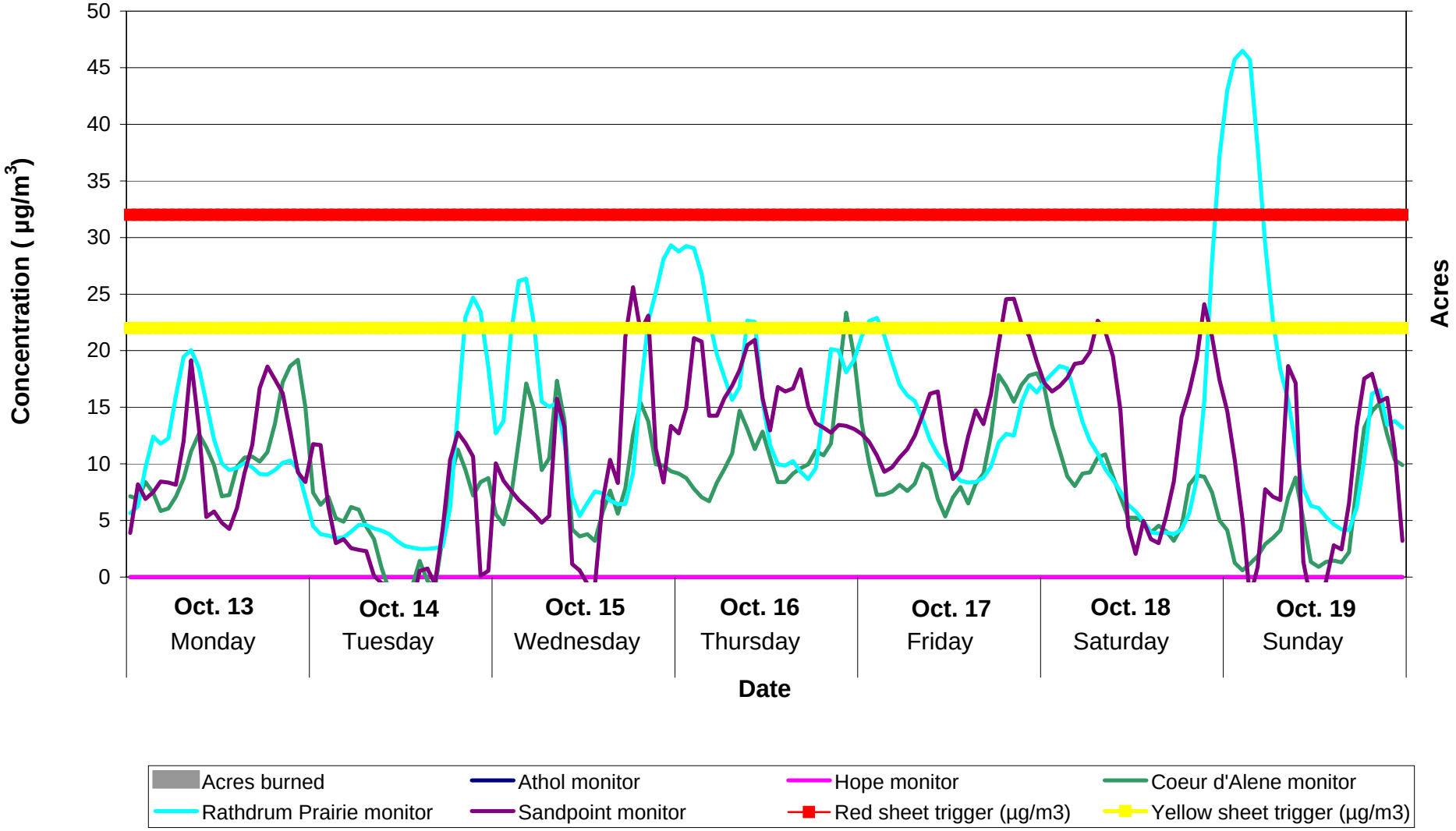



Kootenai County BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 6 - October 12
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Athol monitor
Hope monitor
Coeur d'Alene monitor
Rathdrum Prairie monitor
Sandpoint monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

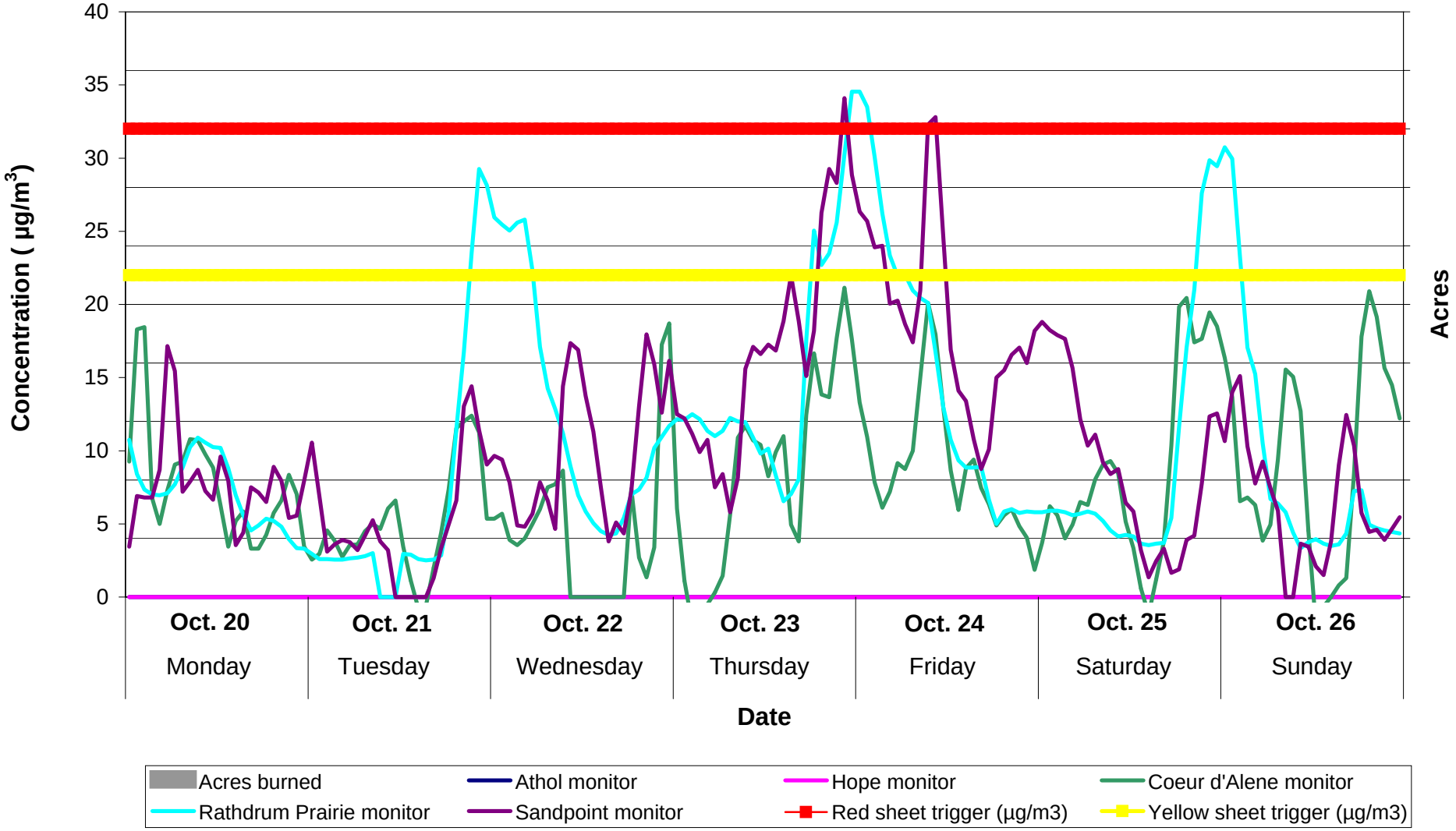
October 13 - October 19



Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

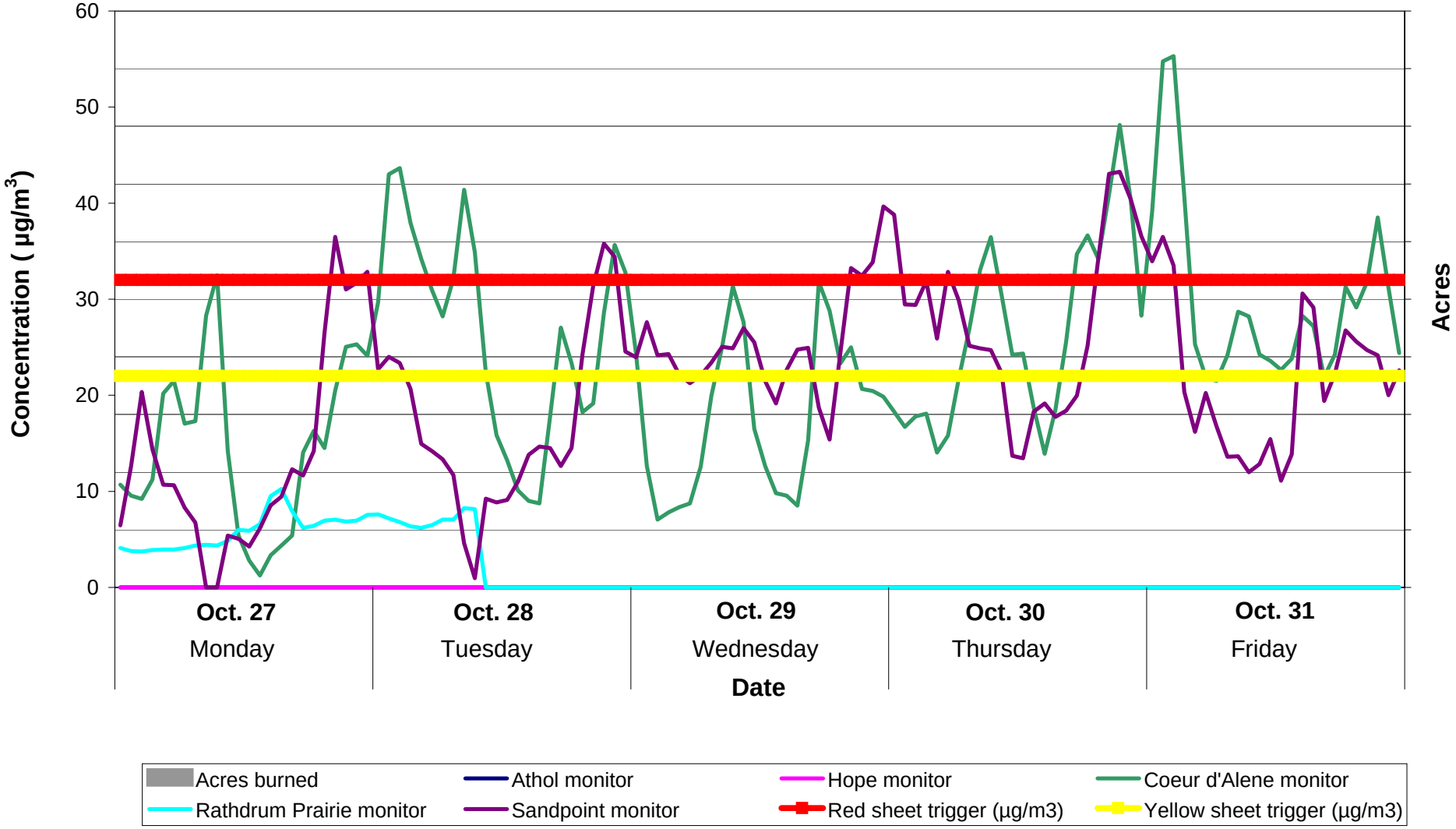
October 20 - October 26



Kootenai County BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 27 - October 31



Appendix D

Air Quality Evaluation

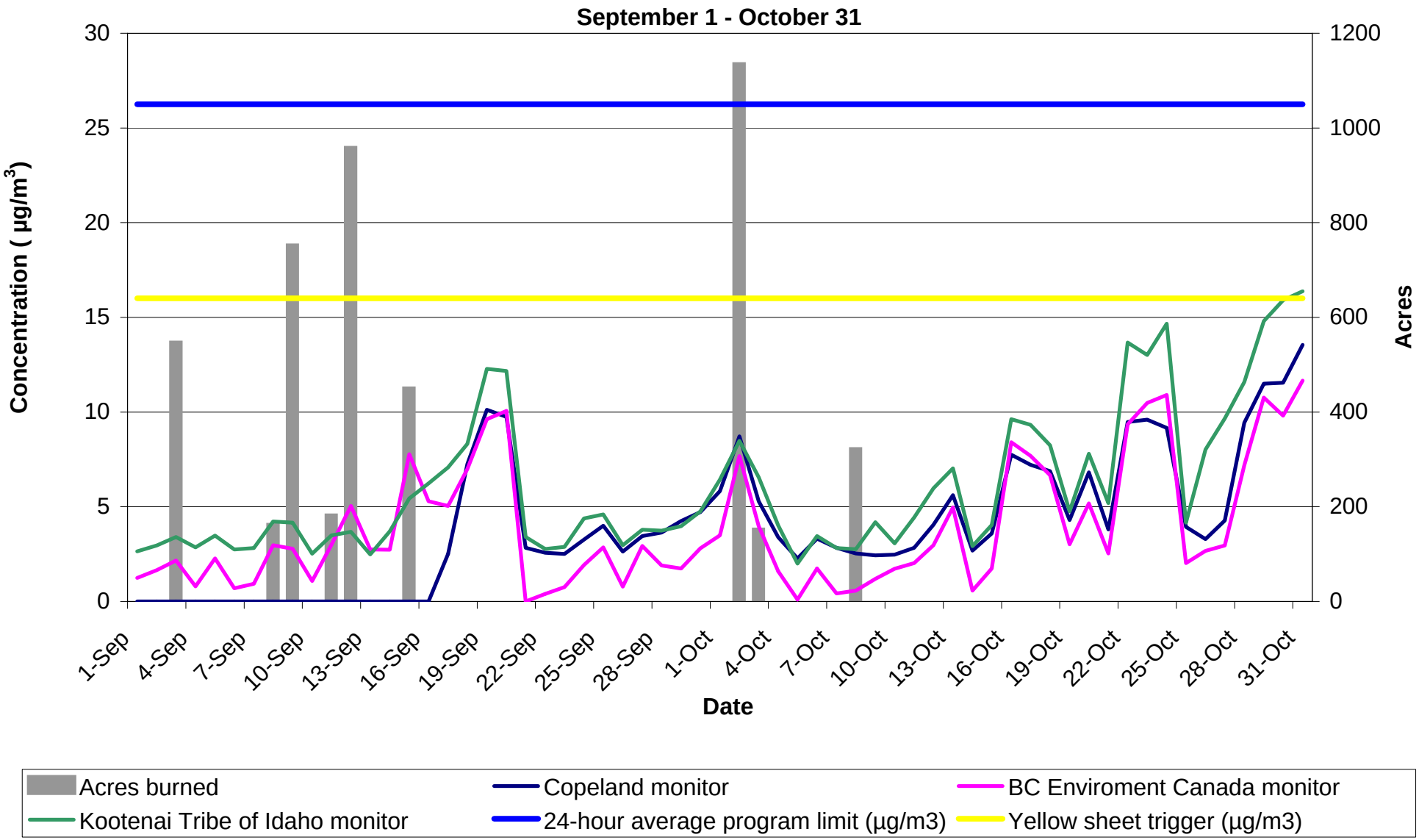
of the

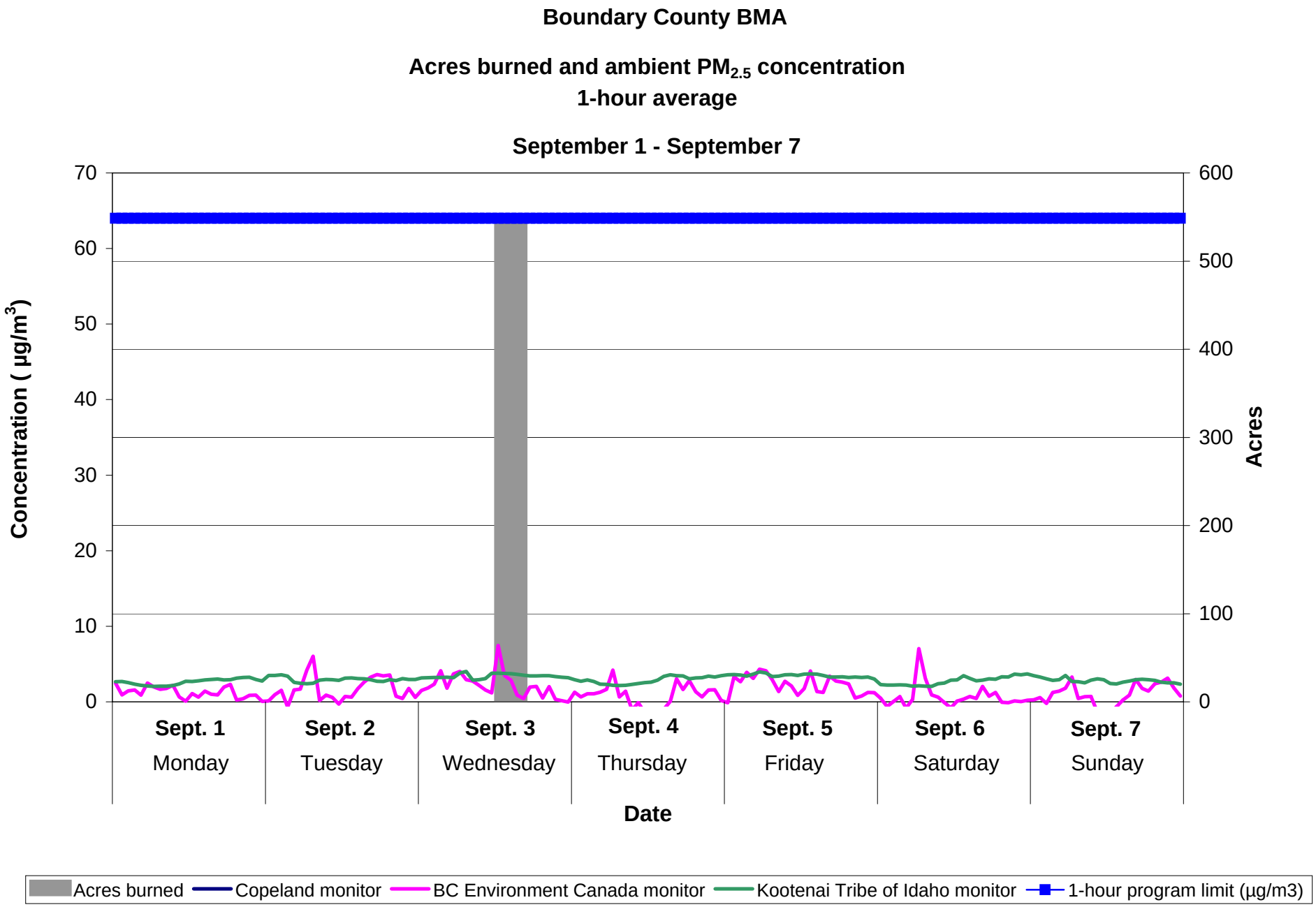
Boundary County BMA

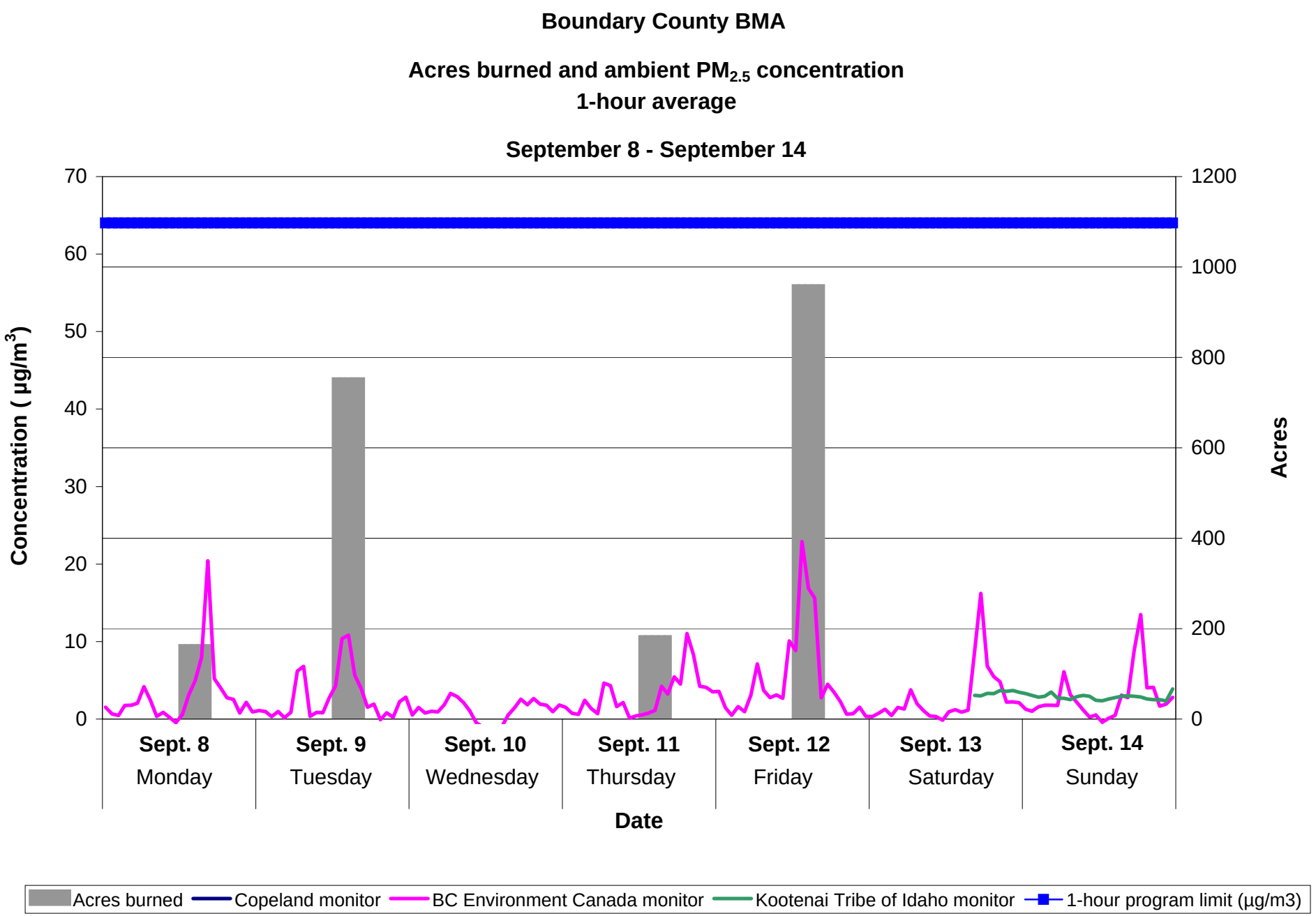
Burn Decisions and Acres Burned - Boundary County BMA			
Day of Week	**Date**	**# acres approved**	**# acres burned**
T	9/2/2008		
W	9/3/2008	545	545
Th	9/4/2008		
F	9/5/2008		
Sa	9/6/2008		
Su	9/7/2008		
M	9/8/2008	160	160
T	9/9/2008	750	750
W	9/10/2008		
Th	9/11/2008	180	180
F	9/12/2008	956	956
Sa	9/13/2008		
Su	9/14/2008		
M	9/15/2008	448	448
T	9/16/2008		
W	9/17/2008		
Th	9/18/2008		
F	9/19/2008		
Sa	9/20/2008		
Su	9/21/2008		
M	9/22/2008		
T	9/23/2008		
W	9/24/2008		
Th	9/25/2008		
F	9/26/2008		
Sa	9/27/2008		
Su	9/28/2008		
M	9/29/2008		
T	9/30/2008		
W	10/1/2008		
Th	10/2/2008	1133	1133
F	10/3/2008	150	150
Sa	10/4/2008		
Su	10/5/2008		
M	10/6/2008		
T	10/7/2008		
W	10/8/2008	650	320
Th	10/9/2008		
F	10/10/2008		
Sa	10/11/2008		
Su	10/12/2008		
M	10/13/2008		
T	10/14/2008		
W	10/15/2008		
Th	10/16/2008		
F	10/17/2008		
Sa	10/18/2008		
Su	10/19/2008		
M	10/20/2008		
T	10/21/2008		
W	10/22/2008		
Th	10/23/2008		
F	10/24/2008		
Sa	10/25/2008		
Su	10/26/2008		
M	10/27/2008		
T	10/28/2008		
W	10/29/2008		
Th	10/30/2008		
F	10/31/2008		
	TOTAL	**4972**	**4642**

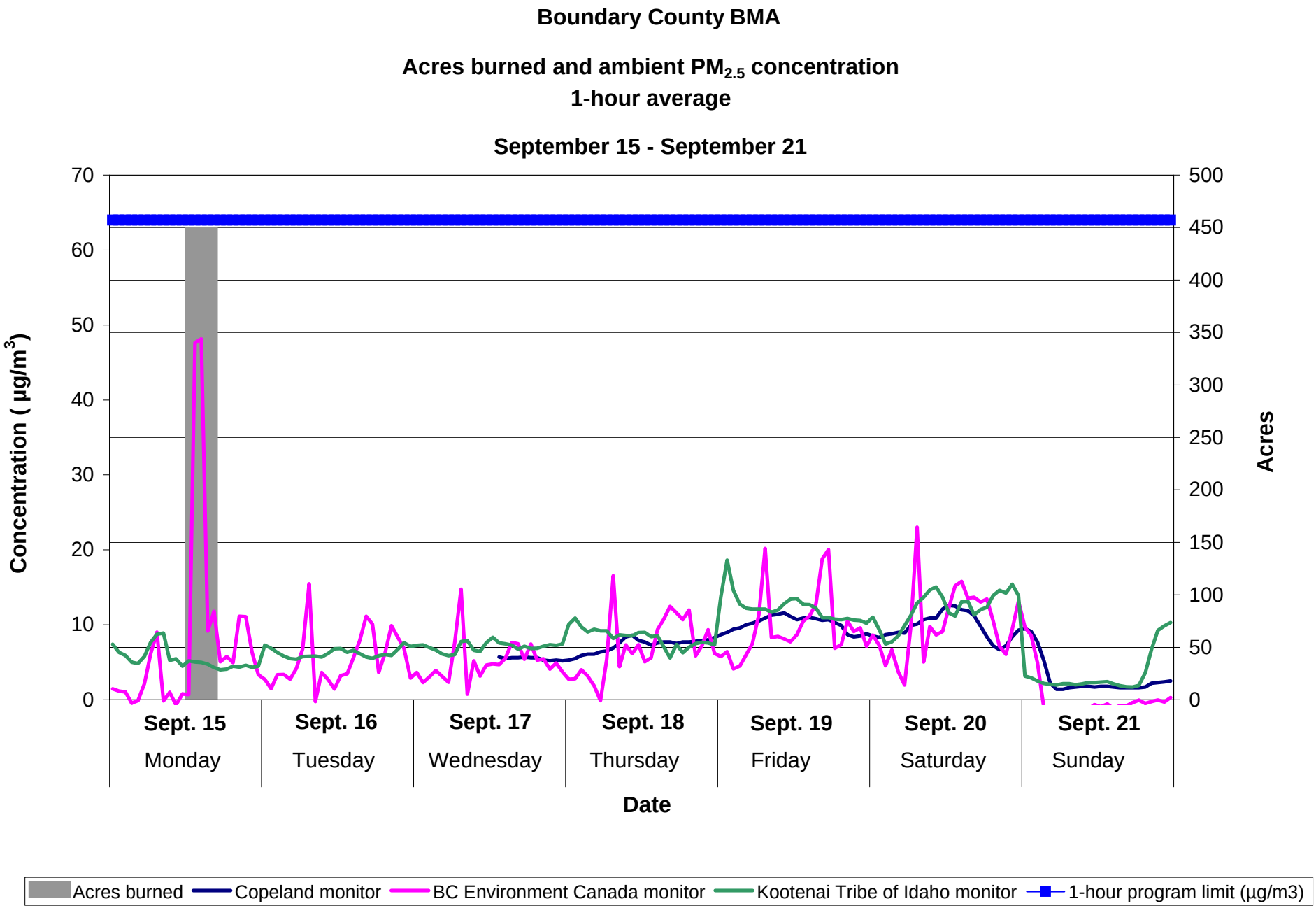
Boundary County BMA

Acres burned and ambient $PM_{2.5}$ concentration
24-hour average




Boundary County BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 1 - September 7
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
600
500
400
300
200
100
0
Sept. 1
Monday
Sept. 2
Tuesday
Sept. 3
Wednesday
Sept. 4
Thursday
Sept. 5
Friday
Sept. 6
Saturday
Sept. 7
Sunday
Date
Acres burned
Copeland monitor
BC Environment Canada monitor
Kootenai Tribe of Idaho monitor
1-hour program limit (µg/m3)

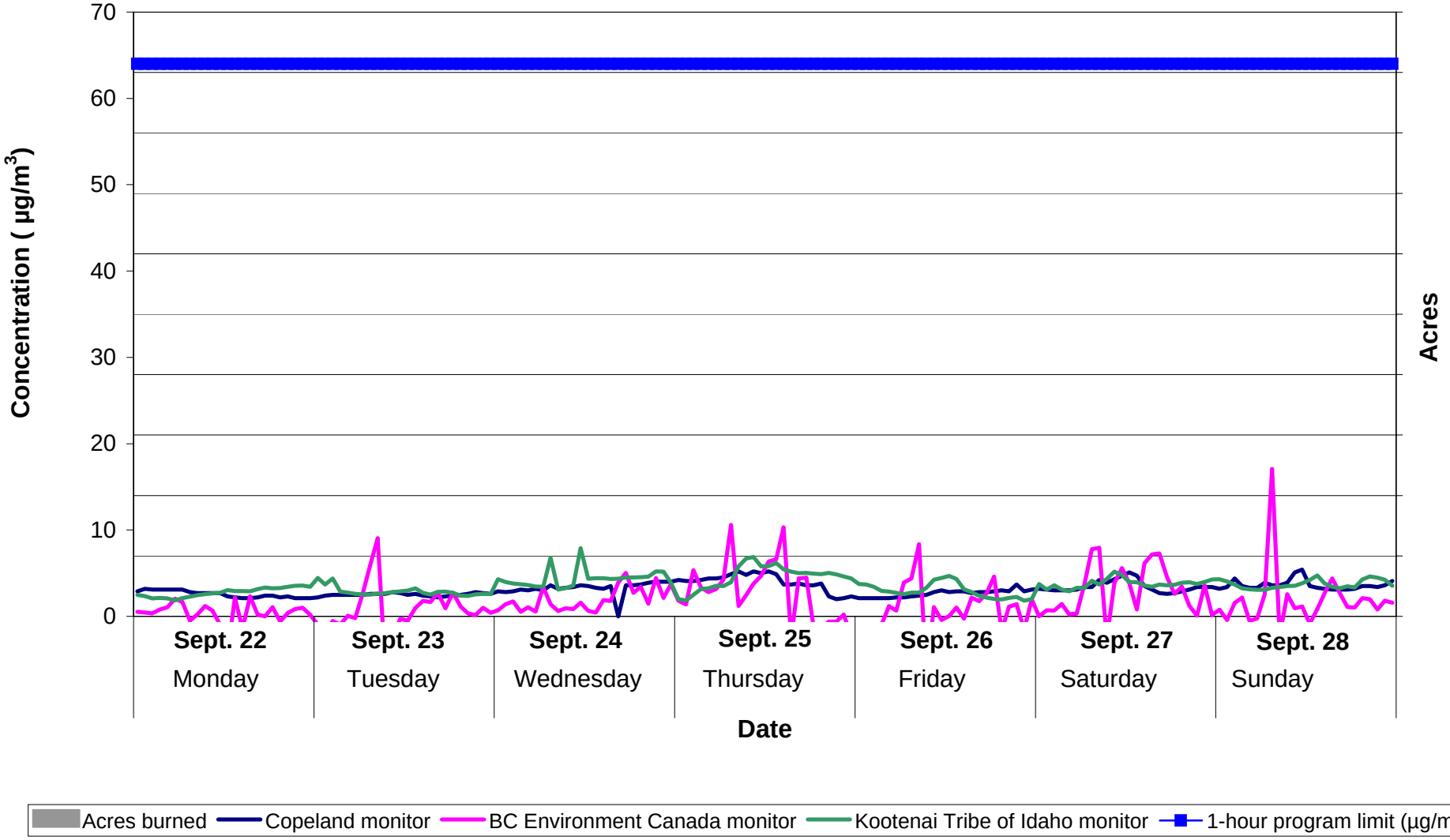

Boundary County BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 8 - September 14
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
1200
1000
800
600
400
200
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Copeland monitor
BC Environment Canada monitor
Kootenai Tribe of Idaho monitor
1-hour program limit (µg/m3)

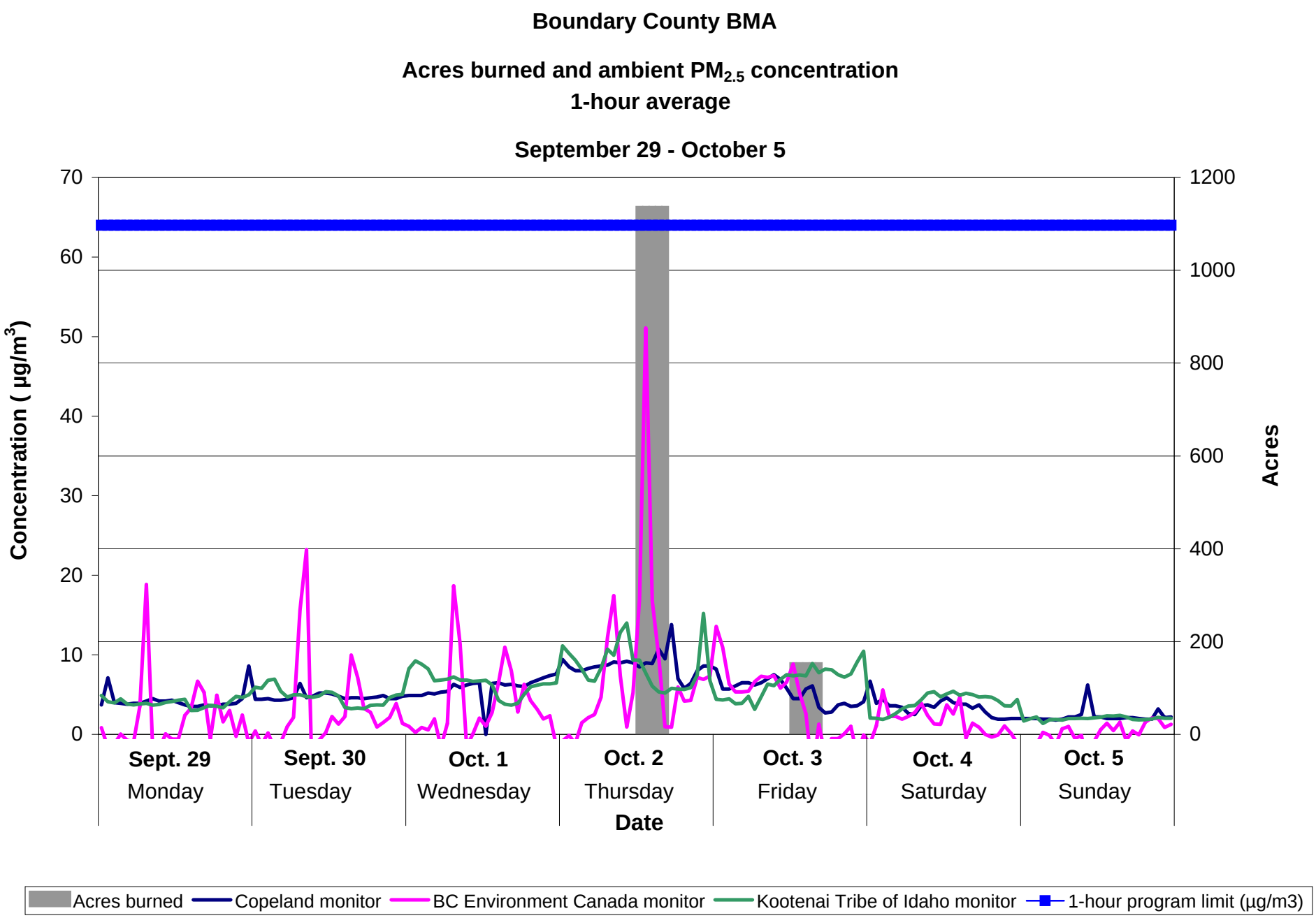

Boundary County BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 15 - September 21
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
500
450
400
350
300
250
200
150
100
50
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Copeland monitor
BC Environment Canada monitor
Kootenai Tribe of Idaho monitor
1-hour program limit (µg/m3)

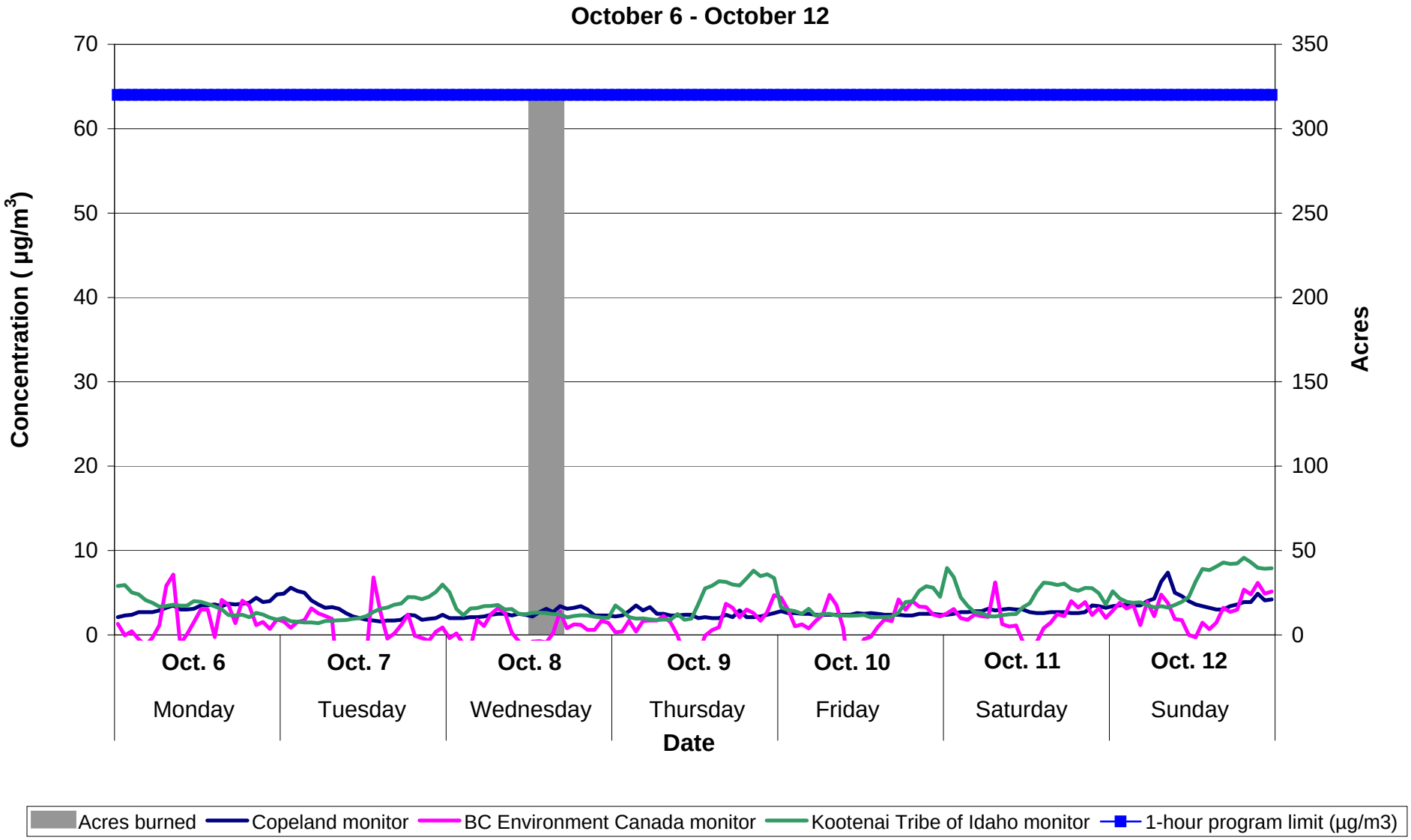
Boundary County BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

September 22 - September 28



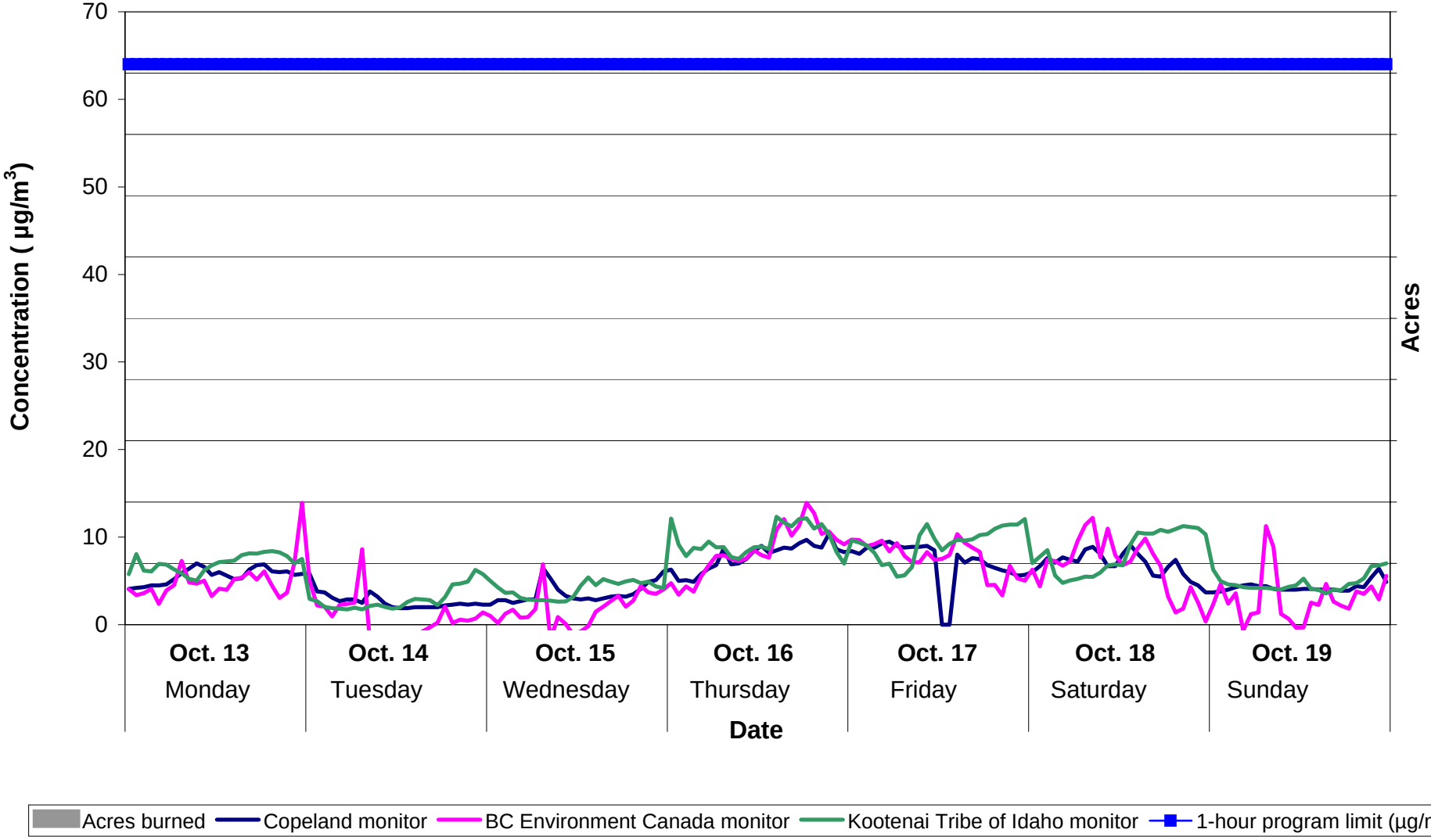

Boundary County BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 29 - October 5
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
1200
1000
800
600
400
200
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Copeland monitor
BC Environment Canada monitor
Kootenai Tribe of Idaho monitor
1-hour program limit (µg/m3)

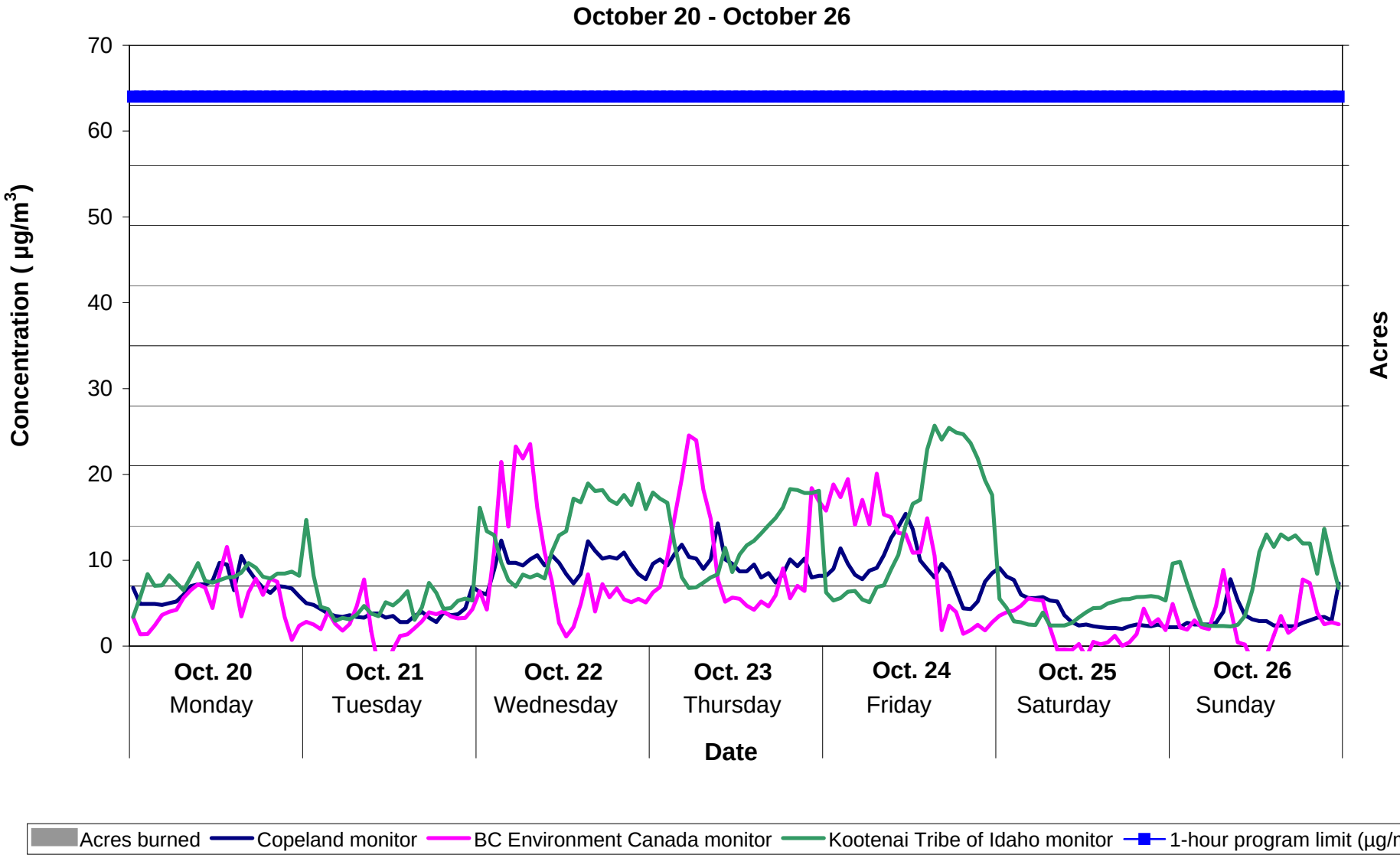

Boundary County BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 6 - October 12
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
350
300
250
200
150
100
50
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Copeland monitor
BC Environment Canada monitor
Kootenai Tribe of Idaho monitor
1-hour program limit (µg/m3)

Boundary County BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

October 13 - October 19

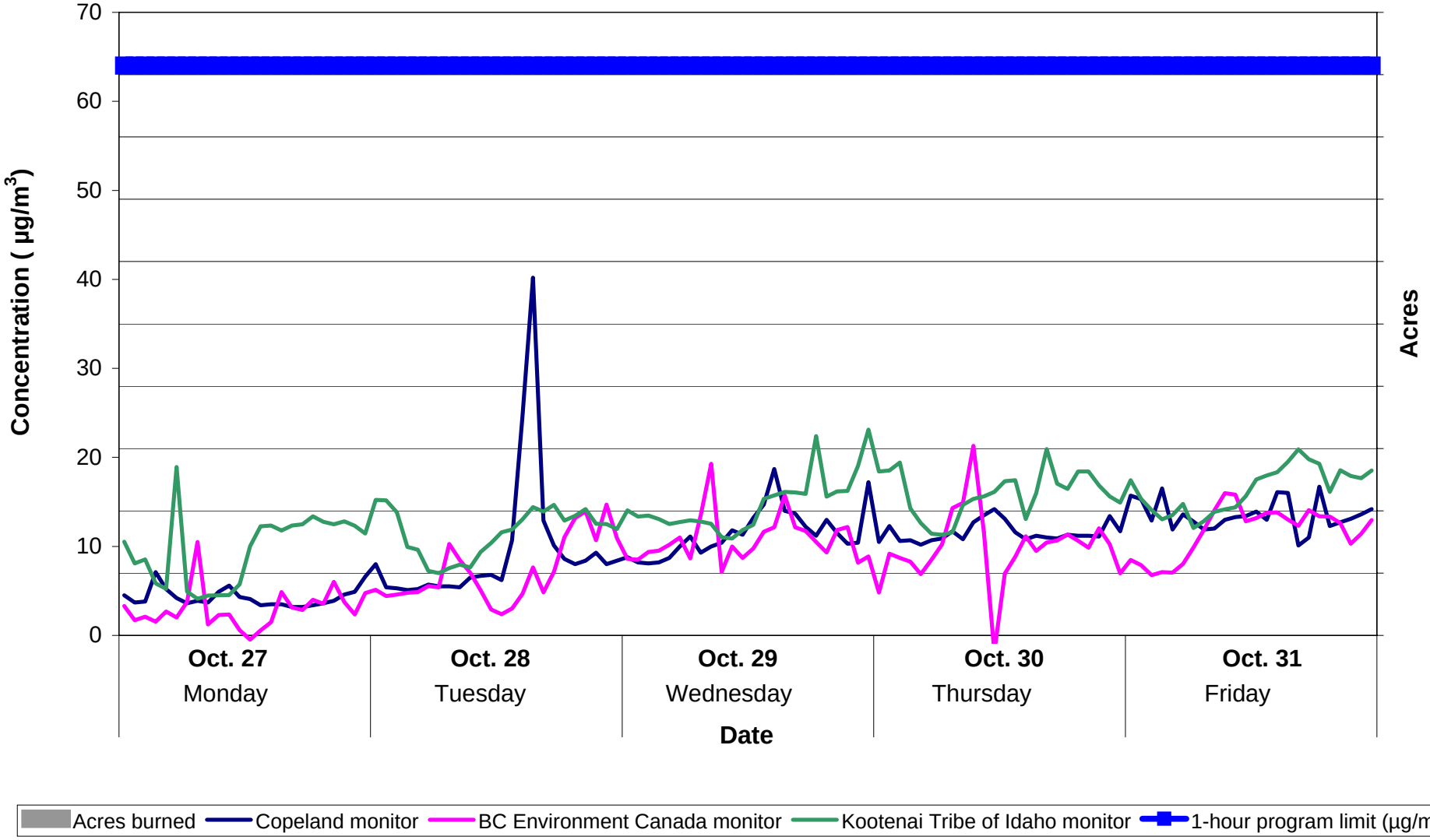


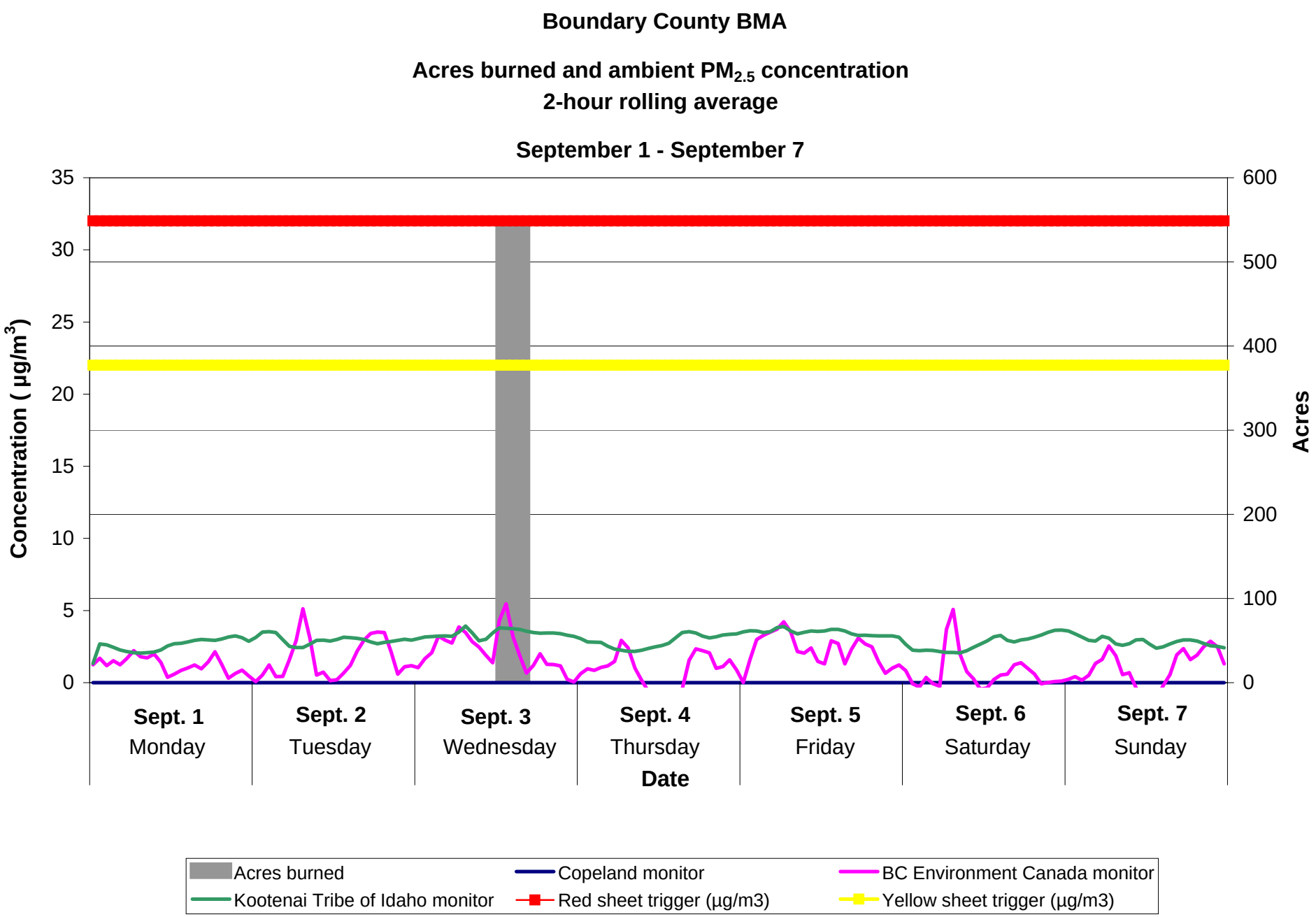

Boundary County BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 20 - October 26
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Copeland monitor
BC Environment Canada monitor
Kootenai Tribe of Idaho monitor
1-hour program limit (µg/m3)

Boundary County BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

October 27 - October 31

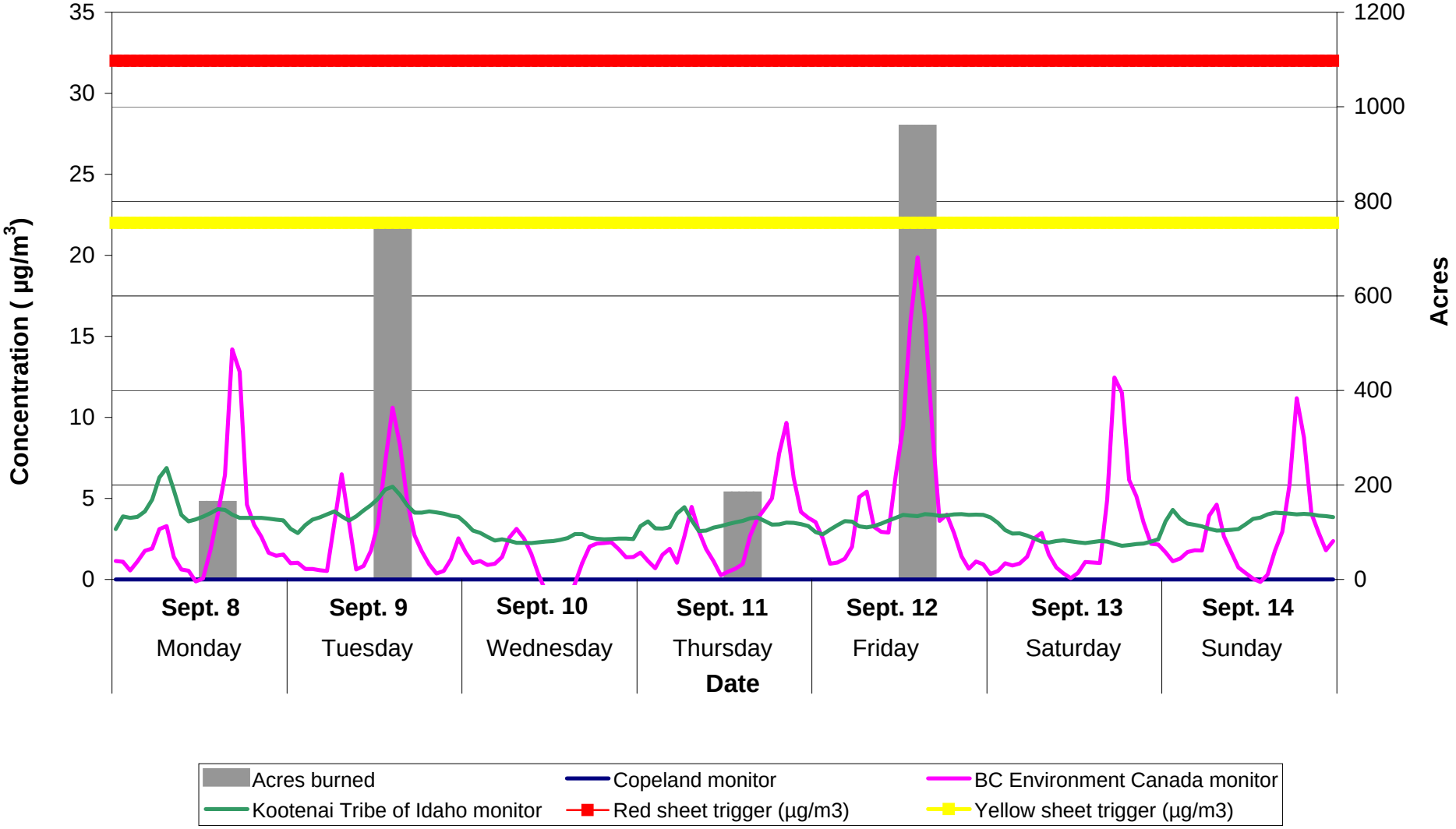


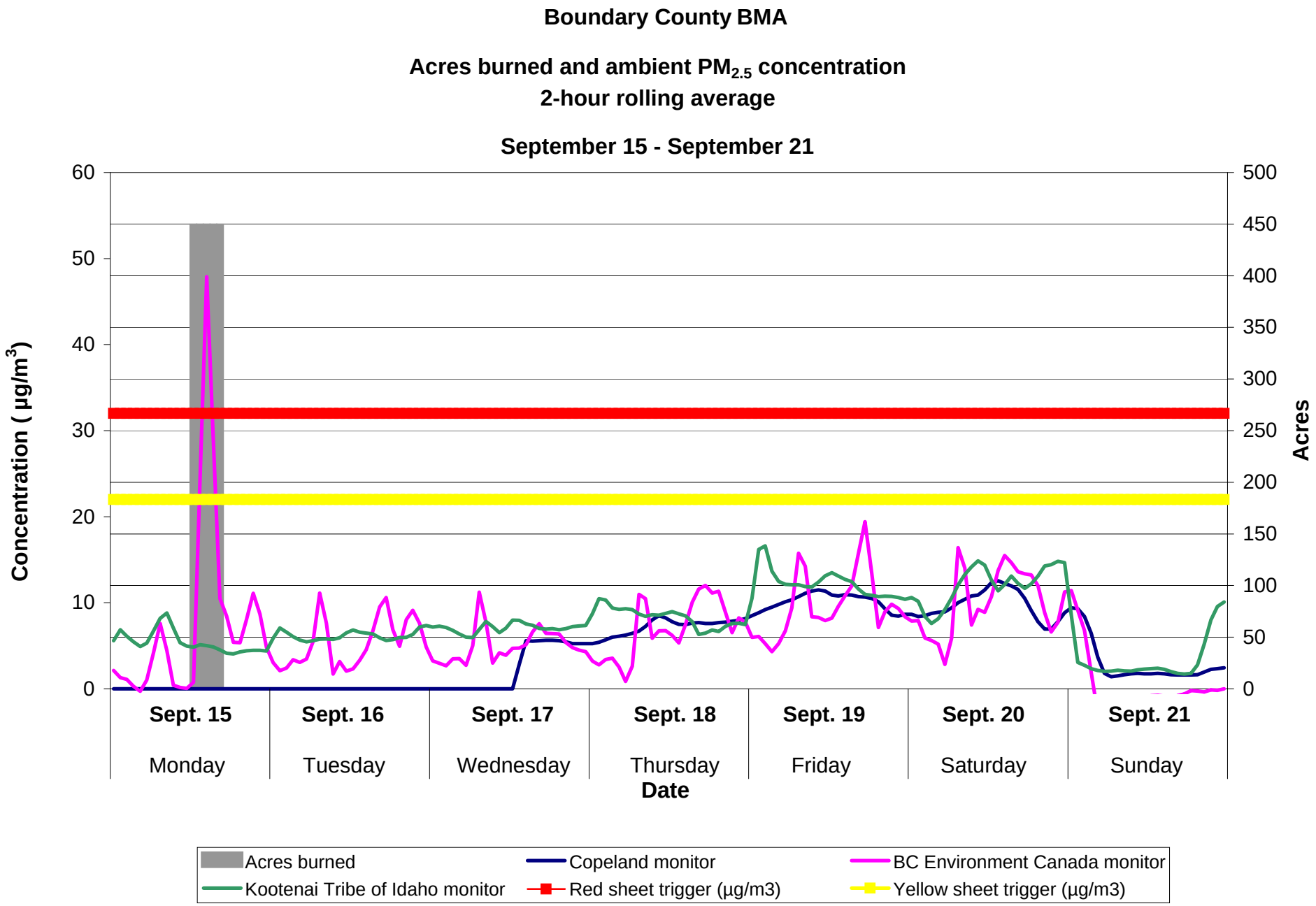

Boundary County BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 1 - September 7
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
600
500
400
300
200
100
0
Sept. 1
Monday
Sept. 2
Tuesday
Sept. 3
Wednesday
Sept. 4
Thursday
Sept. 5
Friday
Sept. 6
Saturday
Sept. 7
Sunday
Date
Acres burned
Copeland monitor
BC Environment Canada monitor
Kootenai Tribe of Idaho monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Boundary County BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 8 - September 14

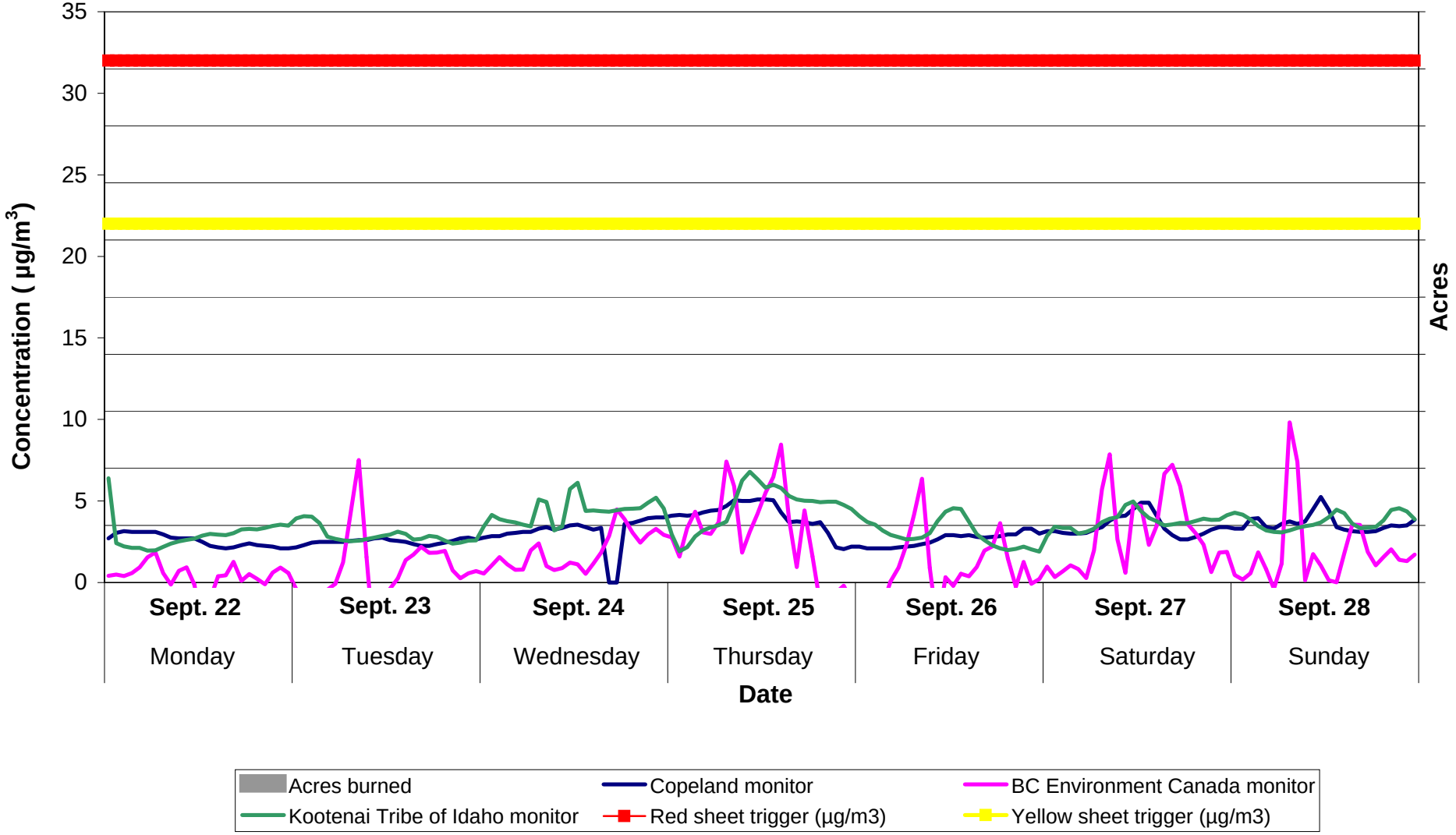


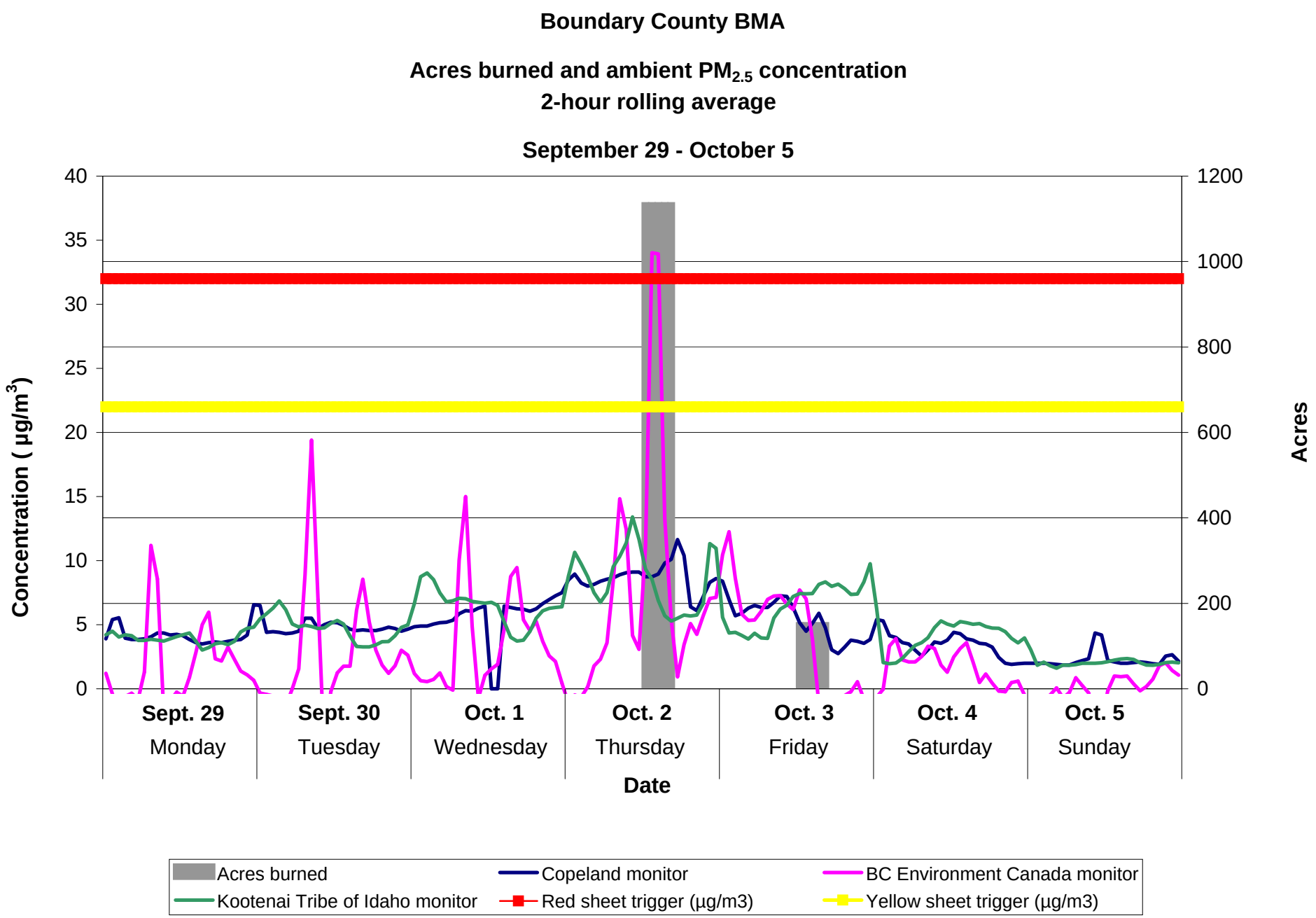

Boundary County BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 15 - September 21
Concentration (µg/m3)
Acres
60
50
40
30
20
10
0
500
450
400
350
300
250
200
150
100
50
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Copeland monitor
BC Environment Canada monitor
Kootenai Tribe of Idaho monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

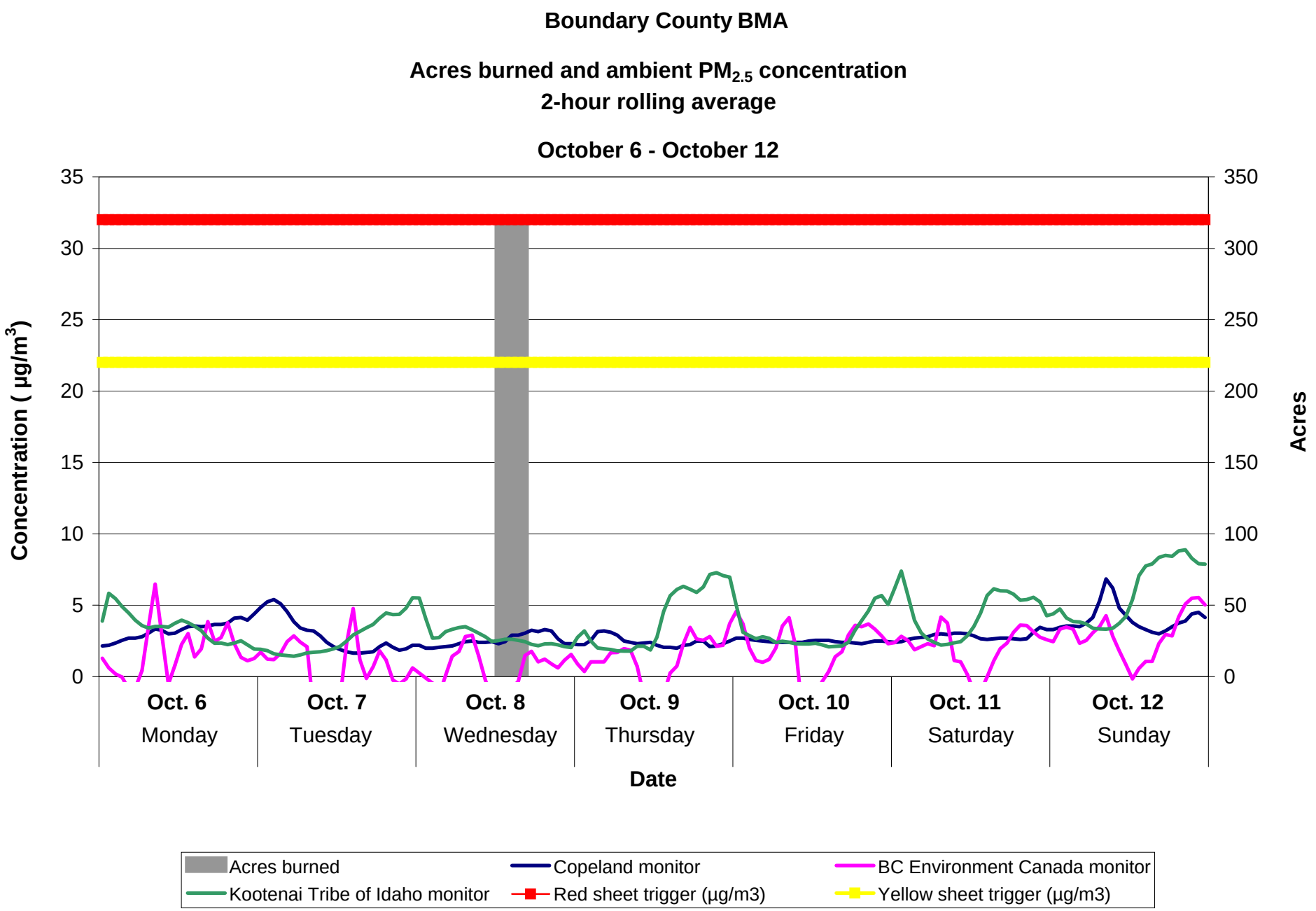
Boundary County BMA

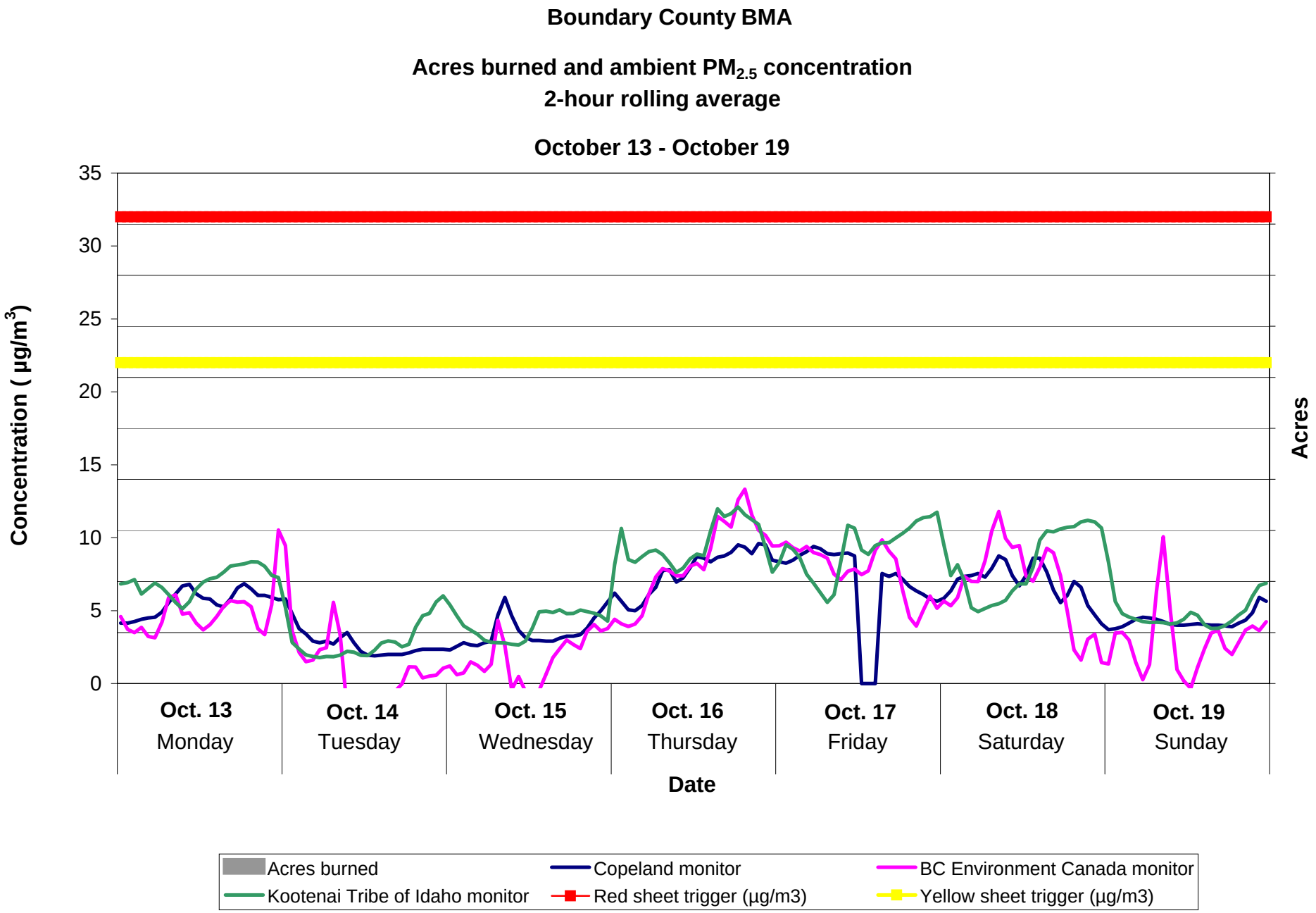
Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 22 - September 28




Boundary County BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 29 - October 5
Concentration (µg/m3)
Acres
40
35
30
25
20
15
10
5
0
1200
1000
800
600
400
200
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Copeland monitor
BC Environment Canada monitor
Kootenai Tribe of Idaho monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

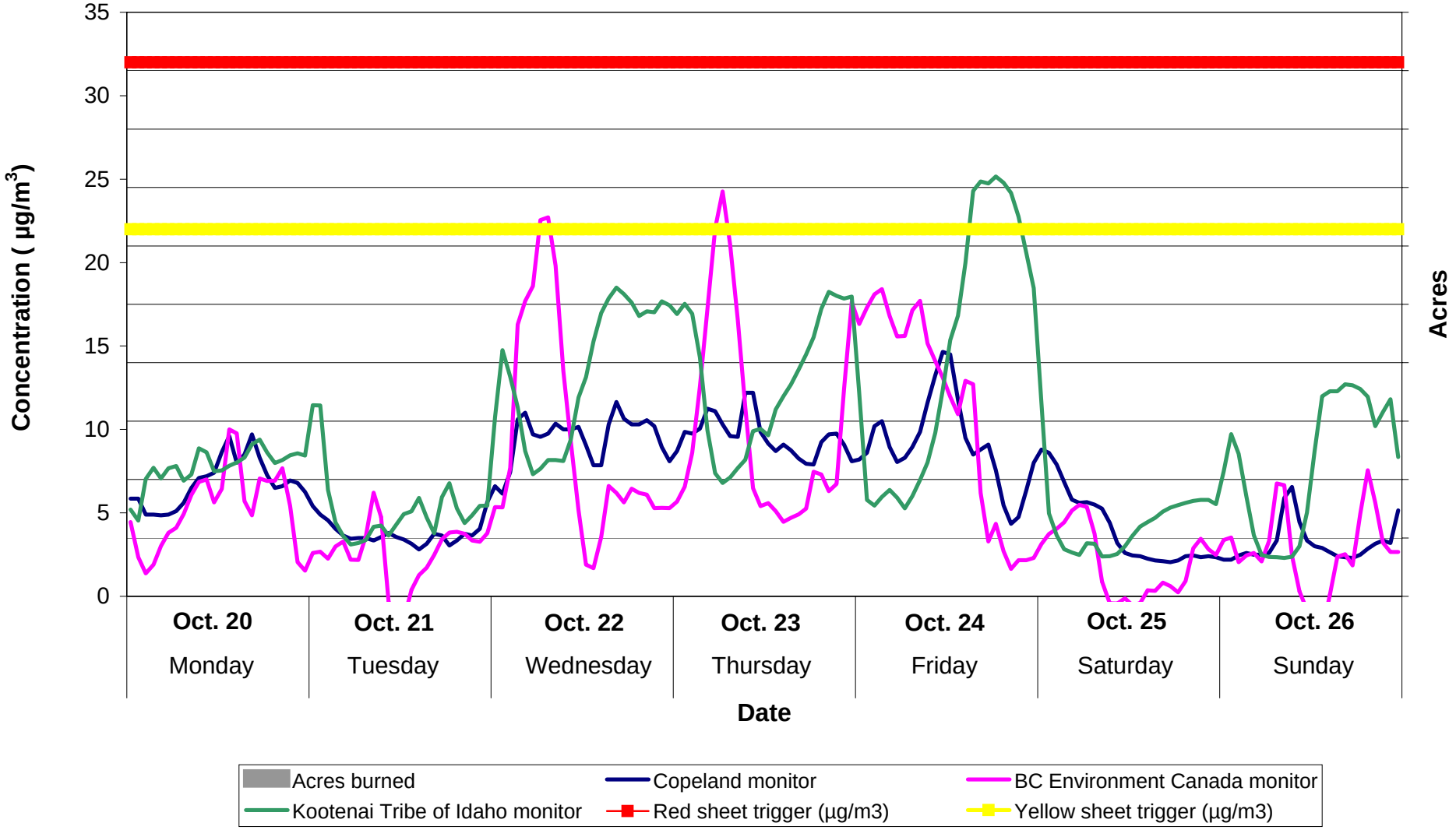

Boundary County BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 6 - October 12
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
350
300
250
200
150
100
50
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Copeland monitor
BC Environment Canada monitor
Kootenai Tribe of Idaho monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Boundary County BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 13 - October 19
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
Oct. 13
Monday
Oct. 14
Tuesday
Oct. 15
Wednesday
Oct. 16
Thursday
Oct. 17
Friday
Oct. 18
Saturday
Oct. 19
Sunday
Date
Acres burned
Copeland monitor
BC Environment Canada monitor
Kootenai Tribe of Idaho monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Boundary County BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

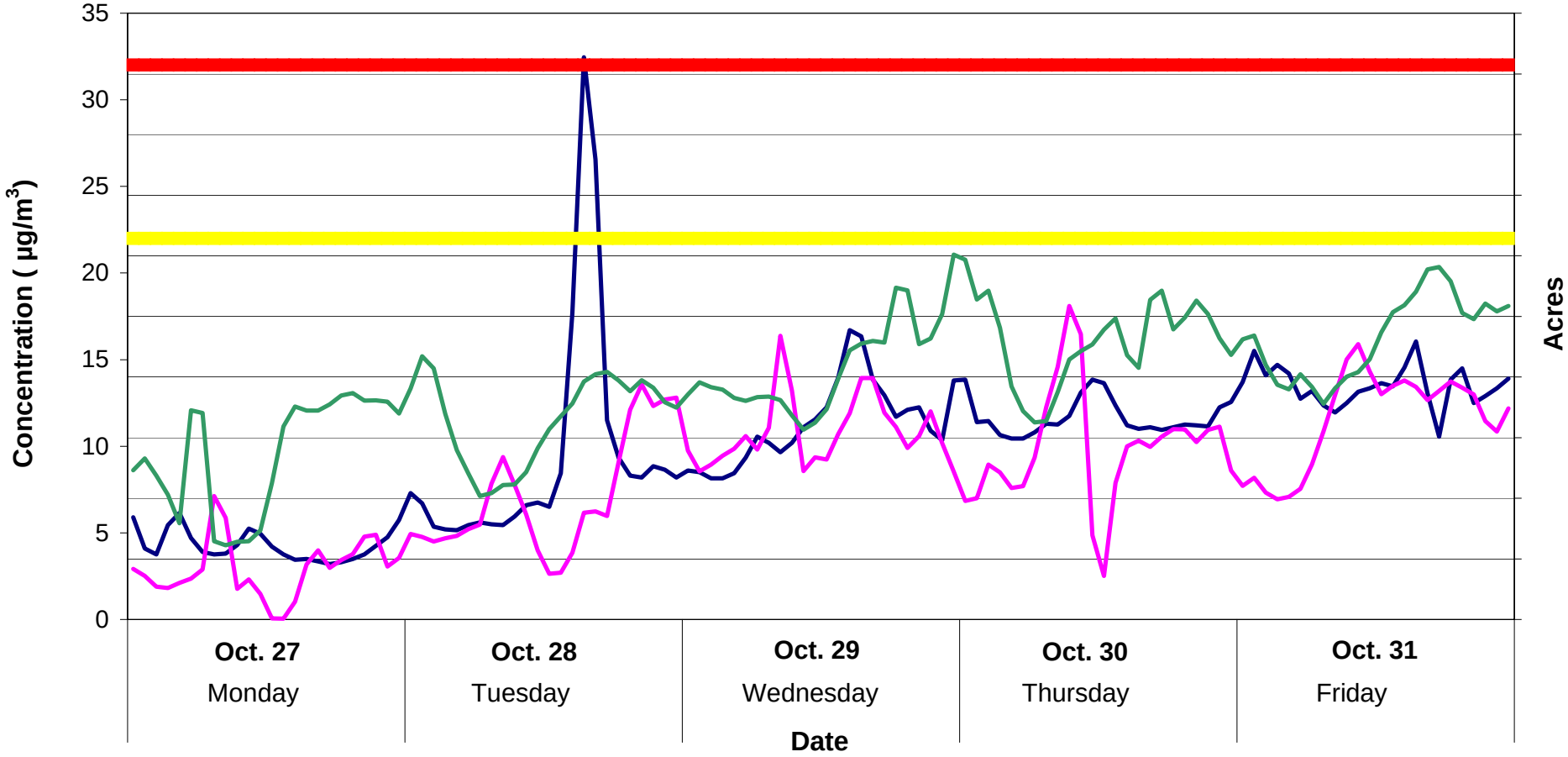
October 20 - October 26



Boundary County BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 27 - October 31



Acres burned | Copeland monitor | BC Environment Canada monitor
Kootenai Tribe of Idaho monitor | Red sheet trigger (µg/m3) | Yellow sheet trigger (µg/m3)

Appendix E

Air Quality Evaluation

of the

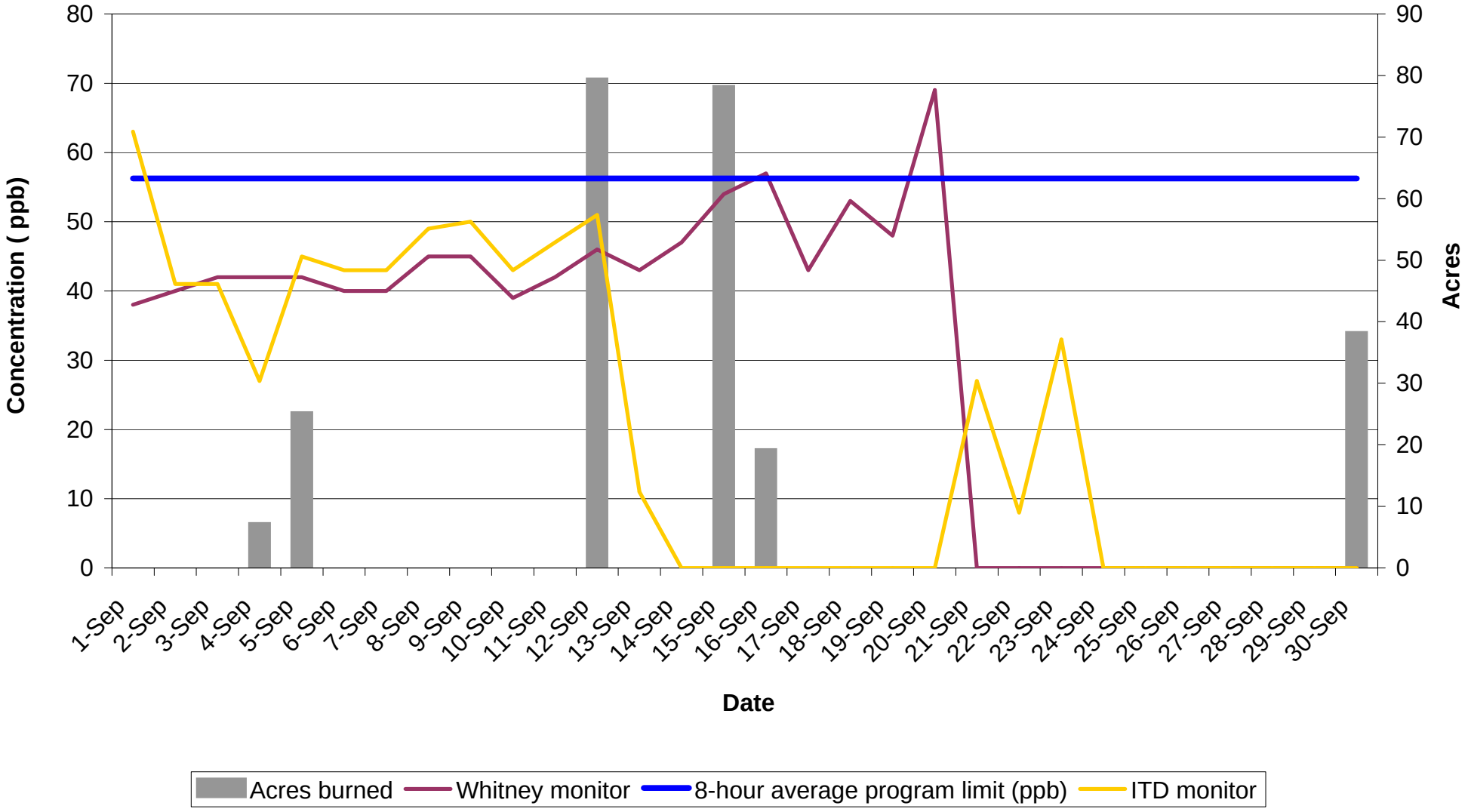
Southwest Idaho BMA

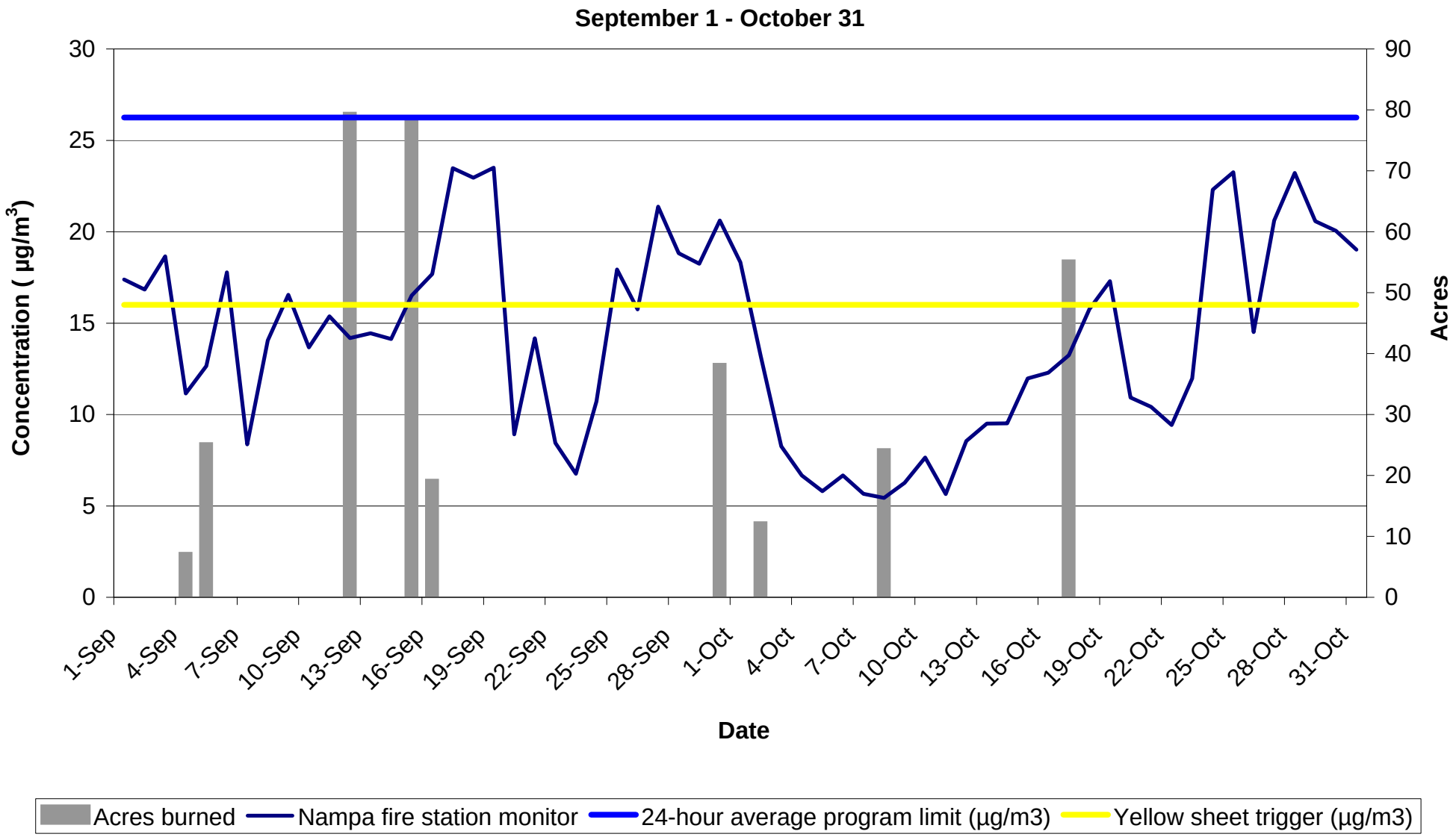
Burn Decisions and Acres Burned - Southwest Idaho BMA			
Day of Week	**Date**	**# acres approved**	**# acres burned**
T	9/2/2008		
W	9/3/2008		
Th	9/4/2008	7	7
F	9/5/2008	25	25
Sa	9/6/2008		
Su	9/7/2008		
M	9/8/2008		
T	9/9/2008		
W	9/10/2008		
Th	9/11/2008		
F	9/12/2008	104	79
Sa	9/13/2008		
Su	9/14/2008		
M	9/15/2008	78	78
T	9/16/2008	19	19
W	9/17/2008		
Th	9/18/2008	32	0
F	9/19/2008		
Sa	9/20/2008		
Su	9/21/2008		
M	9/22/2008		
T	9/23/2008		
W	9/24/2008		
Th	9/25/2008		
F	9/26/2008		
Sa	9/27/2008		
Su	9/28/2008		
M	9/29/2008		
T	9/30/2008	50	38
W	10/1/2008	26	0
Th	10/2/2008	12	12
F	10/3/2008		
Sa	10/4/2008		
Su	10/5/2008		
M	10/6/2008		
T	10/7/2008		
W	10/8/2008	24	24
Th	10/9/2008		
F	10/10/2008		
Sa	10/11/2008		
Su	10/12/2008		
M	10/13/2008		
T	10/14/2008		
W	10/15/2008		
Th	10/16/2008		
F	10/17/2008	55	55
Sa	10/18/2008		
Su	10/19/2008		
M	10/20/2008		
T	10/21/2008		
W	10/22/2008		
Th	10/23/2008		
F	10/24/2008		
Sa	10/25/2008		
Su	10/26/2008		
M	10/27/2008		
T	10/28/2008		
W	10/29/2008		
Th	10/30/2008		
F	10/31/2008		
	TOTAL	**432**	**337**

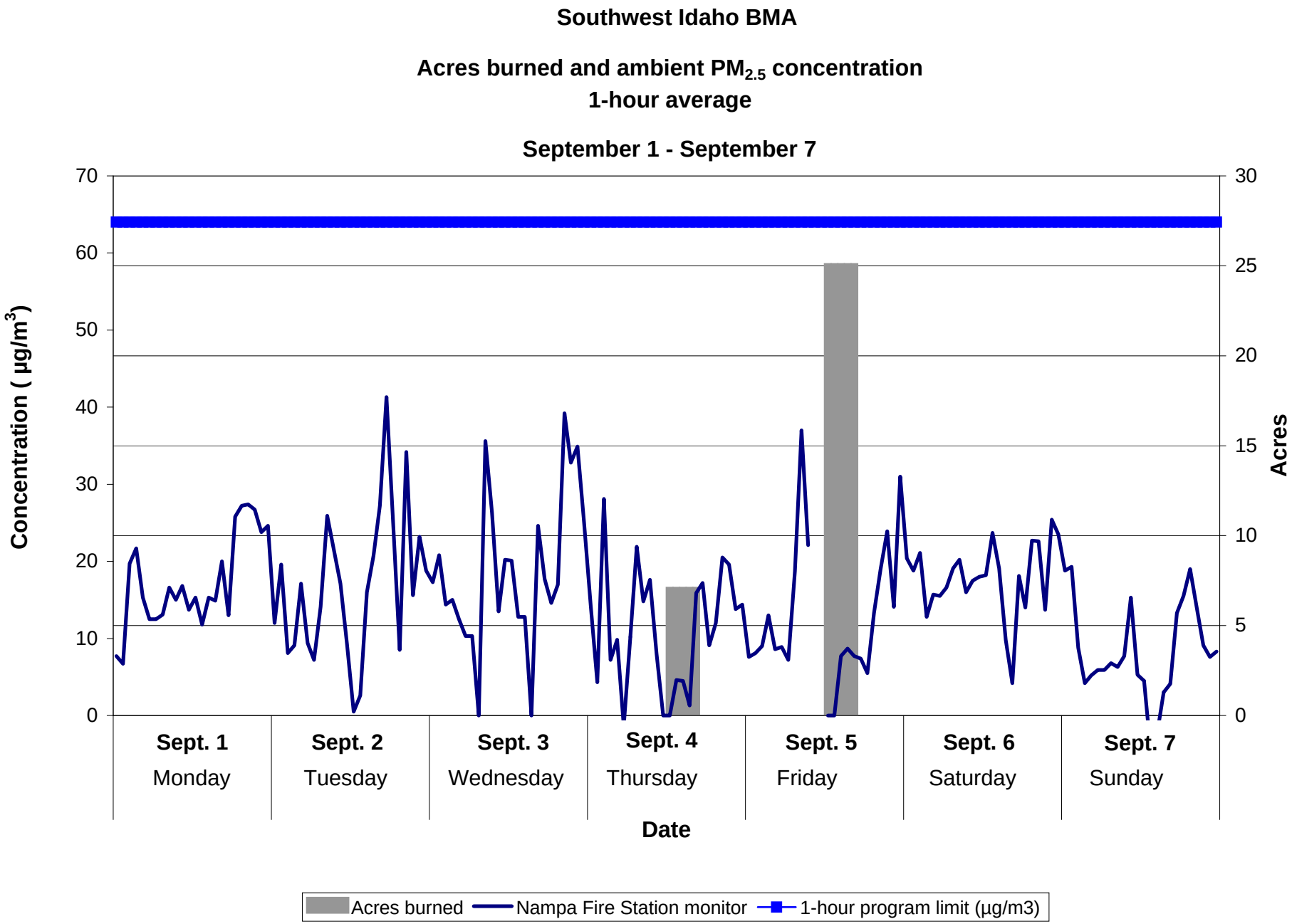
Southwest Idaho BMA

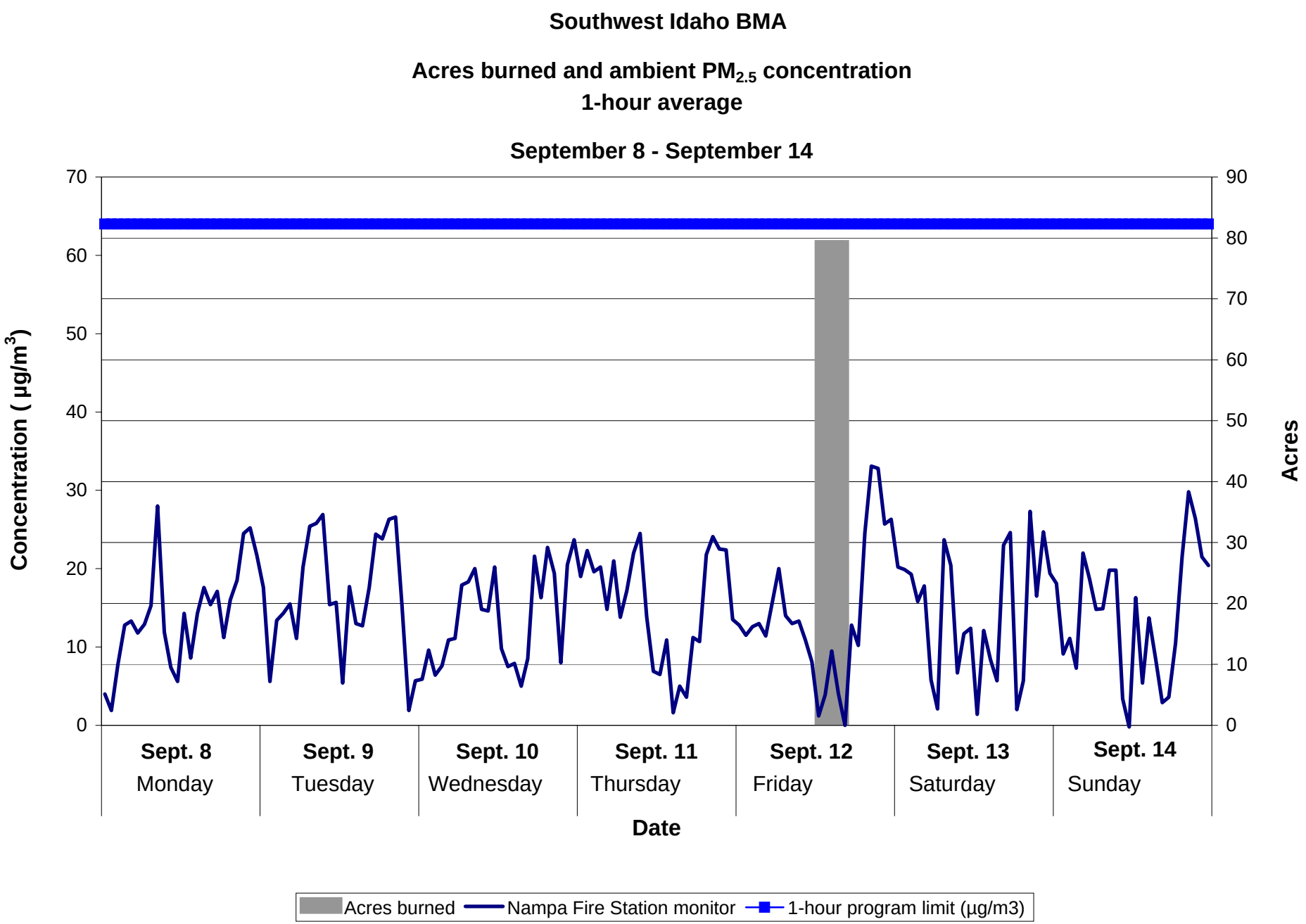
Acres burned and ambient ozone concentration
Maximum 8-hour average

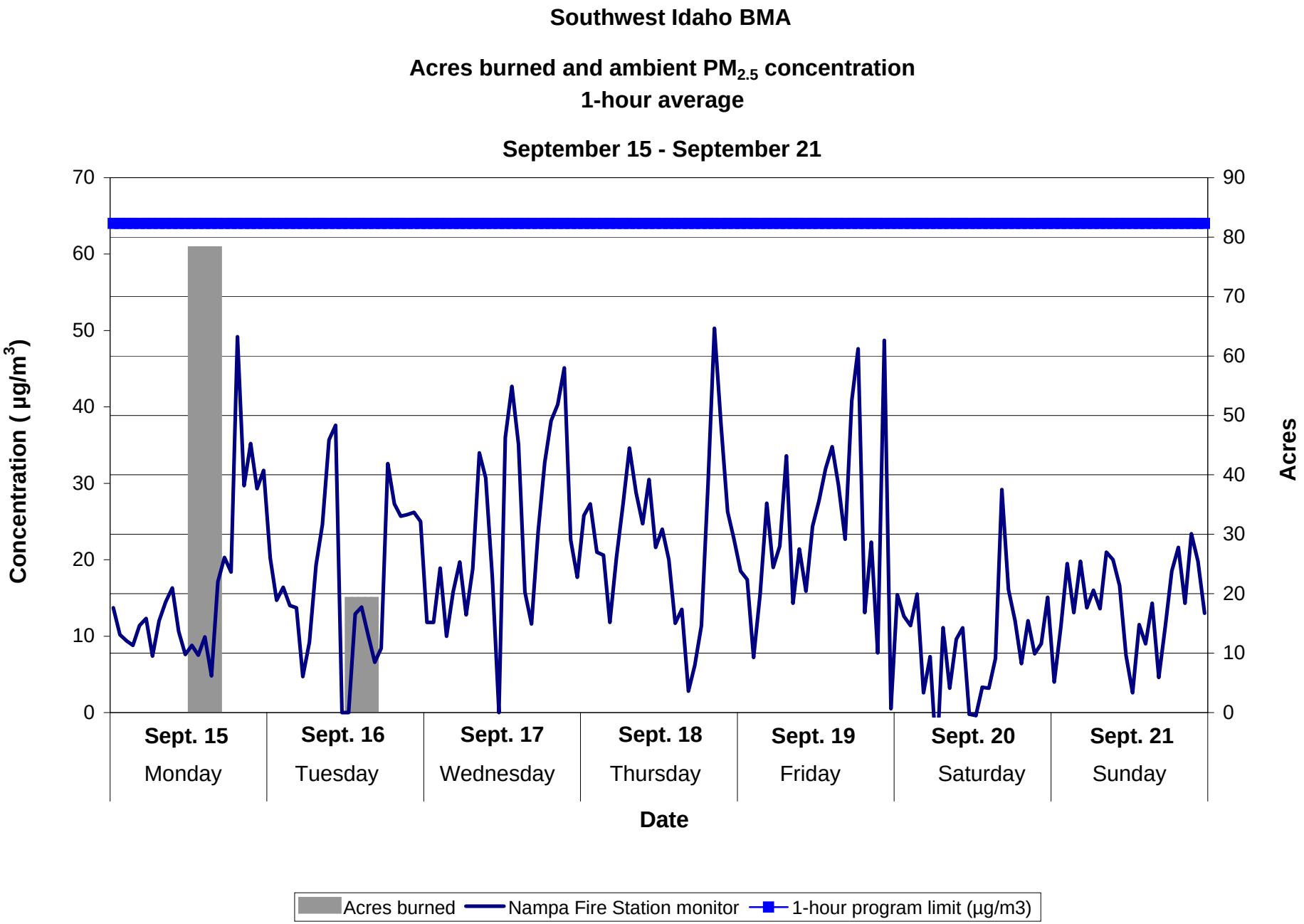
September 1 - September 30

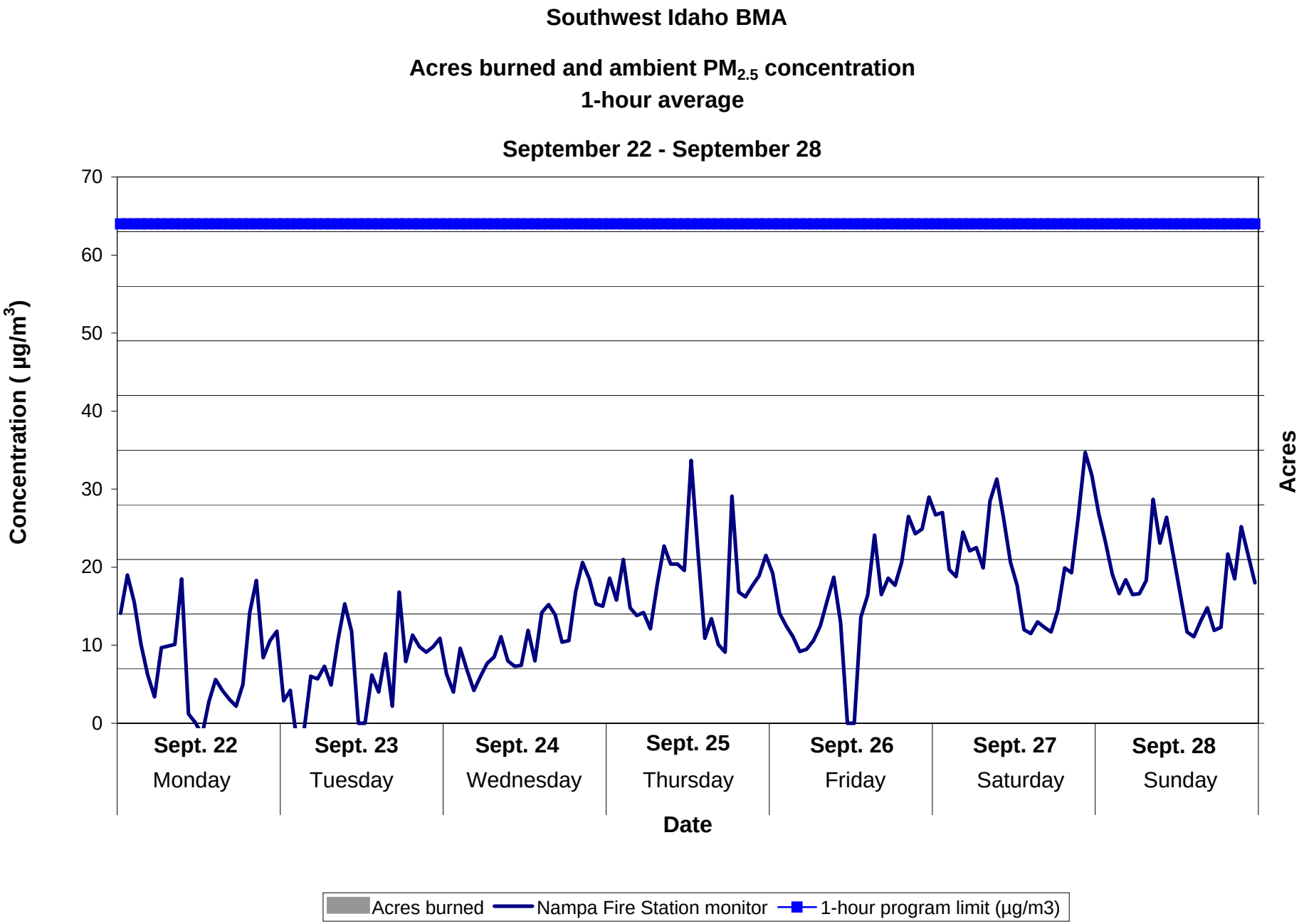


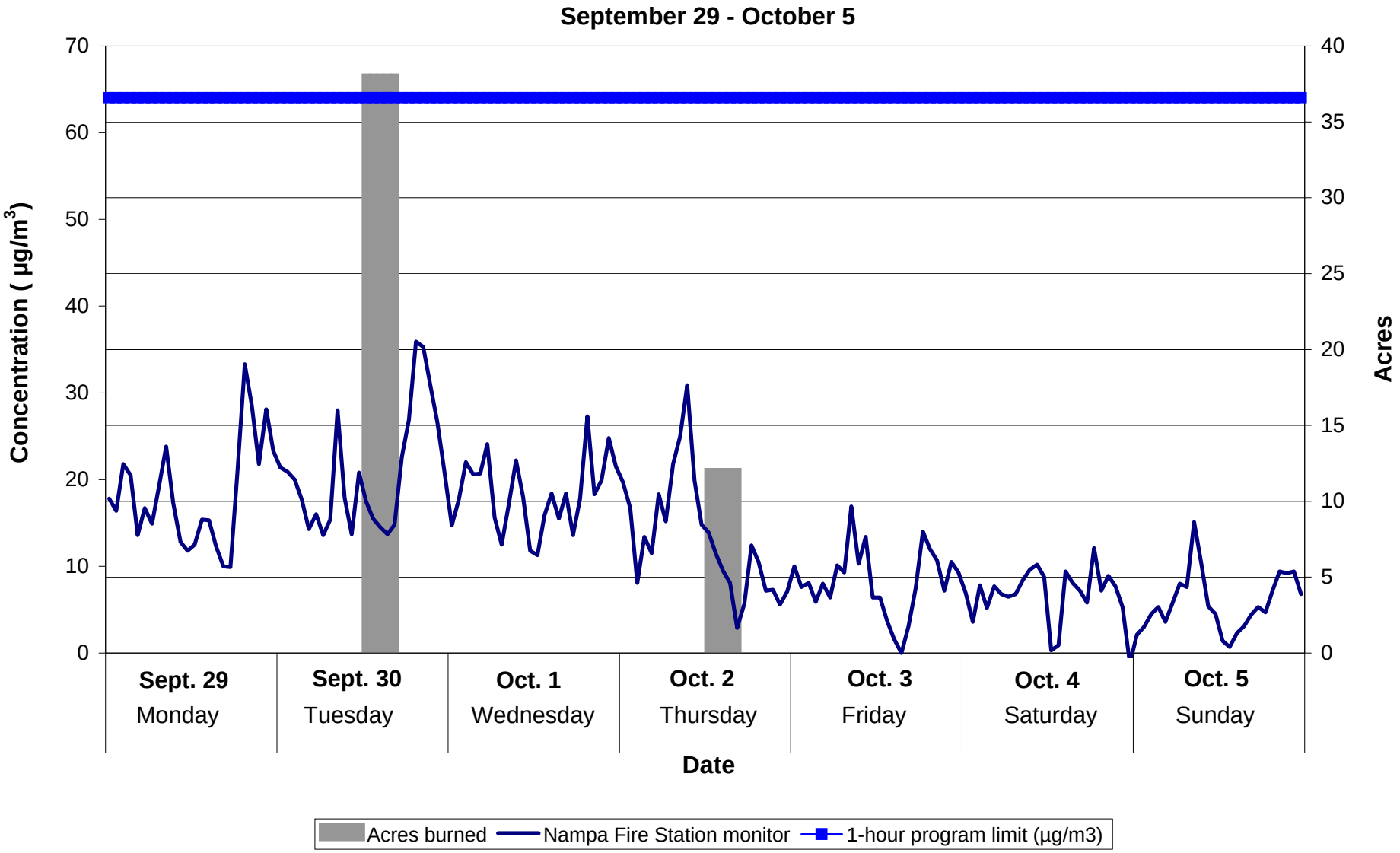

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
24-hour average
September 1 - October 31
Concentration (µg/m3)
Acres
Date
30
25
20
15
10
5
0
90
80
70
60
50
40
30
20
10
0
1-Sep
4-Sep
7-Sep
10-Sep
13-Sep
16-Sep
19-Sep
22-Sep
25-Sep
28-Sep
1-Oct
4-Oct
7-Oct
10-Oct
13-Oct
16-Oct
19-Oct
22-Oct
25-Oct
28-Oct
31-Oct
Acres burned
Nampa fire station monitor
24-hour average program limit (µg/m3)
Yellow sheet trigger (µg/m3)

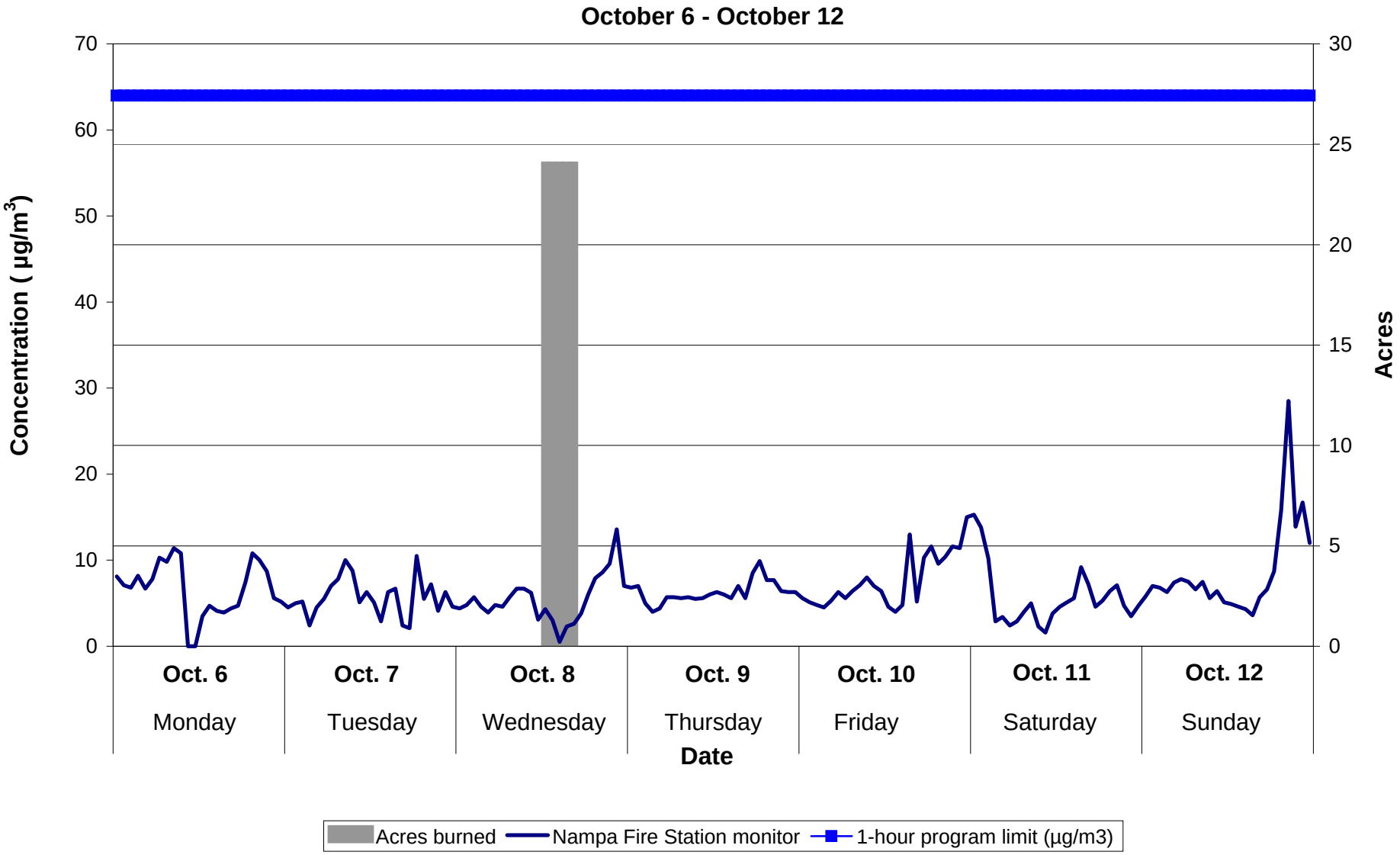

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 1 - September 7
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
30
25
20
15
10
5
0
Sept. 1
Monday
Sept. 2
Tuesday
Sept. 3
Wednesday
Sept. 4
Thursday
Sept. 5
Friday
Sept. 6
Saturday
Sept. 7
Sunday
Date
Acres burned
Nampa Fire Station monitor
1-hour program limit (µg/m3)

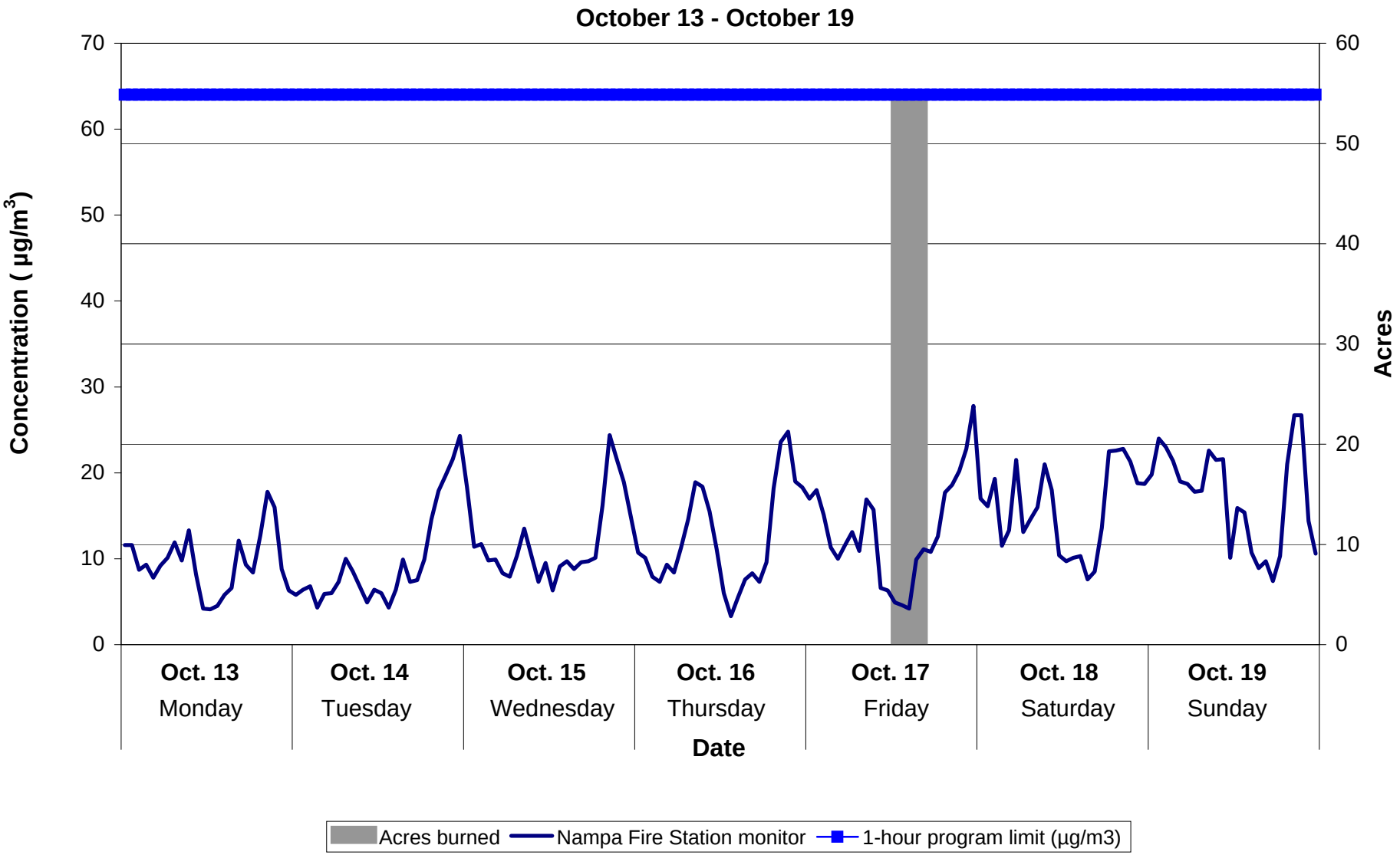

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 8 - September 14
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
90
80
70
60
50
40
30
20
10
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Nampa Fire Station monitor
1-hour program limit (µg/m3)

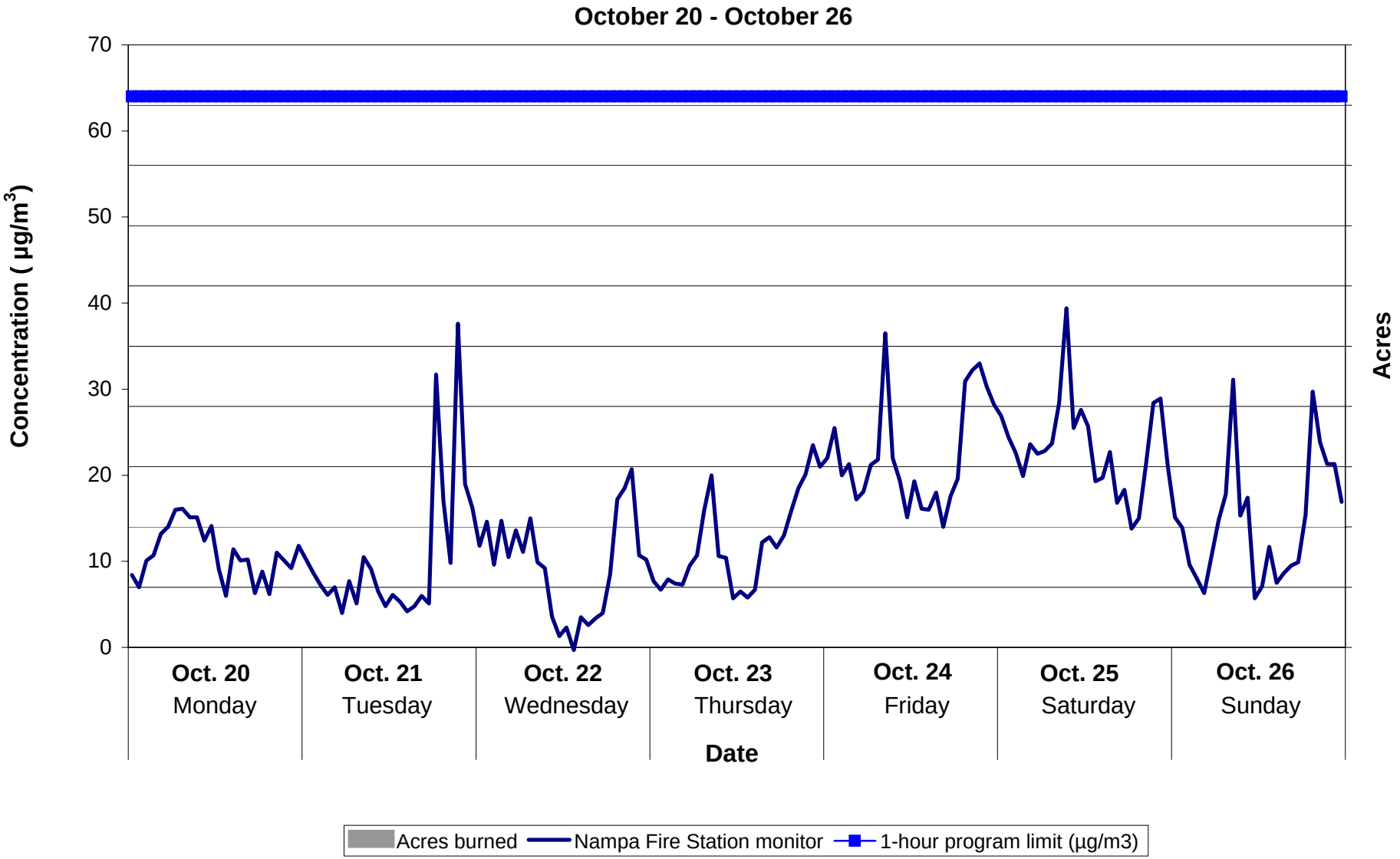

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 15 - September 21
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
90
80
70
60
50
40
30
20
10
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Nampa Fire Station monitor
1-hour program limit (µg/m3)

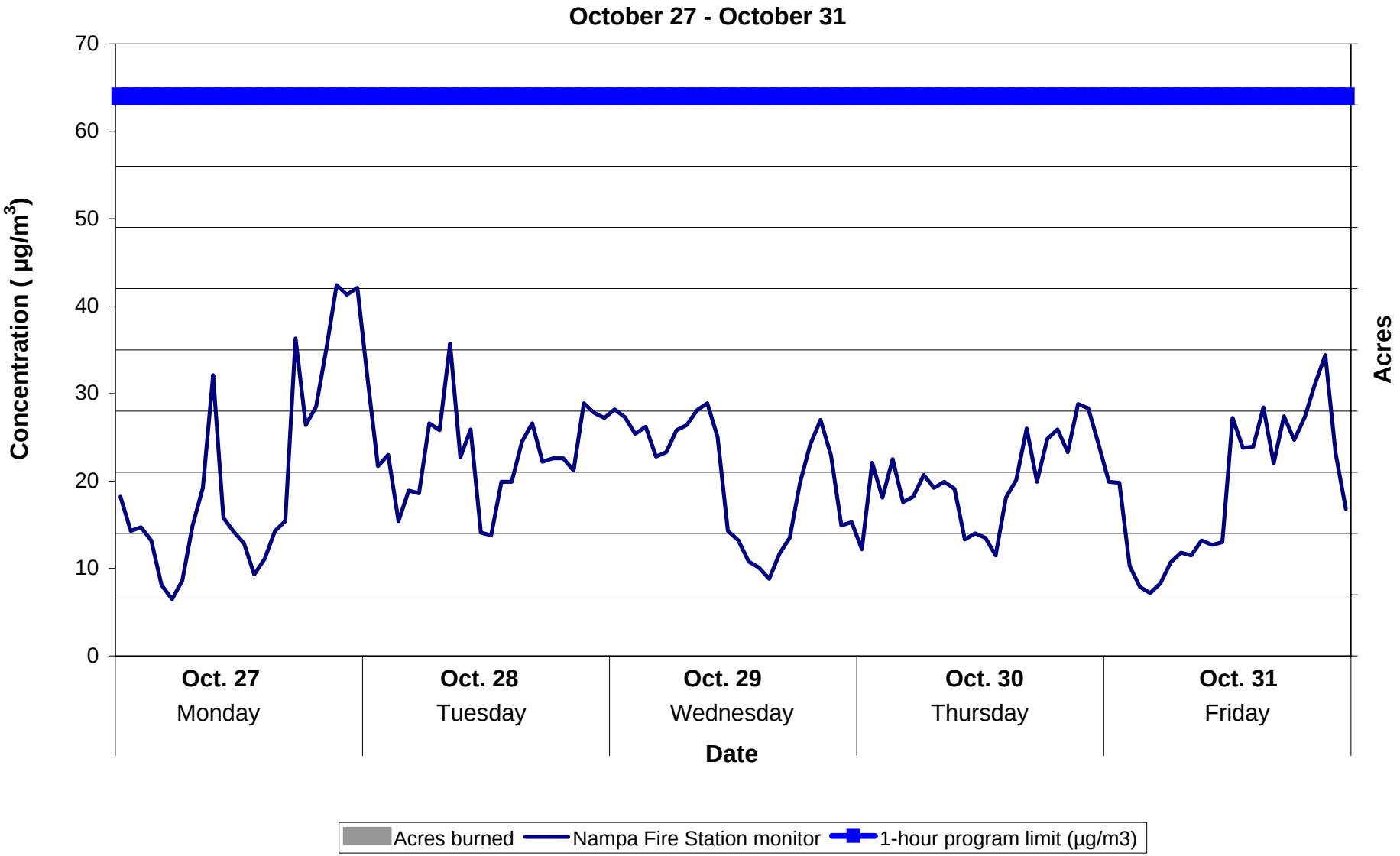

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 22 - September 28
Concentration (µg/m3)
70
60
50
40
30
20
10
0
Acres
Sept. 22
Monday
Sept. 23
Tuesday
Sept. 24
Wednesday
Sept. 25
Thursday
Sept. 26
Friday
Sept. 27
Saturday
Sept. 28
Sunday
Date
Acres burned
Nampa Fire Station monitor
1-hour program limit (µg/m3)

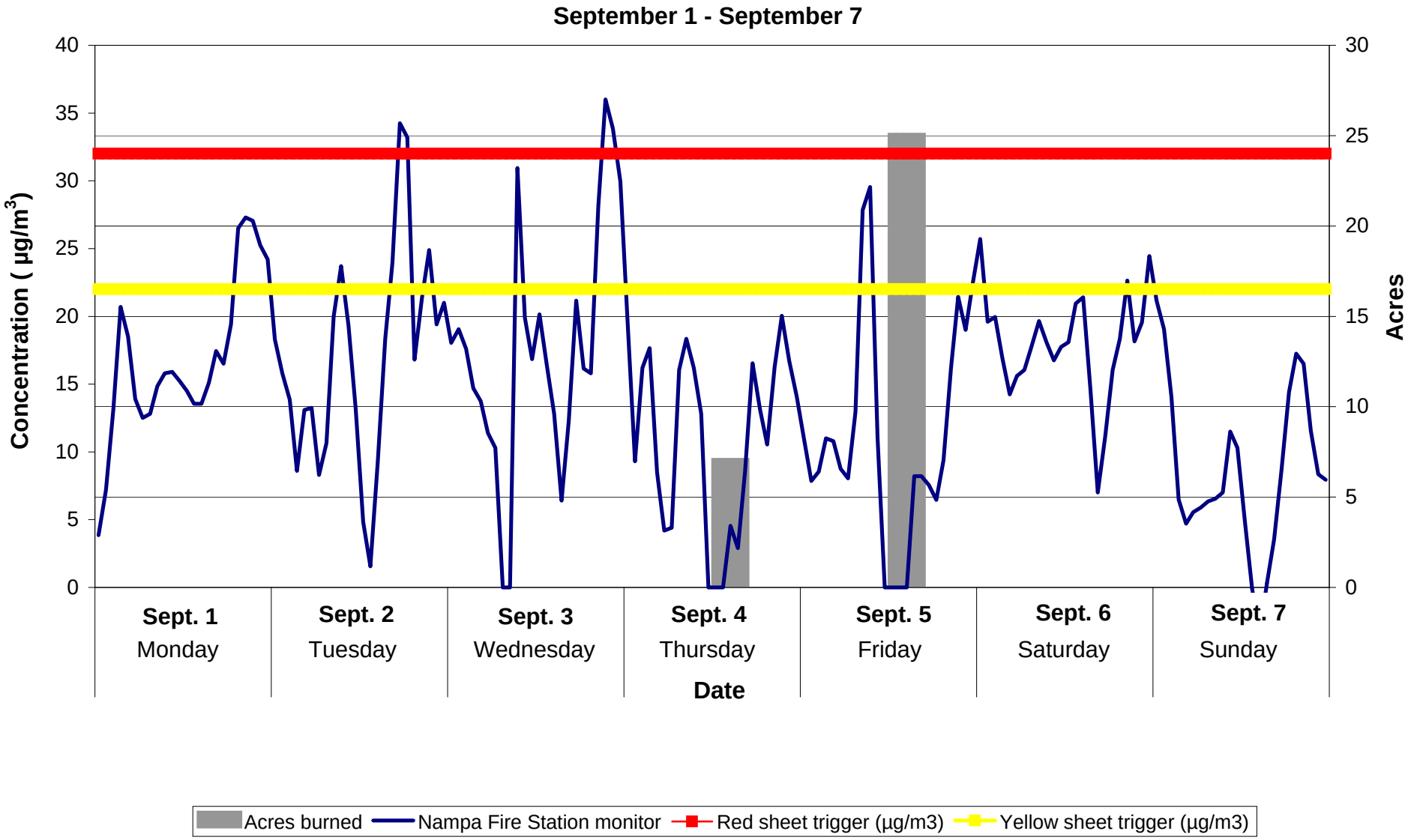

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 29 - October 5
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Nampa Fire Station monitor
1-hour program limit (µg/m3)

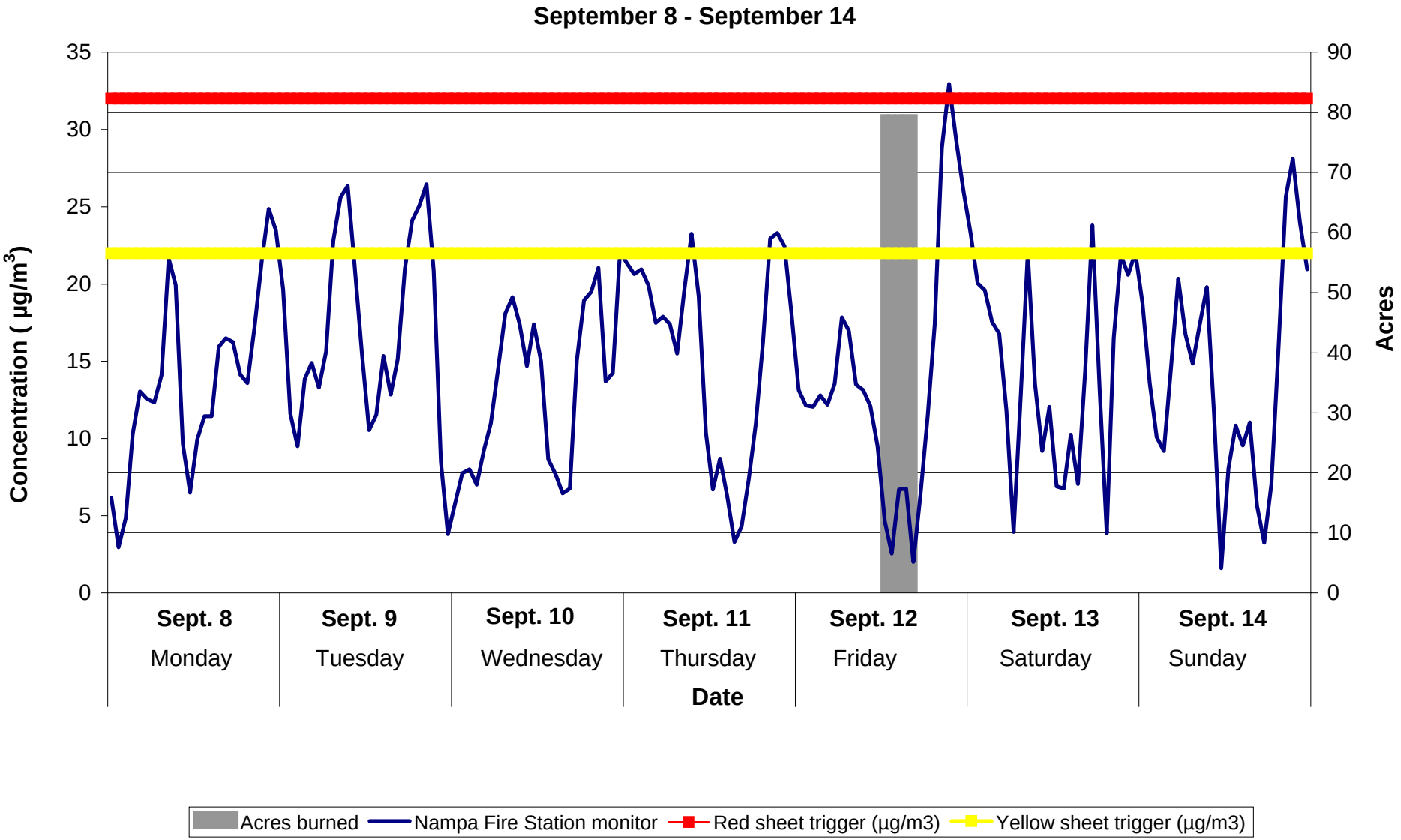

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 6 - October 12
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
30
25
20
15
10
5
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Nampa Fire Station monitor
1-hour program limit (µg/m3)

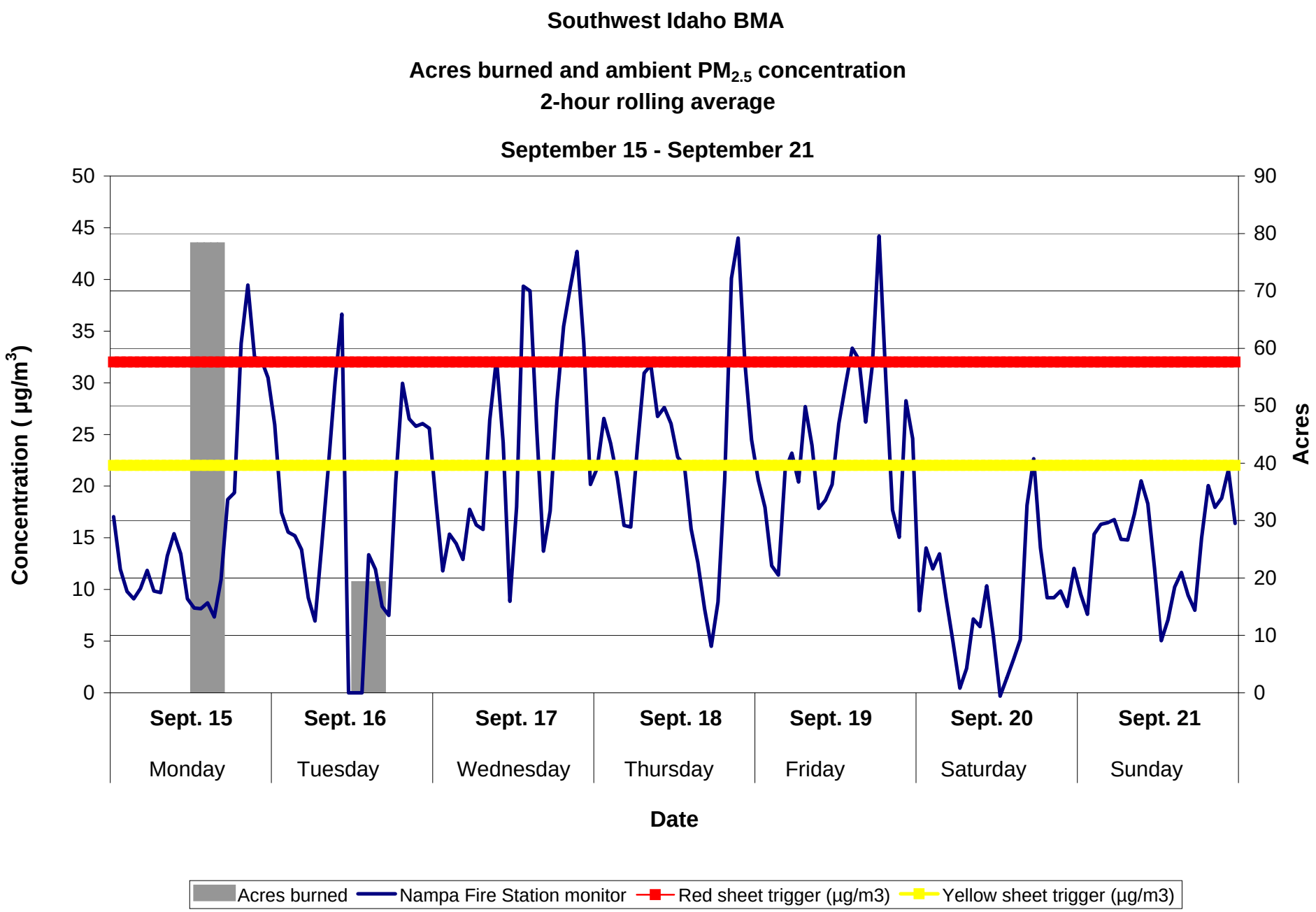

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 13 - October 19
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
60
50
40
30
20
10
0
Oct. 13
Monday
Oct. 14
Tuesday
Oct. 15
Wednesday
Oct. 16
Thursday
Oct. 17
Friday
Oct. 18
Saturday
Oct. 19
Sunday
Date
Acres burned
Nampa Fire Station monitor
1-hour program limit (µg/m3)


Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 20 - October 26
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Nampa Fire Station monitor
1-hour program limit (µg/m3)


Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 27 - October 31
Concentration (µg/m3)
70
60
50
40
30
20
10
0
Acres
Oct. 27
Monday
Oct. 28
Tuesday
Oct. 29
Wednesday
Oct. 30
Thursday
Oct. 31
Friday
Date
Acres burned
Nampa Fire Station monitor
1-hour program limit (µg/m3)


Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 1 - September 7
Concentration (µg/m3)
Acres
40
35
30
25
20
15
10
5
0
30
25
20
15
10
5
0
Sept. 1
Monday
Sept. 2
Tuesday
Sept. 3
Wednesday
Sept. 4
Thursday
Sept. 5
Friday
Sept. 6
Saturday
Sept. 7
Sunday
Date
Acres burned
Nampa Fire Station monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

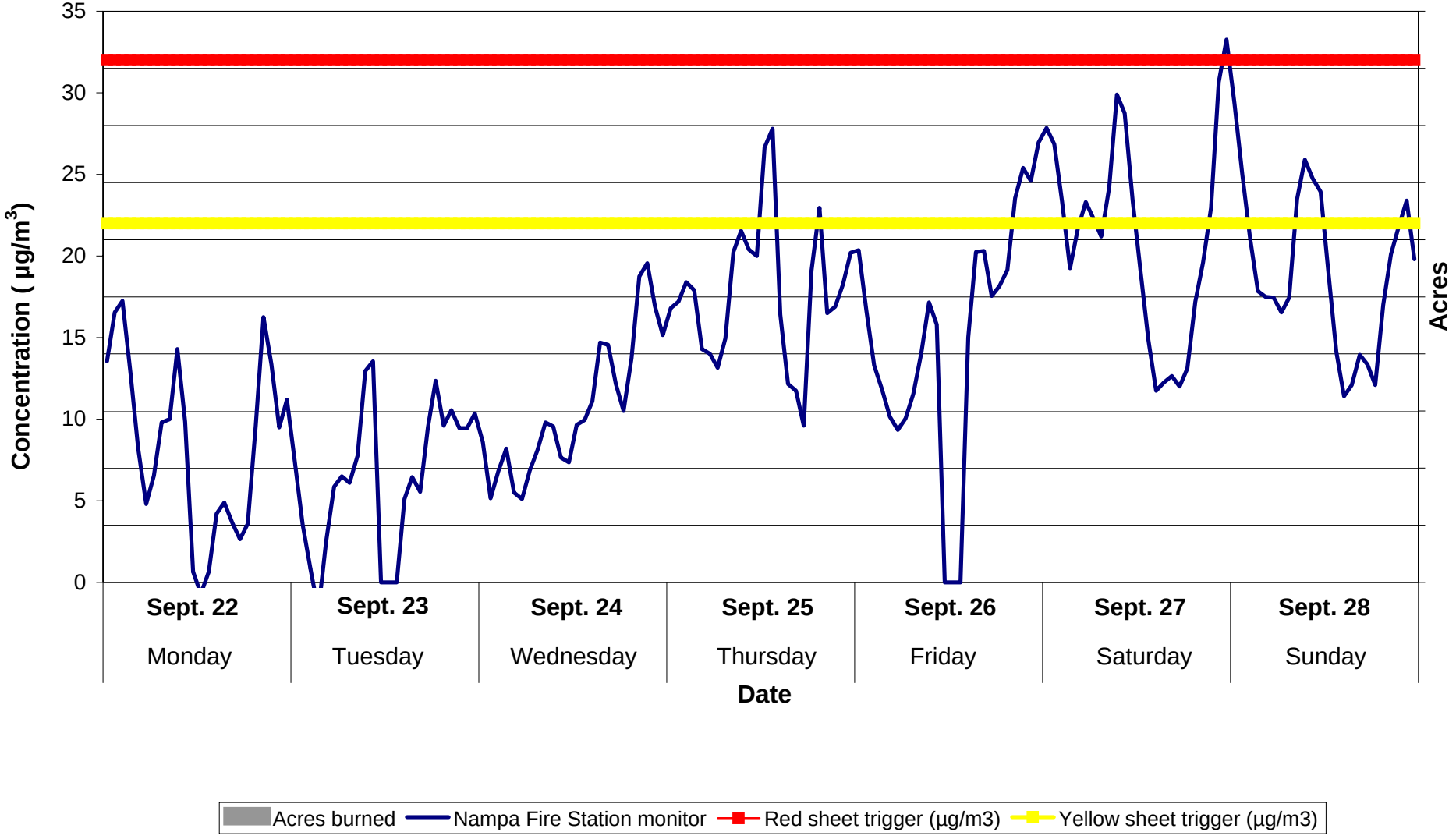

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 8 - September 14
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
90
80
70
60
50
40
30
20
10
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Nampa Fire Station monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

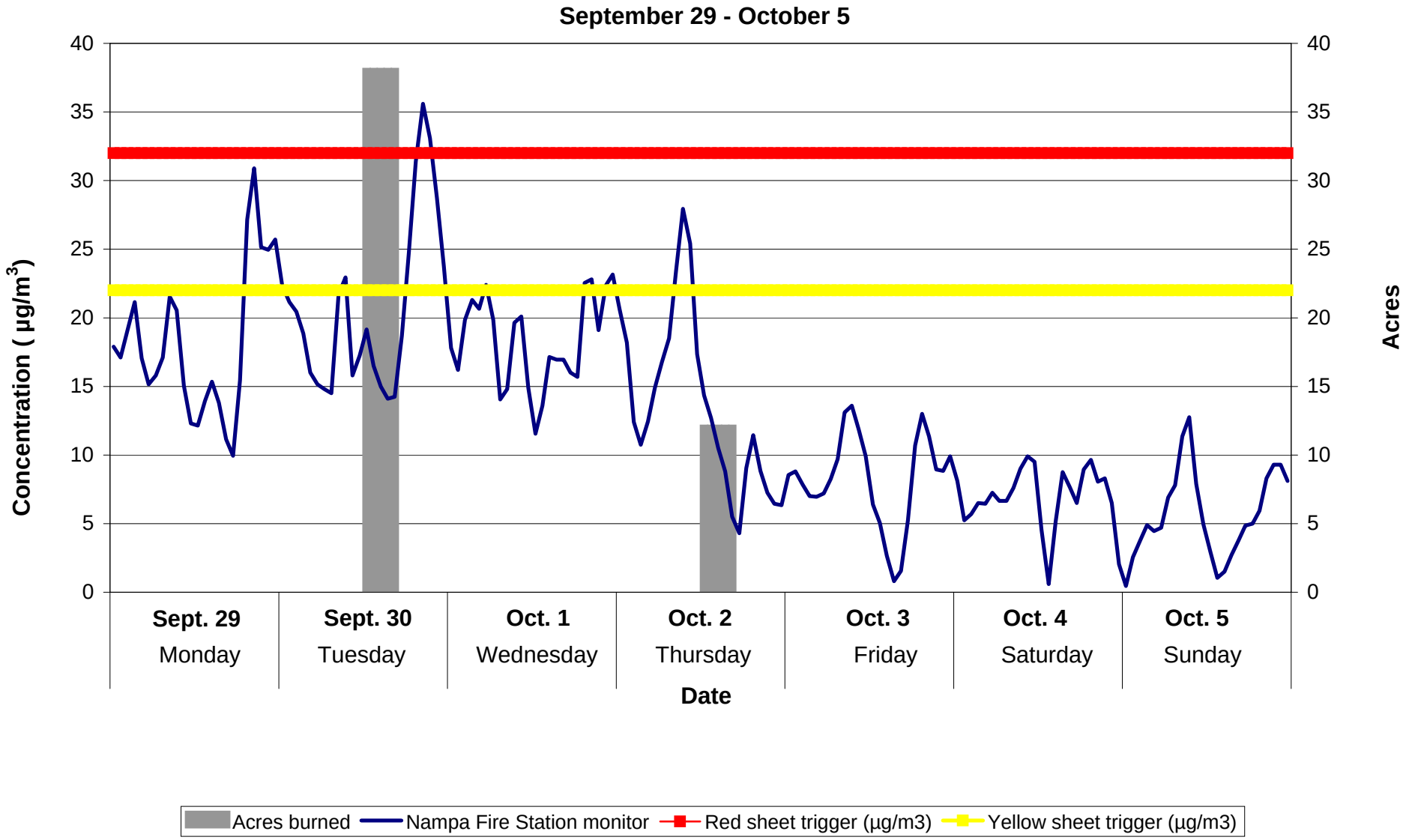

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 15 - September 21
Concentration (µg/m3)
Acres
50
45
40
35
30
25
20
15
10
5
0
90
80
70
60
50
40
30
20
10
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Nampa Fire Station monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Southwest Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 22 - September 28

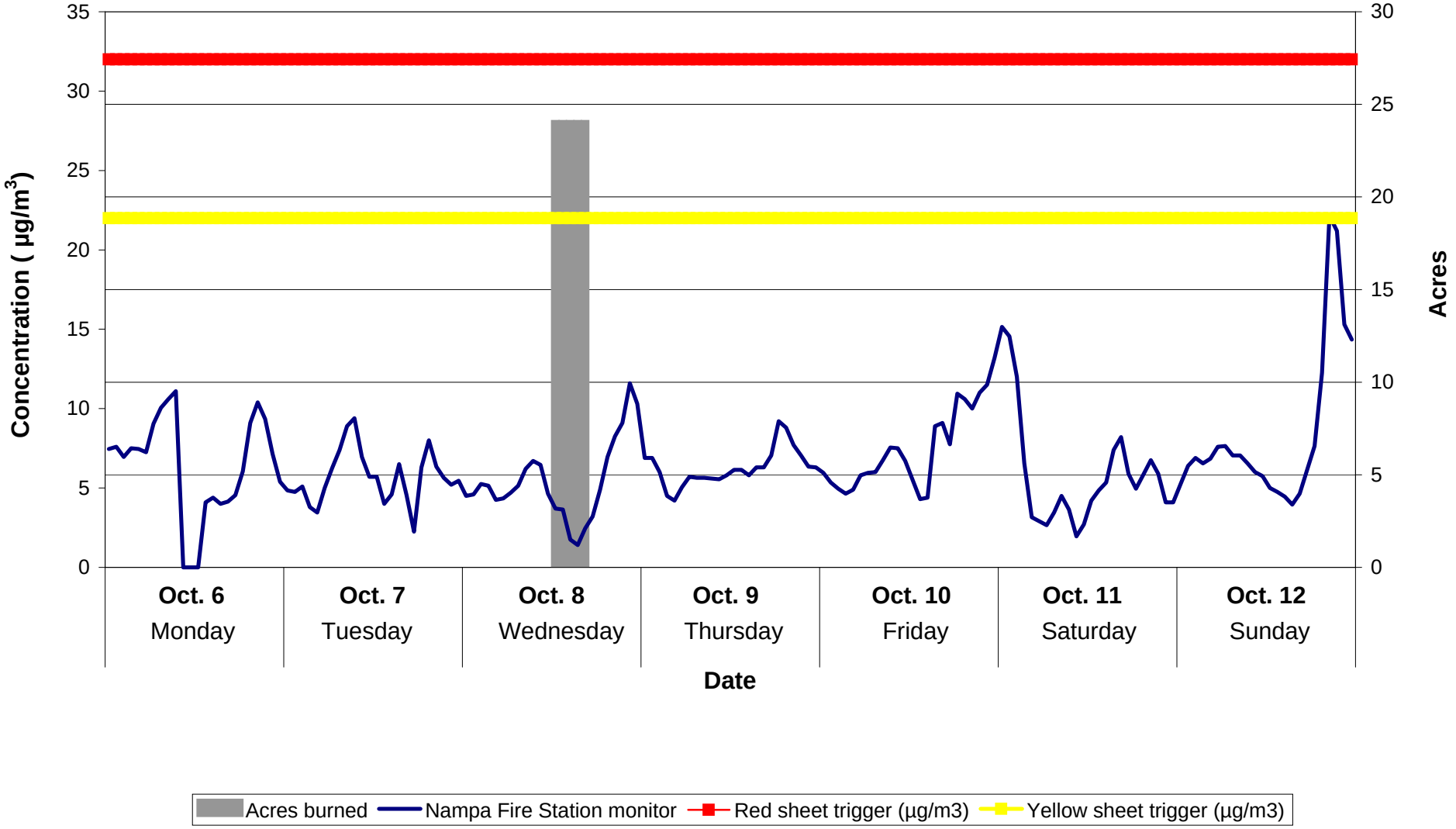


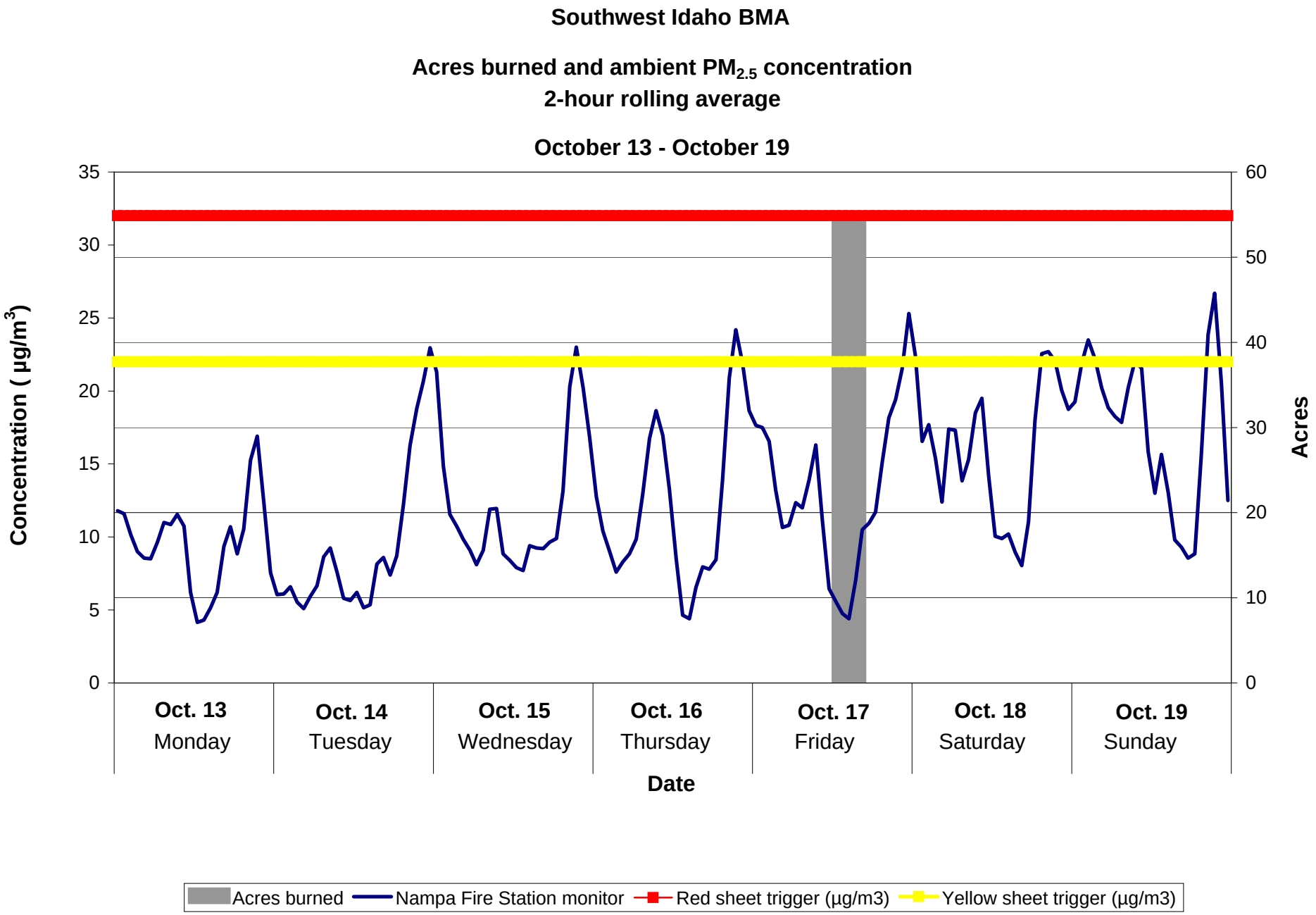

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 29 - October 5
Concentration (µg/m3)
Acres
40
35
30
25
20
15
10
5
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Nampa Fire Station monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Southwest Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 6 - October 12

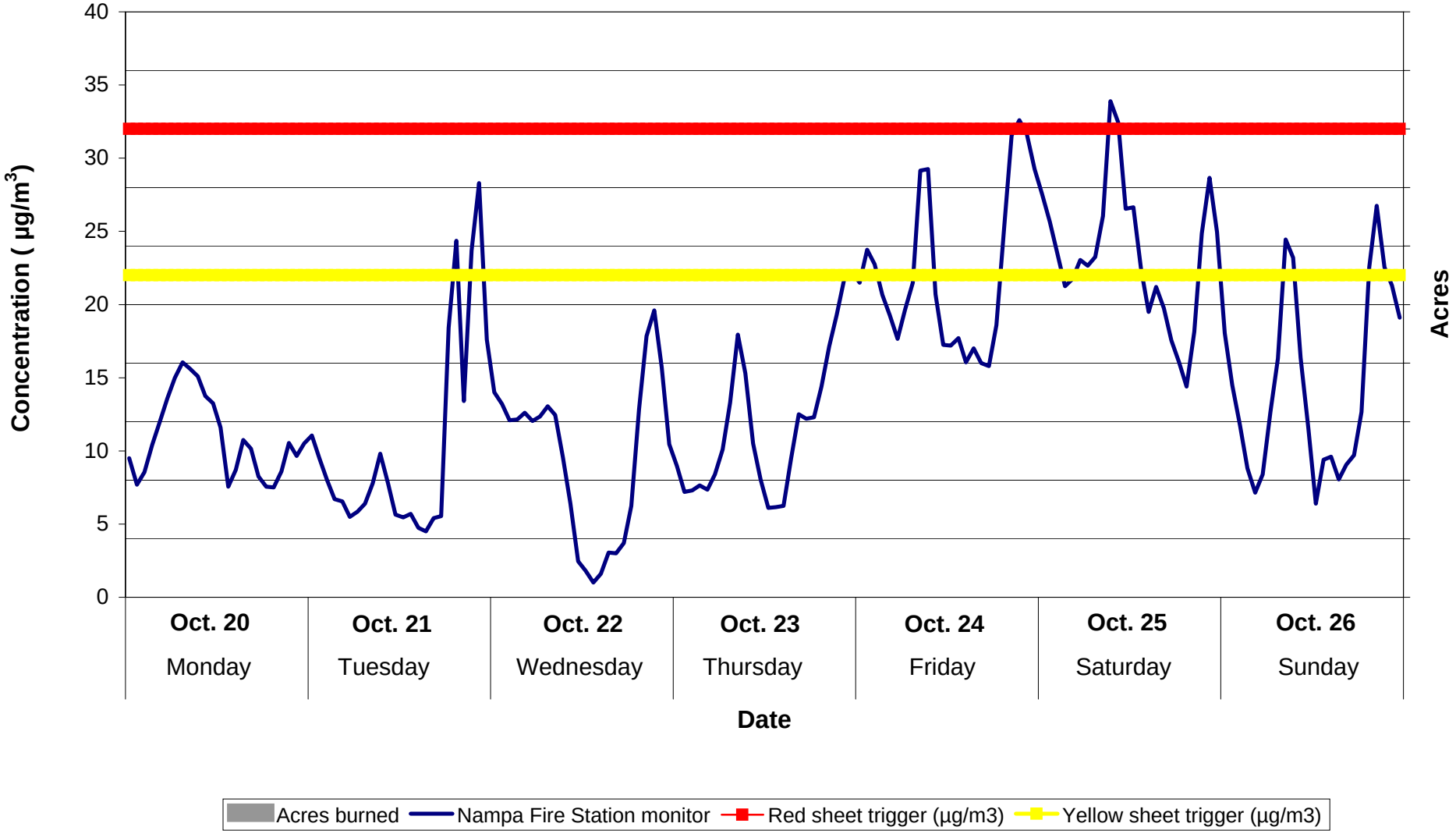


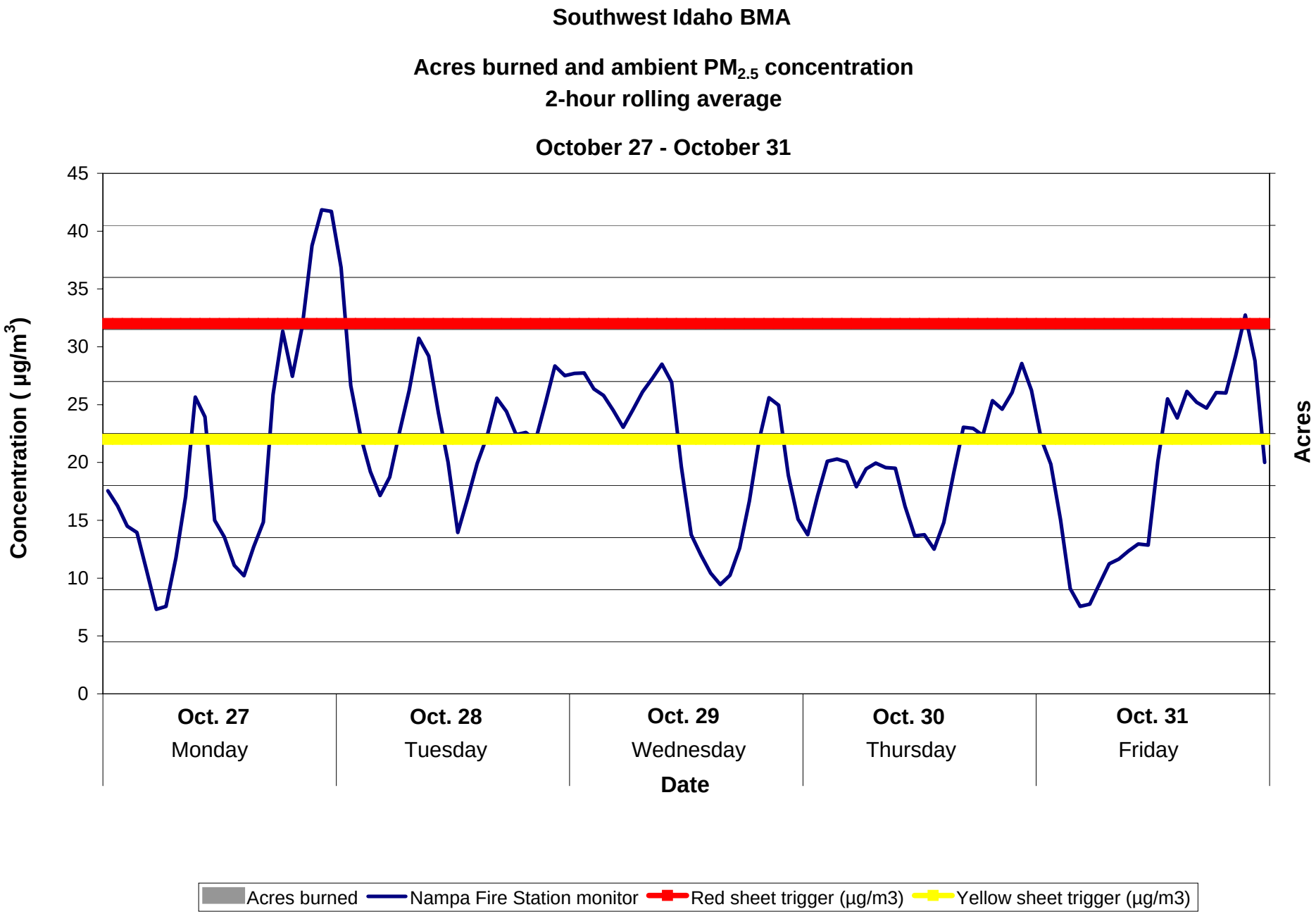

Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 13 - October 19
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
60
50
40
30
20
10
0
Oct. 13
Monday
Oct. 14
Tuesday
Oct. 15
Wednesday
Oct. 16
Thursday
Oct. 17
Friday
Oct. 18
Saturday
Oct. 19
Sunday
Date
Acres burned
Nampa Fire Station monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Southwest Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 20 - October 26




Southwest Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 27 - October 31
Concentration (µg/m3)
Acres
45
40
35
30
25
20
15
10
5
0
Oct. 27
Monday
Oct. 28
Tuesday
Oct. 29
Wednesday
Oct. 30
Thursday
Oct. 31
Friday
Date
Acres burned
Nampa Fire Station monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Appendix F

Air Quality Evaluation

of the

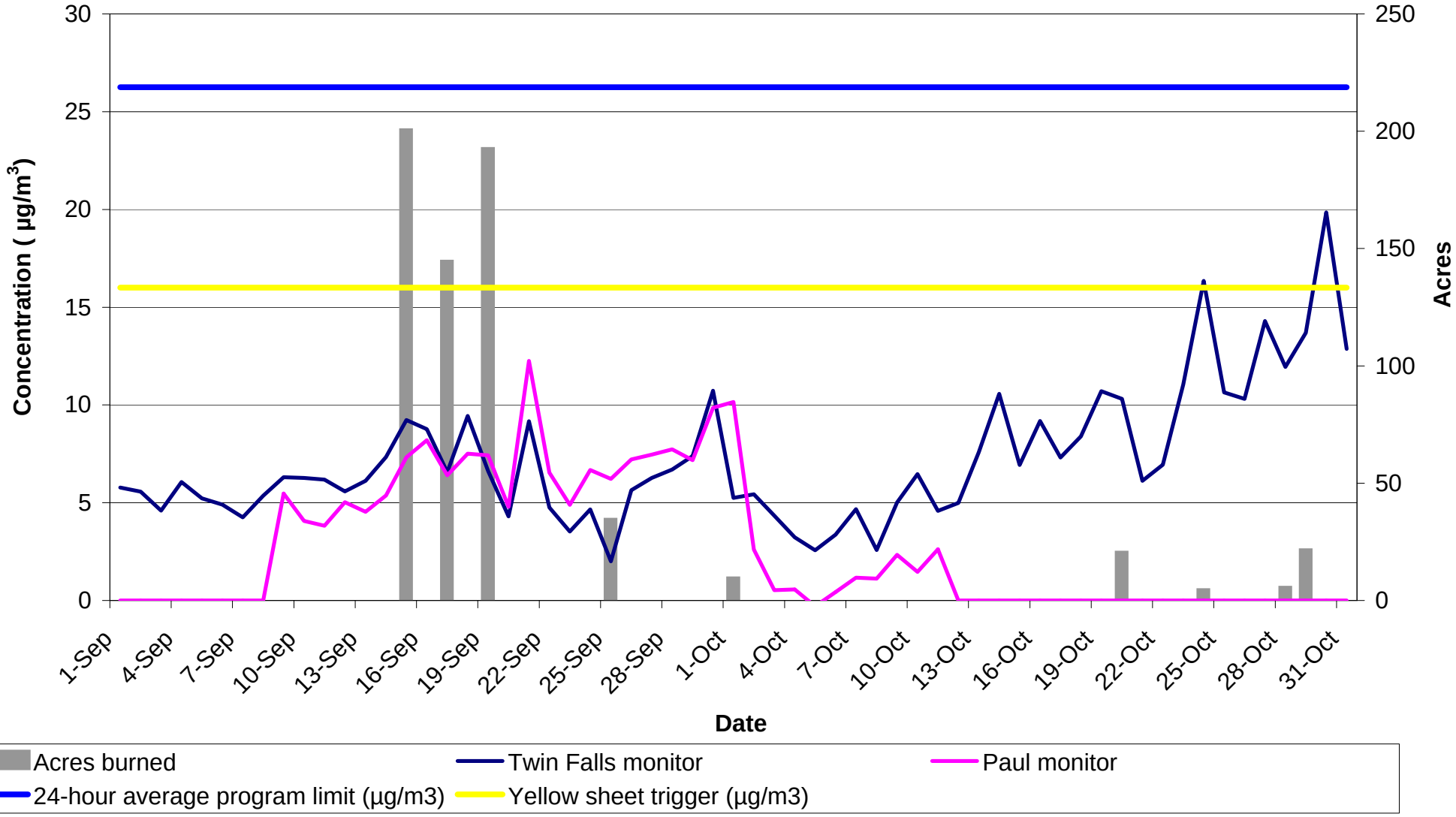
Southern Magic Valley BMA

Burn Decisions and Acres Burned - Southern Magic Valley BMA			
Day of Week	**Date**	**# acres approved**	**# acres burned**
T	9/2/2008		
W	9/3/2008		
Th	9/4/2008		
F	9/5/2008		
Sa	9/6/2008		
Su	9/7/2008		
M	9/8/2008		
T	9/9/2008		
W	9/10/2008		
Th	9/11/2008		
F	9/12/2008		
Sa	9/13/2008		
Su	9/14/2008		
M	9/15/2008	435	200
T	9/16/2008	144	0
W	9/17/2008	144	144
Th	9/18/2008		
F	9/19/2008	297	192
Sa	9/20/2008		
Su	9/21/2008		
M	9/22/2008		
T	9/23/2008		
W	9/24/2008		
Th	9/25/2008	180	34
F	9/26/2008	80	0
Sa	9/27/2008		
Su	9/28/2008		
M	9/29/2008		
T	9/30/2008		
W	10/1/2008	10	9
Th	10/2/2008		
F	10/3/2008		
Sa	10/4/2008		
Su	10/5/2008		
M	10/6/2008		
T	10/7/2008		
W	10/8/2008		
Th	10/9/2008		
F	10/10/2008		
Sa	10/11/2008		
Su	10/12/2008		
M	10/13/2008		
T	10/14/2008		
W	10/15/2008		
Th	10/16/2008		
F	10/17/2008		
Sa	10/18/2008		
Su	10/19/2008		
M	10/20/2008	20	20
T	10/21/2008		
W	10/22/2008		
Th	10/23/2008		
F	10/24/2008	10	4
Sa	10/25/2008		
Su	10/26/2008		
M	10/27/2008		
T	10/28/2008	20	5
W	10/29/2008	21	21
Th	10/30/2008		
F	10/31/2008		
	TOTAL	**1361**	**629**

Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
24-hour average

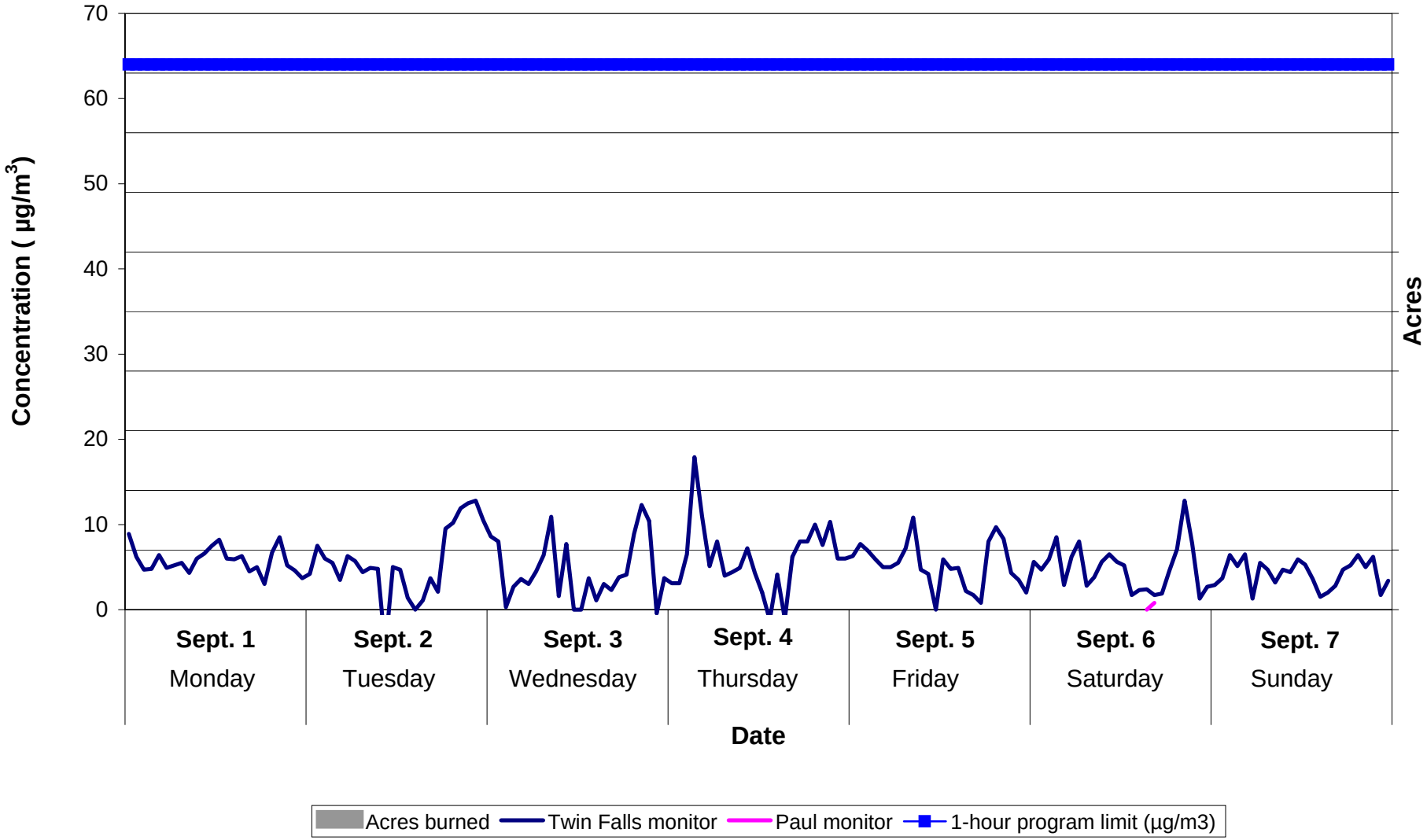
September 1 - October 31



Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

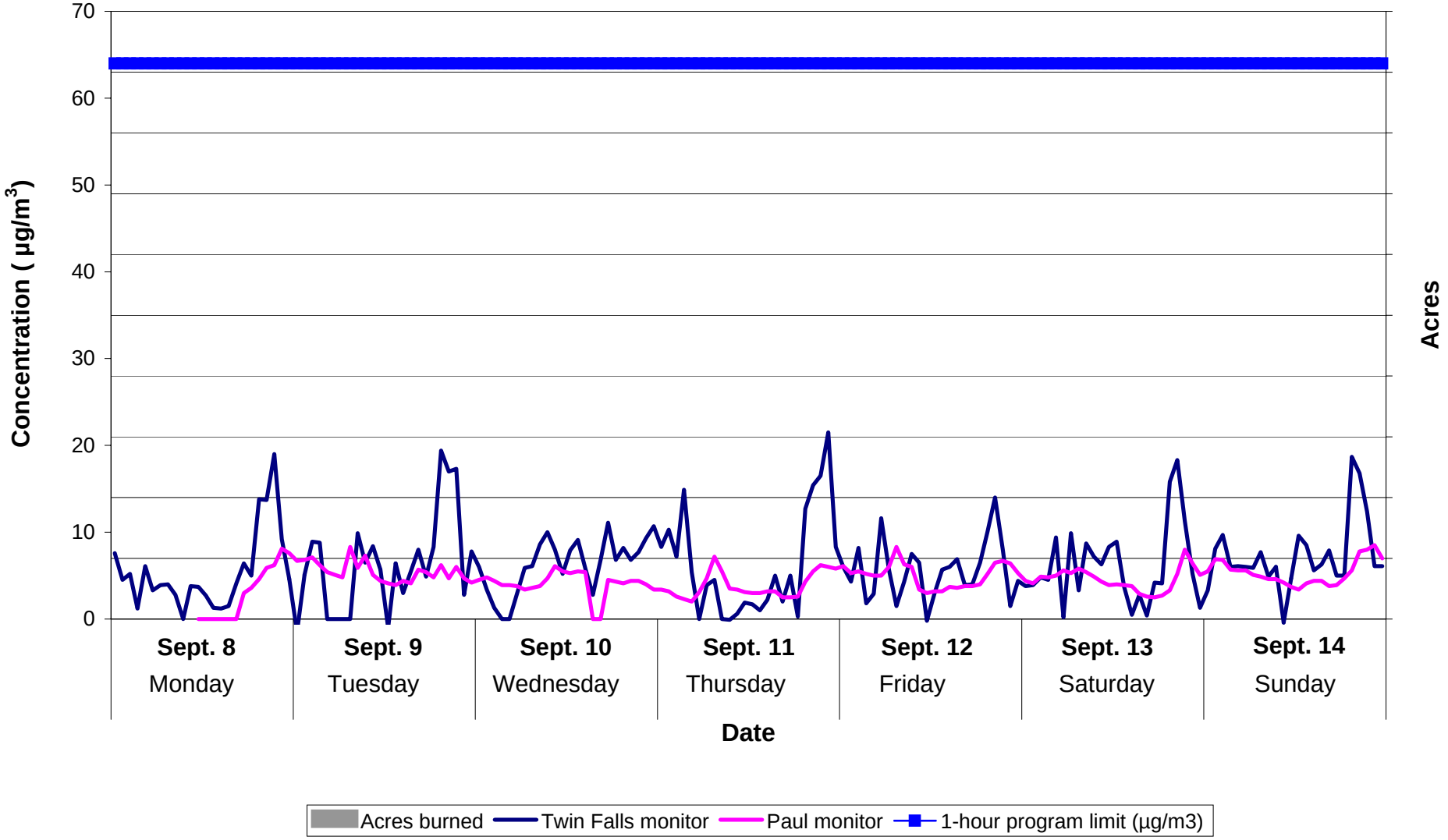
September 1 - September 7



Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

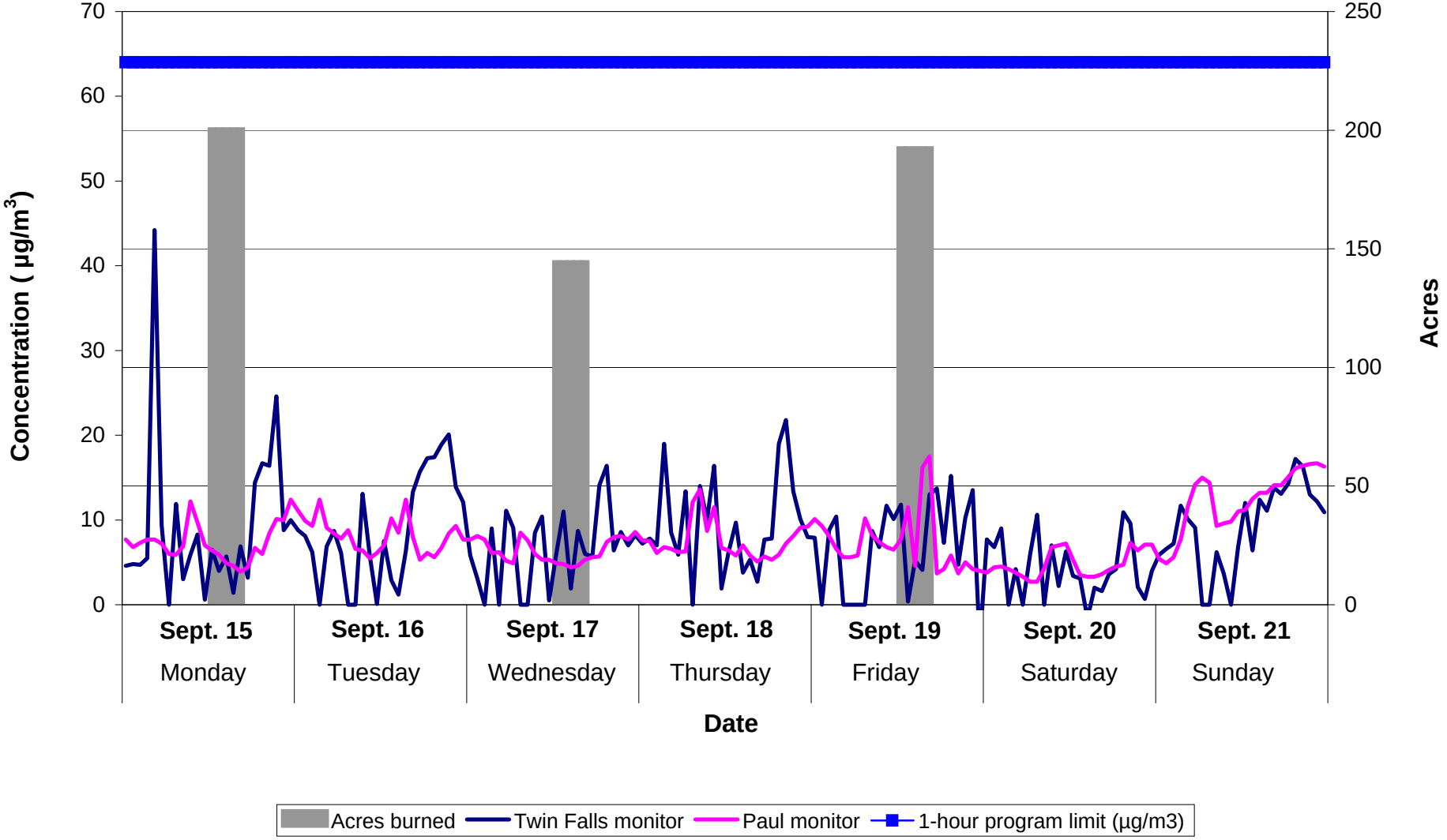
September 8 - September 14

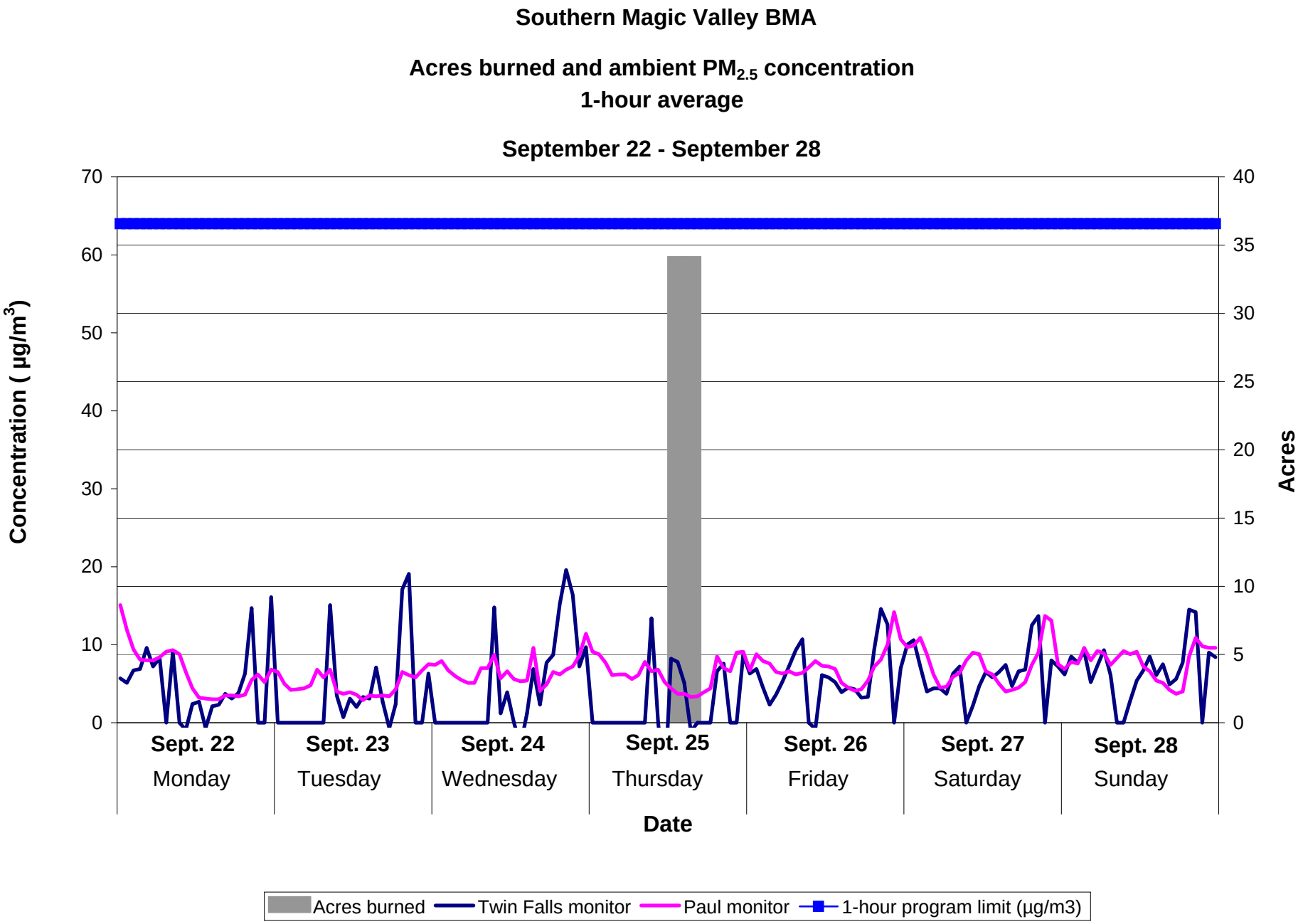


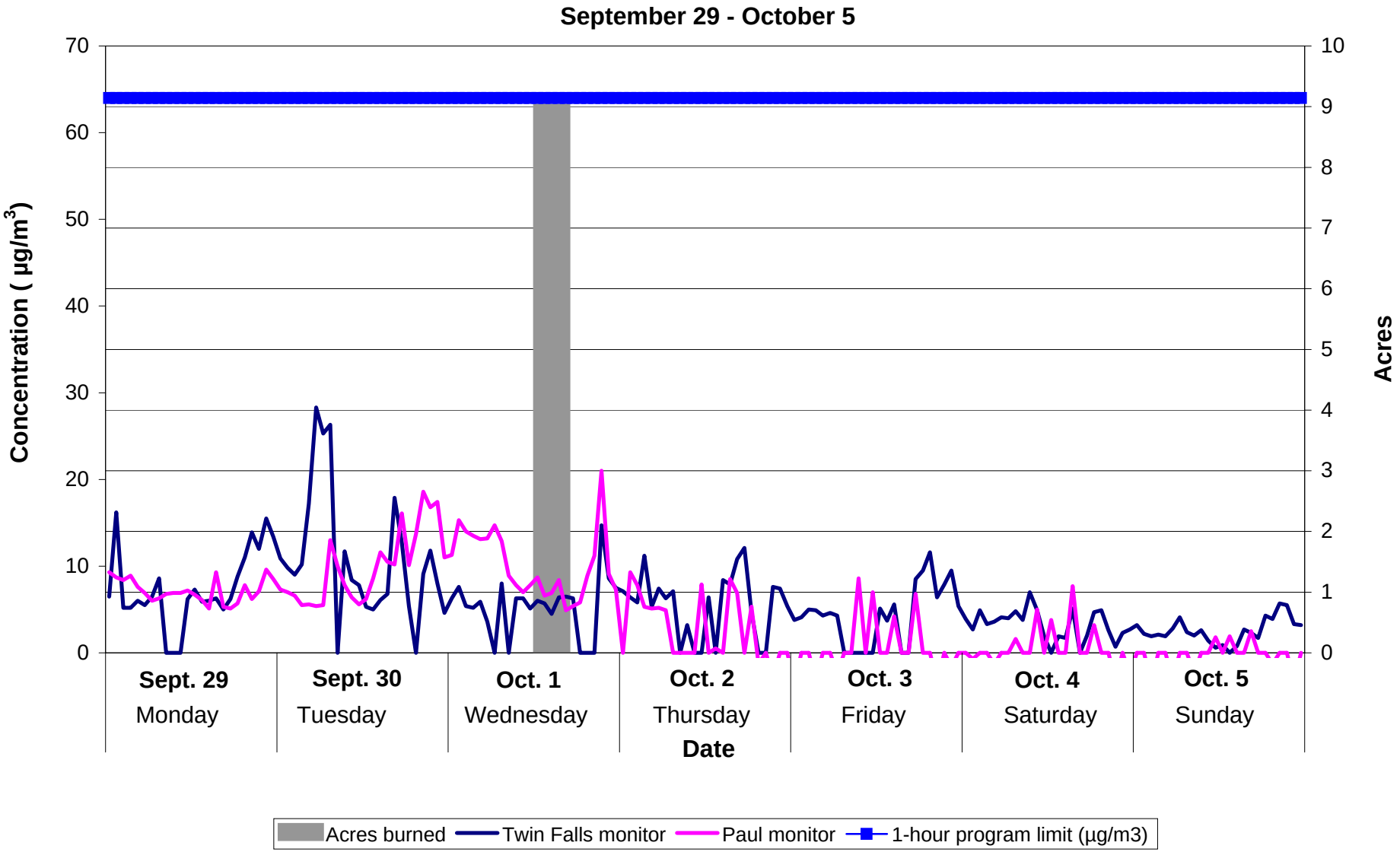
Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

September 15 - September 21



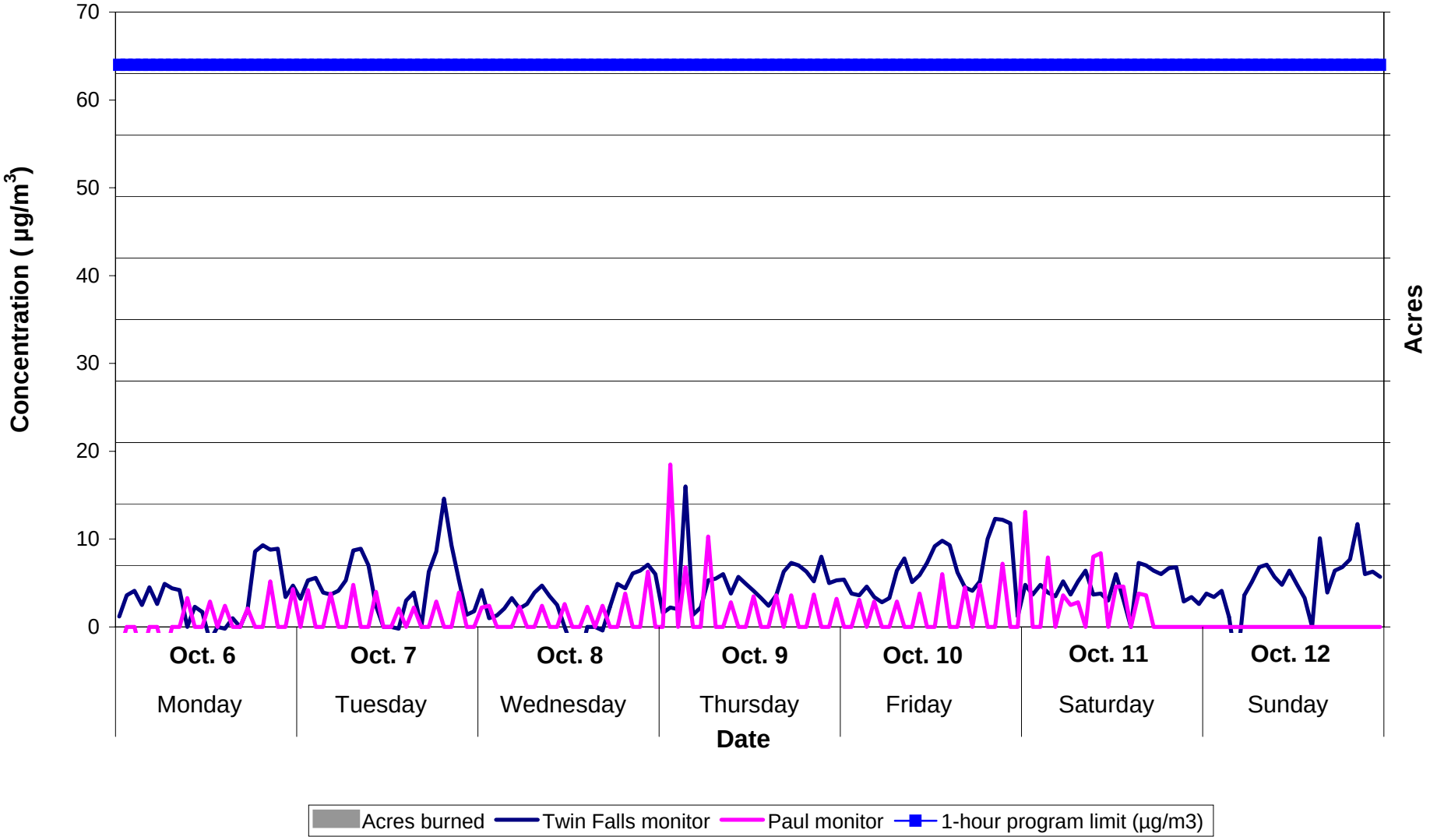

Southern Magic Valley BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 22 - September 28
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
Sept. 22
Monday
Sept. 23
Tuesday
Sept. 24
Wednesday
Sept. 25
Thursday
Sept. 26
Friday
Sept. 27
Saturday
Sept. 28
Sunday
Date
Acres burned
Twin Falls monitor
Paul monitor
1-hour program limit (µg/m3)


Southern Magic Valley BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 29 - October 5
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
10
9
8
7
6
5
4
3
2
1
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Twin Falls monitor
Paul monitor
1-hour program limit (µg/m3)

Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

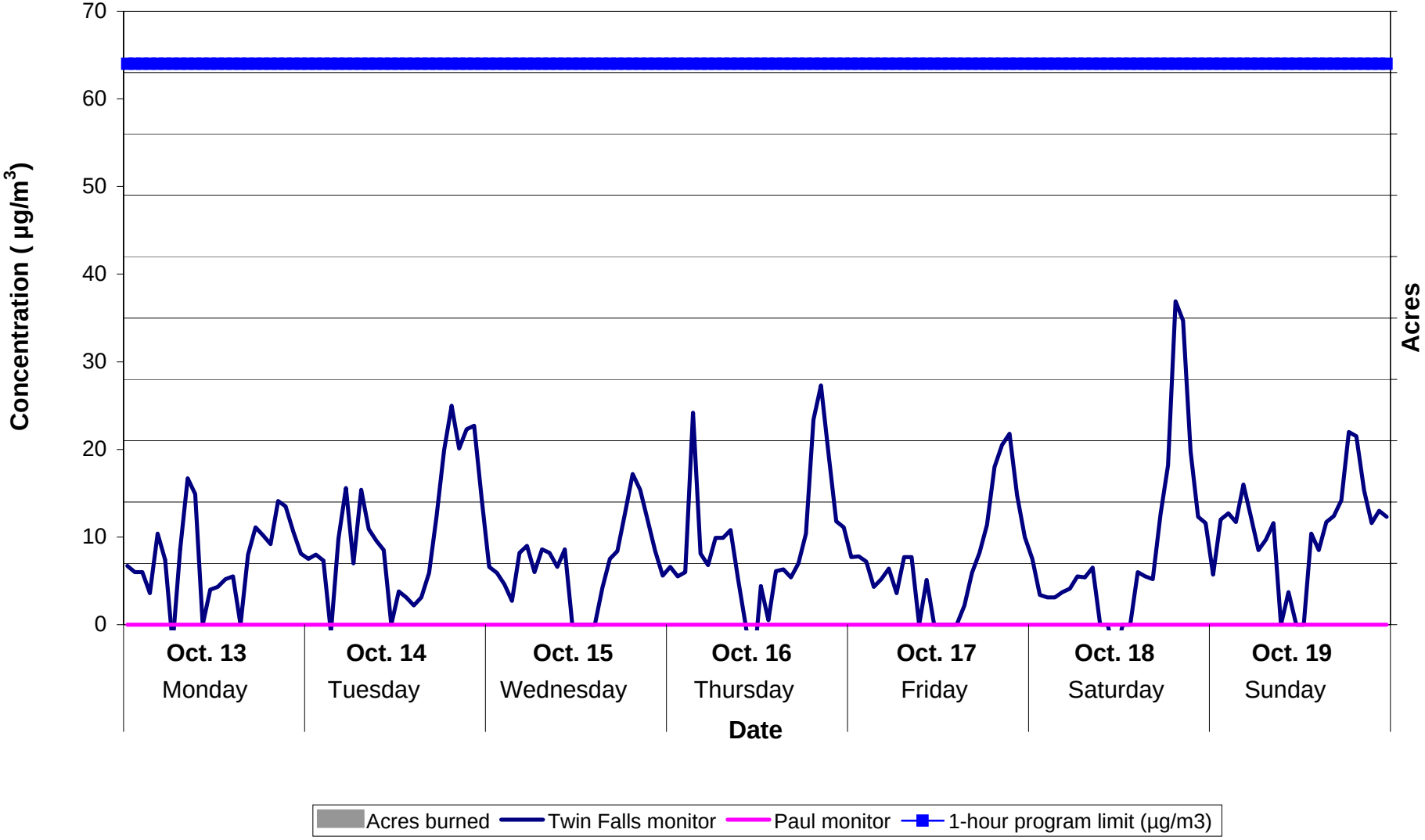
October 6 - October 12



Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

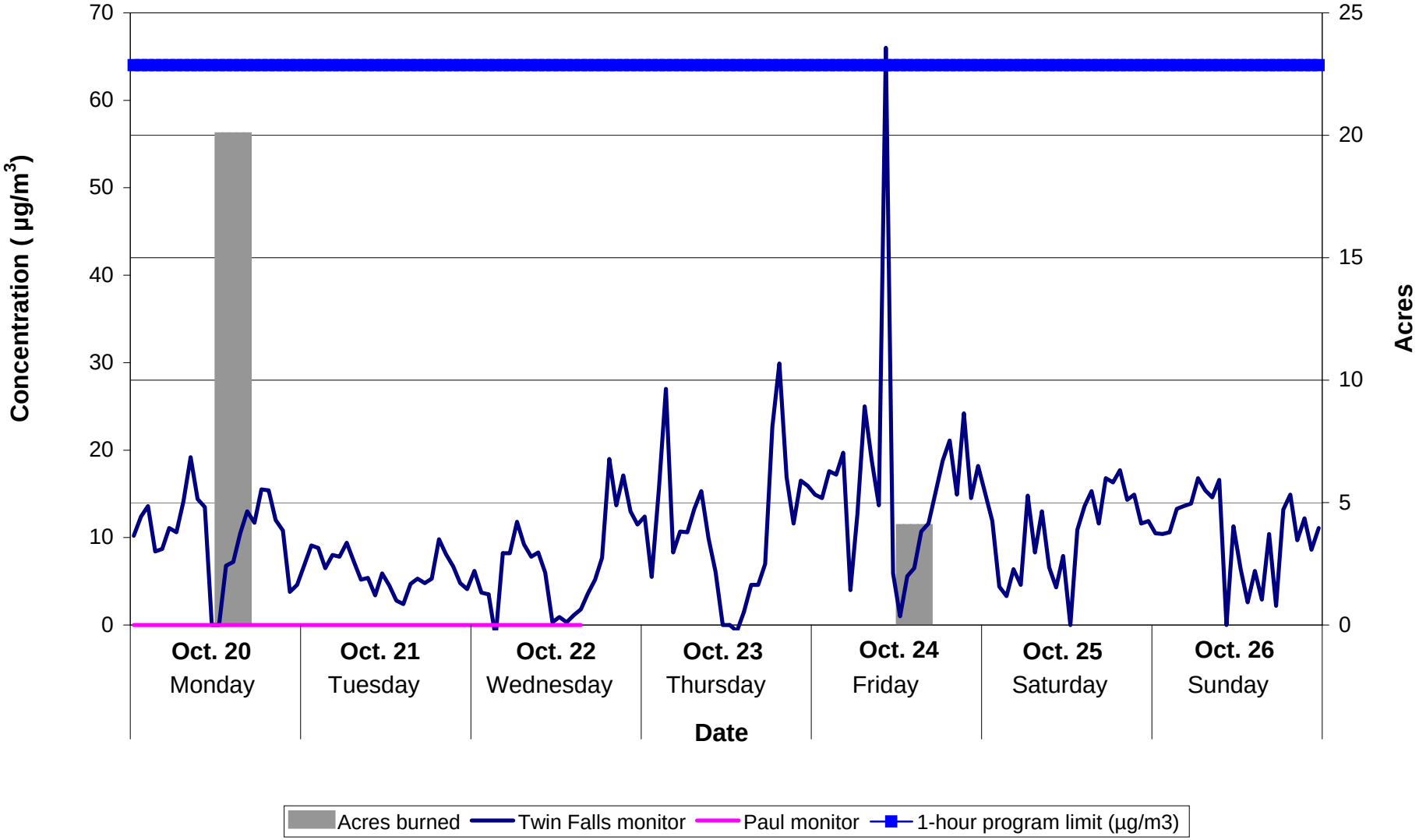
October 13 - October 19

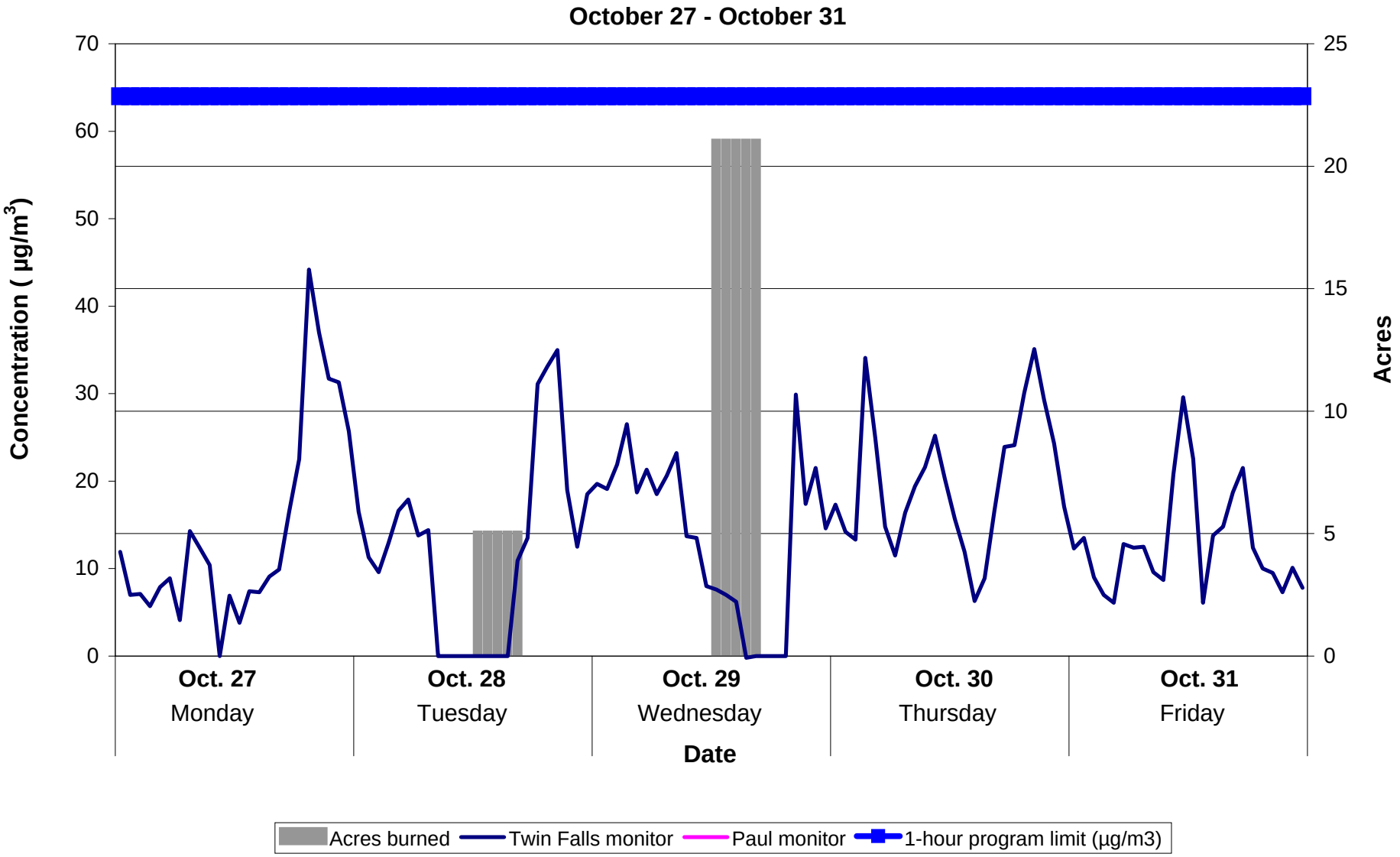


Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

October 20 - October 26

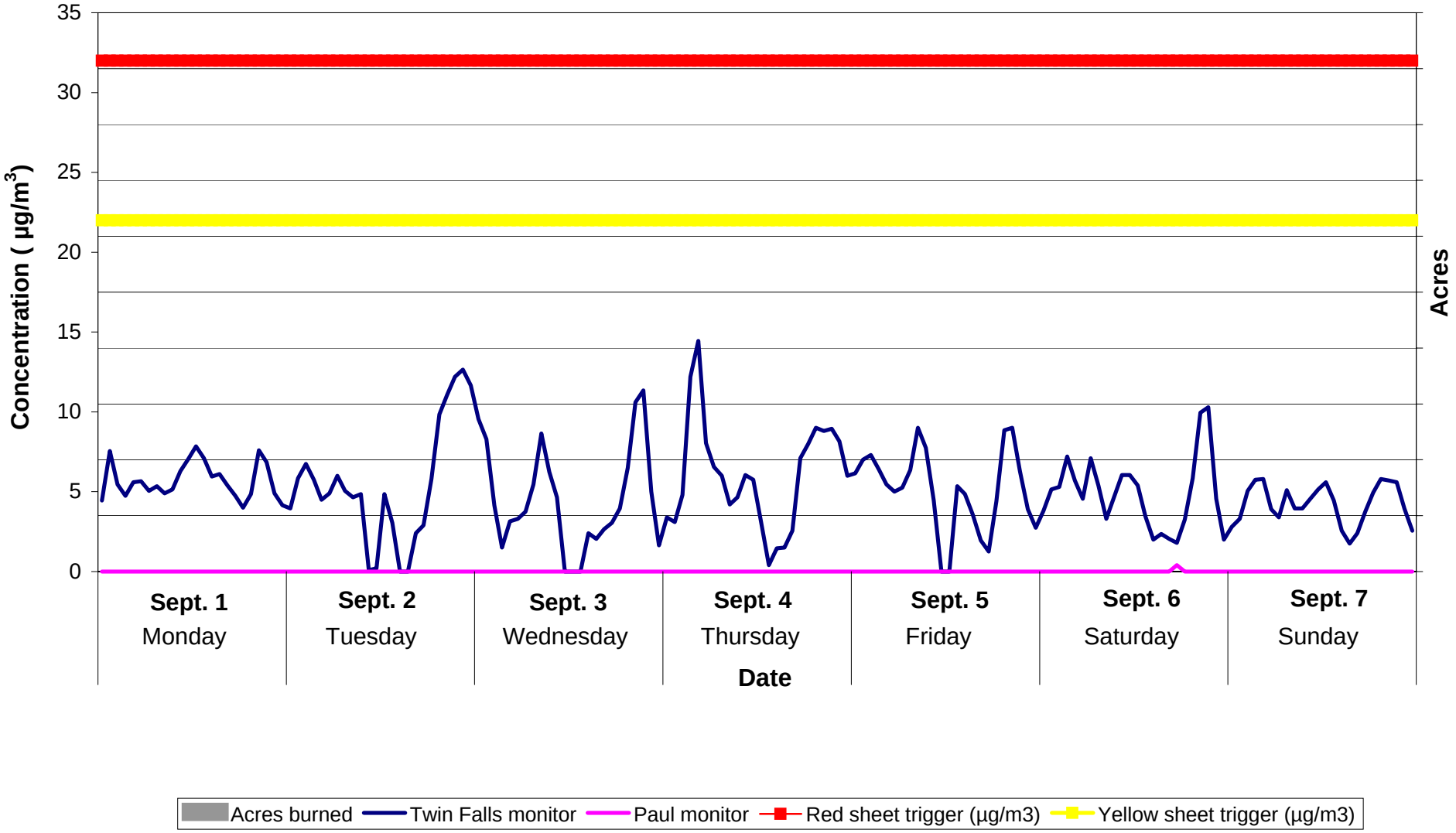



Southern Magic Valley BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 27 - October 31
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
25
20
15
10
5
0
Oct. 27
Monday
Oct. 28
Tuesday
Oct. 29
Wednesday
Oct. 30
Thursday
Oct. 31
Friday
Date
Acres burned
Twin Falls monitor
Paul monitor
1-hour program limit (µg/m3)

Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

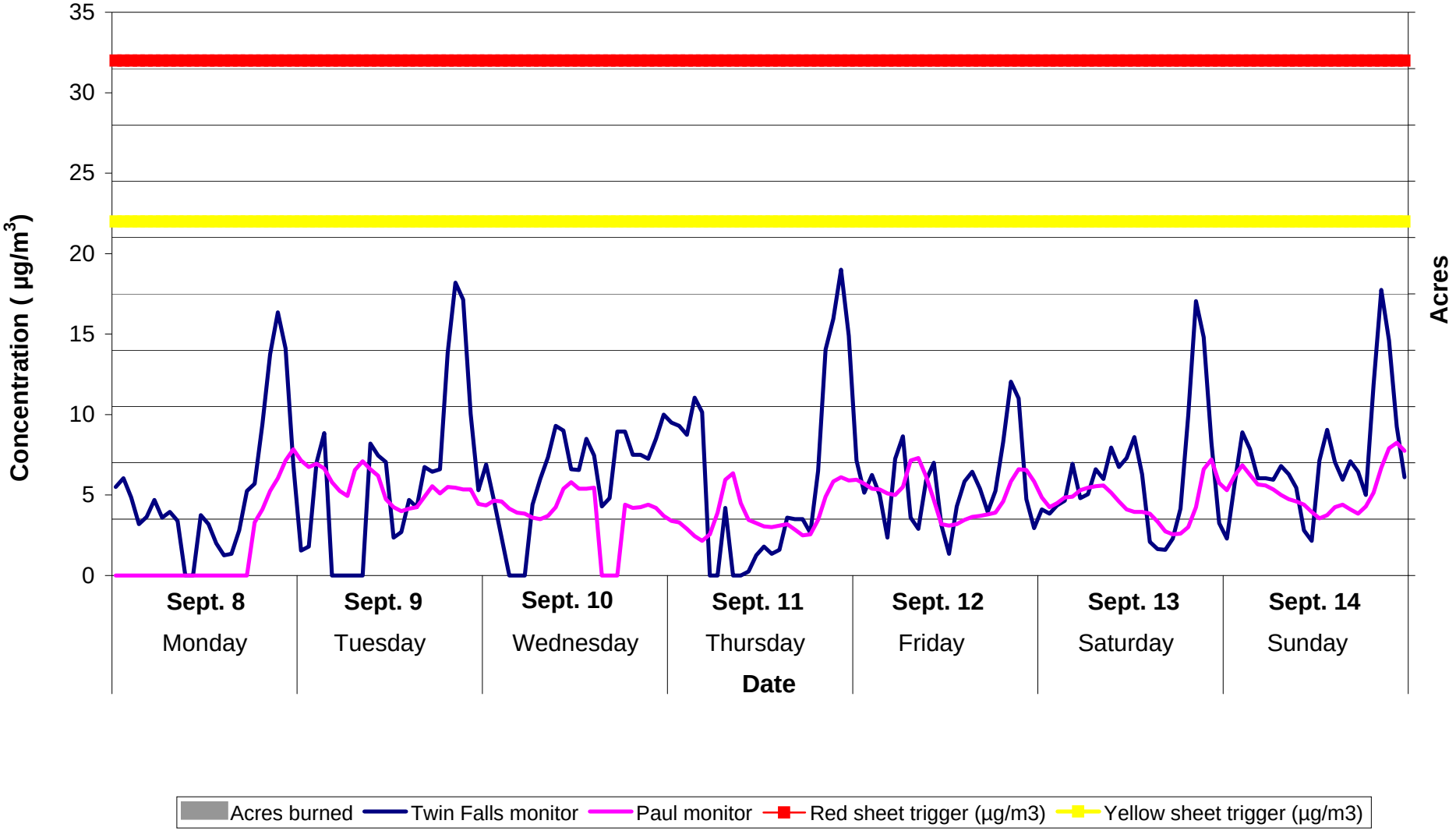
September 1 - September 7



Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

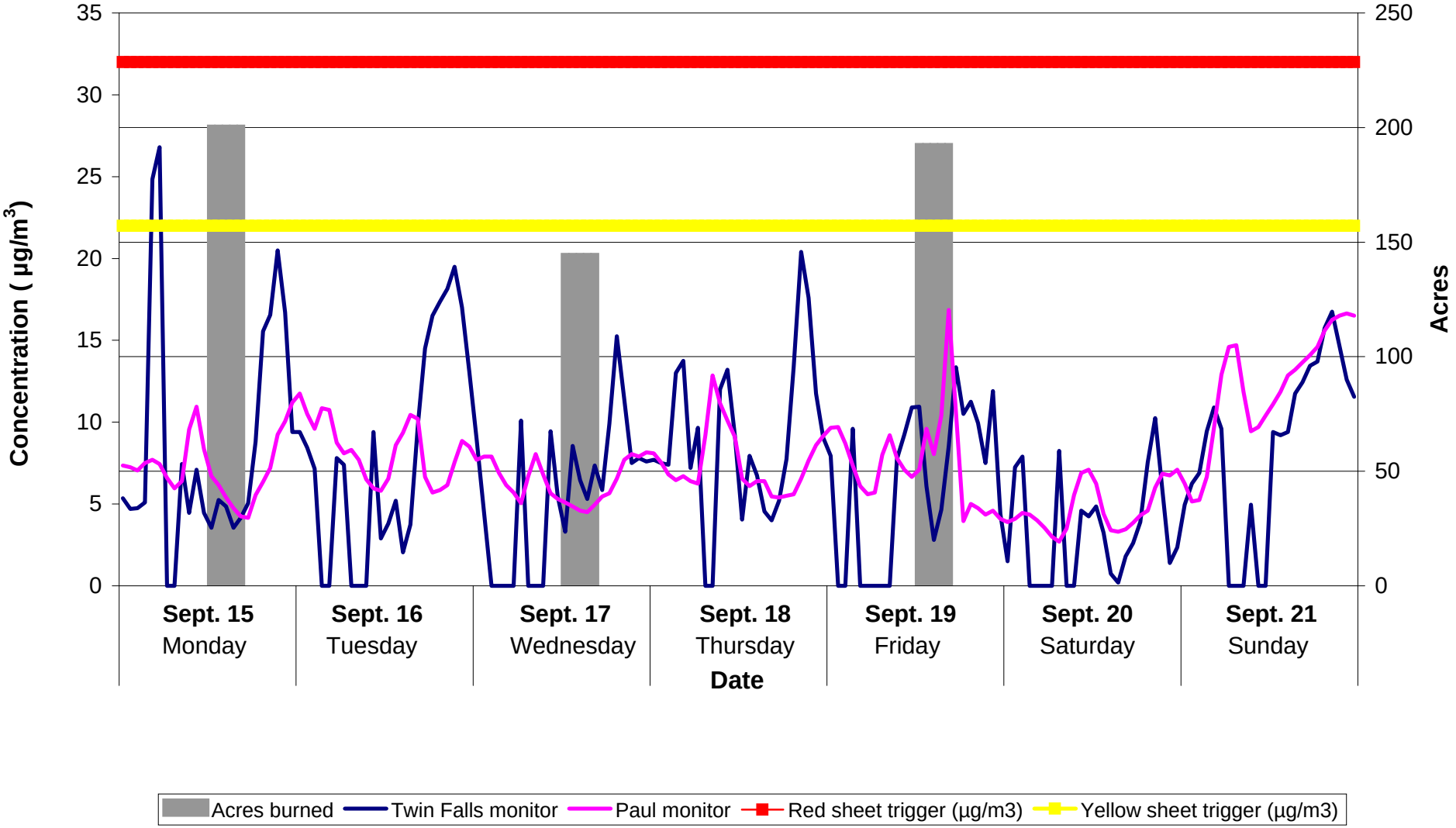
September 8 - September 14



Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

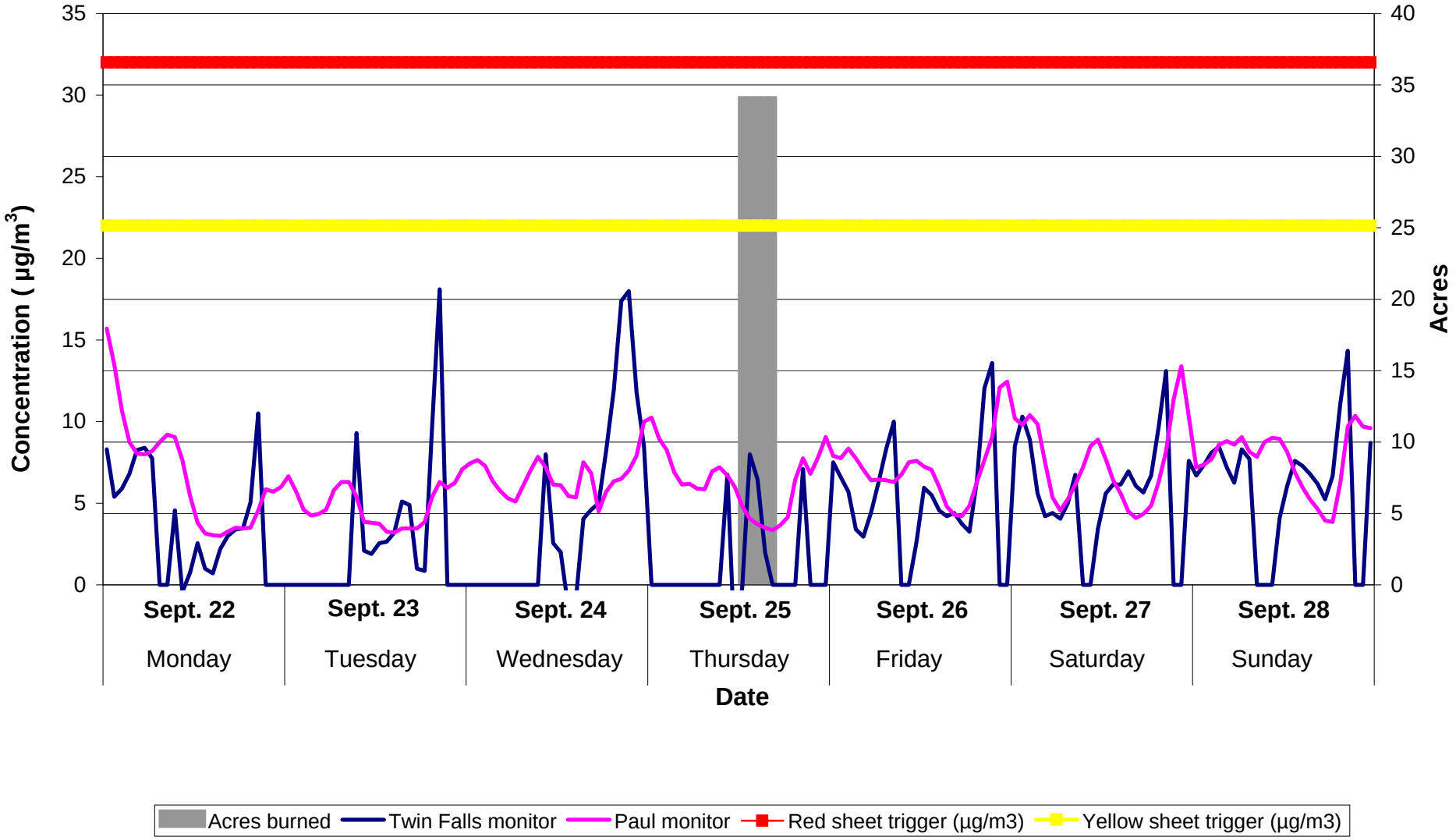
September 15 - September 21



Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

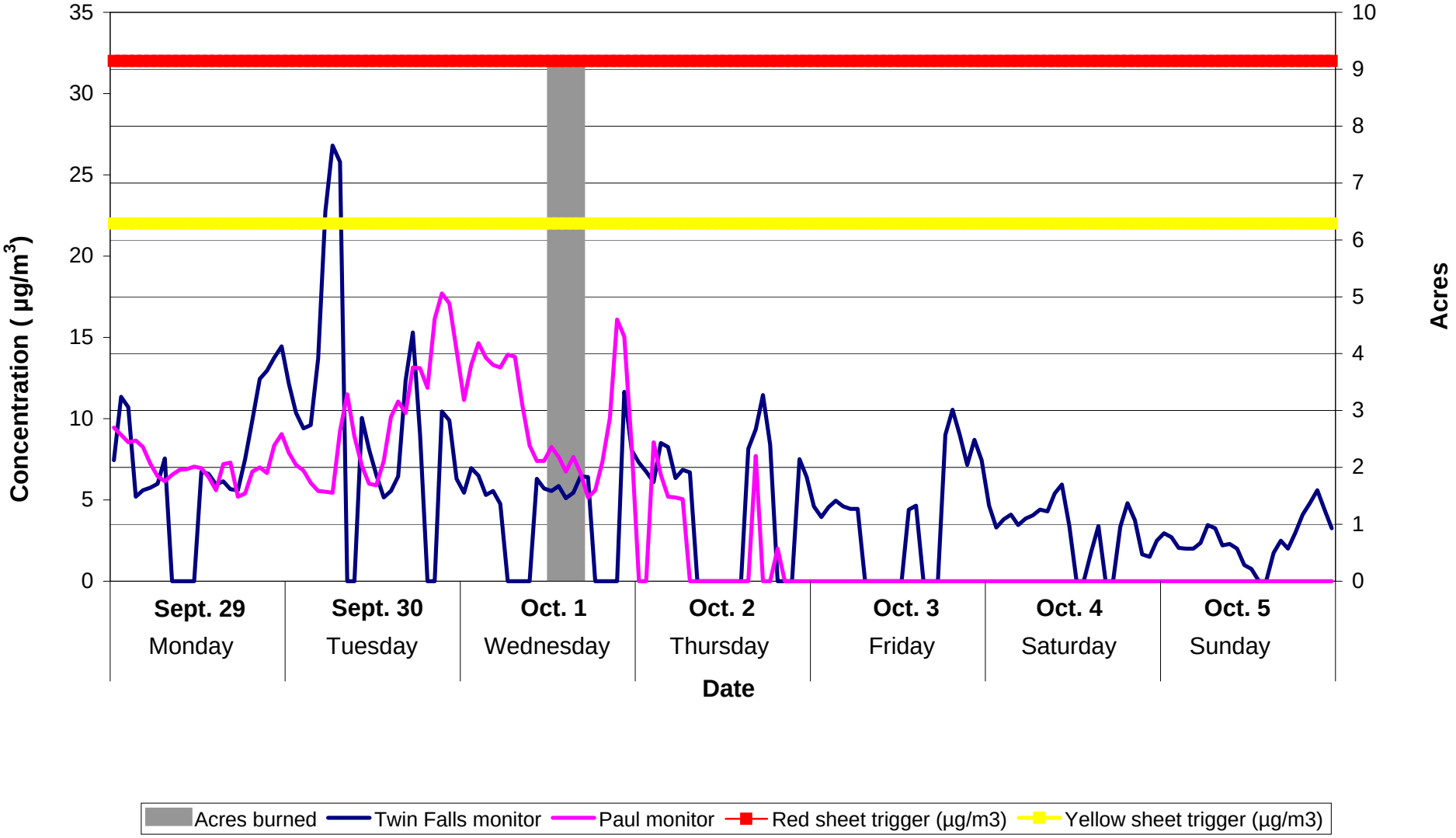
September 22 - September 28



Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

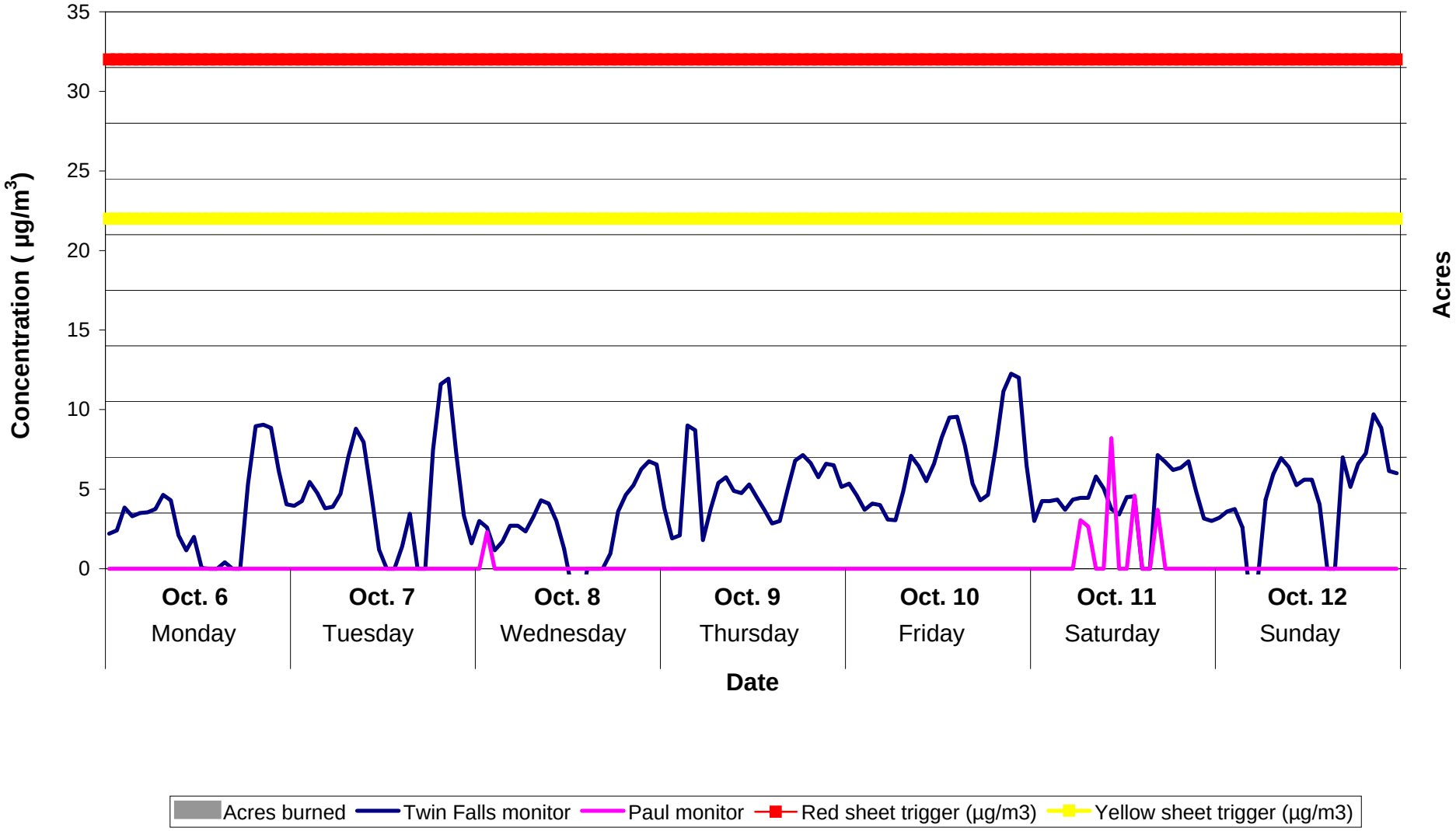
September 29 - October 5



Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

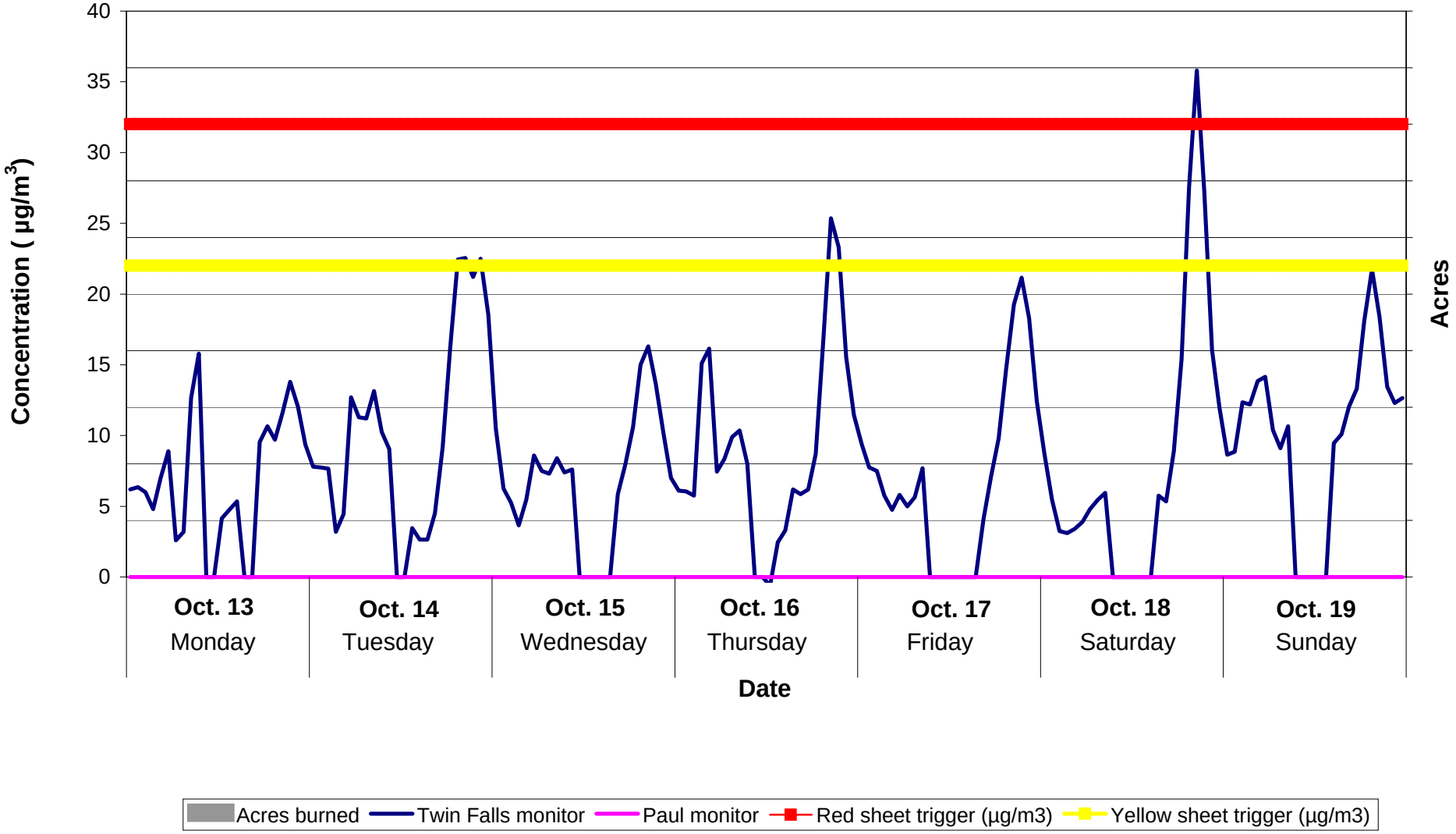
October 6 - October 12



Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

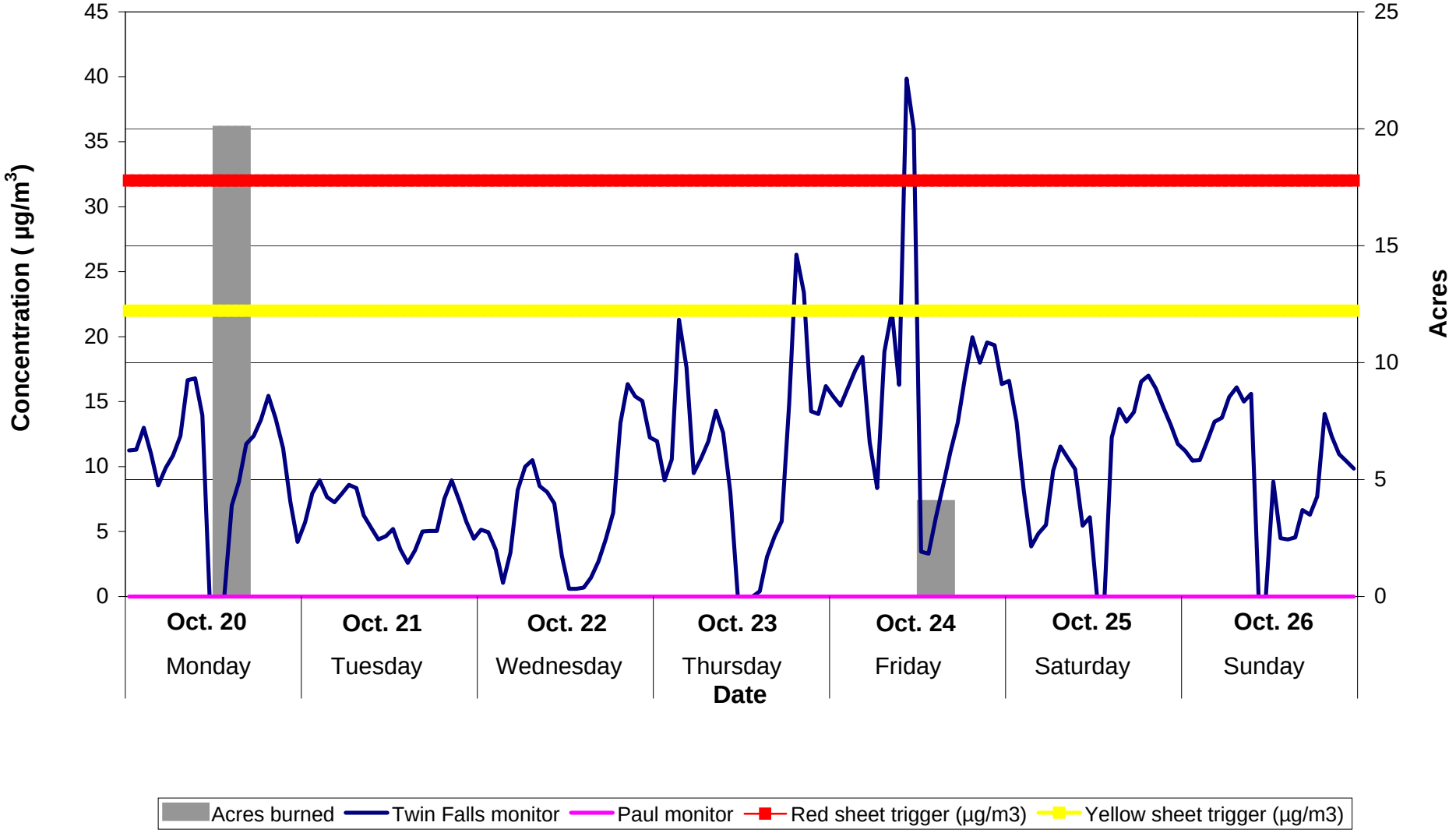
October 13 - October 19



Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

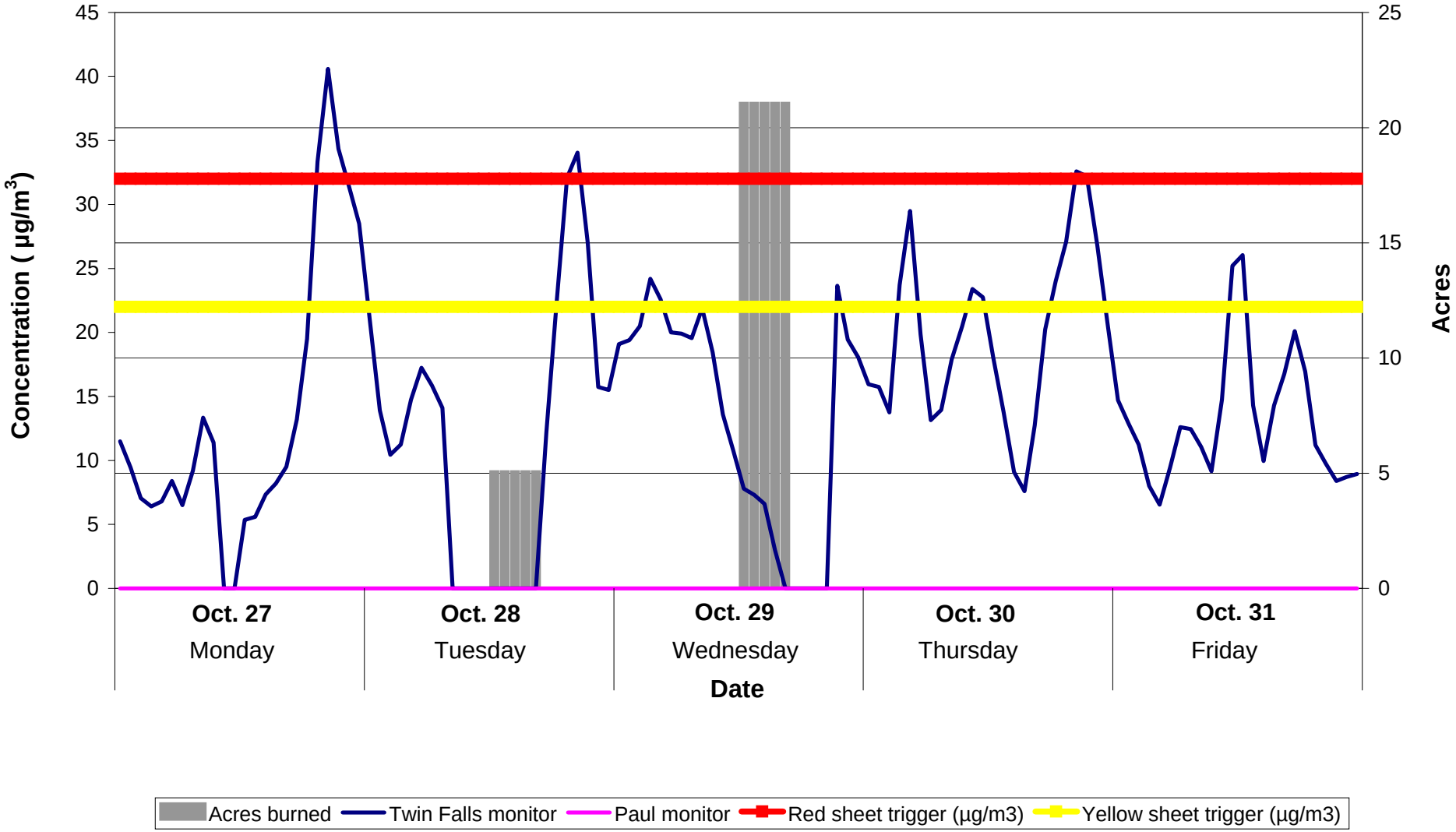
October 20 - October 26



Southern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 27 - October 31



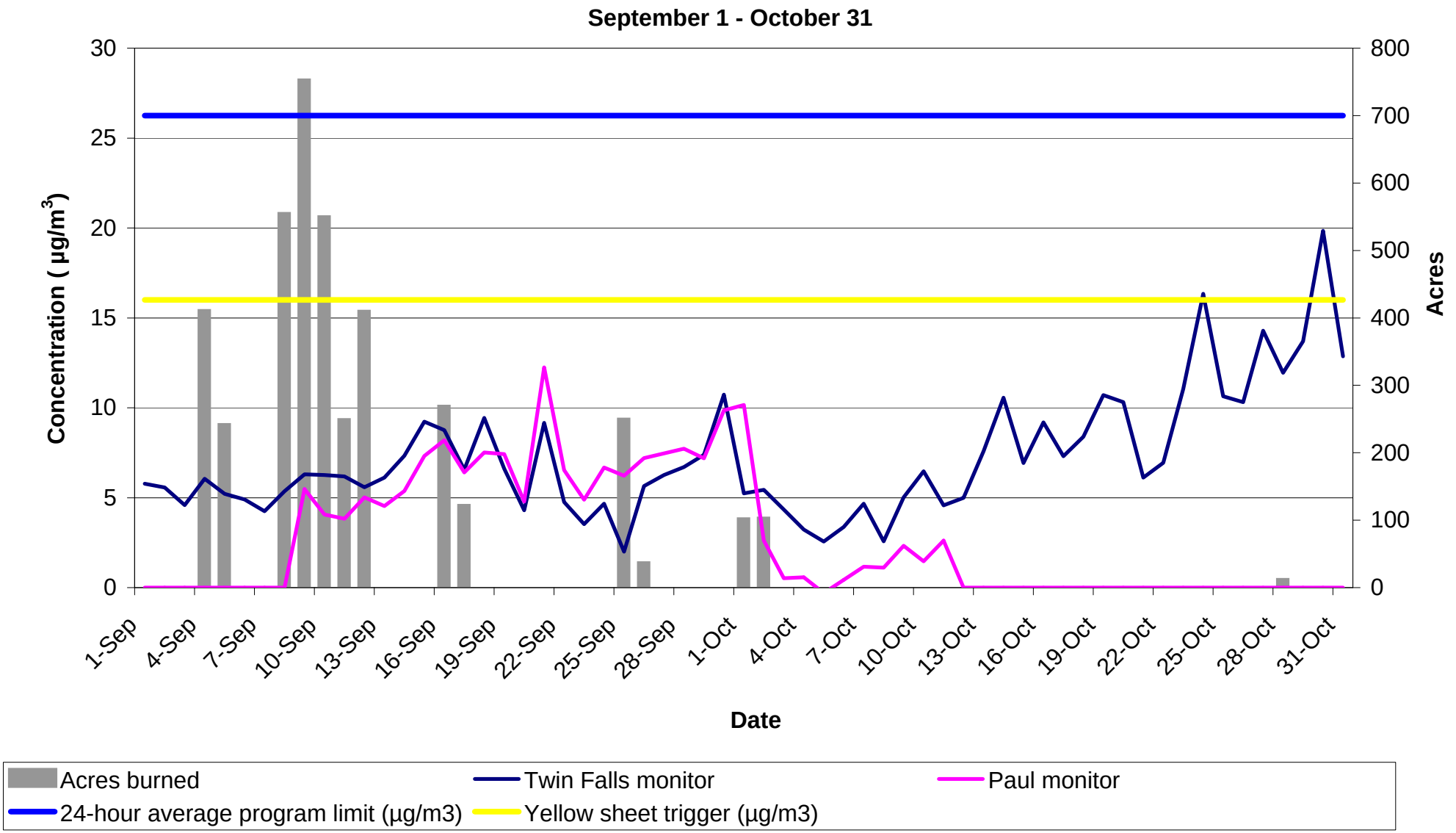
Appendix G

Air Quality Evaluation

of the

Northern Magic Valley BMA

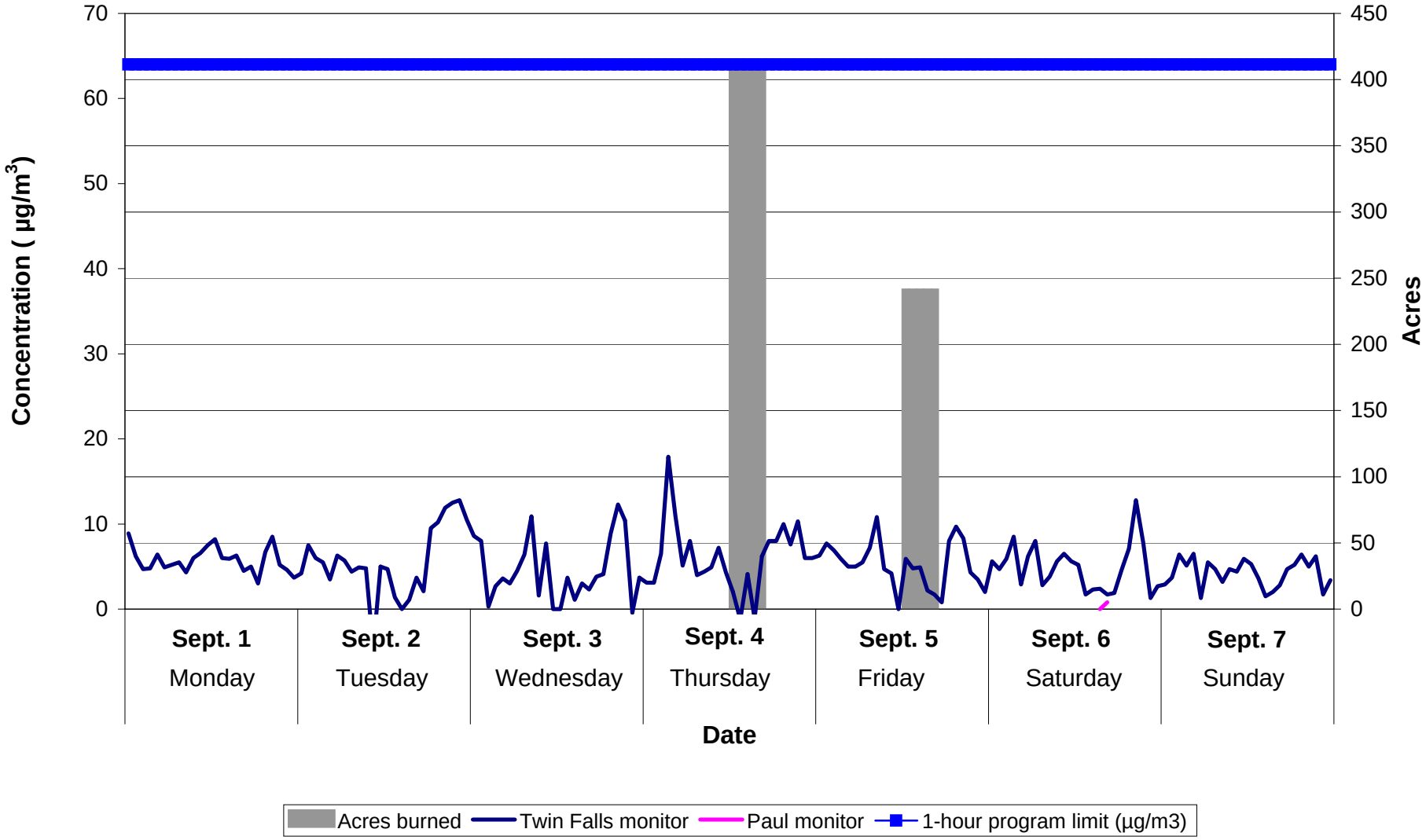
Burn Decisions and Acres Burned - Northern Magic Valley BMA			
Day of Week	**Date**	**# acres approved**	**# acres burned**
T	9/2/2008		
W	9/3/2008		
Th	9/4/2008	409	409
F	9/5/2008	480	240
Sa	9/6/2008		
Su	9/7/2008		
M	9/8/2008	553	553
T	9/9/2008	751	751
W	9/10/2008	548	548
Th	9/11/2008	247	247
F	9/12/2008	413	408
Sa	9/13/2008		
Su	9/14/2008		
M	9/15/2008		
T	9/16/2008	267	267
W	9/17/2008	120	120
Th	9/18/2008		
F	9/19/2008		
Sa	9/20/2008		
Su	9/21/2008		
M	9/22/2008		
T	9/23/2008		
W	9/24/2008		
Th	9/25/2008	466	248
F	9/26/2008	95	35
Sa	9/27/2008		
Su	9/28/2008		
M	9/29/2008		
T	9/30/2008		
W	10/1/2008	110	100
Th	10/2/2008	101	101
F	10/3/2008		
Sa	10/4/2008		
Su	10/5/2008		
M	10/6/2008		
T	10/7/2008		
W	10/8/2008		
Th	10/9/2008		
F	10/10/2008		
Sa	10/11/2008		
Su	10/12/2008		
M	10/13/2008		
T	10/14/2008		
W	10/15/2008		
Th	10/16/2008		
F	10/17/2008		
Sa	10/18/2008		
Su	10/19/2008		
M	10/20/2008		
T	10/21/2008		
W	10/22/2008		
Th	10/23/2008		
F	10/24/2008		
Sa	10/25/2008		
Su	10/26/2008		
M	10/27/2008		
T	10/28/2008	10	10
W	10/29/2008		
Th	10/30/2008		
F	10/31/2008		
	TOTAL	**4570**	**4037**

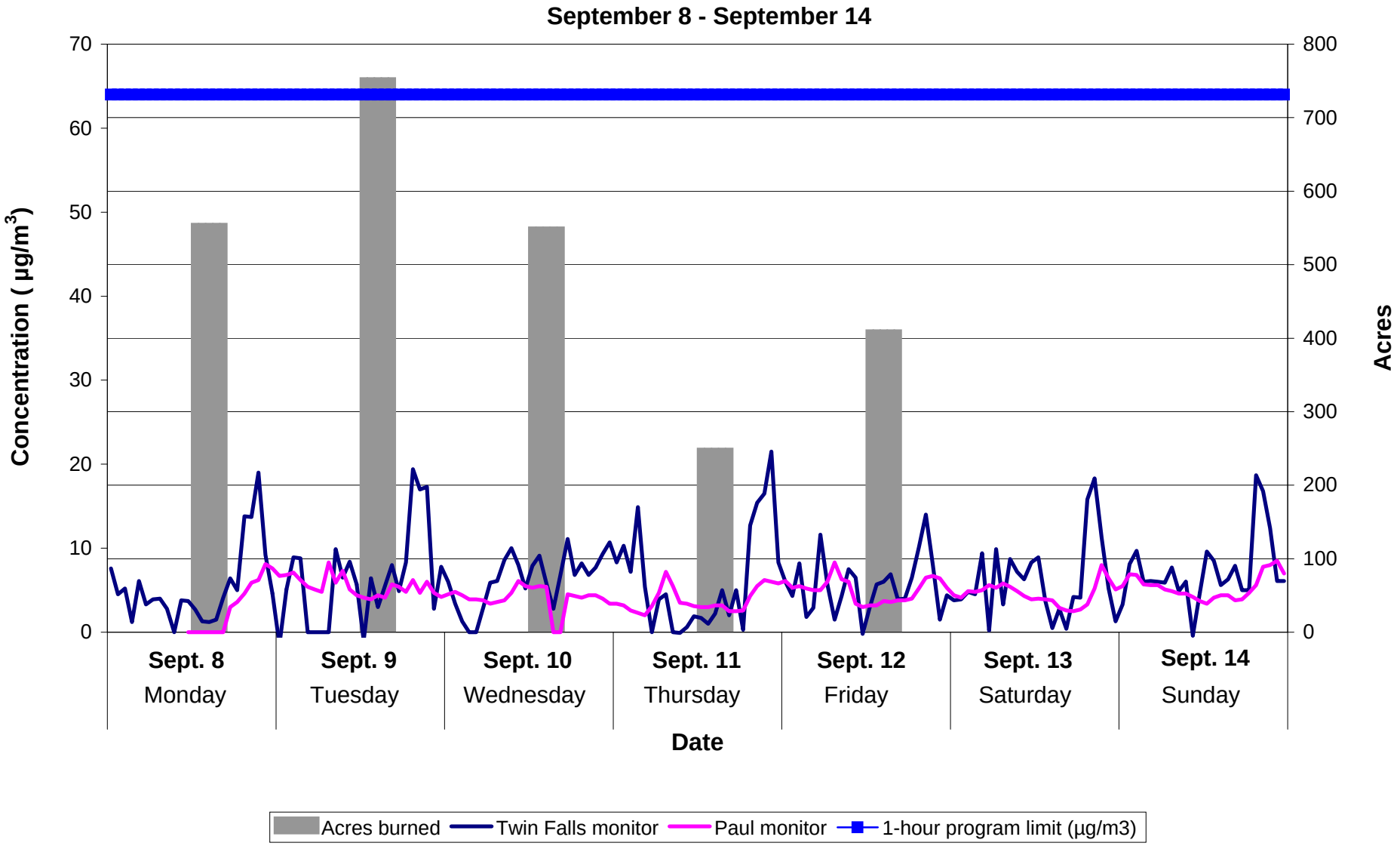

Northern Magic Valley BMA
Acres burned and ambient PM2.5 concentration
24-hour average
September 1 - October 31
Concentration (µg/m3)
Acres
Date
30
25
20
15
10
5
0
800
700
600
500
400
300
200
100
0
1-Sep
4-Sep
7-Sep
10-Sep
13-Sep
16-Sep
19-Sep
22-Sep
25-Sep
28-Sep
1-Oct
4-Oct
7-Oct
10-Oct
13-Oct
16-Oct
19-Oct
22-Oct
25-Oct
28-Oct
31-Oct
Acres burned
Twin Falls monitor
Paul monitor
24-hour average program limit (µg/m3)
Yellow sheet trigger (µg/m3)

Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

September 1 - September 7

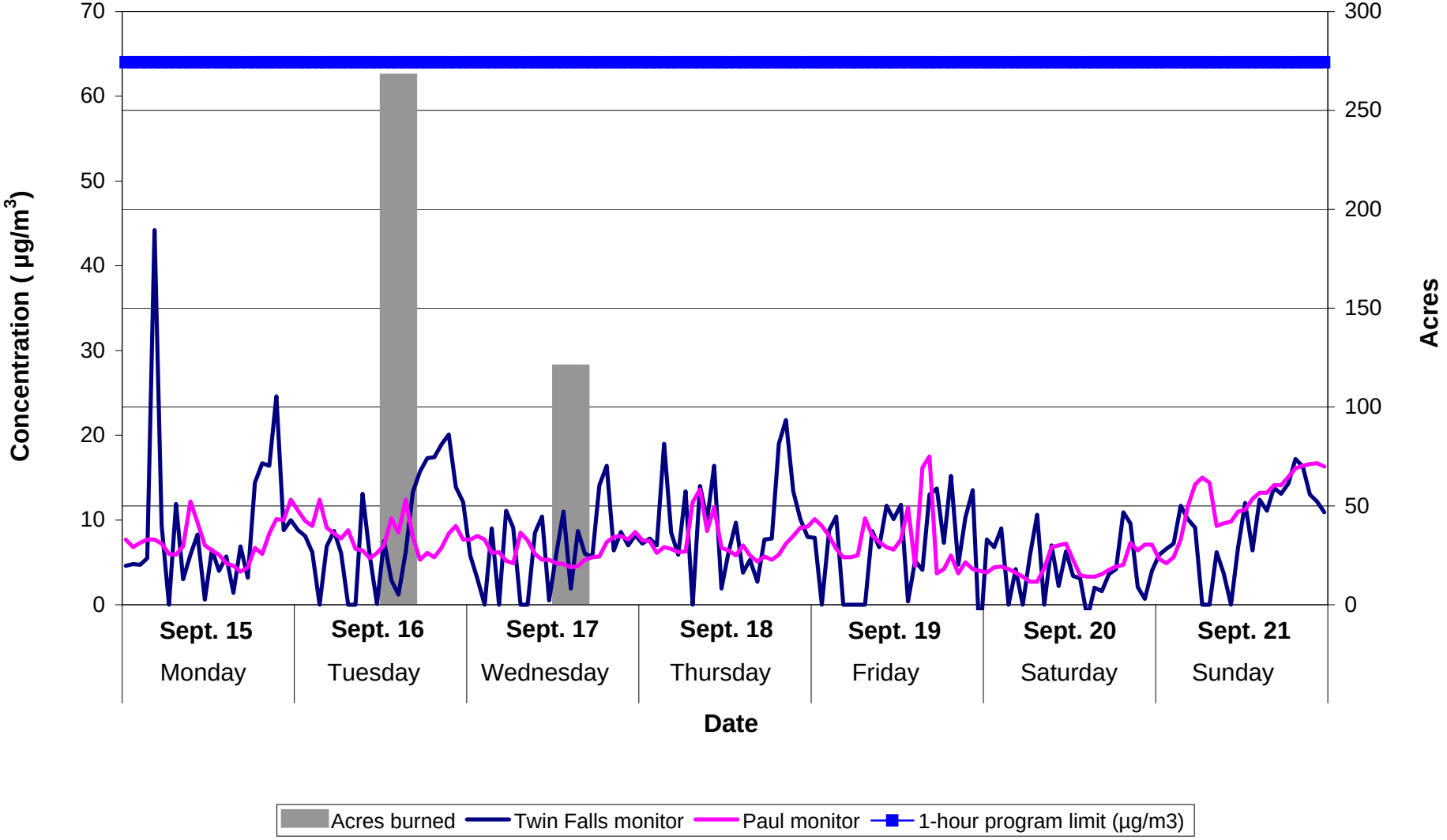


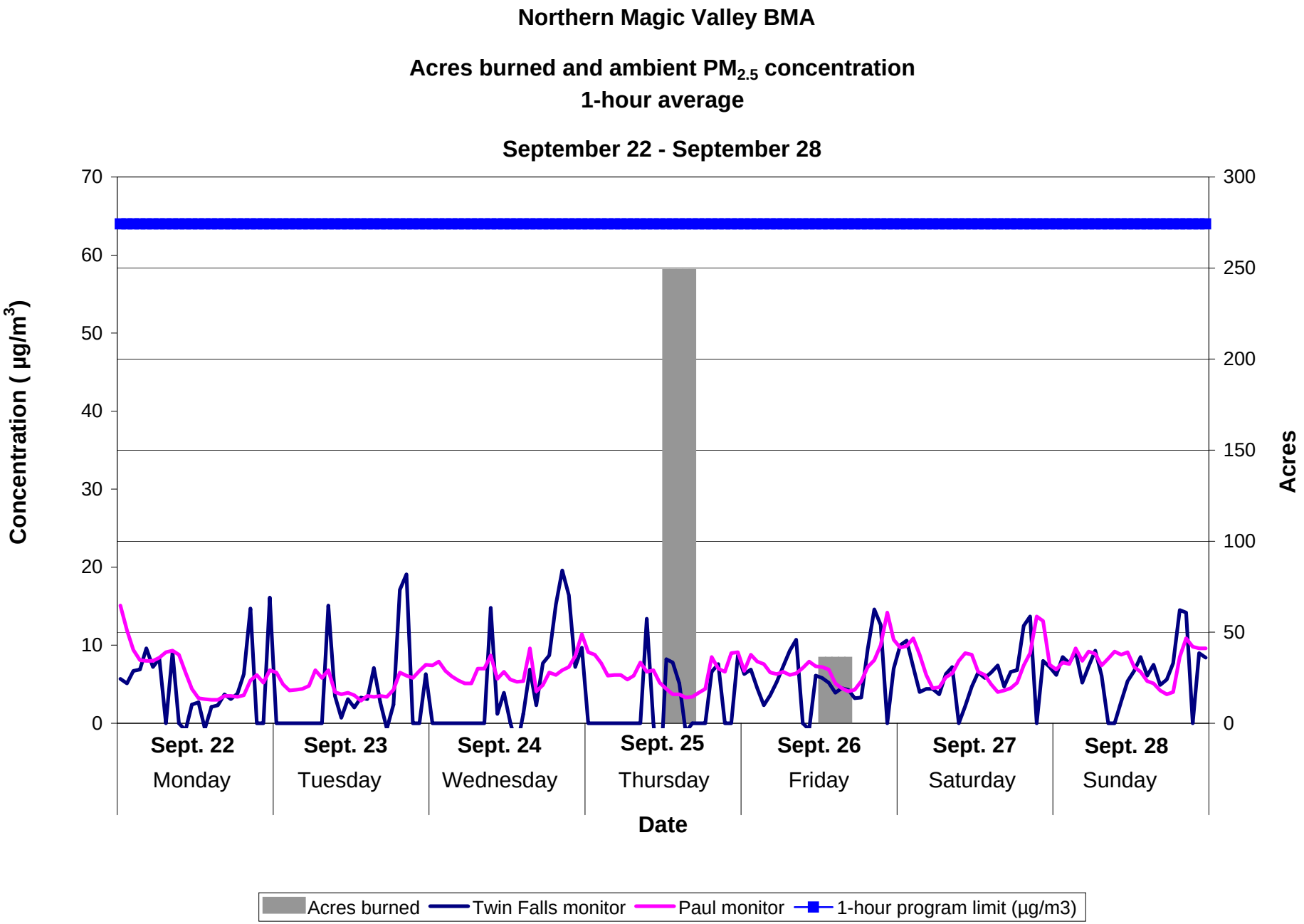

Northern Magic Valley BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 8 - September 14
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
800
700
600
500
400
300
200
100
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Twin Falls monitor
Paul monitor
1-hour program limit (µg/m3)

Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

September 15 - September 21

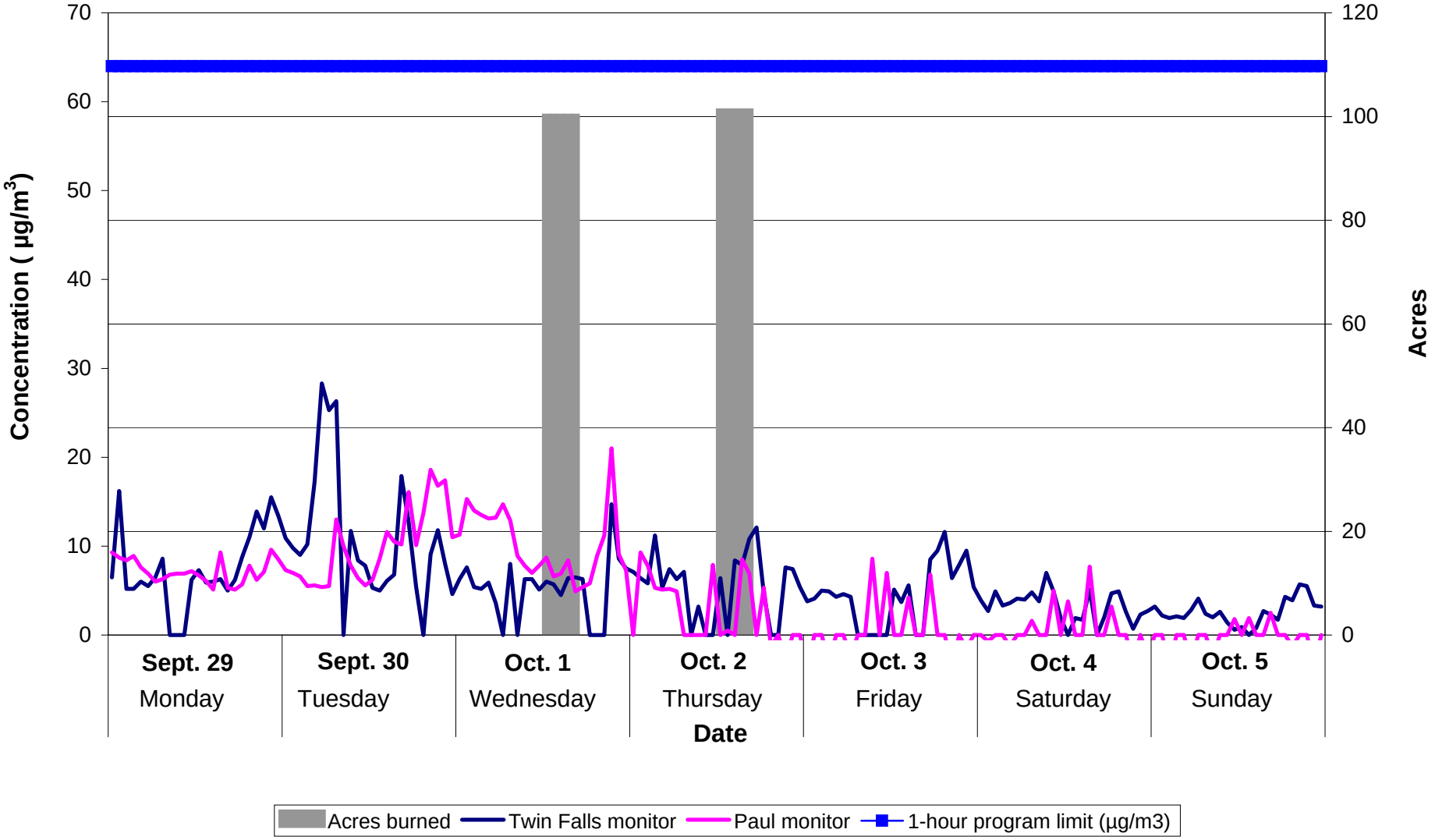



Northern Magic Valley BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 22 - September 28
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
300
250
200
150
100
50
0
Sept. 22
Monday
Sept. 23
Tuesday
Sept. 24
Wednesday
Sept. 25
Thursday
Sept. 26
Friday
Sept. 27
Saturday
Sept. 28
Sunday
Date
Acres burned
Twin Falls monitor
Paul monitor
1-hour program limit (µg/m3)

Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

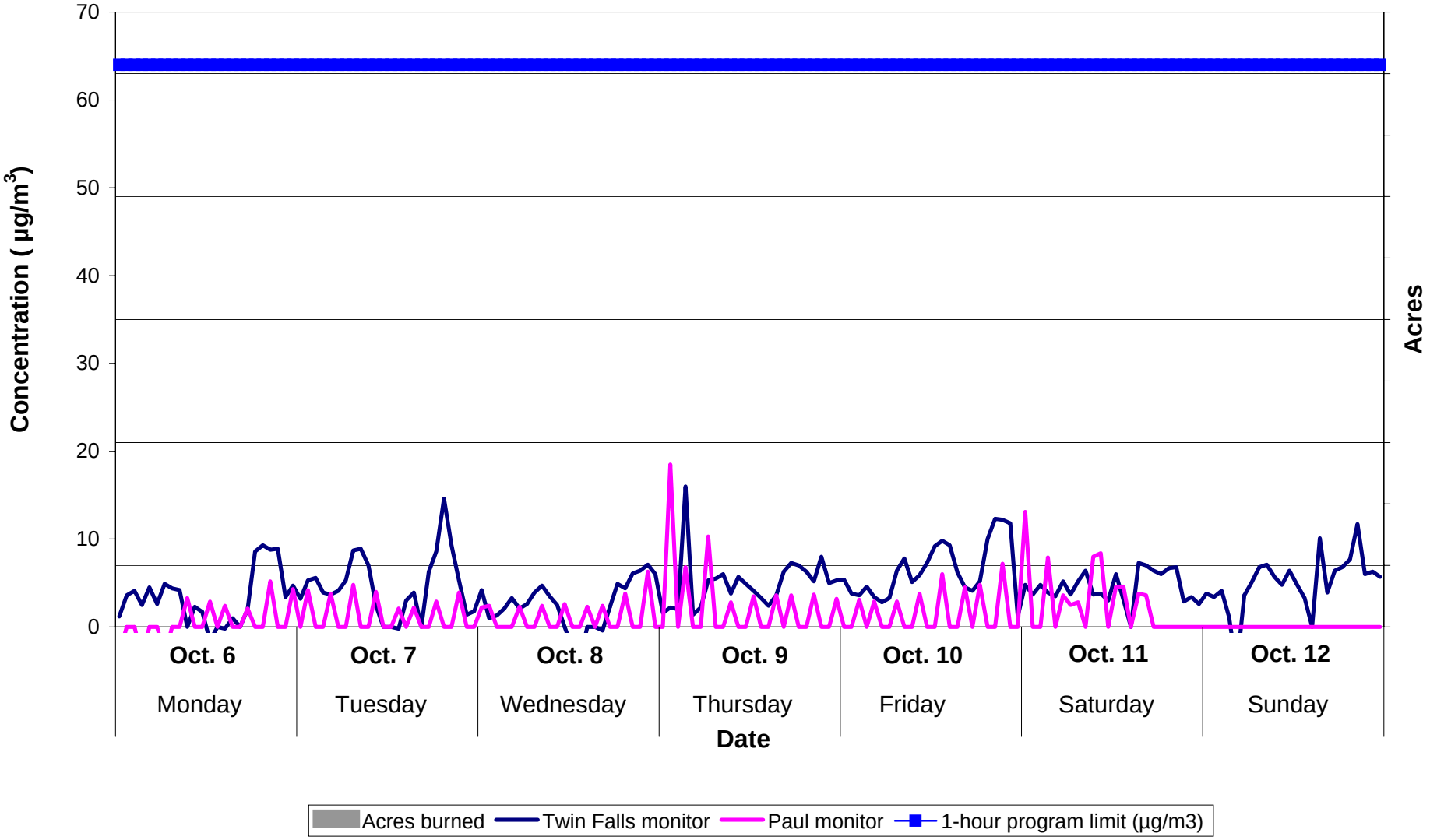
September 29 - October 5



Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

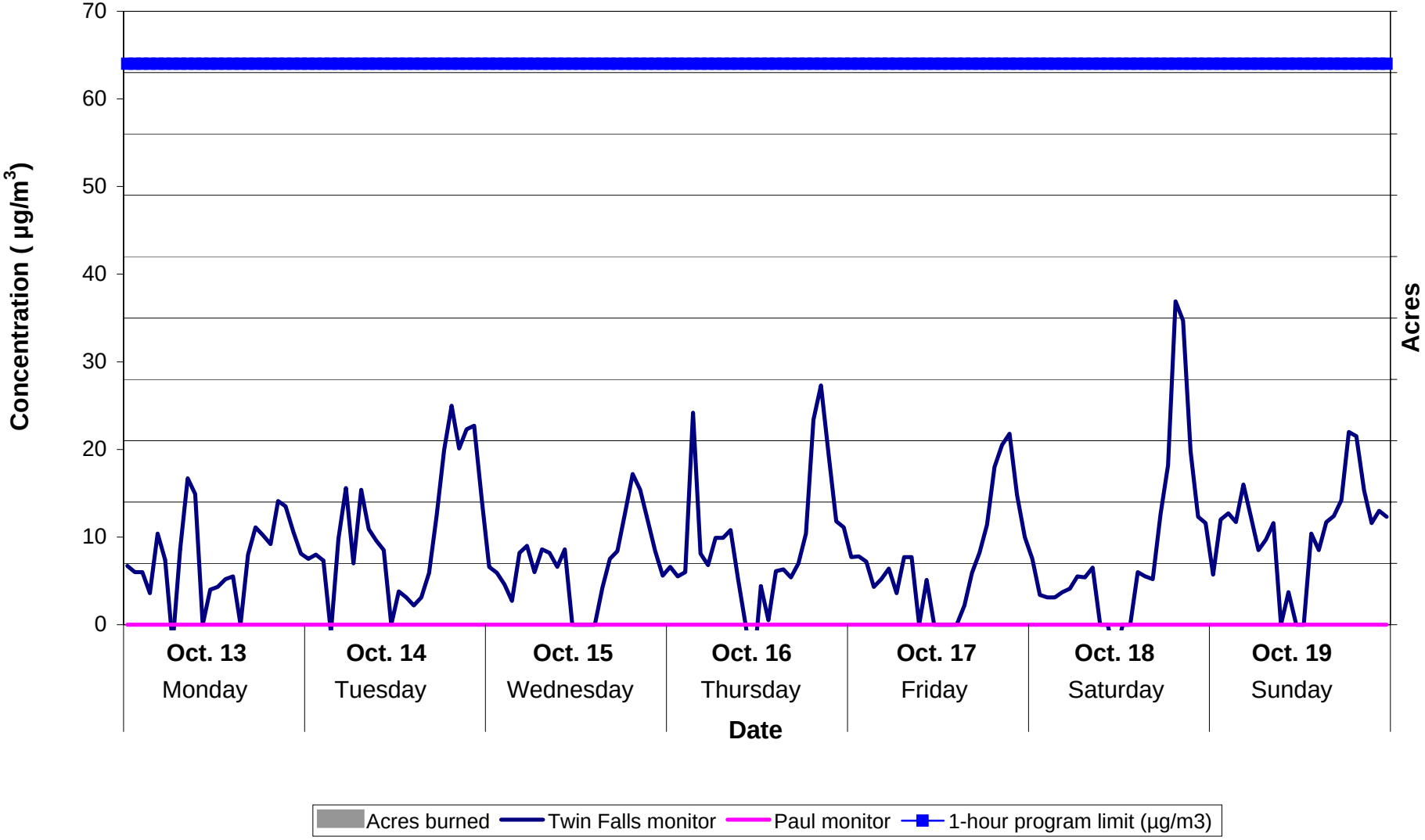
October 6 - October 12



Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

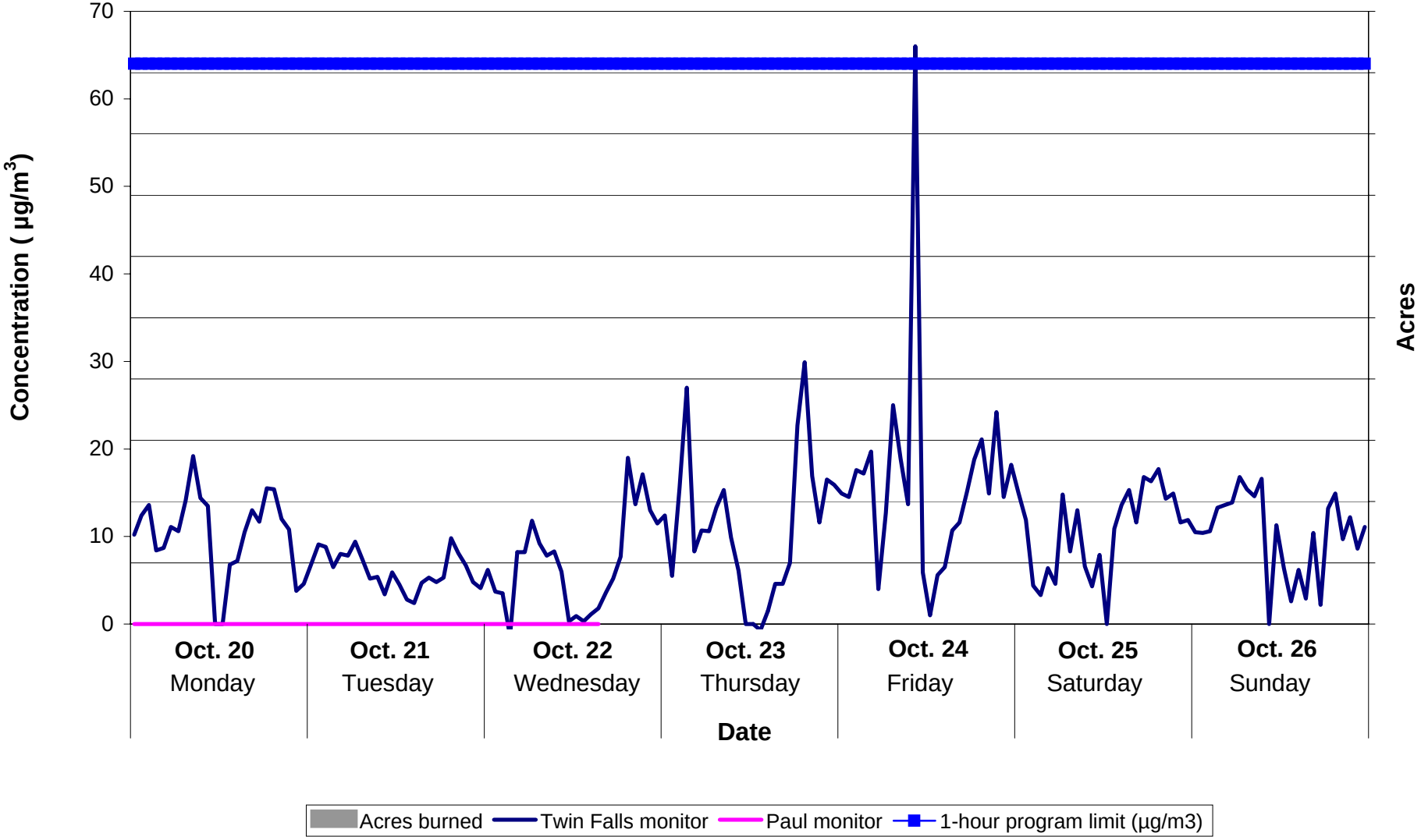
October 13 - October 19



Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

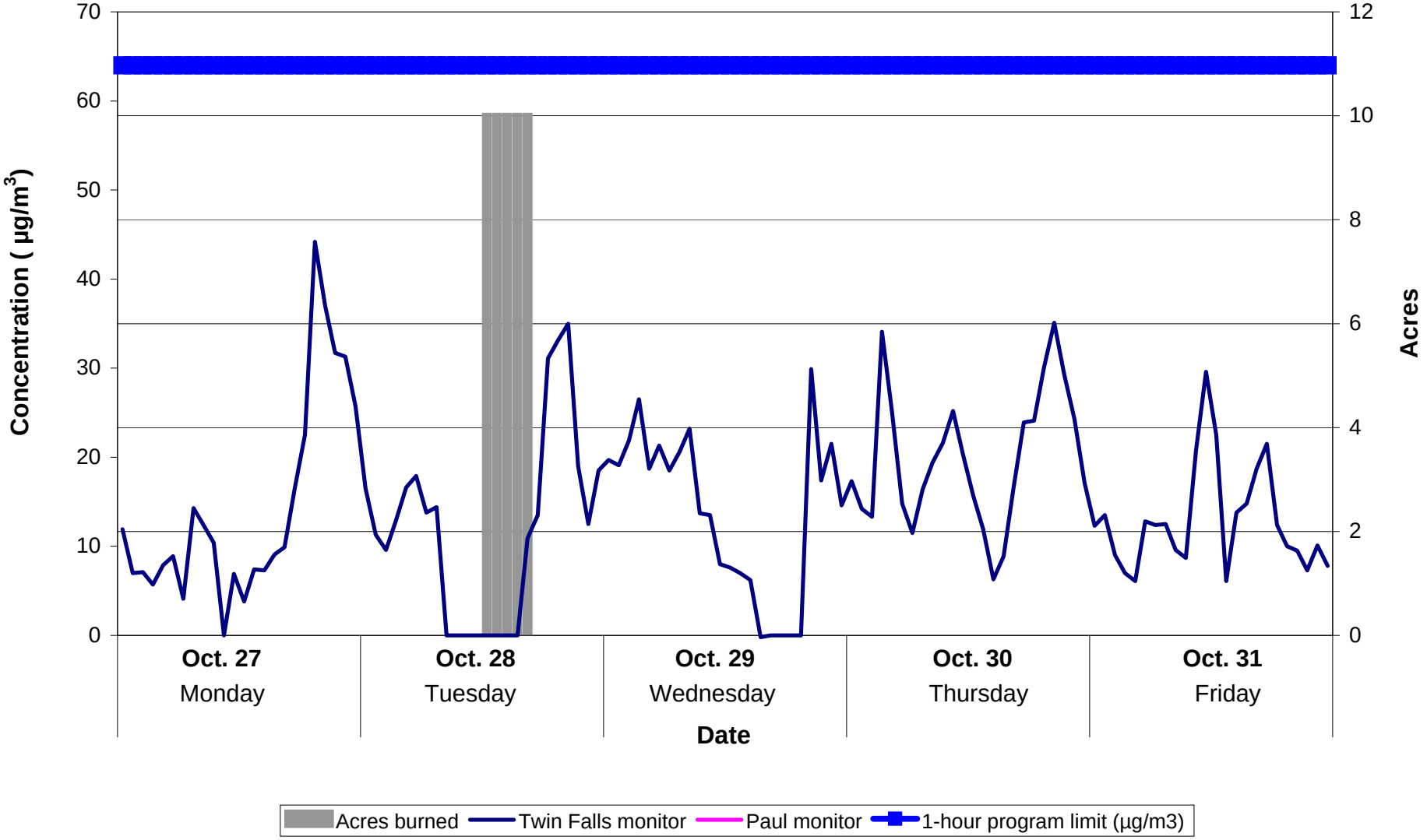
October 20 - October 26



Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

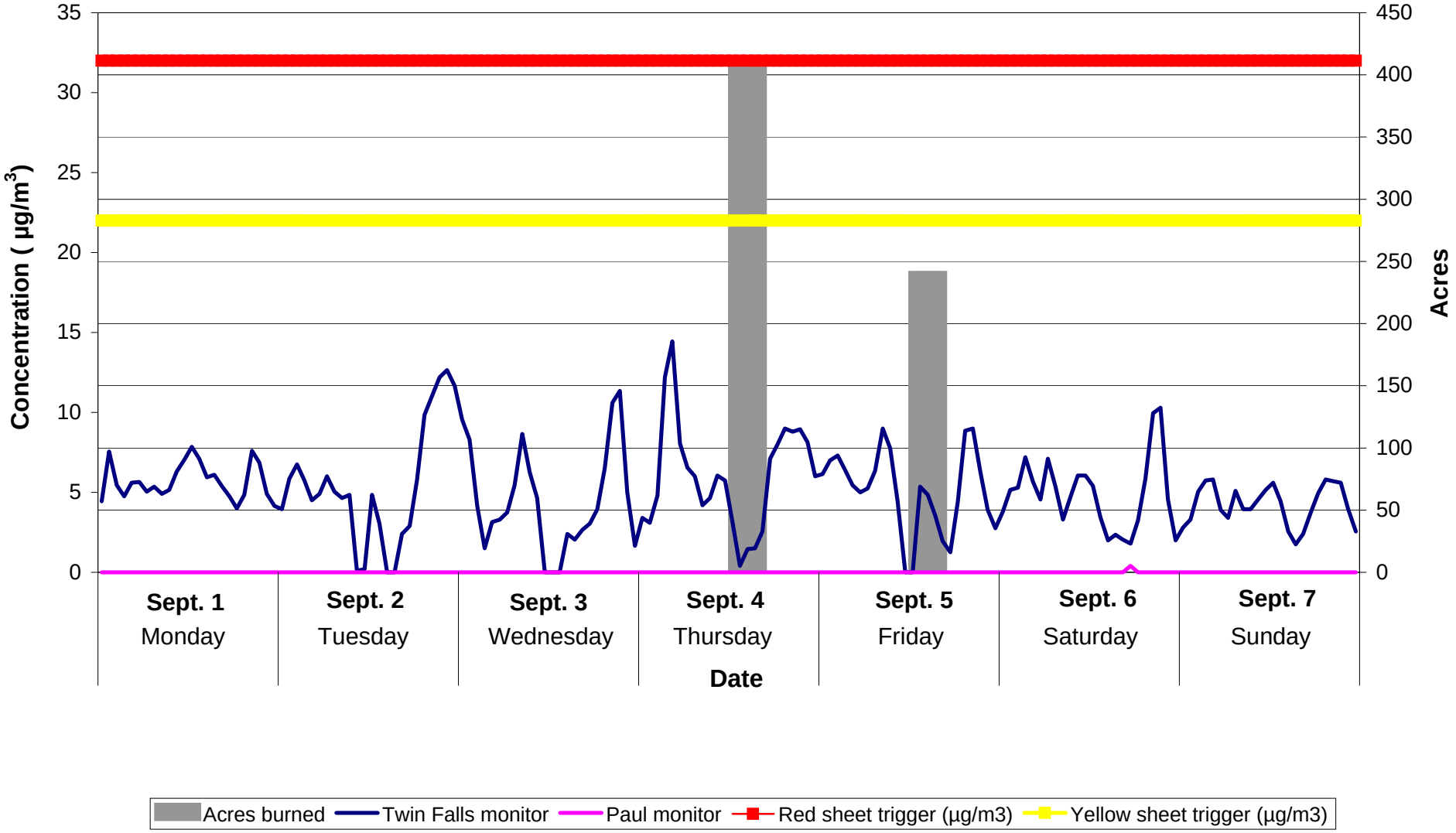
October 27 - October 31



Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

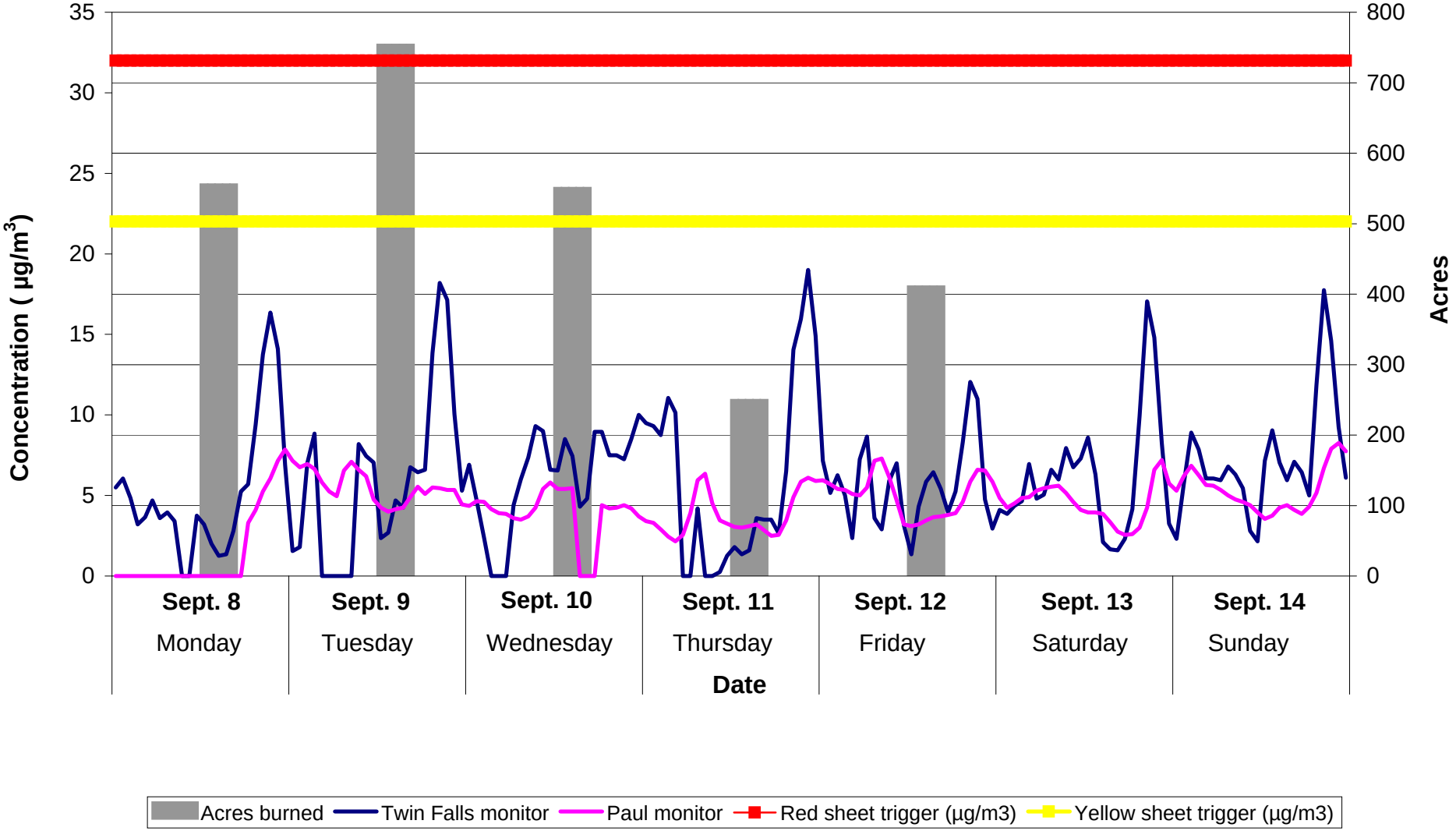
September 1 - September 7

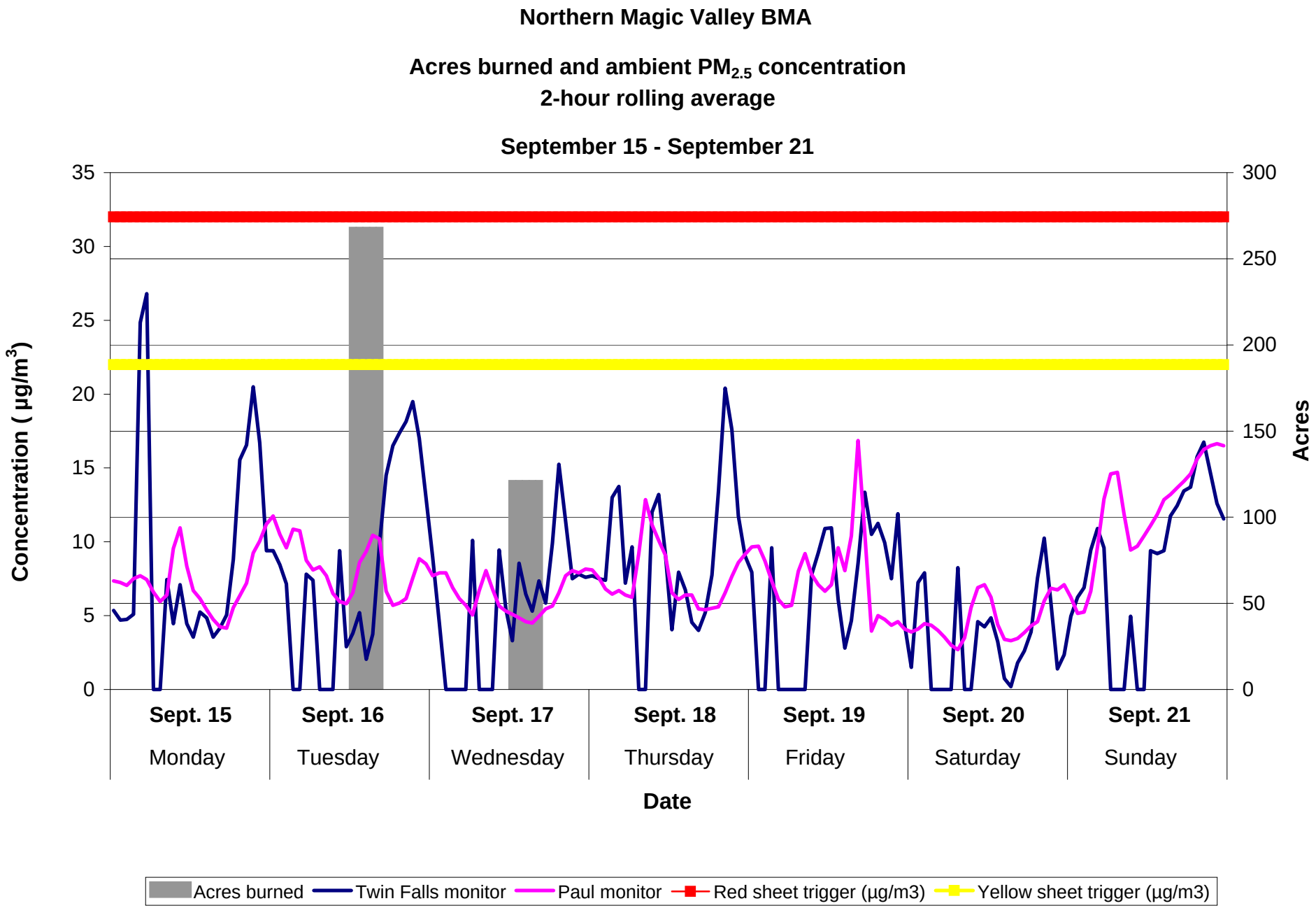


Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 8 - September 14

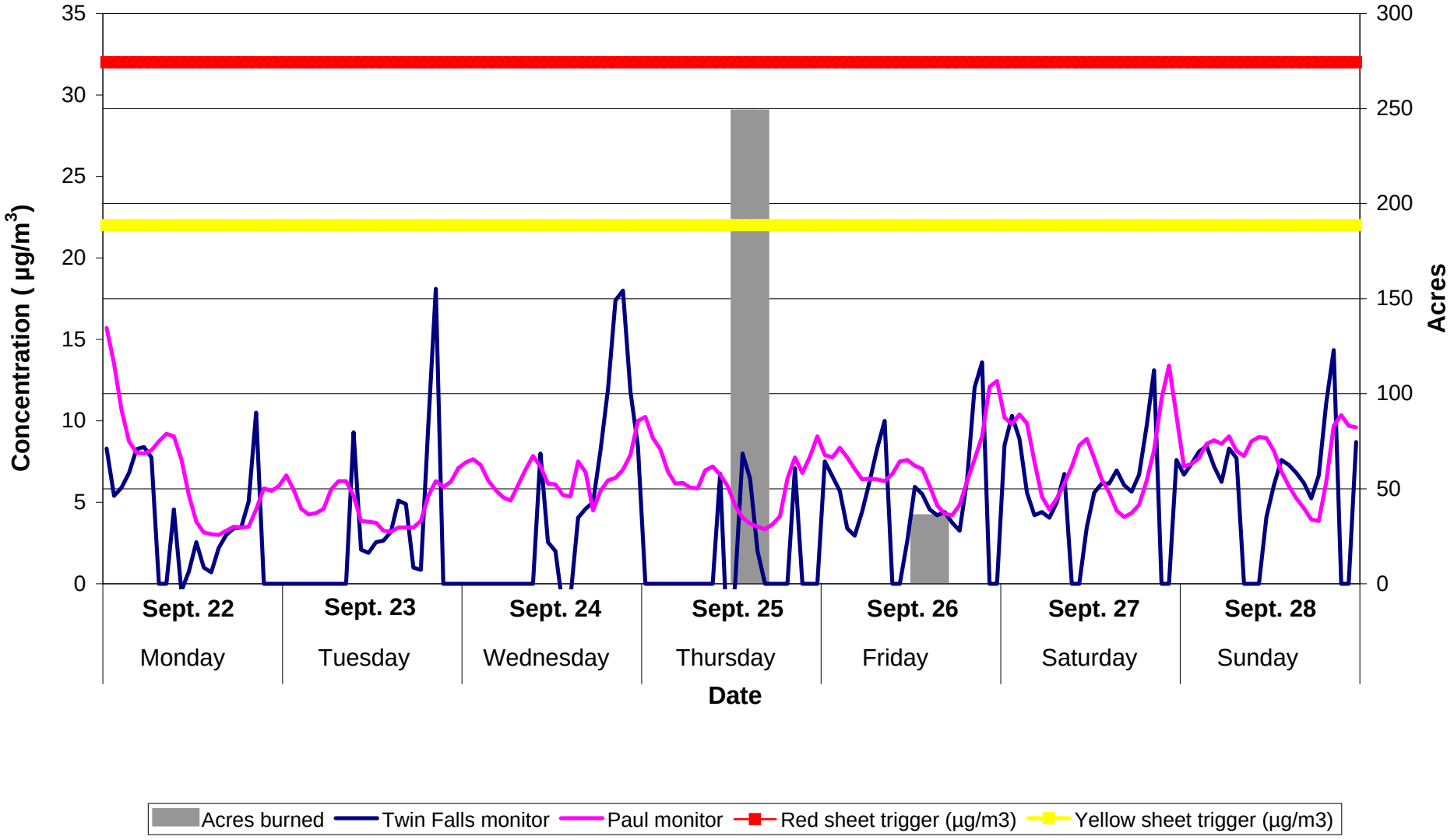


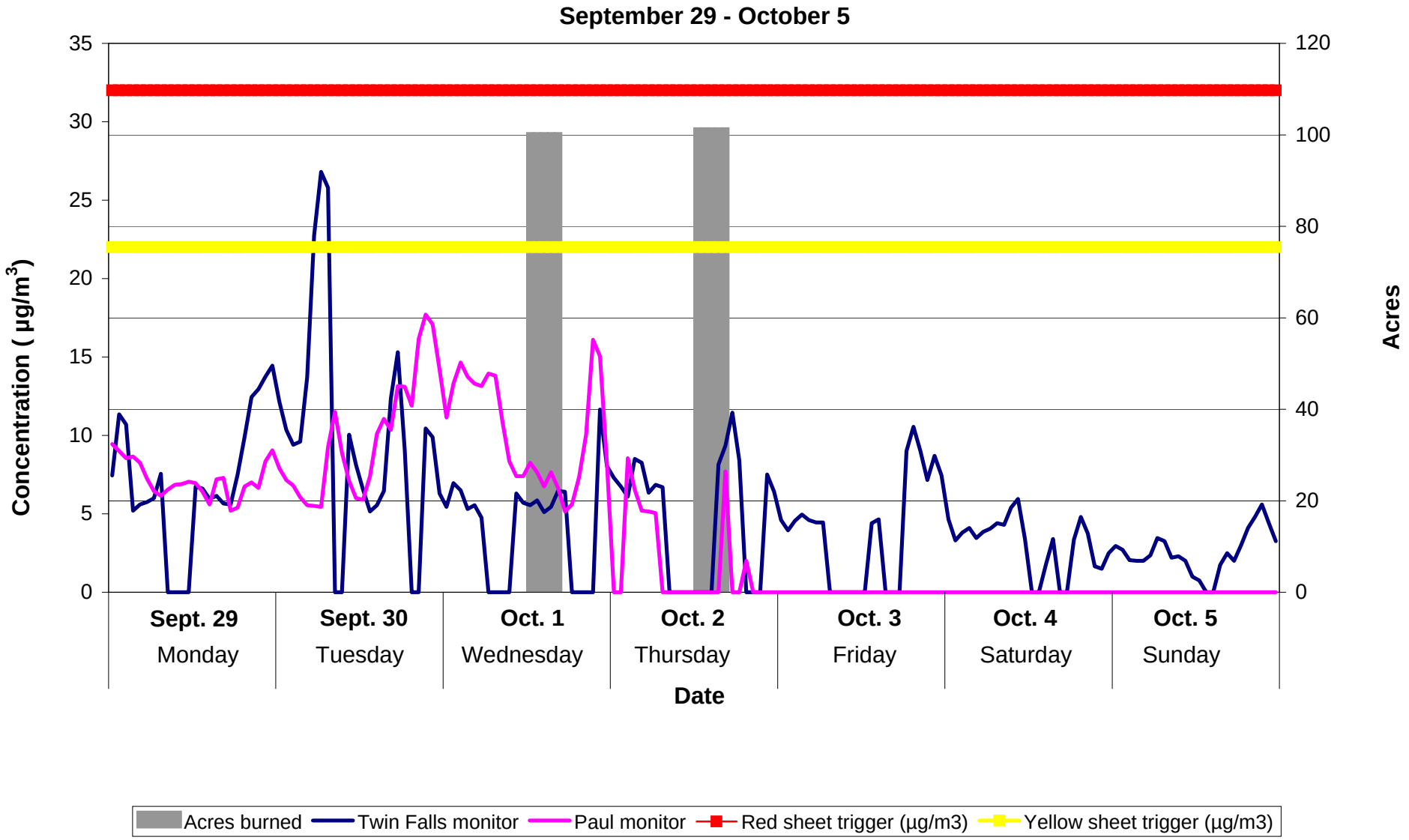

Northern Magic Valley BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 15 - September 21
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
300
250
200
150
100
50
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Twin Falls monitor
Paul monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 22 - September 28

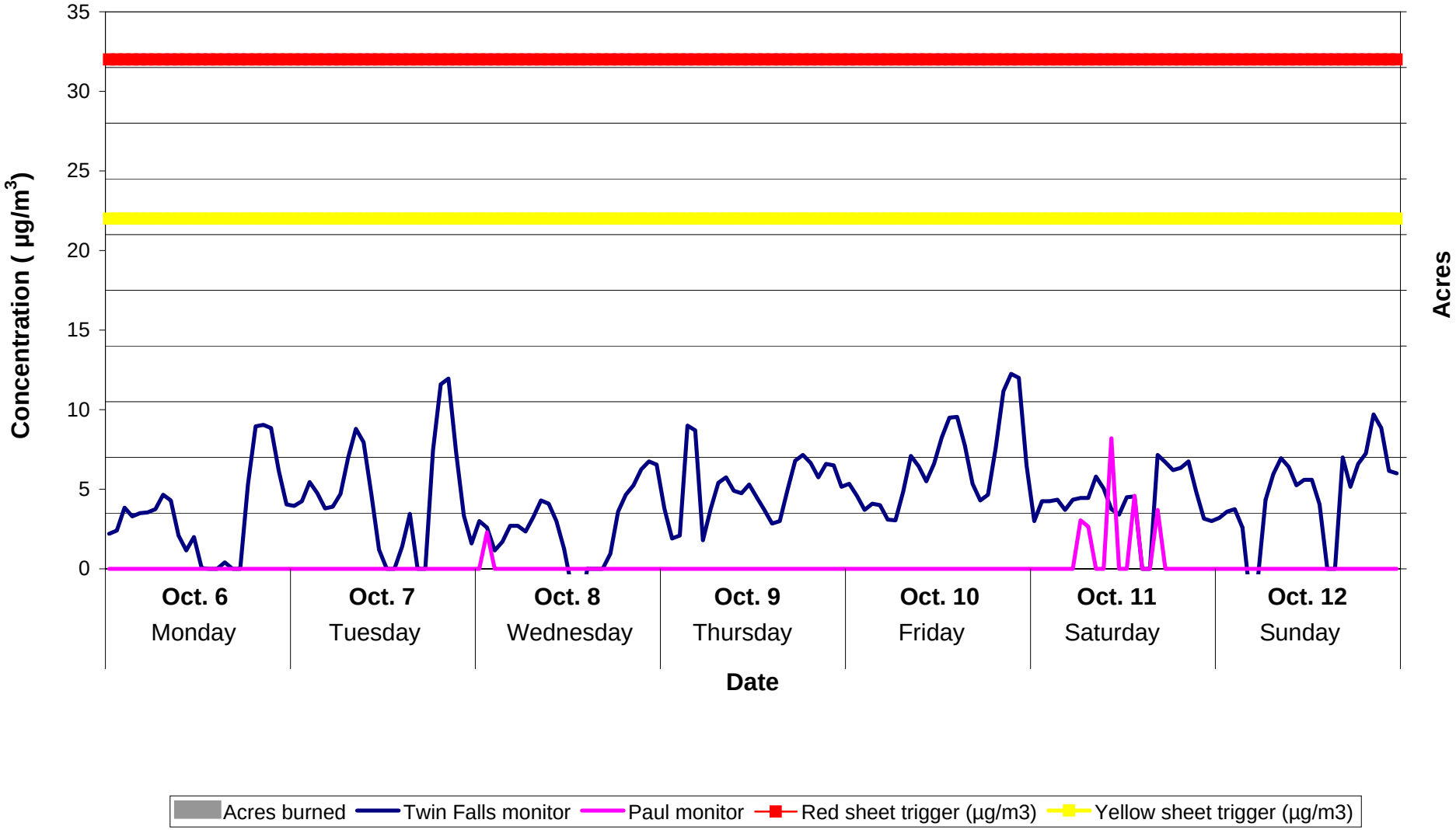



Northern Magic Valley BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 29 - October 5
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
120
100
80
60
40
20
0
Sept. 29
Monday
Sept. 30
Tuesday
Oct. 1
Wednesday
Oct. 2
Thursday
Oct. 3
Friday
Oct. 4
Saturday
Oct. 5
Sunday
Date
Acres burned
Twin Falls monitor
Paul monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

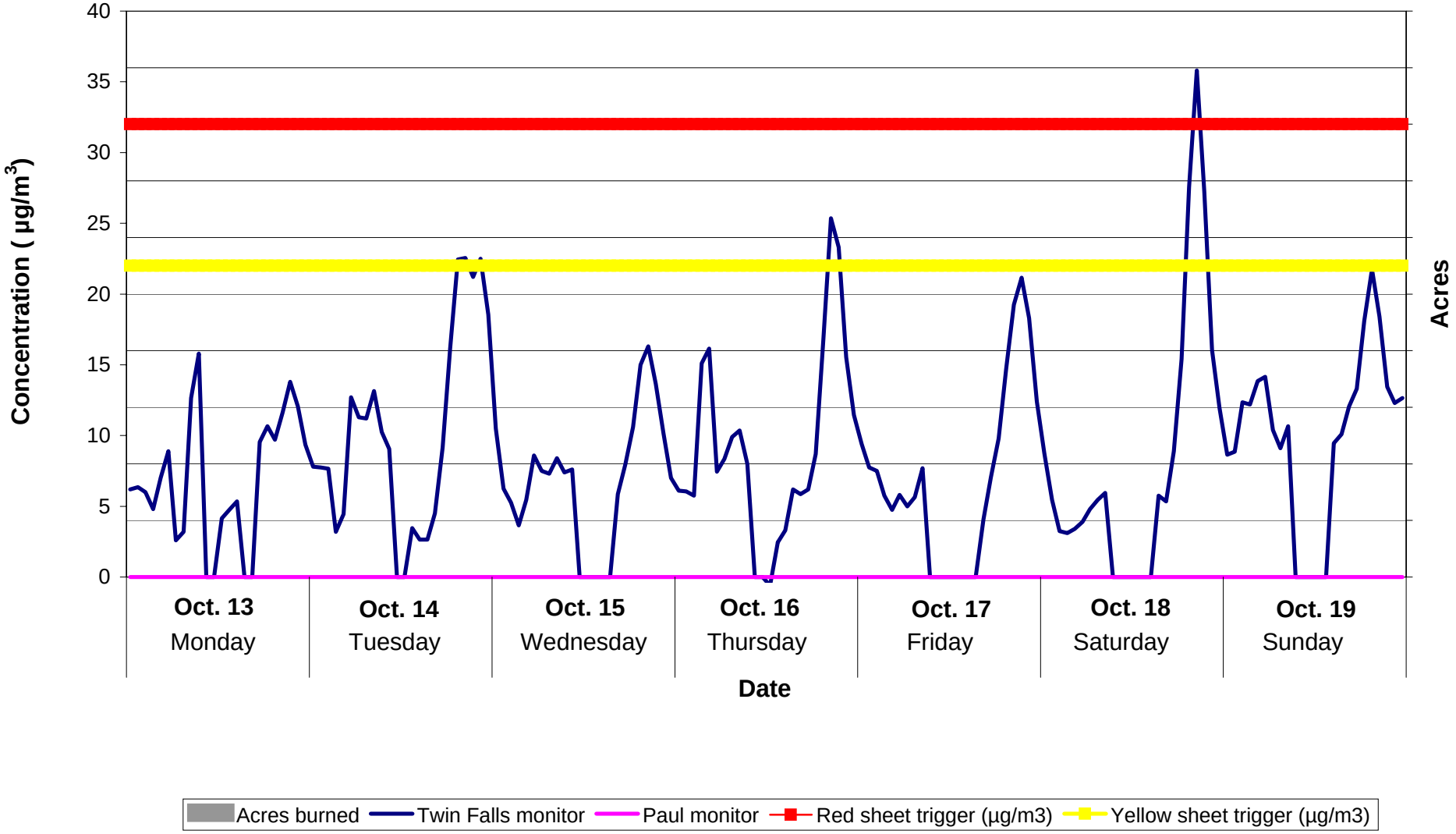
October 6 - October 12

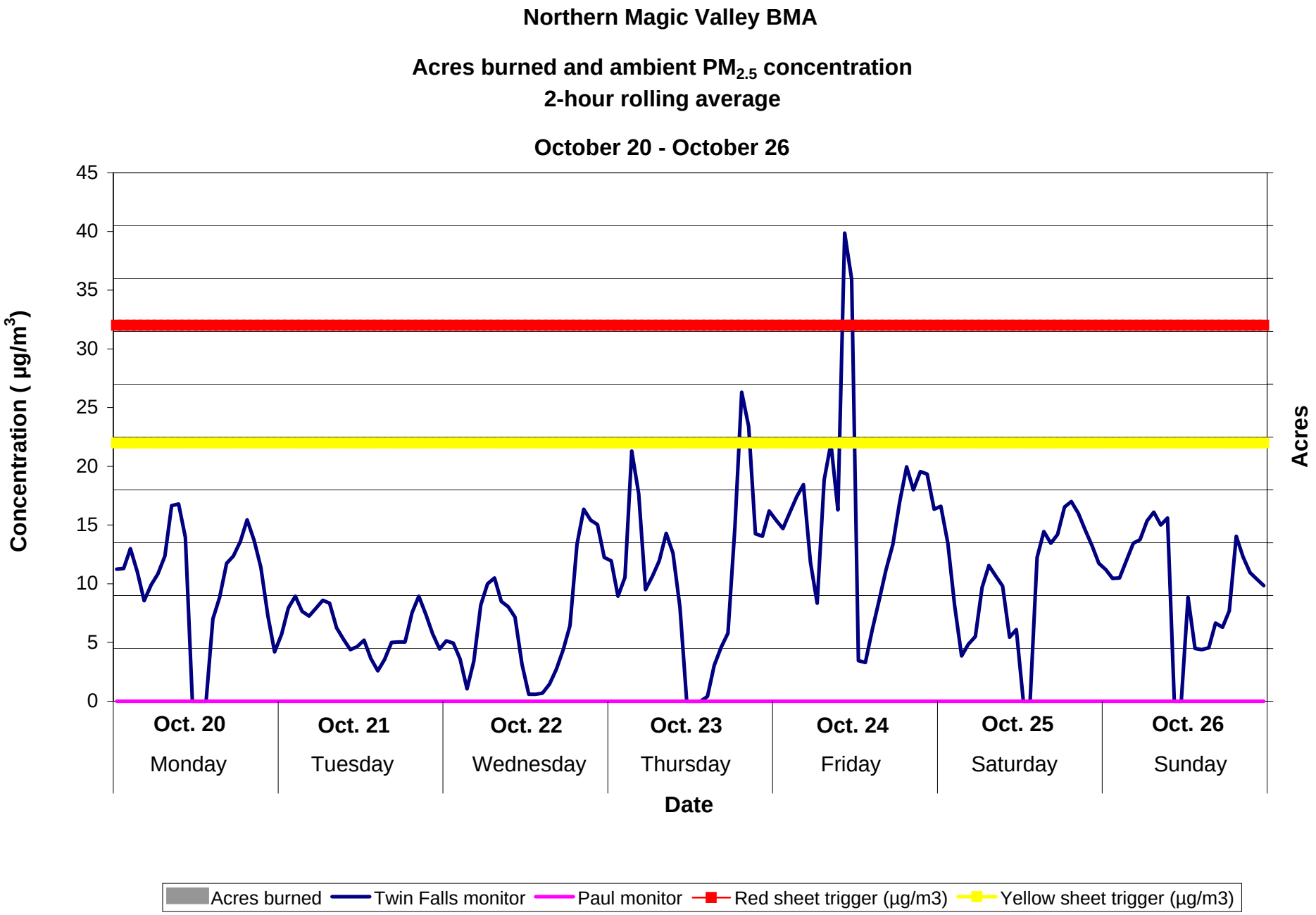


Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 13 - October 19

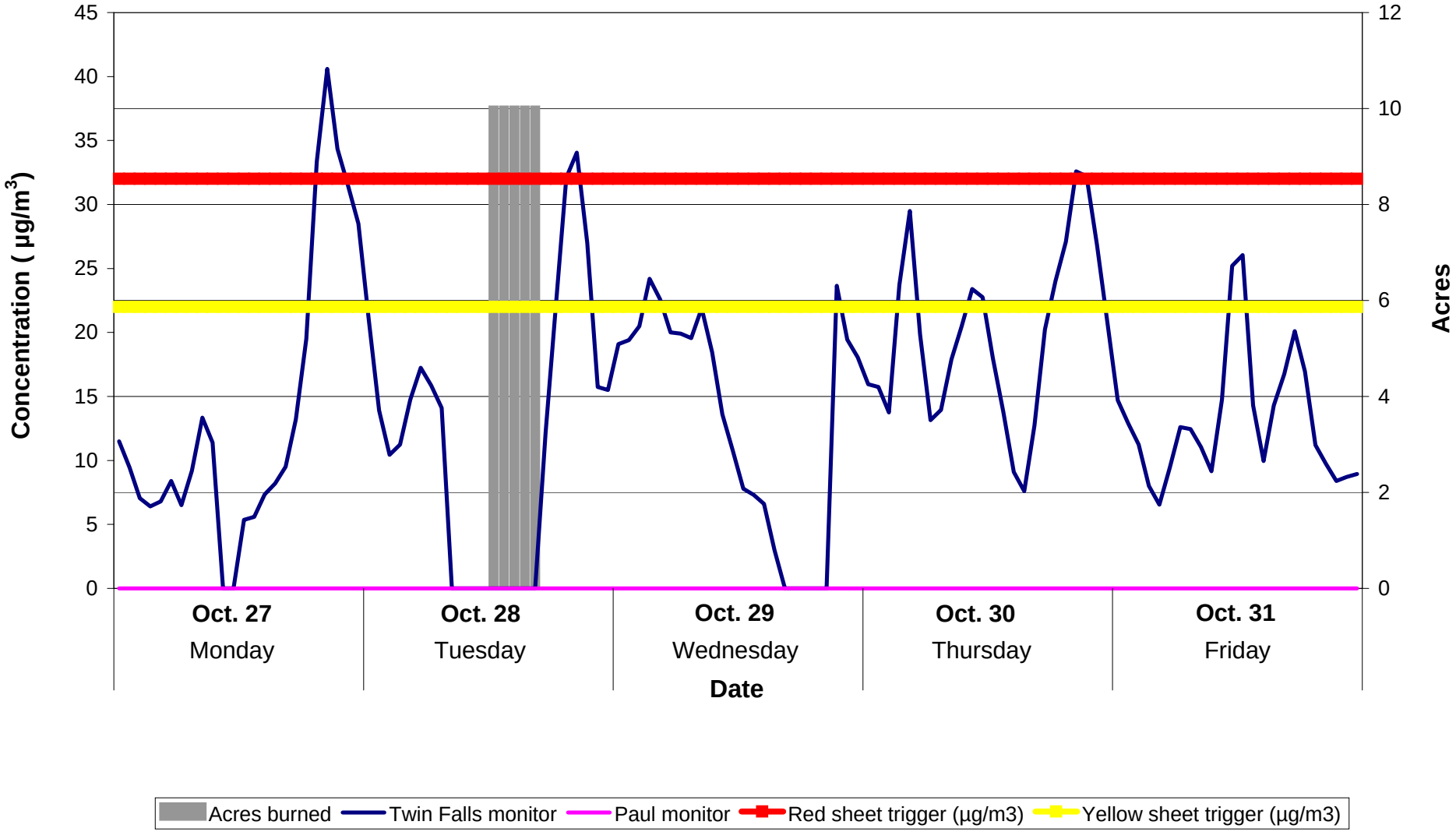



Northern Magic Valley BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 20 - October 26
Concentration (µg/m3)
Acres
45
40
35
30
25
20
15
10
5
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Twin Falls monitor
Paul monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Northern Magic Valley BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 27 - October 31



Appendix H

Air Quality Evaluation

of the

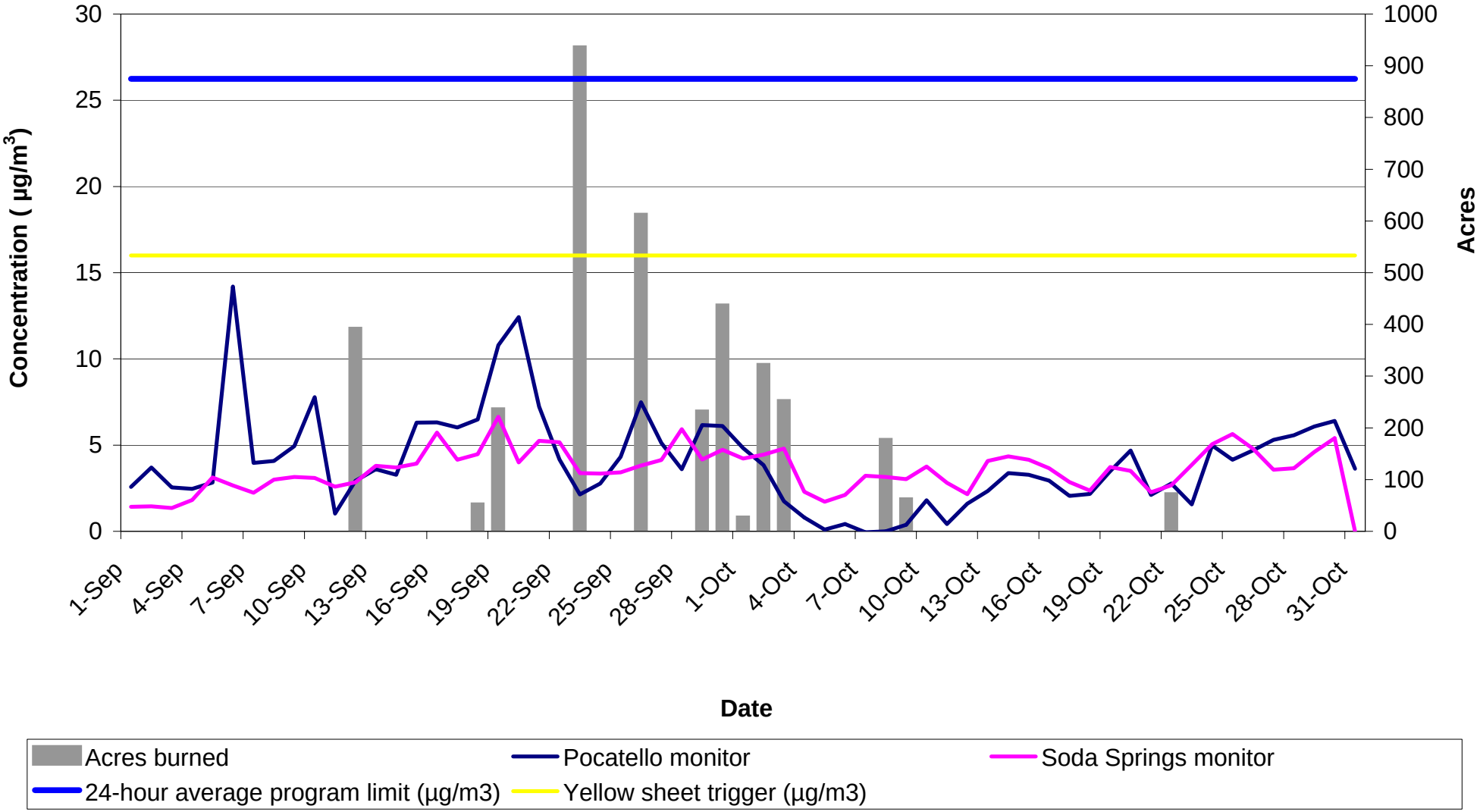
Southeast Idaho BMA

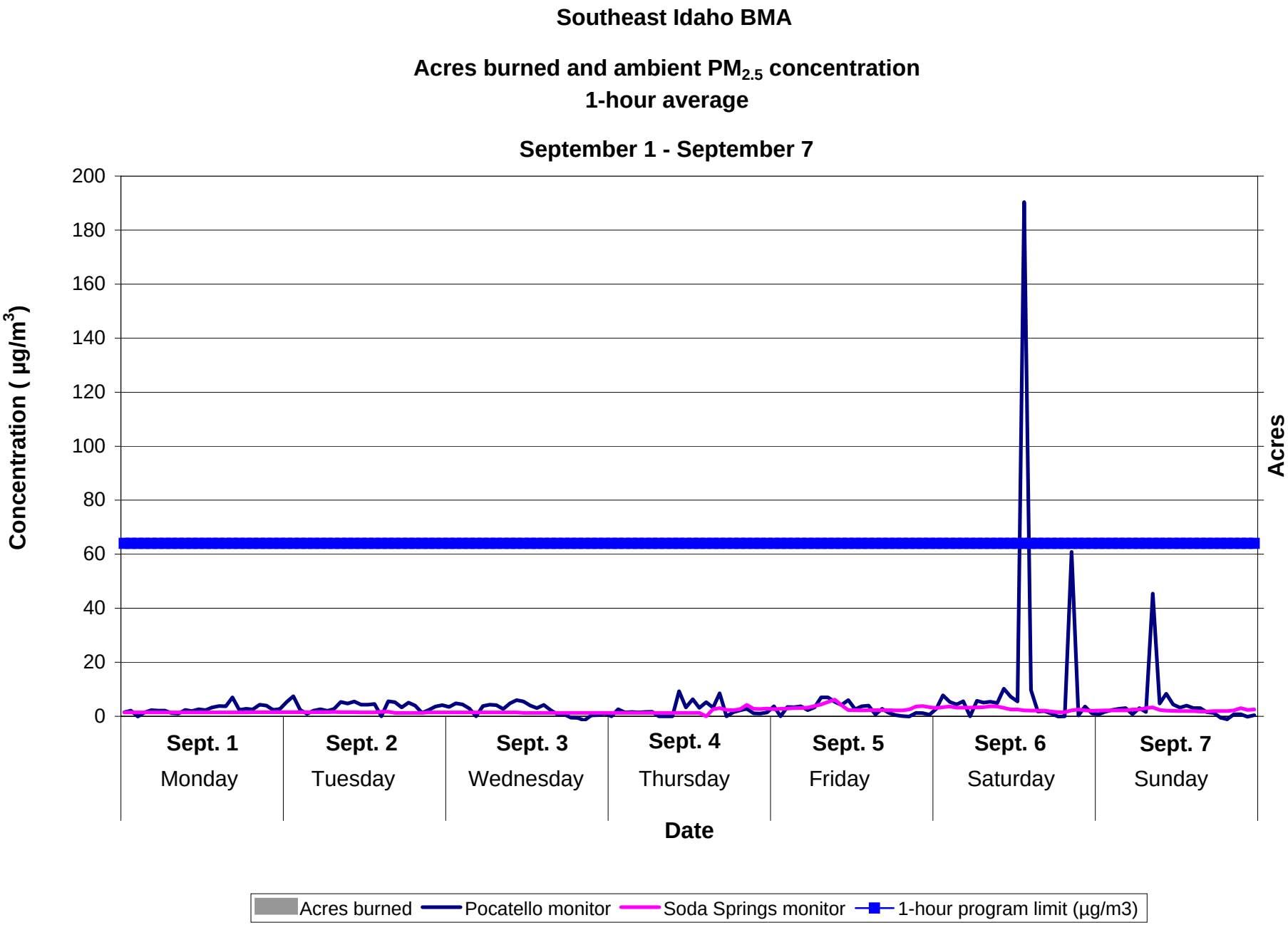
Burn Decisions and Acres Burned - Southeast Idaho BMA			
Day of Week	**Date**	**# acres approved**	**# acres burned**
T	9/2/2008		
W	9/3/2008		
Th	9/4/2008		
F	9/5/2008		
Sa	9/6/2008		
Su	9/7/2008		
M	9/8/2008		
T	9/9/2008		
W	9/10/2008		
Th	9/11/2008		
F	9/12/2008	390	390
Sa	9/13/2008		
Su	9/14/2008		
M	9/15/2008		
T	9/16/2008		
W	9/17/2008		
Th	9/18/2008	50	50
F	9/19/2008	235	234
Sa	9/20/2008		
Su	9/21/2008		
M	9/22/2008		
T	9/23/2008	1100	934
W	9/24/2008		
Th	9/25/2008		
F	9/26/2008	710	610
Sa	9/27/2008		
Su	9/28/2008		
M	9/29/2008	230	230
T	9/30/2008	500	435
W	10/1/2008	225	25
Th	10/2/2008	320	320
F	10/3/2008	250	250
Sa	10/4/2008		
Su	10/5/2008		
M	10/6/2008		
T	10/7/2008		
W	10/8/2008	175	175
Th	10/9/2008	70	60
F	10/10/2008		
Sa	10/11/2008		
Su	10/12/2008		
M	10/13/2008		
T	10/14/2008		
W	10/15/2008		
Th	10/16/2008		
F	10/17/2008		
Sa	10/18/2008		
Su	10/19/2008		
M	10/20/2008		
T	10/21/2008		
W	10/22/2008	70	70
Th	10/23/2008		
F	10/24/2008		
Sa	10/25/2008		
Su	10/26/2008		
M	10/27/2008		
T	10/28/2008		
W	10/29/2008		
Th	10/30/2008		
F	10/31/2008		
	TOTAL	**4324**	**3783**

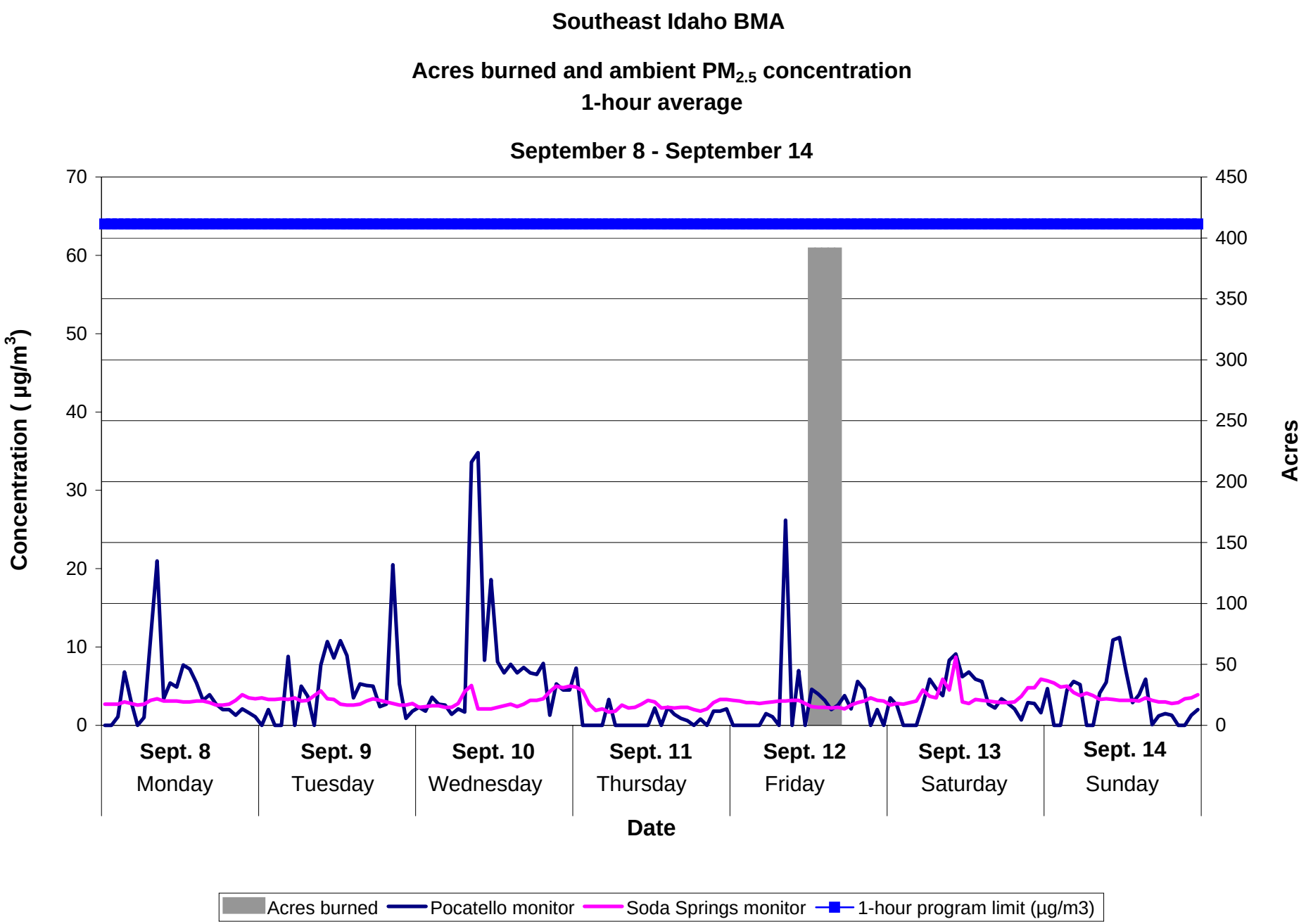
Southeast Idaho BMA

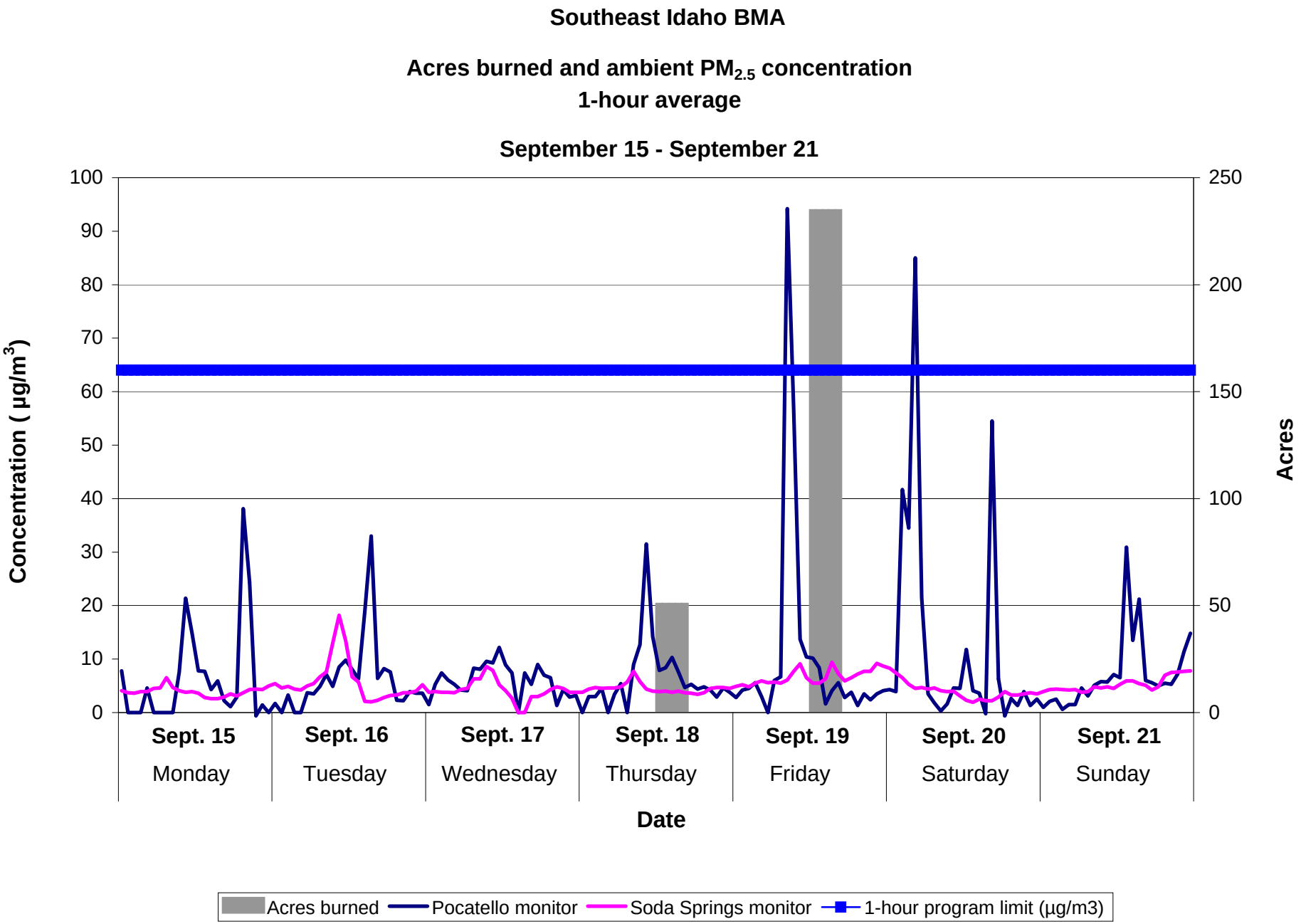
Acres burned and ambient $PM_{2.5}$ concentration
24-hour average

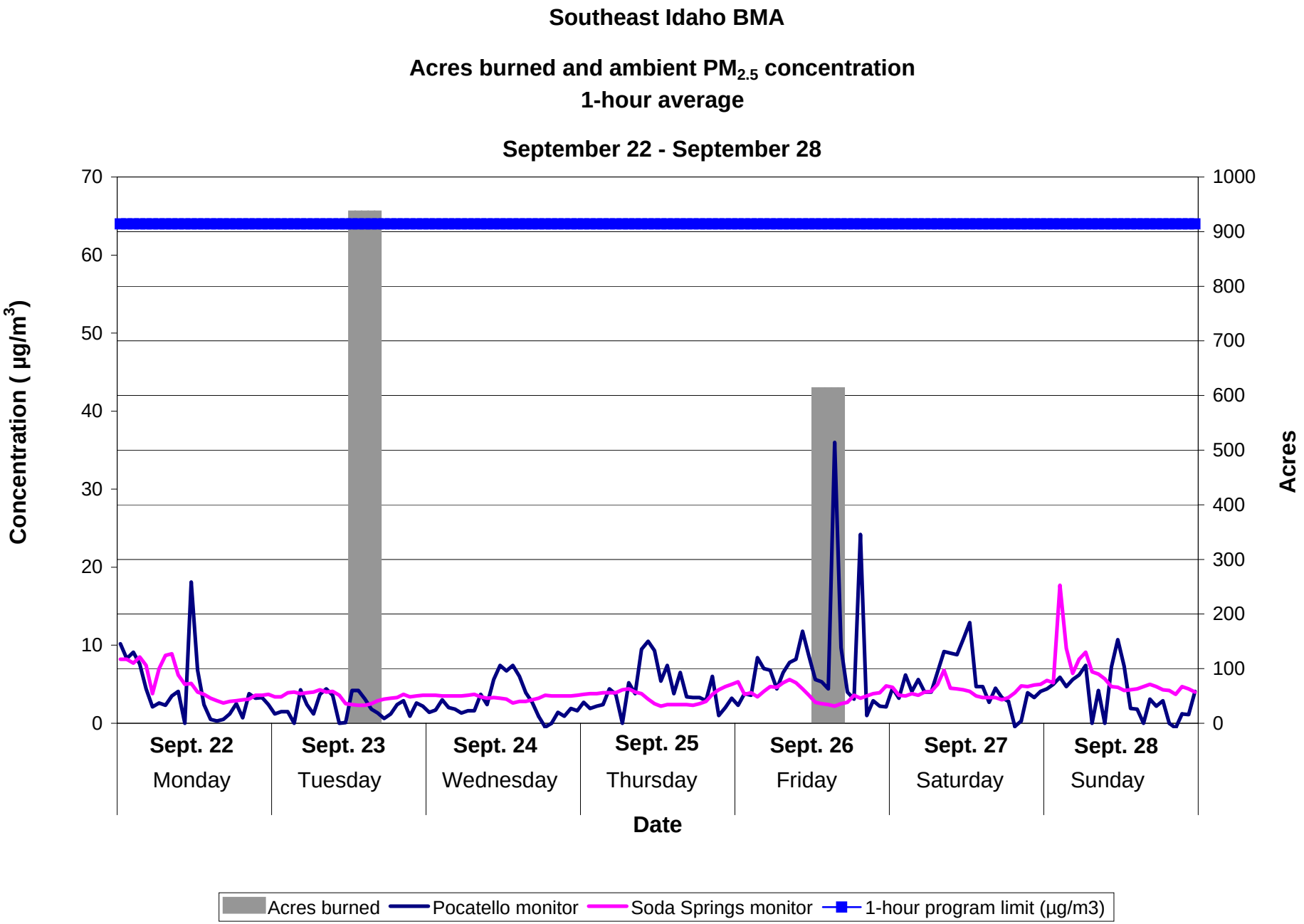
September 1 - October 31




Southeast Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 1 - September 7
Concentration (µg/m3)
Acres
200
180
160
140
120
100
80
60
40
20
0
Sept. 1
Monday
Sept. 2
Tuesday
Sept. 3
Wednesday
Sept. 4
Thursday
Sept. 5
Friday
Sept. 6
Saturday
Sept. 7
Sunday
Date
Acres burned
Pocatello monitor
Soda Springs monitor
1-hour program limit (µg/m3)


Southeast Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 8 - September 14
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
450
400
350
300
250
200
150
100
50
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Pocatello monitor
Soda Springs monitor
1-hour program limit (µg/m3)

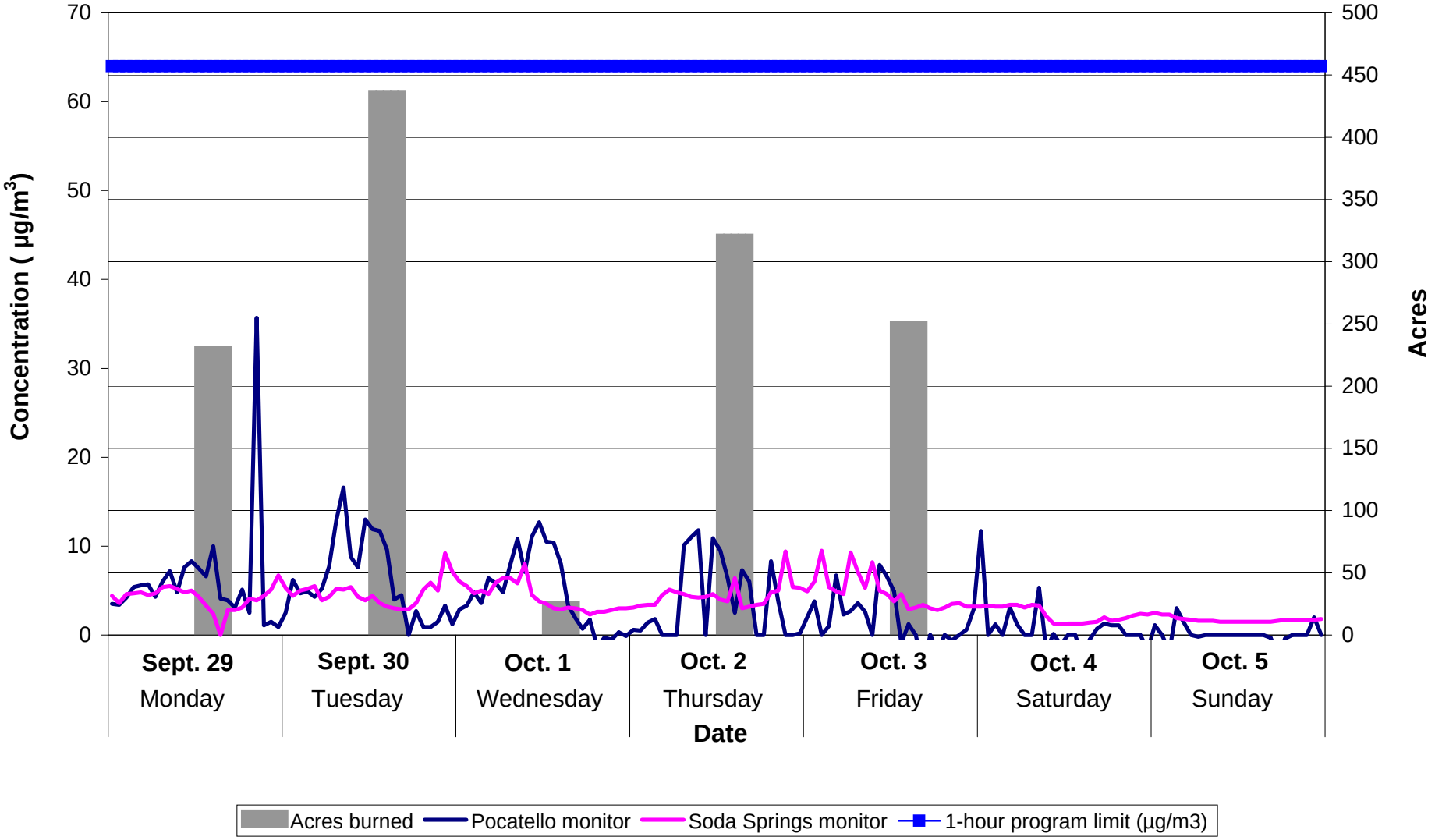

Southeast Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 15 - September 21
Concentration (µg/m3)
Acres
100
90
80
70
60
50
40
30
20
10
0
250
200
150
100
50
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Pocatello monitor
Soda Springs monitor
1-hour program limit (µg/m3)

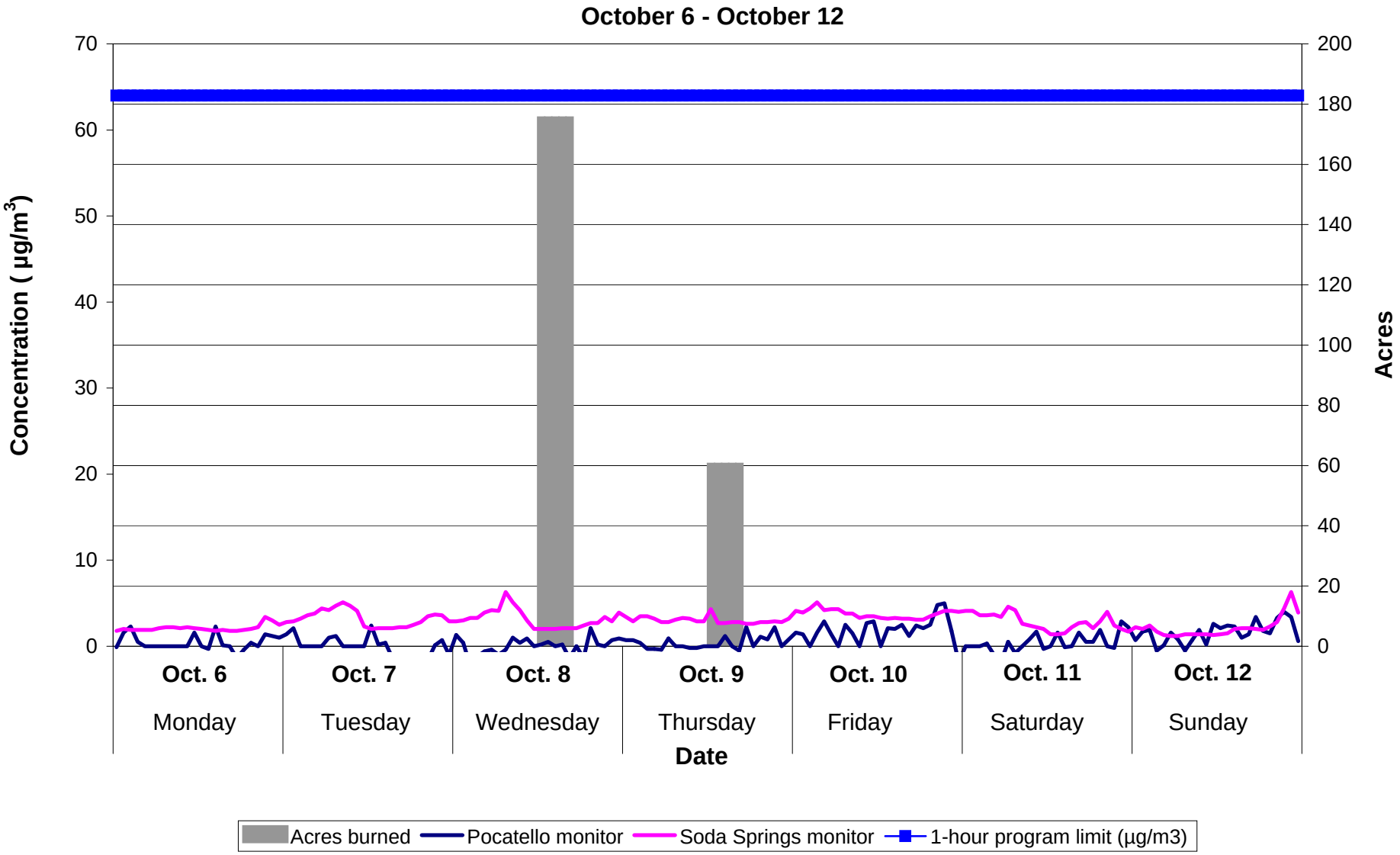

Southeast Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 22 - September 28
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
1000
900
800
700
600
500
400
300
200
100
0
Sept. 22
Monday
Sept. 23
Tuesday
Sept. 24
Wednesday
Sept. 25
Thursday
Sept. 26
Friday
Sept. 27
Saturday
Sept. 28
Sunday
Date
Acres burned
Pocatello monitor
Soda Springs monitor
1-hour program limit (µg/m3)

Southeast Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

September 29 - October 5

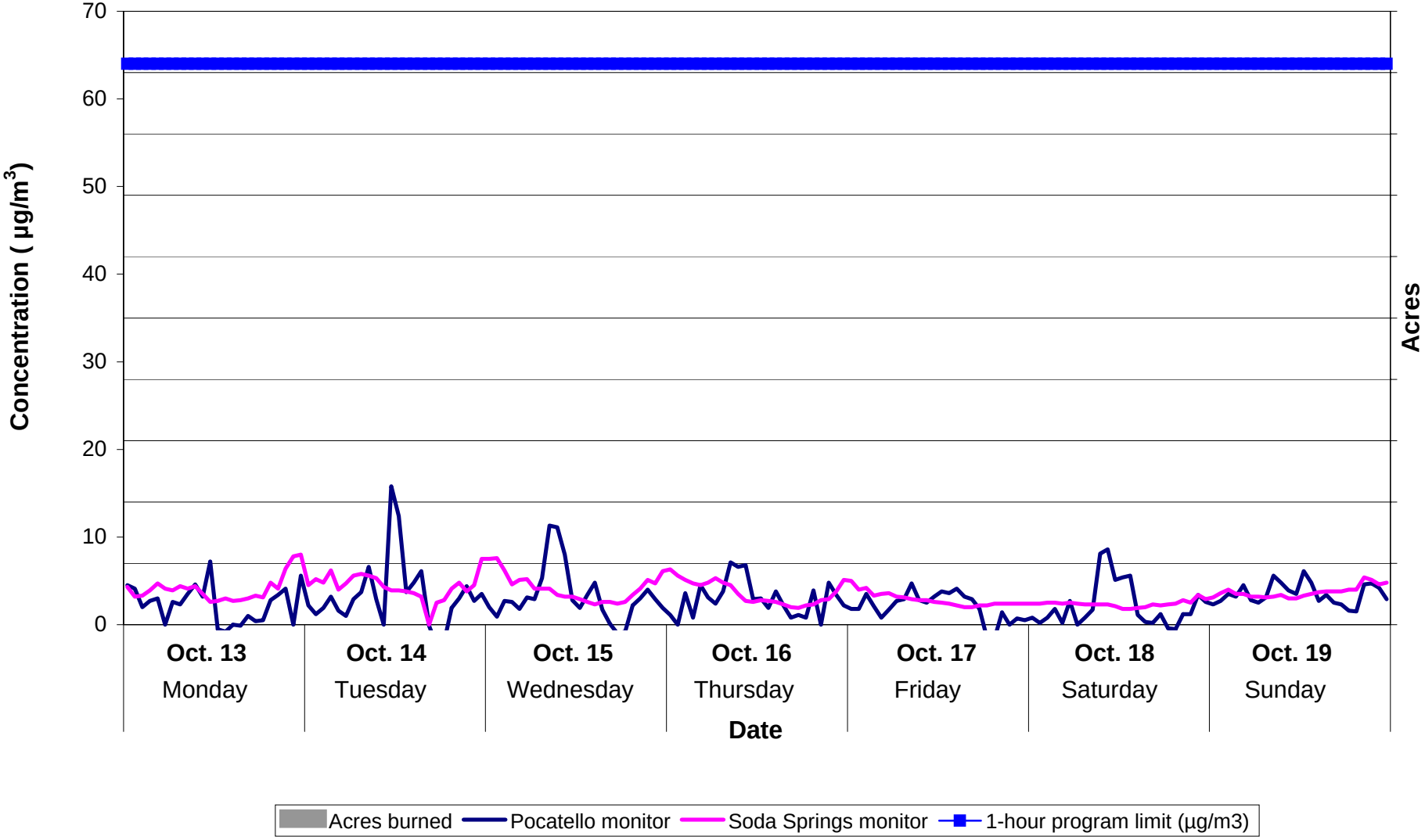


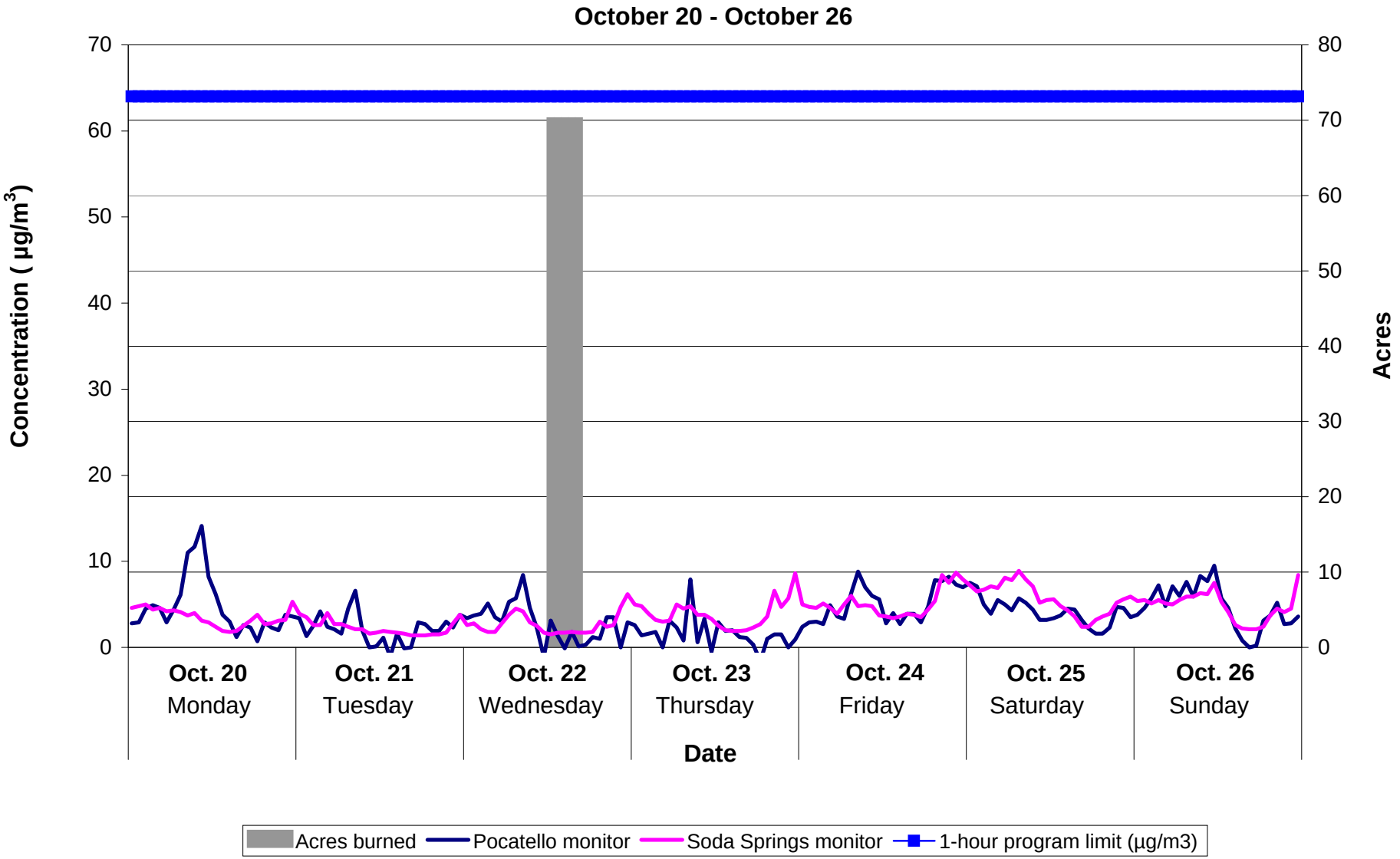

Southeast Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 6 - October 12
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
200
180
160
140
120
100
80
60
40
20
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Pocatello monitor
Soda Springs monitor
1-hour program limit (µg/m3)

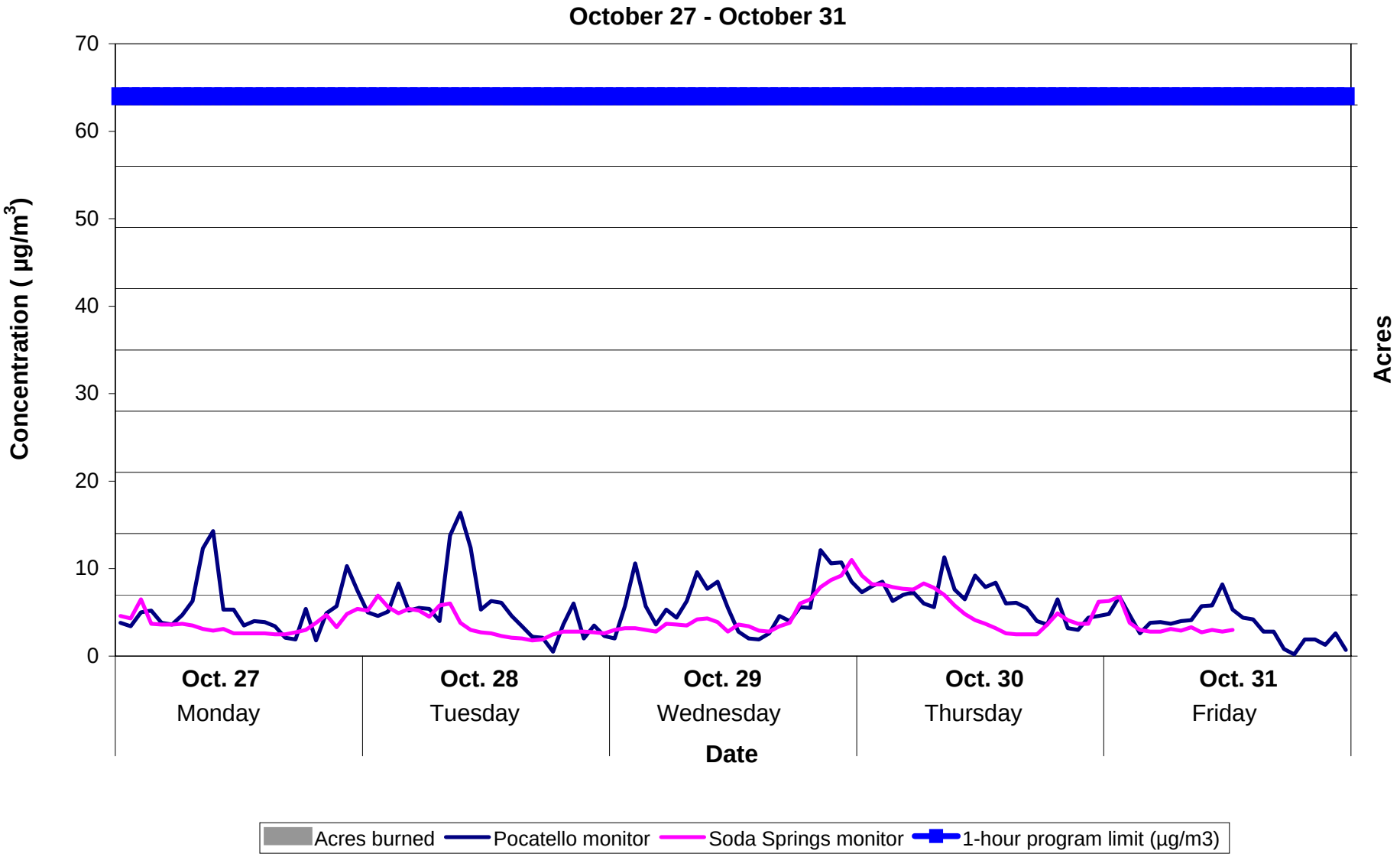
Southeast Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

October 13 - October 19



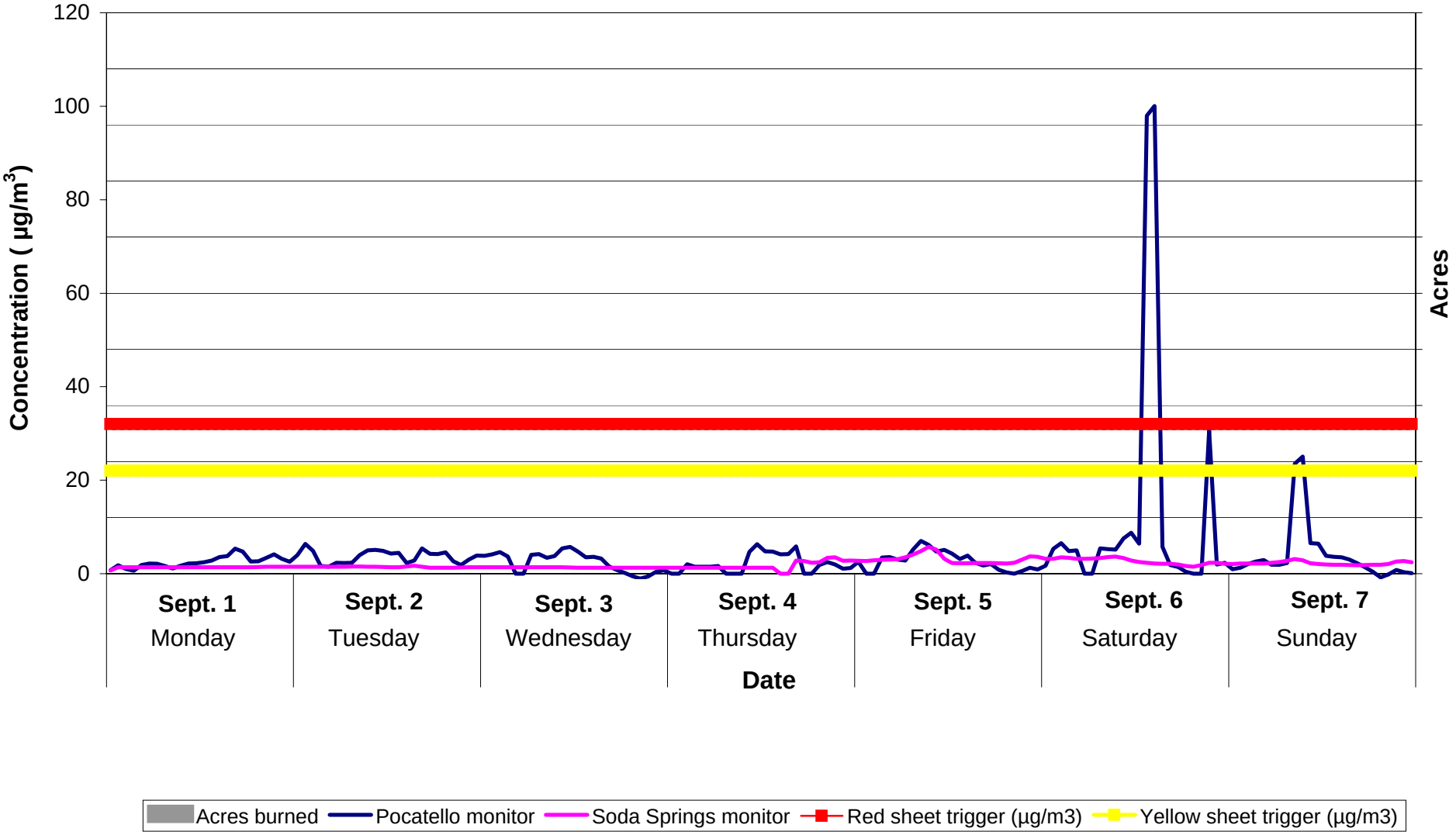

Southeast Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 20 - October 26
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
80
70
60
50
40
30
20
10
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Pocatello monitor
Soda Springs monitor
1-hour program limit (µg/m3)


Southeast Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 27 - October 31
Concentration (µg/m3)
70
60
50
40
30
20
10
0
Acres
Oct. 27
Monday
Oct. 28
Tuesday
Oct. 29
Wednesday
Oct. 30
Thursday
Oct. 31
Friday
Date
Acres burned
Pocatello monitor
Soda Springs monitor
1-hour program limit (µg/m3)

Southeast Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

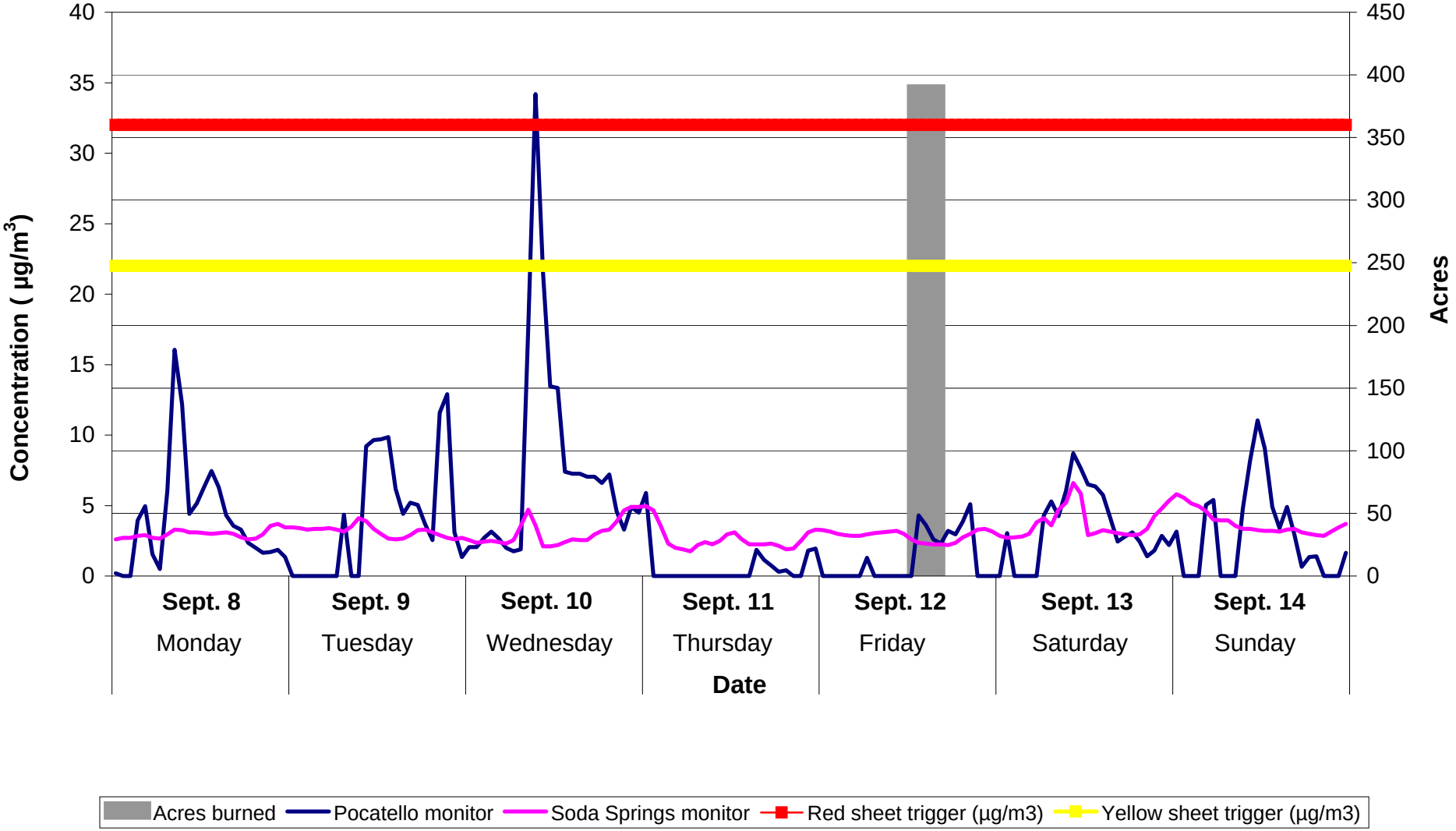
September 1 - September 7



Southeast Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

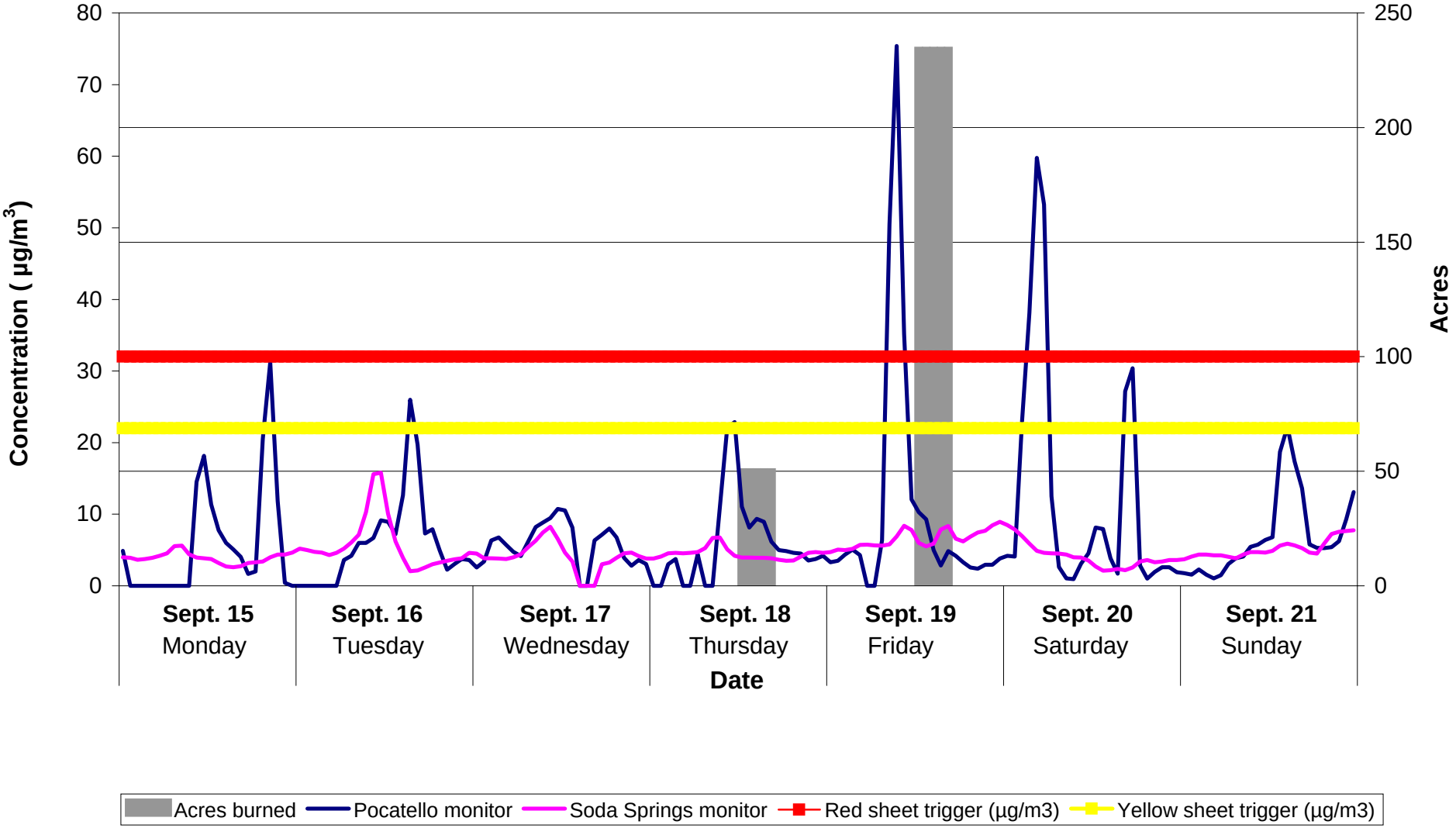
September 8 - September 14

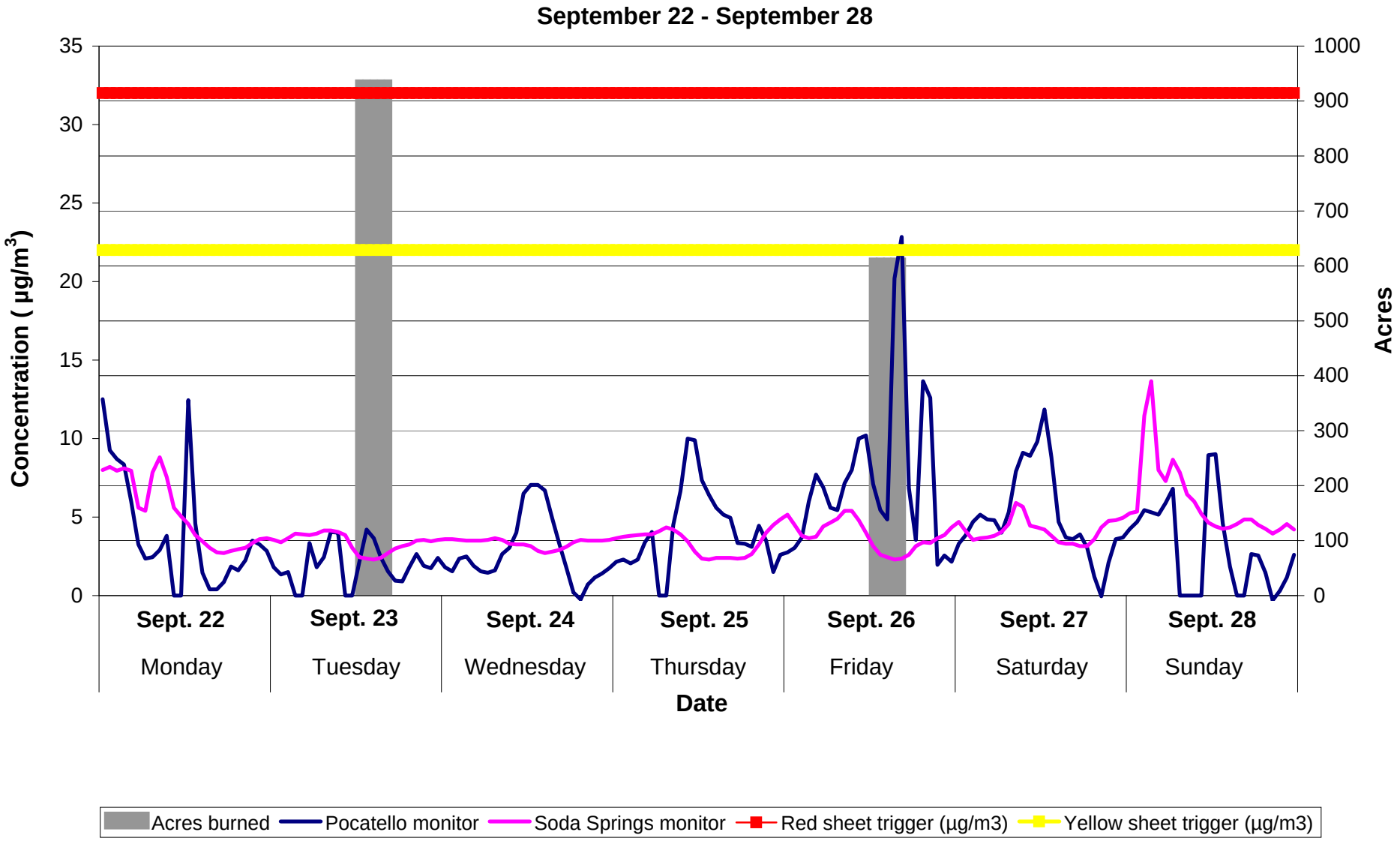


Southeast Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 15 - September 21

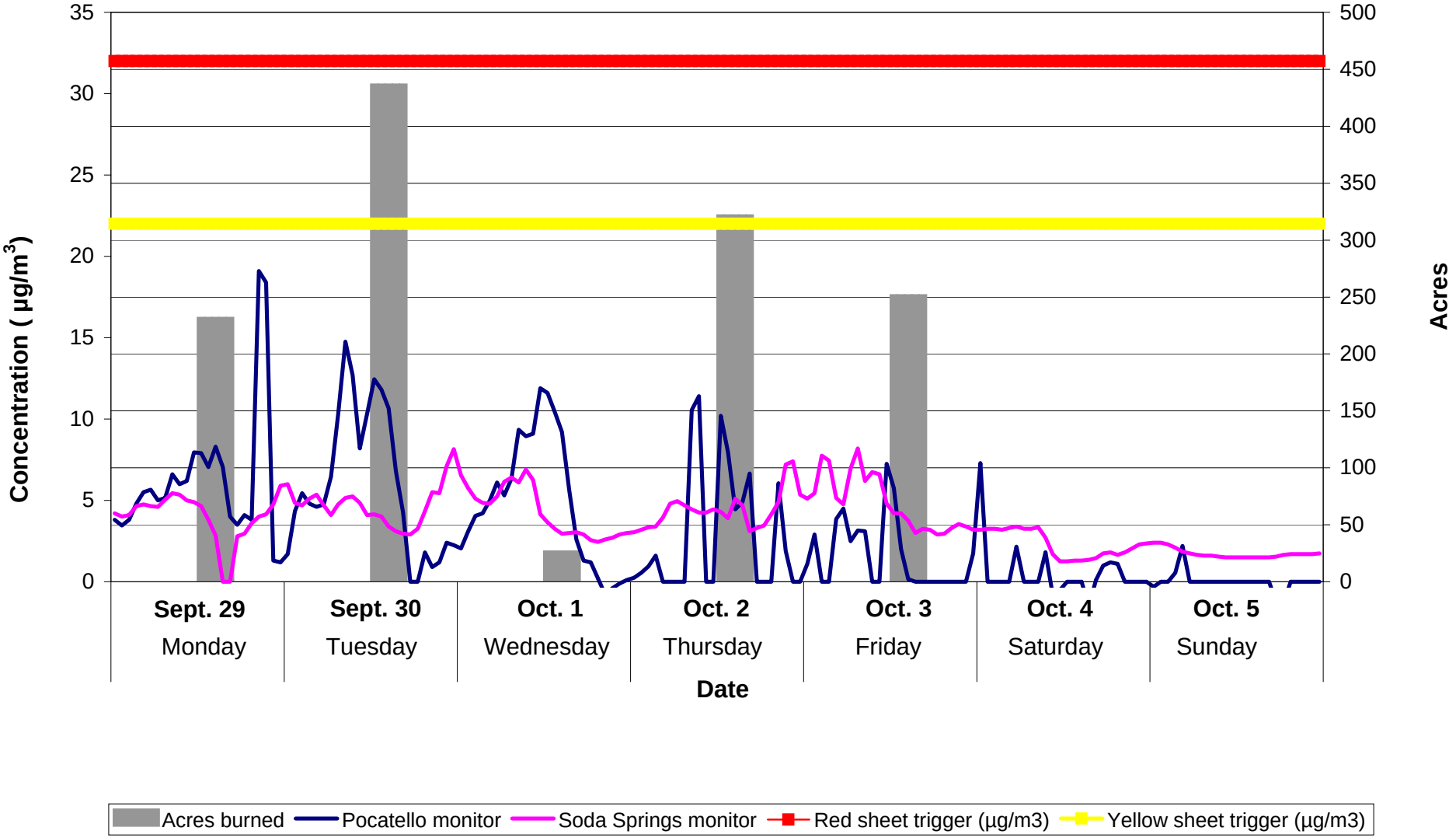


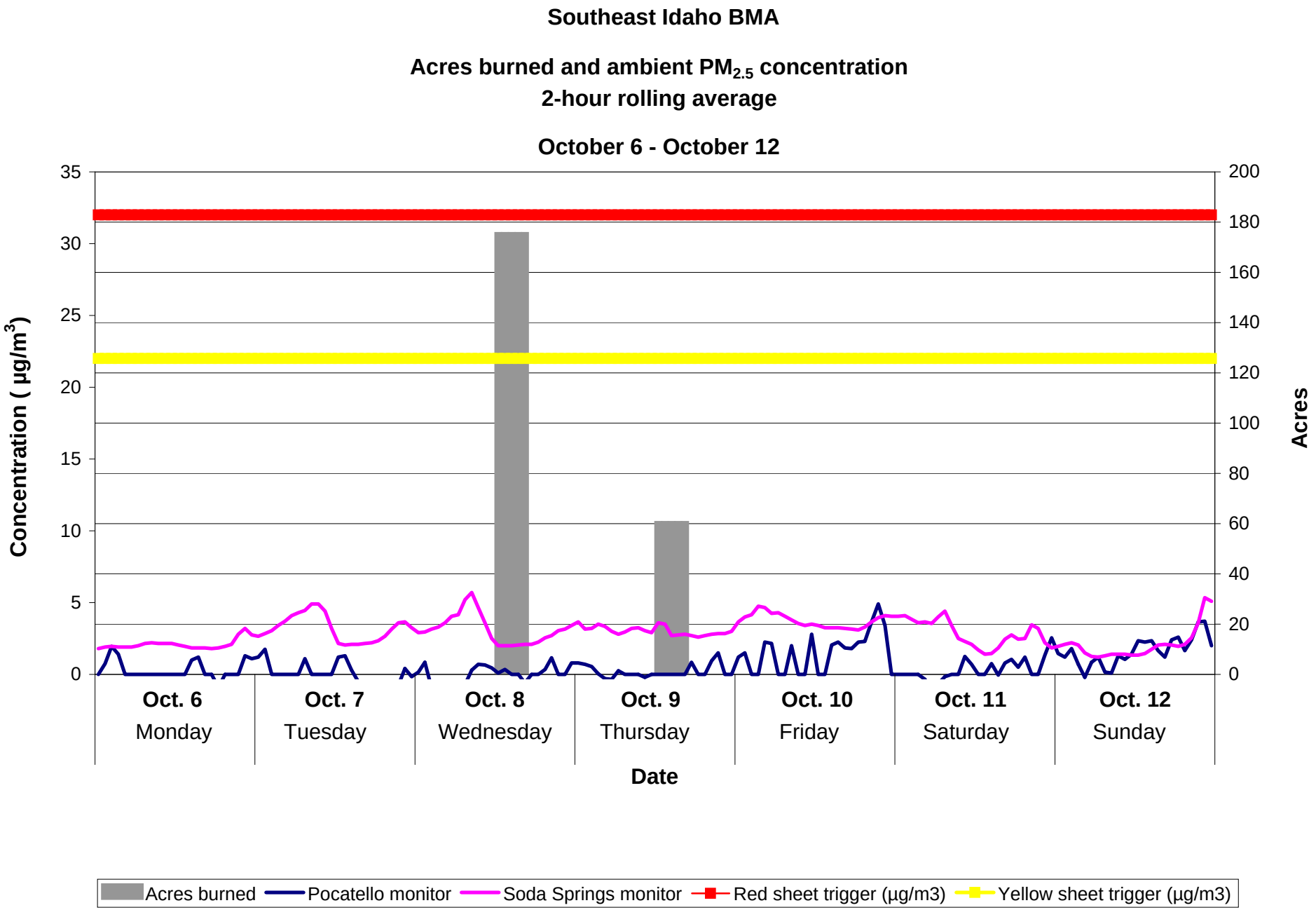

Southeast Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 22 - September 28
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
1000
900
800
700
600
500
400
300
200
100
0
Sept. 22
Monday
Sept. 23
Tuesday
Sept. 24
Wednesday
Sept. 25
Thursday
Sept. 26
Friday
Sept. 27
Saturday
Sept. 28
Sunday
Date
Acres burned
Pocatello monitor
Soda Springs monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Southeast Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 29 - October 5

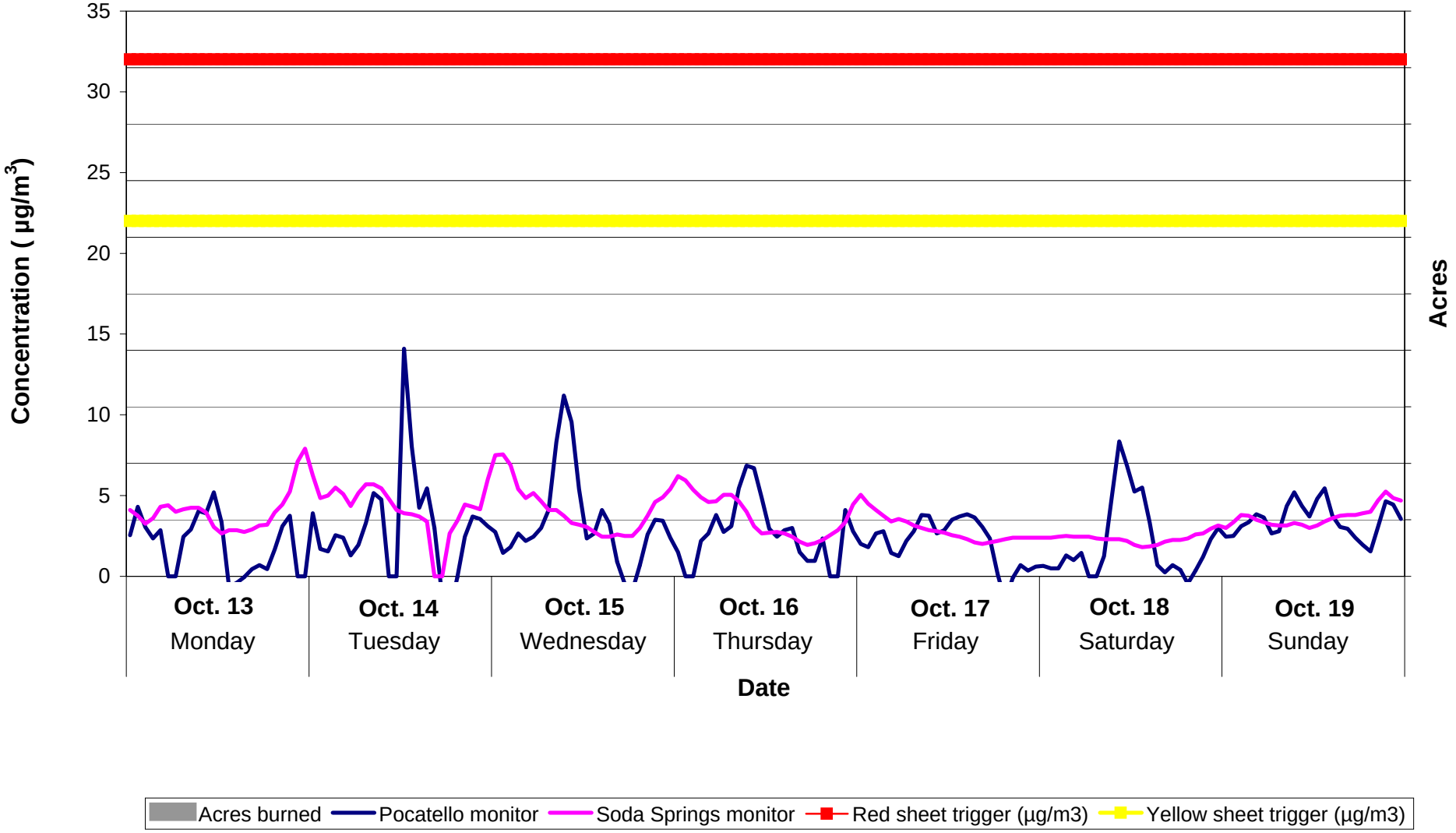


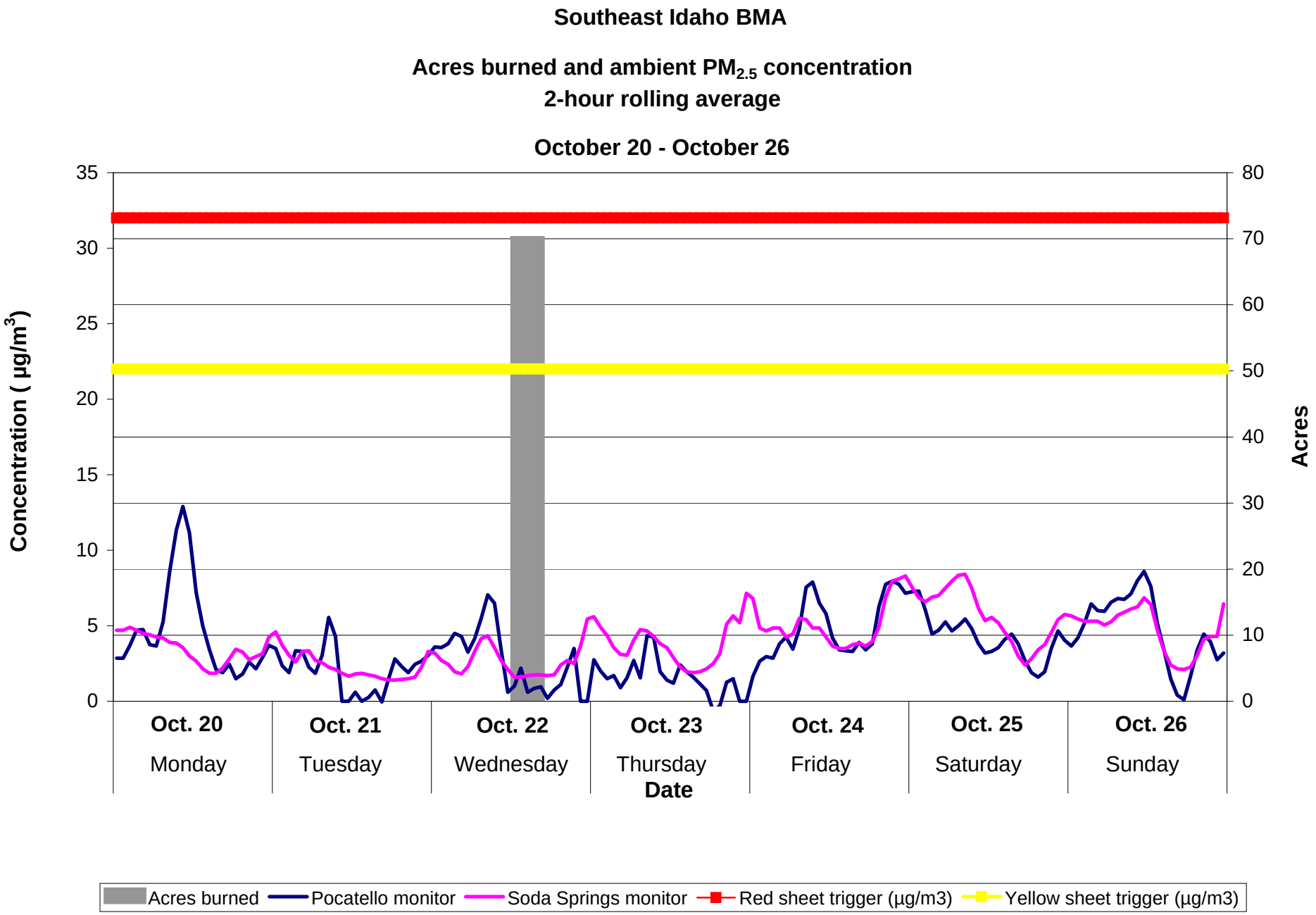

Southeast Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 6 - October 12
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
200
180
160
140
120
100
80
60
40
20
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Pocatello monitor
Soda Springs monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Southeast Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 13 - October 19

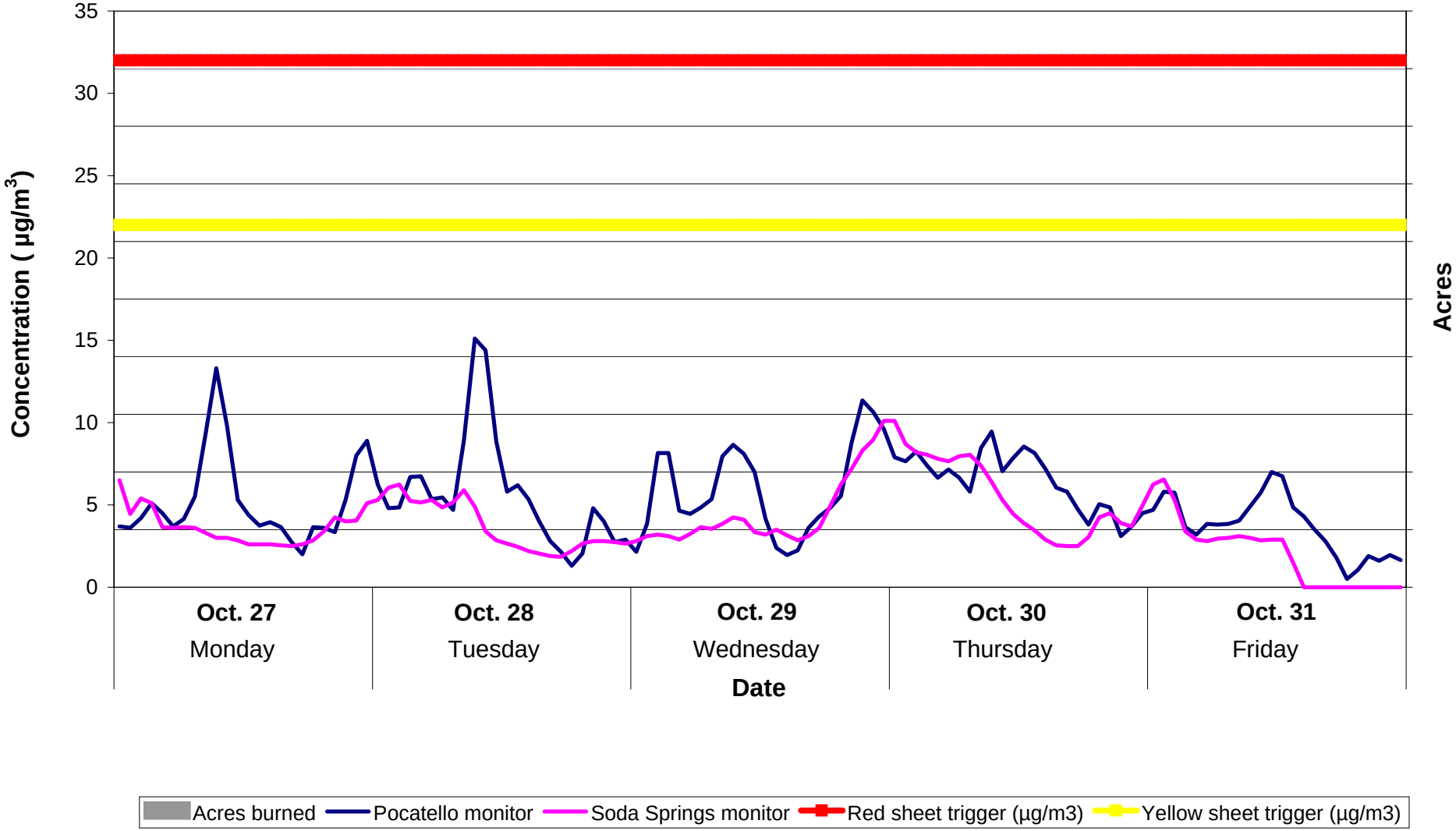



Southeast Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 20 - October 26
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
80
70
60
50
40
30
20
10
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Pocatello monitor
Soda Springs monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Southeast Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 27 - October 31



Appendix I

Air Quality Evaluation

of the

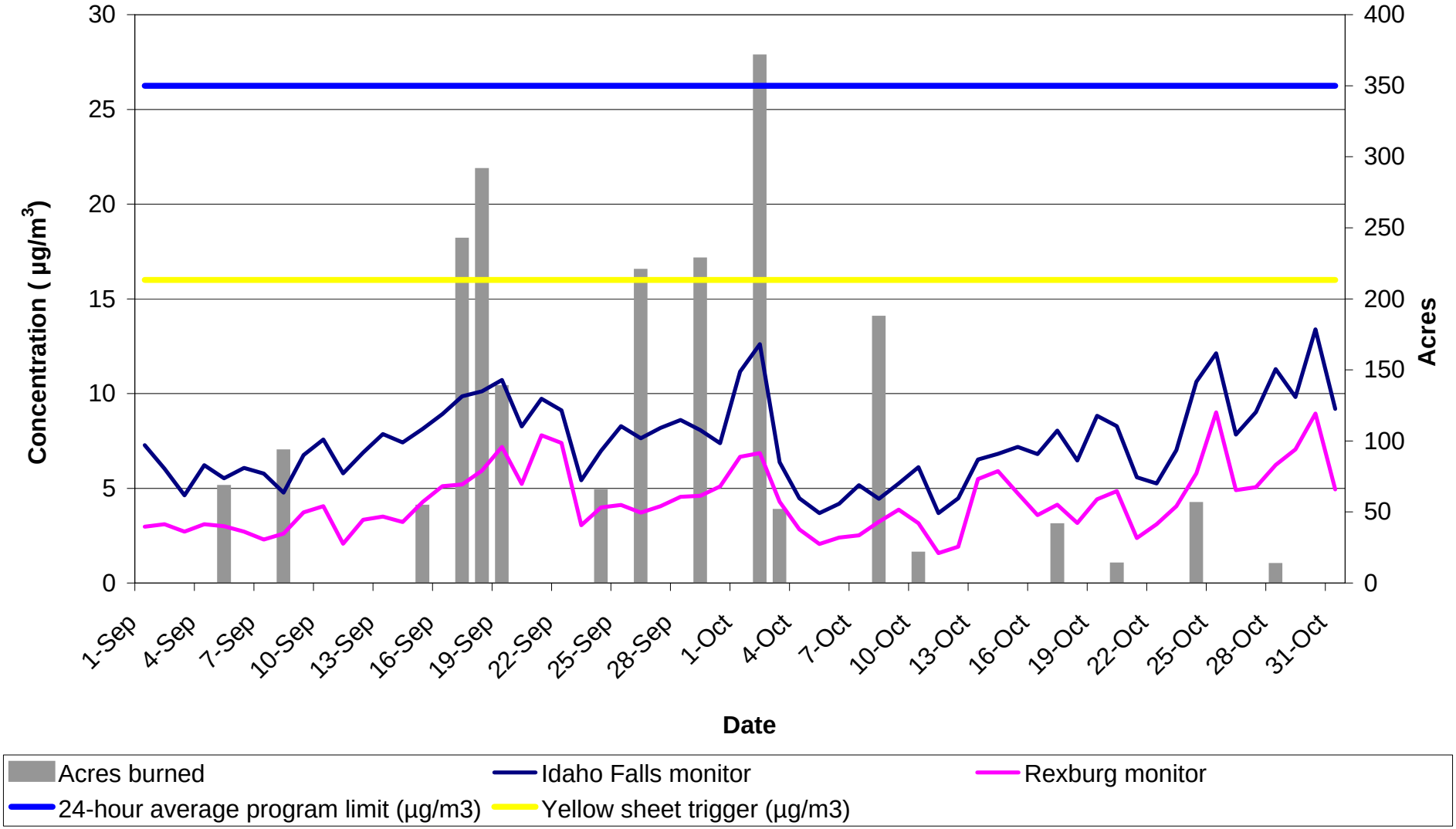
Eastern Idaho BMA

Burn Decisions and Acres Burned - Eastern Idaho BMA			
Day of Week	**Date**	**# acres approved**	**# acres burned**
T	9/2/2008		
W	9/3/2008		
Th	9/4/2008		
F	9/5/2008	67	67
Sa	9/6/2008		
Su	9/7/2008		
M	9/8/2008	92	92
T	9/9/2008		
W	9/10/2008		
Th	9/11/2008		
F	9/12/2008		
Sa	9/13/2008		
Su	9/14/2008		
M	9/15/2008	53	53
T	9/16/2008		
W	9/17/2008	241	241
Th	9/18/2008	335	290
F	9/19/2008	137	137
Sa	9/20/2008		
Su	9/21/2008		
M	9/22/2008		
T	9/23/2008		
W	9/24/2008	64	64
Th	9/25/2008		
F	9/26/2008	219	219
Sa	9/27/2008		
Su	9/28/2008		
M	9/29/2008	227	227
T	9/30/2008		
W	10/1/2008		
Th	10/2/2008	370	370
F	10/3/2008	50	50
Sa	10/4/2008		
Su	10/5/2008		
M	10/6/2008		
T	10/7/2008		
W	10/8/2008	205	186
Th	10/9/2008		
F	10/10/2008	45	20
Sa	10/11/2008		
Su	10/12/2008		
M	10/13/2008		
T	10/14/2008		
W	10/15/2008		
Th	10/16/2008		
F	10/17/2008	40	40
Sa	10/18/2008		
Su	10/19/2008		
M	10/20/2008	12	12
T	10/21/2008		
W	10/22/2008		
Th	10/23/2008		
F	10/24/2008	55	55
Sa	10/25/2008		
Su	10/26/2008		
M	10/27/2008		
T	10/28/2008	12	12
W	10/29/2008		
Th	10/30/2008		
F	10/31/2008		
	TOTAL	**2224**	**2135**

Eastern Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
24-hour average

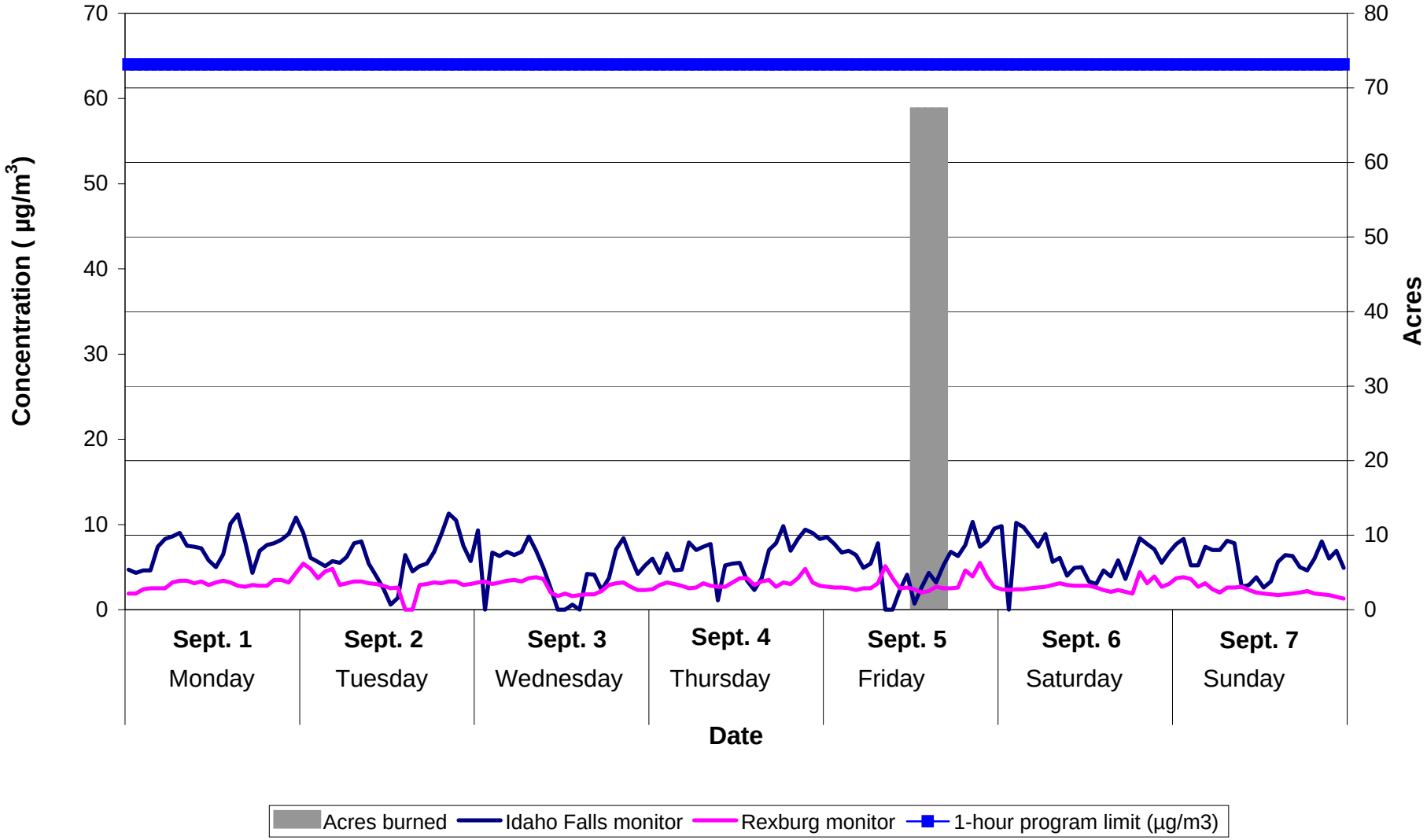
September 1 - October 31

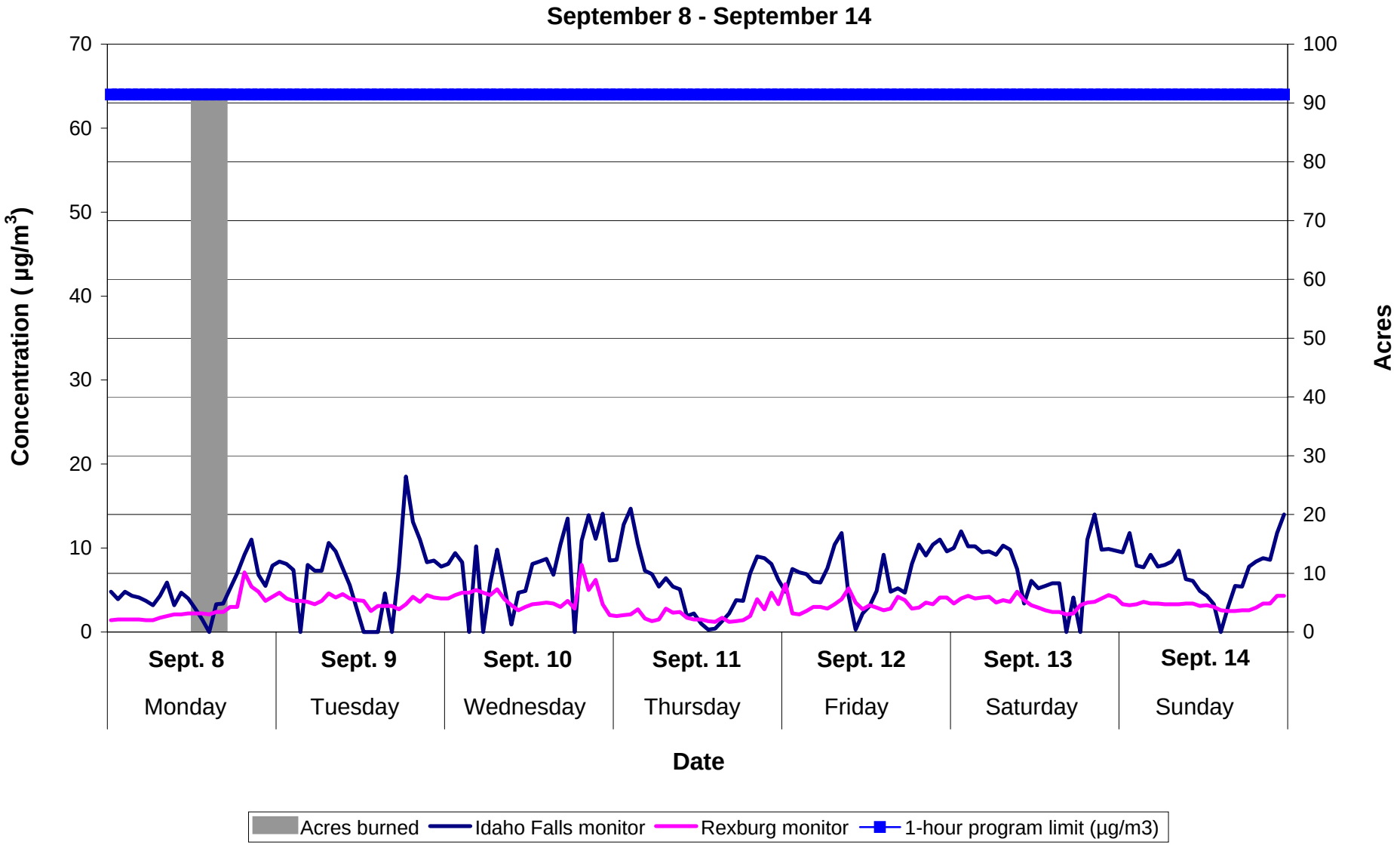


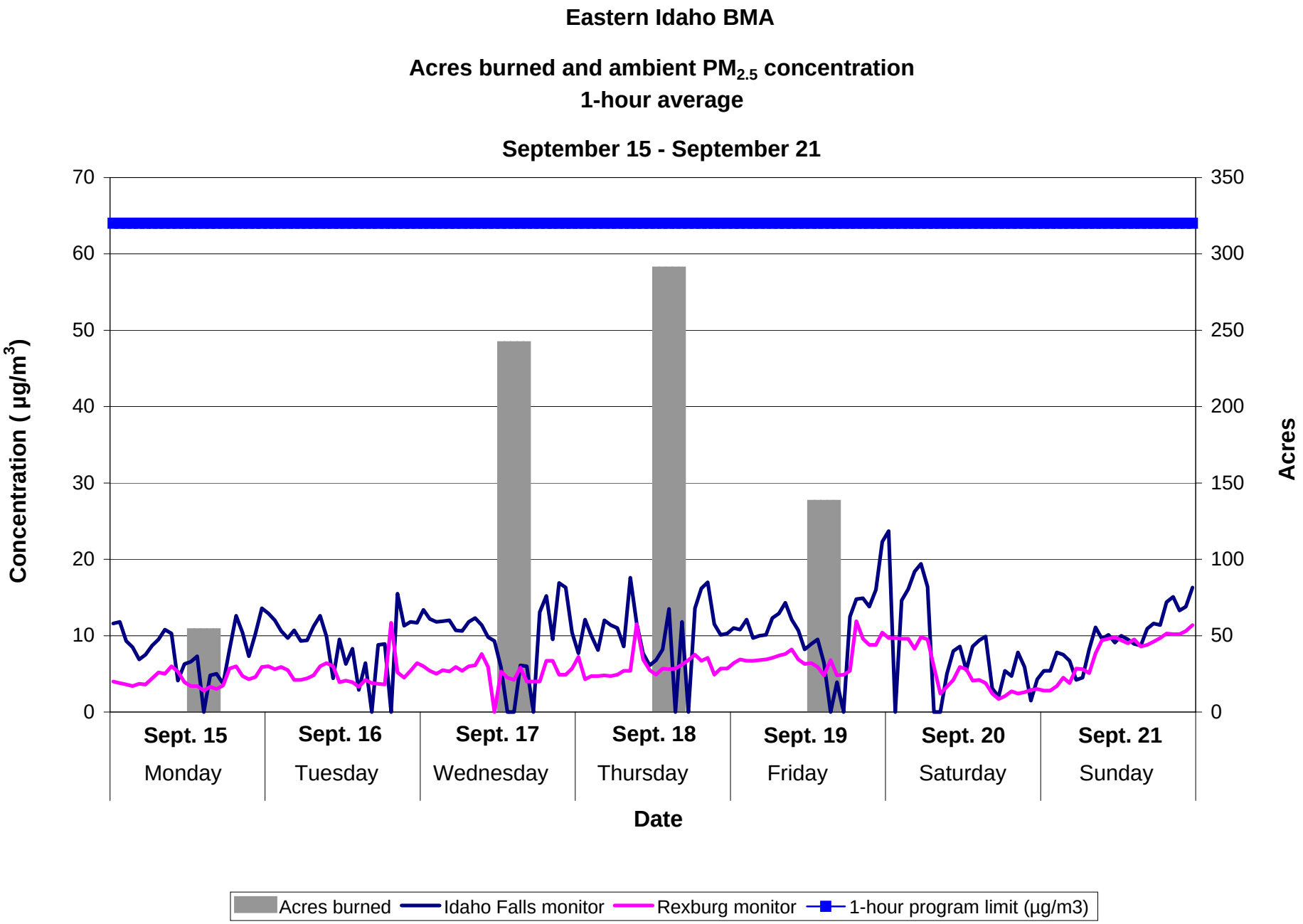
Eastern Idaho BMA

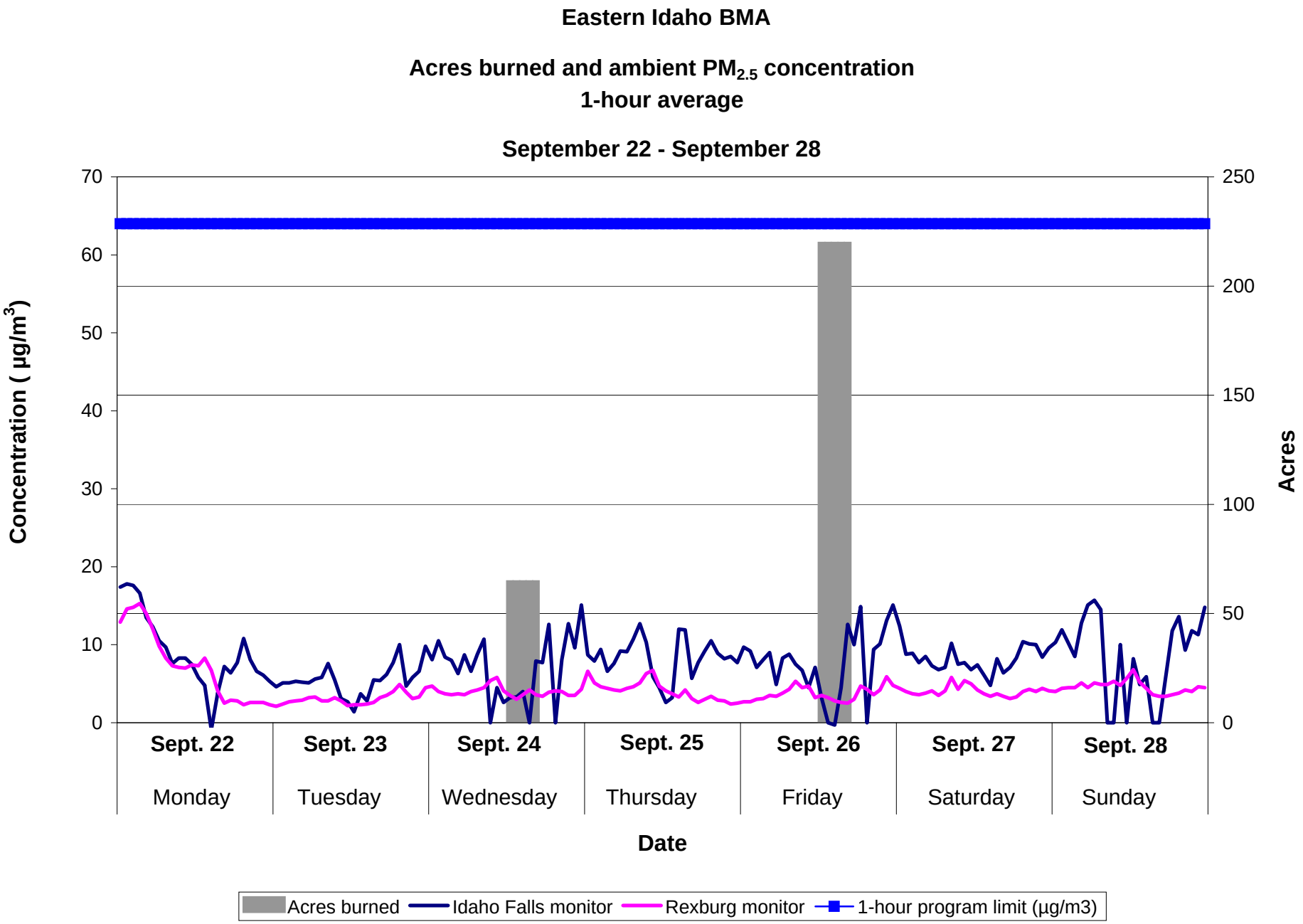
Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

September 1 - September 7




Eastern Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 8 - September 14
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
100
90
80
70
60
50
40
30
20
10
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Idaho Falls monitor
Rexburg monitor
1-hour program limit (µg/m3)

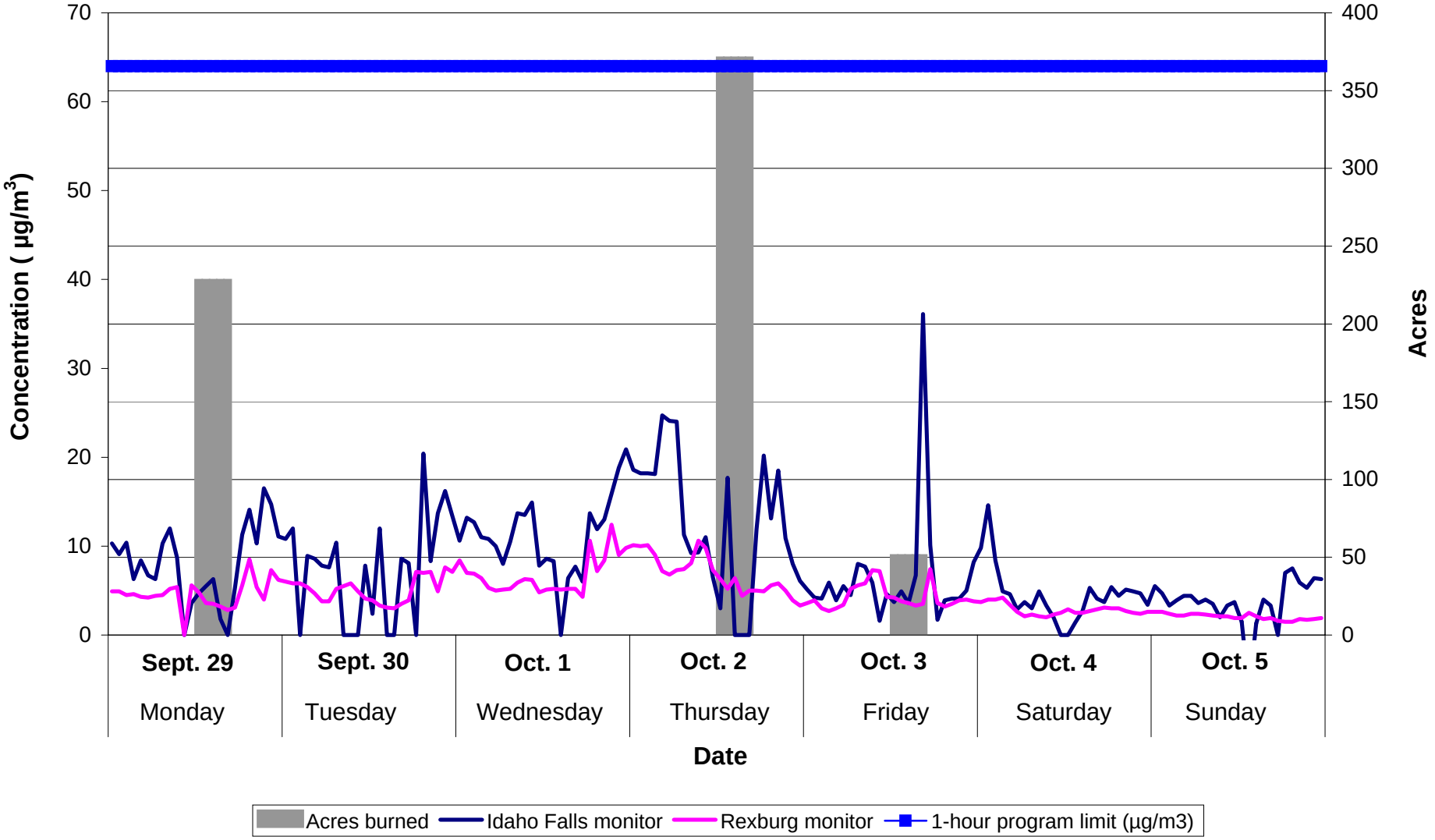

Eastern Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 15 - September 21
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
350
300
250
200
150
100
50
0
Sept. 15
Monday
Sept. 16
Tuesday
Sept. 17
Wednesday
Sept. 18
Thursday
Sept. 19
Friday
Sept. 20
Saturday
Sept. 21
Sunday
Date
Acres burned
Idaho Falls monitor
Rexburg monitor
1-hour program limit (µg/m3)

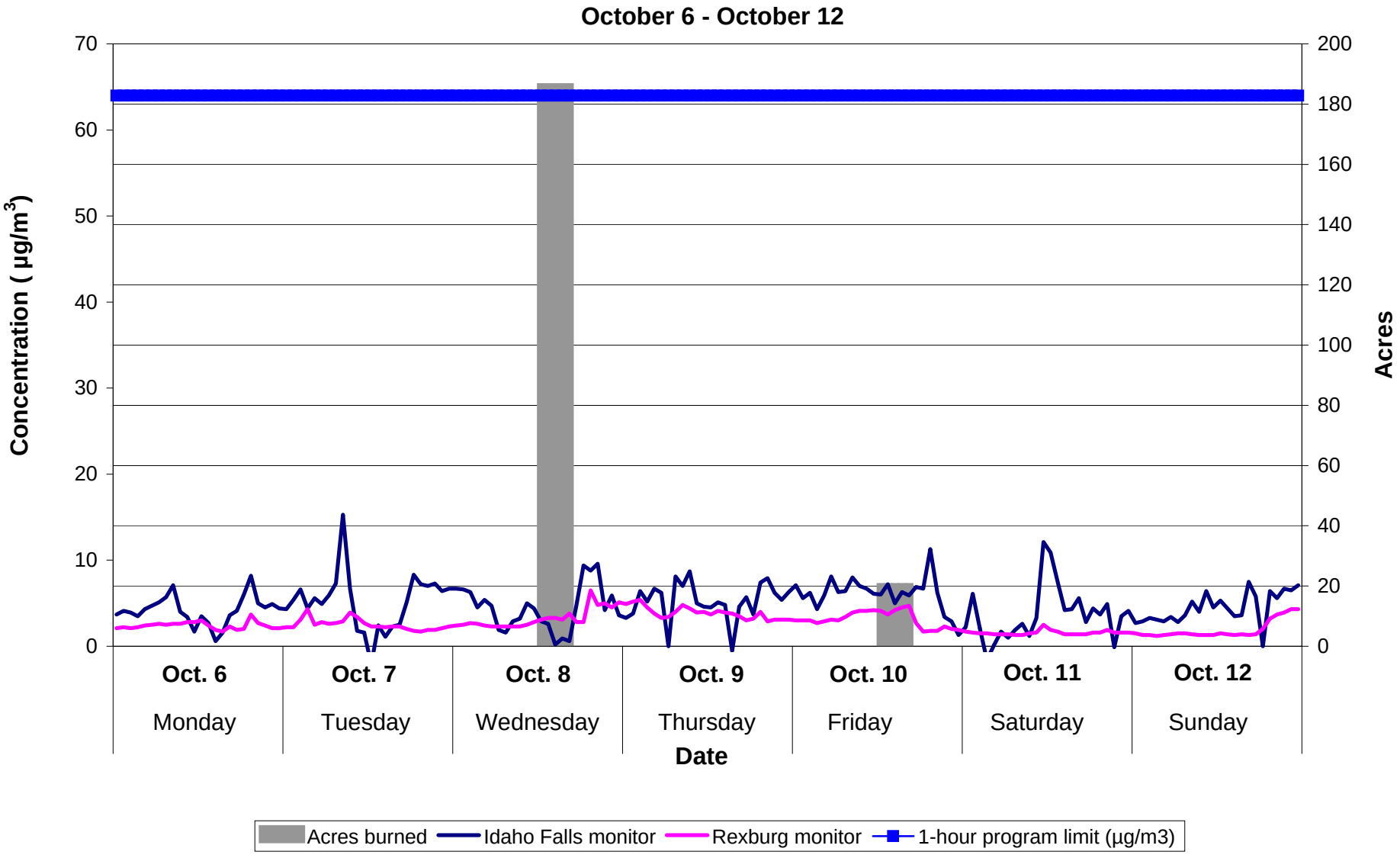

Eastern Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
September 22 - September 28
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
250
200
150
100
50
0
Sept. 22
Monday
Sept. 23
Tuesday
Sept. 24
Wednesday
Sept. 25
Thursday
Sept. 26
Friday
Sept. 27
Saturday
Sept. 28
Sunday
Date
Acres burned
Idaho Falls monitor
Rexburg monitor
1-hour program limit (µg/m3)

Eastern Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

September 29 - October 5

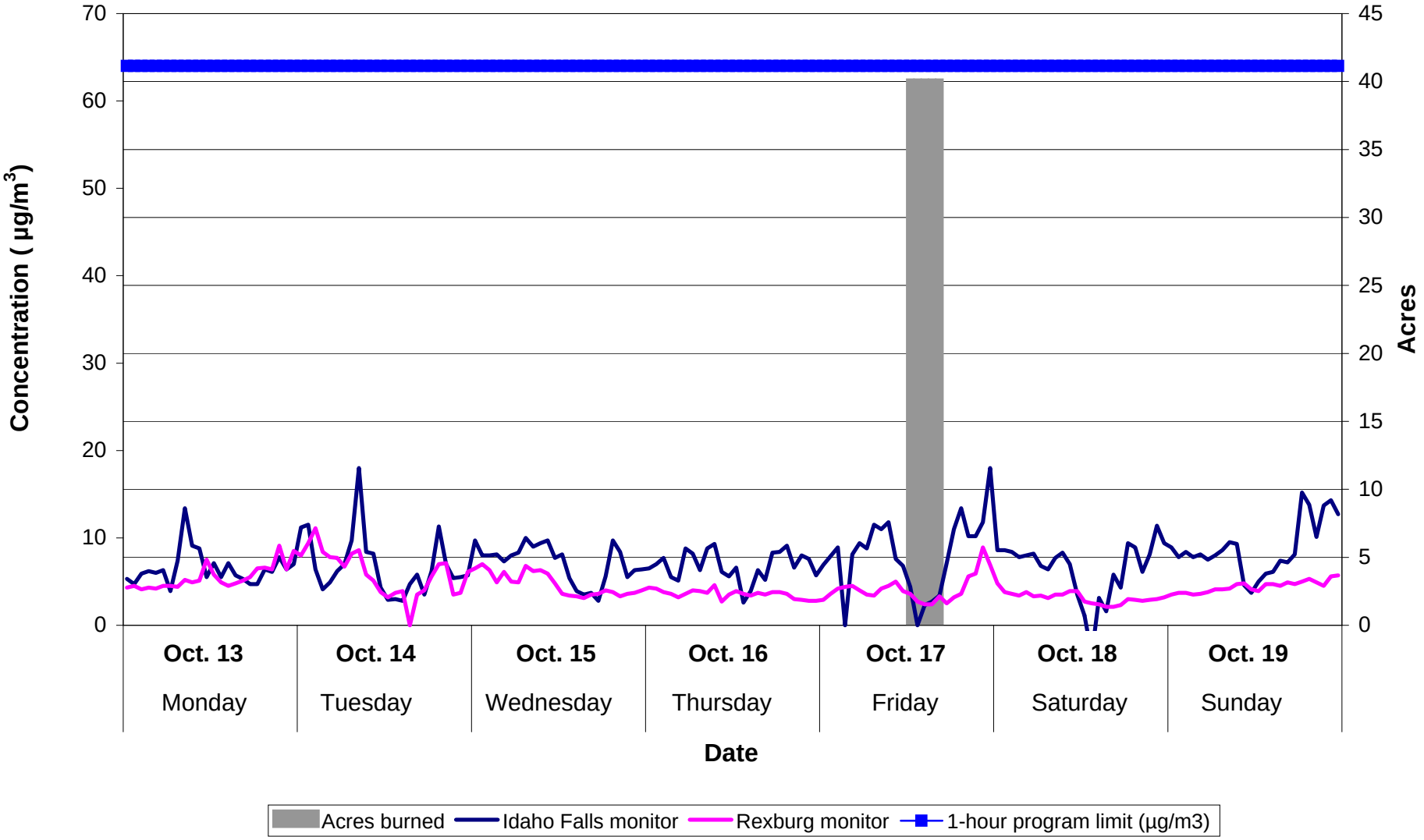


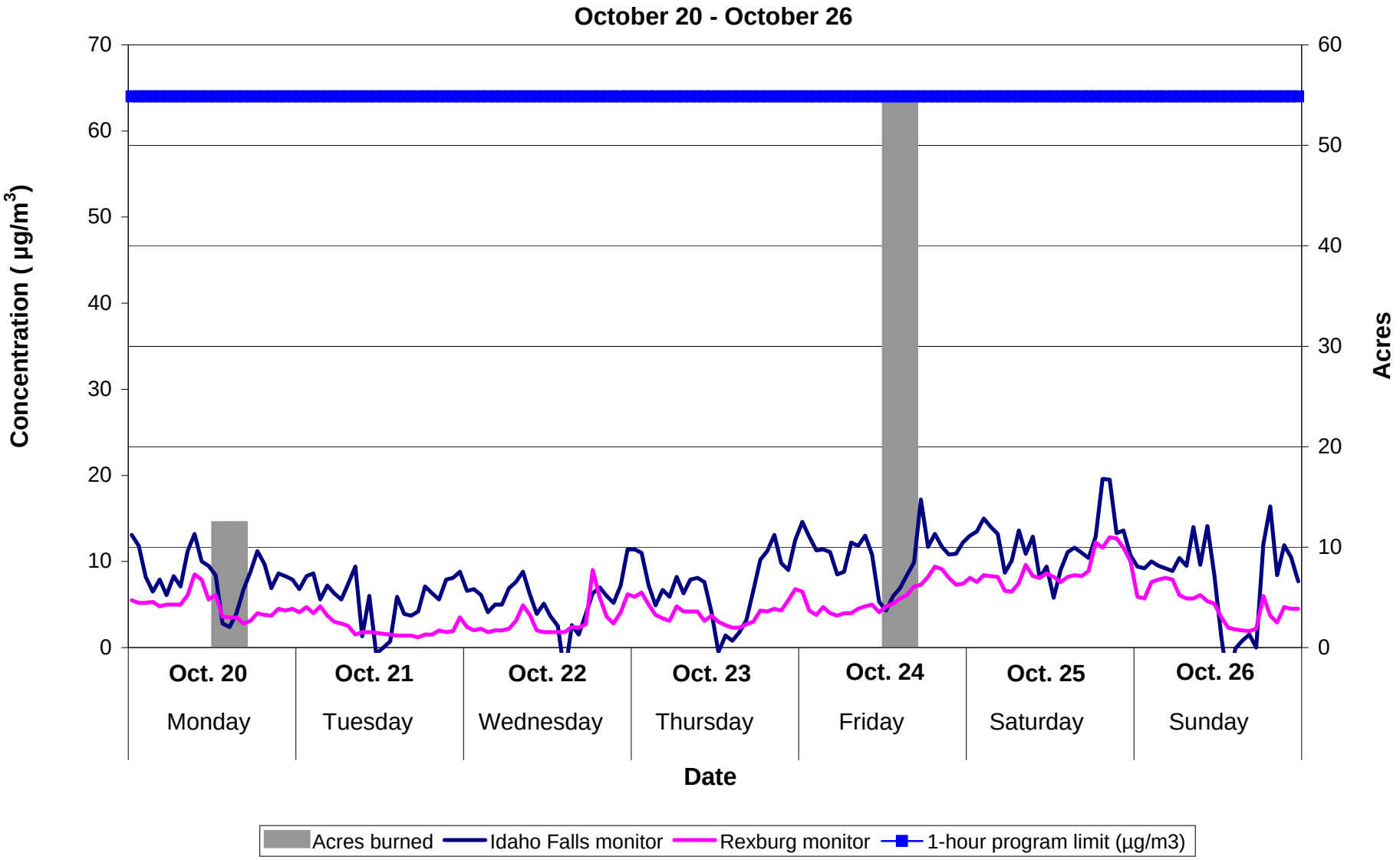

Eastern Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 6 - October 12
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
200
180
160
140
120
100
80
60
40
20
0
Oct. 6
Monday
Oct. 7
Tuesday
Oct. 8
Wednesday
Oct. 9
Thursday
Oct. 10
Friday
Oct. 11
Saturday
Oct. 12
Sunday
Date
Acres burned
Idaho Falls monitor
Rexburg monitor
1-hour program limit (µg/m3)

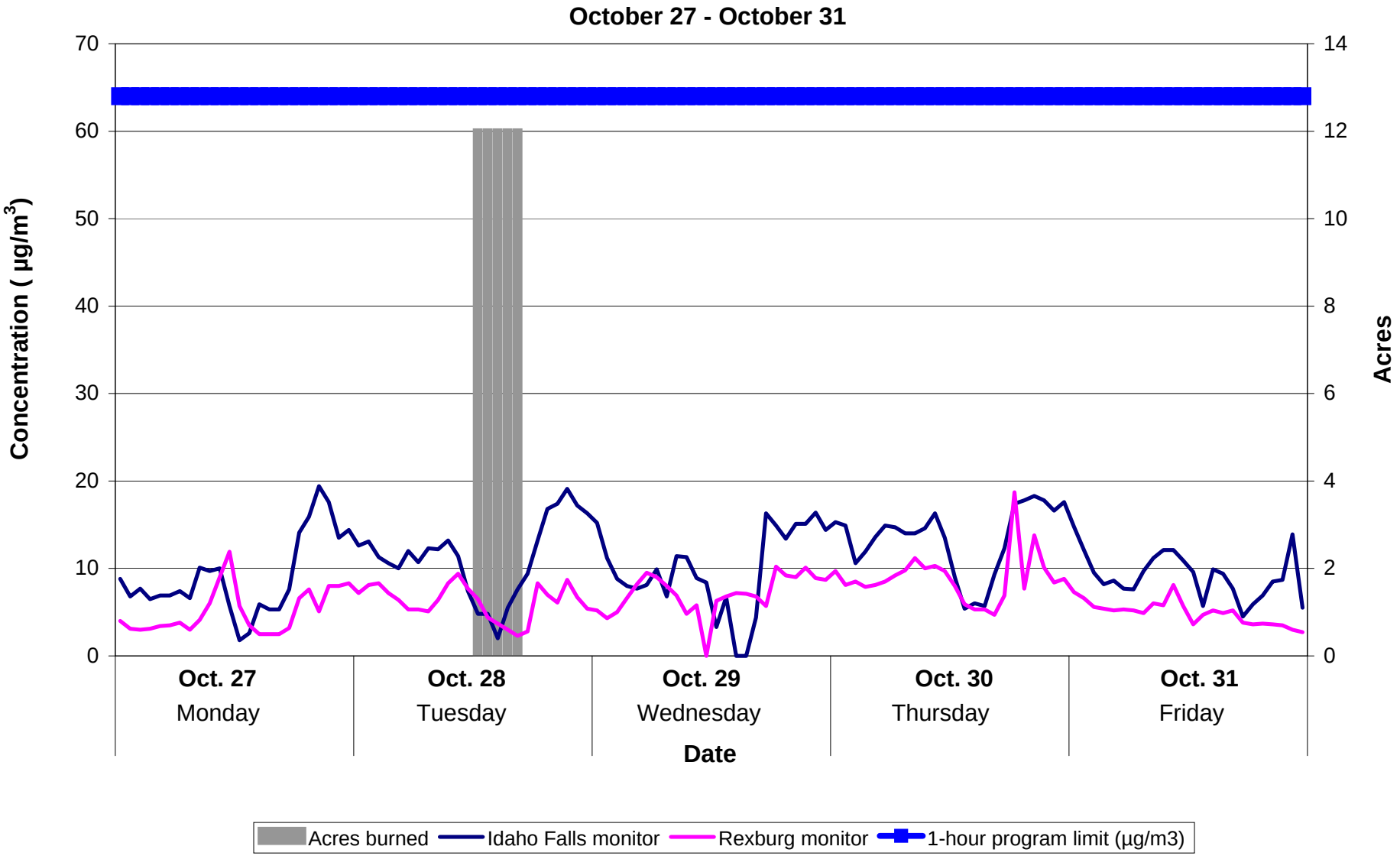
Eastern Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

October 13 - October 19



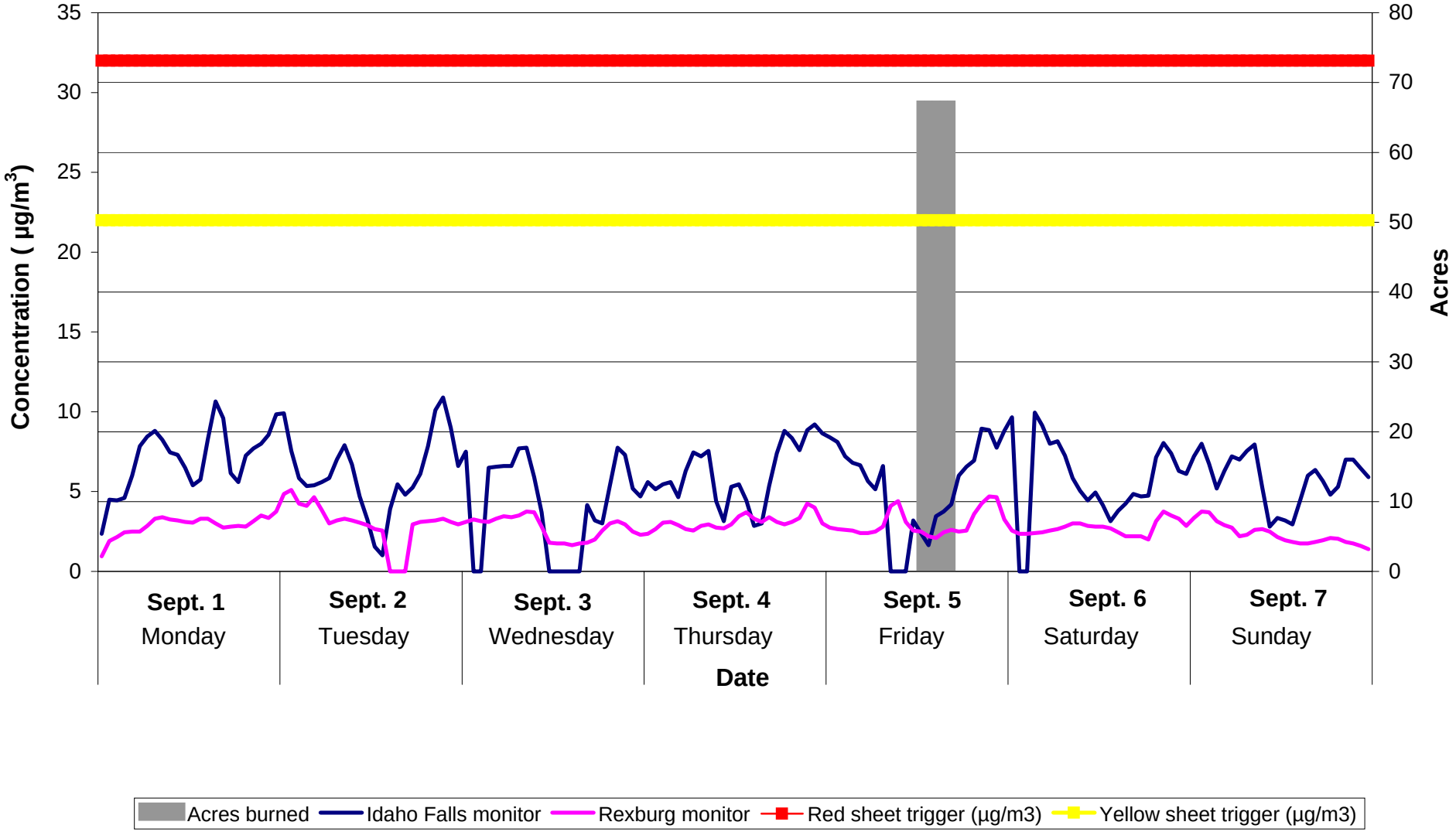

Eastern Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 20 - October 26
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
60
50
40
30
20
10
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Idaho Falls monitor
Rexburg monitor
1-hour program limit (µg/m3)

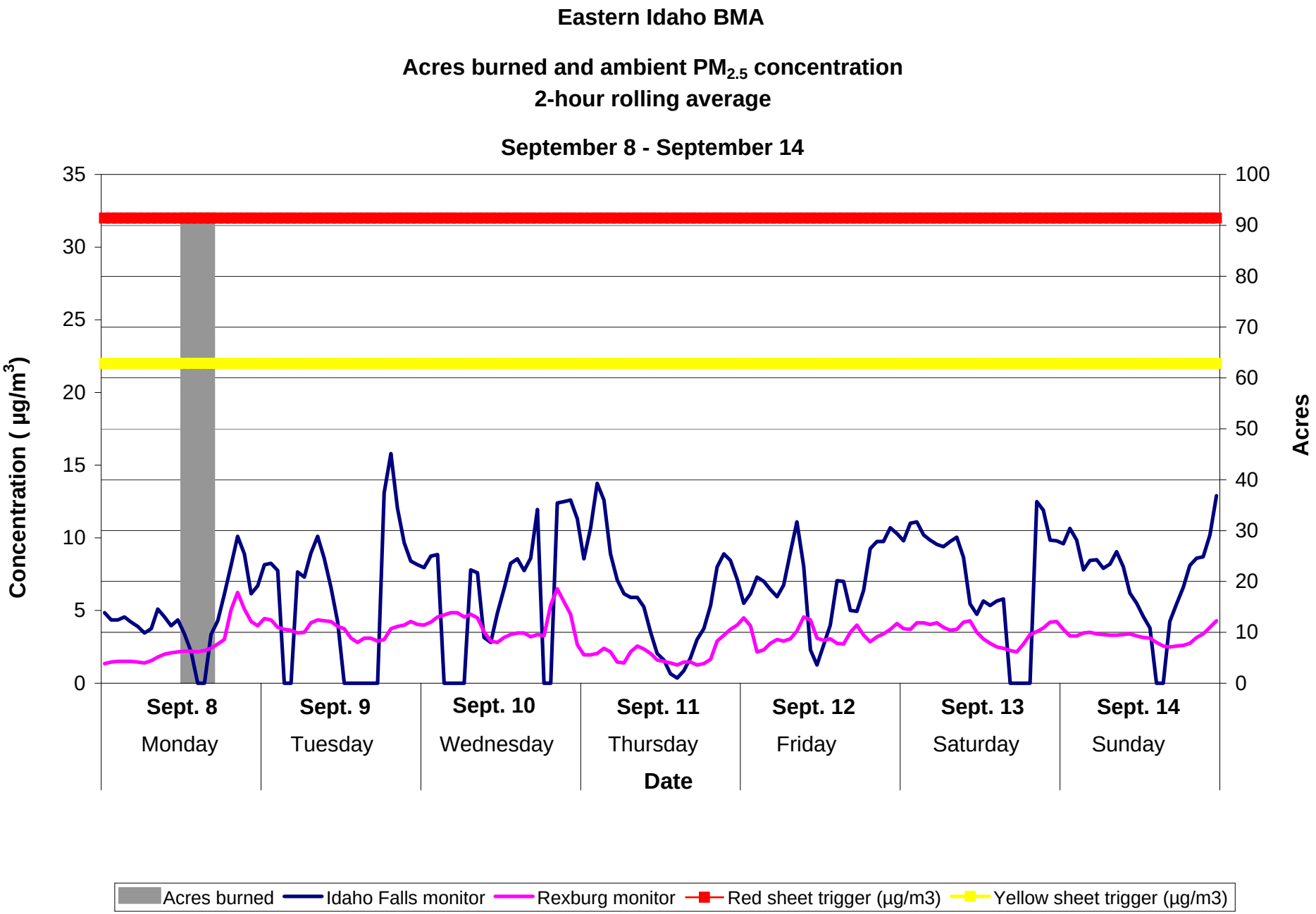

Eastern Idaho BMA
Acres burned and ambient PM2.5 concentration
1-hour average
October 27 - October 31
Concentration (µg/m3)
Acres
70
60
50
40
30
20
10
0
14
12
10
8
6
4
2
0
Oct. 27
Monday
Oct. 28
Tuesday
Oct. 29
Wednesday
Oct. 30
Thursday
Oct. 31
Friday
Date
Acres burned
Idaho Falls monitor
Rexburg monitor
1-hour program limit (µg/m3)

Eastern Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 1 - September 7

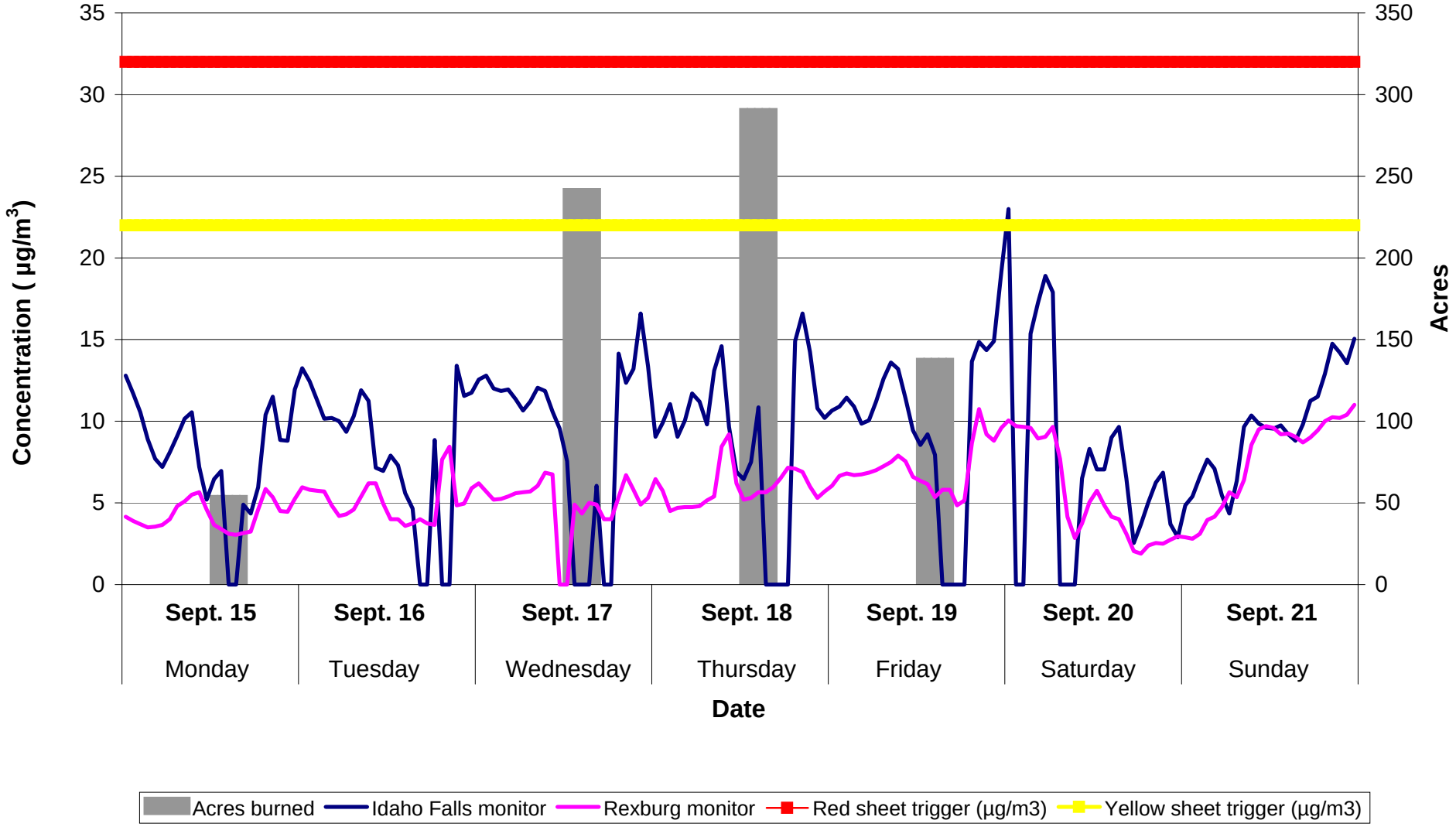



Eastern Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
September 8 - September 14
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
100
90
80
70
60
50
40
30
20
10
0
Sept. 8
Monday
Sept. 9
Tuesday
Sept. 10
Wednesday
Sept. 11
Thursday
Sept. 12
Friday
Sept. 13
Saturday
Sept. 14
Sunday
Date
Acres burned
Idaho Falls monitor
Rexburg monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Eastern Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

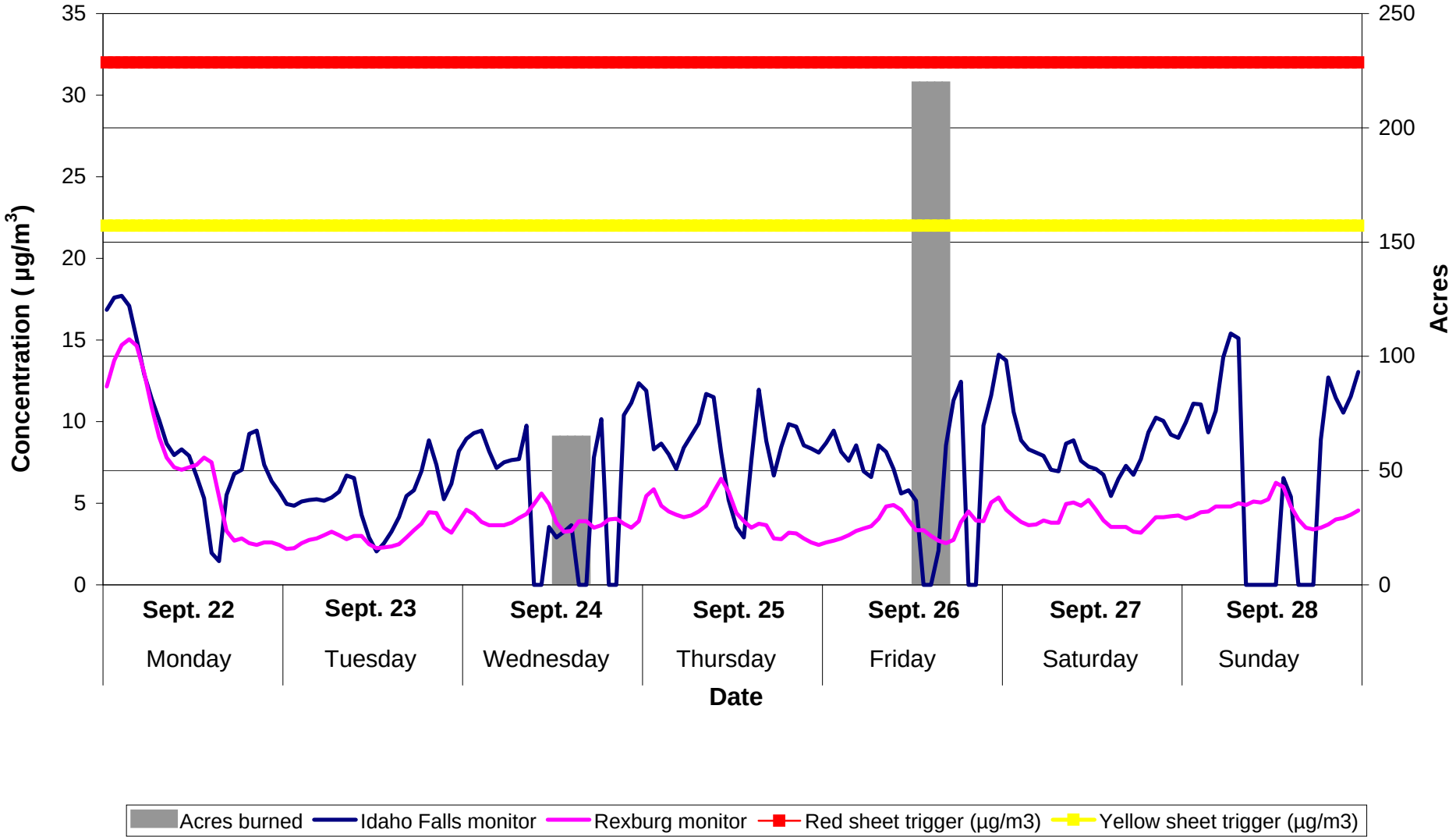
September 15 - September 21



Eastern Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

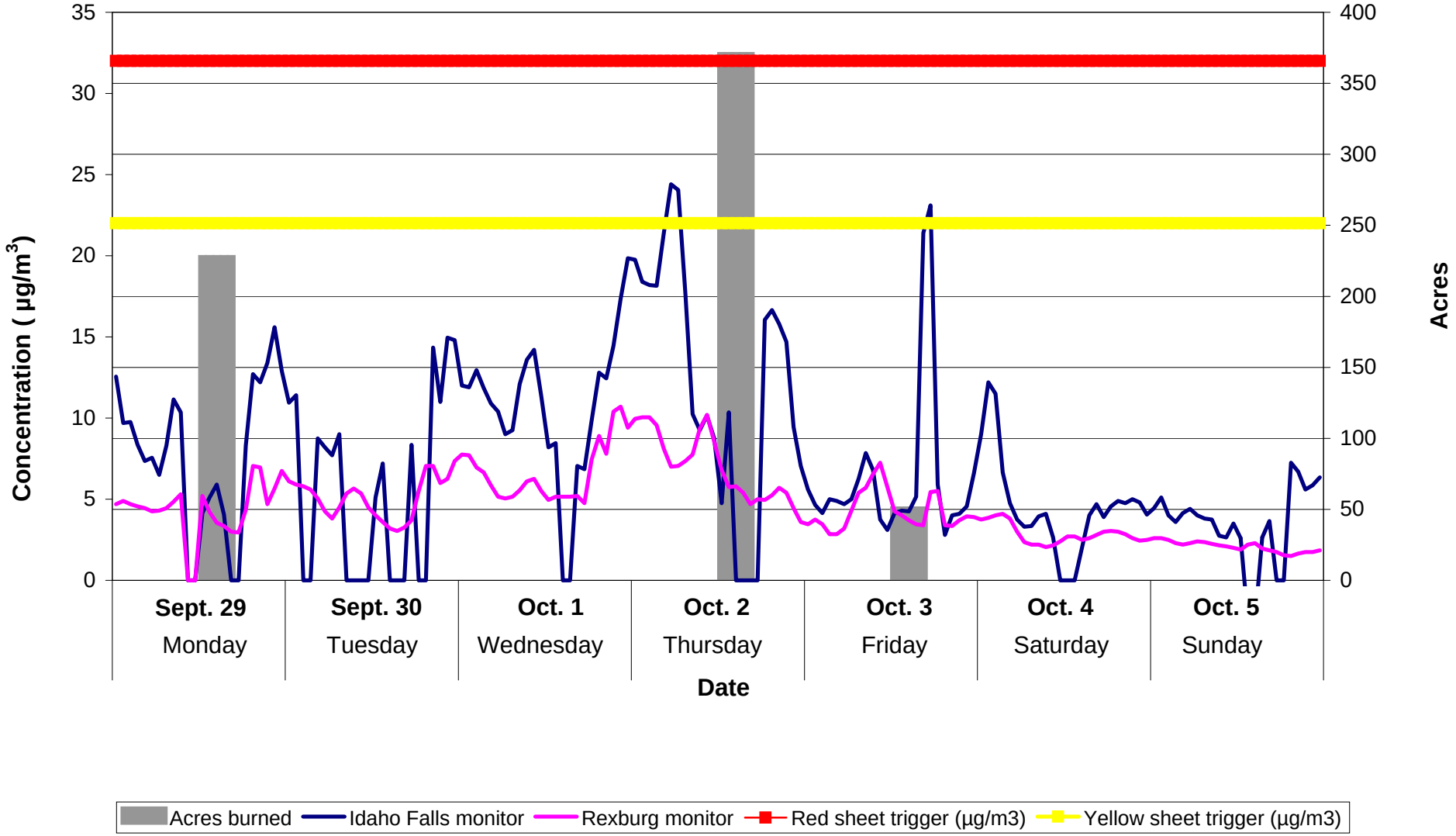
September 22 - September 28



Eastern Idaho BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

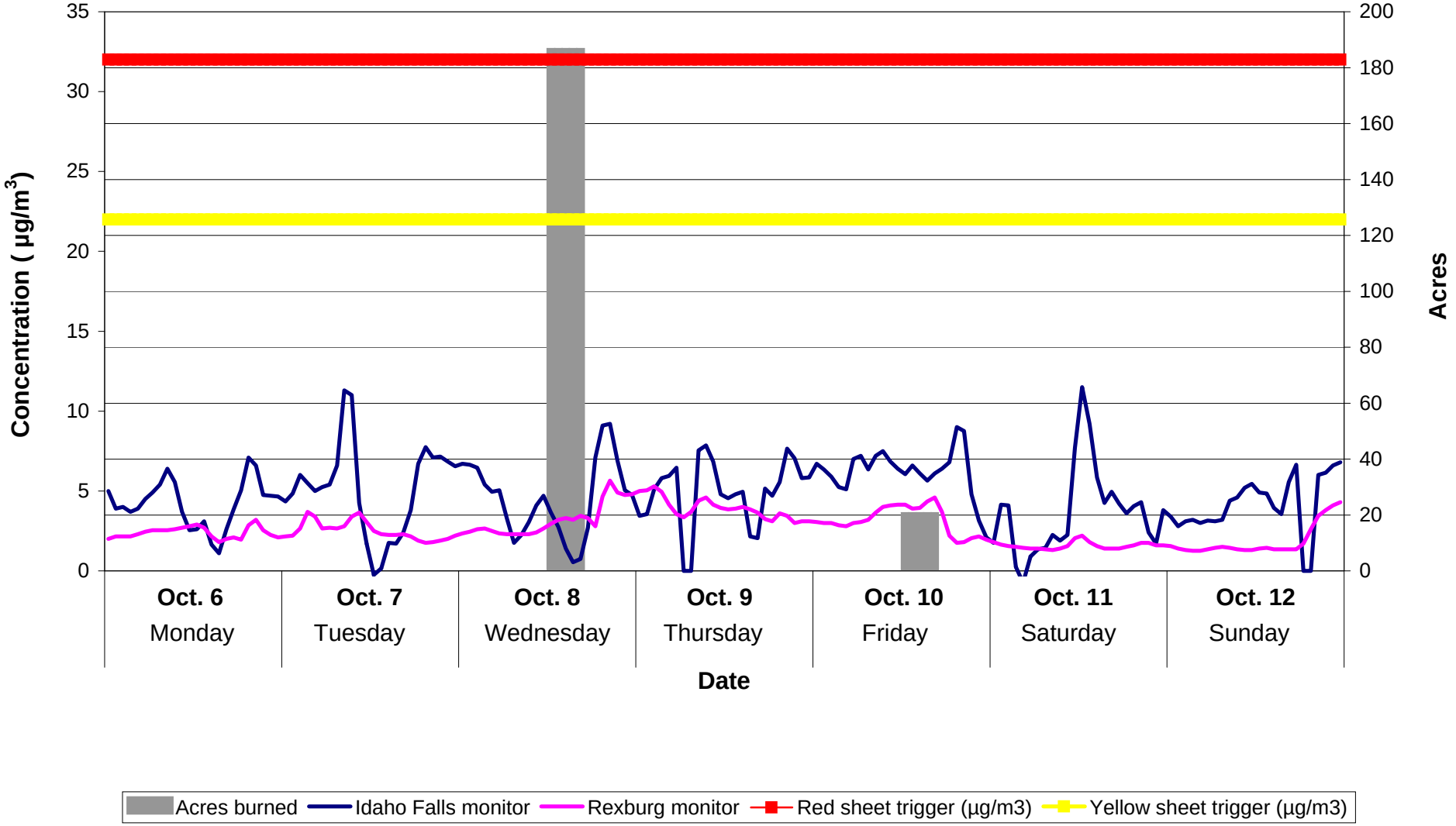
September 29 - October 5

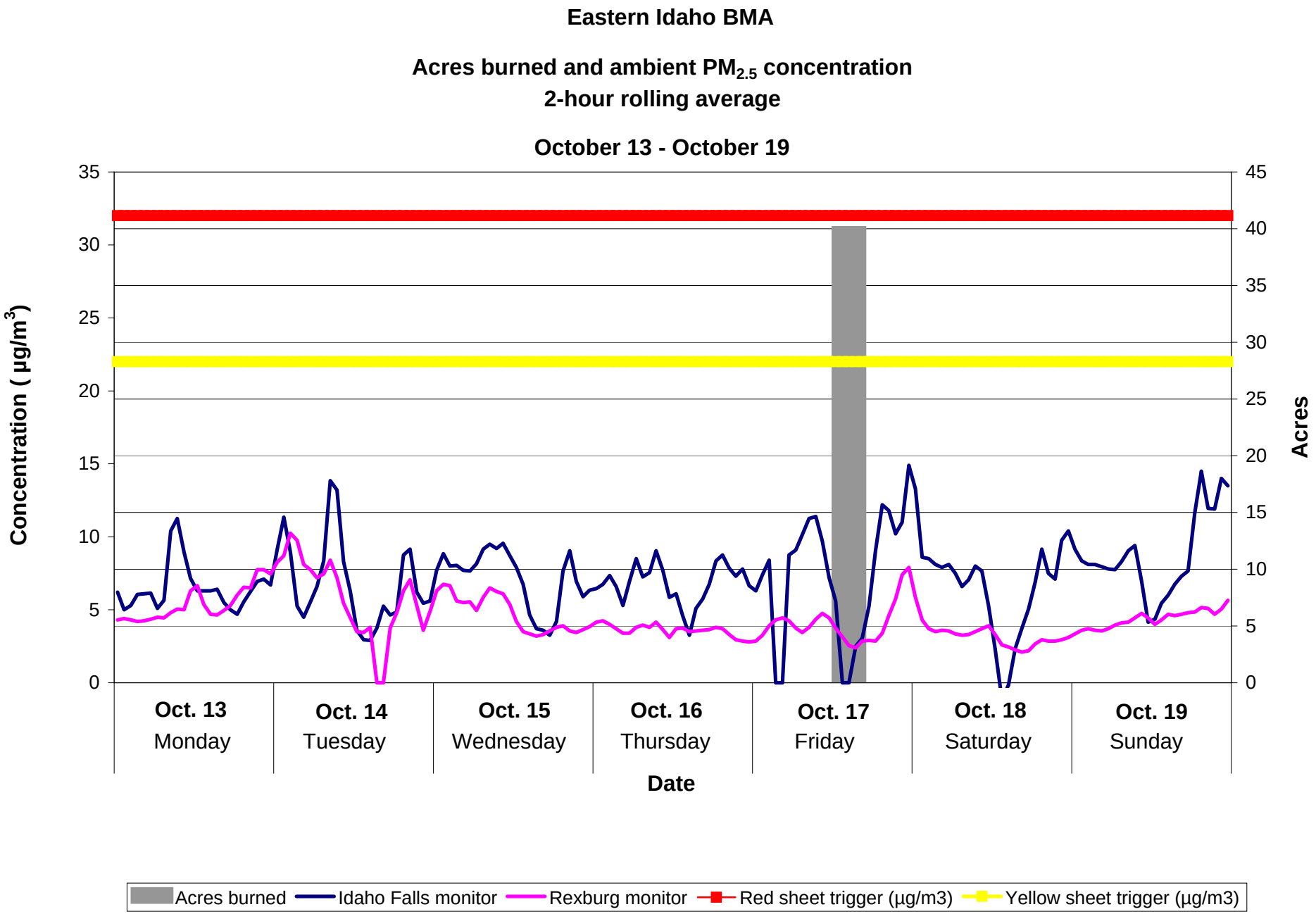


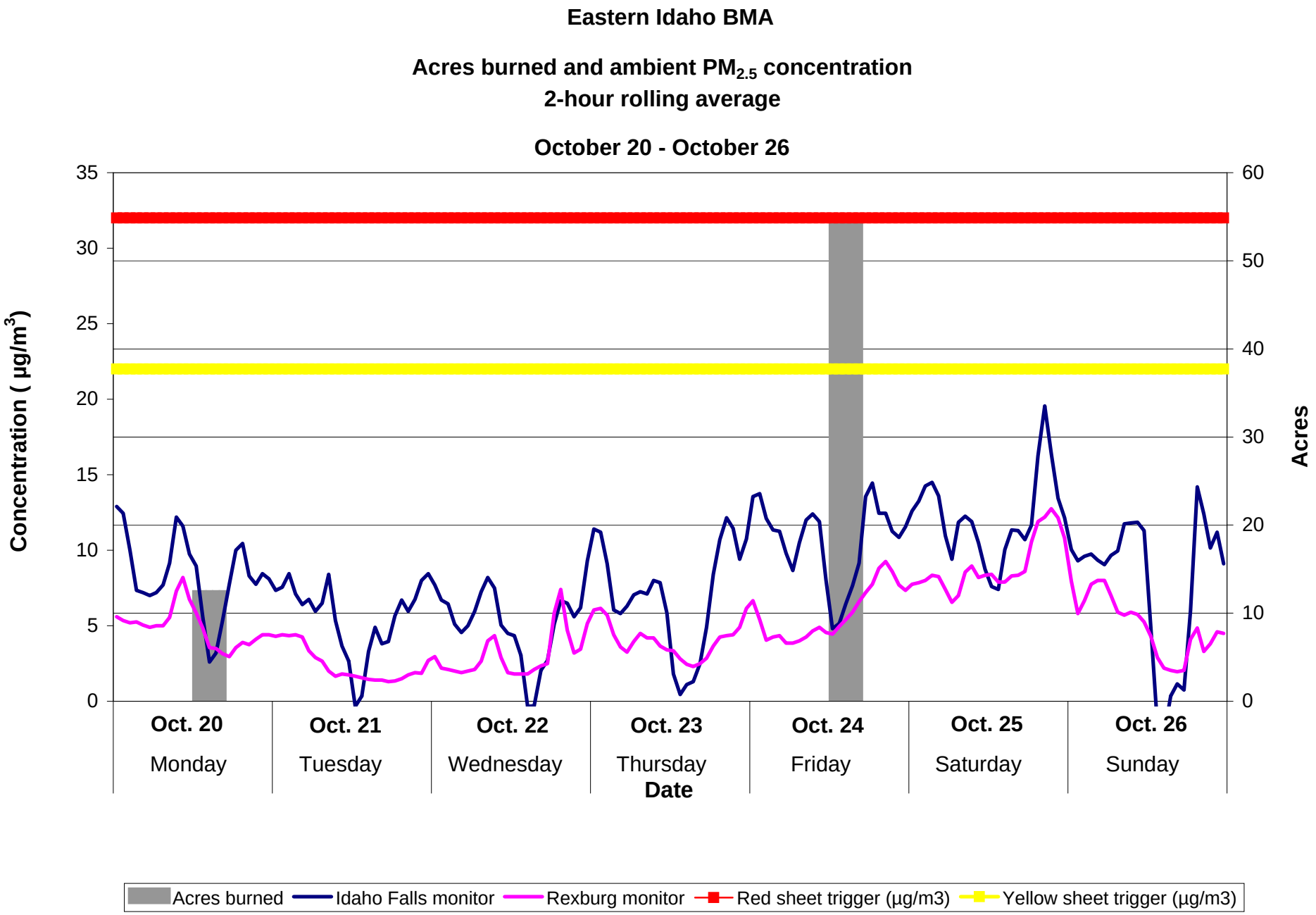
Eastern Idaho BMA

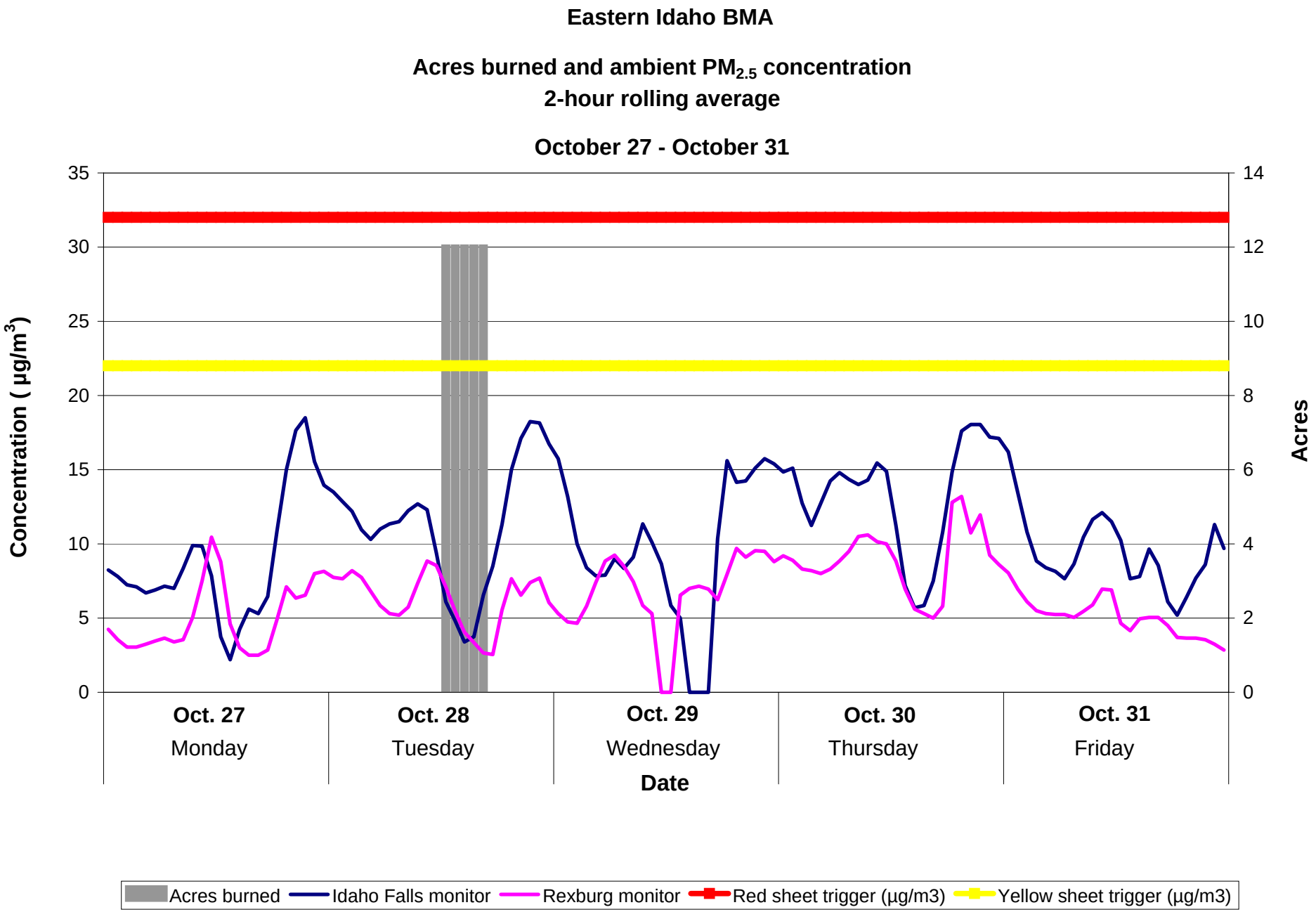
Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 6 - October 12




Eastern Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 13 - October 19
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
45
40
35
30
25
20
15
10
5
0
Oct. 13
Monday
Oct. 14
Tuesday
Oct. 15
Wednesday
Oct. 16
Thursday
Oct. 17
Friday
Oct. 18
Saturday
Oct. 19
Sunday
Date
Acres burned
Idaho Falls monitor
Rexburg monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Eastern Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 20 - October 26
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
60
50
40
30
20
10
0
Oct. 20
Monday
Oct. 21
Tuesday
Oct. 22
Wednesday
Oct. 23
Thursday
Oct. 24
Friday
Oct. 25
Saturday
Oct. 26
Sunday
Date
Acres burned
Idaho Falls monitor
Rexburg monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)


Eastern Idaho BMA
Acres burned and ambient PM2.5 concentration
2-hour rolling average
October 27 - October 31
Concentration (µg/m3)
Acres
35
30
25
20
15
10
5
0
14
12
10
8
6
4
2
0
Oct. 27
Monday
Oct. 28
Tuesday
Oct. 29
Wednesday
Oct. 30
Thursday
Oct. 31
Friday
Date
Acres burned
Idaho Falls monitor
Rexburg monitor
Red sheet trigger (µg/m3)
Yellow sheet trigger (µg/m3)

Appendix J

Air Quality Evaluation

of the

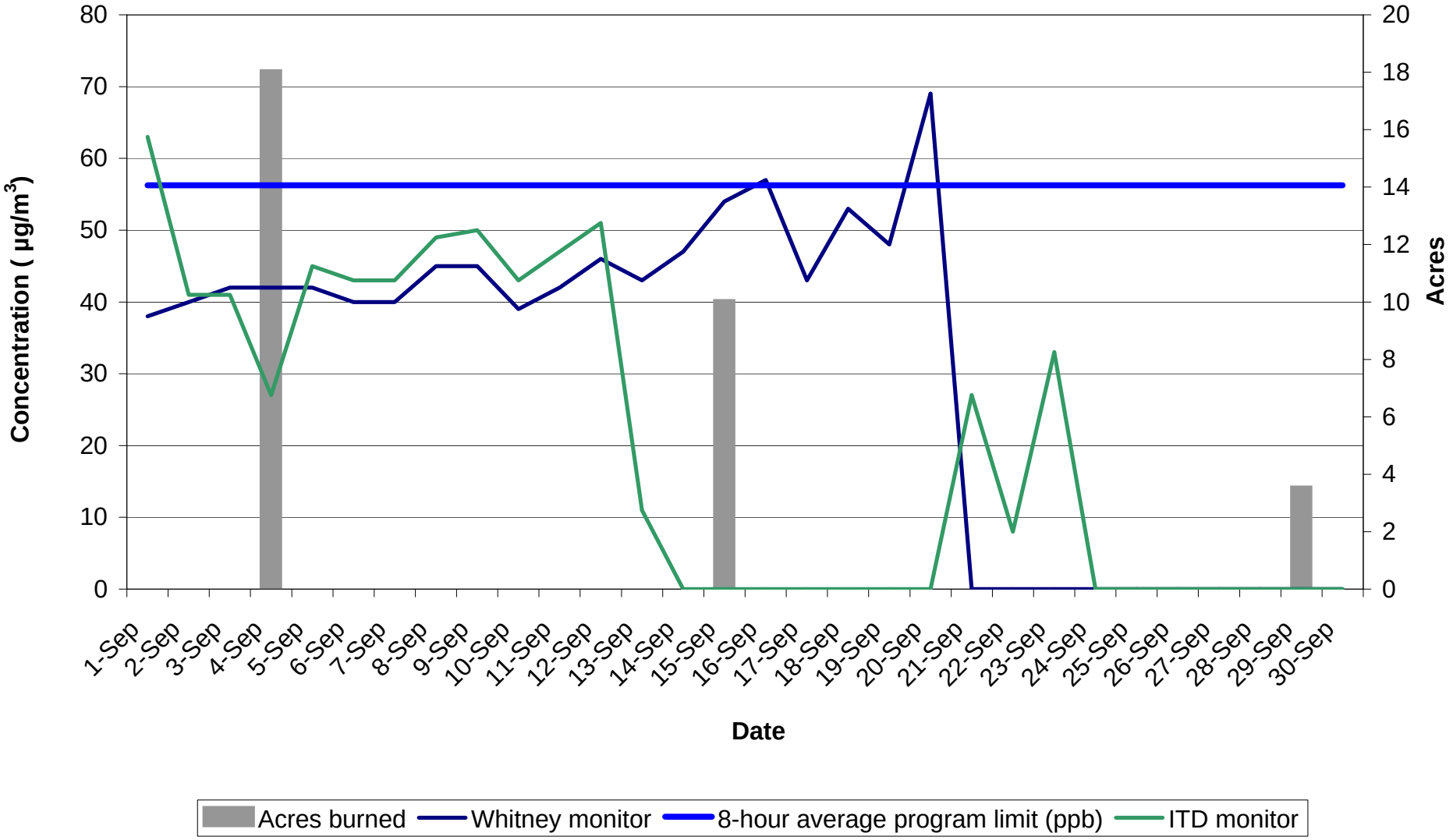
Weiser and Lower Payette Valleys BMA

Burn Decisions and Acres Burned - Weiser & Lower Payette Valleys BMA			
Day of Week	**Date**	**# acres approved**	**# acres burned**
T	9/2/08		
W	9/3/08		
Th	9/4/08	18	18
F	9/5/08		
Sa	9/6/08		
Su	9/7/08		
M	9/8/08		
T	9/9/08		
W	9/10/08		
Th	9/11/08		
F	9/12/08		
Sa	9/13/08		
Su	9/14/08		
M	9/15/08	10	10
T	9/16/08		
W	9/17/08		
Th	9/18/08		
F	9/19/08		
Sa	9/20/08		
Su	9/21/08		
M	9/22/08		
T	9/23/08		
W	9/24/08		
Th	9/25/08		
F	9/26/08		
Sa	9/27/08		
Su	9/28/08		
M	9/29/08	19	4
T	9/30/08		
W	10/1/08	9	9
Th	10/2/08		
F	10/3/08		
Sa	10/4/08		
Su	10/5/08		
M	10/6/08		
T	10/7/08		
W	10/8/08		
Th	10/9/08		
F	10/10/08		
Sa	10/11/08		
Su	10/12/08		
M	10/13/08		
T	10/14/08		
W	10/15/08		
Th	10/16/08		
F	10/17/08		
Sa	10/18/08		
Su	10/19/08		
M	10/20/08		
T	10/21/08		
W	10/22/08		
Th	10/23/08		
F	10/24/08		
Sa	10/25/08		
Su	10/26/08		
M	10/27/08		
T	10/28/08		
W	10/29/08		
Th	10/30/08		
F	10/31/08		
	TOTAL	**56**	**40**

Weiser & Lower Payette Valleys BMA

Acres burned and ambient ozone concentration
Maximum 8-hour average

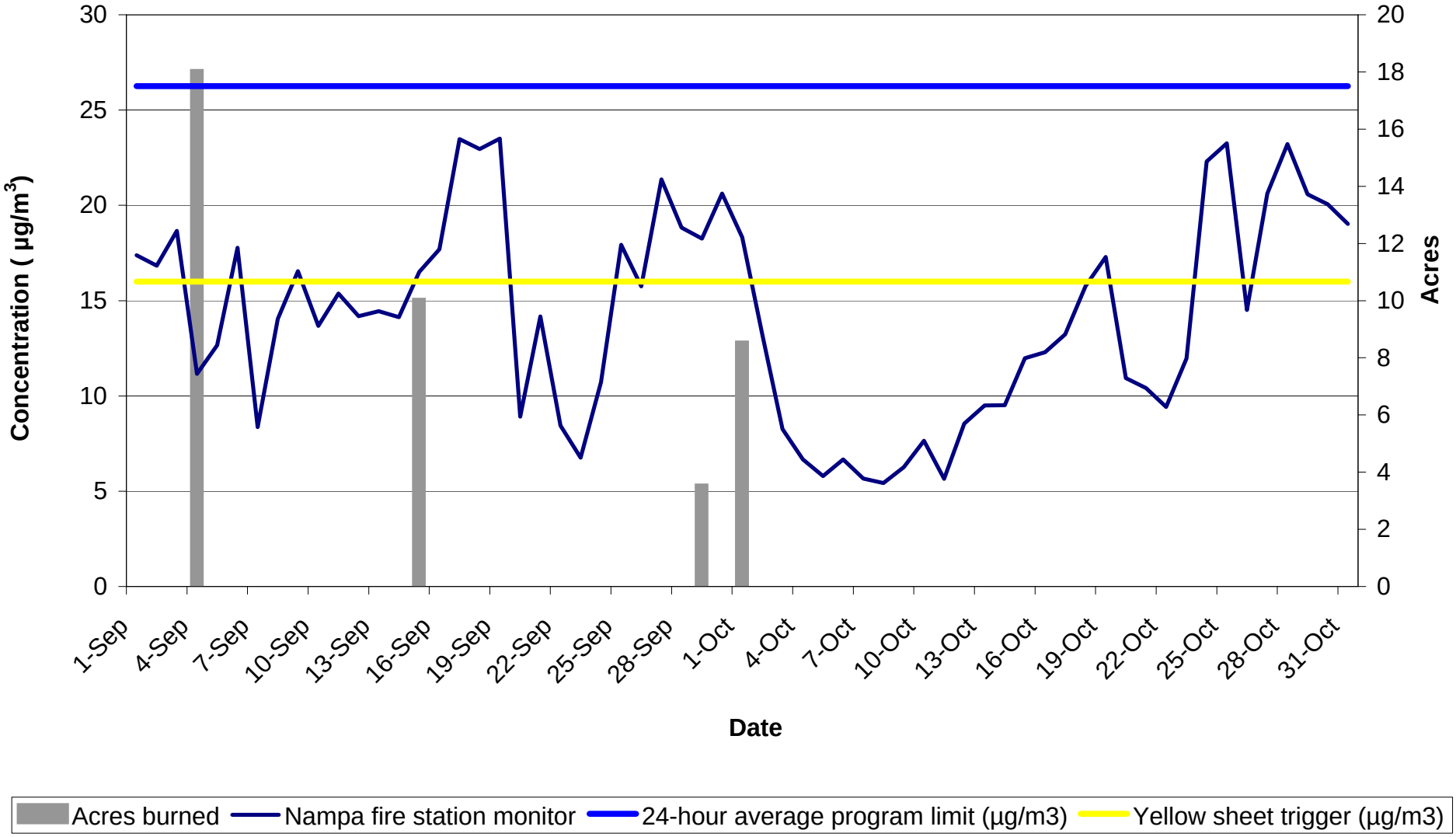
September 1 - September 30



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
24-hour average

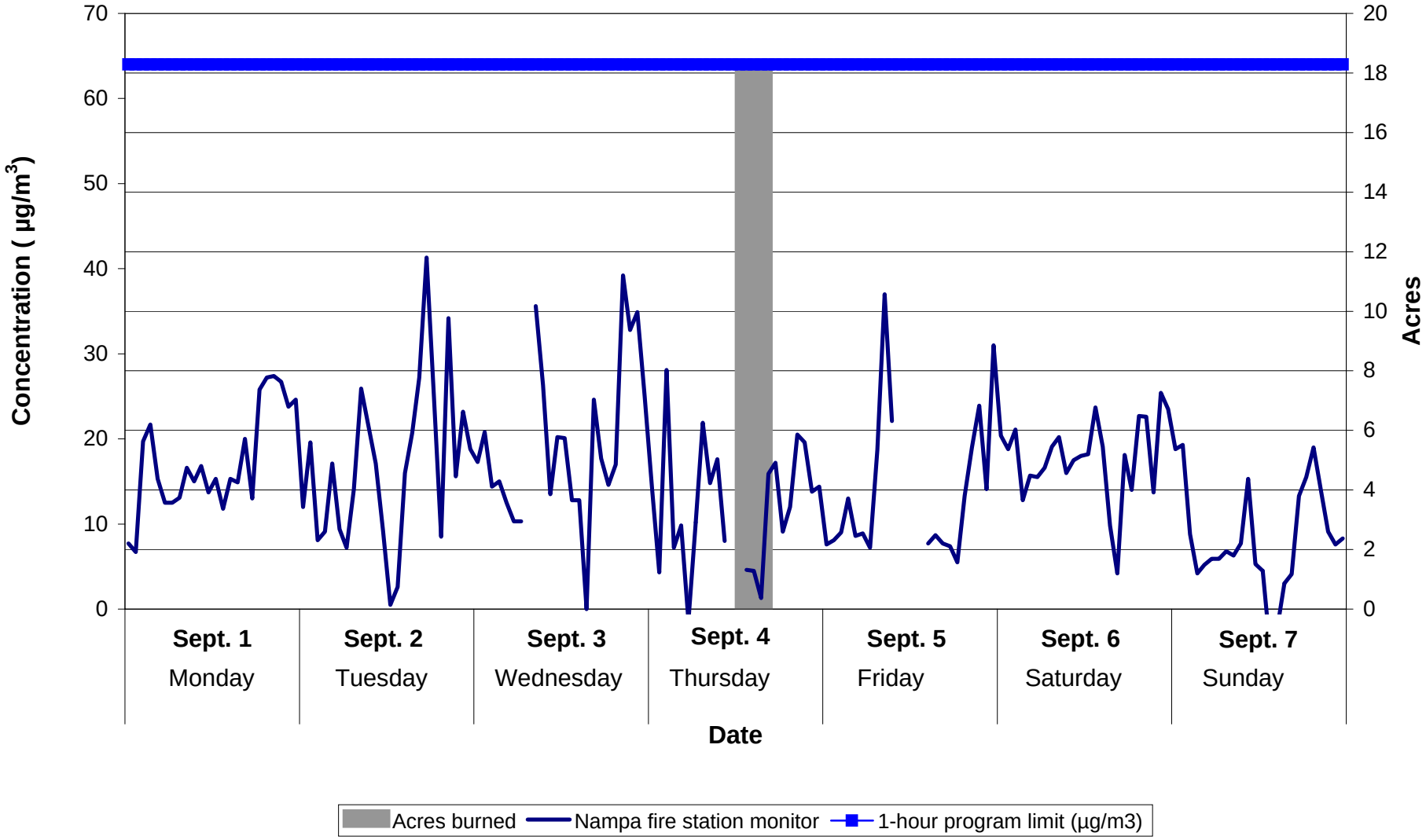
September 1 - October 31



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

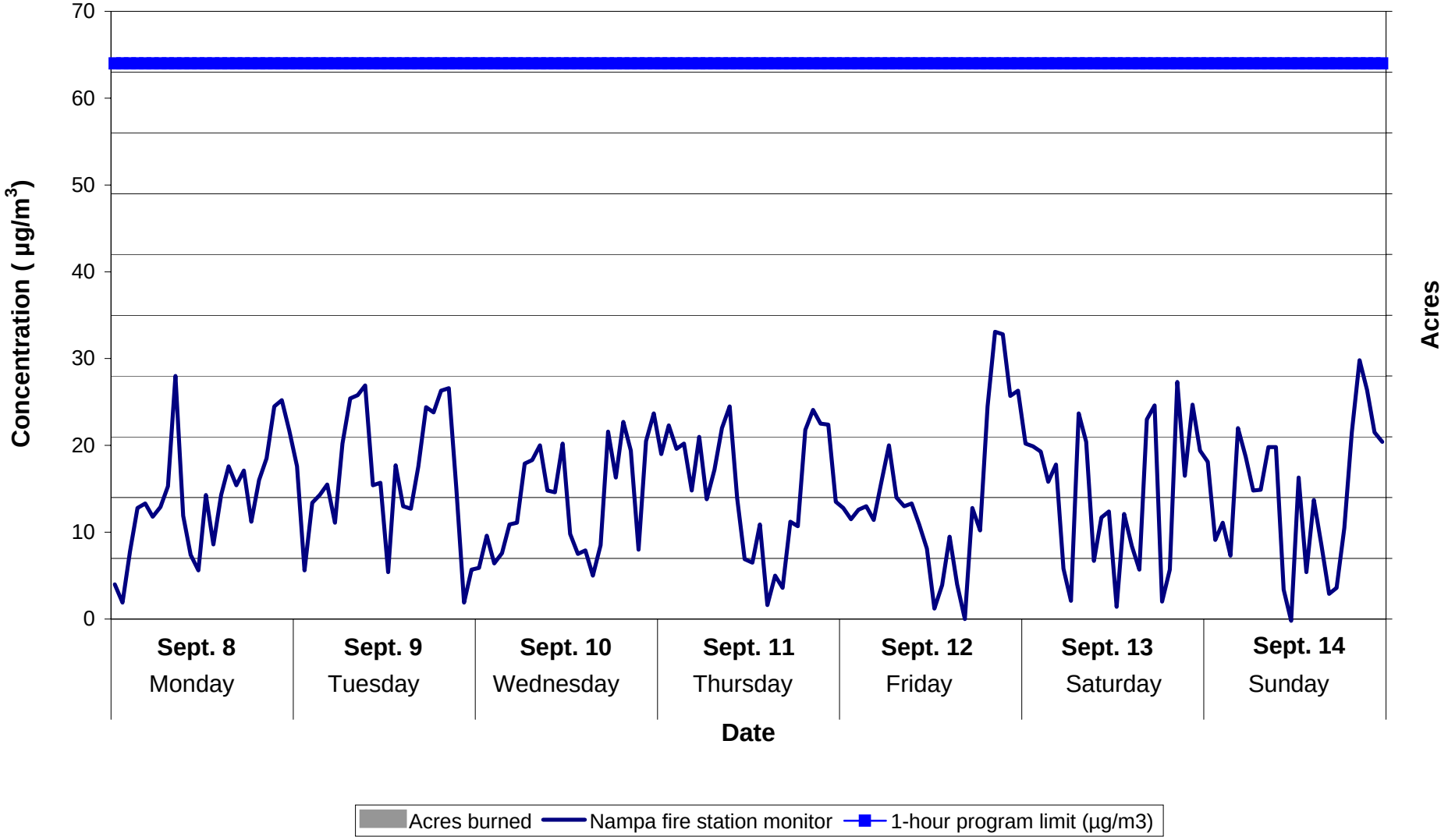
September 1 - September 7



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

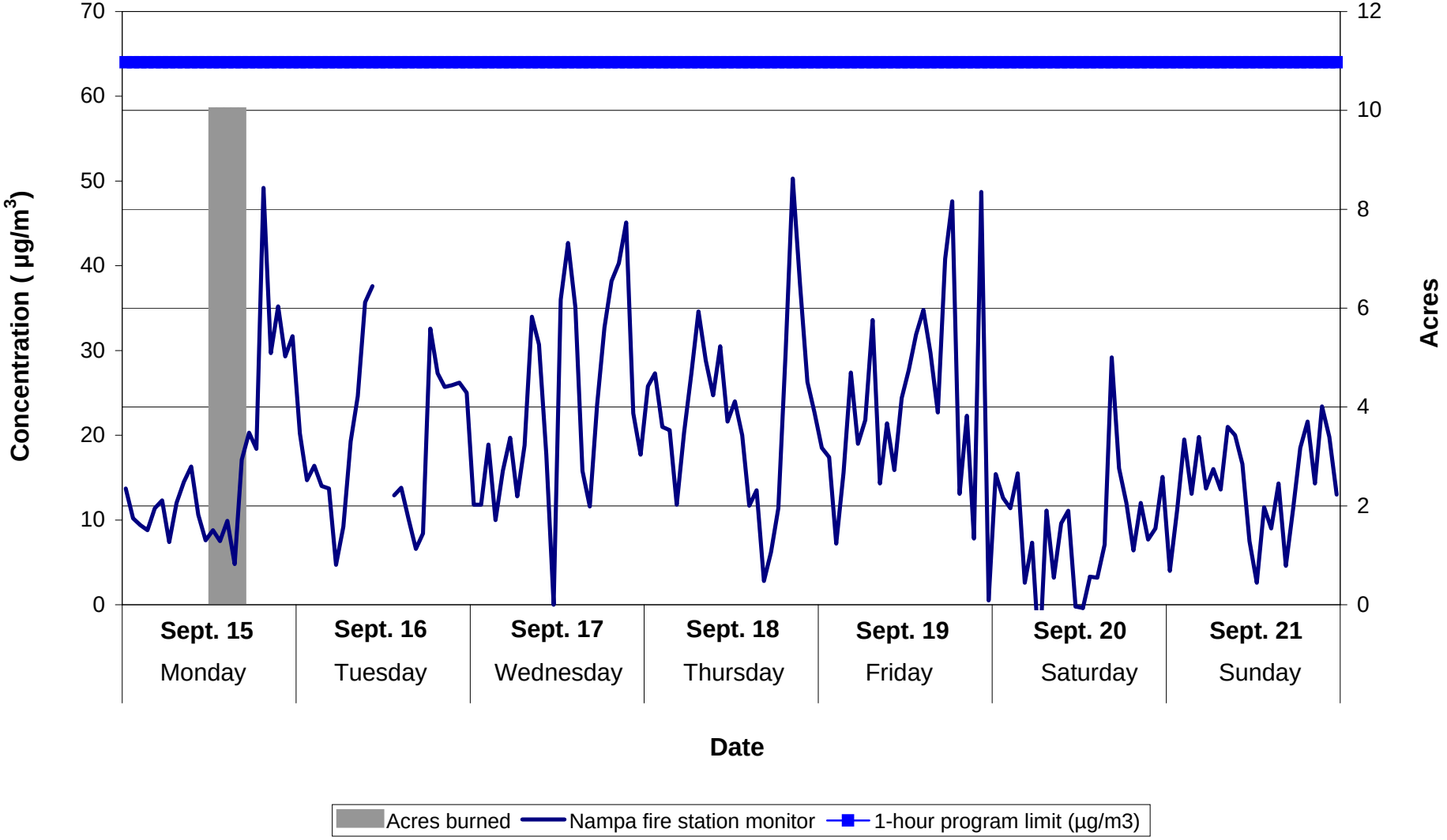
September 8 - September 14



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

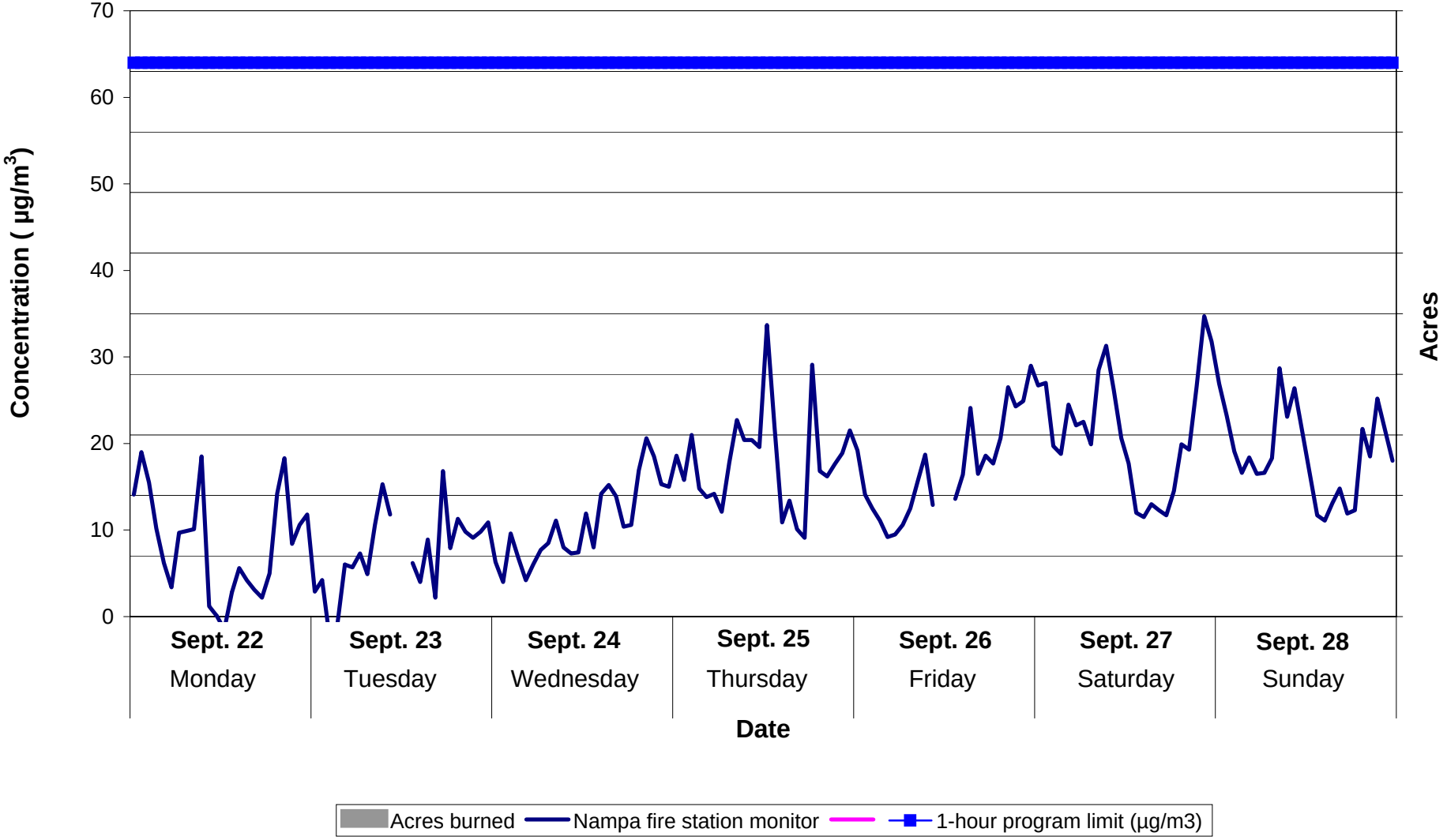
September 15 - September 21



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

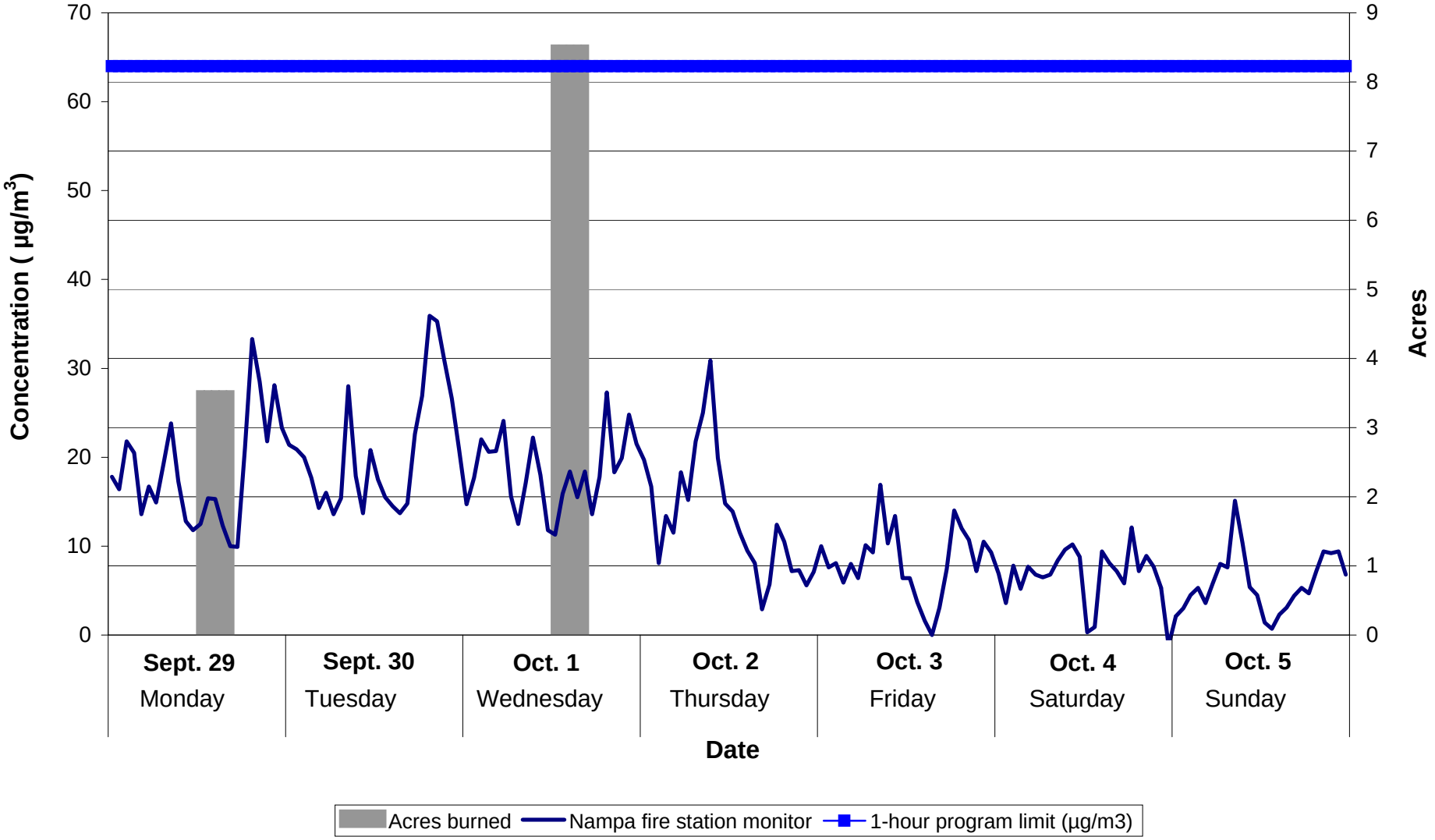
September 22 - September 28



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

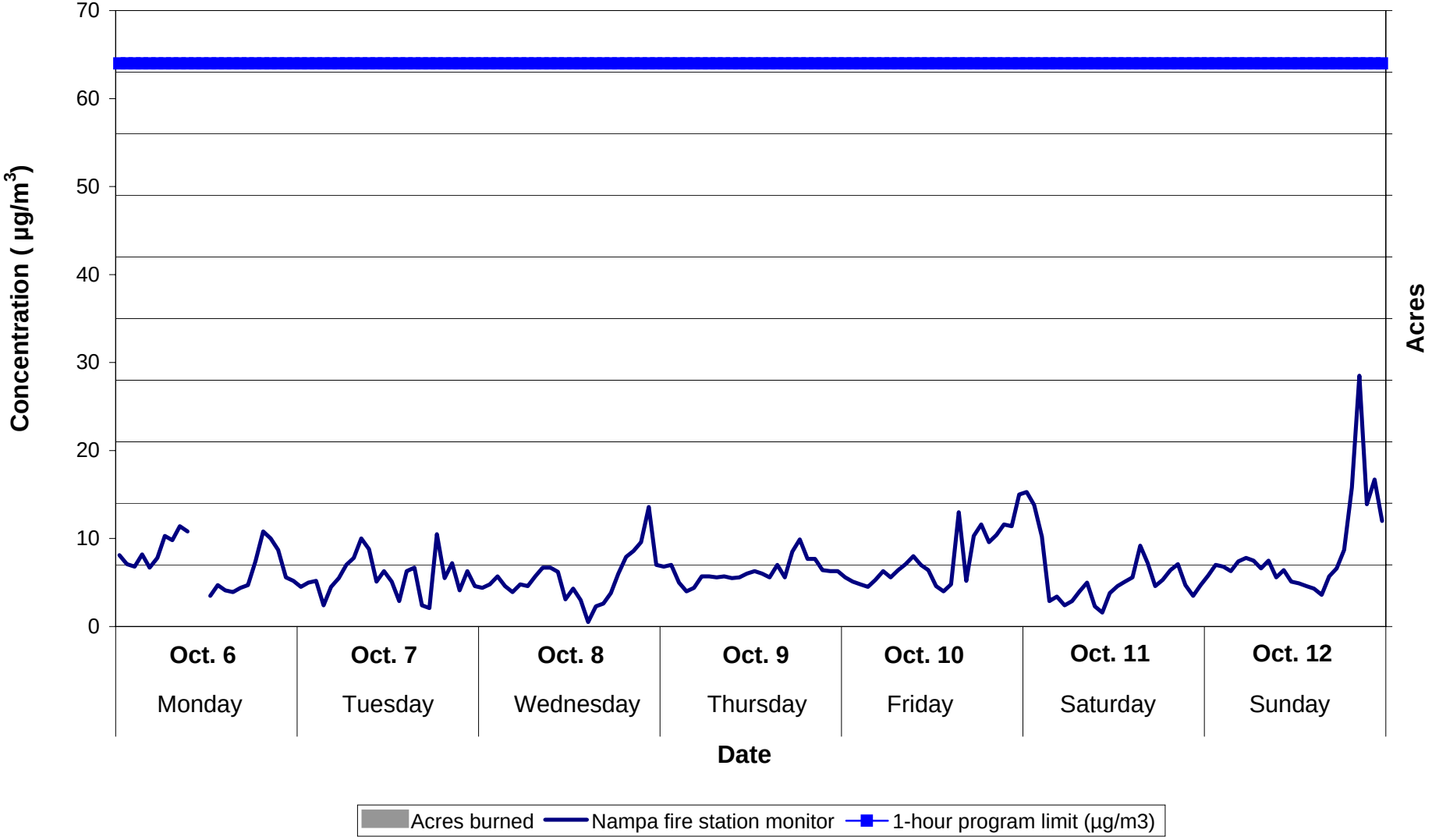
September 29 - October 5



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

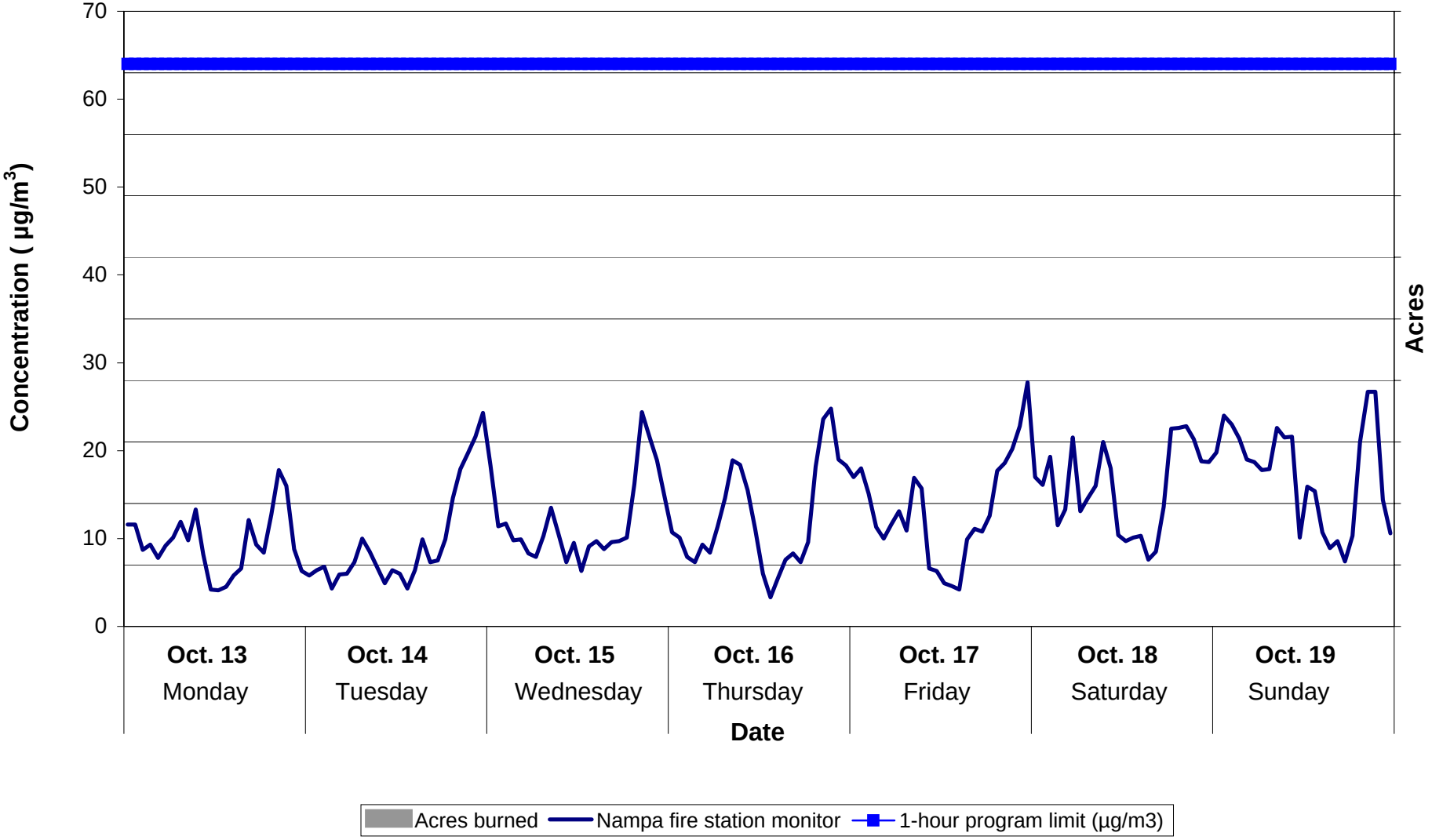
October 6 - October 12



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

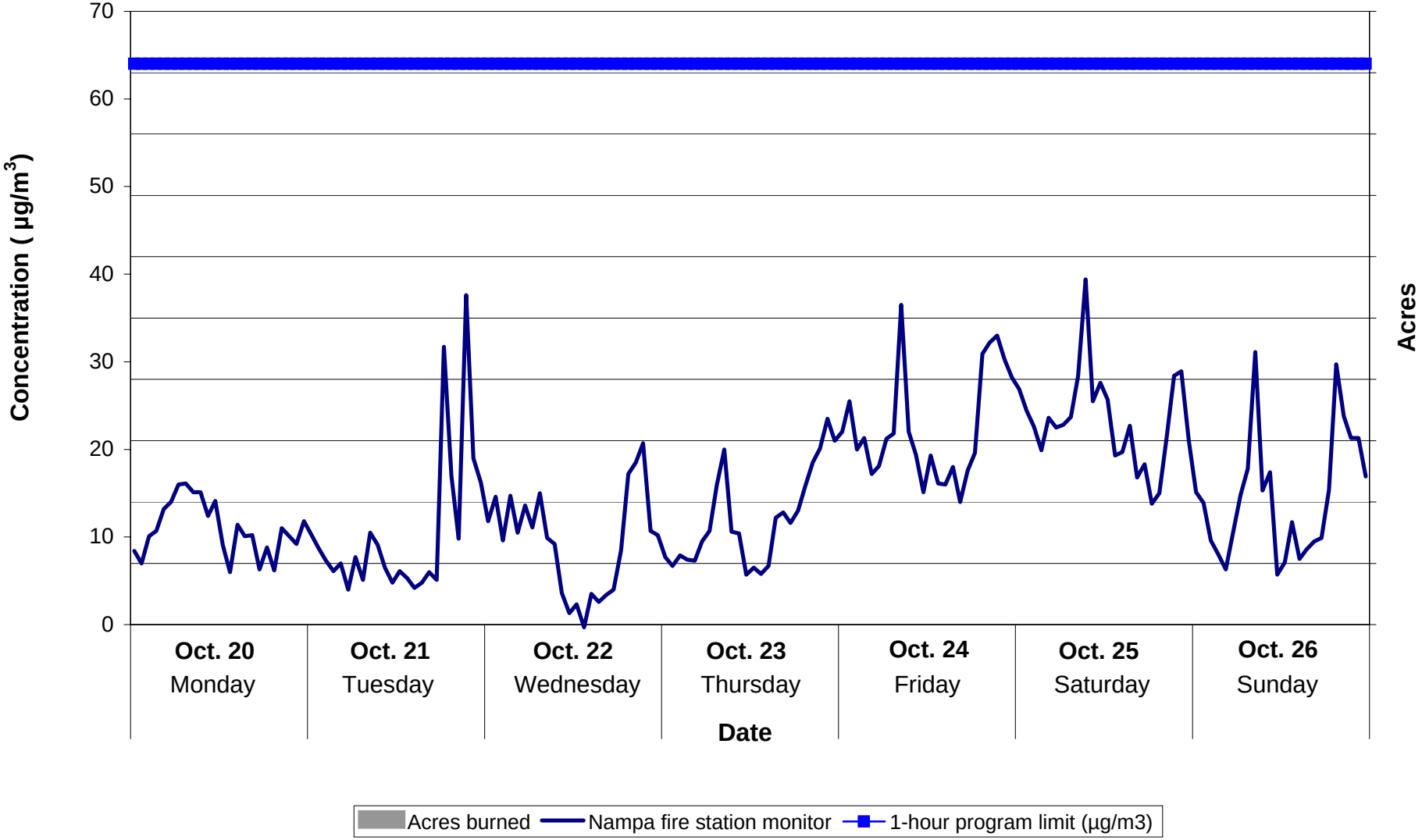
October 13 - October 19



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

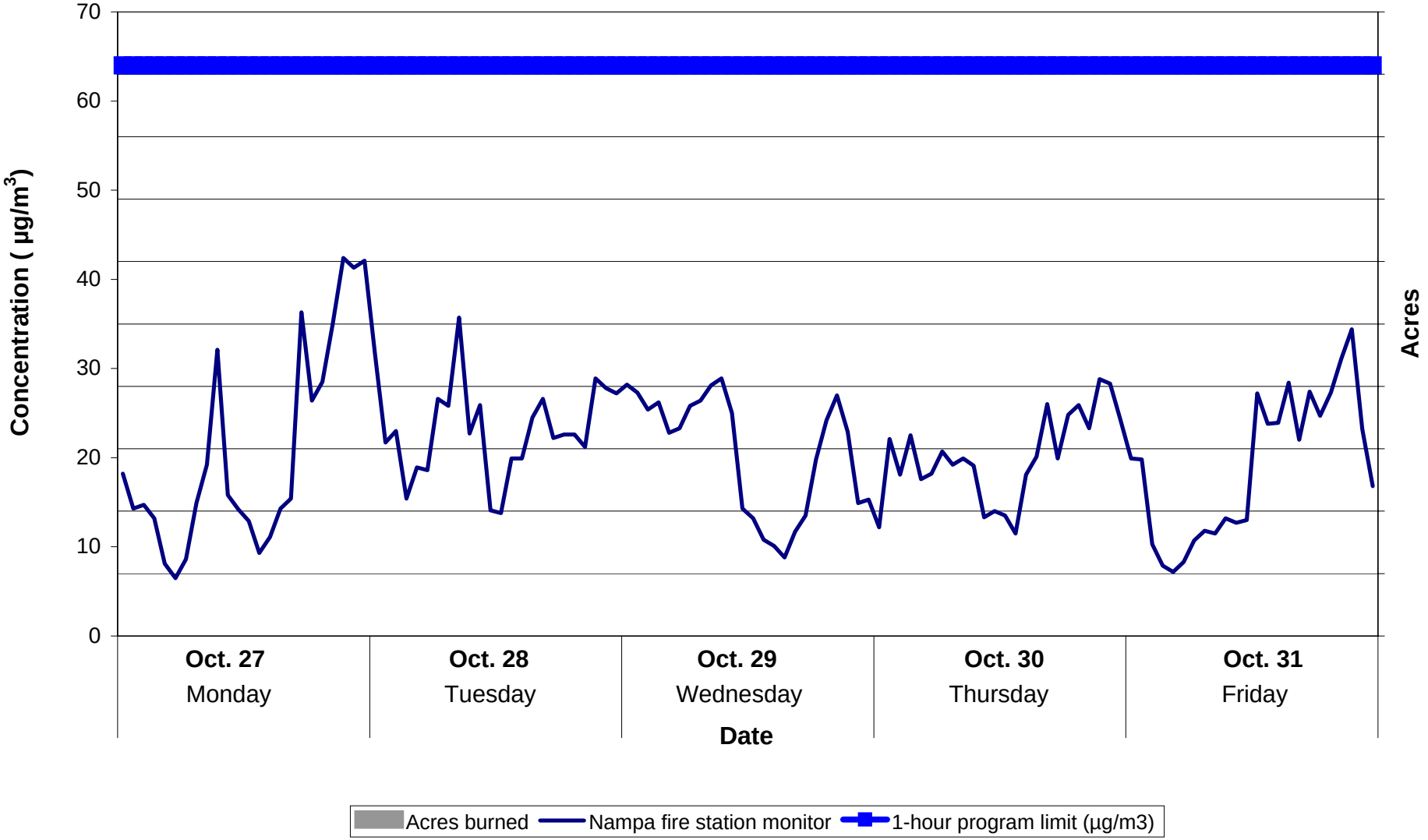
October 20 - October 26



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
1-hour average

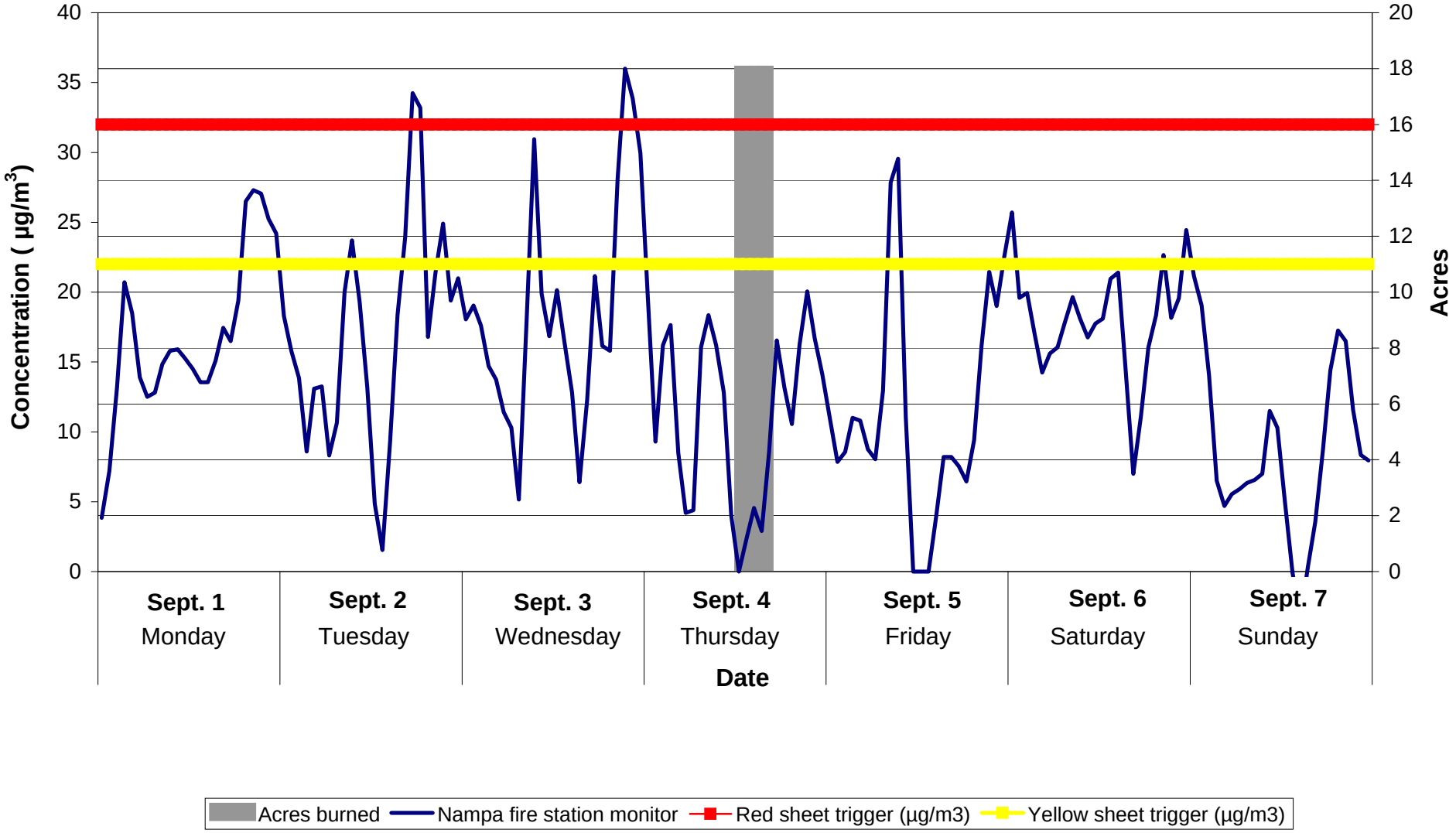
October 27 - October 31



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

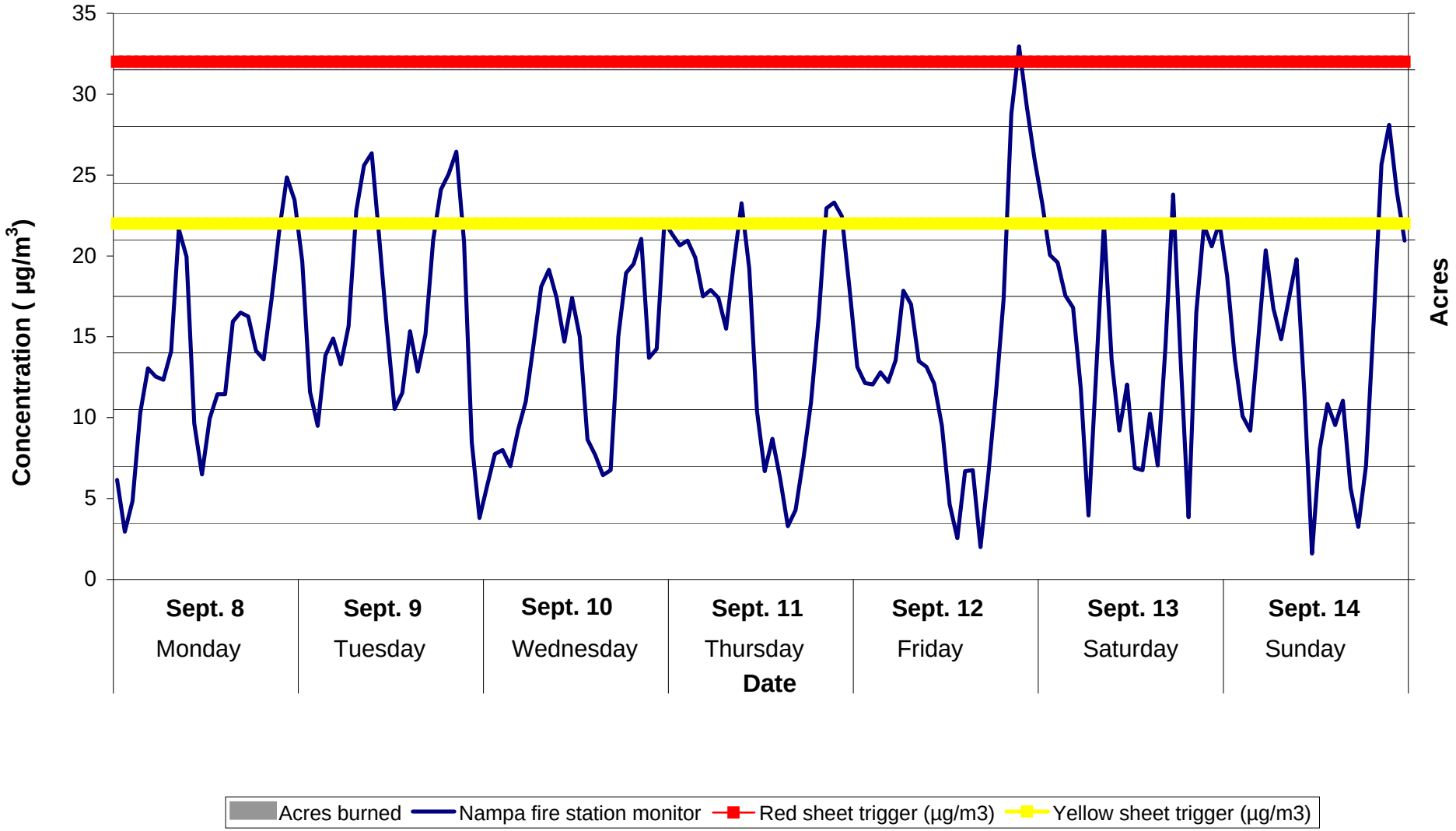
September 1 - September 7



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

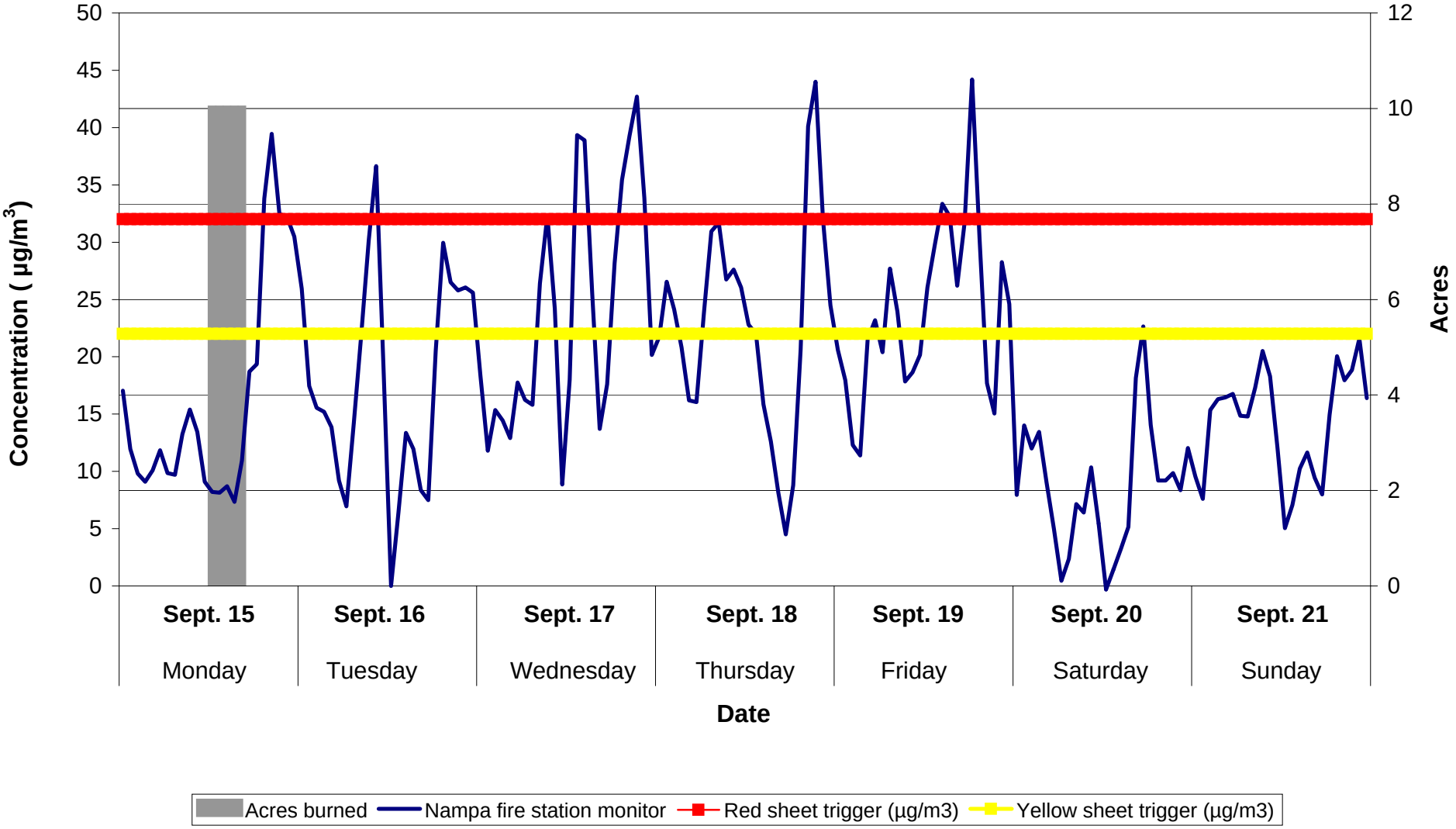
September 8 - September 14



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

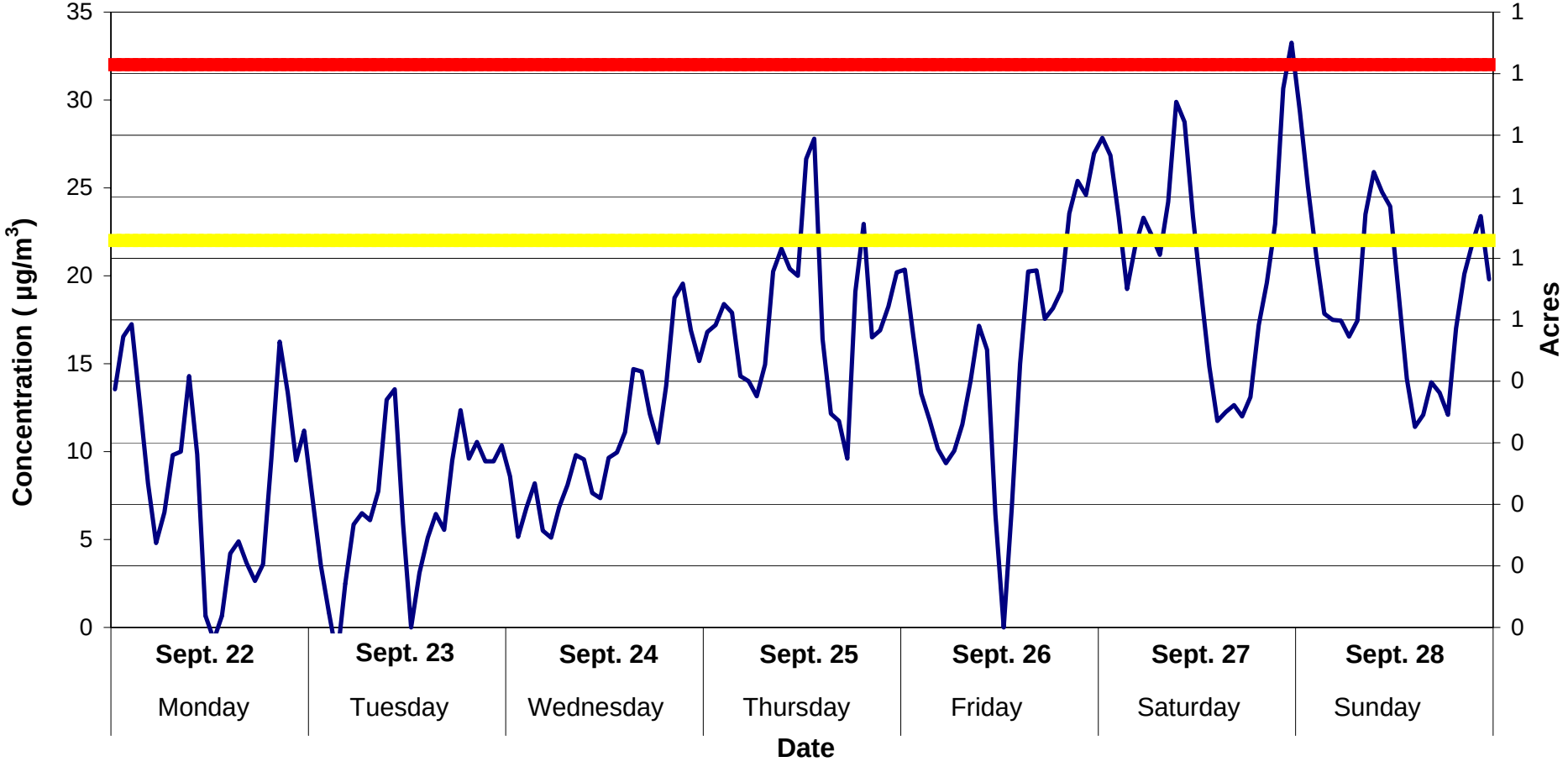
September 15 - September 21



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

September 22 - September 28

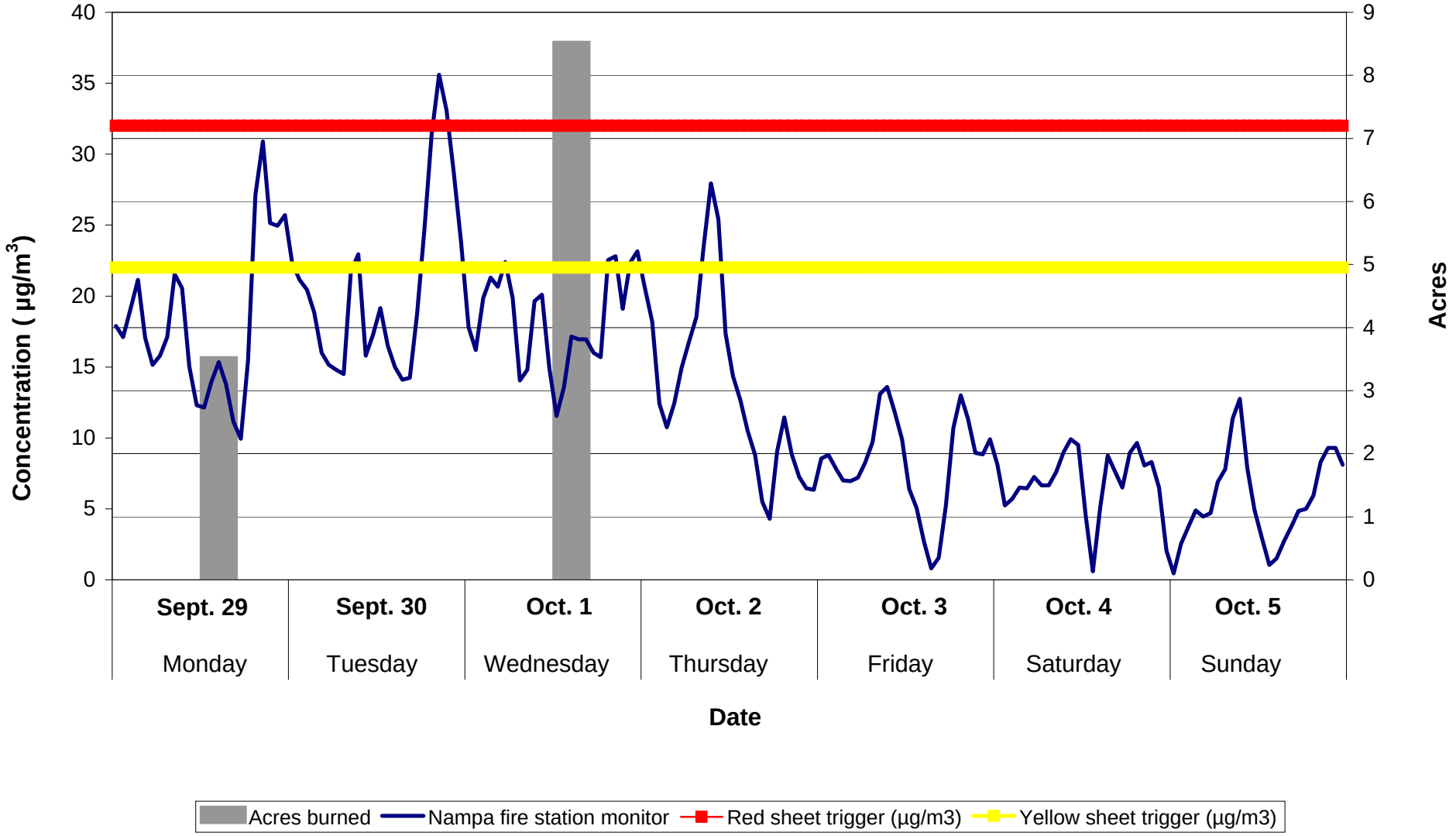


Acres burned | Nampa fire station monitor | Red sheet trigger (µg/m3) | Yellow sheet trigger (µg/m3)

Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

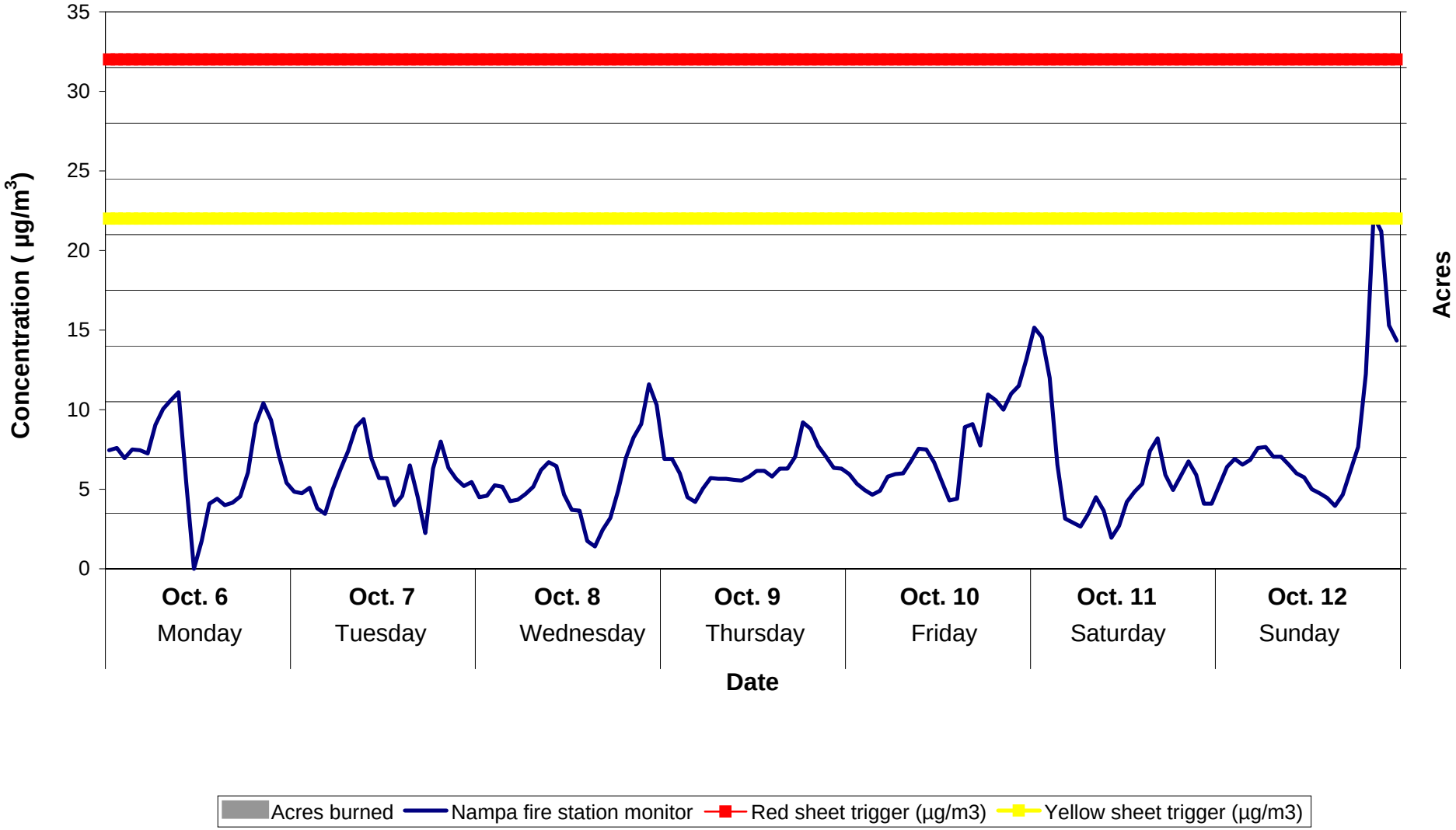
September 29 - October 5



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

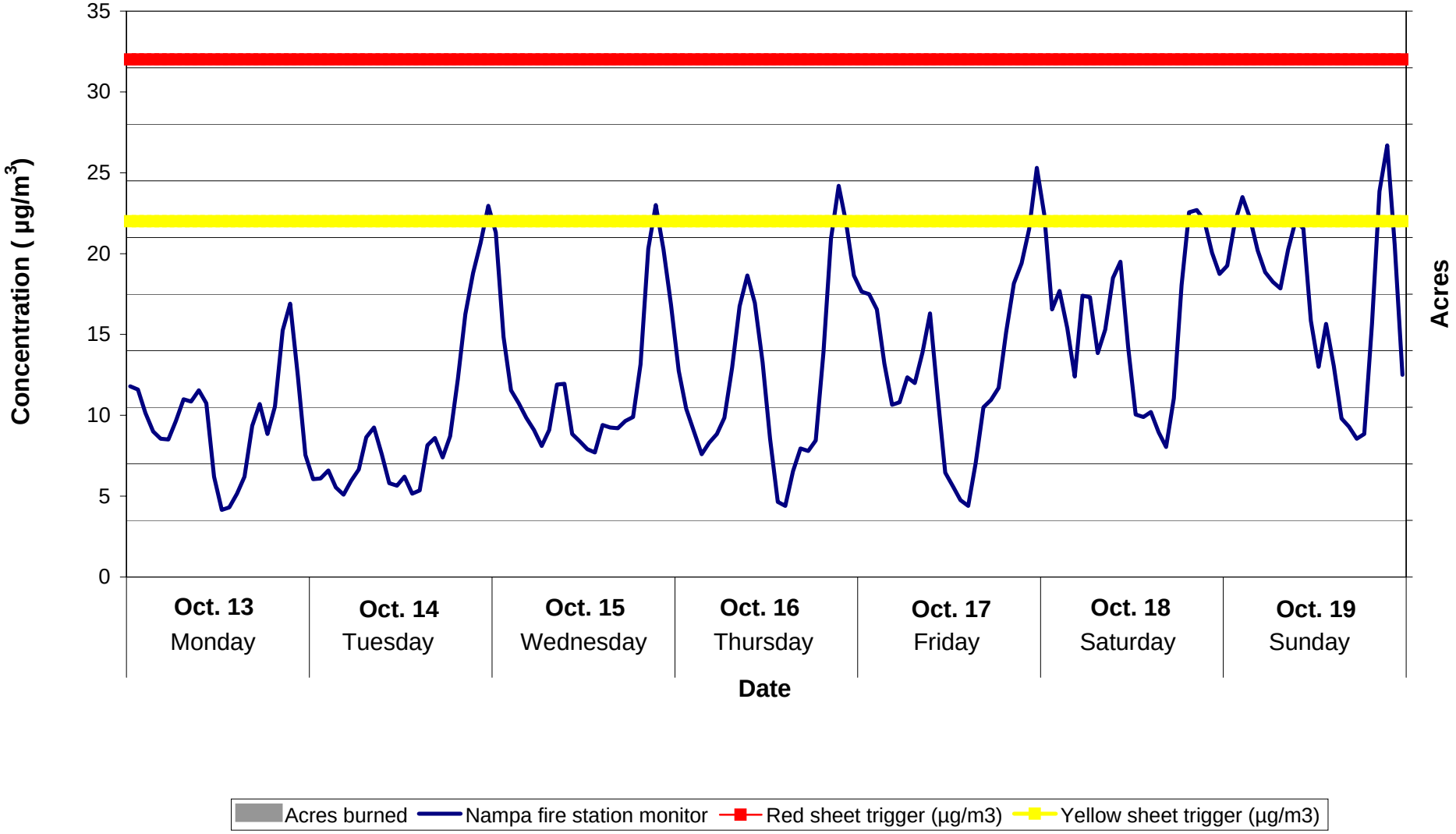
October 6 - October 12



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

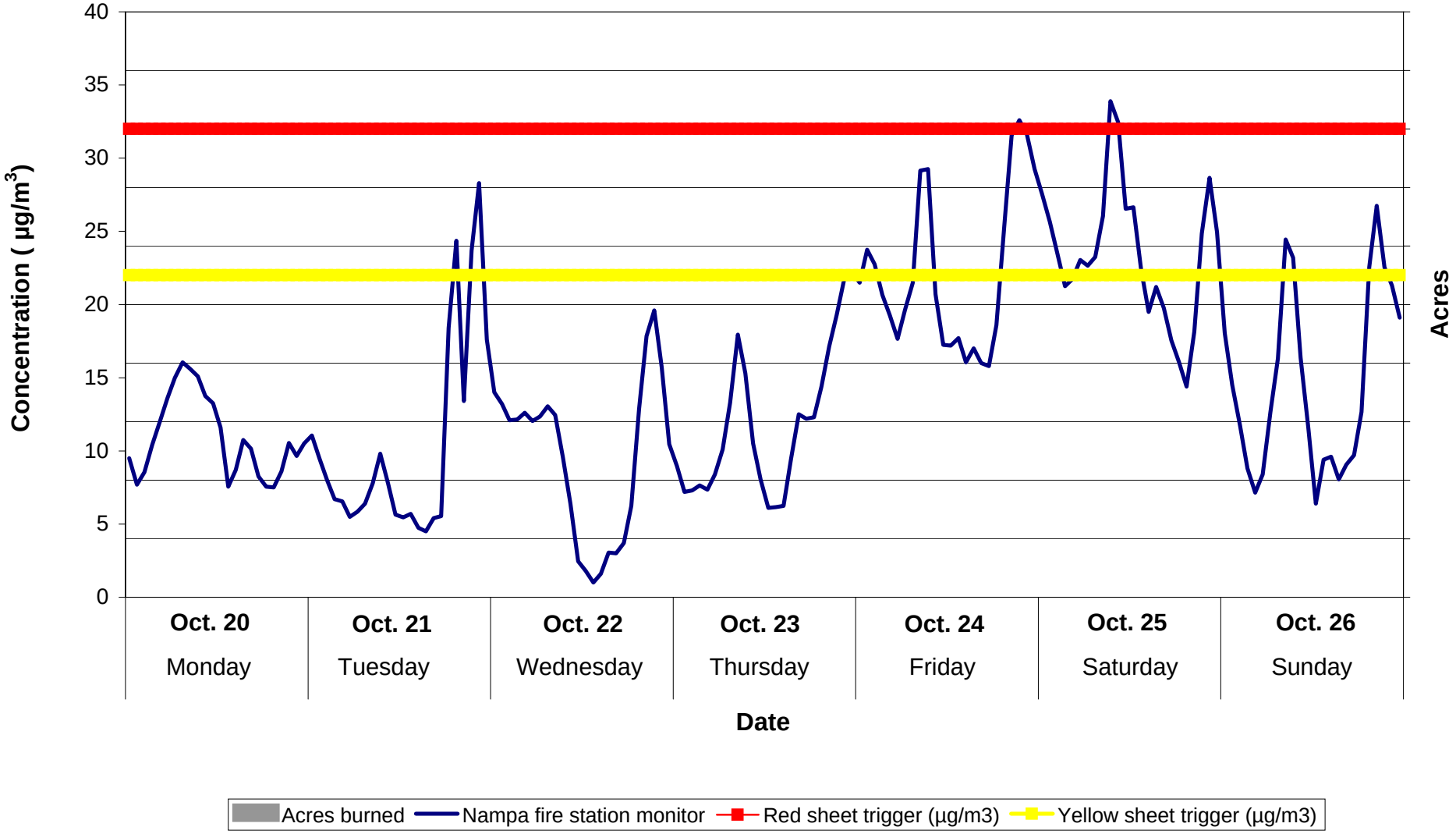
October 13 - October 19



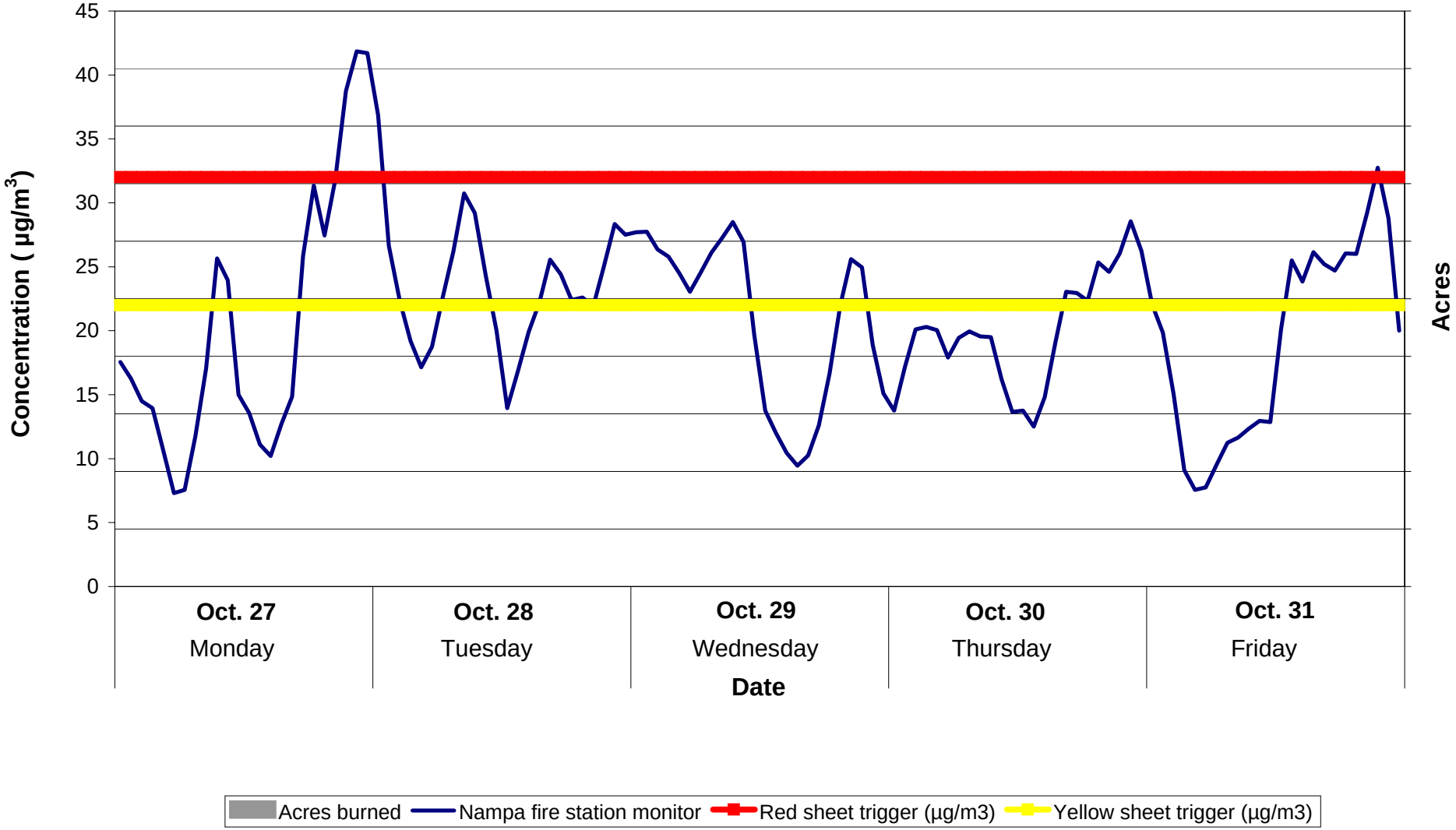
Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 20 - October 26



Weiser & Lower Payette Valleys BMA

Acres burned and ambient $PM_{2.5}$ concentration
2-hour rolling average

October 27 - October 31