

## **Sixteen Complex CALNU-007072**

### **Fire Behavior Narrative.**

FBAN/LTAN names here

### **Executive Summary**

- The Sixteen Complex started on 4 September and burned in grass, chamise, and manzanita fuels in steep, poorly accessible terrain. Fuels were at historic seasonal highs for Energy Release Component.
- The fires grew rapidly, primarily fuels and terrain driven, assisted by evening winds with low relative humidity.
- Main fire growth was to the upslope and northeast. Direct attack on the head fire was not feasible. Indirect lines were challenged and overrun on upper slopes with night winds.
- Indirect line established across Cortina Ridge, on the northern end was completed and fired in time on 7 September to create adequate depth and hold the main fire advance later that evening.

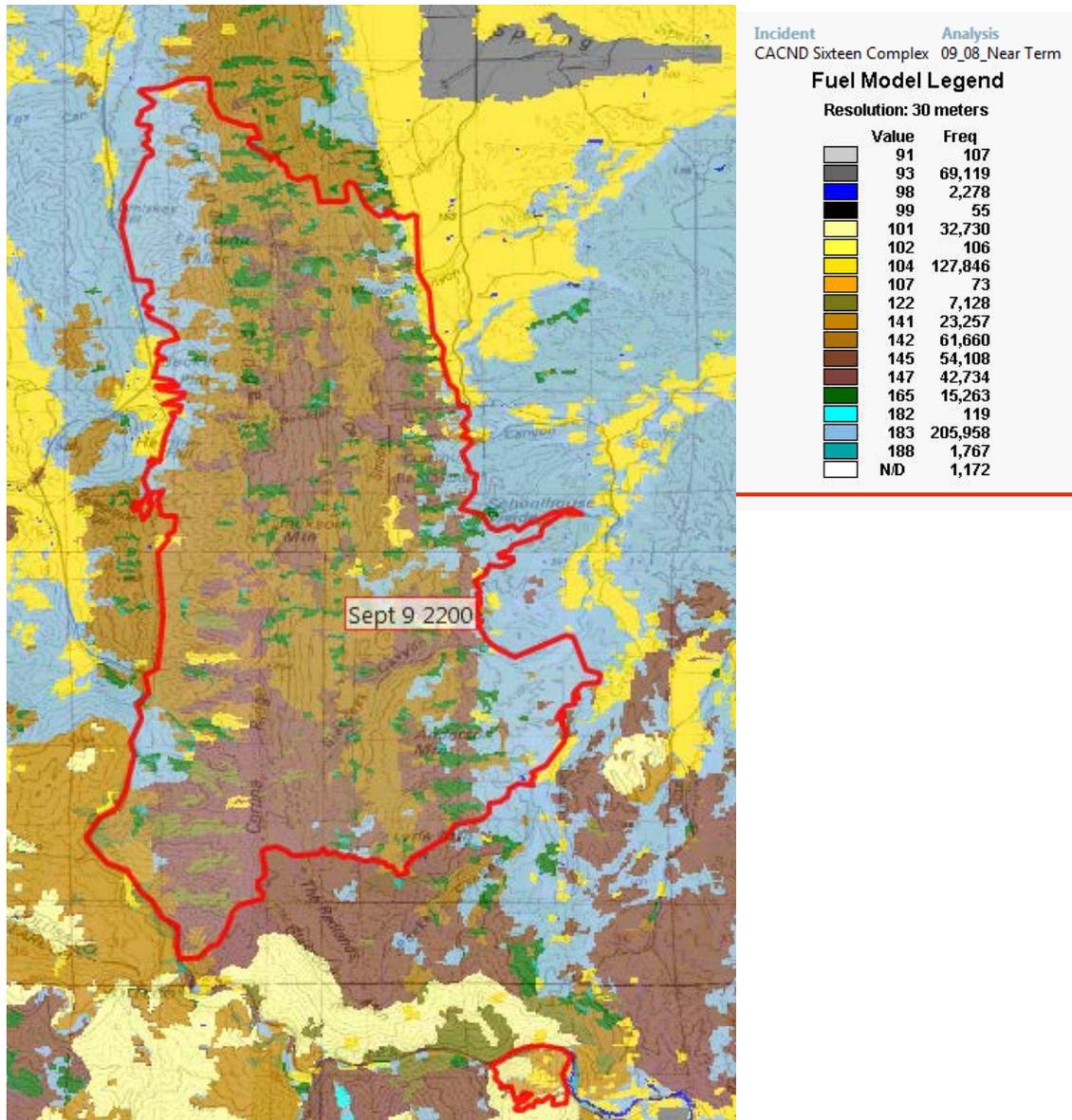
The Sixteen Complex had two fire starts and was reported around 1545 hours on 4 September 2012. CAL FIRE team 3 was activated on 5 Sept., in-briefed at 1700 hours and assumed the complex that evening at 2000 hours.

### **Fire Behavior Discussion**

Fuels –

The fires burned in multiple fuel types. Brush areas are dominated by chamise and manzanita, with a minor component of scrub and poison oak. Initially modeled as NFFL Model 4, this was adjusted to a GS2 (moderate load, dry climate grass – shrub) as a better predictor. Grass fuels were modeled initially as a NFFL 1, and adjusted to a GR2 (low load, dry climate grass) model. The WFDSS fuel models show the area as predominantly SH2, SH5, and TL3 (Figure 1). These models seemed to over predict observed fire behavior, so the models adopted above were used for daily forecasts. This area has been included in a Northern California Fuels and Fire Behavior Advisory issued 19 August. Energy Release Component values for the County Line and Brooks RAWS were as shown in Figure 2. Due to the fire effects on vegetation and soil surface heating, the County Line RAWS is not considered accurate for temperature, relative humidity, and fuels, but the trends are illustrative of weather effects on the Sixteen incident. Both Brooks and County Line tracked above the 97<sup>th</sup> percentile for ERC.

Fuel consumption in cured material is almost complete. Live chamise on all except the north facing slopes was consumed where adequate fine dead fuels were available to carry fire. There was little evidence of mortality to mature oaks. Some pockets of young grey pine were destroyed, but passive crown fire in timber was rare.



**Figure 1. Fuels map from WFDSS.**

**Topography**

The Rumsey Canyon area is steep and rugged with a history of large fires. Cache Creek flows northwest to south through the canyon into the Capay Valley. The fires burned up slopes exceeding 100%, averaging about 60%. The major north/south trending ridge east of Highway 16 is Cortina Ridge. On the east, the fire burned to the Spring Valley flats. Figure 3 provides a snapshot of the topographic landscape.

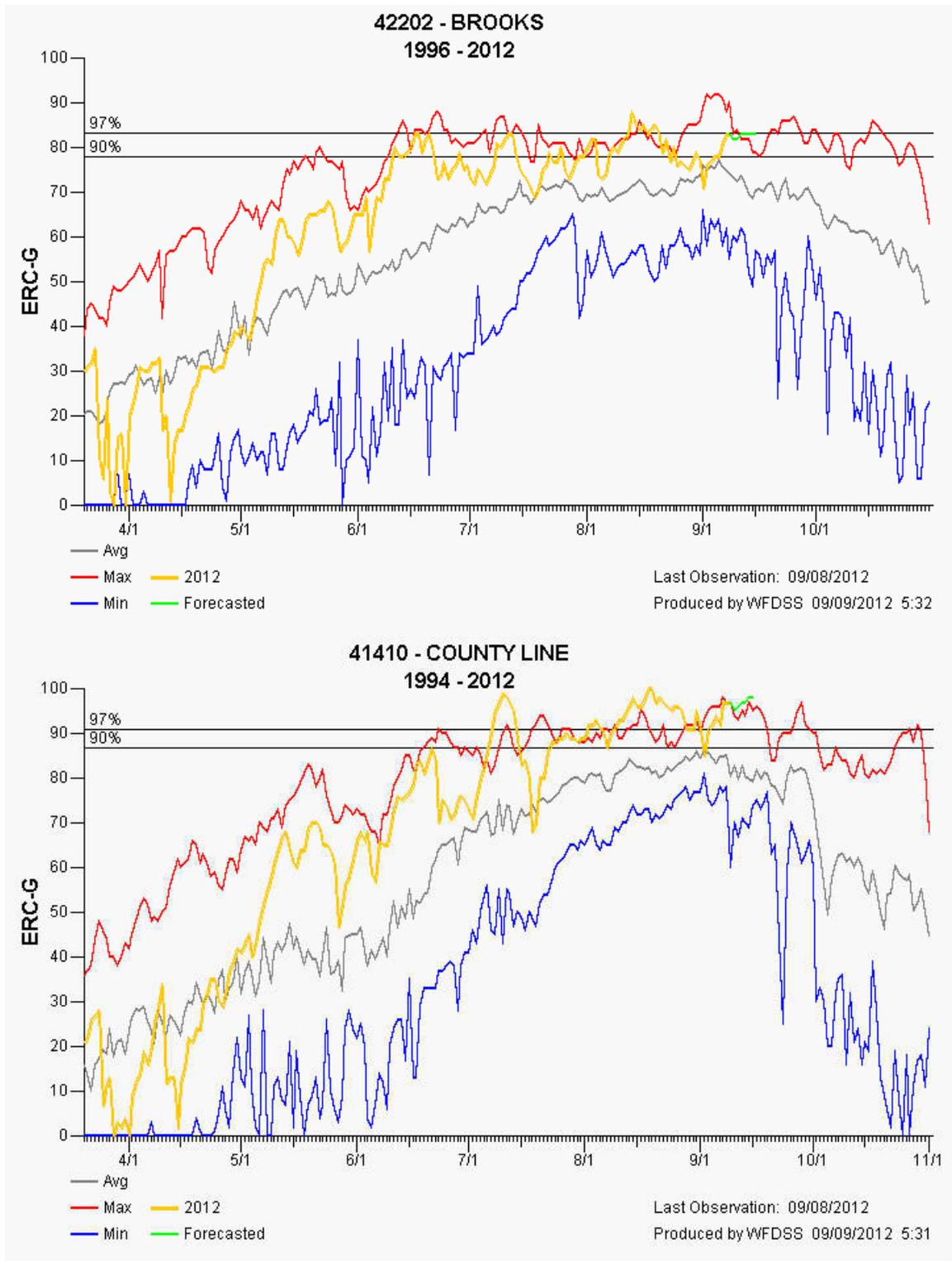
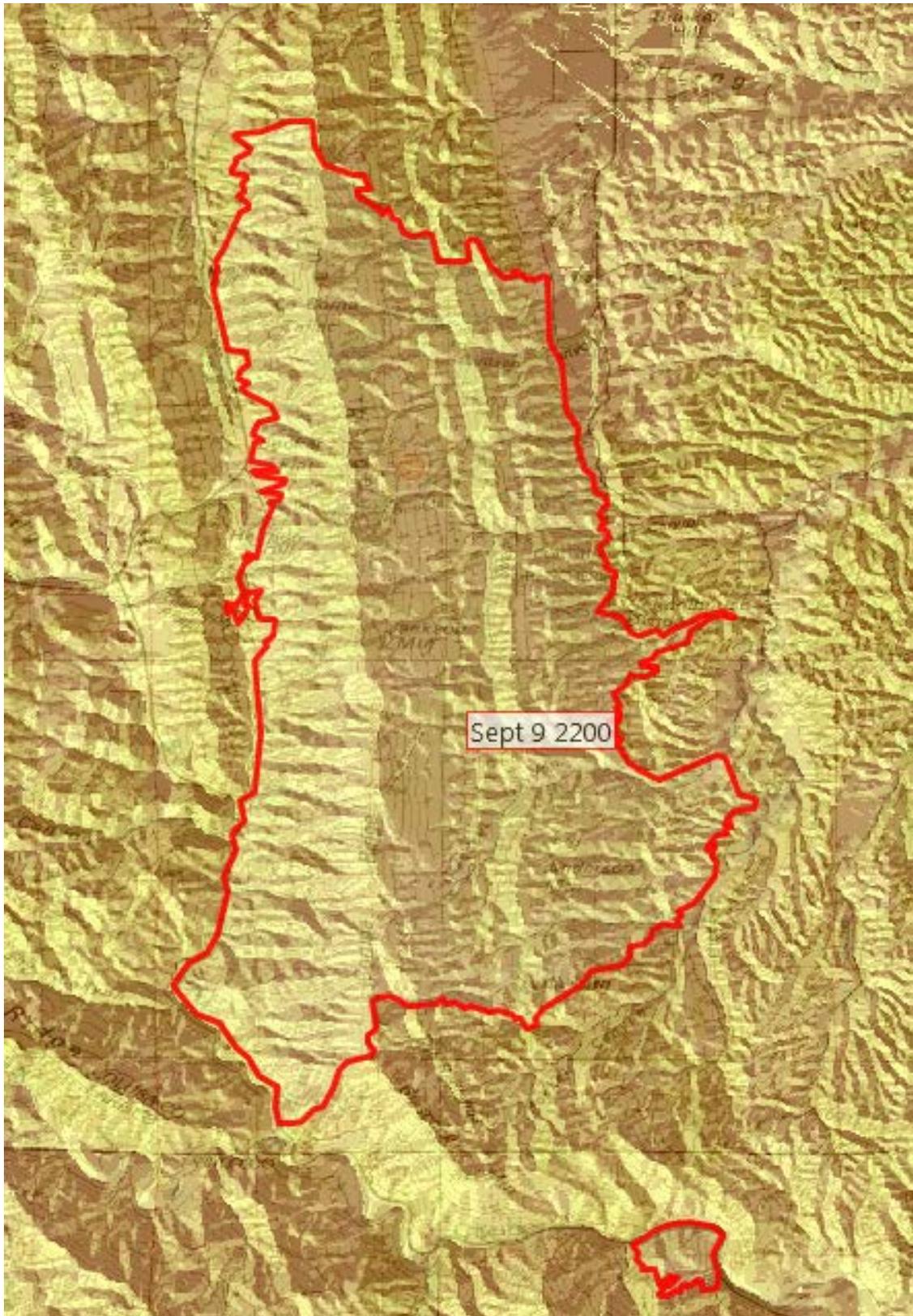


Figure 2. ERC graphs for Brooks and County Line RAWs from WFDSS analysis.



**Figure 3. Topography from WFDSS.**

## Weather

A dry weather pattern has affected the fire area for months. Relative humidity values were down into the teens and temperatures in the valleys was in the mid 90° F range. Winds along this area are complex, largely terrain driven on the lower slopes – unless they align with ridgeline winds and can become gusty. These ridges are along the central valley, and winds at the ridgelines have been primarily southwest 10-15, gusting to 25 at night, with low RH values. This is when most of the fire spread was occurring. Please refer to the weather discussion provided by the Incident Meteorologist.

## Fire Behavior

The fires grew quickly from ignition, primarily driven by extremely fuels and terrain. As the northern fire (Branch I) approached the upper ridgelines, wind became a major contributor to fire growth. That fire then followed ridges, and spotted out a distance of 0.25 to 0.5 miles into the lower slopes and valleys. Fire activity would pick up at about 1100 hours each day, become active around 1400 hours and burn until evening. Southwest winds of 10-15, gusting to 25 mph with low relative humidity values were experienced on the ridges each night, advancing the fire about one mile to the northeast. Indirect control lines combined with firing operations produced the final perimeter.

## Chronology

Tuesday, September 04, 2012

A vegetation fire (Branch I) was reported near County Road 88 and County Road 27 in Yolo County at approximately 3:40 p.m. A second fire (Branch II) was reported along Highway 16 north of the Colusa/Yolo County Line at 3:45 p.m.

Weather from nearby remote activated weather stations (RAWS) documented the following weather conditions at the time of the starts. Ridgeline conditions from County Line RAWS 6 miles west of fire area at 1548 hours, winds with easterly flow for afternoon, temperature 92°F, 10% RH, Winds NE 6 gusts 15. Winds later became SW 8 with gusts 16 around 1800. Valley conditions from Brooks RAWS 12 Miles South of fire area at 1555 hours, temperature 97°F, 15% RH, Winds SE 7 gusts 12. Winds became down slope after sunset, and down valley by 2300

First fire, in Colusa County, is identified as Branch I and the second fire, in Yolo County, is Branch II of the Sixteen Complex (CALNU007072). Initial control objectives for Branch I are to keep the fire east of Highway 16, west of County Road 41/Sand Creek Road, south of Cortina Rancheria, and north of Cache Creek. Initial control objectives for Branch II are to keep the fire east of Rayhouse Road, west of the town of Rumsey, south of Cache Creek, and of Rumsey Creek (in Section 14). First ICS 209 is submitted at 2030 showing Branch I as 1,000 acres and 10% contained, Branch II as 200 acres and 10% contained.

The fires remain active through the night with little relative humidity recovery and are visible from adjacent counties. Branch I fire reaches Cortina Ridge and spreads to the

north. Direct attack on Branch I's right flank keeps the two fires from merging. Dozers use access point near Windy Bridge to reach the ridge above Branch I and begin to build control lines towards Spring Valley Road. Resources are sent to Cortina Rancheria to assess structure threat.

Branch II fire burns to the top of the ridge between Pocket Gulch and Pole Bridge Canyon. Right flank of Branch II is held. Left flank of Branch II grows past planned control lines due to surfacing of a north, down-canyon, wind. Town of Rumsey is thought to be possibly be threatened by Branch II. Resources resting at Wilbur Springs Station are awakened diverted to build contingency lines on Branch II. A dozer strike team that had planned to arrive for the 0700 briefing was requested to respond immediate need.

Wednesday, 5 Sep 2012

0700 to 0700 operational period established.

The Very Large Air Tanker (VLAT) is used on Branch I.

Direct attack on Branch II with dozers, handcrews, and hoselays is successful.

CAL FIRE Incident Management Team #3 is activated for the incident and transition meeting is held at 1700 at the Yolo County Fairgrounds in Woodland. IMT #3 assumed management of the fire at 2000.

Branch I burned actively east of Highway 16 along Cortina Ridge and downslope towards the Cortina Rancheria. Burn conditions became very active in the early evening, with southwest winds and low humidity on the upper slopes. Fire advanced to the northeast about two miles overnight. Area RAWS in use include the Brooks RAWS for valley conditions south of the fire, and the County Line RAWS for ridgeline conditions. The County Line RAWS is within the 2012 Walker incident burn and survived in good condition.

Thursday, 6 Sep 2012

A National Weather Service Red Flag Warning that had been anticipated for this shift was cancelled. Morning conditions produce active burning on the northeast flank of Branch I. The western side of the fire had advanced along Cortina Ridge and was visible from Highway 20 at the gate entrance to the Goble Ranch. The west side was slowly backing down from the ridge, with shading from smoke influencing fire behavior on this flank. Many islands of unburned fuels interior were observed, as the fire had advanced by spotting overnight. Spotting distances of 0.6 miles were predicted, but a spot was found 1.0 miles from the fireline. Some areas of grass were heavily grazed and were resistant to burning. Control efforts focused on establishing indirect lines from the Highway 20 side in Sections 7 & 8, T18N, R4E, to Cortina Ridge, and follow a grassy ridgeline down

towards Spring Valley Road. The line was completed and firing operations initiated along this line. Overnight winds combined with low humidity to give the fire another substantial push to the north and east. The fire approached, but remained short of established control lines by morning.

Friday, 7 Sep 2012.

Morning conditions produce additional active burning on the northeast flank of Branch I. Control lines were being fired along the northeastern indirect line to bring it down to the base of the slope along the dozer lines above Spring Valley. This side was in clear air and burned well, backing into the main fire area. In the early afternoon, while observing fire behavior below Cortina Ridge from a position on Highway 20, retired BC Xxx Xxxxx joined us. We observed slow backing fire behavior as this side was heavily shaded by smoke. We discussed the history of fires in this area, and the strategy and tactics being employed on this incident. Chief Xxxx has a legendary history of fighting fire in this area, and concurred with the approach being taken, given our conditions. CAL FIRE Portable 14 RAWS was delivered to Wilbur Springs Station at 1400 hours. There was insufficient time to obtain landowner permission and deploy the unit this shift.

Overnight winds combined with low humidity to give the fire a substantial push to the north and east. Firing continued into the evening above Highway 20 to complete the ground firing. Control lines that had been burned in along the north and northeast held and winds served to effectively black in several islands of unburned fuel.

Saturday, 8 Sep 2012

Smoke conditions in the fire area generally clear this morning. Few active smokes were visible from a distance. At about 1100 hours, aerial ignition of interior islands using a plastic sphere dispenser (PSD) was attempted on the west side of Cortina Ridge. Fuels remained resistant to ignition on this aspect. The helicopter crossed the ridge and commenced interior firing on the east side, with fair success. Some islands were capable of burning, others would not carry fire. Multiple passes were made on an estimated 800 acre island, with negative ignition. CAL FIRE Portable RAWS 14 was set up on the middle peak of Three Sisters and is operational. Interior islands continued active burning in isolated areas throughout the day. A slopover was found across dozer line near the Division N/X break at approximately 2130 hours that was quickly picked up by on-scene resources. Evening winds were still a factor, but minimal fire activity was noted along the lines or interior after the slopover event.

Sunday, 9 Sep 2012

Minimal fire activity observed today. Final construction of control lines completed. A few smokes were visible interior, with some helicopter support for crews working heat

near the line. No aerial or ground ignition was implemented this shift. A site visit was completed to the County Line RAWS to assess condition of the unit. Most of the vegetation has been killed and some patches of brush were completely consumed. The fuel stick took some heat and the data housing had some melted plastic caps, but the unit seemed in good repair overall. Afternoon showed a smoke on the west side of Cortina Ridge above Highway 20. No interior burning of islands was observed on the east side. The Incident Meteorologist had a weather update broadcast this afternoon for stronger winds than noted in the fire weather forecast for this shift. Northerly winds began to affect the ridge areas in the evening. No interior island burn out was reported overnight. This was the first full shift without a spot fire or slopover.

Monday, 10 Sep 2012

Infra-red imagery still reports residual heat in isolated patches interior and near the lines in multiple areas. Mop-up and suppression repair activities continue through the shift. Given the several days of exposure interior islands have had to ember load and aerial firing under favorable conditions, it is unlikely these islands contain sufficient fuel to carry ground fire. Mop-up of these islands is not advised given the difficulty of access and depletion of resource strength. The Incident Meteorologist had a weather update broadcast this afternoon for stronger winds than noted in the fire weather forecast for this shift.

Tuesday, 11 Sep 2012

Resources assigned continued mop-up. Minimal heat found, mostly on interior islands. The Incident Meteorologist was released to assignment this morning. No fire activity reported overnight.

Wednesday, 12 Sep 2012

Fire transitioned to the Sonoma – Lake – Napa Unit of CAL FIRE this morning, with a briefing conducted by the new Incident Commander at Wilbur Springs FFS this morning. A Fire Weather Spot Forecast was faxed to that site at 0715 hours. CAL FIRE Incident Command Team #3 held the transition meeting with the Agency Administrator at 1000 hours.