January 8, 2016 – Final Version

BONE POINT PRESCRIBED FIRE

WILDFIRE CONVERSION REVIEW

Wildfire Date: October 10, 2015

Executive Summary

The 814-acre Bone Point prescribed fire units located on the Umatilla National Forest, North Fork John Day Ranger District, in Grant County, Oregon were ignited on October 5, 2015. Grass and ponderosa pine timber litter were the primary fuels within the two planned burn units. Objectives were to enhance wildlife habitat for big game and reduce hazardous fuels to reduce the probability of uncharacteristic wildfire in the area. To achieve objectives the burn was scheduled to be "in season" when conditions were warm and dry. Prep work was completed to reduce fuels in problem areas along the unit boundaries.

Ignitions were initiated on Monday, Oct 5 in the first unit and were expected to be concluded by Wednesday, October 7 on both units. During ignition on Monday, a nearby wildfire was detected and required staffing from the burn. The first unit was completed for 225 acres. On Tuesday, the wildfire increased in size and delayed the start of ignition on the second, 589 acre, unit by a half day until the wildfire situation was stabilized. Ignition continued on Wednesday but was curtailed due to higher fuel moistures from rainfall that continued into Thursday.

On Thursday, it became apparent that windy conditions were forecasted for Saturday. With drying conditions later on Thursday, the open line of fire within the burn unit began to move in the interior of the burn unit. Proactive steps were planned to stay ahead of the fire movement via perimeter blacklining and hose lay installation. These holding actions continued into Friday and Saturday as it became more clear that a cold front passage with gusty winds was predicted for Saturday afternoon. As winds increased on Saturday afternoon, a group of trees interior to the burn torched and several spot fires occurred, one of which grew rapidly in the wind on Forest Service land. In attempt to contain this spot fire, additional resources were ordered, including single engine air tankers. The prescribed fire was declared an escaped fire and the spot fire was contained at 80 acres at the end of the Sunday operational shift.

Per policy, the Umatilla National Forest assembled a review team to learn from this event, provide recommendations to help prevent future escaped prescribed burns and provide feedback to the Forest's fuels program to improve prescribed fire planning and implementation.

The review found that the wildfire declaration element within the burn plan was worded with a stricter interpretation than the Interagency Prescribed Fire Planning and Implementation Procedures Guide. In essence, the wording constrained the burn boss to the need to catch the fire within the current burn period versus the Guide, which indicates the next burn period in order to prevent declaration of a wildfire. Had the burn plan utilized verbiage of the Implementation Guide, the burn boss and trainee would have had more time to secure the fire by the end of the next burn period and likely would not have needed to declare the spot fire a wildfire.

The burn boss and trainee also based their decision on other criteria listed in the burn plan, "cost for control exceed available project funds." This should not have been a factor in declaring the spot fire a wildfire, however, it was clearly stated in the burn plan they must do so.

Delays in ignition of the two units as a result of the wildfire and rain caused the burn unit to be in a vulnerable, partially burned condition longer than anticipated which increased the probability of its exposure to a higher fire behavior potential day, which did occur.

The review also uncovered the need for minor modifications to the burn plan which can be traced back to the Umatilla National Forest template and the recommendation is to revise and update the Forest template.

Considering the historically dry conditions and minimal moisture for the season, this burn was very successful. All personnel implemented the burn plan in a safe manner and achieved success with the objectives. Had the burn plan criteria in Element 18 not directed the burn boss to declare a wildfire, they would have successfully suppressed what would typically be considered a spot fire, and the Bone Point prescribed fire would not likely have been declared a wildfire.

Background

The Umatilla NF is currently implementing a strategy to increase the pace and scale of landscape restoration across the forest. The primary objectives are to prepare the landscapes for future disturbance through strategic treatment to protect values at risk from wildfire, protect and restore unique habitats, and significantly reduce overstocked forests that are vulnerable to uncharacteristic fire and insect attack. Given current budgets and capabilities, the process of mechanically treating landscapes is far too slow to keep up with annual growth of biomass (fuel) across the forest. The reality is that mindful application of prescribed fire within these landscapes is a viable and effective, longer term solution that can affect 2 to 4 times more acres for the same costs. With this realization, it is the goal of the Umatilla NF to burn 20,000 to 40,000 acres per year with prescribed fire. Increased utilization of late summer and early fall burn windows would be required in order to meet this strategic goal.

As we implement this strategy, the past few burn seasons; all four of the Ranger Districts on the Umatilla NF have successfully implemented landscape prescribed fire projects across 20,000 acres. Starting in September of this year, the Heppner District successfully implemented 2,500 acres of aerial ignition burning on September 21-23. Shortly thereafter, burning was curtailed due to drier conditions and loss of prescribed fire funding to cover wildfire costs. Once the new fiscal year began, funding for prescribed burning was available and North Fork John Day District looked to burn Bone Point as conditions became favorable. On Monday, October 5, the District began implementation of the Bone Point prescribed burning project.

Project Location

The Bone Point Prescribed fire project is located in the North Fork John Day District of the Umatilla National Forest (UMF) within Region 6 of the USDA Forest Service. It is in the north-central portion of Grant County approximately 11 miles south-southwest of Ukiah, OR and about 3 miles west-southwest of Dale, OR. It is on the south side of the North Fork John Day river canyon just downriver from the confluence with Camas Creek. See figures 1, 2, and 3.

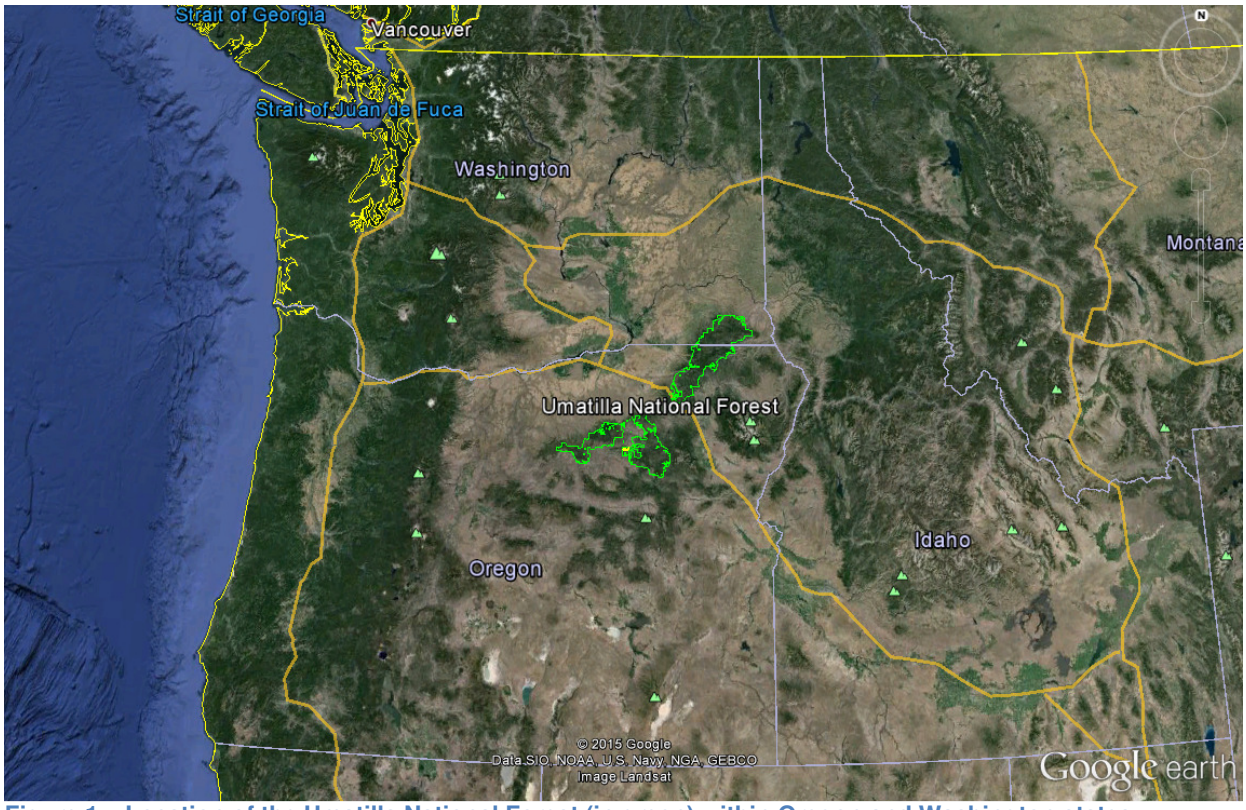

Figure 1 – Location of the Umatilla National Forest (in green) within Oregon and Washington states.

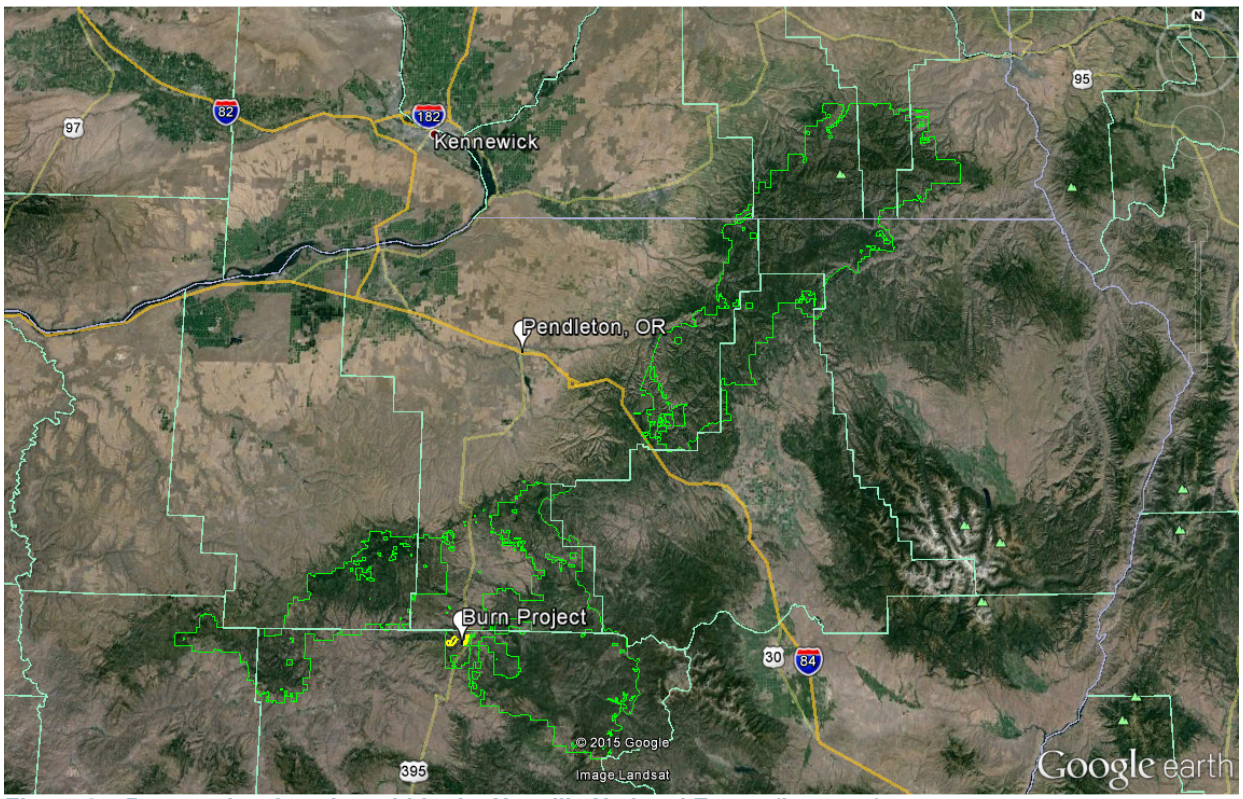

Figure 2 – Burn project location within the Umatilla National Forest (in green).

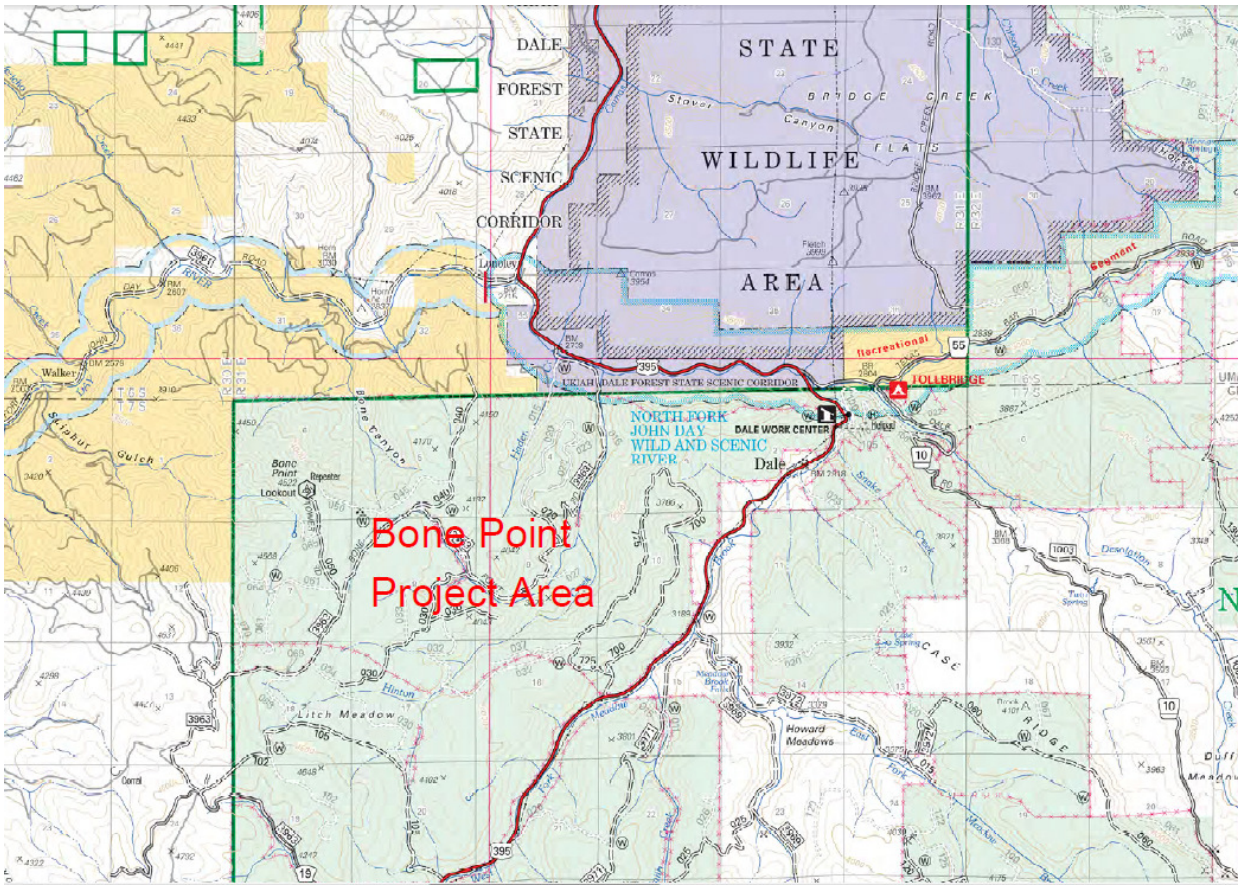

Figure 3 – Forest map showing prescribed fire project area location.

Project Details

The Bone Point prescribed fire is part of a larger project area known as the Meadowbrook FTO. The project area is a broad ridgetop that rolls off to the south and east with steep slopes, the remains of a basaltic plateau. Several swales and streams dissect the lower slopes, joining to form West Fork Meadow Brook Creek on the south and Hinton Creek on the northeast. Both streams eventually flow into the North Fork John Day River, approximately 4 miles northeast of the project area. Private lands are adjacent to the unit on the south end and west end.

The project area is a warm-dry plant association, primarily ponderosa pine/Douglas-fir over-stories with grass and shrub under-stories. Stand structure is mostly stem exclusion, open canopy with some young forest with multiple stories.

The project area was broken up into seven smaller burn blocks totaling 3,687 acres, ranging from 128 to approximately 900 acres in size. The units involved in the Bone Point prescribed fire are units A, C, and F. See figures 4 and 5. Boundaries for these burn blocks are mainly open and closed roads but some fire lines will also need to be installed prior to ignition of units. Access into the project area is excellent for ATV's, Engines, and other types of equipment.

Past project work includes 445 acres of timber sale units that were harvested in 2008 and 2009. Treatments following timber harvest were piling of slash and burning of piles in 2010. Portions of the project area were also under-burned in 1994, including units A and C.

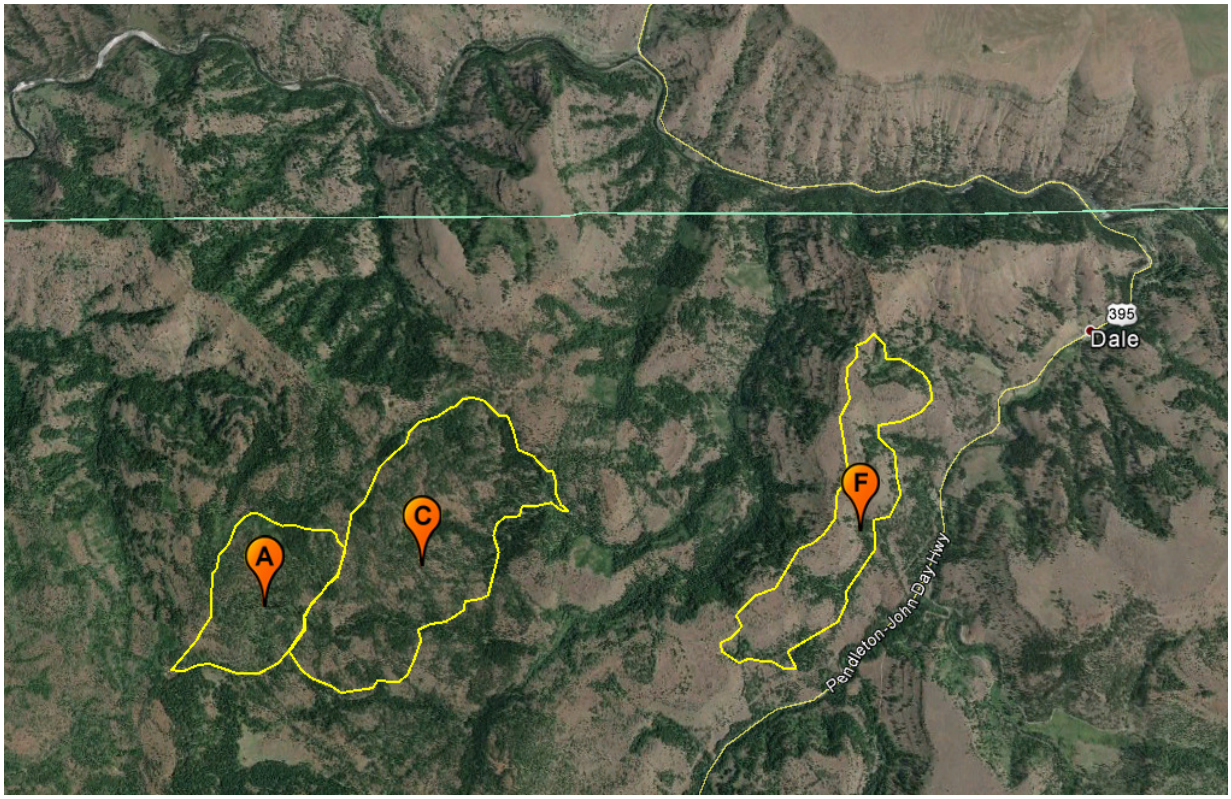

Figure 4 – Aerial imagery showing prescribed fire units.

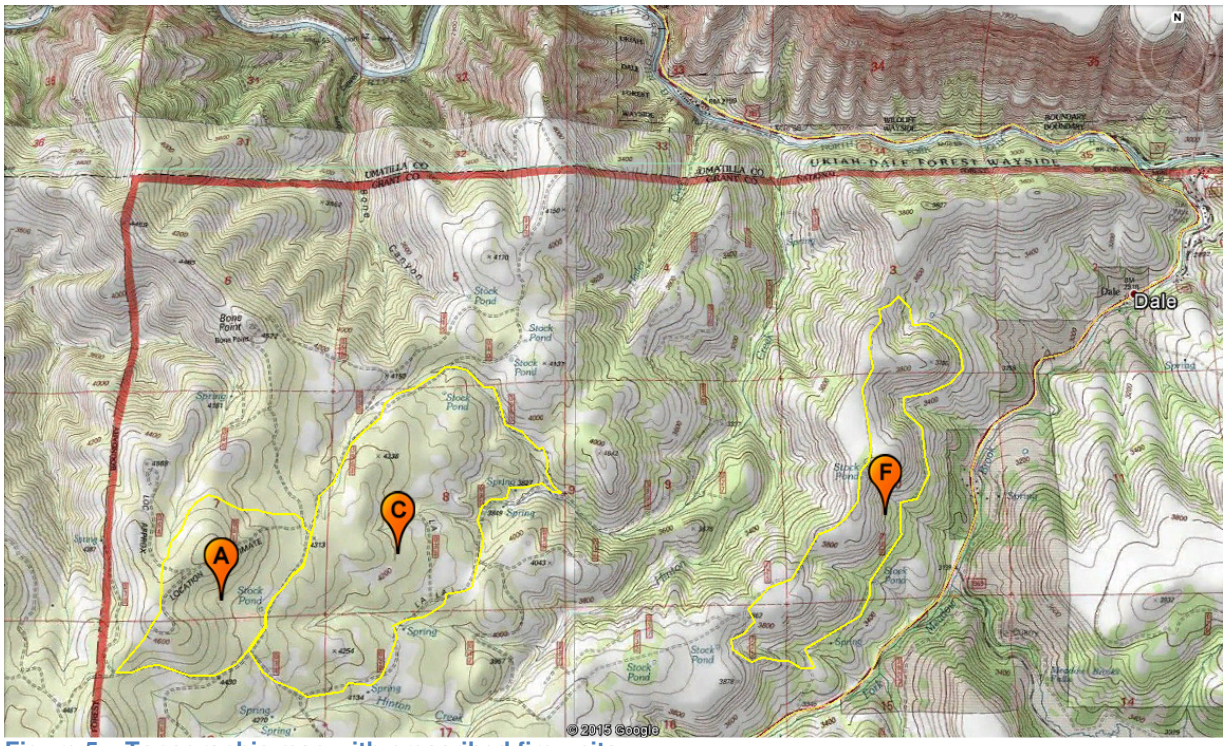

Figure 5 – Topographic map with prescribed fire units.

Socio/Political Concerns - The area of the project is fairly remote and smoke from burning in this area is not typically an issue for smoke sensitive receptor areas or large populations of people. Burning was taking place during the rifle deer hunting season, however, no formal closures were anticipated during the burn. Coordination occurred with the cattle grazing permittee where the units are located and arrangements were made to forego grazing for several seasons in the area of the burn, before and after the burn to maximize restorative effects from the burning.

Goals/Objectives – The goals for this prescribed burn project were to provide high levels of potential habitat effectiveness and high quality forage for big game species, reduce the probability of uncharacteristic wildfire, and improve the health and vigor of the dry forests. Rocky Mountain Elk Foundation contributed funds to support this project. The resource and prescribed fire objective for the Bone Point prescribed burn are as follows:

1. <u>Resource Objectives</u>
    a. Restore natural ecological systems to reduce potential uncharacteristically intense wildfire.
    b. Move the project area back into condition class one (within the historical range of variation).
    c. Retain fuel loads in the 0-3" size class to less than 9 tons per acre (Forest Plan standard).

2. <u>Prescribed Fire Objectives</u>
    a. Provide for public and firefighter safety.
    b. Maintain flame lengths below 4 feet.
    c. Detect and suppress any spot fires outside the burn unit.

Fuels – the fuels to be burned are both grass and timber litter fuels with some minor areas of deciduous brush. The burn plan specified fuel models TL3 and GR1, shown below in figures 6 and 7.

Figure 6 - Grass fuel model in unit C.

TL3 (183)

Moderate Load Conifer Litter

Figure 7 - Timber litter fuel model

Prescription - Both environmental and fire behavior prescriptions are used in the burn plan. The burn plan is set up for late summer, fall, or spring burning, however, spring burning typically has a very small window due to the short timeframe between snow off and green up. Below are the specified parameters:

The environmental prescription:

	LOW	**HIGH**
1 HR Fuel Moisture (%)	12	4
10 HR Fuel Moisture (%)	13	5
100 HR Fuel Moisture (%)	14	6
Live Fuel Moisture (%)	300	30
Relative Humidity (%)	65	15
Temperature (F)	35	85
20 Ft. Windspeed (mph)	0	30

The fire behavior prescription:

Representative Fuel Model	TL3/GR1	
Representative Slope	20%	
Fire Spread Direction	Upslope	
	LOW	**HIGH**
Flame Length (ft)	.5 feet	4 feet
Rate of Spread (ch/hr)	2 chains/hr	11 chains/hr
Scorch Height (ft)	0 feet	2 feet

Spotting Distance (miles)	0 miles	.4 miles
Probability of Ignition	25%	75%

The Plan – Beginning Monday, October 5, the plan was to begin burning on Unit A and C and be completed mid-week. Unit F was planned to be deferred until additional moisture, followed by some drying occurred due to heavier fuel loading and steeper terrain.

What Occurred

Wednesday, September 23 – A meeting occurred between burn boss, agency administrator and fire management officer to discuss he planned burn and complete the Agency Administrator Ignition Authorization. This meeting led to a shared understanding of objectives, risks, prescription, contingency resources, and NEPA consistency.

Monday, October 5 - First day of ignition on the prescribed fire units. Plan was to ignite 225 acres of unit A. Briefing was completed and test fires were successful, with ignition of the units continuing throughout the day. Two ignition groups ignited throughout the day, lighting strips of approximately 2-3 chains in width off the main fire edge.

1250 - Reports came into the RX burn boss of a new start near the prescribed fire to the NE. Initial reports were that it was a spot fire from the prescribed burn. Two personnel responded to confirm/locate the new incident. Drift smoke from the prescribed burn made the smoke from the reported new fire hard to locate.

1545 - One of the two personnel confirmed the new start and requested designated IA resource (T6 engine) to respond. This incident became the Haden Creek fire. This fire was about 2 miles from the prescribed fire and, based on the conditions, there was little possibility this fire was a spot fire.

1630 - Another 5-person squad responded to the Haden Creek fire.

1730 - Ignitions on the prescribed fire unit were completed.

1900 - Resources returned to station from the prescribed fire. The Haden Creek fire was 100% lined at 0.3 acres and stable for the night, resources returned back to station.

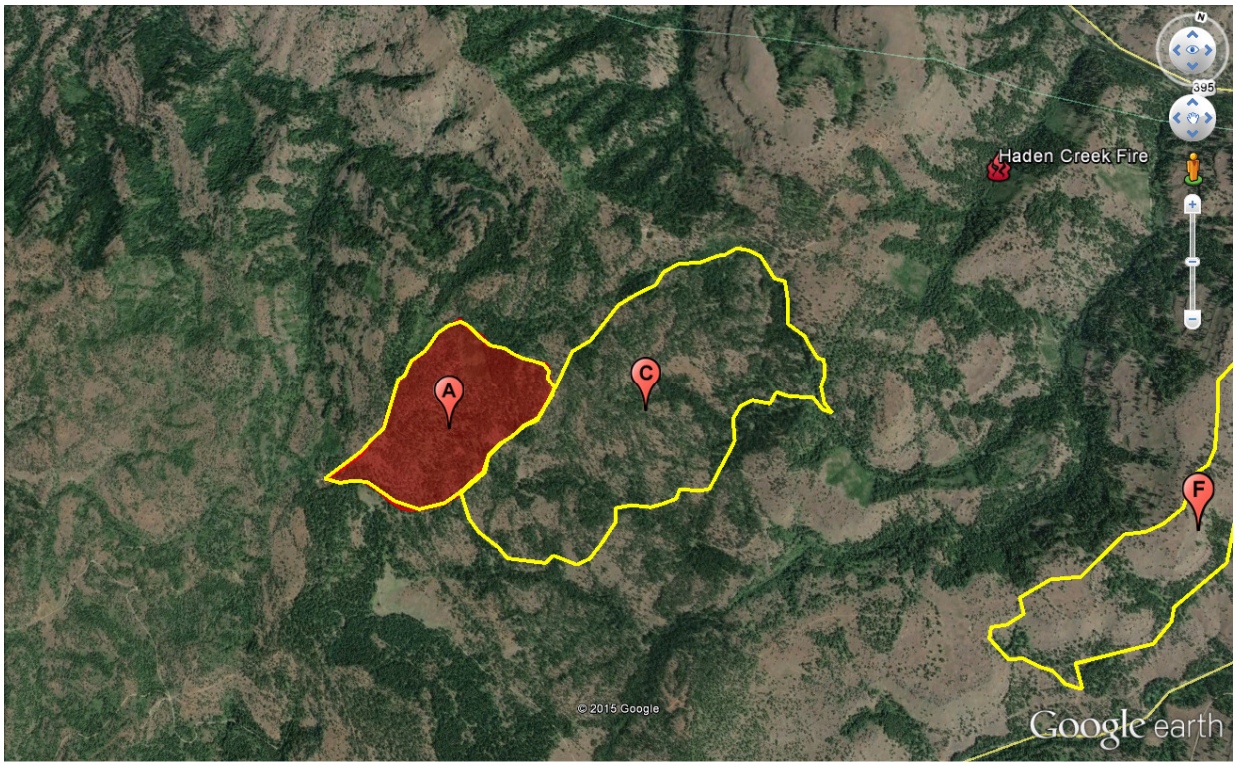

Figure 8 - Unit A completed and Haden Creek wildfire at end of shift Monday.

Tuesday, October 6 - Prescribed fire personnel briefed on the daily plan to start unit C for 589 acres. Overhead positions remained the same.

0800 - Resources arrived on scene of the burn unit. The Haden Creek fire requested additional resources as the fire had jumped the line and had grown in size. A type 6 engine responded at the time of the request.

1030 - Additional resources consisting of a type 4 IC, a Type 6 engine, and a 14 person hand crew were sent to the wildfire. The burn boss decided to hold off ignition of unit C until the Haden Creek fire was sufficiently stabilized. While waiting for the Haden Creek fire to be fully stabilized, prescribed fire personnel identified a smaller portion of the unit to ignite that afternoon.

1300 - Prescribed fire personnel briefed on the new plan of burning approximately 166 acres, splitting it off the larger unit using an UTV with tank and skidgine to install a wet line to be used to burn off. Test fire was initiated and successful, and ignition continued.

Figure 9 – Wet lining from northwest to southeast in preparation for iginition on Tuesday afternoon.

1720 - A spot fire located off the wet line occurred (still in original burn unit) and was secured by engines, skidgine, and UTV for the night.

1800 - Ignitions for the day were completed.

2000 - Resources released back to the district. Haden Creek fire, at about 3 acres, is lined, plumbed, and partially mopped-up.

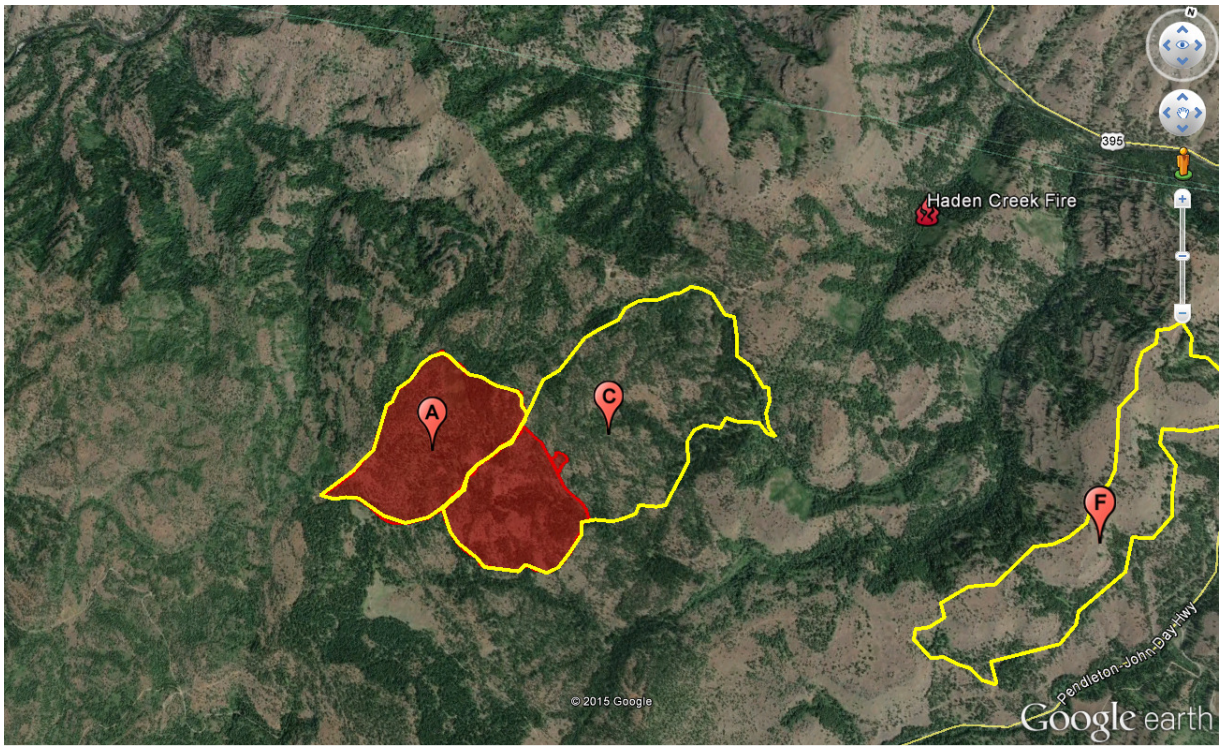

Figure 10 - Burned area in Unit C, including small slop over, at end of shift Tuesday.

Wednesday, October 7 - Resources briefed on days plan to continue with ignitions on the remaining portion of the unit originally planned for the day before. Light rain was predicted for the afternoon, so ignitions began earlier in the day with the plan to finish before the rain. Test fire was satisfactory and ignitions of the unit began.

1515 - Ignitions stopped due to unfavorable wet conditions; the burn was experiencing steady light rain at this time. Resources went into patrol mode for remainder of the shift.

1800 - All resources released back to the district. Haden creek fire contained.

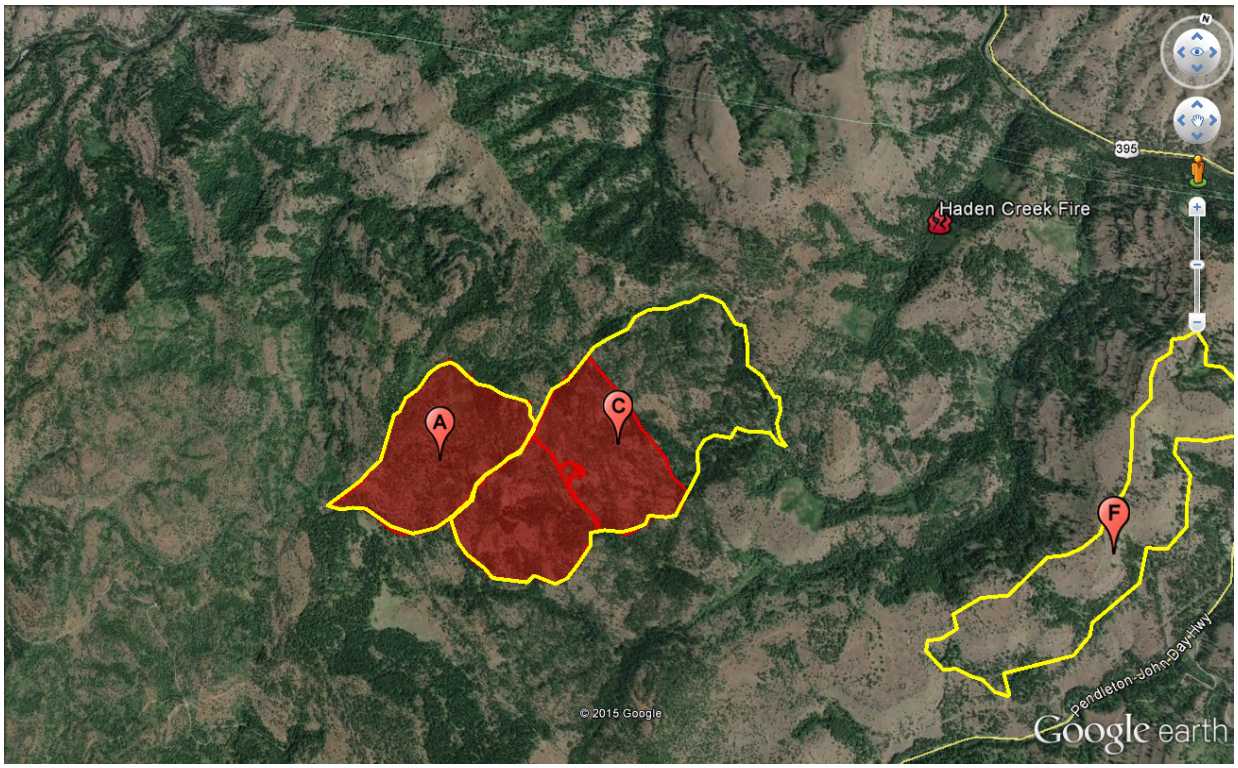

Figure 11 - Burned area at end of shift Wednesday.

Thursday, October 8 - Prescribed fire management personnel determined that ignitions would not occur due to the rain the night before. Limited resources were on scene to monitor and hold the existing burn. Prescribed fire edges within the unit were determined to approximately where they were left the day before, with some creeping and smoldering noted in the middle of the unit with flame lengths less than 1 foot in length and spread rates of less than 1 chain/hour.

1700 - All resources released back to station.

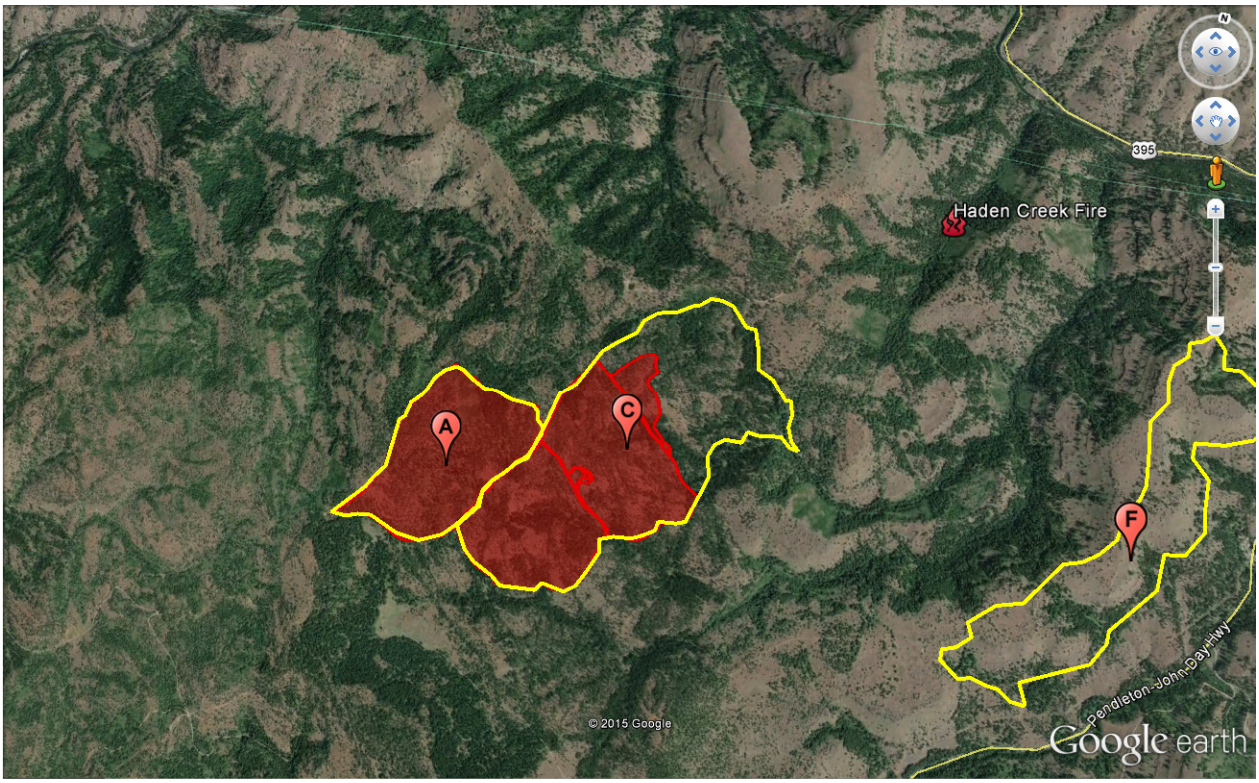

Figure 12 - Burned area at end of shift Thursday.

Friday, October 9 - Resources briefed on plan to secure the fire edge prior to the arrival of a predicted cold front and associated winds on Saturday. Initially, direct attack methods were utilized to secure the fire edge. Fire activity in the interior increased as the morning progressed, making direct tactics ineffective, mainly due to torching and spotting. Indirect options within the unit proved ineffective as well.

Mid-afternoon - Plans changed to blacklining the road from fires edge to the north to help in holding at the road. Resources briefed and a test fire was satisfactory.

1818 – Blacklining progressed to the N corner, but conditions to continue burning became unfavorable due to higher fine fuel moistures. Throughout the burn period, the fire continued progressing to the north and east within the unit, covering a "considerable distance" within the unit.

1930 – As darkness fell, personnel were disengaged and all resources released back to station.

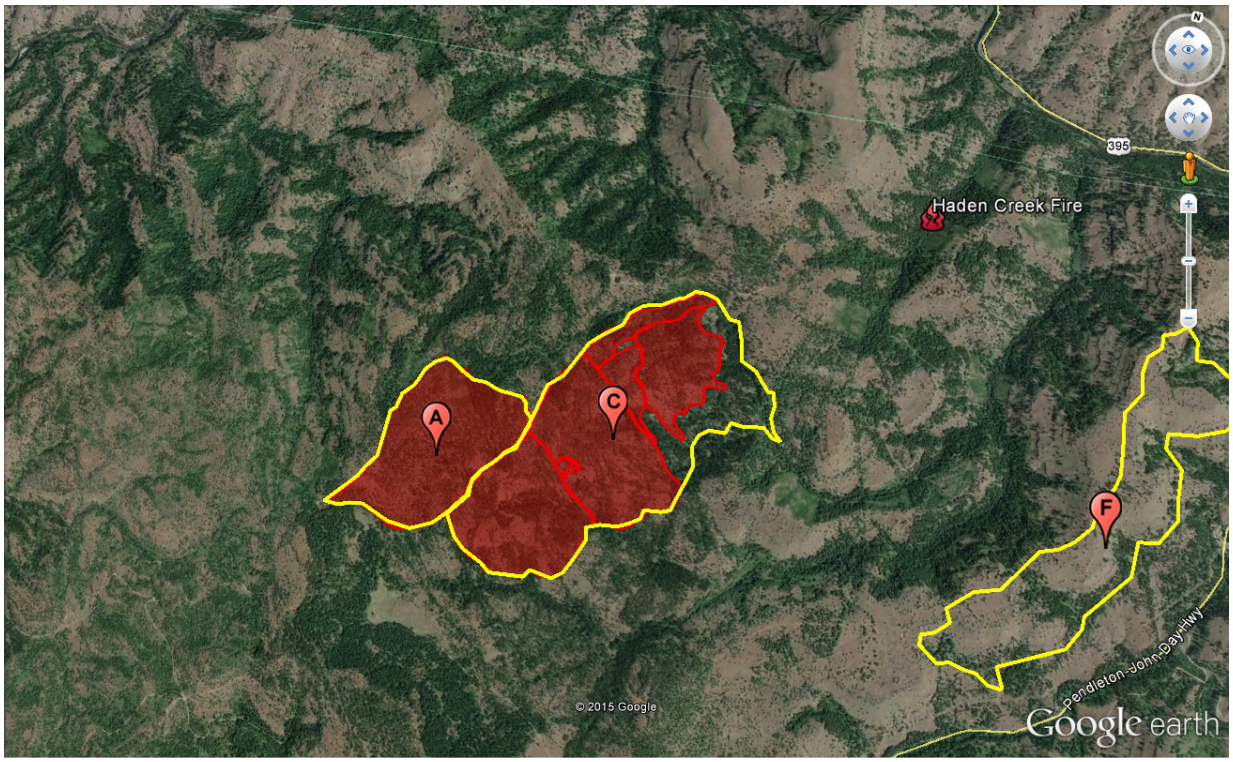

Figure 13 - Burned area from blacklining and interior fir spread at end of shift Friday.

Saturday, October 10 - Resources briefed on-scene on the days plan to continue blacklining the roads towards the east and to complete as much as possible before predicted winds from cold front passage occur in the late afternoon. Skidgine and UTV with water tank were both not present today due to skidgine be out of contract time, and the UTV being broke down. Replacement UTV was not available from neighbor district as it was also broken down.

Test fire was successful, and blacklining continued. Winds predicted suggested unfavorable burning conditions, but with the test fire being successful in securing the road, the burn boss made the decision to continue with blacklining operations to secure the road as a holding action. The burn boss believed that it was unlikely that the road would hold if the fire made a run at it without the blackline completed, a scenario that was likely with the predicted winds.

1130 – Blacklining stopped due to stronger and shifting winds. Burn boss began making calls to duty officers in the area to get additional resources to assist with holding operations. Fire behavior was becoming more erratic within the unit as increases in wind speeds noted. Plans developed to install a hose lay up the main drainage at the east corner within the unit to hold the fire edge in the drainage utilizing the hose lay and a game trail that ran up/down the drainage. Hose lay was installed and the game trail was improved by cutting out down logs that crossed it.

1415 - Request for update of spot weather forecast was made. Forecaster called and updated spot forecast, with rain coming and winds not subsiding until after the front completely passed.

1535 - A group of fir trees torched out on the ridgeline, above the drainage, inside the east corner of the unit. Several spot fires occurred in the drainage and across the road to the north. Initial spots were contained by holding resources. Resources were able to contain all but one of the spots above the road and the spot began making an uphill run with the wind in the light flashy fuels.

1600 - Burn boss left messages with the FMO and District Ranger updating them that they had a spot fire that they were having problems with. Burn boss began making calls to other duty officers to obtain additional resources to assist. The majority of the personnel began attempting to secure the spot fire working up both flanks.

Scouting of the spot and its extent of growth was ongoing. Scout reported that the fire had made the ridgeline and was heading into the Haden Creek drainage to the north. A discussion occurred between the scout and burn boss and air resources were ordered through dispatch; two single engine air tankers (SEAT) and air attack.

Based on the intelligence known and reported at the time, the burn boss and burn boss trainee discussed the situation and reviewed the burn plan element 18 - wildfire conversion section. At this time, the burn boss called dispatch via cell phone and declared the escaped fire a wildfire; the Bone Point Fire. They determined they would be unable to catch the fire before the end of shift and costs for controlling the fire were likely to exceed available project funds, both of which were identified in the burn plan as conditions to convert the spot fire to a wildfire.

A call was attempted and a message left for the FMO to let them know the prescribed burn had been converted to a wildfire. The burn boss then called the acting district ranger to let them know what was happening and that a documented decision in WFDSS was going to need to be prepared.

1800 - The burn boss and burn boss trainee met and developed a plan to contain the Bone Point fire. The Burn boss took the role of IC and the Burn boss trainee would take the role of operations. The scout continued to update them on what he was finding on the ridgeline. Indications were that the fire was established in Haden Creek. The IC began making plans for the organization needed for the next morning.

2100 - IC talked with the FMO and acting district ranger again, and the decision to disengage the crews from the line was made for the evening due to the risks to personnel from night operations in steeper, un-scouted terrain with falling snags.

2230 - All resources returned back to station.

WEATHER OBSERVATIONS						
DATE:	10-Oct		**FIRE NAME:**	Bone Point Rx (Meadowbrook FTO)		
TIME	*Dry Bulb*	*RH*	*Wind*	*FFM U/S*	*POI U/S*	*Remarks*
900	53	76	0-3 SE	14, 15	10, 10	
1000	55	73	0-2 S	13, 14	20, 10	
1100	62	57	0-2 SE	10, 12	30, 20	
1200	71	34	3-6 G15 NE, SW	6, 9	60, 30	
1300	72	32	2-4 SE G10	6, 9	60, 30	
1400	73	27	3-5 SSW G15	5, 8	60, 40	
1500	75	27	4-6 SW G15,	5, 8	60, 50	
1600						
1700						
1830	71	55	0-2 SW	12	20	90% Cloud cover
FFM U/S = Fine fuels moisture unshaded and shaded						
POI U/S = Probability of ignition unshaded and shaded						

Figure 14 - On-site weather and fuels observations for Saturday. Note that winds are eye-level and once translated to 20-foot winds would likely be 2 or 3 times as stong, depending on location. The weather observer was used for holding operations for 1600 and 1700 observation times and was unable to take weather observations.

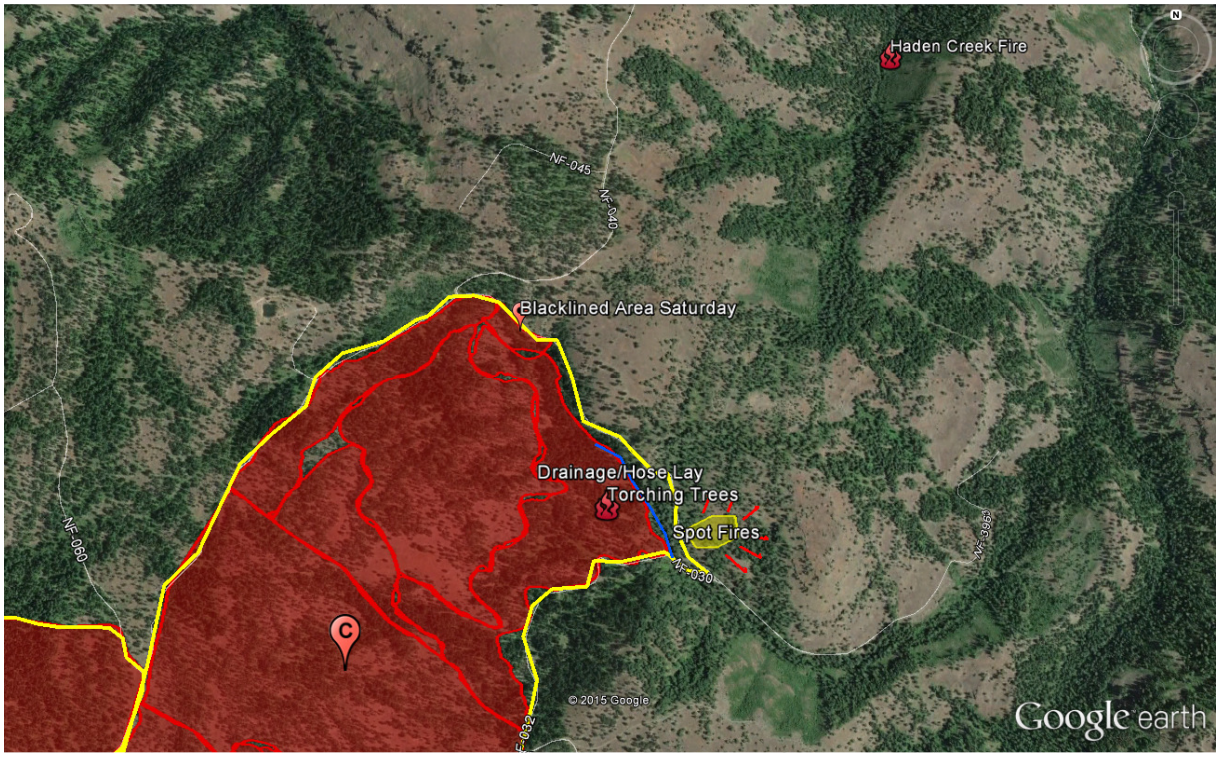

Figure 15 - Burned area in Unit C with spot fires and spread across road to the northeast at end of shift Saturday.

Sunday, October 11 – The Bone Point fire contained by ground resources at 80 acres, all on Forest Service land. Mop up and patrol of the prescribed fire and wildfire continued for the next several days to contain and secure the perimeter.

Saturday, October 17 - The Bone Point fire declared controlled at 1711 at 80 acres.

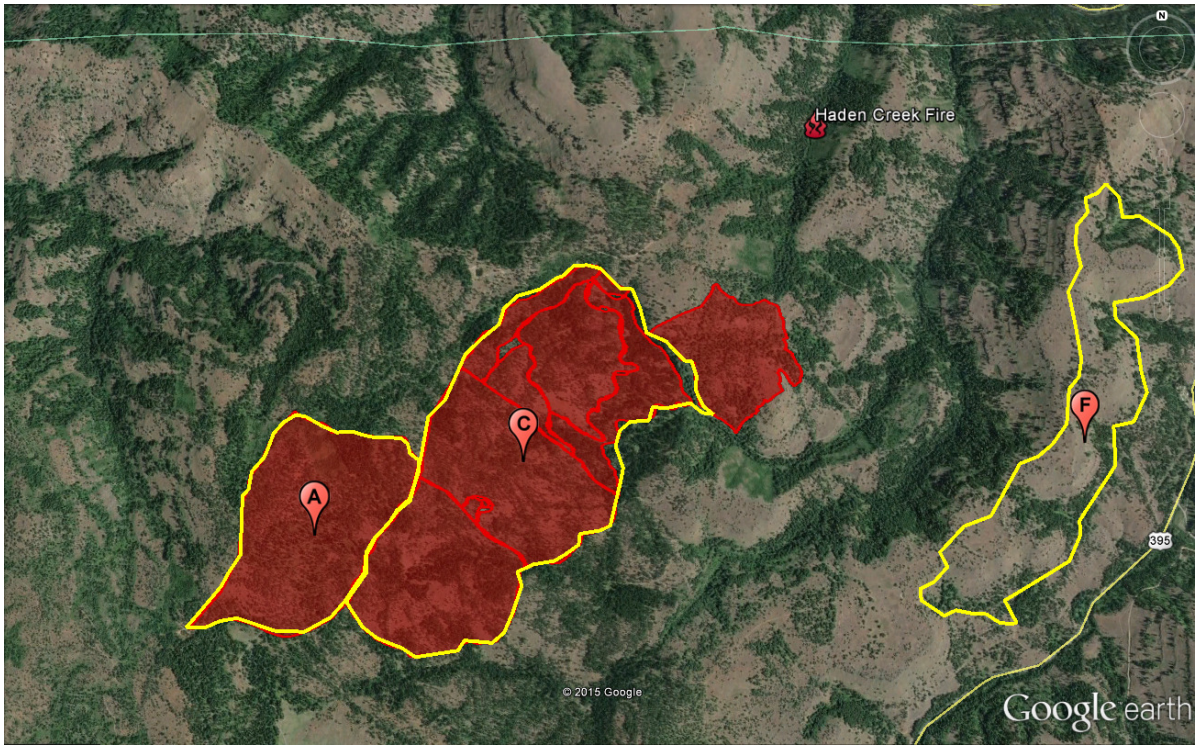

Figure 16 - Final burned area with 80-acre area from spot fires.

Other items to note that are not fully included in the chronology:

- Weather, fine fuel moistures, and probability of ignition observations were collected and broadcast to burn personnel on an hourly basis, for most hours, during prescribed and wildfire operations. Collection was by a dedicated weather observer. Observations can be found in appendix A.
- Spot weather forecasts were requested and received each day where ignition operations occurred. Spot forecasts can be found in appendix A.
- Dispatch was called each morning by the burn boss and briefed on the plan for the day. They were updated during the day on test fire initiation, start, and end of ignition, and acres accomplished for the day.

A Review

Review Team and Objectives - Because of the declared wildfire from a prescribed fire, Forest Service policy is to conduct a review of the incident in order to learn from the incident and reduce the likelihood of it occurring again. While the team focused primarily on the escaped prescribed fire, the review would likely provide valuable information to improve the fuels

management program on the Umatilla NF, as well. The team, while limited on time, did focus on some areas outside the declared wildfire and the findings and lessons learned are included in this report. At team of four fire/fuels specialists from the Umatilla NF and the Wallowa-Whitman NF were assembled Tuesday and Wednesday, October 20-21 to conduct the review.

The team consisted of:

Deputy Fire Staff Officer, Fuels/Integrated Vegetation Management, Umatilla NF – RXB2
Assistant District Fire Management Officer, Fuels, Wallowa-Whitman NF – RXB1
Assistant District Fire Management Officer, Fuels, Umatilla NF – RXB2
District Fire Management Officer, Umatilla NF – RXB2

Analysis of seasonal severity, weather events, and on-site conditions leading up to the wildfire declaration:

Drought - The 2015 fire season in Oregon and Washington was near record setting in terms of acres burned due, in part, to the long-term drought in the Pacific Northwest. The area of the project was in extreme drought.

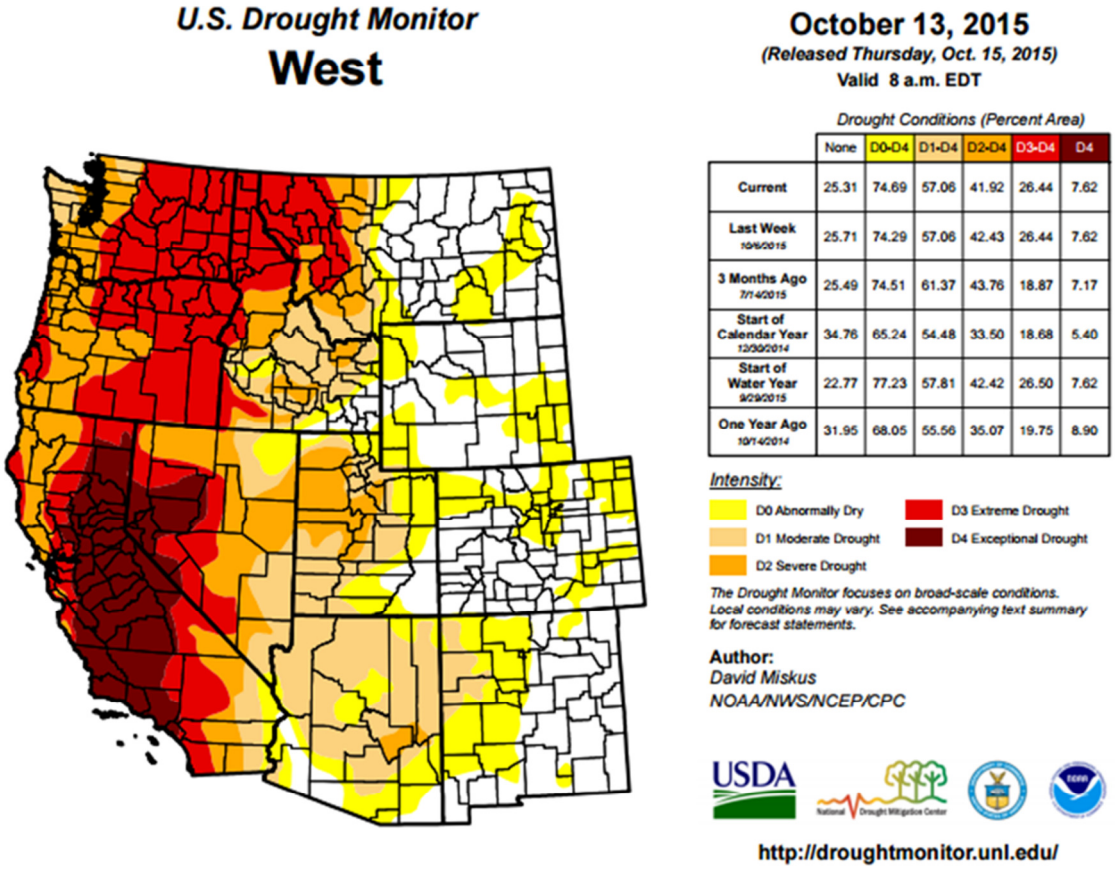

Figure 17 - Drought conditions in the western US and the area of the project.

Rainfall - Precipitation has been sparse in the area of the burn. The nearest remote automated weather station (RAWS) is Case located about 5 miles to the east-southeast of the burn area. The following table shows rain as of October 11, 2015. The 0.05 inch event shown below under the 5 and 7 days column occurred on Thursday, October 8th.

		Precipitation total in the previous:				
NW11 E4						
Station	Info	2 days	5 days	7 days	10 days	30 days
CEFO3 CASE	RAWS WIMS ID 352329 3800 ft	0.01	0.05	0.05	0.05	0.13

Figure 18 - Days since rain at nearest RAWS to the project area.

Fire Danger - The Bone Point Prescribed fire is within the fire danger rating area 3, Western Forested, under the Blue Mountain Fire Danger Operating Plan.

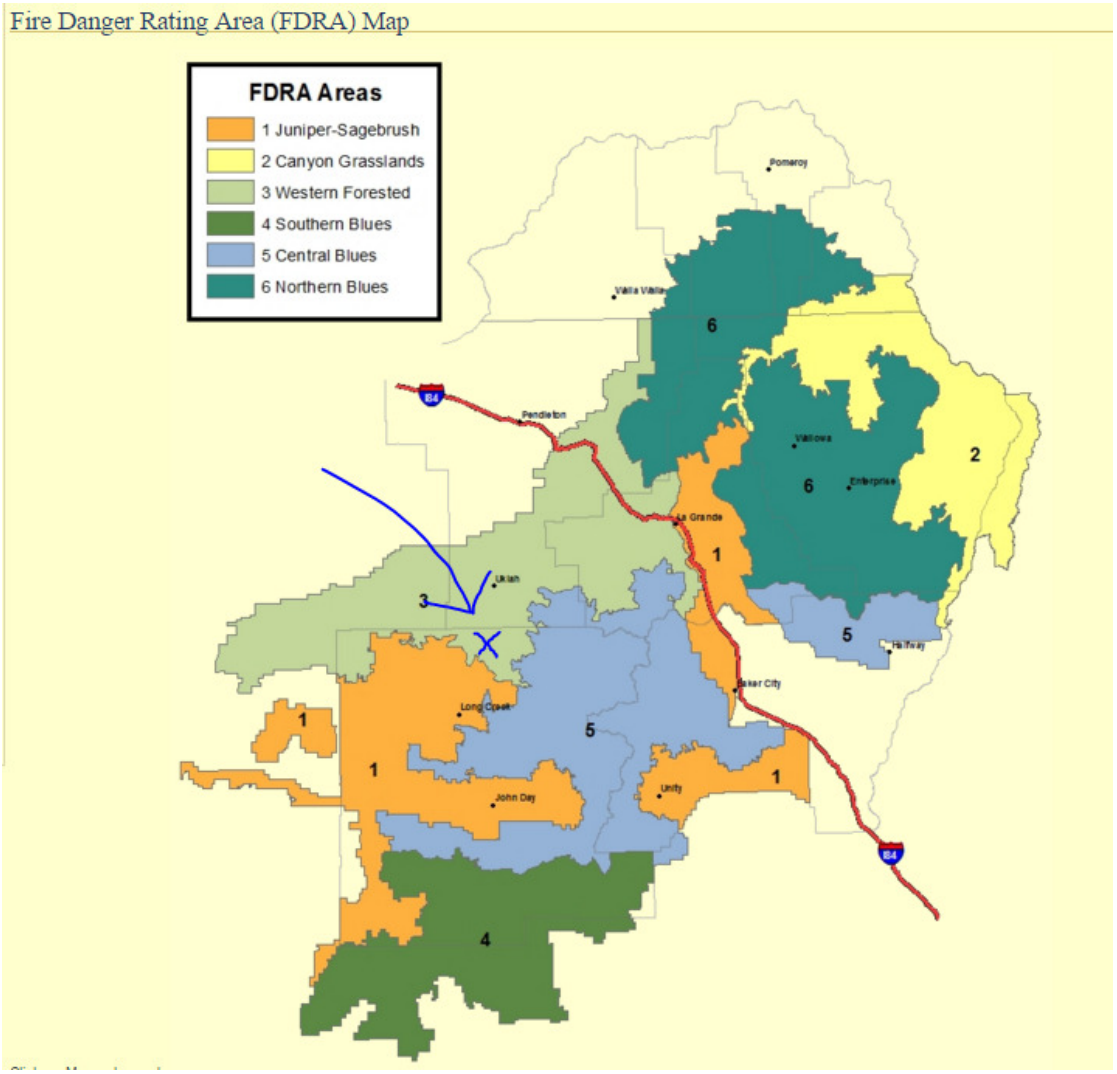

Figure 19 - Fire danger rating areas in northeast Oregon and Southeast Washington.

The energy release component (ERC) is a seasonal indicator of long-term dryness and is used to assess where we are in the fire season in terms of fire danger. During the period of the prescribed burn and the declared wildfire, the ERC ranged from 48 to 57, which is in the moderate category and indicative of an extended dry fall and late fire season conditions.

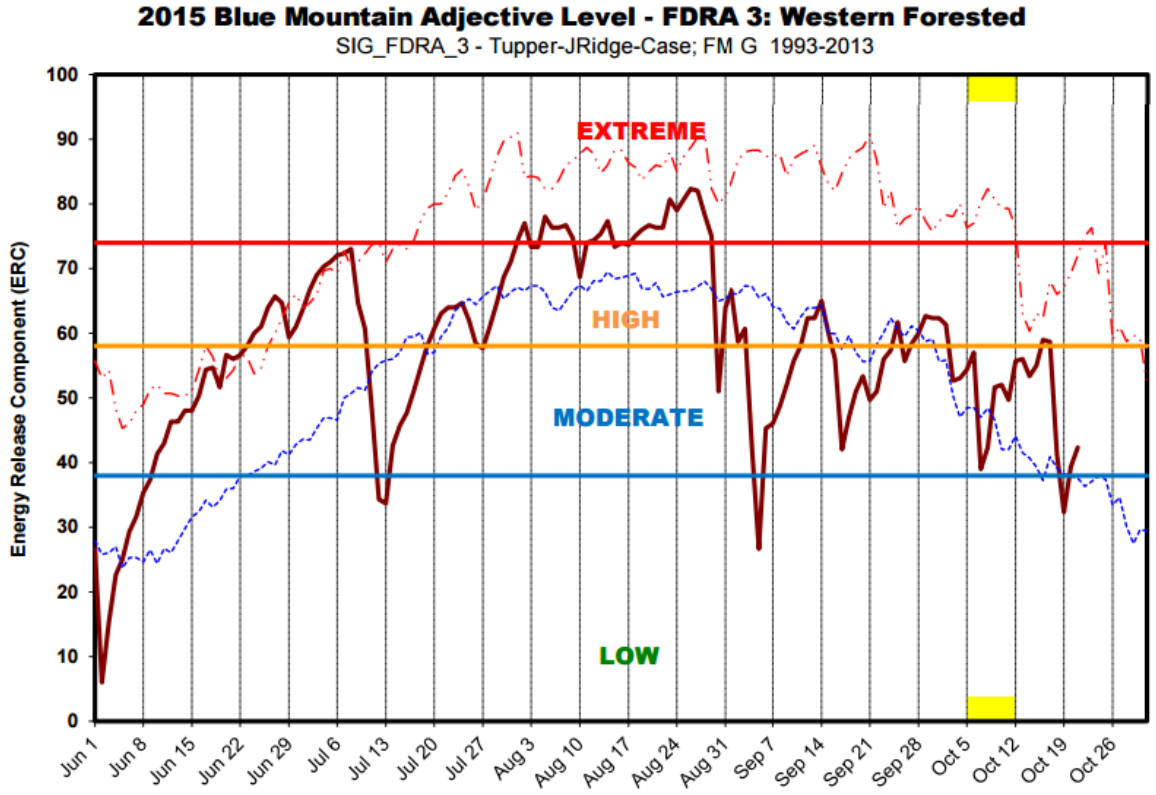

Figure 20 - Energy Release Component (ERC) graph for FDRA 3 covering the project area.

The burning index (BI) is an indicator of day-to-day fire danger as it incorporates wind into its calculation, were ERC does not. During the period of the prescribed burn and the declared wildfire, the BI ranged from 27 to 63, which is covers all the categories from low to extreme. On the day of the declared wildfire, the BI was at 63, in the extreme category, and setting a record BI for that date due to the dry and windy conditions that occurred.

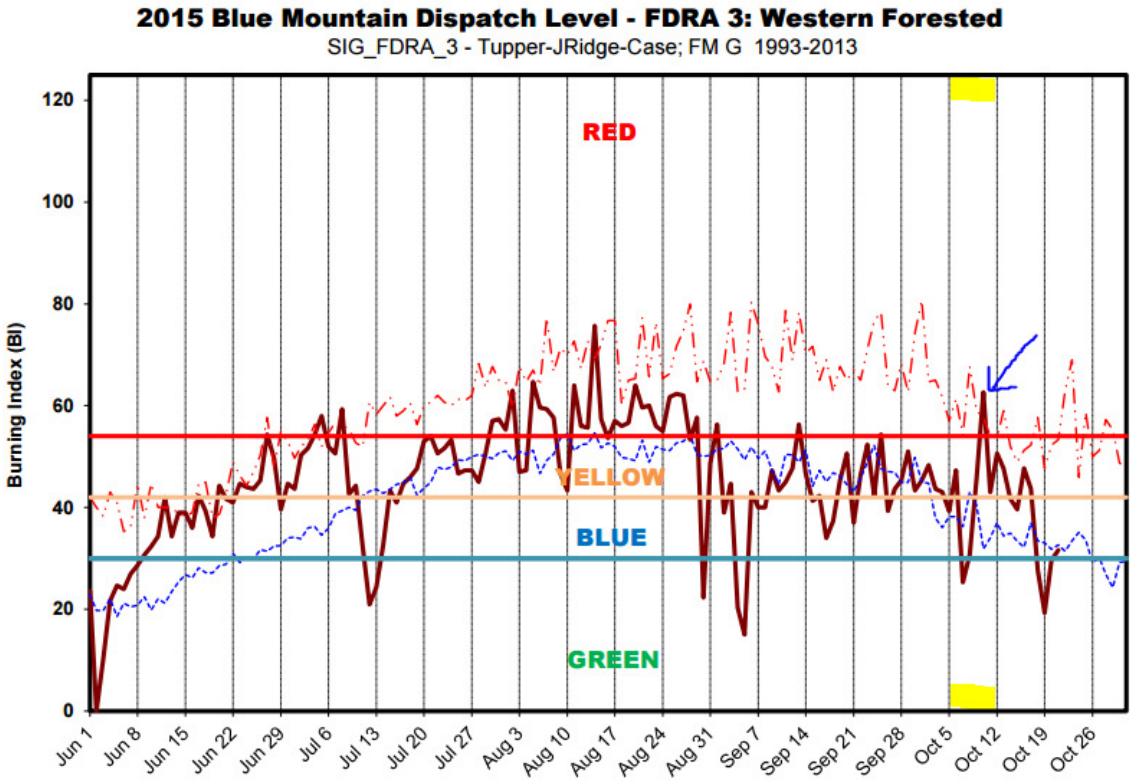

Figure 21 – Burning Index (BI) graph for FDRA 3 that covers the project area.

Forecasts – Spot forecasts were ordered each day of the burn (see appendix A). The wind event on Saturday, October 10, 2015 began to show up in the Bone Point Rx spot weather forecasts on Thursday, October 8 indicating generally increasing winds into Saturday. Friday's, October 9, forecast made the first mention of a cold frontal passage for Saturday, October 10. As Saturday got closer, the forecast predicted winds for that the afternoon and evening increased.

SPOT FORECAST DATE/TIME	KEY DISCUSSION AND PREDICTED 20-FOOT WINDS FOR SATURDAY, OCTOBER 10
Wednesday, October 7	No Spot Requested.
Thursday, October 8 - 0900	"A LARGE UPPER LEVEL TROUGH WILL SLOWLY APPROACH THE AREA LATER TONIGHT INTO FRIDAY WHICH WILL ACT TO INCREASE SOUTHERLY WINDS... ESPECIALLY TONIGHT ON THE RIDGETOPS. THIS SYSTEM IS MOVING VERY SLOWLY THEREFORE WE ARE NOT EXPECTING ANY PRECIPITATION FROM IT UNTIL AT LEAST SATURDAY AFTERNOON." **No mention of winds or cold front passage for Saturday.**
Friday, October 9 - 0825	"A COLD FRONT WILL SWEEP ACROSS EASTERN OREGON SATURDAY NIGHT WITH A CHANCE OF RAIN AND BREEZY WINDS SATURDAY NIGHT THROUGH SUNDAY MORNING.", **20-foot Winds: "SOUTH-SOUTHWEST 4-8 MPH...BECOMING SOUTHWEST AND INCREASING"**
Saturday, October 10 -	"A COLD FRONT WILL MOVE INTO THE REGION TODAY

0630	AND TONIGHT…", "WINDS WILL INCREASE THIS AFTERNOON AND EVENING FROM THE SOUTH TO SOUTHWEST ON THE RIDGE TOPS WITH CHANNELING THROUGH THE VALLEYS AND CANYONS.", **20-foot Winds: "SOUTH 1-5 MPH BECOMING SOUTHWEST 10-15 MPH IN THE AFTERNOON."**
Saturday, October 10 - 1545	"A COLD FRONT IS APPROACHING THE CASCADES AND WILL MOVE OVER THE BURN AREA THIS EVENING. IT WILL BRING LIGHT RAIN AND WIND TONIGHT. WINDS WILL INCREASE BETWEEN 1700 AND 1900 THIS EVENING FROM THE SOUTH TO SOUTHWEST ON THE RIDGE TOPS WITH CHANNELING THROUGH THE VALLEYS AND CANYONS. THE WINDS WILL DECREASE AFTER MIDNIGHT.", **20-Foot Winds: WEST WINDS 11 TO 17 MPH WITH GUSTS UP TO 30 MPH DECREASING TO 4 TO 9 MPH AFTER MIDNIGHT.**

Onsite weather – Onsite observations were collected throughout the period of the burn by a dedicated weather observer (see appendix A). Figure 14 (in the previous section) lists the observations collected during the day of the declared wildfire. A two hour period shows missing weather observations as the weather observer was utilized for holding operations. As predicted, the winds developed on the burn and qualitative observations were that the winds came in stronger than predicted as the observations below are eye-level winds versus 20-foot winds. Eye-level winds need to be multiplied by 2 or 3 to represent 20-foot winds. Indications for onsite personnel were that the wind were very erratic in speed and direction due to terrain influences.

Qualifications and Authorities:

Approving Agency Administrator – The District Ranger, the agency administrator who approved the prescribed burn plan for the Bone Point Prescribed Fire Project, was found to have the required qualifications, experience, and delegated authority to approve burn plans by the Forest Agency Administrator (forest supervisor) per a delegation letter dated April 20, 2015.

Key Burn Personnel – The prescribed fire burn boss, burn boss trainee, firing bosses, holding bosses, incident commander and division supervisors involved in the implementation of the prescribed burn and wildfire were found to have the required qualifications, experience and authority.

No additional findings related to qualifications, experience or authorities were found.

Analysis of the prescribed fire plan and implementation for consistency with agency policy and guidance related to prescribed fire planning and implementation and the burn plan:

The team reviewed the burn plan and had several findings which are divided into two sections, finding that contributed to the declared fire, and observations regarding the burn plan, burn implementation and fuels program where recommendations are made but not contributory to the

declared wildfire. Unless specifically addressed in the findings, the implementation of the burn was consistent with the prescribed fire plan.

FINDINGS CONTRIBUTING TO THE DECLARED WILDFIRE

MAJOR FINDING #1 - Wildfire Conversion Language Part 1
The burn plan was found to have stricter language in place than the Interagency Prescribed Fire Planning and Implementation Procedures Guide (the "Guide") in regards to the Element 18 - Wildfire Conversion and is inconsistent with the actions needed portion of Element 17 – Contingency Plan.

- The Guide: Prescription parameters are exceeded and holding and contingency actions cannot secure the fire by the end of the next burning period.
- Burn Plan – Element 18: Fire outside of the project boundary and unlikely to be controlled by the end of the burn period.
- Burn Plan - Element 17: The Contingency Plan has wildfire conversion language as well, however, the intent of Element 17 is to describe contingency actions to avoid a wildfire declaration, so it is inappropriate to discuss wildfire conversion here.

The burn boss followed the burn plan in declaring the wildfire based on the language in Element 18 – Wildfire Conversion found in the plan. The conversion may not have needed to be declared under language in the Guide.

IMPLICATION – There is potential for limiting decision space or causing confusion in the protocols for declaring a wildfire because of the conflicting language and inconsistency with policy. In this case, the burn boss may have been able to increase the time needed to make a decision to declare a wildfire into the next day with a potentially different decision.

Furthermore, having wildfire conversion language in two locations sets up a potential trap for the burn boss of which one to apply or applying one without knowledge of the other.

RECOMMENDATION – Ensure consistency with intent of each element and avoid duplication between different elements of the burn plan and with policy during the technical review. If the burn plan is stricter than policy, provide a rationale for the need to make it stricter in the burn plan and ensure it is reviewed and clearly understood pre-burn by the agency administrator, FMO/Duty Officer, the burn boss and potential incident commander (if different than the burn boss).

MAJOR FINDING #2 - Wildfire Conversion Language Part 2
The burn plan specifies in Element 18 – Wildfire Conversion that one of the situations that burn boss can declare a wildfire is "Costs for control exceed available project funds". This is found to be inconsistent with policy as the Guide has two specific situations for declaration of a wildfire that can be delegated to the burn boss. 1) "Prescription parameters are exceeded and holding and contingency actions cannot secure the fire by the end of the next burning period, or," 2) "The fire has spread outside the project area or is likely to do so, and the associated contingency actions have failed or are likely to fail and the fire cannot be contained by the end of the next burning period." It further specifies, "A prescribed fire can be declared a wildfire for reasons other than those identified above, if events cannot be mitigated as determined by the burn boss and agency administrator." Therefore, other than the two situations specifically

mentioned in the Guide, no other situation for declaring a wildfire could be made by the burn boss alone.

Again, the burn boss followed the burn plan in declaring the wildfire based on the language in Element 18 – Wildfire Conversion found in the plan.

DISCUSSION – The intent of the "other reasons…" sentence is that the burn boss and the agency administrator mutual understanding of what those reasons and conditions are in advance and they have documented those in the plan either in Element 18 or in Element 2A if the agency administrator issues the direction as part of their ignition authorization. This doesn't require that the burn boss consult with the agency administrator (although the agency administrator may require it if they like) in each of those decisions, only that they both know what the other reasons are and that one doesn't drop a surprise on the other.

Exceeding project cost is not specifically mentioned in policy as a situation for declaring a wildfire, however, the "other reasons…" sentence has potential to be interpreted to consider the cost situation. It would be inappropriate for the burn boss to convert to a wildfire for funding concerns without consultation, with the agency administrator, per policy. In a call with the regional fuels program lead during this review, the discussion was that declaration of a wildfire for costs exceeding budget is a coordinated and shared decision between the District, Forest and Region as there are potential mitigations available that can be applied to fund the exceeded costs being incurred and avoid a declared wildfire. As mentioned above, these situations should be discussed and mutually understood in advance.

RECOMENDATION – Ensure consistent language and intent within the burn plan and policy. Be mindful of who is delegated to declare a wildfire and under what situation that delegation is for. Consider setting up the burn plan to share the decision, and the risk, between the burn boss and agency administrator, at a minimum, especially where cost is in the discussion. Consider bringing others into the discussion including the District FMO/duty officer, Fire Staff Officer/Forest Duty Officer and/or Fuels Program Lead. Mutually understanding of the reasons and conditions for declaring a wildfire should be discussed and documented in advance of burning.

NOTE - Pre-plan for and utilize only those resources available to the burn boss that can be procured using non-emergency procurement regulations as contingency actions occur. Some suppression resources are only available through emergency procurement regulations without pre-planning. An example would be ordering resources via VIPR that is set up for only emergency procurement.

MAJOR FINDING #3 - Planned versus Actual Timing of Burning

The plan to implement the Bone Point prescribed fire project was to ignite units A and C starting Monday, October 5 and concluding mid-week. The current and predicted weather and fuel conditions for the 2-3 day burn period planned was favorable for a high probability of success in completing. Beginning on Monday morning, the discovery of a wildfire that required attention, and Tuesday, when the wildfire grew to 3 acres, necessitated a delay in implementing the prescribed burn. The reason for the delay was to assess the fire and fully understand what the commitment would be from the resources on the burn in order to ensure adequate staffing to continue with the burn. In addition, the rainfall that began Wednesday afternoon and affected Thursday's plans caused additional delays in completing unit C.

With a portion of unit C burned and unfavorable burning conditions that quickly transitioned to drier and windy, the weather and fire movement affected flexibility and began to restrict options for holding and, ultimately, was exposed to the high winds from the cold frontal passage. Reluctance to utilizing hand or machine line to secure the interior line due to perceived NEPA document constraints regarding heritage resources existed as well. The exposure of the vulnerable, partially completed unit to an extended period increased the probability of an unfavorable weather event affecting the burn. In this case, it was a nearly dry, windy cold frontal passage.

RECOMMENDATION – Consider securing the open line within the burn unit via hand or mechanical fire line while conditions are favorable to contain the burn and ensure that capability is covered in NEPA. Additionally, ensure a shared understanding with the agency administrator of perceived or actual NEPA constraints. Where possible, utilize heritage resource staffing to assist in potential contingency line location during burn planning.

MINOR FINDING #4 – **Firing Pattern and Critical Holding Area**
The area where the spot fire occurred and the wildfire was declared in the northeast corner of Unit C was known by agency administrator and burn personnel as a critical holding area during burn plan review. The firing pattern of Unit C began at the opposite end of the unit and any blacklining and securing of the northeast corner of the unit only occurred as the interior fire became a threat to that critical holding area, thus increasing the risk and urgency of securing the area.

RECOMMENDATION – Incorporate securing of known critical holding areas into the firing pattern when feasible and under favorable conditions to reduce the probability of holding problems. Ensure the wind and slope contributions to effective wind speed are factored in to the firing plan.

MINOR FINDING #5 – Prescription and Line Production Capability
Prescription found using the Scott and Burgan fuel models TL3 and GR1. It appears the chosen models may not have been truly representative of the fuels on-site at the higher end of the prescription. For the grass, it appears the chosen model was lighter in loading and shorter, especially since the grass in the area was un-grazed this season. For the timber litter, it appears that chosen fuel model was more a short needle litter model than the long needle litter evident on site. Using these fuel models affects the fire behavior outputs and lowers them, which affects fire line production needs for holding and contingency resources. That said, the burn boss consistently maintained a higher level of fire line production capability on the burn to more than double and even triple the requirement in the burn plan. This gave the burn boss significant latitude to work proactively to hold the burn and work to prevent an escape, as evident during the review.

DISCUSSION – Applying fuel models to a specific area is not an exact science and can vary widely among different specialists looking at same piece of ground. Even with lower fire line production rates required, the burn boss compensated with additional resources.

RECOMMENDATION – During pre-burn planning, utilize available tools to select the fuel models representing the expected fire behavior in a burn unit. Validate fire behavior outputs through experience and discussion among other experienced colleagues. During the burn, observe and document fire behavior and the conditions affecting it through use of fire effects

monitors. Use this collected monitoring data, as new burn plans are developed, to calibrate fire behavior modeling with expected fire behavior.

OBSERVATIONS NOT CONTRIBUTING TO THE DECLARED WILDFIRE

1 - Objectives
Not all the listed objectives are measurable. Only two contain measurable elements. Resource objective – "retain fuel loads in the 0-3" size class to less than 9 tons per acre", and Prescribed Fire objective – "Maintain flame lengths below 4 feet."

Discussion – Perhaps the constraints could be part of the wording of the objectives.

Recommendation – Utilize the SMART approach to developing objectives that are designed to meet the goals as described through the NEPA process and decision document:

- S – Specific — Answer the questions:
  What is to be done?
  How will you know it is done?
  Where will it be done?
- M – Measurable — What measurement is associated with the objective?
  Measurement = Feedback = Accountability
- A – Attainable — Is the objective achievable?
- R – Realistic — Is the objective and timeframe credible?
- T – Time Sensitive — When will it be completed?
  A timeframe helps with accountability and motivation.

2 - Prescription Parameters
Both environmental and fire behavior parameters were used as the prescription in this burn plan. Environmental parameters are very wide and some are not directly field measurable like 100-hour fuel moisture and live fuel moisture.

Recommendation – Utilize only those parameters to form the prescription that are pertinent to meet the prescribed fire objectives, smoke management issues, and perimeter control concerns and that can be monitored in the field.

3 - Scorch Height - The listed acceptable scorch height in the prescription is at 2 feet while acceptable flame length is up to 4 feet. Field visit revealed scorch height on average of 10 of 15 feet. Suspicion that bole char height and scorch height (branches and needles) maybe getting confused.

Recommendation – Clarify bole char height versus scorch height as appropriate in the objectives and/or prescription.

4 - **Aerial Ignition** - Burn plan has contradictory language on aerial ignition. Set up so that aerial ignition could be used, but says that aerial ignition will not be used in the ignition plan.

Recommendation – During preparation and review, ensure contradictory language is not occurring between different elements in the burn plan.

5 – **Organization**
Organization lists specific types of resources, how many to have, and specific names. This may limit flexibility and capability if some resources are not available.

Recommendation – Specify needed resource capability to provide the appropriate flexibility to meet fire line production capability, while accounting for specific specialized resource needs to conduct the burn. Populate positions without names in the burn organization.

6 – Patrol Plan
A very detailed patrol plan in holding section was found in the plan. Plans with such detail can be difficult to follow.

Recommendation – Utilize a doctrinal approach to the patrol plan to be less specific and flexible in order to ensure the burn plan can be followed. Establish triggers for ramping up or down of patrol resources.

7 – Extended Attack Actions and Opportunities
The wildfire conversion section contains specific language on how escaped fires will be suppressed in section D. Without specifically applying the suppression actions mentioned to a specific scenario on a piece of ground, the language, as written could be constraining.

Recommendation – Utilize a doctrinal approach without specific resources or actions on specific parts of the fire.

8 – Values at Risk Constraints
Lack of information provided to prescribed fire personnel on cultural site locations both inside and adjacent to units created hesitancy by implementation crews to install hand or machine fire lines without prior location approval.

Recommendation – Work with heritage program during the NEPA process and implementation planning to pre-identify areas of potential need for hand or machine line that are cleared of heritage issues.

9 – Agency Administrator Coverage
No prescribed fire delegated/fire qualified agency administrator was identified during holiday weekend when the primary agency administrator was on leave.

Recommendation – Ensure appropriate coverage of qualified and delegated agency administrator for periods where the primary is unavailable.

10 – Coordination with Dispatch
Dispatch was well informed on daily plans for the burn through morning phone calls. Dispatch received little information on status of the prescribed burn on day of wildfire declaration until

phone call was received by burn boss declaring it a wildfire. Dispatch was unclear on intent for ordering of resources to assist on prescribed burn prior to the aforementioned call. Burn boss made phone calls directly to off-district duty officers searching for additional resources.

Recommendation – Ensure coordination with dispatch occurs on the status of events prior to ordering suppression resources so they understand the intent of the orders. Utilize local duty officer or go directly to dispatch to initiate search for additional needed resources.

11 – Utilization of Burn Windows
The district is proactive in utilizing available burn windows, even with the complications of burning during an ongoing hunting season.

Recommendation – Continue to utilize available windows to increase the pace and scale of restoration using prescribed fire.

12 – Road/Area Closures
The district considered road and/or area closures for the prescribed burn and ultimately decided to forego closures and utilize burn personnel to manage public access as needed to maintain public safety and provide an opportunity for public information and education about prescribed burning. The interactions between public and burn personnel regarding the burning were positive and productive. However, during the wildfire conversion, fire was on both sides of the road and egress was almost blocked for a period of time.

Recommendation –Weigh public safety with benefits of using RX fire as a teaching tool. Consider a similar approach on future prescribed burns when appropriate.

13 – Fire Effect Monitor (FEMO) Position
Organizational charts show a FEMO position in the burn organization, however, none was found in the staffing of the burn.

Recommendation – Utilization of a FEMO can provide valuable data to help in implementation and effectiveness monitoring of prescribed burning objectives. Adaptive learning from past prescribed burns will help in planning for future burns through development of better prescriptions to meet objectives.

14 – Fire Line Production Capability
The burn boss and trainee were always aware of capability in terms of chains/hour of fire line production and required need for holding/contingency as resources were moved between the prescribed burn and wildfire missions. The prescribed fire implementation group adapted well to the wildfire that occurred on the first day of burning, and on subsequent days to ensure they had needed staffing for both the wildfire and prescribed fire.

Recommendation – Continue the practice in future burns.

15 – Burn Unit Preparation
Preparation work on the burn units occurred in the weeks prior to burning included hand fireline construction and road brushing. Work was proactively planned and completed prior to the first burn day and which reduced the burn day work burden gave burn personnel the opportunity to become familiar with the burn units well ahead of ignition.

Recommendation – Continue the practice in future burns.

Fuels Program Recommendations

1. Utilize findings and learning from this review in prescribed fire burn boss refreshers and fuels program meetings to ensure clear and consistent understanding of contingency planning and implementation and the wildfire conversion policies and process.
2. Review and update the current Umatilla National Forest burn plan template to incorporate recommendations from this review with a primary focus on the goals/objectives, prescription, contingency planning and wildfire conversion elements.
3. Develop a guide to assist in incorporating prescribed burning into NEPA planning documents that ensures appropriate flexibility in tactics and burn area considerations are included and that the appropriate specialists are integrated into the prescribed fire planning.
4. Develop a guide containing sample language for SMART objectives for prescribed fire planning could help in building stronger objectives in burn plans. Include interdisciplinary specialists in this effort. Utilize the FEMO position more broadly to collect and learn from monitoring data.
5. Review and update the burn plan technical review protocol for the Forest to ensure consistently written burn plans that are aligned with policy.
6. Develop a set of contingency scenarios that we have seen are likely to see on the Umatilla NF during any of our burning operations. Ensure these scenarios are covered in all appropriate burn plans through addition to the burn plan template.

APPENDIX A

On-site weather observations:

WEATHER OBSERVATIONS								
DATE:	5-Oct		**FIRE NAME:**	Bone Point Rx (Meadowbrook FTO)			**OBSERVERS:**	Mentzer
TIME	Dry Bulb	RH	Wind	FDFM U/S	POI U/S			
930	56	58	Light out of East	10, 12				
1000	58	52		9, 11				
1100	64	43	Light	8, 10	40, 30			
1200	66	44	Light out of west	7, 10	50, 30			
1300	68	39	3-5 sw	6, 9	50, 30			
1400	71	32	Light	6, 9	60, 30			
1500	70	36	3-5 W	6, 9	60, 30			

WEATHER OBSERVATIONS								
DATE:	6-Oct		**FIRE NAME:**	Bone Point Rx (Meadowbrook FTO)			**OBSERVERS:**	Scholz
TIME	Dry Bulb	RH%	Wind	FDFM U/S	POI U/S			
1000	56	37	Light	8, 11	40, 30			
1100	60	37	Light	8, 11	40, 20			
1200	67	32	Light	6				
1300	72	24		4, 7				
1400	73	22		4, 7	70, 50			
1500	75	21	0-3 sw	4, 7	70, 50			
1600	75	21	0-3 s g7	5, 7	60, 40			
1700	71	26	0-3 Variable G5	6, 9	60, 30			
1915	59	45	upslope, light	11, 12	20, 20			

WEATHER OBSERVATIONS								
DATE:	7-Oct		**FIRE NAME:**	Bone Point Rx (Meadowbrook FTO)			**OBSERVERS:**	Scholz
TIME	Dry Bulb	RH	Wind	FDFM U/S	POI U/S			
830	56	57	Light	12, 13	20, 20			
1000	60	49	0-3 SW	9, 12	30, 20			
1200	61	51	0-3 S G5	8	40			
1300	64	53	0-3 S	8, 11	40, 20			
1400	61	69	0-3 W	10, 13	20, 20			
1500	56	89	Light	13, 16	20, 10		Light Rain	

WEATHER OBSERVATIONS								
DATE:	9-Oct		**FIRE NAME:**	Bone Point Rx (Meadowbrook FTO)			**OBSERVERS:**	Scholz
TIME	Dry Bulb	RH	Wind	FDFM U/S	POI U/S			
1100	72	34	0-3 SW	7, 10	50, 30			
1200	76	28	0-3 SW G5	5, 8	60, 40			
1300	77	23	0-3 G5 Variable	4, 7	70, 50			
1400	77	20	0-3 G5 Variable	4, 7	70, 50			
1500	77	23	0-3 variable	4, 7	70, 50			
1600	77	20	0-3 variable	5, 8	60, 40			
1700	72	27	0-3 G5 SE	5, 9	50, 30			
1800	70	39	0-3 SE	9, 10	40, 30			

WEATHER OBSERVATIONS						
DATE:	10-Oct		FIRE NAME:	Bone Point Rx (Meadowbrook FTO)		OBSERVERS:
TIME	*Dry Bulb*	*RH*	*Wind*	*FDFM U/S*	*POI U/S*	*Remarks*
900	53	76	0-3 SE	14, 15	10, 10	
1000	55	73	0-2 S	13, 14	20, 10	
1100	62	57	0-2 SE	10, 12	30, 20	
1200	71	34	3-6 G15 NE, SW	6, 9	60, 30	
1300	72	32	2-4 SE G10	6, 9	60, 30	
1400	73	27	3-5 SSW G15	5, 8	60, 40	
1500	75	27	4-6 SW G15, gusty	5, 8	60, 50	
1600						
1700						
1830	71	55	0-2 SW	12	20	90% Cloud cover

Spot Weather Forecasts:

FORECAST:
IF CONDITIONS BECOME UNREPRESENTATIVE,
CONTACT THE NATIONAL WEATHER SERVICE.
SPOT FORECAST FOR BONE POINT RX...USFS
NATIONAL WEATHER SERVICE PENDLETON OR
609 AM PDT MON OCT 5 2015

FORECAST IS BASED ON IGNITION TIME OF 0625 PDT ON OCTOBER 05.
IF CONDITIONS BECOME UNREPRESENTATIVE...CONTACT THE NATIONAL WEATHER SERVICE.

.DISCUSSION...HIGH PRESSURE WILL REMAIN OVER THE PACIFIC NORTHWEST FOR THE NEXT FEW DAYS. AN OFFSHORE EASTERLY FLOW WILL CONTINUE TODAY AND THIS EVENING BUT WILL SHIFT TO AN ONSHORE WESTERLY FLOW LATE TONIGHT AND TOMORROW AND WILL CONTINUE THROUGH AT LEAST WEDNESDAY.

THUNDERSTORMS IMPLY GUSTY AND ERRATIC WINDS
WINDS ARE 20 FOOT 10 MINUTE AVERAGES
CWR-CHANCE OF WETTING RAIN 0.10 OR GREATER
FORECAST IS VALID FOR 12 HOURS AFTER ISSUANCE

.TODAY...

SKY/WEATHER.....SUNNY.
CWR.....0 PERCENT.
MAX TEMPERATURE.....69.
MIN HUMIDITY.....26-31 PERCENT.
WIND (20 FT).....UPSLOPE LESS THAN 5 MPH BECOMING LIGHT AND VARIABLE LESS THAN 5 MPH LATE IN THE MORNING... THEN BECOMING SOUTHEAST 2 TO 5 MPH LATE IN THE AFTERNOON.

RIDGETOP WIND.....SOUTH WINDS 3 TO 7 MPH BECOMING SOUTHEAST IN
THE AFTERNOON.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 3500 FT AGL IN THE
AFTERNOON.
TRANSPORT WINDS.....SOUTH TO SOUTHEAST WINDS 2 TO 7 MPH.

.TONIGHT...

SKY/WEATHER.....CLEAR.
CWR.....0 PERCENT.
MIN TEMPERATURE.....38-40.
MAX HUMIDITY.....65-70 PERCENT.
WIND (20 FT).....NORTHEAST WINDS 4 TO 8 MPH BECOMING TERRAIN
DRIVEN LESS THAN 5 MPH AFTER MIDNIGHT.
RIDGETOP WIND.....SOUTHEAST WINDS 3 TO 7 MPH BECOMING SOUTH TO
SOUTHWEST 4 TO 10 MPH IN THE LATE EVENING AND
OVERNIGHT.
MIXING HEIGHT.....NEAR SURFACE.
TRANSPORT WINDS.....EAST TO NORTHEAST WINDS 3 TO 7 MPH BECOMING
SOUTH TO SOUTHEAST AFTER MIDNIGHT.

.TUESDAY...

SKY/WEATHER.....MOSTLY SUNNY.
CWR.....0 PERCENT.
MAX TEMPERATURE.....70-72.
MIN HUMIDITY.....22-27 PERCENT.
WIND (20 FT).....UPSLOPE LESS THAN 5 MPH BECOMING SOUTHWEST
WINDS 3 TO 8 MPH IN THE AFTERNOON.
RIDGETOP WIND.....SOUTHWEST 4 TO 9 MPH BECOMING WEST IN THE
AFTERNOON.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 4500 FT AGL IN THE
AFTERNOON.
TRANSPORT WINDS.....SOUTH WINDS 2 TO 6 MPH BECOMING SOUTHWEST 5 TO
9 MPH IN THE AFTERNOON.

.FORECAST DAYS 3 THROUGH 5...
.WEDNESDAY...
PARTLY CLOUDY. LOWS 44 TO 49. HIGHS 69 TO 74. SOUTHWEST WINDS
3 TO 7 MPH.
.THURSDAY...
MOSTLY CLOUDY WITH A SLIGHT CHANCE OF SHOWERS. LOWS 48 TO 53.
HIGHS 77 TO 82. SOUTH WINDS 4 TO 7 MPH.
.FRIDAY...
MOSTLY CLOUDY. LOWS 46 TO 51. HIGHS 71 TO 76. SOUTH WINDS 3 TO
6 MPH.

FORECAST:

IF CONDITIONS BECOME UNREPRESENTATIVE,
CONTACT THE NATIONAL WEATHER SERVICE.

SPOT FORECAST FOR BONE POINT RX...USFS
NATIONAL WEATHER SERVICE PENDLETON OR
639 AM PDT TUE OCT 6 2015

FORECAST IS BASED ON IGNITION TIME OF 0630 PDT ON OCTOBER 06.
IF CONDITIONS BECOME UNREPRESENTATIVE...CONTACT THE NATIONAL WEATHER
SERVICE.

.DISCUSSION...HIGH PRESSURE WILL REMAIN OVER THE REGION TODAY WITH
CONTINUED WARM DRY CONDITIONS AND LIGHT WINDS. CLOUDS WILL BEGIN TO
INCREASE LATE TONIGHT AND WEDNESDAY. THERE WILL BE A CHANCE OF RAIN
WEDNESDAY AFTERNOON AND EVENING. A WARMING AND DRYING TREND WITH
CONTINUED LIGHT WINDS IS EXPECTED THURSDAY AND FRIDAY.

THUNDERSTORMS IMPLY GUSTY AND ERRATIC WINDS
WINDS ARE 20 FOOT 10 MINUTE AVERAGES
CWR-CHANCE OF WETTING RAIN 0.10 OR GREATER
FORECAST IS VALID FOR 12 HOURS AFTER ISSUANCE

.TODAY...

SKY/WEATHER.....MOSTLY SUNNY.
CWR.....0 PERCENT.
MAX TEMPERATURE.....74.
MIN HUMIDITY.....26-31 PERCENT.
WIND (20 FT).....UPSLOPE LESS THAN 5 MPH BECOMING WEST TO
SOUTHWEST 4 TO 8 MPH IN THE AFTERNOON.
RIDGETOP WIND.....SOUTH TO SOUTHWEST WINDS 3 TO 7 MPH BECOMING

WEST 4 TO 9 MPH IN THE AFTERNOON.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 3500 FT AGL IN THE AFTERNOON.
TRANSPORT WINDS.....SOUTH WINDS 2 TO 6 MPH BECOMING SOUTHWEST 5 TO 9 MPH IN THE AFTERNOON.

.TONIGHT...

SKY/WEATHER.....PARTLY CLOUDY.
CWR.....0 PERCENT.
MIN TEMPERATURE.....46-48.
MAX HUMIDITY.....65-70 PERCENT.
WIND (20 FT).....WEST TO NORTHWEST WINDS 3 TO 8 MPH IN THE EVENING BECOMING DRAINAGE WINDS LESS THAN 5 MPH.
RIDGETOP WIND.....WEST TO NORTHWEST WINDS 5 TO 10 MPH INCREASING TO 7 TO 12 MPH AFTER 2200.
MIXING HEIGHT.....NEAR SURFACE.
TRANSPORT WINDS.....WEST TO SOUTHWEST WINDS 3 TO 9 MPH BECOMING SOUTH 2 TO 6 MPH AFTER MIDNIGHT.

.WEDNESDAY...

SKY/WEATHER.....MOSTLY CLOUDY. A SLIGHT CHANCE OF RAIN SHOWERS IN THE AFTERNOON.
CWR.....0 PERCENT.
MAX TEMPERATURE.....68-70.
MIN HUMIDITY.....35-40 PERCENT.
WIND (20 FT).....UPSLOPE LESS THAN 5 MPH BECOMING SOUTHWEST 4 TO 8 MPH IN THE AFTERNOON.
RIDGETOP WIND.....SOUTHWEST WINDS 6 TO 12 MPH BECOMING SOUTH TO SOUTHWEST 5 TO 10 MPH IN THE AFTERNOON.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 3000 FT AGL IN THE AFTERNOON.
TRANSPORT WINDS.....SOUTH WINDS 2 TO 7 MPH BECOMING WEST TO SOUTHWEST 5 TO 11 MPH IN THE AFTERNOON.

.FORECAST DAYS 3 THROUGH 5...
.THURSDAY...
MOSTLY CLOUDY. LOWS 49 TO 54. HIGHS 74 TO 79. SOUTH WINDS 3 TO 6 MPH.
.FRIDAY...
MOSTLY CLOUDY. LOWS 49 TO 54. HIGHS 77 TO 82. SOUTHEAST WINDS 3 TO 6 MPH.
.SATURDAY...
PARTLY CLOUDY. LOWS 48 TO 53. HIGHS 72 TO 77. SOUTHWEST WINDS 3 TO 8 MPH.

FORECAST:

IF CONDITIONS BECOME UNREPRESENTATIVE,
CONTACT THE NATIONAL WEATHER SERVICE.

SPOT FORECAST FOR BONE POINT RX...USFS
NATIONAL WEATHER SERVICE PENDLETON OR
530 AM PDT WED OCT 7 2015

FORECAST IS BASED ON IGNITION TIME OF 1915 PDT ON OCTOBER 06.
IF CONDITIONS BECOME UNREPRESENTATIVE...CONTACT THE NATIONAL WEATHER SERVICE.

.DISCUSSION...A WARM FRONT WILL BRING CLOUDY SKIES, HIGHER HUMIDITIES AND RAIN TO THE BURN AREA TODAY. SHOWERS WILL END THIS EVENING AND CONDITIONS WILL TURN WARMER AND DRY WITH GENERALLY LIGHT WINDS THURSDAY THROUGH FRIDAY. THE NEXT CHANCE OF RAIN WILL BE SATURDAY NIGHT AND SUNDAY.

THUNDERSTORMS IMPLY GUSTY AND ERRATIC WINDS
WINDS ARE 20 FOOT 10 MINUTE AVERAGES
CWR-CHANCE OF WETTING RAIN 0.10 OR GREATER
FORECAST IS VALID FOR 12 HOURS AFTER ISSUANCE

.TODAY...

SKY/WEATHER.....CLOUDY. A CHANCE OF RAIN IN THE MORNING...THEN RAIN LIKELY IN THE AFTERNOON.
CWR.....38 PERCENT.
MAX TEMPERATURE.....64.
MIN HUMIDITY.....54-59 PERCENT.
WIND (20 FT).....UPSLOPE LESS THAN 5 MPH BECOMING SOUTH 2 TO 5 MPH IN THE AFTERNOON.

RIDGETOP WIND.....WEST TO SOUTHWEST WINDS 3 TO 8 MPH INCREASING
TO 5 TO 11 MPH IN THE AFTERNOON.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 2500 FT AGL IN THE
AFTERNOON.
TRANSPORT WINDS.....SOUTH TO SOUTHWEST WINDS 4 TO 9 MPH BECOMING
WEST 5 TO 12 MPH IN THE AFTERNOON.

.TONIGHT...

SKY/WEATHER.....MOSTLY CLOUDY. A SLIGHT CHANCE OF RAIN IN THE
EVENING.
CWR.....2 PERCENT.
MIN TEMPERATURE.....48-50.
MAX HUMIDITY.....78-83 PERCENT.
WIND (20 FT).....SOUTHEAST WINDS 3 TO 7 MPH BECOMING TERRAIN
DRIVEN LESS THAN 5 MPH AFTER 2100.
RIDGETOP WIND.....SOUTH TO SOUTHWEST WINDS 5 TO 11 MPH BECOMING
SOUTH TO SOUTHEAST 3 TO 7 MPH AFTER 2200.
MIXING HEIGHT.....NEAR SURFACE.
TRANSPORT WINDS.....SOUTHWEST 5 TO 10 MPH SHIFTING TO THE SOUTHEAST
AROUND 5 MPH AFTER MIDNIGHT.

.THURSDAY...

SKY/WEATHER.....MOSTLY CLOUDY.
CWR.....0 PERCENT.
MAX TEMPERATURE.....72-74.
MIN HUMIDITY.....27-32 PERCENT.
WIND (20 FT).....UPSLOPE LESS THAN 5 MPH BECOMING VARIABLE LESS
THAN 5 MPH IN THE AFTERNOON.
RIDGETOP WIND.....SOUTH WINDS 5 TO 10 MPH DECREASING TO 2 TO 7
MPH IN THE AFTERNOON.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 2500 FT AGL IN THE
AFTERNOON.
TRANSPORT WINDS.....SOUTHEAST WINDS 4 TO 9 MPH BECOMING SOUTH 7 TO
14 MPH IN THE AFTERNOON.

.FORECAST DAYS 3 THROUGH 5...
.FRIDAY...
PARTLY CLOUDY. LOWS 51 TO 56. HIGHS 78 TO 83. SOUTH WINDS 2 TO
6 MPH.
.SATURDAY...
MOSTLY CLOUDY. LOWS 50 TO 55. HIGHS 70 TO 75. SOUTHWEST WINDS
6 TO 11 MPH.
.SUNDAY...
MOSTLY CLOUDY WITH A CHANCE OF RAIN. LOWS 47 TO 52. HIGHS 62 TO
67. SOUTHWEST WINDS 5 TO 11 MPH

FORECAST:
IF CONDITIONS BECOME UNREPRESENTATIVE,
CONTACT THE NATIONAL WEATHER SERVICE.
SPOT FORECAST FOR BONE POINT RX...USFS DEF
NATIONAL WEATHER SERVICE PENDLETON OR
920 AM PDT THU OCT 8 2015

FORECAST IS BASED ON IGNITION TIME OF 0900 PDT ON OCTOBER 08.
IF CONDITIONS BECOME UNREPRESENTATIVE...CONTACT THE NATIONAL WEATHER
SERVICE.

.DISCUSSION...MID AND HIGH LEVEL CLOUDS WILL CONTINUE TO STREAM OVER
THE AREA TODAY AROUND THE TOP OF AN UPPER LEVEL RIDGE WHICH IS CENTER
OFF THE
CALIFORNIA COAST. THERE IS ALSO SOME PATCHY FOG IN THE HIGHER
ELEVATION VALLEYS THIS MORNING. A LARGE UPPER LEVEL TROUGH WILL
SLOWLY APPROACH THE AREA LATER TONIGHT INTO FRIDAY WHICH WILL ACT TO
INCREASE SOUTHERLY WINDS... ESPECIALLY TONIGHT ON THE RIDGETOPS.
THIS SYSTEM IS MOVING VERY SLOWLY THEREFORE WE ARE NOT EXPECTING ANY
PRECIPITATION FROM IT UNTIL AT LEAST SATURDAY AFTERNOON.

THUNDERSTORMS IMPLY GUSTY AND ERRATIC WINDS
WINDS ARE 20 FOOT 10 MINUTE AVERAGES
CWR-CHANCE OF WETTING RAIN 0.10 OR GREATER
FORECAST IS VALID FOR 12 HOURS AFTER ISSUANCE

.TODAY...

SKY/WEATHER.....MOSTLY CLOUDY. PATCHY MORNING FOG.
CWR.....0 PERCENT.
MAX TEMPERATURE.....69-72.

MIN HUMIDITY.....41-45 PERCENT.
WIND (20 FT).....SOUTH WINDS 3 TO 8 MPH.
RIDGETOP WIND.....SOUTH WINDS 6 TO 12 MPH.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 2500 FT AGL IN THE
AFTERNOON.
TRANSPORT WINDS.....SOUTH-SOUTHWEST 7 TO 15 MPH.

.TONIGHT...

SKY/WEATHER.....PARTLY CLOUDY.
CWR.....0 PERCENT.
MIN TEMPERATURE.....48-51.
MAX HUMIDITY.....62-67 PERCENT.
WIND (20 FT).....SOUTH-SOUTHEAST WINDS 3 TO 8 MPH.
RIDGETOP WIND.....SOUTH-SOUTHEAST 8 TO 14 MPH IN THE EARLY
EVENING...
BECOMING SOUTH 17 TO 23 MPH OVERNIGHT.
MIXING HEIGHT.....NEAR SURFACE.
TRANSPORT WINDS.....SOUTH 8 TO 15 MPH.

.FRIDAY...

SKY/WEATHER.....PARTLY CLOUDY.
CWR.....0 PERCENT.
MAX TEMPERATURE.....73-76.
MIN HUMIDITY.....24-28 PERCENT.
WIND (20 FT).....SOUTH-SOUTHWEST WINDS 4 TO 8 MPH IN THE
MORNING...
BECOMING WEST WINDS 6 TO 10 MPH IN THE AFTERNOON.
RIDGETOP WIND.....SOUTHWEST 10 TO 15 MPH IN THE MORNING...
BECOMING WEST-SOUTHWEST 7 TO 12 MPH.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 3500 FT AGL IN THE
AFTERNOON.
TRANSPORT WINDS.....SOUTH 8 TO 16 MPH.

FORECAST:
IF CONDITIONS BECOME UNREPRESENTATIVE,
CONTACT THE NATIONAL WEATHER SERVICE.
SPOT FORECAST FOR BONE POINT RX...USFS
NATIONAL WEATHER SERVICE PENDLETON OR
832 AM PDT FRI OCT 9 2015

FORECAST IS BASED ON IGNITION TIME OF 0825 PDT ON OCTOBER 09.
IF CONDITIONS BECOME UNREPRESENTATIVE...CONTACT THE NATIONAL WEATHER SERVICE.

.DISCUSSION...HIGH PRESSURE WILL KEEP DRY CONDITIONS NEAR THE BURN SITE THROUGH SATURDAY. GUSTY RIDGETOP WINDS THIS MORNING WILL DECREASE AS THE DAY PROGRESSES. A COLD FRONT WILL SWEEP ACROSS EASTERN OREGON SATURDAY NIGHT WITH A CHANCE OF RAIN AND BREEZY WINDS SATURDAY NIGHT THROUGH SUNDAY MORNING.

THE UPPER LEVEL FLOW HAS INCREASED AHEAD OF A
FRONTAL SYSTEM THAT WILL MOVE THROUGH ON SATURDAY NIGHT. AS A
RESULT...RIDGETOP WINDS WILL BE GUSTY TODAY...MAINLY
THIS MORNING. CLOUDS WILL INCREASE ON SATURDAY

THUNDERSTORMS IMPLY GUSTY AND ERRATIC WINDS
WINDS ARE 20 FOOT 10 MINUTE AVERAGES
CWR-CHANCE OF WETTING RAIN 0.10 OR GREATER
FORECAST IS VALID FOR 12 HOURS AFTER ISSUANCE

.TODAY...

SKY/WEATHER.....PARTLY CLOUDY.
CWR.....0 PERCENT.
MAX TEMPERATURE.....76.
MIN HUMIDITY.....28 PERCENT.
WIND (20 FT).....SOUTHWEST WINDS 4-8 MPH.
RIDGETOP WIND.....SOUTHWEST 10-15 MPH BECOMING SOUTHWEST/WEST 7-12
MPH.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 3000 FT AGL IN THE
AFTERNOON.
TRANSPORT WINDS.....SOUTH 7 TO 16 MPH.

.TONIGHT...

SKY/WEATHER.....PARTLY CLOUDY.

CWR.....0 PERCENT.
MIN TEMPERATURE.....51.
MAX HUMIDITY.....75 PERCENT.
WIND (20 FT).....WEST-NORTHWEST WINDS 4-7 MPH...BECOMING DRAINAGE WINDS
0-3 MPH AFTER MIDNIGHT.
RIDGETOP WIND.....WEST-NORTHWEST 4-10 MPH...BECOMING SOUTH 1-4 MPH AFTER
MIDNIGHT.
MIXING HEIGHT.....NEAR SURFACE.
TRANSPORT WINDS.....SOUTHWEST 3 TO 10 MPH.

.SATURDAY...

SKY/WEATHER.....PARTLY CLOUDY.
CWR.....0 PERCENT.
MAX TEMPERATURE.....73.
MIN HUMIDITY.....27 PERCENT.
WIND (20 FT).....SOUTH-SOUTHWEST 4-8 MPH...BECOMING SOUTHWEST AND INCREASING
TO 9-13 MPH AFTER 1400.
RIDGETOP WIND.....SOUTHEAST 5-10 MPH...INCREASING TO 15-20 MPH AFTER 1400.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 4500 FT AGL IN THE
AFTERNOON.
TRANSPORT WINDS.....SOUTH 6 TO 12 MPH SHIFTING TO THE SOUTHWEST 17
TO 18 MPH IN THE AFTERNOON.

FORECAST:

IF CONDITIONS BECOME UNREPRESENTATIVE,
CONTACT THE NATIONAL WEATHER SERVICE.

SPOT FORECAST FOR BONE POINT RX...FOREST SERVICE
NATIONAL WEATHER SERVICE PENDLETON OR
631 AM PDT SAT OCT 10 2015

FORECAST IS BASED ON IGNITION TIME OF 0630 PDT ON OCTOBER 10.
IF CONDITIONS BECOME UNREPRESENTATIVE...CONTACT THE NATIONAL WEATHER SERVICE.

.DISCUSSION...A COLD FRONT WILL MOVE INTO THE REGION TODAY AND TONIGHT BRINGING A CHANCE OF LIGHT RAIN STARTING TONIGHT. PRECIPITATION AMOUNTS WILL BE LIGHT...THOUGH LIKELY ENOUGH TO WET THE FUELS. WINDS WILL INCREASE THIS AFTERNOON AND EVENING FROM THE SOUTH TO SOUTHWEST ON THE RIDGE TOPS WITH CHANNELING THROUGH THE VALLEYS AND CANYONS. THE WINDS WILL DECREASE SUNDAY AFTERNOON. RELATIVE HUMIDITY WILL BE MODERATE WITH GOOD RECOVERY AT NIGHT.

THUNDERSTORMS IMPLY GUSTY AND ERRATIC WINDS
WINDS ARE 20 FOOT 10 MINUTE AVERAGES
CWR-CHANCE OF WETTING RAIN 0.10 OR GREATER
FORECAST IS VALID FOR 12 HOURS AFTER ISSUANCE

.TODAY...

SKY/WEATHER.....PARTLY CLOUDY.
CWR.....0 PERCENT.
MAX TEMPERATURE.....74-76.
MIN HUMIDITY.....27-29 PERCENT.
WIND (20 FT).....SOUTH 1-5 MPH BECOMING SOUTHWEST 10-15 MPH IN
THE AFTERNOON.
RIDGETOP WIND.....BECOMING SOUTHWEST 15-25 MPH IN THE AFTERNOON.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 4000 FT AGL IN THE
AFTERNOON.
TRANSPORT WINDS.....SOUTH 2-6 EARLY BECOMING SOUTHWEST 20-30 MPH
IN THE AFTERNOON.

.TONIGHT...

SKY/WEATHER.....MOSTLY CLOUDY. A CHANCE OF LIGHT RAIN.
CWR.....20 PERCENT.
MIN TEMPERATURE.....49-51.
MAX HUMIDITY.....91-93 PERCENT.
WIND (20 FT).....SOUTHWEST 10-15 MPH IN THE EVENING BECOMING
SOUTHWEST 2-6 MPH AFTER MIDNIGHT.
RIDGETOP WIND.....SOUTHWEST 15-25 MPH IN THE EVENING BECOMING
SOUTHWEST 5-10 MPH AFTER MIDNIGHT.
MIXING HEIGHT.....3000 FT AGL DECREASING TO NEAR SURFACE AFTER

MIDNIGHT.
TRANSPORT WINDS.....DECREASING TO SOUTHWEST 3-7 MPH AFTER MIDNIGHT.

.SUNDAY...

SKY/WEATHER.....PARTLY CLOUDY.
CWR.....0 PERCENT.
MAX TEMPERATURE.....59-61.
MIN HUMIDITY.....35-37 PERCENT.
WIND (20 FT).....SOUTHWEST 3-7 MPH.
RIDGETOP WIND.....SOUTHWEST 4-9 MPH.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 3500 FT AGL IN THE
AFTERNOON.
TRANSPORT WINDS.....SOUTHWEST 5-10 MPH

FORECAST:
IF CONDITIONS BECOME UNREPRESENTATIVE,
CONTACT THE NATIONAL WEATHER SERVICE.
SPOT FORECAST FOR BONE POINT RX...USFS
NATIONAL WEATHER SERVICE PENDLETON OR
345 PM PDT SAT OCT 10 2015

FORECAST IS BASED ON IGNITION TIME OF 1420 PDT ON OCTOBER 10.
IF CONDITIONS BECOME UNREPRESENTATIVE...CONTACT THE NATIONAL WEATHER SERVICE.

.DISCUSSION...A COLD FRONT IS APPROACHING THE CASCADES AND WILL MOVE OVER THE BURN AREA THIS EVENING. IT WILL BRING LIGHT RAIN AND WIND TONIGHT. WINDS WILL INCREASE BETWEEN 1700 AND 1900 THIS EVENING FROM THE SOUTH TO SOUTHWEST ON THE RIDGE TOPS WITH CHANNELING THROUGH THE VALLEYS AND CANYONS. THE WINDS WILL DECREASE AFTER MIDNIGHT.

THUNDERSTORMS IMPLY GUSTY AND ERRATIC WINDS
WINDS ARE 20 FOOT 10 MINUTE AVERAGES
CWR-CHANCE OF WETTING RAIN 0.10 OR GREATER
FORECAST IS VALID FOR 12 HOURS AFTER ISSUANCE

.TONIGHT...

SKY/WEATHER.....MOSTLY CLOUDY. SCATTERED RAIN SHOWERS.
CWR.....25 PERCENT.
MIN TEMPERATURE.....46.
MAX HUMIDITY.....87 PERCENT.
WIND (20 FT).....WEST WINDS 11 TO 17 MPH WITH GUSTS UP TO 30 MPH
DECREASING TO 4 TO 9 MPH AFTER MIDNIGHT.
RIDGETOP WIND.....WEST WINDS 15 TO 25 MPH BECOMING SOUTHWEST 6 TO 11
MPH AFTER MIDNIGHT.
MIXING HEIGHT.....3000 FT AGL DECREASING TO NEAR SURFACE AFTER
MIDNIGHT.
TRANSPORT WINDS.....SOUTHWEST 10 TO 14 MPH DECREASING TO 6 TO 10 MPH
AFTER MIDNIGHT.

.SUNDAY...

SKY/WEATHER.....PARTLY CLOUDY THEN BECOMING MOSTLY SUNNY.
CWR.....0 PERCENT.
MAX TEMPERATURE.....59.
MIN HUMIDITY.....40 PERCENT.
WIND (20 FT).....SOUTHEAST WINDS 3 TO 8 MPH.
RIDGETOP WIND.....SOUTH WINDS 4 TO 9 MPH.
MIXING HEIGHT.....NEAR SURFACE INCREASING TO 3500 FT AGL IN THE
AFTERNOON.
TRANSPORT WINDS.....SOUTH 7 TO 13 MPH.