Redondo Prescribed Fire Declared Wildfire Review

Cibola National Forest, Southwestern Region
June 2018

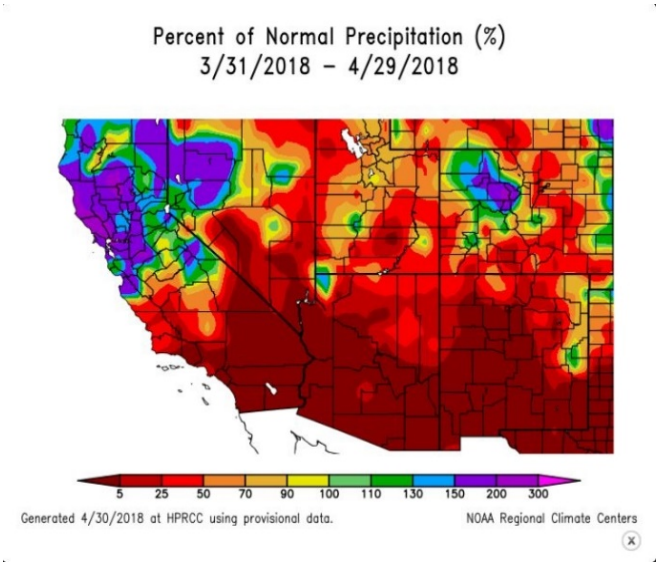
The Redondo Rx was located on the Mount Taylor Ranger District, Cibola National Forest in New Mexico. Ignitions began the morning of April 9 and ceased mid-afternoon on April 10, 2018. On April 12, in the midst of an 11-hour wind event in which three separate wildfires were reported, the Redondo Rx was declared a wildfire when crews were unable to secure multiple spots across the holding line.

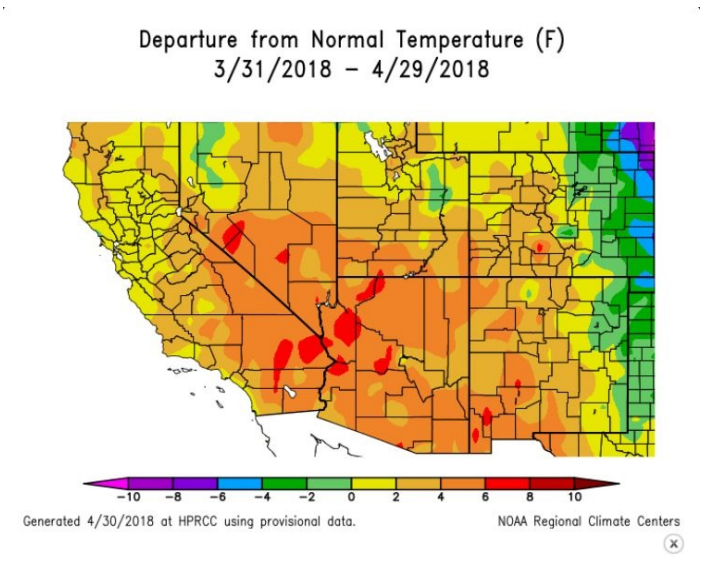
On May 11, 2018, the Southwestern Region, Regional Forester, Cal Joyner, requested a Facilitated Learning Analysis (FLA) associated with the Redondo Rx. Embedded in the delegation letter to the FLA team was a request for the team to also address the five elements of a declared wildfire review as specified in the Interagency Prescribed Fire Planning and Implementation Procedures Guide (PMS 484). These elements (referred to as "parameters" below) include the following:

1. An analysis of the seasonal severity, weather events, and on-site conditions leading up to the wildfire declaration.
2. An analysis of the prescribed fire plan for consistency with agency policy and guidance related to prescribed fire planning and implementation.
3. An analysis of prescribed fire implementation for consistency with the prescription, actions, and procedures in the prescribed fire plan.
4. The approving agency administrator's qualifications, experience, and involvement.
5. The qualifications and experience of key personnel involved.

Parameter 1: An analysis of the seasonal severity, weather events, and on-site conditions leading up to the wildfire declaration.

Precipitation and Temperature: Precipitation across the Southwestern United States during the winter (2017) and early spring (2018) were well below normal, and temperatures remained warm and above normal throughout the region for this time of year. A short duration storm system moved through the area approximately one month before the prescribed fire was ignited. The moisture associated with the storm was enough to raise fuel moistures for a short period before conditions dried out again.

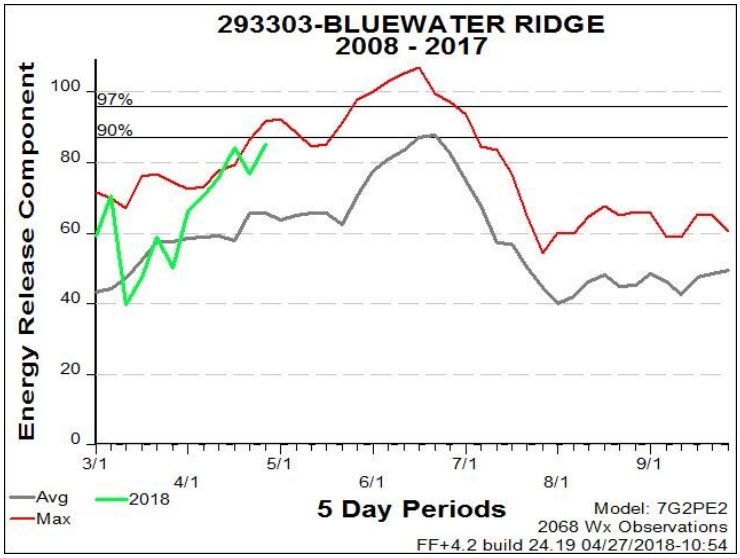




As shown above:

- The region was showing 5-50% of normal precipitation for this time of year.

- Across the region, temperatures were consistently 4-6° Fahrenheit higher than normal.
- The project area seemed to be approximately one month ahead of normal drying conditions, however the area's fuel moistures were within prescription.



- Permanent Remote Automated Weather Station (RAWS) located within the prescribed fire unit, but excluded with control lines.
- The figure shows that the ratings are slightly below the 90th percentile and near historic highs for the Energy Release Component (ERC).

Below are the spot weather forecasts for the two days of ignition during the Redondo Prescribed Fire (forecasts were requested the night before for the next day's operational period):

Spot Forecast for Redondo RX...USFS
National Weather Service Albuquerque NM
630 PM MDT Sun Apr 8 2018
.DISCUSSION...
Winds will subside this evening. Less wind Monday and Tuesday with lots of sunshine. Cooler Monday, warmer Tuesday. Winds increase again
Wednesday and Thursday, could be quite strong Thursday (higher than today).
.Monday...

Sky/weather.....Sunny.
Chance of Pcpn.....0 percent.
Max Temperature.....66-70.
Min Humidity.....5-9 percent.
20 Foot Winds.....South winds around 5 mph shifting to the southwest 5 to 8 mph in the afternoon.
Mixing Height.....9500 ft AGL.
Transport winds.....West 11 knots.
Max Vent Rate.....Very good/105720 knot-ft at 1700 local.
Ventilation Trend...Poor/10378 knot-ft around mid-morning and very good/105720 knot-ft by midafternoon.

Spot Forecast for Redondo RX...USFS
National Weather Service Albuquerque NM
702 PM MDT Mon Apr 9 2018
DISCUSSION...
Very dry through Thursday. Light winds Tuesday will become stronger Wednesday and especially Thursday. Critical fire weather conditions possible Wednesday, likely on Thursday. Barely fair relative humidity recoveries tonight. Poor recoveries Tuesday night and probably Wednesday night.
.TUESDAY...

Sky/weather.....Mostly sunny in the morning then becoming partly cloudy.
Chance of Pcpn.....0 percent.
Max Temperature.....66-70.
Min Humidity.....6-10 percent.
20 Foot Winds.....Southwest winds 4 to 8 mph.
Mixing Height.....9500 ft AGL.
Transport winds.....West 10 knots.
Max Vent Rate.....Good/94953 knot-ft at 1700 local.
Ventilation Trend...Poor/12630 knot-ft around mid-morning and good/94953 knot-ft by midafternoon.

Findings – The seasonal severity seemed to be a month ahead of time as accounted by the Burn Boss. The weather and fuel moistures on-site were showing conditions were right to implement the prescribed fire plan. Drought conditions across the region did not contribute to the prescribed fire

moving outside of the planned boundary, however it may have played a role in the resistance to control once wind, slope, and fuels all came into alignment.

Parameter 2: An analysis of the prescribed fire plan for consistency with agency policy and guidance related to prescribed fire planning and implementation

A review of the Redondo Prescribed Fire Burn Plan was conducted by the FLA team.

- Element 1: Signature Page. The signature page of the burn plan was signed by the preparer on February 13, 2017, the technical reviewer on March 27, 2018, and the Agency Administrator on April 6, 2018.
- Element 2A: Agency Administrator Ignition Authorization. The authorization was signed by the Burn Boss and Agency Administrator on April 6, 2018, with an authorization period of April 6, 2018, through April 30, 2018.
- Element 2B: Prescribed Fire Go/No-Go Checklist. The checklist was completed by the Burn Boss each day of ignitions (April 9, 2018, and April 10, 2018).
- Element 3: Complexity Analysis Summary and Final Complexity. The most current Prescribed Fire Complexity Rating System Guide (PMS 424, July 2017) was signed by the Prescribed Burn Plan preparer, the Technical Reviewer, and Agency Administrator on March 27, 2018.

Findings – All elements were consistent with agency policy and guidance outlined in the Interagency Prescribed Fire Planning and Implementation Procedures Guide (PMS 484) and the Prescribed Fire Complexity Rating System (PMS 424). A technical review was completed by a qualified Burn Boss type 2. The technical reviewer highlighted needed corrections in the burn plan, but did recommend the plan for approval on March 27, 2018.

Parameter 3: An analysis of the prescribed fire implementation for consistency with the prescription, actions, and procedures in the prescribed fire plan.

- Element 7: Prescription.
    - Environmental parameters. Day one April 9, 2018, the prescription parameters, specifically the relative humidity, was below prescription from approximately 1500 hours and ended at 2000 hours. Day two April 10, 2018, the prescription parameters, specifically the relative humidity, was below prescription from 1600 hours and ended at 1900 hours.
    - All other environmental parameters were within the prescription lined out in the burn plan.
    - Fire Behavior prescriptions – On site fire observations show flame lengths and rates of spread were greater than projected in the burn plan, but still within the acceptable range.
- Element 9: Pre-burn Considerations and Weather.
    - A. Considerations. On and off site – All hand lines, archeological sites, range fences, and two track roads were prepped prior to implementation.
    - B. Method and Frequency for Obtaining Weather and Smoke Management Forecast(s). Spot weather forecasts from the National Weather Service were obtained for both ignition days.

- Element 11: Organization and Equipment.
    - The organization met and exceeded the staffing requirements. The burn plan, using the spring/summer organization called for an RXB2, FIRB, Holding Boss (single resource), 1 type VI engine, and various holding and firing personnel for a total of 24 people. The actual on-scene organization during the prescribed fire was a total of 49 individuals.

Findings – All actions and procedures followed the burn plan. The relative humidity fell below the minimum prescription requirement stated in the burn plan, however on-site observations showed that fire effects were within desired conditions. Firing operations continued to secure and keep up with fire spread during this time. On-site winds were mostly terrain driven and not as predicted in the spot weather forecasts. Features of special interest were protected and/or excluded from fire during operations. Additional personnel were on-site due to forest-wide readiness exercises.

Parameter 4: The approving administrator's qualifications, experience, and involvement.

- Agency Administrator (AA) was qualified to sign and approve Type 2 prescribed burn plans. The AA met minimum involvement standards.

Findings – The March 12, 2018, letter of delegation from the Forest Supervisor was reviewed and found to be current. This was the AA's first assignment on a prescribed fire. The AA was briefed on the burn plan and complexity analysis before ignitions occurred and allowed the opportunity to provide feedback into the process.

Parameter 5: The qualifications and experience of key personnel involved.

According to the current IQCS records the qualifications and experience of key personnel at time of ignition is as follows:

- Burn Boss – *unqualified, not current in IQCS (approximately 20 years of experience)
- Firing Boss – qualified, current in IQCS (approximately 3 years of experience)
- Holding Boss – qualified, current in IQCS (approximately 8 years of experience)

A qualified Incident Commander Type IV (ICT4) was given responsibility for the prescribed fire after ignitions were completed and no holding concerns were present. The ICT4 was in place and qualified along with an ICT4 trainee on April 12, 2018. The transfer of command was outlined in the prescribed fire plan.

Findings – *The burn boss assigned to the prescribed fire is unqualified in IQCS due to a lack of previous experiences entered. Dispatch record (WildCad) shows the individual performed as a fully qualified RXB2 at least three times in the last three years. Experience records were never entered into IQCS, so the individual is unqualified as of April 6, 2018.

It is the finding of the team that this did not lead to or contribute to the escape of the prescribed fire, but it is a finding that Forest and Regional Staff will investigate further.