

CDF Aviation Management History

CDF Airtankers

The possibility of using aircraft for fighting wildland fires in California was first proposed in 1931 and again in the late 1940's after World

War II. In 1953 the Nolta brothers of Willows, California, proposed using their agriculture spray planes for fighting brush and grass fires.

During the four fire seasons, 1954-1957, CDF used several small airtankers on a call-when-needed basis.

These were primarily spray airplanes converted for use as firefighters. Also during this period, several enterprising aviation companies had been converting World War II TBM's for airtanker use. Thus, in 1958 CDF first contracted for airtanker services with private aviation companies. That year contracts were let for three N3N, four Stearman and four TBM airtankers. The N3N's and Stearman's were World War II biplanes used for pilot training and converted for use as agricultural spray planes. They were capable of carrying up to 200 gallons of fire retardant chemicals. The TBM, a World War II torpedo bomber, could deliver 600 gallons.

During the ensuing years other aircraft were converted to airtankers and used by CDF. Among these were Twin Beech, Grumman AF, Boeing B-17, Consolidated PBY, and Grumman F7F. The airtanker program continued to expand until finally in the early 1970's a total of 14 TBM's, five F7F's, one PBY and one B-17 comprised the CDF fleet.

By 1970, concerns with maintainability and accidents occurring in the TBM fleet led to an evaluation of the Grumman S-2 Tracker as a new generation airtanker. Although they were still active in the Navy, four were loaned to CDF for the evaluation. The Army Aviation Test Facility at Edwards Air Force Base completed a test program that showed the S-2 was a suitable replacement for the TBM. Two S-2 prototype airtankers were placed in service in 1973 with the prototype tank being built at the CDF Mobile Equipment Facility in Davis and the S-2 modification being completed by

Hemet Valley Flying Service. These conversions were accomplished using plans developed by

Ontario Lands and Forests in Ontario Province, Canada.

Three TBM accidents in 1973 and three F7F accidents in 1974 accelerated the CDF S-2 modification program. As a result, contracts were

entered into with four California contractors, Aero Union Corp., Sis-Q Flying Service, TBM Inc. and Hemet Valley Flying Service to modify and tank 10 S-2 airtankers during the 1973/1974

winter period. As a result, 12 "S-2A's" were placed in service in 1974 and five more were built by Bay Aviation Services and put into the fleet for the 1975 fire season.

Three separate leases with the U. S. Navy brought a total of 55 S-2's and 60 engines for the program. This allowed CDF to keep the fleet going until the mid-90's when it was decided to upgrade from S-2A to S-2T airtankers. In 1987, CDF entered into an agreement with Marsh Aviation of Mesa, Arizona, to build a prototype S-2T. This prototype was placed in service and used at several bases. The success of the prototype led to acquisition of 26 S-2E/G aircraft in 1996. The "E/G" series S-2 was larger and newer. It could haul 1200 gallons of retardant with two TPE-331 GR Turboprop engines at speeds in excess of 200 knots. A contract for building 23 of the new S-2T airtankers was entered into. Thirteen were delivered by the end of 2002. Seven additional were delivered and placed in service by the end of 2004. The final three are scheduled to be completed and delivered by June 30, 2005. As the new airtankers are delivered and placed in service the original S-2A's are retired.

CDF Air Tactical Aircraft

In the mid 1970's CDF found that the contractor-owned air attack planes, mostly single-engine Cessna 182's and Cessna 210's, did not provide the airspeed and safety needed for the new airtanker program. In 1974, Senior Air Operations Officer, Cotton Mason, inspected 40 USAF Cessna O-2 aircraft at Davis-Monthan Air Force Base. The best 20 were selected and shipped to Fresno. These O-2's had been Forward Air Control (FAC) aircraft in



Clock-wise an early N3N airtanker, CDF's original S-2A tankers and the S-2T of today.





CDF's original O-2 and the sleek OV-10 of today.

Vietnam and were shipped back to the United States in containers. They were disassembled and on pallets when they arrived at Fresno. A crew of California Conservation Corp (CCC) members under the supervision of a CDF Ranger I Battalion Chief who was a Federal Aviation Administration (FAA) Certificated Mechanic with Inspection Authorization (IA), reassembled the aircraft. They were placed in service in 1976. The O-2 program was a success and served the Department for more than 20 years.

In 1993, CDF obtained 16 North American OV-10A aircraft from the US Navy. The OV-10s replaced the O-2s that CDF had been using for air attack. The OV-10 is a twin-engine turbine-powered aircraft that meets the Department's needs for a next-generation Air Attack platform. CDF currently operates a fleet of 13 OV-10 aircraft.

The CDF Helicopter Program

CDF began using contractor-owned helicopters for fire control in the mid 1960's. Bell 47, Hiller FH1100, Bell Jet Rangers and Aerospatiale Alouettes were used the most through the 1970's. Five accidents involving contractor-owned Bell Jet Rangers occurred in 1979. CDF decided that owning and operating agency-owned helicopters was needed. In 1981, CDF obtained 12 Bell UH-1 F series helicopters. Although the "F" model served the CDF well it was difficult to support. In the late 1980's CDF began a program to phase out the "F" model and upgrade to newer, larger UH-1 H helicopters.

In 1960 the Division of Forestry decided to experiment with a small, skilled initial attack crew to be transported by helicopter to increase the early arrival of manpower and equipment to an initial attack fire. Because of the limited capacity of the helicopter, CDF selected "men that were light in weight and tough in muscle and fortitude" for the helitack assignment. Although the crews were trained for hover jumping and had purchased heli-jump suits from the US Forest Service, it was never found necessary to make a jump.

The original "F" model and the red and white Super Huey.



Six Helitack Bases were established in the early 1970s. They were staffed with contracted Bell Jet Rangers. A typical CDF Helitack Crew which responded with the helicopter consisted of one fire captain and two to three seasonal firefighters.

The helicopters were located at CDF facilities which protected high value timberlands and critical watershed areas generally in Northern and Central California with one located at Ryan Field in Southern California. The helicopter began playing an increasing role in the Department's Initial Attack strategy during the late 70s.

In 1978 three Bell 205 medium helicopters were hired in addition to the standby helicopters. One helicopter was located at the Howard Forest, Mendocino Ranger Unit Headquarters. The other two were located at Hemet/Ryan Field and the Monte Vista, San Diego Ranger Unit Headquarters. Each of the medium helicopters was assigned 11 person helitack crews. Unfortunately, in the mid to late 70s CDF experienced an increased accident rate throughout the helicopter program. Five accidents involving contractor-owned Bell Jet Rangers occurred in 1979.

As a result of the increase in accidents involving contracted helicopters, in 1981 the Department acquired through a "lease", 12 excess UH-1 F Hueys which had previously been used by the

United States Air Force in Vietnam.

Nine helicopters were initially reconditioned. The helicopters were operated as non-certificated, public use aircraft. The first helicopter was built up and carded in November, 1981. It was placed in service at Hemet-Ryan Helitack Base. Six more "F" Model Hueys were built up and placed in service at helitack bases throughout California in the summer of 1982.

During the first two years CDF employed "Personal Service Contract" pilots. Each base was assigned a full-time pilot and a seasonal relief pilot who covered two bases. The majority of the contract pilots became state employees in 1984.

The Helitack Unit was designed to be a cohesive unit which consisted of the helicopter and helitack crew. A typical configuration for the helicopter was a Helitack Fire Captain in the copilot's

seat and a Helitack Fire Captain plus six fire-fighters in the passenger compartment. The water bucket was replaced in 1984 with a newly designed Canadian 324 gallon Bambi Bucket.

In the mid 1980s fixed water dropping tanks were installed on the Hemet-Ryan and Bitterwater helicopters. Hemet-Ryan was performing water bucket operations over ever-increasing populated regions in the urban interface areas of eastern Riverside County. An accidental drop of a water bucket could cause catastrophic results. A fixed tank reduced the exposure. The San Benito-Monterey region is comparatively arid for water bucket operations. A fixed tank at Bitterwater allowed the helicopter to obtain water from sources previously unobtainable with the bucket.

As the 1991 lease agreement expiration date with the US Air Force rapidly approached, the Department started a search for a replacement that ultimately resulted in the acquisition in 1989 of the UH-1H. The airframes that the Department obtained were part of 100 released by the Department of Defense to the US Forest Service for distribution to states as Federal Excess Personal Property (FEPP) for wildland fire fighting.

The UH-1H aircraft were significantly modified to meet CDF's specialized needs. The modified helicopters were designated as "Super Huey's". The "Super Huey" sported a larger, more powerful engine, transmission and rotor system. The tail boom and tail rotor were also modified to accommo-

date the engine, all giving the aircraft greater performance than the standard US Army UH-1 H helicopters in hotter and higher conditions typical of California.

Both the "F" model and the Super Huey maintenance programs were developed by CDF using the most restrictive overhaul/replacement criteria of the military or Bell Helicopter. All maintenance is performed by contract mechanics. Big Valley built up and maintained the "F" model helicopters from 1981 to 1990 at their Stockton facility. They also started building up the first Super Hueys in 1989. San Joaquin Helicopters completed the Super Huey build-ups and maintained them in their facility in Yolo County and later at the Aviation Management facility at Mather Field in Sacramento from 1989 to 1999. DynCorp was awarded the contract in 2000 and continued to maintain the Super Hueys at Mather and now at McClellan Air Park in North Highlands, Sacramento County.

1995 saw two Helitack Base changes. Bitterwater moved to Bear Valley Station in the San Benito-Monterey Unit and Boggs Mountain in the Sonoma-Lake-Napa Unit replaced a contract helicopter with a CDF Super Huey.

***More information on the
CDF Aviation Management Program
can be found on the CDF Website -
www.fire.ca.gov under
Fire and Emergency Response.***