



WASHINGTON STATE  
DEPARTMENT OF  
E C O L O G Y

**Documentation of a Natural Event  
Due to High Winds  
October 30, 2003  
Burbank, Washington**

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04-02-006

April 2004

 Printed on Recycled Paper

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# **Documentation of a Natural Event Due to High Winds October 30, 2003 Burbank, Washington**

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Prepared by:

Washington State Department of Ecology  
Air Quality Program

04-02-006

March 2004



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## Summary

On October 30, 2003, the Federal Reference Method monitor in Burbank, Washington measured a concentration of 282 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) for particulate matter 10 microns and smaller in size ( $\text{PM}_{10}$ ). This concentration exceeded the primary 24-hour  $\text{PM}_{10}$  National Ambient Air Quality Standard (NAAQS) of  $150 \mu\text{g}/\text{m}^3$ . On the same day, the Federal Reference Method monitor in Wallula Port, Washington measured an elevated  $\text{PM}_{10}$  concentration of  $134 \mu\text{g}/\text{m}^3$ .

The Washington State Department of Ecology (Ecology) has determined that the Burbank exceedance and the elevated  $\text{PM}_{10}$  concentration measured at Wallula Port were due to a natural event caused by high winds. Thus, these data points should be excluded from assessments of the attainment status for the area. Ecology flagged the data points for October 30, 2003 in the AIRS database maintained by the U.S. Environmental Protection Agency (EPA) to indicate that a natural event was involved. This documentation is being submitted to EPA in support of the data flags for EPA's acknowledgement and flagging of the data points.

## EPA's Natural Events Policy

EPA issued the policy on "Areas Affected by PM-10 Natural Events" (hereafter referred to as Natural Events Policy or NEP) on May 30, 1996. EPA's reasons for issuing the NEP are described in the following terms:

In issuing the natural events policy, EPA now believes that, under certain circumstances, it is appropriate to again exclude PM-10 air quality data that are attributable to uncontrollable natural events from the decisions regarding an area's non-attainment status.

Under the policy, ambient  $\text{PM}_{10}$  concentrations raised by unusually high winds are treated as uncontrollable natural events when the dust originates from non-anthropogenic (other than human-caused) sources, or when the dust originates from contributing anthropogenic sources controlled with best available control measures (BACM).

After natural events cause the  $\text{PM}_{10}$  concentration to violate the  $\text{PM}_{10}$  NAAQS, the NEP requires a state to develop a natural events action plan (NEAP) to deal with future exceedances. The NEP specifies that the NEAP is available for public review and comment. A state submits the NEAP to EPA for review and comment.

Under the NEP, when a state has reason to believe that natural events have caused monitored exceedances of the  $\text{PM}_{10}$  standard, the state is responsible for establishing a clear causal relationship between the natural event and the exceedance. Documentation of the natural event should be sufficient to demonstrate that the natural event occurred and that it impacted a particular monitoring site. The documentation should provide evidence that concentrations at the monitoring site would not have exceeded the  $\text{PM}_{10}$  standard in the absence of a natural event.

# Ecology's Response to High Wind Events on the Columbia Plateau

During the late 1980s and early 1990s, a large number of exceedances of the 24-hour standard for PM<sub>10</sub> were recorded in Spokane, Kennewick, and Wallula, Washington. Detailed examination of these exceedances showed a close correlation to high wind events. Upwind agricultural fields were identified as the chief source of the windblown dust. Accordingly, Ecology developed the *Natural Events Action Plan for High Wind Events in the Columbia Plateau* in March 1998, to deal with high wind natural events in eastern Washington.

EPA's NEP identifies various criteria states are expected to address in a NEAP, including a commitment to re-evaluate the NEAP every five years. Ecology completed a re-evaluation and submitted a revised NEAP to EPA in June 2003. The Columbia Plateau NEAP continues to address the NEP by providing for:

- Notification of citizens when air quality is likely to be impaired due to high wind events.
- Advice to citizens on steps to minimize exposure.
- Development of a program to identify and implement controls for anthropogenic sources of windblown dust in the Columbia Plateau.

As well, based on the re-evaluation, several changes were incorporated into the 2003 NEAP. Significant changes include a more refined definition for a high wind event and a finding that BACM is in place throughout the Columbia Plateau.

The 2003 NEAP refined the definition of a high wind event for Washington State in accordance with the provisions of the NEP allowing the states to determine this definition. This provision recognizes the multiple variables that affect the wind erosion processes that result in windblown dust and the generation and transport of PM<sub>10</sub>.

*“A high wind event occurs when the wind entrains and suspends dust to the extent that concentrations of PM<sub>10</sub> are elevated. This typically occurs when the average hourly wind speed at 33 ft is 18 miles per hour or greater for two or more hours; or in excess of 13 miles per hour for two hours or more hours when conditions of higher susceptibility to wind erosion exist. A high wind event that exceeds the PM<sub>10</sub> standard is a natural event.”*

The Columbia Plateau NEAP documents the research and explains the logic behind this “high wind event” definition. The high wind event definition necessarily includes the concept that the intensity of the wind event is a combination of wind speed and significant duration (sustained wind).

The state of Washington finds that windblown dust from agricultural fields is still a significant contributing source of PM<sub>10</sub> exceedances throughout the Columbia Plateau. The soil is very fine



with low organic content. This, coupled with low precipitation weather patterns, means very dry soil that is highly susceptible to wind erosion.

The 2003 NEAP identified BACM for agricultural fields as conservation programs and practices that reduce or minimize wind erosion. Specifically, this means USDA Conservation Title Programs supplemented by incentive based implementation of wind-erosion conservation practices or best management practices (BMPs).

Washington State evaluated BACM implementation for agricultural fields in the 2003 NEAP. Based on the evaluation, Washington State views these levels of wind erosion control as sufficient to fulfill BACM criterion of the NEP. A 2003 Annual Status Report regarding BACM implementation is found in Appendix C.

## **Evaluation of the October 30, 2003 Exceedance at Burbank, Washington**

### **1. Burbank and Wallula Port Federal Reference Monitors**

PM<sub>10</sub> federal reference monitors (FRMs) were established at two locations in the Wallula PM<sub>10</sub> nonattainment area (NAA) as candidate sites for replacing the NAA's long-term Wallula FRM monitoring site. It became necessary to find a replacement site after an agreement with the landowner scheduled the Wallula FRM site for termination on October 31, 2003.

Ecology performed a saturation study to locate a replacement site. After discussing the study, Ecology and EPA mutually agreed on establishing candidate replacement sites in two locations. The first monitoring site, Wallula Port (site no. 53-071-0003), was located on Port of Walla Walla property south of Dodd Road and along U. S. 12. The site is about a mile north-northwest of the Wallula monitoring site. The industrial sources in the nonattainment area -- a pulp and paper mill and associated compost facility, a very large feedlot and a meat packing plant -- were all located south of Dodd Road. The Wallula Port FRM began monitoring on November 13, 2002.

The second monitoring site, Burbank (site no. 53-071-0006), was located at Burbank public schools, in the unincorporated community of Burbank where most of the population of the NAA lives. In addition to the FRM, a PM<sub>10</sub> TEOM and a meteorological tower were also set up at the site. The Burbank site is about seven miles west-north-northwest of the Wallula site and about six miles west-north-northwest of the Wallula Port FRM. The Burbank FRM began monitoring on December 25, 2002.

Evaluation of monitoring data indicates that the Burbank monitor measures the same air mass as the now discontinued Wallula monitor. The Burbank monitor also provides the added benefit of measuring air quality in the part of the NAA where most of the population lives. Therefore, the Burbank monitor was chosen as the replacement site and is used to track continuing PM<sub>10</sub> attainment in the Wallula NAA.

2. Burbank and Wallula Port PM<sub>10</sub> Data: The Burbank monitor operates on a 1-in-3-day schedule. PM<sub>10</sub> data for 2003, as well as data for October, are found in Appendix A. The average PM<sub>10</sub> concentration for 2003 was 28 µg/m<sup>3</sup>. Monthly maxima ranged from a low of 11 µg/m<sup>3</sup> in January, to a high of 64 µg/m<sup>3</sup> in October.

The Wallula Port monitor also operates on a 1-in-3-day schedule. PM<sub>10</sub> data for 2003, as well as data for October, are found in Appendix A. The average PM<sub>10</sub> concentration for 2003 was 32 µg/m<sup>3</sup>. Monthly maxima ranged from a low of 9 µg/m<sup>3</sup> in January, to a high of 64 µg/m<sup>3</sup> in October.

3. Burbank and Wallula Port Meteorological Data: Ecology operates meteorological equipment co-located with Ecology’s PM<sub>10</sub> monitor in Burbank, Washington. The data, found in Appendix B, shows wind speeds were generally low and from the north-northeast from about 2000, October 29, 2003 to about 0000, October 30, 2003, when they increased to 18 mph. For the subsequent 10 consecutive hours (0000 to 0900) wind speeds ranged from 18-25 mph. Winds remained out of the north-northeast throughout this period. Gust measurements are not included in Ecology’s suite of meteorological data at Burbank.

Meteorological data collected at Burbank is representative of the general area, including conditions at the Wallula Port monitoring site. The data shows the winds at Burbank and Wallula Port, Washington clearly met Ecology’s definition for a high wind event:

*“A high wind event occurs when the wind entrains and suspends dust to the extent that concentrations of PM<sub>10</sub> are elevated. This typically occurs when the average hourly wind speed at 33 ft is 18 miles per hour or greater for two or more hours; or in excess of 13 miles per hour for two hours or more hours when conditions of higher susceptibility to wind erosion exist. A high wind event that exceeds the PM<sub>10</sub> standard is a natural event.”*

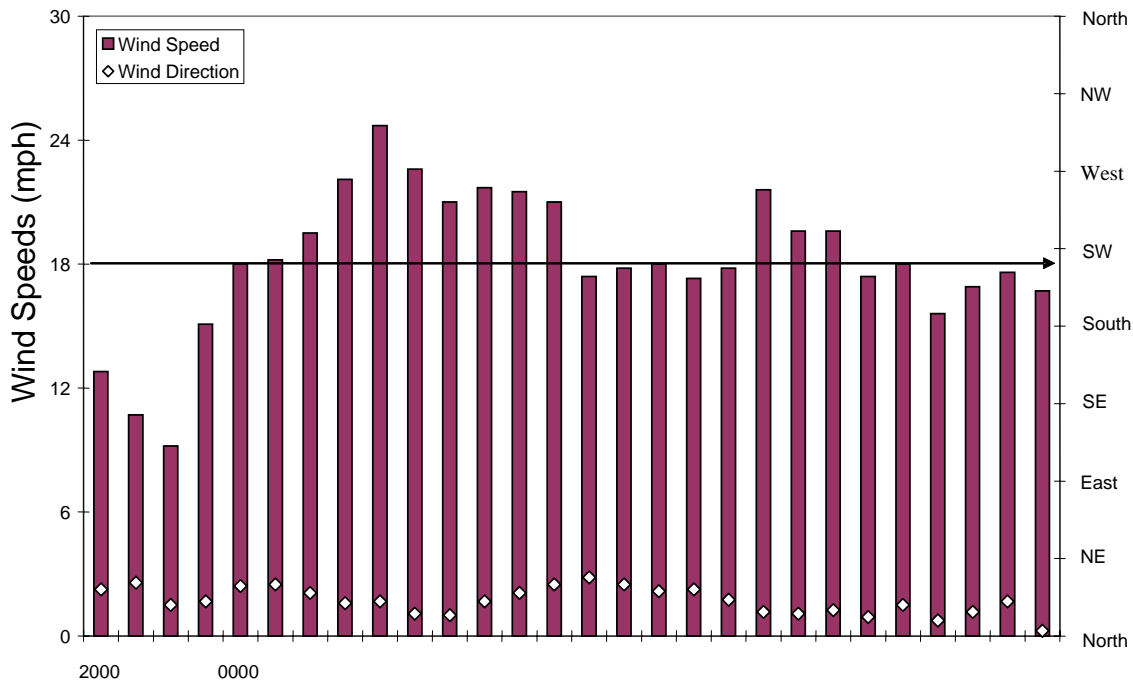
### 3.1 Wind Observations

Table 1. Select Wind Observations for Burbank, Washington, October 30, 2003

Time (PST)	Wind Direction	Wind Speed (mph)
0000	29 (NNE)	18
0100	30 (NNE)	18
0200	25 (NNE)	20
0300	19 (NNE)	22
0400	20 (NNE)	25
0500	13 (NNE)	23
0600	12 (NNE)	21
0700	20 (NNE)	22
0800	25 (NNE)	22
0900	30 (NNE)	21

Wind speeds, and wind direction at Burbank, Washington, from 2000 (PST), October 29, 2003, to 0000 (PST), October 30, 2003 are displayed in Figure 1.

**BURBANK WINDSPEED/DIRECTION**  
Beginning October 29 @ 2000 to October 30 @ 0000



**FIGURE 1**

3.2. Precipitation Prior to October 30, 2003: Table 2 summarizes precipitation data from several reporting meteorological sites in the vicinity of Burbank, Washington. These sites are operated by Washington State University’s Public Agricultural Weather System (PAWS) - K2h, Welland, and Fishhook, and the United States Bureau of Reclamation’s AGRIMET system (Legrow) and the USFS Remote Automated Weather Stations (RAWS) (Juniper Dunes). The sites are generally located in an arc ranging from north to east, upwind of Burbank, Washington, with respect to the direction of the prevailing high winds on October 30, 2003. None of the sites are greater than about 20 miles from Burbank, Washington. A map showing the location of each site as well as the precipitation data is found in Appendix B.

Table 2. Precipitation prior to a natural event due to high winds, October 30, 2003 (inches)

STATION:	Precipitation (inches)			# Days w/o precipitation prior to event day
	October 30, 2003	72 hrs prior to event day (10/30/03)	Last measured prior to 72 hr. period	
K2h	0	0.02 (10/29)	0.13 (10/15)	1
Welland	0	0.07 (10/29)	0.08 (10/15)	1
Fishhook	0	0	0.10 (10/15)	14
Legrow	0	0	0.10 (10/16)	13
Juniper Dunes	0	0.07 (10/29)	0.01 (10/16)	1

Data from the five sites was analyzed in order to assess the general vulnerability of soils to high winds. The data shows that none of the five sites report precipitation on October 30, 2003. Three of the five sites (K2H, Welland and Juniper Dunes) report precipitation 72 hours prior to the high winds although K2H reports only minor (.02 inches) precipitation. The Legrow and Fishhook sites report no precipitation for over two weeks prior to the high winds.

October 2003 precipitation data from three of the five sites was compared to long-term mean precipitation for the same time period in order to further assess the likelihood that soils were vulnerable to erosion by high winds. Long-term mean precipitation is not readily available for the Legrow and Juniper Dunes sites. The period of record for each site is found in Appendix B. All three sites report measurable precipitation well below 50 percent of the mean for October 2003. The results are found in Table 3.

Table 3. October, 2003 precipitation compared to mean precipitation (inches)

Station	Mean October Precip.	October 2003	Percent of mean
Fishhook	0.9	0.17	19%
K2H	1.0	0.25	25%
Welland	1.0	0.21	21%

Thus, three of the five sites analyzed show conditions were sufficiently dry 72 hours prior to the high winds on October 30, 2003. Moreover, October 2003 was especially dry when compared to long-term mean precipitation. Such dry conditions are expected to leave soils vulnerable to wind erosion, particularly in light of 10 consecutive hours with 18-25 mph winds.

## BACM Implementation

The 2003 NEAP evaluated data for the year 2000 and determined BACM is implemented in the Columbia Plateau based on 68 percent use of conservation practices. BACM for agricultural fields is defined as USDA Conservation Title Programs supplemented by incentive based implementation of wind erosion conservation practices or BMPs. In short, the BACM definition recognizes the critical role of agricultural agencies in defining and instituting BACM on the Columbia Plateau. The NEAP acknowledges the combined expertise of these agencies and relies on the various programs of these agencies in implementing the conservation practices that constitute BACM.

For defining BACM, the NEAP uses the USDA's CRP program and the wind erosion BMPs encouraged by NRCS and/or the Columbia Plateau Wind Erosion /Air Quality Project (referred to as the CP3). Use of these practices is tracked by the Conservation Technology Information Center's (CTIC) Core 4 program. The CTIC's Core 4 program tracks conservation tillage (No-Till, Ridge-Till, Mulch-Till) and conventional tillage (0-15% and 15-30% residue) practices and CRP enrollment on a county-by-county basis.

A 2003 Annual Status Report regarding BACM implementation evaluated data for the year 2002 (Appendix C). Comparing the 2003 NEAP to the annual report shows the level of Conservation Reserve Program (CRP) and Best Management Practice (BMP) use have increased, from the

years 2000 to 2002, from 68 to 70 percent in the priority counties of the Columbia Plateau. Seventy percent of the total farmable acres in these counties are now part of a United States Department of Agriculture (USDA) conservation program, use one of the minimum till practices, or contain 15-30% residue.

Washington State finds this level of CRP and BMP implementation fulfills BACM criteria. A full discussion on Ecology's BACM definition and tracking mechanism may be found in the revised NEAP.

## Findings

The meteorological data from Burbank, Washington shows that October 30, 2003 was characterized by windy conditions. Wind speeds were in the 20s for as many as ten consecutive hours. The winds meet Ecology's high wind event definition of the 2003 NEAP and exceeded the definition threshold by 13 hours, ten of which were consecutive.

In the area lying upwind of Burbank, Washington with respect to the prevailing winds, no precipitation is reported the day of high winds. Minor precipitation is reported at one of the three sites that report precipitation 72 hours prior to high winds. Two sites, lying to the northeast of Burbank report no rain 13 to 14 days prior to high winds. Such conditions are consistent with areas being susceptible to windblown dust. Moreover, Ecology finds that BACM was implemented on agricultural fields.

Under the dry conditions so common in this area, the windy conditions are likely to raise dust that led to the monitored high PM<sub>10</sub> levels. Therefore, the monitored PM<sub>10</sub> concentrations of 282 µg/m<sup>3</sup> at Burbank, Washington and 134 µg/m<sup>3</sup> at Wallula Port on October 30, 2003 are reasonably attributed to a natural event due to high winds.



# **Appendix A**

## **Burbank and Wallula Port, Washington PM<sub>10</sub> Data**





Annual Parameter Report  
 Reporting Year: 2003  
 Time of Report: 03/23/04 16:05

STATION: BURBANK MAPLE  
 SITE: 0710006  
 Parameter: PM10

AIRS : Parameter Code: 81102 Method Code: 063 Units Code: 001 Decimal Positioner: 0  
 SAROAD: Parameter Code: 81102 Method Code: 63 Units Code: 01 Units:

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAX	MEAN	NO
1			15					41							
2						31					24	15			
3	11			22						63					
4		14						37							
5		18				40					37	14			
6	15			7	22				63	57					
7								27							
8		20				39	34				37	12			
9	6			16	21				15	22					
10								21							
11		20				24	48					13			
12	15			15	10				19	67					
13			39					38							
14		23				20					52	2			
15	12			11	33				34	13					
16			5					57							
17		3				48					25	1			
18	11			16	12				31	28					
19			15					58							
20		7	12			24					8	19			
21				17	21				28	22					
22								47							
23		8					49				17	11			
24				12	33				53	23					
25								49							
26		20	4			33	35				9	12			
27			4		18				54						
28			14					41							
29	8		16			61	49				7	27			
30	9			13	34				47	282					
31	8							46							
AVG	11	15	14	14	23	36	43	42	38	64	24	13		28	
MAX	15	23	39	22	34	61	49	58	63	282	52	27	282		
DAYS	9	9	9	9	9	9	5	11	9	9	9	10			107

Burbank, Washington  
 October 30, 2003

Annual Parameter Report  
 Reporting Year: 2003  
 Time of Report: 03/23/04 13:32

STATION: WALLULA PORT  
 SITE: 0710003  
 Parameter: PM10

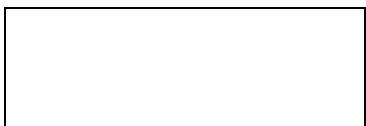
AIRS : Parameter Code: 81102 Method Code: 063 Units Code: 001 Decimal Positioner: 0  
 SAROAD: Parameter Code: 81102 Method Code: 63 Units Code: 01 Units:

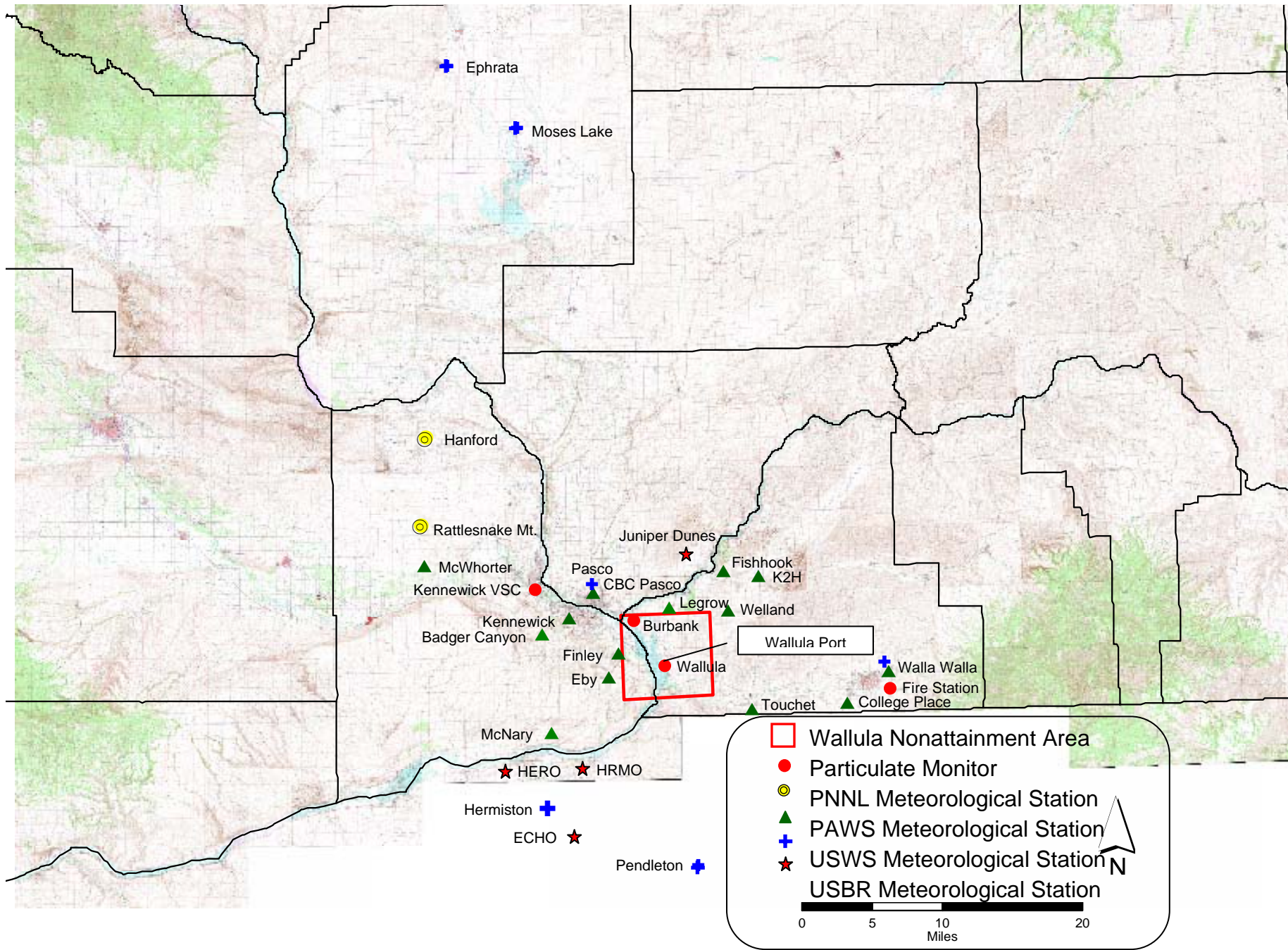
Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAX	MEAN	NO
1			12					36							
2						53					49	13			
3	6			8	22					75					
4		10						70							
5		13					29				42	16			
6	6			22					20	22					
7								49							
8		20				38	34				86	22			
9	10			39	18				80	24					
10								17							
11		19				54	44				218	9			
12	13			18	11				27	100					
13			29					44							
14		25				29	38				57				
15	11			18	23				34	15					
16								64							
17		5				46	33				59	5			
18	11			21	51				44	36					
19			16					53							
20		7	6			15					7	18			
21				4	25					86					
22								38							
23		7				23	36				20				
24					35				65	65					
25								30							
26		35	6			28					7	12			
27			3	5	21				66						
28			18					67							
29	9					43	79				12	11			
30	8			9	33				59	134					
31	9							81							
AVG	9	16	13	16	27	37	42	50	49	62	56	13		32	
MAX	13	35	29	39	51	54	79	81	80	134	218	22	218		
DAYS	9	9	7	9	9	9	7	11	8	9	10	8			105

Burbank, Washington  
 October 30, 2003

# **Appendix B**

## **Burbank and Wallula Port, Washington Meteorological Data**





Burbank, Washington  
 October 30, 2003



Monthly Running Average Report

Run Date: 03/16/04 11:35

( 1 Hour Rolling Averages )

SITE NAME: BURMAPLE : 53-071-0006      PARAMETER NAME:    WD      MONTH: October  
 ADDRESS: 755 MAPLE STREET BURBANK      PARAMETER CODE: 61102      YEAR: 2003  
 LAT/LONG: 046 12' 00" / 119 00' 30"      METHOD: 50      UNITS: DEG      DECIMAL POSITIONER: 0  
 ELEVATION: 590      PROJECT: 01

Hourly Averages  
 Beginning Hour (PST)

DA	C	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS	
01	WE	34	40	346	7	20	2	334	318	324	335	330	351	351	220	172	152	152	141	116	95	83	51	70	69	171	351	24	
02	TH	45	64	56	95	60	315	58	329	6	3	265	263	339	351	351	17	180	172	146	77	71	47	79	46	143	351	24	
03	FR	55	41	43	42	356	344	148	11	325	305	323	333	325	355	4	11	201	194	143	102	68	60	80	60	164	356	24	
04	SA	70	80	60	58	41	330	329	334	6	322	2	261	268	256	337	281	199	191	76	53	141	100	66	71	164	337	24	
05	SU	54	81	77	76	36	34	57	13	352	358	359	14	24	359	323	283	210	128	111	66	72	46	57	45	135	359	24	
06	MO	79	36	71	323	19	241	355	34	33	7	35	25	87	123	117	128	140	134	141	348	264	234	229	209	142	355	24	
07	TU	198	197	216	208	217	222	205	218	222	214	205	208	233	246	228	220	222	222	216	217	224	279	79	80	208	279	24	
08	WE	89	37	46	76	65	81	62	94	133	149	101	307	261	260	267	255	223	231	212	202	215	220	222	220	168	307	24	
09	TH	223	227	207	211	212	253	234	204	217	216P222	213	229	225	222	224	224	231	239	223	224	234	249	238	225	253	24		
10	FR	252	269	72	84	75	108	242	70	175	144	185	220	199	230	196	207	205	181	196	185	78	78	121	112	162	269	24	
11	SA	76	78	67	98	119	24	305	294	271	271	10	130	157	200	183	142	180	160	187	196	244	211	211	227	168	305	24	
12	SU	212	216	216	196	180	204	201	195	204	207	215	211	219	228	220	227	224	226	227	232	229	223	231	224	215	232	24	
13	MO	227	228	229	229	231	241	280	42	118	159	145	167	151	150	140	97	21	29	45	347	276	283	292	279	184	347	24	
14	TU	312	316	285	285	303	316	277	197	191	158	153	171	174	174	155	198	195	168	145	118	128	123	111	98	198	316	24	
15	WE	75	75	98	120	88	29	288	309	293	297	299	316	315	46	131	177	212	220	241	207	169	167	155	152	187	316	24	
16	TH	174	151	131	131	116	120	127	125	125	109	132	140	178	165	167	229	30	69	155	130	194	209	229	234	149	234	24	
17	FR	243	202	215	165	129	118	133	173	207	213	241	266	227	230	244	274	195	152	37	212	39	62	81	79	172	274	24	
18	SA	79	80	72	6	29	83	337	340	310	235	345	207	224	252	199	171	177	93	86	353	45	73	31	28	161	353	24	
19	SU	353	92	45	145	146	155	150	151	203	186	8	27	212	227	228	225	214	197	92	103	125	92	62	77	146	353	24	
20	MO	54	30	62	293	99	337	35	199	118	132	160	130	130	124	127	163	224	223	236	218	47	95	121	63	142	337	24	
21	TU	57	99	148	11	61	70	118	77	141	165	119	35	353	11	4	359	333	313	301	282	323	324	348	340	183	359	24	
22	WE	328	301	308	84	62	44	69	90	108	110	149	153	144	157	219	200	195	196	203	217	189	200	218	223	174	328	24	
23	TH	220	227	226	235	238	242	245	223	221	222	234	228	240	254	244	229	208	215	260	239	9	326	318	319	234	326	24	
24	FR	27	22	43	56	41	34	38	352	350	332	345	343	345	351	352	338	322	252	150	66	32	41	62	65	182	352	24	
25	SA	48	20	73	71	65	66	41	8	345	294	311	343	317	261	267	234	237	272	218	167	51	337	318	6	182	345	24	
26	SU	37	8	349	70	83	39	49	48	80	161	245	224	219	329	15	128	260	207	319	88	93	77	32	34	133	349	24	
27	MO	61	83	54	87	116	105	74	18	14	127	42	174	126	147	118	178	68	74	296	318	116	87	59	79	109	318	24	
28	TU	118	124	87	186	189	207	216	216	216	218	224	229	229	224	223	230	234	236	237	237	268	313	306	328	221	328	24	
29	WE	345	240	273	219	234	243	224	232	244	244	226	230	314	205	186	100	25	22	25	26	27	31	18	20	165	345	24	
30	TH	29	30	25	19	20	13	12	20	25	30	34	30	26	27	21	14	13	15	11	18	9	14	20	3	20	34	24	
31	FR	11	355	337	344	314	312	326	334	335	354	3	6	8	1	359	15	358	66	119	120	153	117	117	61	189	359	24	
AVG		135	131	146	136	128	159	180	170	191	202	183	192	214	206	194	184	190	169	167	176	136	153	148	132	167			
MAX		353	355	349	344	356	344	355	352	352	358	359	351	353	359	359	359	358	313	319	353	323	337	348	340		359		
DAYS		31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31			744	

STANDARD DEVIATION      359

Burbank, Washington  
 October 30, 2003

Monthly Running Average Report  
 Run Date: 03/16/04 11:35  
 ( 1 Hour Rolling Averages )

SITE NAME: BURMAPLE : 53-071-0006  
 ADDRESS: 755 MAPLE STREET BURBANK  
 LAT/LONG: 046 12' 00" / 119 00' 30"  
 ELEVATION: 590

PARAMETER NAME: WS  
 PARAMETER CODE: 61101  
 METHOD: 50 UNITS: MPH

MONTH: October  
 YEAR: 2003  
 DECIMAL POSITIONER: 1  
 PROJECT: 01

Hourly Averages  
 Beginning Hour (PST)

DA	C	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
01	WE	20	11	27	9	14	24	34	43	60	62	63	64	41	40	53	72	80	69	27	38	40	31	37	39	4.2	8.0	24
02	TH	29	32	27	20	14	9	11	10	18	15	28	47	67	63	67	30	24	39	29	25	23	22	38	18	2.9	6.7	24
03	FR	17	21	24	19	28	24	15	14	22	39	62	73	50	44	29	18	17	29	22	20	27	25	28	24	2.9	7.3	24
04	SA	23	25	21	17	19	14	17	17	22	18	31	45	49	47	38	31	56	54	25	36	59	44	23	29	3.2	5.9	24
05	SU	23	31	36	30	21	20	15	27	15	15	19	31	20	37	28	16	15	22	21	24	25	16	19	26	2.3	3.7	24
06	MO	33	27	21	19	21	18	17	28	29	47	21	20	29	38	40	51	68	66	57	25	62	41	64	64	3.8	6.8	24
07	TU	84	106	170	155	124	101	90	64	69	69	108	129	89	79	119	92	91	86	91	102	88	33	27	35	9.2	17.0	24
08	WE	31	27	30	44	26	31	33	32	52	47	25	47	89	162	124	134	128	123	102	100	83	90	115	110	7.4	16.2	24
09	TH	134	118	97	113	80	51	29	57	121	144P116	143	121	130	146	127	120	92	78	94	94	29	36	62	9.7	14.6	24	
10	FR	48	32	33	27	13	29	37	29	37	33	46	67	57	52	58	53	61	49	49	38	28	43	40	55	4.2	6.7	24
11	SA	40	36	20	19	16	20	42	48	52	27	16	42	61	58	43	22	91	71	53	76	55	85	105	111	5.0	11.1	24
12	SU	168	143	152	111	89	97	135	124	170	166	145	173	172	161	171	193	221	193	217	196	164	188	164	180	16.2	22.1	24
13	MO	177	164	158	154	126	99	36	22	31	31	51	38	54	82	59	30	37	40	15	17	39	46	51	71	6.8	17.7	24
14	TU	75	85	55	49	81	93	53	37	21	29	32	35	29	42	49	58	63	42	47	56	71	46	52	62	5.3	9.3	24
15	WE	51	52	48	35	27	18	34	41	35	28	27	36	27	13	45	87	93	118	99	107	90	82	79	67	5.6	11.8	24
16	TH	59	70	83	67	36	66	51	48	70	46	22	46	65	88	86	43	26	37	19	30	33	63	69	84	5.4	8.8	24
17	FR	64	69	51	77	66	55	39	35	29	55	72	64	89	78	55	33	28	41	30	21	23	22	41	29	4.9	8.9	24
18	SA	44	43	33	27	21	38	33	12	25	19	12	20	28	29	25	39	22	26	26	24	29	35	16	16	2.7	4.4	24
19	SU	19	15	25	29	56	43	47	74	65	53	27	12	45	95	53	57	63	50	41	21	13	13	26	29	4.0	9.5	24
20	MO	13	21	20	11	12	17	14	13	19	24	26	33	49	52	41	28	44	40	41	56	48	43	41	45	3.1	5.6	24
21	TU	41	45	39	33	45	40	33	37	65	76	44	32	47	39	60	58	37	28	38	42	24	13	19	35	4.0	7.6	24
22	WE	27	44	48	22	28	21	28	21	51	54	35	67	82	57	82	68	79	94	82	51	131	128	146	115	6.5	14.6	24
23	TH	181	160	168	131	108	86	86	78	102	108	84	78	80	70	63	53	63	54	43	28	23	14	25	19	7.9	18.1	24
24	FR	21	25	22	19	24	22	18	23	24	40	63	71	63	51	47	51	38	26	17	18	23	21	30	23	3.2	7.1	24
25	SA	12	10	26	26	18	27	29	18	24	16	36	28	29	26	21	24	27	27	8	8	18	13	23	22	2.1	3.6	24
26	SU	18	17	3	17	26	23	12	18	12	14	12	15	18	15	25	22	17	11	18	18	38	32	27	24	1.9	3.8	24
27	MO	19	41	31	42	56	44	19	33	32	21	30	26	36	22	27	25	16	20	23	29	38	21	25	38	3.0	5.6	24
28	TU	18	39	27	44	66	132	157	193	181	234	253	276	297	257	285	274	241	250	257	225	190	178	121	93	17.9	29.7	24
29	WE	61	75	41	28	49	63	100	109	88	71	77	70	27	66	96	64	23	26	55	114	128	107	92	151	7.4	15.1	24
30	TH	180	182	195	221	247	226	210	217	215	210	174	178	180	173	178	216	196	196	174	180	156	169	176	167	19.2	24.7	24
31	FR	170	110	112	82	44	88	83	97	88	90	95	85	90	86	72	38	51	49	36	27	19	40	38	33	7.2	17.0	24
AVG		61	60	59	55	52	53	50	52	60	61	60	68	70	73	74	68	69	67	59	60	61	56	58	61	6.0		
MAX		181	182	195	221	247	226	210	217	215	234	253	276	297	257	285	274	241	250	257	225	190	188	176	180		29.7	
DAYS		31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31			744

STANDARD DEVIATION 29.7

NOTES: \*\*\* INDICATE INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED.  
 STATUS CODES 'P' - POWER DOWN, 'D' - DISABLED, 'B' - BAD STATUS, 'C' - CALIBRATION, '-' - MINIMUM, '+' - MAXIMUM,  
 'R' - RATE OF CHANGE, 'E' - FIELD EXCEEDED, 'N' - DATA NOT FOUND, 'A' - CALIBRATION OUT OF TOLERANCE, ' ' - NO ERROR

Burbank, Washington  
 October 30, 2003



Data Extracted:2004-03-30 09:35:14

FISHHOOK, 2 MI S of Fishhook Park, Wa</a><BR>Lat:46.2 Lng:118.7 elevation:767  
Dates Range From 1992-05-07 To 2004-03-29

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Precipitation											
1.4	.8	.8	.8	.7	.5	.2	.3	.3	.9	1.2	1.4
Max Precipitation											
2.6	1.9	1.8	2.2	1.4	1.6	.9	2.0	1.0	2.1	1.9	2.2
2003	2000	2001	1995	1993	1995	1992	1993	1995	1994	1996	2002
Min Precipitation											
.8	.3	.0	.0	.0	.0	.0	.0	.0	.2	.3	.6
1999	1993	2003	2003	2003	2003	2003	2003	1993	2002	1993	1997

Data Extracted:2004-03-30 09:35:15

K2H, 2 MI S of Eureka, Wa</a><BR>Lat:46.2 Lng:118.6 elevation:1009  
Dates Range From 1992-05-07 To 2004-03-29

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Precipitation											
1.4	1.0	1.0	1.2	.9	.8	.2	.2	.4	1.0	1.3	1.3
Max Precipitation											
2.8	2.2	1.9	2.2	2.0	2.1	.8	1.8	1.2	2.4	2.2	2.7
2003	2000	2000	1993	2000	1995	1992	1993	1995	1994	1996	1996
Min Precipitation											
.0	.5	.1	.4	.1	.0	.0	.0	.0	.1	.4	.0
2003	1997	1994	1999	1992	2003	2003	2003	1993	2002	1993	2003

Data Extracted:2004-03-30 09:35:17

WELLAND, 13 MI E of Burbank, Wa</a><BR>Lat:46.2 Lng:118.7 elevation:926  
Dates Range From 1992-05-07 To 2004-03-29

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Precipitation											
1.1	.9	.9	1.1	.7	.8	.3	.3	.4	1.0	1.3	1.2
Max Precipitation											
2.2	2.0	1.7	2.3	1.6	1.8	1.2	1.8	1.0	2.3	2.2	2.2
1995	2000	2000	1995	1993	1996	1992	1993	1992	1994	1996	1996
Min Precipitation											
.0	.4	.1	.0	.0	.0	.0	.0	.0	.2	.4	.0
1998	2001	1994	2003	2003	2003	2003	2003	2003	2002	2002	2002

Burbank, Washington  
October 30, 2003

# Fishhook, K2H, Welland

## WSU Public Agricultural Weather System

Data Extracted:2004-04-06 15:54:37

[FISHHOOK, 2 MI S of Fishhook Park, Wa](#)

Lat:46.2 Lng:118.7 elevation:767

Dates Range From 1992-05-07 To 2004-04-05

Date mm/dd/yyyy	Precip inches	Accum Precip inches
09/01/2003	.00	.00
09/02/2003	.00	.00
09/03/2003	.00	.00
09/04/2003	.00	.00
09/05/2003	.00	.00
09/06/2003	.00	.00
09/07/2003	.09	.09
09/08/2003	.31	.40
09/09/2003	.00	.40
09/10/2003	.00	.40
09/11/2003	.00	.40
09/12/2003	.00	.40
09/13/2003	.00	.40
09/14/2003	.00	.40
09/15/2003	.00	.40
09/16/2003	.00	.41
09/17/2003	.00	.41
09/18/2003	.00	.41
09/19/2003	.00	.41
09/20/2003	.00	.41
09/21/2003	.00	.41
09/22/2003	.00	.41
09/23/2003	.00	.41
09/24/2003	.00	.41
09/25/2003	.00	.41
09/26/2003	.00	.41
09/27/2003	.00	.41
09/28/2003	.00	.41
09/29/2003	.00	.41
09/30/2003	.00	.41
10/01/2003	.00	.41
10/02/2003	.00	.41
10/03/2003	.00	.41
10/04/2003	.00	.41
10/05/2003	.00	.41
10/06/2003	.00	.41
10/07/2003	.00	.41
10/08/2003	.00	.41
10/09/2003	.00	.41
10/10/2003	.00	.41
10/11/2003	.00	.41
10/12/2003	.00	.41
10/13/2003	.00	.41
10/14/2003	.07	.48
10/15/2003	.10	.58

Burbank, Washington  
October 30, 2003

10/16/2003	.00	.58
10/17/2003	.00	.58
10/18/2003	.00	.58
10/19/2003	.00	.58
10/20/2003	.00	.58
10/21/2003	.00	.58
10/22/2003	.00	.58
10/23/2003	.00	.58
10/24/2003	.00	.58
10/25/2003	.00	.58
10/26/2003	.00	.58
10/27/2003	.00	.58
10/28/2003	.00	.58
10/29/2003	.00	.58

Data Extracted:2004-04-06 15:54:37

[K2H, 2 MI S of Eureka, Wa](#)

Lat:46.2 Lng:118.6 elevation:1009

Dates Range From 1992-05-07 To 2004-04-05

Date	Precip	Accum
mm/dd/yyyy	inches	inches
-----	-----	-----
09/01/2003	.00	.00
09/02/2003	.00	.00
09/03/2003	.00	.00
09/04/2003	.00	.00
09/05/2003	.00	.00
09/06/2003	.00	.00
09/07/2003	.13	.13
09/08/2003	.27	.40
09/09/2003	.00	.41
09/10/2003	.00	.41
09/11/2003	.00	.41
09/12/2003	.00	.41
09/13/2003	.00	.41
09/14/2003	.00	.41
09/15/2003	.00	.41
09/16/2003	.02	.43
09/17/2003	.00	.43
09/18/2003	.00	.43
09/19/2003	.00	.43
09/20/2003	.00	.43
09/21/2003	.00	.43
09/22/2003	.00	.43
09/23/2003	.00	.43
09/24/2003	.00	.43
09/25/2003	.00	.43
09/26/2003	.00	.43
09/27/2003	.00	.43
09/28/2003	.00	.43
09/29/2003	.00	.43
09/30/2003	.00	.43
10/01/2003	.00	.43
10/02/2003	.00	.43
10/03/2003	.00	.43
10/04/2003	.00	.43

Burbank, Washington  
October 30, 2003

10/05/2003	.00	.43
10/06/2003	.00	.43
10/07/2003	.00	.43
10/08/2003	.00	.43
10/09/2003	.00	.43
10/10/2003	.00	.43
10/11/2003	.05	.48
10/12/2003	.00	.48
10/13/2003	.00	.48
10/14/2003	.05	.53
10/15/2003	.13	.66
10/16/2003	.00	.67
10/17/2003	.00	.67
10/18/2003	.00	.67
10/19/2003	.00	.67
10/20/2003	.00	.67
10/21/2003	.00	.67
10/22/2003	.00	.67
10/23/2003	.00	.67
10/24/2003	.00	.67
10/25/2003	.00	.67
10/26/2003	.00	.67
10/27/2003	.00	.67
10/28/2003	.00	.67
10/29/2003	.02	.69

Data Extracted:2004-04-06 15:54:38

[WELLAND, 13 MI E of Burbank, Wa](#)

Lat:46.2 Lng:118.7 elevation:926

Dates Range From 1992-05-07 To 2004-04-05

Date	Precip	Accum
mm/dd/yyyy	inches	inches
-----	-----	-----
09/01/2003	.00	.00
09/02/2003	.00	.00
09/03/2003	.00	.00
09/04/2003	.00	.00
09/05/2003	.00	.00
09/06/2003	.00	.00
09/07/2003	.08	.08
09/08/2003	.15	.23
09/09/2003	.00	.23
09/10/2003	.00	.23
09/11/2003	.00	.23
09/12/2003	.00	.23
09/13/2003	.00	.23
09/14/2003	.00	.23
09/15/2003	.00	.23
09/16/2003	.00	.23
09/17/2003	.00	.23
09/18/2003	.00	.23
09/19/2003	.00	.23
09/20/2003	.00	.23
09/21/2003	.00	.23
09/22/2003	.00	.23
09/23/2003	.00	.23

Burbank, Washington  
October 30, 2003

09/24/2003	.00	.23
09/25/2003	.00	.23
09/26/2003	.00	.23
09/27/2003	.00	.23
09/28/2003	.00	.23
09/29/2003	.00	.23
09/30/2003	.00	.23
10/01/2003	.00	.23
10/02/2003	.00	.23
10/03/2003	.00	.23
10/04/2003	.00	.23
10/05/2003	.00	.23
10/06/2003	.00	.23
10/07/2003	.00	.23
10/08/2003	.00	.23
10/09/2003	.00	.23
10/10/2003	.00	.23
10/11/2003	.00	.24
10/12/2003	.00	.24
10/13/2003	.00	.24
10/14/2003	.06	.30
10/15/2003	.08	.38
10/16/2003	.00	.39
10/17/2003	.00	.39
10/18/2003	.00	.39
10/19/2003	.00	.39
10/20/2003	.00	.39
10/21/2003	.00	.39
10/22/2003	.00	.39
10/23/2003	.00	.39
10/24/2003	.00	.39
10/25/2003	.00	.39
10/26/2003	.00	.39
10/27/2003	.00	.39
10/28/2003	.00	.39
10/29/2003	.07	.46

Burbank, Washington  
October 30, 2003



## Juniper Dunes

### Observations and Summaries

Region

Product

VA - Roanoke CWA    Precipitation Summary   

[ROMAN Home](#)   [MesoWest Home](#)   [Weather Near Fires](#)   [Main Help](#)   [Status](#)

## Precipitation Summary for WASHINGTON

Location: WASHINGTON    Network: RAWS    Date: 1 October 2003    Hour(UTC): 22:00   

Valid 9/1/2003 15:00 through 10/1/2003 15:00 UTC

[Sort by elevation](#)

[Help](#)

### Franklin County

Station	Info	2 days	5 days	7 days	10 days	30 days
<a href="#">JUFW1</a> <a href="#">JUNIPER DUNES</a>	RAWS 951 ft	0.00	0.00	0.00	0.00	0.45

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For Questions or Comments about this page or MesoWest contact [mesowest@met.utah.edu](mailto:mesowest@met.utah.edu)

### Observations and Summaries

Region

Product

WASHINGTON    Precipitation Summary   

[ROMAN Home](#)   [MesoWest Home](#)   [Weather Near Fires](#)   [Main Help](#)   [Status](#)

## Precipitation Summary for WASHINGTON

Burbank, Washington

October 30, 2003

Location	Network	Date	Hour(UTC)	
WASHINGTON	RAWS	1	November 2003	15:00

Change Settings

Valid 10/2/2003 15:00 through 11/1/2003 15:00 UTC

[Sort by elevation](#)

[Help](#)

<b>Franklin County</b>						
Station	Info	2 days	5 days	7 days	10 days	30 days
<a href="#">JUFW1</a>	RAWS	0.00	0.07	0.07	0.07	0.26
<a href="#">JUNIPER DUNES</a>	951 ft					

---

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# Legrow

## USBR Pacific Northwest Region Hydromet System Data Access

Although the Bureau of Reclamation makes efforts to maintain the accuracy of data found in the Hydromet system databases, the data is largely unverified and should be considered preliminary and subject to change. Data and services are provided with the express understanding that the United States Government makes no warranties, expressed or implied, concerning the accuracy, completeness, usability or suitability for any particular purpose of the information or data obtained by access to this computer system, and the United States shall be under no liability whatsoever to any individual or group entity by reason of any use made thereof.

BEGIN DATA

ABEI

DATE	PP
09/01/2003	0.00
09/02/2003	0.01
09/03/2003	0.00
09/04/2003	0.00
09/05/2003	0.01
09/06/2003	0.00
09/07/2003	0.00
09/08/2003	0.12
09/09/2003	0.09
09/10/2003	0.06
09/11/2003	0.00
09/12/2003	0.00
09/13/2003	0.00
09/14/2003	0.00
09/15/2003	0.00
09/16/2003	0.00
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09/21/2003	0.00
09/22/2003	0.00
09/23/2003	0.00
09/24/2003	0.00
09/25/2003	0.00
09/26/2003	0.00
09/27/2003	0.00
09/28/2003	0.00
09/29/2003	0.00
09/30/2003	0.00
10/01/2003	0.00
10/02/2003	0.00
10/03/2003	0.00
10/04/2003	0.00
10/05/2003	0.00
10/06/2003	0.00
10/07/2003	0.00
10/08/2003	0.00
10/09/2003	0.00
10/10/2003	0.00

Burbank, Washington  
October 30, 2003

10/11/2003	0.00
10/12/2003	0.00
10/13/2003	0.00
10/14/2003	0.00
10/15/2003	0.00
10/16/2003	0.00
10/17/2003	0.00
10/18/2003	0.00
10/19/2003	0.00
10/20/2003	0.00
10/21/2003	0.00
10/22/2003	0.00
10/23/2003	0.00
10/24/2003	0.00
10/25/2003	0.00
10/26/2003	0.00
10/27/2003	0.00
10/28/2003	0.00
10/29/2003	0.00
10/30/2003	0.00

END DATA

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[DOI](#) | [Recreation.gov](#) | [FirstGov](#)

# Appendix C

## STATUS REPORT 2003 Best Available Control Measures for Columbia Plateau Agriculture January, 2004

### Summary

This report fulfills Ecology's commitment to review and report annually on the use of Best Available Control Measures (BACM) in the Columbia Plateau. Ecology committed to provide such a report to the Environmental Protection Agency (EPA) in the revised Natural Events Action Plan (NEAP).

The level of Conservation Reserve Program (CRP) and Best Management Practice (BMP) use has increased from 68 to 70 percent in the priority counties of the Columbia Plateau. Seventy percent of the total farmable acres in these counties are now part of a United States Department of Agriculture (USDA) conservation program, use one of the minimum till practices, or contain 15-30% residue. Washington State finds this level of CRP and BMP implementation fulfills BACM criteria.

### Background

EPA issued the policy on "Areas Affected by PM-10 Natural Events," or the Natural Events Policy (NEP), on May 30, 1996. Under the NEP, ambient PM<sub>10</sub> concentrations raised by unusually high winds may be treated as uncontrollable natural events when the dust originates from nonanthropogenic sources, or when the dust originates from contributing anthropogenic sources controlled with BACM. After natural events cause the PM<sub>10</sub> concentration to violate the PM<sub>10</sub> National Ambient Air Quality Standard, the NEP allows a state to develop a natural events action plan (NEAP) to deal with future exceedances.

A number of exceedances of the 24-hour standard for PM<sub>10</sub> were recorded in eastern Washington in the late 1980s and early 1990s. Examination of the exceedances showed a close correlation to high wind events and upwind agricultural fields were identified as the chief source of the wind-blown dust. The Washington State Department of Ecology (Ecology) developed the *Natural Events Action Plan for High Wind Events in the Columbia Plateau* in March 1998, and submitted it to Region 10 EPA, in accordance with the NEP.

The 1998 NEAP included Ecology's commitment to re-evaluate the NEAP at the end of 2001. The 2001 evaluation is embodied in the revised NEAP submitted to EPA in July, 2003. Several changes were incorporated into the revised NEAP including Ecology's commitment to review and report to EPA annual BACM implementation.

### BACM Definition and Tracking Mechanism

The revised NEAP defines BACM for agricultural fields as USDA Conservation Title Programs supplemented by incentive based implementation of wind erosion conservation practices or BMPs. In short, the BACM definition recognizes the critical role of agricultural agencies in defining and instituting BACM on the Columbia Plateau. The primary agencies include those  
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directly reporting to the USDA such as the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), and the Agricultural Research Service (ARS). Additional agricultural agencies include the Washington State Conservation Commission, local Conservation Districts and various agriculture related departments of the Washington State University. The NEAP acknowledges the combined expertise of these agencies and relies on the various programs of these agencies in implementing the conservation practices that constitute BACM.

For defining BACM, the NEAP uses the USDA's CRP program and the wind erosion BMPs encouraged by NRCS and/or the Columbia Plateau Wind Erosion /Air Quality Project (referred to as the CP3). Use of these practices is tracked by the Conservation Technology Information Center's (CTIC), Core 4 program. The CTIC's Core 4 program tracks conservation tillage (No-Till, Ridge-Till, Mulch-Till) and conventional tillage (0-15% and 15-30% residue) practices and CRP enrollment on a county by county basis.

A full discussion on Ecology's BACM definition and tracking mechanism may be found in the revised NEAP.

### **STATUS REPORT: 2003 BACM**

The 2003 NEAP determined BACM is implemented in the Columbia Plateau based on 68 percent use of conservation practices. Attachment 1 shows the implementation of conservation practices for the seven priority counties, as defined in the NEAP. These counties have the lowest rainfall and thus are the most susceptible to windblown dust.

Data evaluated is for the year 2002, the most recent year for which data is available. The evaluation includes data on CRP, minimum tillage, and residue remaining on the field for the lowest rainfall counties of the Columbia Plateau - counties Ecology finds to be high priority in terms of addressing wind blown dust. Ecology identified Adams, Douglas, Franklin, Grant and Lincoln as priority counties in the 1998 NEAP. Benton and Walla Walla counties were added to the list more recently. The Core 4 data shows 70 percent of the priority counties' total farmable acres are in a USDA conservation program, use one of the minimum till practices, or contain 15-30% residue.

Similarly, attachment 2 shows the implementation of conservation practices for all counties of the Columbia Plateau NEAP. The data shows 71 percent use of conservation practices throughout the Columbia Plateau.

The results are consistent with the 2003 NEAP determination and show that we continue to meet BACM requirements.

### **Additional Efforts to Enhance Wind Erosion Conservation Measures**

Ecology is continuing to work with the various agricultural agencies to enhance the use of conservation practices in the Columbia Plateau. In doing so, implementation of wind erosion conservation measures is enhanced beyond that tracked and reported by the Core 4. For example, Ecology contracted with the Benton Conservation District (BCD) for tasks associated with a special funds grant from the EPA. The goal of the project is twofold: to provide immediate, temporary treatment to critical areas and to promote other options for longer-term or permanent wind erosion control measures identified in the CP3.

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The first goal is addressed by the purchase of a straw mulcher and cost share straw for use in the Horse Heaven Hills of Benton County. To date, the straw mulcher has been used by eight different farm operators. They have applied roughly 556 tons of grass straw on about 275 acres of "hot spots" (highly erodible areas). An additional 150 tons was applied without project-supplied cost-share. In total, roughly 706 tons of straw were applied to highly erodible areas in an effort to protect against the occurrence of windblown dust.

Education and outreach will address the second goal. The outreach will focus on installing wind erosion conservation buffers as a longer-term solution to wind erosion. Ecology, the BCD, the NRCS and the CTIC will conduct the outreach in the winter of 2004.

Moreover, Ecology's Water Quality Program recently awarded two funding requests that will enhance wind erosion control measures on the Columbia Plateau. The objectives of both water and wind erosion control are to prevent or minimize soil particle detachment and entrainment by the medium (air or water.) Consequently, conservation practices to reduce the effects from both types of erosion are substantially similar. For this reason, air quality is improved when conservation measures to reduce water erosion are increased.

The Water Quality Program awarded the Spokane County Conservation District a \$2,000,000 low interest State Revolving Fund loan for its Eastern Washington Conservation Tillage Program. This program promotes the implementation of direct seeding in Whitman and Asotin Counties, resulting in decreased erosion and improved water infiltration. The low interest loans provided to agricultural producers will facilitate the purchase of direct seeding equipment, making the transition to conservation tillage economically feasible. Direct seeding is recognized by both the CP3 and the NRCS as an effective wind erosion control measure.

Similarly, the Franklin Conservation District was awarded a \$250,000 Centennial Clean Water Fund grant to install perennial wheat erosion buffers. This project is designed to address water and soil runoff from fallow fields in dryland farm areas of Franklin and Whitman Counties. Erosion events increase sediments and contaminants in eastern Washington streams. Perennial wheat will be evaluated as an erosion control method, compared to conventional wheat/fallow and CRP cultivations. Conservation buffers, too, are recognized by both the CP3 and the NRCS as an effective wind erosion control measure.

## **Conclusion**

Ecology and the identified agricultural agencies continue to carry out the Columbia Plateau NEAP. Ecology finds the level of CRP and BMP implementation identified in this report continues to fulfill BACM criteria. Ecology will continue to document natural events and flag exceedances when justified under the terms of the 2003 NEAP.

## 2003 BACM Status Report: Columbia Plateau

		BACM (component 1)	BACM (component 2) - ADDITIONAL CONSERVATION MEASURES APPLIED				BACM total (components 1 & 2)	
		CRP	No-Till	Ridge-Till	Mulch-Till	15-30% Residue.	acres	% acres
<b>Adams</b>								
HEL withdrawn from production	212,524	212,524					212,524	100.00%
Fallow acres	226,183		11,878	0	11,878	11,397	35,153	15.54%
Planted acres	377,167		31,562	2,675	43,537	42,688	120,462	31.94%
Total farmable acres	815,874	26%	43,440	2,675	55,415	54,085	368,139	45.12%
<b>Asotin</b>								
HEL withdrawn from production	28,648	28,648					28,648	100.00%
Fallow acres	13,754		3,000	0	2,000	8,754	13,754	100.00%
Planted acres	31,035		650	0	9,235	11,650	21,535	69.39%
Total farmable acres	73,437	39%	3,650	0	11,235	20,404	63,937	87.06%
<b>Benton</b>								
HEL withdrawn from production	75,019	75,019					75,019	100.00%
Fallow acres	131,488		3,550	0	0	67,979	71,529	54.40%
Total planted acres	232,100		2,488	0	2,212	124,202	128,902	55.54%
Total farmable acres	438,607	17%	6,038	0	2,212	192,181	275,450	62.80%
<b>Chelan</b>								
HEL withdrawn from production	1,373	1,373					1,373	100.00%
Fallow acres	391		0	0	0	391	391	100.00%
Total planted acres	391		0	0	0	391	391	100.00%
Total farmable acres	2,155	64%	0	0	0	782	2,155	100.00%
<b>Columbia</b>								
HEL withdrawn from production	38,269	38,269					38,269	100.00%
Fallow acres	28,253		8,467	0	5,651	0	14,118	49.97%
Total planted acres	119,622		27,481	0	3,096	25,483	56,060	46.86%
Total farmable acres	186,144	21%	35,948	0	8,747	25,483	108,447	58.26%
<b>Douglas</b>								
HEL withdrawn from production	187,733	187,733					187,733	100.00%
Fallow acres	245,153		0	0	15,514	100,000	115,514	47.12%
Total planted acres	183,770		4,929	0	53,685	75,275	133,889	72.86%
Total farmable acres	616,656	30%	4,929	0	69,199	175,275	437,136	70.89%
<b>Ferry</b>								
HEL withdrawn from production	1,091	1,091					1,091	100.00%
Fallow acres	500		0	0	0	200	200	40.00%
Total planted acres	4,650		0	0	0	2,950	2,950	63.44%
Total farmable acres	6,241	17%	0	0	0	3,150	4,241	67.95%
<b>Franklin</b>								
HEL withdrawn from production	104,417	104,417					104,417	100.00%
Fallow acres	63,000		0	0	0	59,100	59,100	93.81%
Total planted acres	269,900		0	0	9,950	121,977	131,927	48.88%
Total farmable acres	437,317	24%	0	0	9,950	181,077	295,444	67.56%
<b>Garfield</b>								
HEL withdrawn from production	44,527	44,527					44,527	100.00%
Fallow acres	45,545		12,780	0	11,727	14,617	39,124	85.90%
Total planted acres	111,794		38,001	0	32,637	9,038	79,676	71.27%
Total farmable acres	201,866	22%	50,781	0	44,364	23,655	163,327	80.91%
<b>Grant</b>								
HEL withdrawn from production	60,747	60,747					60,747	100.00%
Fallow acres	102,000		1,020	0	24,480	60,180	85,680	84.00%
Total planted acres	342,700		5,310	0	59,290	101,340	165,940	48.42%

		CRP	No-Till	Ridge-Till	Mulch-Till	15-30% Residue.	acres	% acres
<b>Kittitas</b>								
HEL withdrawn from production	3,294	3,294					3,294	100.00%
Fallow acres	3,100		0	0	0	2,480	2,480	80.00%
Planted acres	18,300		0	0	0	5,738	5,738	31.36%
Total farmable acres	24,694	13%	0	0	0	8,218	11,512	46.62%
<b>Klickitat</b>								
HEL withdrawn from production	57,925	57,925					57,925	100.00%
Fallow acres	22,028		0	0	0	16,080	16,080	73.00%
Planted acres	69,451		30,963	0	0	31,003	61,966	89.22%
Total farmable acres	149,404	39%	30,963	0	0	47,083	135,971	91.01%
<b>Lincoln</b>								
HEL withdrawn from production	86,330	86,330					86,330	100.00%
Fallow acres	239,832		23,983	0	83,941	119,916	227,840	95.00%
Total planted acres	483,639		47,182	0	175,071	230,057	452,310	93.52%
Total farmable acres	809,801	11%	71,165	0	259,012	349,973	766,480	94.65%
<b>Okanogan</b>								
HEL withdrawn from production	4,057	4,057					4,057	100.00%
Fallow acres	7,151		0	0	0	3,933	3,933	55.00%
Total planted acres	25,425		0	0	0	18,372	18,372	72.26%
Total farmable acres	36,633	11%	0	0	0	22,305	26,362	71.96%
<b>Pend Oreille</b>								
HEL withdrawn from production	0	0%					0	NA
Fallow acres	184		0	0	0	0	0	0.00%
Total planted acres	641		0	0	0	315	315	49.14%
Total farmable acres	825	0%	0	0	0	315	315	38.18%
<b>Spokane</b>								
HEL withdrawn from production	32,033	32,033					32,033	100.00%
Fallow acres	225,203		11,260	0	45,041	135,122	191,423	85.00%
Total planted acres	224,672		17,133	0	53,535	104,542	175,210	77.98%
Total farmable acres	481,908	7%	28,393	0	98,576	239,664	398,666	82.73%
<b>Stevens</b>								
HEL withdrawn from production	3,552	3,552					3,552	100.00%
Fallow acres	6,000		0	0	0	4,020	4,020	67.00%
Total planted acres	29,100		711	0	7,061	15,699	23,471	80.66%
Total farmable acres	38,652	9%	711	0	7,061	19,719	31,043	80.31%
<b>Walla Walla</b>								
HEL withdrawn from production	148,578	148,578					148,578	100.00%
Fallow acres	120,084		12,000	0	60,042	33,023	105,065	87.49%
Total planted acres	295,888		29,343	0	99,662	91,884	220,889	74.65%
Total farmable acres	564,550	26%	41,343	0	159,704	124,907	474,532	84.05%
<b>Whitman</b>								
HEL withdrawn from production	135,755	135,755					135,755	100.00%
Fallow acres	172,000		30,000	0	20,000	61,000	111,000	64.53%
Total planted acres	733,170		90,650	0	96,000	281,800	468,450	63.89%
Total farmable acres	1,040,925	13%	120,650	0	116,000	342,800	715,205	68.71%
<b>Yakima</b>								
HEL withdrawn from production	53,727	53,727					53,727	100.00%
Fallow acres	9,175		0	0	0	3,853	3,853	41.99%
Total planted acres	66,770		0	0	4,224	16,903	21,127	31.64%
Total farmable acres	129,672	41%	0	0	4,224	20,756	78,707	60.70%
<b>SUMMARY</b>								
Total farmable acres	6,560,808	1,279,599	444,341	2,675	929,469	2,013,352	4,669,436	
		20%	7%	0%	14%	31%		71%

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## 2003 BACM Status Report: Columbia Plateau Priority Counties

		<b>BACM (component 1)</b>	<b>BACM (component 2) - ADDITIONAL CONSERVATION MEASURES APPLIED</b>				<b>BACM total (components 1 &amp; 2)</b>	
		<b>CRP</b>	<b>No-Till</b>	<b>Ridge-Till</b>	<b>Mulch-Till</b>	<b>15-30% Residue.</b>	<b>acres</b>	<b>% acres</b>
<b>Adams</b>								
HEL withdrawn from production	212,524	212,524					212,524	100.00%
Fallow acres	226,183		11,878	0	11,878	11,397	35,153	15.54%
Planted acres	377,167		31,562	2,675	43,537	42,688	120,462	31.94%
Total farmable acres	815,874	<b>26%</b>	43,440	2,675	55,415	54,085	368,139	<b>45.12%</b>
<b>Benton</b>								
HEL withdrawn from production	75,019	75,019					75,019	100.00%
Fallow acres	131,488		3,550	0	0	67,979	71,529	54.40%
Total planted acres	232,100		2,488	0	2,212	124,202	128,902	55.54%
Total farmable acres	438,607	<b>17%</b>	6,038	0	2,212	192,181	275,450	<b>62.80%</b>
<b>Douglas</b>								
HEL withdrawn from production	187,733	187,733					187,733	100.00%
Fallow acres	245,153		0	0	15,514	100,000	115,514	47.12%
Total planted acres	183,770		4,929	0	53,685	75,275	133,889	72.86%
Total farmable acres	616,656	<b>30%</b>	4,929	0	69,199	175,275	437,136	<b>70.89%</b>
<b>Franklin</b>								
HEL withdrawn from production	104,417	104,417					104,417	100.00%
Fallow acres	63,000		0	0	0	59,100	59,100	93.81%
Total planted acres	269,900		0	0	9,950	121,977	131,927	48.88%
Total farmable acres	437,317	<b>24%</b>	0	0	9,950	181,077	295,444	<b>67.56%</b>
<b>Grant</b>								
HEL withdrawn from production	60,747	60,747					60,747	100.00%
Fallow acres	102,000		1,020	0	24,480	60,180	85,680	84.00%
Total planted acres	342,700		5,310	0	59,290	101,340	165,940	48.42%
Total farmable acres	505,447	<b>12%</b>	6,330	0	83,770	161,520	312,367	<b>61.80%</b>
<b>Lincoln</b>								
HEL withdrawn from production	86,330	86,330					86,330	100.00%
Fallow acres	239,832		23,983	0	83,941	119,916	227,840	95.00%
Total planted acres	483,639		47,182	0	175,071	230,057	452,310	93.52%
Total farmable acres	809,801	<b>11%</b>	71,165	0	259,012	349,973	766,480	<b>94.65%</b>
<b>Walla Walla</b>								
HEL withdrawn from production	148,578	148,578					148,578	100.00%
Fallow acres	120,084		12,000	0	60,042	33,023	105,065	87.49%
Total planted acres	295,888		29,343	0	99,662	91,884	220,889	74.65%
Total farmable acres	564,550	<b>26%</b>	41,343	0	159,704	124,907	474,532	<b>84.05%</b>
<b>SUMMARY</b>								
Total farmable acres	4,188,252	875,348	173,245	2,675	639,262	1,239,018	2,929,548	
		<b>21%</b>	<b>4%</b>	<b>0%</b>	<b>15%</b>	<b>30%</b>		<b>70%</b>