Crop Residue Disposal Program

2006 Season Review

Prepared by the Idaho State Department of Agriculture

in cooperation with:

Idaho Department of Environmental Quality

Nez Perce Tribe

Coeur d'Alene Tribe

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Summary

This report covers program results for the Idaho State Department of Agriculture's (ISDA) Crop Residue Disposal Program (CRDP) for the 2006 burn season. The ISDA CRDP is administered in cooperation with the Idaho State Department of Environmental Quality (IDEQ) throughout the state, and with the Nez Perce Tribe, Coeur d'Alene Tribe, Kootenai Tribe of Idaho, and the US Environmental Protection Agency (EPA) on those Indian reservations. While IDEQ and the tribes operate under their own specific regulations, ordinances and rules, regarding crop residue disposal the tribes have contributed a brief summary of their 2006 smoke management program results for this report. Detailed information on these other programs can be found by contacting IDEQ or each tribe.

The overall purpose of the ISDA CRDP is to regulate the practice of field burning to minimize the impact on Idaho citizens from smoke generated by crop residue burning. For the purpose of the Idaho CRDP and coordination with tribal governments the state has been divided into two tiers and seven airsheds. Tier I contains the Snake River Plain which includes the following airsheds, Southwest, Western Snake River and Eastern Snake River Plain; and Tier II contains the airsheds of Boundary County (which includes the Kootenai Tribe of Idaho), Rathdrum Prairie, Coeur d'Alene Reservation, and Clearwater (which includes the Nez Perce Reservation and the Camas Prairie).

The 2006 CRDP's peak season began on July 18, 2006 and continued through the end of October 27, 2006. There was a total of 66,359.67 acres registered with the ISDA program statewide in 2006, and 57,154.43 acres were reported burned during the season. These numbers do not reflect tribal acreages. The focus of this 2006 Season Review will be the peak season. However, outside of the peak season, growers occasionally burn crop residue and are required to follow all applicable crop residue disposal regulations. The number of acres burned outside the peak season is considerably smaller and correspondingly, the ISDA, tribes, and other participating agencies deploy relatively fewer resources to operate the program during these times.

Coordination within and between agencies and the tribes continued to be an important factor in 2006. Operating procedures representing the input of all parties were in place and personnel for each of the major airsheds in northern Idaho were hired and trained in advance of the peak burning season. ISDA and the Nez Perce Tribe contracted with a local meteorologist to provide daily dispersion forecasts and burn recommendations. Conference calls involving the agencies and tribes were conducted twice, each week-day, to share critical information and make localized daily burn decisions.

ISDA hosted the 2006 season's meteorological and technical training in Pullman, Washington on June 12th thru the 16th in coordination with EPA, IDEQ, Nez Perce Tribe, Coeur d'Alene Tribe, Washington State University and ISDA personnel. This year included training for the ISDA database system as well as basic meteorology for smoke management, Pibal training and a computer lab in which experts instructed and demonstrated ClearSky, BlueSkyRAINS, MM5 Products, Bufkit and post-event analysis. Bennett Fire Weather Services, LLC explained meteorology principals and provided field coordinators with basic information about temperature and humidity relationships; general and local winds; atmospheric stability; smoke management for field coordinators; planetary boundary layer; vertical mixing; ventilation index; mixing

heights; transport wind; and inverted thermal ridge. Mr. Bennett also instructed on MM5 products used to forecast meteorological conditions.

ISDA, in cooperation with the Washington Department of Ecology, contracted with KXLY Television in Spokane, Washington to provide a televised field burning forecast broadcast throughout the Tier II region during the morning and evening news. This broadcast helped to widen the circulation of public information regarding burning activities. While this activity provided more information to a wider segment of the public, in some rural areas where KXLY was not available, public information was limited to newspaper and radio announcements as well as calls to the toll-free CRD hotline. Radio updates where given each morning at 7:30 on the following radio stations: KPND 95.3 FM, KSPT 1400 AM, KIBR 102.5 FM and KICR 102.3 FM. Additional coordination with KLEW Channel 3 Lewiston and five radio stations from the K-4 Radio Network (KORT/92.7, or 1230 AM, KLER 1300 AM or 95.3 FM, 950 AM or ZROCK 96.5FM) in Lewiston were provided for additional radio and television coverage of field burning in 2006.

The CRDP deployed two hotlines during the burning season. The toll-free CRD hotline provided by ISDA and the Nez Perce Tribe is a tool to gather feedback for program personnel regarding air quality complaints and the public's opinion of the CRDP. This toll-free CRD hotline continued to provide daily burn updates, allowing the public access to the most current field-burning information throughout the season. There were issues with drier conditions and wildfires much more this year than in 2005. Out of 466 total calls received, the actual number of complaints received from Password this year was 40. The toll-free ISDA Growers hotline is used to help growers register fields with ISDA and to answer questions or concerns they may have regarding the burning season. This toll-free ISDA Growers hotline is a toll-free number that connects growers to the main ISDA office in Boise. The toll-free ISDA Growers hotline also accepts calls from non-growers who have questions or comments about the CRDP.

2006 CRDP Changes

Several changes were made to the CRDP Program prior to the 2006 season. These changes include the following:

- Addition of television station KLEW Channel 3 from Lewiston, Idaho.
- Addition of K-4 Radio Network (KORT/92.7, or 1230 AM, KLER 1300 AM or 95.3 FM, 950 AM or ZROCK 96.5FM) in Lewiston.
- Additional field coordinator was added to the Weippe and Camas Prairie.
- Additional field coordinator was added to serve Kootenai County as well as liaison to Coeur d'Alene Tribe.
- Introduction of field ignition training in Fraser, Idaho for local growers.

2006 Statewide Season Statistics

ISDA Acreages and Burn Days

(Acreage does not include Nez Perce Tribe or Coeur d'Alene Tribe – see their individual annual reports)

Total Burn Days Tier I: **49**

Total Burn Days Tier II: **45**

Total Acres Registered in Tier I: **21,143.06**

Total Acres Registered Tier II: **45,216.61**

Total Acres Registered Statewide: **66,359.67**

Number of Registered Acres Burned Tier I: **18,694.88**

Number of Registered Acres Burned Tier II: **38,459.55**

Number of Registered Acres Burned Statewide: **57,154.43**

ISDA 2006 Chart of Acres Registered and Burned

Tier II		
Tier II Totals: 45,216.61 Acres Registered		**38,459.55 Acres Burned**
County	Acres Registered	Acres Burned
Boundary	10147.04	7976.36
Camas--Clearwater	5129.58	4619.59
Camas--Idaho	8415.89	6769.6
Camas--Nez Perce	3289.4	2593.5
Palouse--Latah	15589.7	13937.5
Rathdrum--Kootenai	2645	2563
Tier I		
Tier I Totals: 21,143.06 Acres Registered		**18,694.88 Acres Burned**
County	Acres Registered	Acres Burned
Ada	276.7	532.5
Adams	0	0
Bannock	19	0
Bear Lake	0	0
Bingham	2193	2153
Blaine	303.6	0
Boise	0	0
Bonneville	530.2	530.2
Butte	0	0
Camas	0	0
Canyon	1538.4	1249.4
Caribou	10737.8	9429
Cassia	475.7	411.7
Clark	0	0
Custer	0	0
Elmore	0	0
Franklin	0	0
Fremont	0	0
Gem	37.1	37.1
Gooding	24	24
Jefferson	707.51	556.96
Jerome	1515.14	1515.14
Lemhi	190	190
Lincoln	1154.08	754.08
Madison	0	0
Minidoka	761.1	761.1
Oneida	0	0
Owyhee	208	176
Payette	22	11
Power	0	0
Teton	0	0
Twin Falls	192.4	179.4
Valley	0	0
Washington	257.33	184.3

Public Relations and Outreach

Public relations and outreach are an important part of the CRDP. The main objectives of public relations are twofold; public awareness and grower outreach. The CRDP's public relations efforts consisted of six items: (1) daily television forecasts; (2) daily radio announcements; (3) website; (4) toll-free CRD hotline for public complaints and general information (cost-shared with the Nez Perce Tribe); (5) toll-free ISDA Growers hotline; and (6) grower workshops. Each of the six methods of pubic relations and grower outreach employed by the CRDP are discussed separately below.

ISDA, through a grant from EPA and in cooperation with the Washington Department of Ecology, contracted with KXLY Television in Spokane, Washington again this year. KXLY used the information provided by ISDA and Washington Department of Ecology for a north Idaho/eastern Washington area burn forecast. This forecast was aired several times daily and reached people in the broadcast area. KLEW TV from Lewiston was contracted to broadcast seven daily forecasts throughout North Central Idaho counties.

Daily radio announcements were broadcasted each morning to the following stations between 7:30-7:45am: KPND – 95.3 FM, KSPT – 1400 AM, KIBR 102.5 FM and KICR 102.3 FM, KORT 92.7 FM or 1230 AM, KLER 1300 or 95.3 FM, KOZE 950 AM or Z ROCK 96.5 FM.

The ISDA's website was another source of public information. The website provides up-to-date information that is available 24 hours a day. The ISDA website is also a place to link the public to other agencies' websites making a large amount of information about crop residue disposal available to both the public and to program personnel. The website includes:

- program history and goals,
- links to rules and laws relating to the program,
- an explanation of burn decisions,
- the option of submitting complaints and comments via of email,
- information related to grower training, testing and certification.

The other main public outreach tool was the toll-free CRD hotline. The toll-free CRD hotline was established to accomplish three major objectives:

- To provide the CRDP with a regional view of how smoke was affecting citizens in each area,
- To provide the CRDP with real-time feedback regarding smoke impacts on communities, and
- To enable CRDP personnel to respond to complaints in a timely manner.

The toll-free CRD hotline is a service provided by ISDA and Nez Perce Tribe through a contact with a private business and provided a toll-free number that citizens could call to leave a complaint or comment regarding CRD. A specific set of questions was asked of each caller to identify how smoke affected certain areas. Citizens could also call the

toll-free CRD hotline to receive the most current burn information. Calls were received from a wide range of areas, including all of northern Idaho, eastern Washington, and British Columbia, Canada. Callers were given the option to listen to burn information or to speak with an operator. Comments or complaints were transcribed into text and immediately emailed to the coordinating agencies and tribes. If a caller requested a return call, the appropriate local smoke coordinator would contact that person as soon as possible.

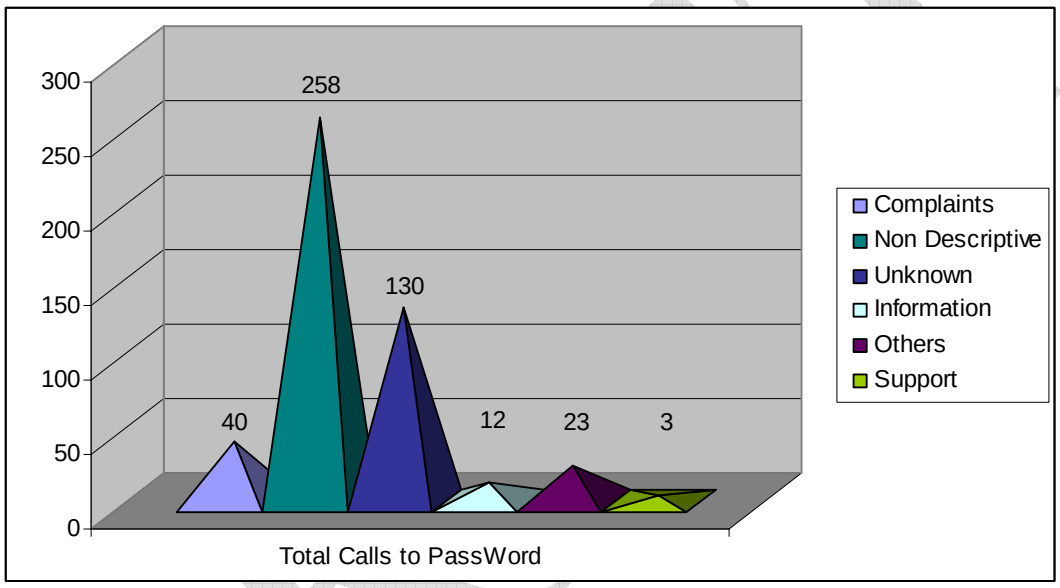
The toll-free ISDA Growers hotline is a toll-free number that connects growers to the main ISDA office in Boise. This toll-free ISDA Growers hotline is used to help growers register and to answer questions or concerns they may have. The toll-free ISDA Growers hotline also accepts calls from non-growers who have questions or comments about the CRDP.

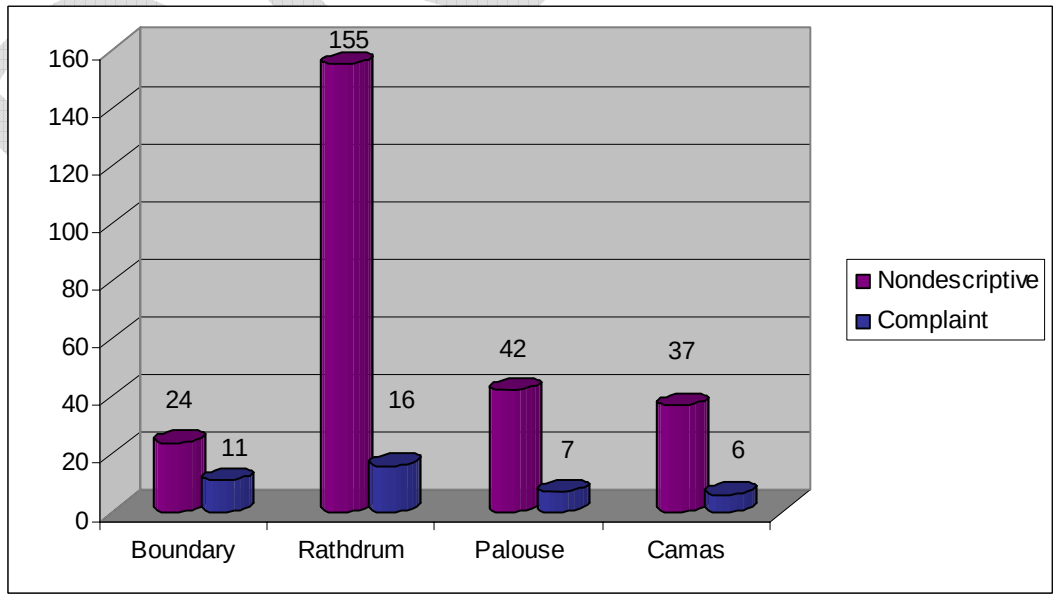
In addition to the toll-free ISDA Growers hotline, workshops were held in the Tier II airsheds prior to the peak burn season so that growers could learn about the CRDP process and its requirements. These workshops were designed to educate growers about their responsibilities for burning within the constraints of the CRDP. Topics covered at these meetings included the ISDA field registration and request process prior to burning a field, best burning practices, CRDP agencies and their authorities, air quality issues, and health impacts of smoke.

PASSWORD Complaints

To make the best use of the data gathered from complaint calls, each caller was asked specific questions regarding how smoke was affecting his/her area and any comments he/she cared to leave. These questions included the caller's location, whether the caller could see smoke from his/her location, and if he or she were being affected by smoke at this location. By being able to differentiate between general complaints and specific smoke event complaints, smoke coordinators were able to use the information received from the complaint line to help track smoke movement and minimize future CRD smoke impacts.

PASSWORD CRD Complaint Call Charts





Complaints Actual complaint which gives sufficient detail to determine if smoke is likely due to field burning.

Non-Descript Complaints or other calls that are general in nature. No sufficient detail to determine the origin or cause of the smoke, or issues not agriculture smoke related.

Information Calls that requested or gave information. Not complaint in nature.

Support Contacts that are in support or are complementary to the CRD Program.

Unknown No data available to determine if calls are agriculture smoke related including calls from within tribal boundaries.

Note: The majority of the calls that are entered into the non-descript category are those that are general in nature or those that occur during days that field burning did not occur.

Meteorology

The 2006 CRD "field burning" season began July 17th with dry run forecasts for two 2 consecutive days then the season began full operational forecasts by July 19th. Dry run and full operational forecasts consisted of two (2) forecasts a day five (5) days a week. There is no field burning on weekends. Forecasts were e-mailed to the to ISDA, Kootenai Tribe of Idaho, Coeur d'Alene Tribe, Nez Perce Tribe, Idaho State DEQ, and Washington State ECY recipients by 7:45 AM and 2:45 PM each day. The delivery of the forecasts via e-mail was followed by a conference call at 8:30 am and 3:30 pm each day. The conference calls were used to discuss the weather forecast for the day at 8:30 am and the forecast for the next day was discussed at the 3:30 pm conference call.

The meteorological contractor, Gary Bennett, made one visit to the Rathdrum Prairie burn area during the height of the burning season. This visit was to collect data, watch a couple of burns, and to help coordinators with problem areas and weather for burning. This is an important part of the meteorological contract services to make sure all coordinators and operational personnel are interpreting and using the meteorology information correctly.

July

Weather over the last two weeks in July of 2006 consisted of strong high pressure over the Pacific Northwest and the Idaho Panhandle in particular. Very dry and warm days the last two weeks of the month produced excellent burning conditions. Mixing heights were moderate to high and accompanying transport winds were sufficient enough to disperse smoke. Wind direction was generally from a westerly direction, but on a few days we saw winds from the east as high pressure developed over Montana. Nearly all air shed farmers were not quite ready to do any burning during the last two weeks of July. These days would have provided some good conditions to bum off blue grass fields. By the last few days of July a Pacific storm moved down the British Columbia Coast bringing stronger winds and unstable cooler air into Idaho.

August

CRD burning moved into full swing in the month of August. Weather the first week of August was dominated by a westerly flow aloft into the Pacific Northwest towards the first part of the week and then high pressure moved east into Montana allowing a weather disturbance or two to penetrate into the Inland Northwest. The storm track remained north of Idaho across southern British Columbia through the first week of August. By the second week an upper trough moved into the region producing scattered lightning storms across much of Idaho. These storms triggered multiple wildfires across the western states that would have a profound effect on smoke management for the remainder of the burning season. A cool and unstable upper level trough hung over Idaho through the second and much of the third week of August. By later in the third week of August stable, warm and dry high pressure moved into Idaho. The subsiding air associated with this high pressure ridge produced high background smoke levels over both Tiers curtailing burning. The high pressure produced light winds at the surface and in the transport layer also hampering field burning. The 700 millibar chart shown below clearly shows the high pressure over Idaho and the light winds aloft.

September

The 700 millibar constant pressure level at approximately 9,000-10,000 feet MSL was used as the steering level for weather systems. Most model data for the burning season was extracted from the MM5 models. The GFS model was used most of the time due to its higher resolution, giving a better look at low level weather parameters.

By late in the third week of August through the end of the month the weather pattern was again changing. A westerly flow aloft brought a series of weak upper level troughs into Idaho leaving better mixing and higher mixing heights. Also accompanying the series of troughs was another round of late season thunderstorms. Red Flag Warnings were posted for lightning and gusty winds throughout the month greatly reducing field burning at times. Many air sheds, throughout Idaho, were now getting back logged in their burning loads due to the smoke from wild fires, continued Red Flag Warnings for winds and thunderstorms, and poor mixing heights. Also associated with the cool upper troughs moving through southern British Columbia were a few light showers that generally affected the Boundary County air shed. The progressive weather pattern in August and an abundance of smoke from wild fires kept burning to a minimum in many air sheds across Idaho. The Blue Sky graphic shown below clearly shows the trajectory of wild fire smoke under the light movement of air.

By the first week of September high pressure again dominated the weather pattern over Idaho. The strong ridge over the region continued the background smoke problems we encountered through much of this years burning season. This stable high pressure ridge remained over Idaho through much of the second week of September. Remember, when a strong high pressure ridge begins to break down this is a good time for Red Flag Warnings to be issued for impending weather changes. The large wild fires across Washington, Idaho and Montana would continue to prompt the issuance of warnings through September.

By the middle of the month a cold and unstable low pressure system dropped south along the British Columbia coast and into Washington. MM5 clearly shows the upper low over southern Vancouver Island with a cold trough extending into Idaho and Oregon. This low would eventually continue to dig down the west coast producing an elongated unstable upper trough over the Inland Northwest for the next week or so.

The upper level trough or remnants of the upper trough remained over Idaho until the third week of September. Field burning continued in earnest through this period as mixing heights and transport winds along with good ventilation. Those areas that received minimal shower activity completed the most acreage. The upper trough moved east finally by the last week of the month allowing for drying of the fields and lower atmosphere. A large high pressure ridge was blocked into position over the Pacific Northwest that remained for the rest of the month.

October

October started off with the Pacific storm track edging closer to the west coast. By early in the first week another change was in store for Idaho. The weather pattern change had a deep upper low off the west coast and due to the strong winds on the backside of the trough the low continued to dig down the west coast finally taking up residence off the

northern California coast. This 500 millibar chart shows the Pacific storm track on October first moving across southern British Columbia. Pacific storms would move a series of weak troughs through Idaho By October 5th an upper low that had developed in the zonal westerly flow had strengthened and began sliding down the coast. As this low continued to dive farther south near California a high pressure ridge builds over the intermountain west backing the storm track to the southwest.

As October progressed field burning finally became limited to clean up work of left over piles and small acreage burns. The rain of September and October hampered burning as the soil was very moist in many locations. The cold upper low off the California coast finally ejected inland and moved northeast into Nevada and Southern Idaho by mid month. We again had scattered showers and cooler weather through the rest of October. The 2006 Agriculture Burning Season came to a close on the 21st as high pressure began forcing the storm track north again.

Conclusions

The 2006 Agriculture Field Burning Season was again hampered by an abundance of wild fire smoke during the height of the burning season in August and September. Many large and long term lightning events (storms) caused wild fires engulfed all of the northwest states. Ventilation became marginal to poor. Smoke dispersion, due to light winds, at the surface and in the lower atmosphere could not move the smoke out of the air sheds effectively. The direction of the transport winds did not seem to matter as large wild fires were burning in Washington, Idaho, Oregon, and Montana. The smoke intrusions from these fires kept the background smoke imbedded in the valleys and aloft throughout much of the summer.

The National Weather Service Offices in Spokane, Boise, Pendleton, and Missoula issued a large number of Red Flag Warnings for impending severe burning conditions.

By mid to late September we started receiving rain in small amounts; however, the amount of precipitation realized in the area did not significantly affect field burning.

Airshed Summaries

US Environmental Protection Agency

Annual letter from US EPA may be obtained by contacting them directly at http://www.epa.gov/region10/ or by calling Doug Cole at (208) 378-5764.

Idaho Department of Environmental Quality

Annual reports from IDEQ may be obtained by contacting them directly at http://www.deq.idaho.gov or by calling Robert Wilkosz at (208) 373-0302.

Nez Perce Tribe

Annual reports from Nez Perce Tribe may be obtained by contacting the Nez Perce Tribe Environmental Restoration and Waste Management (ERWM) Air Quality Project office at 208-843-9381 or 800-720-4089.

Coeur d'Alene Tribe

Annual reports from Coeur d'Alene Tribe may be obtained by emailing them directly at argeorge@cdatribe.com or by calling Boom George at (208) 686-5818.

Tier I Airshed

Snake River Plain

Tier I include all the counties south of the Salmon River and is divided into three components: Southwest Airshed; Western Snake River Plain Airshed; and the Eastern Snake River Plain Airshed.

Southwest Airshed includes the following counties: Ada, Adams, Boise, Canyon, Elmore, Gem, Owyhee, Payette, Valley, and Washington.

Western Snake River Plain Airshed includes the following counties: Blaine, Camas, Cassia, Gooding, Jerome, Lincoln, Minidoka, Oneida, Power, and Twin Falls.

Eastern Snake River Airshed includes the following counties: Bannock, Bear Lake, Bingham, Bonneville, Butte Caribou, Clark, Custer, Franklin, Fremont, Jefferson, Lemhi, Madison, and Teton.

ISDA oversees the field registration process, determines whether daily meteorological and air quality conditions are conducive to crop residue burning, and trains growers in proper crop disposal techniques.

Contacts with the BLM, IDEQ, Fire Districts and USFS were continued, with additional information shared between all agencies encouraged program awareness in Tier I. The amount of trainings for field burning conducted in Tier I in 2006 was 7 classes. IDEQ assisted ISDA's outreach efforts by distributed field burning information through workshops, press releases, and public service announcements. IDEQ is also responsible for enforcement in Tier I. More information on IDEQ's outreach efforts in Tier I may be found in their 2005 annual report. The number of agricultural acres registered for burning increased from 11,616 acres to 21,143 acres in 2006.

A registration fee does not apply to counties in Tier I for agricultural fields. If it is required by local ordinance, growers also need to inform their local fire districts, County Sheriff, or other agencies of field burning activities. The county or area a field is located in may require a burning permit from another local, state or federal agency. The main problems encountered in the Tier I area include unapproved burning and a lack of grower participation.

Tier II Airsheds:

Tier II is comprised of the 10 Idaho counties north of the Salmon River and contains four airsheds: Clearwater airshed, Coeur d'Alene Tribe airshed, Rathdrum airshed, and Boundary County airshed.

Clearwater

The Clearwater airshed includes the counties of Clearwater, Idaho, Latah, Lewis, and Nez Perce and encompasses the Nez Perce Reservation. A Memorandum of Agreement is in place between ISDA, IDEQ, EPA and the Nez Perce Tribe to coordinate crop residue disposal throughout the entire Clearwater Airshed so that procedures and protocols are implemented in a parallel fashion.

For the purposes of managing burns and establishing acreage limits, the airshed was subdivided into the Palouse and Camas prairies. The Palouse prairie covers the areas north of the Clearwater river and south of the Benewah and Shoshone county borders and includes areas on and off the Nez Perce Reservation. In 2004 the Palouse was subdivided into north and south, with a coordinator for each area. The Camas prairie is situated south of the Clearwater river and also includes areas both on and off the Nez Perce Reservation. The area off the Reservation is managed by ISDA. Crop residue disposal on the Nez Perce Reservation is managed by the Tribe in cooperation with EPA.

In order to best present the information for the Clearwater Airshed, this section has been separated into the Nez Perce Reservation, Camas prairie off – reservation and the Palouse prairie. For the purpose of presenting the correct county-acreage figures in this report, all off-reservation areas in Clearwater and Nez Perce counties will be discussed in the Camas prairie section, even though some parts of these counties can technically be classified as existing in the Palouse prairie. Since the large majority of acreages in the Palouse prairie are found in Latah County, the discussion of the Palouse will be contained solely to Latah county.

Nez Perce Reservation

The Nez Perce Tribe operates a U.S. EPA-delegated smoke management program within the exterior boundaries of the 1863 Nez Perce Reservation pursuant to the EPA Federal Air Rules for Reservations. The Nez Perce Reservation covers 1,200 square miles and portions of Clearwater, Idaho, Latah, Lewis, and Nez Perce counties. The complex geography of the Nez Perce Reservation includes prairies, rolling hills, moderate-to-deep river valleys, canyons, and mountains, which contribute to varied microclimatic dispersion and ventilation conditions.

Within the exterior boundaries of the Nez Perce Reservation, permitted burning occurred on 40 days from July through October. Approximately 35,605 agricultural acres were burned: 19,665 acres cereal grain, 15,940 acres bluegrass.

On burn days, 24 of the 42 complaints received from areas within the reservation can be most likely attributed to agricultural burning.

The Nez Perce Tribe monitors $PM_{2.5}$ in Kamiah, Lapwai, and Reubens. From July-September (October data not yet available), agricultural burning did not contribute to any hours where air quality exceeded the 'unhealthy for sensitive groups' range of EPA's Air Quality Index (> 101ug/m3). On agricultural burn days, 50 one-hour mass concentrations exceeded the 'moderate' range of EPA's Air Quality Index (> 38ug/m3) and may be attributable to agricultural burning. Wildfire smoke may also be a factor on these days. There were 315 one-hour concentrations in the 'moderate' range that were not a result of agricultural burning, but were attributable to wildfires, prescribed burning, or other unknown factors (e.g. woodstove smoke, residential burning). Further analysis will be completed by the Nez Perce Tribe Air Quality Project office and will be available in the Spring of 2007.

The most challenging issue the Nez Perce Tribe faced was the number and severity of wildfires impacting air quality within the airshed. Numerous wildfires burning in Washington, Oregon and Idaho were responsible for poor air quality conditions on the Nez Perce Reservation for several weeks. These poor air quality conditions resulted in limited agricultural burning being allowed on the Reservation during the month of August and early September, a time during which requests from growers is high. From August 10th through August 27th, air quality, ventilation, or fuel conditions were so poor that no agricultural burning occurred on the Nez Perce Reservation. The Tribe issued burn bans from August 23rd through the 25th and again on September 5th through the 7th due to wildfire smoke.

Similar to the 2004 and 2005 burn season, meteorological models, forecasts, and predictions in 2006 often differed from observed conditions in the field. Data inadequacies in the forecast models often do not reflect localized weather effects which make burn decisions and smoke management challenging. This makes it critical to have the burn decision-making combination of the Tribe's field coordinators on the ground observing actual conditions along with the NPT air quality staff accessing real-time weather and air quality data from the office. Ongoing communication with ISDA field coordinators and IDEQ staff in the Clearwater Airshed is also a very important component of real-time information access.

In order to provide feedback to the Nez Perce Tribe's program and share information, the Tribe met with growers, concerned citizens and other tribal, state, and federal air quality and smoke management agencies during the year. One comment shared by most parties indicates that for future burn seasons the methods by which burn information is relayed to the public could use improvement. Both the media avenues through which information is relayed and the accuracy of that information are important considerations. A communication and outreach committee should be formed to help determine the most effective ways to present burn information to the public. Also, protocols should be revised to include procedures for making preliminary burn decisions when a burn ban is currently in effect but conditions are unknown for the next day.

For more information on burning during the peak season and other months in 2006, please contact the Nez Perce Tribe Air Quality Project.

Camas Prairie: Non-Reservation Acres

Off reservation land in Clearwater, Idaho, and Nez Perce counties in the North Central part of the state. This included the Camas Prairie, the Weippe Prairie, and portions of the Southwick-Cavendish area. ISDA Divided portions of the Southwick-Cavendish area between the Palouse Airshed (predominantly located in Latah County) and the Camas Prairie non-reservation area for better program administration. A total of 16,822.87 acres were registered in Idaho, Clearwater and Nez Perce counties. A total of 13, 982.69 acres were burned in Idaho, Clearwater and Nez Perce counties.

The burn season was successfully completed with a few exceptions. The growers are all very conscientious and compliant, however they have had much experience with the science of burning residue and they know their fields and the terrain that surrounds them as well as the potential problems that could occur. They are hesitant to burn if there is a chance of impacting the area or causing a hazard.

The general conditions for successful burning were temperatures ranging from 50 degrees to 85 degrees, wind speeds from 5mph to 12 mph, and the inversion layer lifting mid morning. The best condition for the residue was a heavy layer that would ignite and burn hot and fast to accomplish a clean burned field. When the conditions matched those stated above there was little impact to the airshed. The monitors were mostly affected by forest fire smoke in our area this season. The challenge was to find a good time to get the registered fields burned during the time when the forest fire smoke was not predominant in the area. Another challenge was that some of the forecasts were inconsistent with the actual conditions we experienced on site. The issue with actual conditions conflicting with predicted forecasts is one that has been identified in previous years and is predominantly due to the lack of meteorology resources available on the Camas Prairie for the contract meteorologist to refine daily forecasts. As additional meteorology assets become available, occurrence of inconsistent forecasts will be less.

The Weippe Prairie area is one that needs to be looked at as set apart from the other areas. It is in a remote area that is sparsely populated and the smoke generated by CRD operations is generally not an issue for the residents. It is all wheat stubble acres. The wheat stubble seems to have a better dispersion and seems like the forecasts and conditions for that type of residue should be considered differently when forecasting for potential burning.

Palouse Prairie

In the year 2006, there were 10540.9 acres burned in the fall (from 18 July to 23 October), and an additional 3396.6 acres burned in the spring (from 9 March to 12 May). Total acres burned were 13937.5, up from 2005. During the fall burn season, burning was conducted on 31 days (3 in July, 9 in August, 12 in September and 7 in October).

Weather and wildfire smoke were the most significant challenges this year. Weather, because of the prolonged periods of high pressure and little or no air movement, which kept wildfire smoke from the fire at Dayton, Washington,

trapped in the area. Wildfire smoke was an issue even though DEQ may not have issued burn ban; farmers were reluctant to burn and put more smoke into the air when the air was already affected by wildland fire smoke.

Coordination between the Latah County Sheriff, Whitman County Dispatch (WhitCom) and the Moscow Fire Department will continue to be an issue in areas served by the Moscow Fire Department. The Moscow Fire Department can be dispatched by either the Latah County Sheriff or WhitCom. Growers who are served by the Moscow Fire Department could be instructed to contact both the Latah Sheriff and the Whitman County Dispatch prior to ignition.

Coeur d'Alene Indian Reservation

The Coeur d'Alene Reservation boundaries encompass 345,000 acres. The Coeur d'Alene Reservation lies in both the northwest half of Benewah County and the southern section of Kootenai County, bordered on the west by the state boundary. The Reservation is characterized by topography consisting of mountains, to rolling hills, as well as buttes, lakes, rives and small streams. The Smoke Management Program pays special attention in making burn calls in the Kootenai County area due to the lake affect.

The Smoke Management Program manages and operates the program using a Smoke Management Plan approved by Coeur d'Alene Tribal Council. The Plan is designed to protect the region's air quality by conforming to the Coeur d'Alene Tribe's burning regulations in the Tribal Law and Order Code. A Memorandum of Agreement is in place between ISDA, IDEQ and the Coeur d'Alene Tribe to operate in cooperation and coordination.

The Coeur d'Alene Reservation hired a Field Technician and ISDA hired an additional Coordinator for Rathdrum Prairie to provide additional assistance. When the Rathdrum Prairie wasn't burning the Coordinator was providing assisting to the Coeur d'Alene Reservation with our operations.

Burning was conducted from August 15, 2006 thru October 31, 2006. Total acres registered for 2006 is 35,848.2 acres with a total of 35,540.6 acres burned. In Benewah County a total of 21,375.1 acres were burned and in Kootenai County 14,473.1 acres had been burned. The Coeur d'Alene Reservation received 36 complaint calls on no-burn days, also 5 burning support calls in favor of burning. The 36 complaint calls were received when the wildfires smoke was impacting the air quality in Kootenai County.

The Tribal Smoke Management Program relies on the expertise of the Tribal Air Quality Program regarding the practice of agricultural burning, which is commonplace within the boundaries of the reservation. It is the responsibility of the Tribal Air Quality Program to observe the air quality surrounding the burn decision and notify the Tribal Smoke Management Program if the burn decision is resulting in poor ventilation and less than desired air quality. During the burn season, the Tribal Air Quality Program will monitor the concentrations recorded at the Plummer data site, as well as levels recorded at surrounding IDEQ sites. If these levels become elevated, a burn ban will be issued. Besides the monitoring

data recorded at the Plummer site, the Tribal Air Quality Program provides technical assistance with a Met One Instruments portable continuous fine particle monitor (E-BAM) and maintains access to the data logged.

The Tribal Air Quality Program would like to assist with the EPA FARR Complaint Hotline with complaint response for violations of outdoor burning rules and other air quality complaints. The program will direct air quality complaints in violation of the FARR to the FARR hotline. The Tribal Air Quality Program would like to participate in EPA conference calls to call burn bans and help to notify the public. Since education and outreach to the reservation community on air quality issues, such as FARR, is important and vital to a successful air quality program. The program is eager to continue with these efforts, particularly regarding outdoor burning rules. When the program shares the knowledge of acceptable air quality with the Smoke Management Program and the farmers involved, this leads to a successful burn season.

The need for better communication between Smoke Management, Air Quality and the farmers is always a goal to assure that impacts to the public and health sensitive groups are our top priority. This will be obtained by up-grades to our hand held radio frequency between all parties and adding field technicians to our staff that can respond when burns occur for better evaluation of conditions.

The challenges for the Coeur d'Alene Tribe for 2006 were the wildland fires and the high temperatures in July. The Smoke Management Program was given the direction not to approve any burning in July due to the high temperatures. The burn season started late for the Coeur d'Alene Tribe the first burn wasn't until August 16th, after the high temperatures we were then impacted by the wild fire smoke.

The Coeur d'Alene Reservation, ISDA, DEQ and EPA-FARR worked cooperatively thought the season to assure that the needs of all parties were met. A special Thanks to ISDA for their assistance this year.

Rathdrum

Field burning operations in the Rathdrum Prairie continues to improve as meteorology, coordination, and area supervision increases. Total acres slightly increased for the 2006 CRD season over 2005 acres and burning occurred on the Rathdrum Prairie four days[1]. An additional Field Coordinator was added for the Rathdrum Prairie to provide additional management and to assist in coordination with the Coeur d'Alene Tribe and their field burning operations. ISDA continued to improve the predictions of periods where dispersion of smoke would be adequate to protect air quality in the region. As in previous years, coordinators for the Rathdrum Prairie strive to predict burning opportunities during burn days where conditions will be optimal for smoke dispersal. During the normal burning season in this area, the timeframe for field burning operations are normally two to four hours in duration.

[1] One burn day (August 25) occurred off the Rathdrum Prairie near Cataldo. ISDA Rathdrum Prairie Coordinators managed burning in that area.

Smoke management programs are always at the mercy existing meteorology conditions and this year's activity in northern Idaho was no exception to that rule. The total per day acres burned during the 2006 field burning period ranged from 306 acres to 935 acres on the four days that burning occurred. Total acres burned were 2,563 and represents a 22% increase in acres over 2005. All acres burned during the August/September 2006 period were grass seed residue. All acres were burned on the Rathdrum Prairie with the exception of the acres that were burned in the Cataldo area. There were no investigations conducted on the Rathdrum Prairie due to alleged illegal burns. The burning was conducted from August 15, 2006 through September 12, 2006.

Total complaints during field burning days were slightly higher in 2006 than in 2005. Although the total calls to the field burning hotline were 13% higher in 2006 than in 2005, the total actual complaint calls decreased 40% during the 2006 field burning period. Continuing oversight, appropriate burn decisions, the availability of our local meteorological resource and careful evaluation of on-site weather evaluations contributed to the success of the CRD operations.

The 2006 field burning period presented some significant challenges to ISDA staff in the form of significant wildland fire activity and unusual weather conditions. This year was a good example of how outside factors can exert added pressures and obstacles to the successful completion of a crop disposal program. Meteorological conditions and wildfire smoke restricted the use of many potential burn days this season. Numerous Red Flag Warnings, forecasting dangerous fire conditions, were issued by the National Weather Service. Rapid changes in local meteorological condition caused issues on August 15 requiring a halt to further planned operations and caused a deterioration of smoke dispersion on August 24. Uncharacteristically, September provided better conditions for field burning operations in 2006 than August. Growers burning on the Rathdrum Prairie experienced two fire escapes during August. One was to a neglected pasture and the other to an adjacent field. Both were the result of unusual weather changes that happened on burning days. Both fires were extinguished without serious incident.

For a more in-depth air quality analysis, refer to IDEQ's analysis of the Rathdrum Prairie for the 2006 season.

Boundary County

Most of the crop residue disposal activity in Boundary County occurs in the Kootenai River Valley bottom lands. ISDA has jurisdiction over most of the area with the exception of Indian owned lands.

The Kootenai Tribe of Idaho has enacted Tribal laws providing for identical rules and regulations as that of the State of Idaho for the management of the SMP on Indian owned lands and provides air quality monitoring and meteorological information for the program.

The Kootenai River Valley is the major agricultural area in Boundary County with rich farmland along the flat river bottoms and adjacent benches. 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.

The Selkirk Range is located on the west side and creates a dramatic valley boundary, rising over 3000 ft. above the valley floor within one mile from the western edge of the valley. The mountain peaks top out at 6,000 to 6,800 ft. throughout the north-south oriented range. The eastern boundary is similar to the west, with ridge tops at 4,000 to 6,000 ft. 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.

This year in Boundary County 10,147 acres were registered with 7,976 of those acres being burned. There were eleven complains this year with 24 non-descriptive calls regarding the SMP program. No tribal health complaints were received.

Weather remained the main factor that affected the CRD program during 2006. Poor dispersion conditions and periods of precipitation limited the number of days for burning and patterns of extended stagnant conditions hampered efforts to burn throughout the season, resulting in a backlog of acres as the season progressed. The grass fields in the valley experienced new growth and green-up while waiting for a good burn day early in the season. This compounded the problem of burning these fields during the later part of the 2006 season.

The Tribe, ISDA and IDEQ worked cooperatively throughout the season to assure that the needs of all parties were met and will continue this effort next year.

The primary smoke management challenge in Boundary County continues to be the impact terrain has on localized weather and the dispersion of smoke. Neither the 65 ug/3m nor the new 35 ug/3m NAAQs standards were exceeded on the reservation during the CRD Season. Poor dispersion conditions and periods of precipitation limited the number of days for burning and patterns of extended stagnant conditions hampered efforts to burn throughout the season, resulting in a backlog of acres as the season progressed. The grass fields in the valley experienced new growth and green-up while waiting for a good burn day early in the season. This compounded the problem of burning these fields during the later part of the 2006 season.

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