Message from the Chief

Chief's Memo – July 2, 2007

Tulare County Contract Ends / Change, Doing Things Differently / Use of the DC-10

On Saturday, June 30, 2007, *CAL FIRE* ended its Schedule-A contractual relationship with Tulare County after eighty (80) years. *CAL FIRE* has had an unofficial relationship with Tulare County since 1927. During the time from 1927 to 1935 the "State Division of Forestry" had an unofficial agreement to protect the mountain areas of Tulare County; the state responsibility area (SRA) definition had not yet been defined. The official contract to protect Tulare County, in its entirety, was signed in 1935. Until today, this agreement was one of the oldest *CAL FIRE* contracts in place.

I am extremely proud of Unit Chief Ed Wristen and his team for the tremendous job they have done of making this transition occur so seamlessly and professionally. He provided the leadership through the 18 months of transition, coming out of retirement to see it through in a caring manner. As of two weeks ago, all *CAL FIRE* personnel that were displaced by the terminated contract had new assignments.

Stan Craig provided leadership and coordination, keeping the Intranet website updated to keep employees informed, conducting meetings, developing plans, and negotiating agreements. The CDF Firefighters' Union was a close partner in developing and administering the plan with leadership from Billy See, Mike Ramirez, and Ken Craw. Larry Menth and his team in the Labor Relations Unit were there from the beginning, working with the union through many meetings and phone calls. Many other personnel contributed to the successful transition; Barbara Jean Gomez who provided personnel services support, Melanie Freeman who completed the IT work on the county/state computer switches, the

personnel who keyed all of the transactions, Mike Davidson who coordinated all of the moving of furniture, supplies, etc., and the rest of the *CAL FIRE* units who assisted in finding new jobs for the displaced Tulare Unit employees.

On Sunday, July 01, 2007 the following statements were simulcast on state and county fire frequencies:

Visalia (state dispatch) 2 beeps:

> 0758 hours: "All personnel are advised, the Command and Control of the Tulare County Fire Department has been transferred from *CAL FIRE* Administration to the Tulare County Administration. *CAL FIRE* wishes the best of luck to Tulare County fire, and it has been our honor to serve the citizens of and visitors to Tulare County. Visalia is out of service - KNDH 519."

Fire Com (county dispatch) 2 beeps:

> 0759 hours: "All personnel are advised, the Command and Control of the Tulare County Fire Department has been transferred from *CAL FIRE* Administration to Tulare County Fire Administration. Tulare County Fire also wishes to thank Chief Wristen and the many *CAL FIRE* personnel that have provided an outstanding service to the citizens of Tulare County for the past 80 years. Fire Com is in service - KMG 297."

When any relationship ends, especially one with the history of success of this contract, there are bound to be strong emotions affecting the community, employees, and other stakeholders, both positive and negative. Some employees transitioned over to the new department. Some remained with *CAL FIRE*. Acceptance of change and a forward-looking perspective is vital to continuing the high level of service that the community expects and the job satisfaction our employees deserve.

CAL FIRE's Tulare Unit will continue to meet our state responsibilities and mission in the State Responsibility Area (SRA). We will also continue to partner with local government where it is financially and operationally in our interest to do so, as well as theirs. After a review of service related issues, last year, I made the decision not to merge the Tulare Unit with the Fresno Unit. Each maintains a significant role to play in the statewide system.

Change, Doing Things Differently

In last week's message, I discussed the concept of how we cannot continue to do things in the same way and expect a different outcome. What I'm really talking about is change, innovation, and acceptance of new ideas, strategies, and technologies. These new ideas can come from any part of our organization or from outside of *CAL FIRE*. The key question is what is our willingness to step outside the box, outside our comfort zone, and embrace new concepts?

Last year, for example, we coordinated with NASA and OES to fly an unmanned aerial vehicle (UAV) 42,000' above the Esperanza fire to feed information back to the Incident Command Post (ICP). The UAV uses infrared technology to "see" through the smoke and map the edges and hot spots in the fire. That was the first time that had ever been done at an actual fire. This technology holds great possibilities for the future of wildland firefighting.

Upon request from the Mexican Government and at the direction of Governor Schwarzenegger, last year we responded 200 miles south of the Mexico border to provide expertise and assistance to our international neighbors to the south. Not only did we assist them in saving some of their natural treasures, but we gained valuable experience, and developed great international relationships.

This week at the "White Fire" in Kern County we experimented with the use of Gel application on structures threatened by radiant heat, flying embers and direct flame impingement. Two (2) structures were saved after Gel applied by *CAL FIRE* ST 9350C (Chief Foley) provided protection to structures not protected by fire engines. We will continue to evaluate these results and look for opportunities to improve firefighter safety and property protection.

Speaking of firefighter safety, over the next year *CAL FIRE* is transitioning to Nomex work uniforms for all *CAL FIRE* firefighters. We will be evaluating "layering" protection and measuring impacts on direct flame protection, heat exhaustion, and other firefighter personal protection equipment (PPE) safety issues.

Changes can come in non-safety forms as well. Also this week at the "White Fire," an interesting innovation was implemented by ICT-7, a new incident recycling program. Recycle collection points were established on the line and incident base, and all crews were encouraged to participate. The California Conservation Corp (CCC) and the California Department of Corrections and

Rehabilitation (CDCR) were excellent cooperators, especially in the incident base. To date, the estimated credit is $32,000. 16,000 pounds of plastic and aluminum and 18,000 pounds of cardboard have been diverted from the landfill.

Another significant assessment we are engaged in is the use of a DC-10 for fighting wildfires. Last year at the Sawtooth fire, *CAL FIRE* used the DC-10 for the first time anywhere in the world for fighting wildfires. It was used six additional times on fires in California and Washington and was contracted on a "Call When Needed" (CWN) basis.

The DC-10 is not a replacement for *CAL FIRE* initial attack aircraft, however, it was found to serve beneficial mission driven purposes at several wildfires. Often, there will not be a mission for the DC-10 in wildfires. For example, because of the inversion and low visibility at the "Angora" fire in the Tahoe Basin, very few air tankers (any type) were able to fly sorties on that fire. The "Angora" fire was mostly battled with helicopters and ground resources.

The DC-10 has flown on 2 wildfires so far this year. As you know, the DC-10 flew on the "White Fire" in Kern County. While operating on that incident, the DC-10, Tanker 910, experienced a loss of altitude and struck the top of several trees. The flight crew was able to apply power and fly out of the altitude loss and safely return to their base at Victorville. There were no injuries to the flight crew or anyone on the ground. The DC-10 had dropped 83,000 gallons of retardant on the "White Fire" before the accident.

The National Transportation and Safety Board (NTSB) has released the aircraft back to Tanker 910, owners of the DC-10. Damage was to modular parts. No special fabrication is required. Repairs are underway. We hope to see it back in-service in 3-4 weeks.

There are lots of opinions regarding using a DC-10 for firefighting purposes. Some are emotional and misinformed. There were strong public and political opinions given after *CAL FIRE*'s first year of evaluation. State and federal legislators, local fire chiefs, media outlets and organized public interest groups weighed in with their comments. Our decision to move forward with a 3-year contract and further evaluation of this aircraft did not come without unbiased, informed, technical review. And after each mission, we continue to learn more.

There has also been a lot of misinformation about the use of the DC-10 on a federal direct protection area (DPA). *CAL FIRE* may use the DC-10 on federal DPA when in command or unified command and when there is a threat to SRA or LRA. In addition, The National Multi Agency Coordination Group position on the use of very large air tankers, in part, says the following:

> Contracting Oversight: No federal personnel may be assigned as a State Contract Officer's Authorized Representative (COAR) on a non-federally approved air tanker contract. No federal employee may be

assigned to a position that exercises operational control of a non-federally approved air tanker.

Federal Aerial Supervision: Federal personnel may provide aerial supervision, including "lead profiles", to non-federally approved aircraft under existing standard procedures and agreements, only when operational control is maintained by the state or local agency. In the case of Very Large Air tankers (DC-10, 747ST), the lead plane or ASM providing aerial supervision must have received prior written approval for such operations from their respective agency.

In an emergency circumstance, where lives and property are immediately threatened, in the current burning period, by wildland fire on federal lands under federal protection, a local federal line officer may, with state concurrence, take operational control over state contracted air tankers if sufficient federal aircraft are not available to protect the public. The local federal line officer must obtain prior approval from their Fire Director, or Fire Director Designee. Any such use will be documented by the approving federal line officer, and the documentation will be forwarded to the agency national aviation headquarters within two weeks.

I would like to thank the *CAL FIRE* Aviation Management Unit for their contribution to this portion of this week's memo. This was part of my decision-making process before recommending, the 3-year further evaluation of the DC-10 to the Governor as part of his Executive Order for the fire season.

Evaluation of the DC-10

Bill Payne, *CAL FIRE* Aviation Management Unit, provided me with an analysis of the use of the DC-10 during the 2006 Fire Season. At my direction, in July of 2006, due to intense fire activity in southern California, an evaluation team was formed to determine the feasibility of incorporating the DC-10 into the fire action plan. After an evaluation process, it was determined that the DC-10 could be deployed safely and effectively. A Call When Needed (CWN) contract was issued at a rate of $26,500 per flight hour with a three hour daily minimum.

Over the next six months the DC-10 was activated on six fires in California and one in the State of Washington. It delivered 286,172 gallons of retardant on these fires in 25 drops and 25.6 hours of flight time. A comparable amount of retardant (282,000 gallons) was delivered by CAL FIRE's S2Ts on the "Esperanza" and "Day' fires. It required 268 drops than spanned over 139 flight hours to match the DC-10's production.

The average price per gallon delivered by the DC-10 was $2.37. This cost was calculated using the total charged to the State divided by the number of gallons delivered. The S2Ts cost were calculated to be $1.02 per gallon. However, the S2T costs do not include availability and extended standby cost that were used in

figuring the DC-10 cost. When the non-flight time charges are subtracted from the total cost, the average rate for the DC-10 would be $1.87 per gallon delivered. The cost of a gallon retardant dropped on the fire is higher from the DC-10 however there are additional factors that need to be considered when determining the actual value and strategic advantage when deploying the DC-10.

Retardant Line Quality
The first factor to evaluate is the quality of the retardant line. The DC-10 laid down a continuous line of retardant more than fifty feet wide and .7 to .8 miles long per drop. It would require ten to twelve drops from the S2T to equal the length, and extreme accuracy from the pilots to match the continuity of line. The probability of gaps in the S2T line is very high and the width of the DC-10s drop could not be duplicated.

Time
The second factor is time. The DC-10 required only thirteen seconds delivering this uninterrupted line of retardant. The S2T/s would require considerable more time depending on the number of tankers available and the turn around time to the tanker base.

The base utilized on the California fires for the DC-10 was the Victorville Airport. This airport was in close proximity to the Sawtooth Fire, but was more than 193 air miles from the Rico fire, yet the turn around time for Rico was only one hour and thirty minutes. The other time consuming operation for the DC-10 was the retardant loading procedure. At Victorville, it was only possible to fill one tank at a time. This was accomplished in about twenty four minutes. This time could have been reduced to eight minutes if the mixing plant was equipped with three delivery hoses.

Risk Exposure
The third factor to look at is amount of time pilots are exposed to the risks associated during the low level retardant delivery mission. Clearly 25 drops in 25.6 hours as accomplished by the DC-10 is less exposure than the 268 drops in 139 flight hours. Less exposure = less risk.

Tanker Availability
Finally, tanker availability is a mitigating factor. The S2T is the perfect initial attack tool. It is capable of close support in very rugged terrain. The DC-10 is not well suited to these functions at this time. Therefore, the DC-10 should be deployed on extended attack incidents where it can have the greatest effect and is the most efficient means of retardant delivery. The S2Ts will then be available for any new initial attack assignments. This results in better initial attack coverage for all the bases.

The goal of introducing a safe and effective Super tanker to *CAL FIRE*'s aerial arsenal was successfully achieved. The necessity for this added resource is

made more critical with the reduction in availability of the Federal Large Air Tanker (LAT) fleet. Since 2002, the number of LATs has been reduced from 44 to the current level of 18 aircraft. This is a 63% reduction. We are not aware of any planned relief for this shortage in the near future.

The mobile retardant plant must be readily available and capable of delivering through three hoses to cut down turn around time.

The 2006 fire season was one of the most active fire seasons in California and the DC-10 was only utilized on six fires. It is hard to imagine that there would be a need to continue the development of this project based on this level of utilization. However, as the experience grows, comfort levels improve and educational process continues the potential for deployment of the DC-10 increases greatly.

There were several missed opportunities in 2006 to activate the DC-10 where it could have made a difference. The "Day" fire is a possible example of underutilization of the aircraft. It only made four drops on the largest fire in recent state history. Despite its minimal use, it had a positive impact protecting cities in Ventura County.

Potential Future Impact

In addition to the life safety factors, four areas should be considered in the future deployment of the DC-10 or any other Super Tanker.

1. How many fire days can be saved?
2. How many acres can be saved?
3. How many structures can be saved?
4. How much reduction in Green House Gases could be realized?

In reviewing 2006 fire activity, *CAL FIRE* spent 136 days on 61 fires over 300 acres. That averages 2.2 days per fire. Considering the location and terrain of the ten fires that lasted more than four days, the DC-10 could have been utilized with a potential positive effect. It is projected that the careful and efficient application of the DC-10 has the potential to save one fire day per fire. This would have been a ten day and $10,000,000 savings to the State for fire protection costs alone.

The DC-10 drops .7 to .8 miles of retardant per drop, if the aircraft is deployed for a 7 hour day with just one drop per hour, it can directly protect or encircle 2,265 Acres per day. This one drop per hour number was the average time for the deployments this past year, but is dependant on distance to the fire and turn around times at the base.

There is no way to predict precisely how much total acreage can be saved with the use of any fire fighting techniques. There are too many variables to consider.

However, by evaluating the amount of area that can be surrounded in a day, an estimate of the savings for that area can be calculated. Accordingly, if the DC-10 were activated and utilized for 30 days out of 120 days, approximately 68,000 acres could be protected. That equates to 1/3 of the acreage burned last year on SRA. According to Dave Doan of the Washington DNR, one acre of wood land yields $100,000 in timber. Not all of the land in the State's fires involved timber, but a conservative estimate of savings would be in the range of $6,800,000.

The number of structures saved by use of the DC-10 can be estimated by using the same ratio of savings applied to acreage saved. There were 359 structures lost last year. The potential that 119 less structures would have been lost if the DC-10 had been used is a reasonable hypothesis.

Finally, the amount of Green House Gas (GHG) emissions that were produced by State fires last year was over 5 million metric tons. That number is derived utilizing methodologies developed from studies conducted in Colorado in 2002. Added to the amount of federal land burned there was 18.3 million tons of Green House Gases released. To estimate the savings on gas emissions achieved by dispatching the DC-10, the same 1/3 ration was used. That would be 1.5 million metric ton savings for the State and a 6 million ton savings overall.

Summary

More information is necessary to determine the accuracy of estimations made in this study. Continued evaluation of the DC-10 is necessary as a firefighting tool to verify its usage as being financially and operationally viable as a permanent part of *CAL FIRE*'s wildfire firefighting strategy. The potential benefits directly to the State by utilization of the DC-10 is estimated at $10,000,000 in reduced fire days, $6,800,000 in saved land and timber value, 119 structures saved annually, and the reduction of 1.5 million metric tons of GHG emissions. The public safety, firefighter safety, and pilot safety issues, while not immediately measurable, may also be significant.

Regards,

Ruben Grijalva, Chief
Director