

HOT MISSIONS IN SOUTHERN CALIFORNIA

San Diego Brings Two Weapons To The Firefight

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From a couple miles out, I could tell this fire was ready to make a hard run up the slope. Thirty-knot Santa Ana winds pushed heavy black smoke low across the ground ahead of the running line of orange flame. Through the smoke, I caught a glimpse of the luxury homes perched on the canyon rim. As I slowed my approach and banked my helicopter into a left orbit, I could see residents in the backyards of their homes armed with garden hoses and large buckets, frantically wetting down roof material, patio covers, wood fences and fascia.

In spite of the small army of fire engines converging on the scene, I knew my Bell 205A-1++ was going to be the homeowner's strongest line of defense. I could deliver 350 gallons of water per drop on the advancing flames and give firefighters on the ground the valuable minutes they needed to prepare a defense for the neighborhood. I located a small pond on a nearby golf course and went to work.

In an area of the country where wildfires are a way of life, the San Diego Sheriff's Department (SDSD) has been going to work to stop them for more than four years now. And today, a second unit is joining the effort - the San Diego Police Department (SDPD).

APPROACHING THE FIRE

When most of us first start flying law enforcement helicopters, we occasionally feel outside of our comfort envelope. We all remember the butterflies that filled our belly when we realized we were likely facing a mission that was new and would challenge our skills and maybe our emotions. Sometimes, fleeting adrenaline spikes accompany those feelings, helping us focus and perhaps alleviating some of the uncertainty. As we gain experience, our proficiency and confidence grows.

After 25 years with SDSD and almost 15 years assigned to the Aerial Support Detail, I was feeling a little insensitive in this regard. It took quite a bit of excitement to trigger an adrenaline surge. So when the butterflies came fluttering back about five years ago, I was surprised.

At the time, I was one of four pilots plucked from the relative comfort of my position - a seasoned law enforcement pilot, flying circles in the sky - and selected to be trained for a new mission as a firefighting airman. While the three other pilots and I met the prospect of the new mission with a great deal of enthusiasm, I think we all would agree to experiencing some nervousness and unspoken apprehension. We were cops. What did we know about fighting fires?

The process would involve learning a larger, slightly more complex aircraft. But what pilot isn't up for that prospect? The bigger hurdle was tackling a new, high-risk mission, with different lingo, tactics, protocols and expectations. Growing pains were sure to be associated with launching such a high profile program and making it a success. Everyone was going to be watching.

DEFINING THE MISSION

San Diego County's sudden urgency to acquire at least two firefighting helicopters was ignited in the wake of the 2003 Southern California firestorms. The county lost more than 280,000 acres (437 square miles), and 116,000 acres were lost in the first 16 hours of the Cedar fire, the largest blaze. In the end, over 2,200 homes were destroyed and 15 people lost their lives. In the weeks and months that followed, there was an outcry from the region for more local, dedicated, year-round firefighting assets, especially helicopters.

The San Diego County Board of Supervisors acknowledged the shortage of these assets and immediately took steps to address the situation. The county retained the aviation-consulting firm of Conklin & de Decker, Inc., who studied the issue. The firm was asked to provide the county with recommendations as to the type of aircraft best suited to meet the region's needs. The team considered eight different aircraft: the Sikorsky S-70 Firehawk, Bell 205A-1, Bell 205A-1++, Bell Huey II, Bell 212, Bell 212HP, Bell 412EP and Eurocopter AS332L2 Super Puma. The report evaluated mission requirements, costs, aircraft performance, water delivery capability and effectiveness, as well as aircraft support factors.

While the list of aircraft under consideration contained single and twin-engine helicopters, the report didn't make a clear recommendation. Instead, it discussed a purchase cost advantage with a single engine machine. On the other hand, it said a twin, depending on weight, temperature and altitude, might provide some advantage over a single in the event of an engine failure. But since the advantage would be dependent on environmental and operational situations, there was no guarantee. This portion of the report concluded, "The region of San Diego has factors that should receive careful consideration when making the decision about single versus twin engine helicopters."

In terms of aircraft performance, the Bell 205A-1++ showed impressive numbers. In most instances, its performance exceeding that of the Bell 212/212HP and Bell 412EP. The report indicated that the 205A-1++ at sea level had an HIGE useful load that was 350 pounds more than the 412EP and almost 500 pounds more than the 212/212HP. All of the models, with the exception of the 205A-1, were determined to be able to maintain their useful loads while in HIGE, regardless of altitude, up to 6,000 feet.

In HOGE performance from sea level up to 6,000 feet, the 205A-1++ fell behind the 212HP by a narrow margin at sea level and again at 4,000 feet, but the 205A-1++ matched or beat the 212HP at other altitudes. The 412EP only bested the 205A-1++ at sea level. The report said the 412EP, "rapidly loses its capabilities as the altitude increases," losing 36% of its useful load, or 1,350 pounds, between sea level and 6,000 feet.

The report summed up its overall findings as follows: "Based on our assumptions and analysis, the helicopter types that ranked the highest were the Sikorsky S-70, Huey II (both restricted category helicopters) and the Bell 205A-1++. The Bell 212 and 212HP followed as the second ranked helicopters."

Of the 412EP, the report concluded, "The final rankings indicate that this helicopter is not worthy of more analysis." Ultimately, the Bell 205A-1++ was selected.

GETTING OFF THE GROUND

The question then arose as to what agency was best suited to operate the selected aircraft. Initially, three organizations were identified: SDSD, the San Diego City Fire Department (SDFD) and the California Department of Forestry (Cal Fire). Only SDSD offered 35 years of local aviation experience. At the time, the unit operated a fleet of six MD500s and had an existing infrastructure and staff that could support the additional

aircraft. It had skilled pilots who knew the 4,200-square-mile county well and a diverse mission background, including NVG operations, search and rescue, external loads and some limited firefighting.

"Initially, it made sense to look at a fire organization to operate these aircraft," said Cal Fire Battalion Chief Ray Chaney, who has been involved in the program since the beginning. "However, the region lacked a consolidated and organized fire protection system. San Diego County has a network of fire districts, county service areas, volunteer and city fire departments, over 60 in all. Given this fact, it made sense for the county to look at a nontraditional approach in determining who would operate the aircraft. The San Diego County Sheriff's Aviation Unit was just the model that could step in and operate these aircraft."

After much public and private debate, the county board of supervisors made the decision to task SDSD to organize and manage the aircraft. To the surprise of many, opponents of the plan immediately leveled accusations that SDSD pilots were not firefighters. It is a strongly held belief among many in the fire service that only fire department personnel are qualified to fight fires. However, the partnership with Cal Fire capitalized on the strengths of each agency: SDSD's many years of experience operating helicopters and Cal Fire's respected tradition as firefighters.

"From Cal Fire's perspective, it made perfect sense to see these aircraft go to an organization like the sheriff's office," Chaney said. "It is a highly professional aviation program."

TRAINING THE CREWS

During the fall of 2004, while each agency was busy hammering out agreements and logistics for the firefighting program, the four selected pilots, including myself, began six months of flight training. Under the capable direction of Cal Fire helicopter guru Cecil Gill, each of us received 100 hours in a Super Huey. We were taught all aspects of the job, from normal, advanced and emergency procedures in the Super Huey, to water dropping tactics and considerations using a belly tank and Bambi Bucket. This was followed by weeks of ground schooling and field exercises to complete the nationally standardized S-130 and S-190 wildland fire training courses.

The program formally kicked off the following year after taking delivery of two Bell 205A-1++ helicopters built by Eagle Copters in Calgary, Canada. Each helicopter was equipped to perform dual roles as a firefighter and a rescue platform. The program teamed SDSD pilots with a core group of specially trained Cal Fire Helitack captains whose job was to manage communications with incident commanders and crews working the fire, aid the pilot in selecting targets for water delivery and contribute to the readiness, effectiveness and safety of the mission.

Today, during the peak fire season, a Helitack crew consisting of up to seven firefighters and a captain is assigned to one of the helicopters. The second helicopter, in addition to its firefighting responsibilities, is equipped for search and rescue missions, as well. It is outfitted with a Goodrich internal hoist and staffed by a rescue crew. To enhance critical care capabilities, SDSD has formed yet another partnership, this one with the local commercial emergency medical operator, Mercy Air/Air Methods, which provides paramedics, nurses and doctors to augment rescue crews, if necessary.

OPERATIONAL SUCCESS

The success of the new firefighting program was evident nearly immediately. In the first six months of operation, the two helicopters flew 571 hours, responding to 222 calls and taking action on 135 incidents where

they delivered 430,000 gallons of water, moved more than 800 people and more than 2,700 pounds of cargo and performed five hoist rescues.

In the four years that have followed, the program has maintained consistent numbers in all areas and has drawn praise and support, even silencing some of those who were skeptical about the sheriff's office pilots' skills and motivation.

San Diego County's next battle with destructive wind-driven firestorms came four years later in the fall of 2007. Again, Santa Ana winds were to blame, downing power lines in the rural backcountry and sparking fast moving wildfires that quickly grew out of control. One fire raced over 20 miles in 18 hours. The fire initially burned through mostly rural ranches and sparsely populated backcountry communities before roaring into densely populated neighborhoods in the City of San Diego, where nearly 300 homes were lost. All tolled, the 2007 fires scorched over 300,000 acres in the county. They destroyed or damaged 1,800 structures and at one point forced over 500,000 people to flee their homes.

Despite the destruction, the fires produced one positive result. A second San Diego airborne law enforcement unit decided to get serious about fighting fires.

THE SECOND WEAPON

In assessing its response to the 2007 wild fires, SDPD began to consider how it might have been better able to utilize its newly acquired fleet of four Eurocopter AS350 B3s. For nearly 20 years, SDPD owned two 120-gallon Bambi Buckets. But, because no actual request had been made for deployment of the buckets, the crews were unfamiliar with their operation and, because the previous fleet of Bell 206B3s suffered from performance limitations, the buckets never saw action. The new AS350B3s were more than adequate for the fire mission.

Unfortunately, up to this point, SDPD crews had yet to train to drop water with the new helicopters, and they had not received approval from their department or Cal Fire to fight fires.

"We had four ships flying around the fire, and we weren't able to do anything," said SDPD Pilot Kevin Means. "For the first time, our region experienced two 100-year fires in a span of four years. Prior to this, we never had the need to fight fires. But we quickly realized that our world was changing, and we needed to change with it."

Following the fires, SDPD Air Support ran the firefighting concept back up the chain of command and this time received formal approval from the department. Means says his unit currently is in a "proof of concept phase." All the pilots who meet the Cal Fire minimum requirements have been trained and are preparing for their carding flights.

"Firefighting is a secondary mission. We're not going to jump a fire in the city unless the fire department asks," Means said. "But, at least now we'll be able to."

MISSION EXPANSION

According to Means, SDPD is excited about the prospect of its new firefighting role, especially with the performance built into the AS350 B3s.

On the ground, the maximum gross weight of the B3 is 4,961 pounds. But in flight, it jumps to 6,173 pounds. This is considerable when you're performance planning for a hoist mission or hover filling water for firefighting. During a recent training flight, in a normal police patrol configuration with two crew members and 110 gallons of fuel on board, the B3 snatched a full 120 gallon bucket from a pond while the engine gauges easily remained in the green.

In preparation for its new mission, SDPD is looking at improving its firefighting effectiveness. The unit hopes to replace its two 120 gallon

Bambi Buckets with larger 180-gallon buckets intended for the B3. It is also considering the 237-gallon capacity Simplex model 310 Fire Attack system as a tanked alternative for urban interface considerations.

But SDPD isn't the only firefighting unit growing. While SDSD conducted most of its firefighting mission building out of support infrastructure early in the program, today our main office of operation is a large, modern facility at Gillespie Field near the center of the county. To better serve the region, we constructed a second facility in the more rural northern portion where, during fire season, one of the firefighting helicopters is based.

Two large fuel trucks support off field operations, and extra aircraft mechanics were hired to serve a dual role driving the fuel trucks in addition to maintenance duties. A Bell 407 was added to the fleet this year and outfitted to fill the role of a helicopter coordinator platform for fires and major incidents.

DYNAMIC ENVIRONMENT

From a pilot's point of view, the firefighting mission is a far more dangerous and dynamic environment than what most law enforcement pilots are used to. Sergeant Dave Douglas was one of the first four sheriff's pilots to enter the SDSD program. He believes one of the biggest differences for him was becoming comfortable with working in close proximity to so many other aircraft.

"On the Harris Fire, there were 12 helicopters including type-1s working off the same pond," he said. "And that isn't necessarily all that unusual. Then, you're following them into and out of smoke-filled canyons. It can be nerve wracking."

Douglas believes shuttling a Helitack crew is a defining feature of the firefighting mission. "In the past, I was used to only looking out for me and my partner," he said. "Now, I'm responsible for seven or eight young kids sitting back there." Once at the fire, pilots like Douglas must find a spot to land to offload the crew so they can begin their attack from the ground. Then they must go airborne again and support the crew's efforts with precise water drops. "It's more fun than I expected, but it's also the most challenging flying I've ever done," said Douglas.

The partnership between SDSD and Cal Fire has produced an efficient, highly productive program, earning a respected reputation for firefighting and rescue work throughout the county. The SDSD and SDPD aviation units have a long history of mutual cooperation in their law enforcement responsibilities. They are now looking at ways to help one another become more knowledgeable and proficient in their new role as firemen.

"I am very proud of these relationships," Chaney said. "It places citizen safety and taxpayers' best interest as high priorities. During a time of emergency, people care about one thing; that's a competent, professional, emergency response to take care of their family. They are not interested in agendas or skeptics. They want the best possible service that is highly skilled, efficient and economical. I believe these programs provide that."