Edwards Air Force Base, South Base,
X-1 Loading Pit
Western Shore of Rogers Dry Lake
Boron Vicinity
Kern County
California

HAER No. CA-308-A

HAER
CA-308-A

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Oakland, California

Historic American Engineering Record

Edwards Air Force Base, South Base
X-1 Loading Pit

HAER No. CA-308-A

Location: At the western edge of the apron of the old flightline at South Base, on the western shore of Rogers Dry Lake, Edwards Air Force Base, Edwards, California.

USGS Edwards (7.5 minute quadrangle 1992). Township 9 North, Range 9 West, Southwest ¼ of the southwest ¼ of Section 6.
Universal Transverse Mercator Coordinates: Zone 11, 419730 mE, 3861950 mN

Date of Construction: 1947

Present Owner: U. S. Air Force, AFFTC, Edwards AFB, California 93523

Present Occupant: Not Occupied

Present Use: Not in use

Significance: The X-1 loading pit was constructed to attach the X-1 aircraft to the Boeing B-29 Superfortress, from which it was air launched during its historic flights. The pit is strongly associated with the X-1 program and with Captain Charles E. "Chuck" Yeager, the test pilot who exceeded Mach 1 in the X-1 on October 14, 1947. Not only was the X-1 the first aircraft to surpass the speed of sound, the X-1 program yielded information about stresses on aircraft and pilots at transonic and supersonic speeds and began to explore issues associated with high altitude flight. The X-1 program set the stage for later experimental flight research and represents the first step in a series of accomplishments that culminated with space flight. X-1 research proved that high-speed travel was possible, and that space flight might be possible. It set the standard for future research and illustrated the feasibility of cooperative research efforts between the military, research facilities, and industry. The X-1 Loading Pit has been found eligible for listing in the National Register of Historic Places under Criteria A and B.

Historians: Andrew J. Schmidt and Shahira Ashkar, Jones & Stokes, February 2002.

LOCATION DESCRIPTION

The X-1 Loading Pit is located at South Base, Edwards AFB, California. Edwards Air Force Base is located in the Antelope Valley, northeast of Los Angeles. The towns of Rosamond and Boron lie immediately outside the Base boundaries. However, the core area of the base is approximately 15 miles from either town. The landscape is composed of desert hills and dry lake beds. Edwards AFB boundaries encompass two large dry lake beds, Rosamond and Rogers. The remote location, the sparse population, the clear dry air, and the natural runway-like surface of the lake bed have made Edwards AFB an ideal location for aircraft training and testing over the years. Additionally, Edwards AFB is located near the aerospace industry in Los Angeles.

The South Base area of Edwards AFB is located approximately one mile south of Main Base. Both areas are on the west shore of Rogers Dry Lake. Main Base is the central area of activity at Edwards AFB, but South Base facilities continue to be used for some aircraft development and testing programs. Most structures associated with South Base, especially in the former cantonment area north of the South Base runway and the Birk Test Facility, have been removed or demolished.

The X-1 Loading Pit is located in the northwestern portion of the South Base flightline. It is located in an area currently used as a parking lot near the southwest corner of the Birk Flight Test Facility fence in the former aircraft anchorage area. The loading pit is a cross, recessed in the concrete. A safety railing surrounding the pit has been added. Otherwise, the loading pit looks much as it did during its period of use. Other structures associated with the loading pit included three tanks, and a railroad spur. The tanks were used to hold liquid oxygen and liquid nitrogen, and to mix water and ethyl alcohol. The tanks and railroad spur are no longer present.

RESOURCE DESCRIPTION

Aside from the aircraft itself, the X-1 Loading Pit is the only physical remnant of the X-1 program at Edwards AFB. The X-1 Loading Pit is located at the northwest corner of the South Base flightline on the taxiway. The area is now used as a parking lot for the Birk Test Facility. It is a recessed cross that is cut into the taxiway concrete and the walls consist of poured-in-place concrete.

The pit is oriented toward the cardinal directions and measures approximately 46 feet along the north/south axis and 30 feet along the east/west axis. The southern arm measures approximately 13 feet, 7 inches wide, and the northern arm is approximately 8 feet wide. The eastern and western arms both measure approximately 11 feet, 3 inches wide. The floor of the pit is a uniform 5 feet, 1 inch below the surface except in the

northern arm, which is ramped. This ramp was used to roll the X-1 aircraft into the loading pit.

A 12-inch-square, six-inch-deep steel box that held electrical conduit and cables is recessed into the eastern wall of the eastern arm of the loading pit (CA-308-A-5). A rectangular depression is located in the floor of the southern arm (CA-308-A-2). The 9-inch deep depression (or slot) measures 10 feet, 1 inch along the north/south axis and 2 feet 1.5 inches along the east/west axis. The northern end of the depression is ramped. The concrete used for the slot does not match the rest of the concrete, indicating that this may be a later addition. A tar-covered steel pipe crosses the southwestern corner of the pit. The pipe measures 11 inches in diameter, and is located approximately 9 inches above the floor of the pit (CA-308-A-1). The function of this pipe is unclear, but it appears to have been added when the loading pit was no longer in use. The runway is scarred on either side of the loading pit along the extrapolated alignment of this pipe and there is no indication of the pipe in historic photographs (see Supplemental Information). The number "45" is faintly etched in the southernmost wall of the loading pit.

A safety rail was built in 1990 by the Base Civil Engineer. This safety rail forms a rectangle around the loading pit measuring approximately 55 feet along the north/south axis and 36.5 feet along the east/west axis. The rail is made of 2-inch diameter steel pipe, painted tan. There is a hinged gate in the center of the northern end with the letters "Y P" (Yeager Pit) made of flat steel and welded to the inside square of the gate (CA-308-A-2).

There are four threaded steel mounting studs in the concrete at each of the 12 corners of the pit (CA-308-A-3). The concrete appears to have been patched at several corners. Historic photographs from 1947 do not indicate any bolts or structures at these locations. The function of the mounting studs and the time of their addition are unknown.

Although they have since been removed, three sets of two steel rails on the ramped northern arm of the pit once provided guidance when backing the X-1 aircraft into the loading pit. All that remains of the rails are 42 evenly spaced, threaded, steel studs located along the ramp (CA-308-A-1).

Other elements that have been removed include wooden beams that lined the southern edges of the east and west arms and part of each side of the southern arm of the loading pit (see Supplemental Information). The function of these is unknown, but they may have functioned as stop blocks for the B-29 aircraft. When the pit was not in use, poles were erected at each corner and ropes or cable were draped between them, presumably in the interest of safety. The poles fit into holes in the poured walls of the pit, some of which are still visible at the corners (CA-308-A-4). A railroad spur was located to the

east of the loading pit, though spur did not extend onto the taxiway. Also to the east of the loading pit, there were two tanks used to store fuel.

HISTORICAL INFORMATION

Except where otherwise noted, the following history of Muroc AAF is adapted from previous cultural resource studies conducted at South Base, which are on file with the Base Historic Preservation Officer.[1]

Before World War I, airplanes and air-launched vehicles were seen as eccentric recreational vehicles. Although the U.S. military made little use of aircraft in that war, it witnessed the introduction of enemy military aircraft. Between the two world wars, the Army expanded its air wing, built airfields for pilot and bombing training, and laid the seeds for the eventual establishment of the Air Force branch of the DOD in 1947. When the United States entered World War II in 1941, it entered a new era in air power in which aircraft would exceed speeds of 500 miles per hour. During the early 1940s, planes were being designed for increasingly high speeds and were entering the lower limits of transonic flight, the little understood region between Mach 0.7 and Mach 1.3. Mach number is the ratio of the speed of an object to the speed of sound in the medium through which it is moving. If a plane is moving at Mach 1, it is moving at the speed of sound. The speed of sound is not constant but varies with air temperature, which varies with altitude.[2]

During World War II, pilots in steep dives experienced difficulties with the structural stability and control of their aircraft. As aircraft entered the transonic region (speed in excess of 500 mph) while accelerating in steep dives, pilots and their aircraft experienced the effects of compressibility, which included a loss of control and structurally devastating aerodynamics loads. These effects were caused by the altered flow of air over an object in motion, and worsened as the object approached the speed of sound. In severe cases, it led to the loss of the aircraft. These new experiences raised many questions regarding the possibility of high-speed flight. Some engineers and aerodynamicists had dubbed the speed of sound "the 'sound barrier' beyond which no

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[1] Cotterman, Cary D., Scott M. Hudlow, Linda Auten, Christopher O. Hurst, Dena S. Komporlides, and Susan L. Bupp, Final Inventory and Evaluation of Selected Military Period Structures at South Base, Edwards Air Force Base, California, Volumes I and II, prepared by Tetra Tech, Inc., San Bernardino, California, manuscript on file at the AFFTC/EM, Edwards AFB, California, 1997.

[2] Young, James O., Meeting the Challenge of Supersonic Flight, (Edwards AFB: AFFTC History Office), 1997; Hallion, Richard P., "American Rocket Aircraft: Precursors to Manned Flight Beyond the Atmosphere," in History or Rocketry and Astronautics, Kristan R. Lattau, editor, (San Diego: Univelt), 1989.

aircraft could safely pass."[3] However, to some the sound barrier presented a challenging design problem.

Both to promote and to accommodate advances in aircraft, military planners recognized the need to expand and improve U.S. Army Air Corps (AAC) airfields and equipment by the early 1930s. Consequently, a bombing and gunnery range associated with the March Field air base in Riverside, California was laid out in 1933 in the Muroc area, which was considered particularly well suited for these purposes. A detachment of 20 men was sent from March Field to establish a tent camp in support of the new facility. The remote area was mostly unsettled and afforded excellent year-round flying weather and a natural emergency landing field (the hard claypan of Muroc [Rogers] Dry Lake). Additionally, 29,000 acres east of the lake bed were already federally owned.

In 1940, private land, as well as 127,500 acres of federal lands in and around the lake bed, were acquired to enlarge the bombing and gunnery range, and Muroc Lake Bombing and Gunnery Range was designated a permanent facility of March Field. The following year a runway and water and sewage systems were constructed. By May 1941, South Base consisted of four barracks, a mess Hall, a recreation facility, and tents. By 1943, South Base had a large control tower, a parachute tower, a flight simulator building, a gymnasium, two theaters, a chapel, a reservoir, and a hospital. Two large hangars were constructed in 1944.

The early-1940s building campaign at the Muroc facility resulted from its designation as a post separate from March Field with the primary mission of training fighter and bomber personnel. The facility was renamed Army Air Base, Muroc Lake in 1942. The creation of facilities at North Base that year was boosted by research projects. The Bell XP-59A program to develop the United States' first jet-propelled aircraft resulted in the creation of the Muroc Flight Test Base, and rocket experiments associated with JATO (jet-assisted take off) aircraft development were conducted at the Materiel Center Flight Test Base at North Base during World War II, setting a precedent for flight testing at the facility.

The facility was redesignated Muroc AFB in 1948 and renamed Edwards AFB in 1949. North and South Base facilities were combined, and the base was assigned the mission of providing flight testing for new and experimental aircraft. In 1952, base activities shifted to the new Main Base, and most of the facilities at South Base were abandoned and eventually demolished or relocated. Also during the early 1950s, a new runway was built at Main Base leading into Rogers Dry Lake.

After World War II the mission of the Base shifted from an emphasis on training to an emphasis on experimental flight testing. The change was not unprecedented, as early jet

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[3] Hallion, "American Rocket Aircraft," 1989, p. 284.

aircraft had been tested at Muroc/Edwards AFB during the 1940s. In April 1946, training activities at South Base ended and the facility was designated a research and development center. Later that year, South Base and North Base facilities were assigned a uniform primary mission of conducting experimental flight testing. By 1955, more than 20 different flight test programs were conducted at South Base. Organizations that conducted testing at South Base included the Air Force, the National Advisory Committee for Aeronautics (NACA, later the National Aeronautics and Space Administration [NASA]), the U. S. Navy and numerous private contractors.

Experimental Aircraft Research and the X-1 Program

Dealing with the compressibility issues was part of NACA's responsibility during World War II. Wind tunnel testing was not an option, as the facilities of the day could not create natural conditions near the speed of sound. These factors led to some at NACA to advocate the design and construction of an experimental aircraft as early as 1941. A series of conferences dedicated to the subject of compressibility were held in March and May of 1944. At these conferences, NACA, the Army Air Force, the U. S. Navy, and industry representatives agreed to sponsor the development of transonic and supersonic aircraft. NACA proposed that the Army Air Force and the Navy acquire several aircraft to be devoted to NACA research. These planes would be capable of studying buffeting problems, stability and control issues, and design requirements for transonic flight, and would be heavily instrumented to obtain flight data to provide the basis for the design of production military aircraft.[4]

As planning for the program progressed, it became clear that NACA and AAF had different opinions design of the experimental plane. While NACA favored a conservative transonic, turbo-jet powered, ground take-off capable aircraft, the AAF opted for a more radical supersonic, rocket-powered aircraft to be air-launched from a mother ship. NACA expressed concerns about the reliability and safety of rocket engines. The AAF acknowledged that these were concerns but insisted that rocket power would be necessary to break the sound barrier.[5]

Though Bell Aircraft volunteered to build the experimental aircraft in November 1944, the AAF chose to put the project out for bids. Bell and McDonnell Aircraft bid on the contract. Bell won the contract because McDonnell proposed a diving flight technique, which was deemed too dangerous.[6]

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[4] Young, Meeting the Challenge, 1997; Hallion, "American Rocket Aircraft," 1989.
[5] Young, Meeting the Challenge, 1997; Hallion, "American Rocket Aircraft," 1989.
[6] NASA-Dryden, The X-1 Research Airplane, (Edwards AFB: Dryden Flight Research Center), n.d.

Three aircraft were commissioned from Bell. Consultations with Bell resulted in the following requirements.

- The aircraft would be capable of 10 minutes of powered flight.
- Tests would be conducted in level or climbing flight.
- The aircraft design would allow the pilot to be seated, not prone.
- The aircraft would be capable of achieving Mach 0.8 and pulling 8 gs.
- The aircraft would complete 20 flights.
- The aircraft would be constructed within one year of the project award.

The contract was signed on March 16, 1945. Bell would complete the detailed design of the aircraft, build the plane, and fly it in acceptance testing. Transonic issues would be addressed in a follow-on contract to be negotiated at a later date.[7]

The X-1 was 30 feet, 11 inches long, 10 feet, 10 inches high and shaped like a .50 caliber bullet. It weighed 6,511 pounds empty and 12,050 pounds loaded. It was to use the Boeing B-29 Superfortress as a mother ship and launch at approximately 25,000 feet. The first of the three aircraft was ready on December 27, 1945. Each of the three planes was slightly different.[8]

Reaction Motors, Inc. (RMI) was under a separate contract to design and build the XLR-11 rocket engine for the X-1. The XLR-11 motor was a 4-chamber unit, capable of a total of 6,000 pounds of thrust. Though the engine was not throttleable, the chambers could be engaged separately, providing four 1,500-pound increments of thrust.[9]

The first three X-1 aircraft were similar, but had slight differences. For instance, the X-1-1 had wings with an 8 percent thickness/cord ration. The X-1-2 had slightly thicker wings (10 percent). The thicker wings meant that the second aircraft would never achieve the speeds that the X-1-1 was capable of reaching. The X-1-3 had a turbine fuel pump, as opposed to the high-pressure nitrogen gas system used in the first two aircraft.[10]

The X-1 program was classified confidential and all the performance data was labeled secret. The X-1 was the first high-speed aircraft built purely for aviation research with no intention of production. The research techniques employed for the X-1 program became the pattern for all subsequent X-plane research. The project defined and solidified post-war cooperative union between military and industrial sectors of the aviation community.[11]

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[7] NASA-Dryden, The X-1 Research Airplane, n.d.
[8] Young, Meeting the Challenge, 1997, p. 18; NASA-Dryden, The X-1 Research Airplane, n.d.
[9] Young, Meeting the Challenge, 1997, p. 14; Hallion, "American Rocket Aircraft," 1989.
[10] NASA-Dryden, The X-1 Research Airplane, n.d..
[11] NASA-Dryden, The X-1 Research Airplane, n.d.

Between January 25 and March 6, 1946, the first X-1 (X-1-1) made its first 10 flights unpowered at Pinecastle AFB in Orlando, Florida. P. V. "Jack" Woolams was the test pilot and test site manager. The first ten flights were conducted by Bell and were to confirm the airworthiness and handling characteristics of the plane in the absence of a rocket engine. The X-1-1 was unveiled to the public at a special exhibition at Wright Field, Ohio on May 17, 1946. It arrived for flight testing at Muroc in April 1947 with new thinner wings, a new tail, and the XLR-11 rocket engine.[12]

On December 9, 1946 at Muroc, the second X-1 (X-1-2) was the first X-1 to make a powered flight, and Bell test pilot Chalmers "Slick" Goodlin was at the helm. Prior to December, the X-1-2 made 16 contractor flights at Muroc AAF. A powered flight entailed launching the X-1 from beneath a B-29 Super-Fortress at 25,000 feet and firing the rocket engine. While the engine was firing the X-1 would accelerate and ascend until it ran out of fuel, at which point the X-1 became a high-speed glider and would glide to the airstrip to land. The amount of fuel on board limited the powered flight time to approximately 2 ½ minutes. The X-1-1 made its first powered flight on April 10, 1947.[13]

Completion of the third X-1 was delayed by the development of a turbopump fuel system. The X-1-3 was delivered to NACA in April 1951, three years late. It completed one glide flight and exploded under its mother ship in November 1951 while attempting to jettison fuel.[14]

The follow-on contract was not successfully negotiated. In May 1947, NACA and the AAF assumed program flight responsibilities, and the X-1 aircraft were released to the AAF in June 1947. The contractor flights of the X-1-1 and X-1-2 exceeded the contractual obligations, completing a total of 14 glide flights and 23 powered flights, reaching a top speed of Mach 0.82 and pulling 8.7gs.[15]

After the transfer of the X-1 program, the AAF developed an accelerated program to utilize the speed potential using the X-1-1. NACA continued to collect and analyze data. The AFF personnel for this program consisted of Major R. L. "Bob" Cardenas (project manager), Captain Jack L. Ridley (project engineer), Captain Charles E. "Chuck" Yeager (test pilot), and Lieutenant Robert A. Hoover (back-up pilot). Future programs would focus on altitude studies. Yeager piloted the X-1-1 and broke the sound barrier on

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[12] NASA-Dryden, The X-1 Research Airplane, n.d.
[13] NASA-Dryden, The X-1 Research Airplane, n.d; Hallion, "American Rocket Aircraft," 1989.
[14] Hallion, "American Rocket Aircraft," 1989.
[15] NASA-Dryden, The X-1 Research Airplane, n.d.

October 14, 1947. The plane reached Mach 1.06 at 45,000 feet.[16] The X-1-1 was formally retired on August 26, 1950 after 82 flights, powered and glide, and is currently located at the Smithsonian Air and Space Museum in Washington, DC. The X-1-2 made its final flight on October 23, 1951, the last of 74 flights. In 1955, the X-1-2 was modified and redesignated the X-1E.[17]

In November 1947, the Army Air Force authorized studies that led to a contract with Bell for four improved X-1 aircraft (X-1A, X-1B, X-1C, and X-1D). Only three were actually built; the X-1C was cancelled. The remaining three aircraft were ready for operations in 1950. The X-1A arrived at Edwards AFB in January 1953. It had turbo-driven fuel pumps, a new cockpit canopy, a longer fuselage, and increased fuel capacity. During its testing regimen, the X-1A reached a top speed of Mach 2.44 a maximum1 altitude of 90,440 feet. The X-1A was destroyed on August 8, 1955 by an explosion that occurred during captive flight. The X-1B was similar to the X-1A, except that it had a slightly different wing. The X-1B made its first flight in August 1955 after being turned over the NACA, and it was used to explore issues of aerodynamic heating and to test experimental reaction control systems. The plane was retired in December 1958, due to stress cracks in its fuel tank. The X-1C was cancelled during the mock up phase. The X-1D was designed to continue the research of the X-1 in high speed and high altitude flight. This aircraft was destroyed in August 1951 when it was jettisoned from its mothership following an explosion.[18]

The X-1E was the remodeled second X-1 aircraft. The wings had been replaced with narrower wings, and turbo driven fuel pumps were installed. The windscreen was changed as well. The X-1E was flown only by NACA and was intended to provide information about high-speed wing performance. It achieved a top speed of Mach 2.24 and a high altitude of 73,458 feet. The first flight with ventral fins was accomplished by the X-1E. Two NACA pilots took the X-1E on 26 flights. The aircraft was retired on November 6, 1958 and is currently on display at the NASA-Dryden Research Center at Edwards Air Force Base.[19]

The X-1 program broke the so-called sound barrier and provided necessary data to carry on flight research. The aircraft were used to investigate flight characteristics at supersonic and transonic speeds. They yielded data on structural and physiological phenomena at high speeds and provided a stepping stone for future research regarding

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[16] For a detailed and engaging account of this historic flight, see Young, Meeting the Challenge, 1997, pp. 56-59.

[17] Cotterman, et al., Final Inventory and Evalution at South Base, 1997; NASA-Dryden, The X-1 Research Airplane, 1989.

[18] NASA-Dryden, The X-1 Research Airplane, 1989; NASA, "Summary of the X-Planes Program," table located on the NASA website: www.hq.nasa.gov, 2001.

[19] NASA-Dryden, The X-1 Research Airplane, 1989; NASA, "Summary of the X-Planes Program," 2001.

flight at even faster speeds and higher altitudes. The X-1s set the stage for later experimental flight research and represent the first step in a series of accomplishments that culminated with space flight. X-1 research proved that high-speed travel was possible, and that space flight might be possible. The program boosted the prestige of NACA as a research agency and allowed for the development of new production aircraft for the Air Force. The processes and relationships established during the X-1 program set the standard for future research. Of particular importance were the cooperation between the military, civilian research organizations, and industrial interests.

HISTORY OF THE X-1 LOADING PIT

One of the difficulties in testing the X-1 was attaching it to the B-29 Superfortress, which was low to the ground. Even with the bomb-bay doors removed, there was little room to maneuver beneath the aircraft. This problem was first addressed at Pinecastle and Buffalo, where unpowered test flights had taken place, through construction of a cruciform pit. The X-1 was pulled into the pit, and the B-29 taxied over it. After the X-1 was attached, the B-29 and its cargo were ready for flight.

In March 1946 P. V. "Jack" Woolams, the chief test pilot on the XP-59A (America's first jet aircraft) came to Muroc Army Air Field to ready the facility for the X-1 program, which was being transferred from Pinecastle. Muroc Army Airfield was an ideal location for experimental flights. The population was sparse; the clear, dry desert air was usually good for flying; and the South Base facility had recently been devoted to research and development as other missions became less important after the end of the war.[20]

Woolams' goal was to avoid any delays in testing upon the X-1's arrival at Muroc. Facilities established for the X-1 at South Base were not complex. Woolams contracted for two tanks to be built on the airfield, a large tank for liquid oxygen and a smaller tank for liquid nitrogen. An army fuel trailer was modified to serve as a mixing tank for water and alcohol. A loading pit, similar to the one at Pinecastle AFB was constructed. A railroad spur was constructed to enable a liquid oxygen tank car to approach the X-1 aircraft during loading. Additionally, Woolams arranged for office space, and off-base residences for the X-1 personnel. The construction of this facility was completed in a little more than one month.[21]

In September 1946, the engineers, instrument technicians, and technical observers for the X-1 program arrived at Muroc. During October, the X-1-2 was brought to Muroc (the X-

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[20] Rotundo, Louis, unpublished X-1 manuscript on file at Edwards AFB, AFFTC History Office, X-1 Misc. file, n.d.
[21] Rotundo, unpublished, n.d.

1-1, which completed the first supersonic flight arrived in April 1947), and in December, flight testing of the X-1 began at Muroc.[22]

The X-1 loading pit at Pinecastle AAF in Florida is no longer extant. The location of the loading pit is now part of the Orlando International Airport, constructed in the 1970s. The loading pit was paved over during that construction.

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[22] Reeder, Jack, "The X-1 Story," unpublished manuscript on file at Edwards AFB, AFFTC History Office, 1957.

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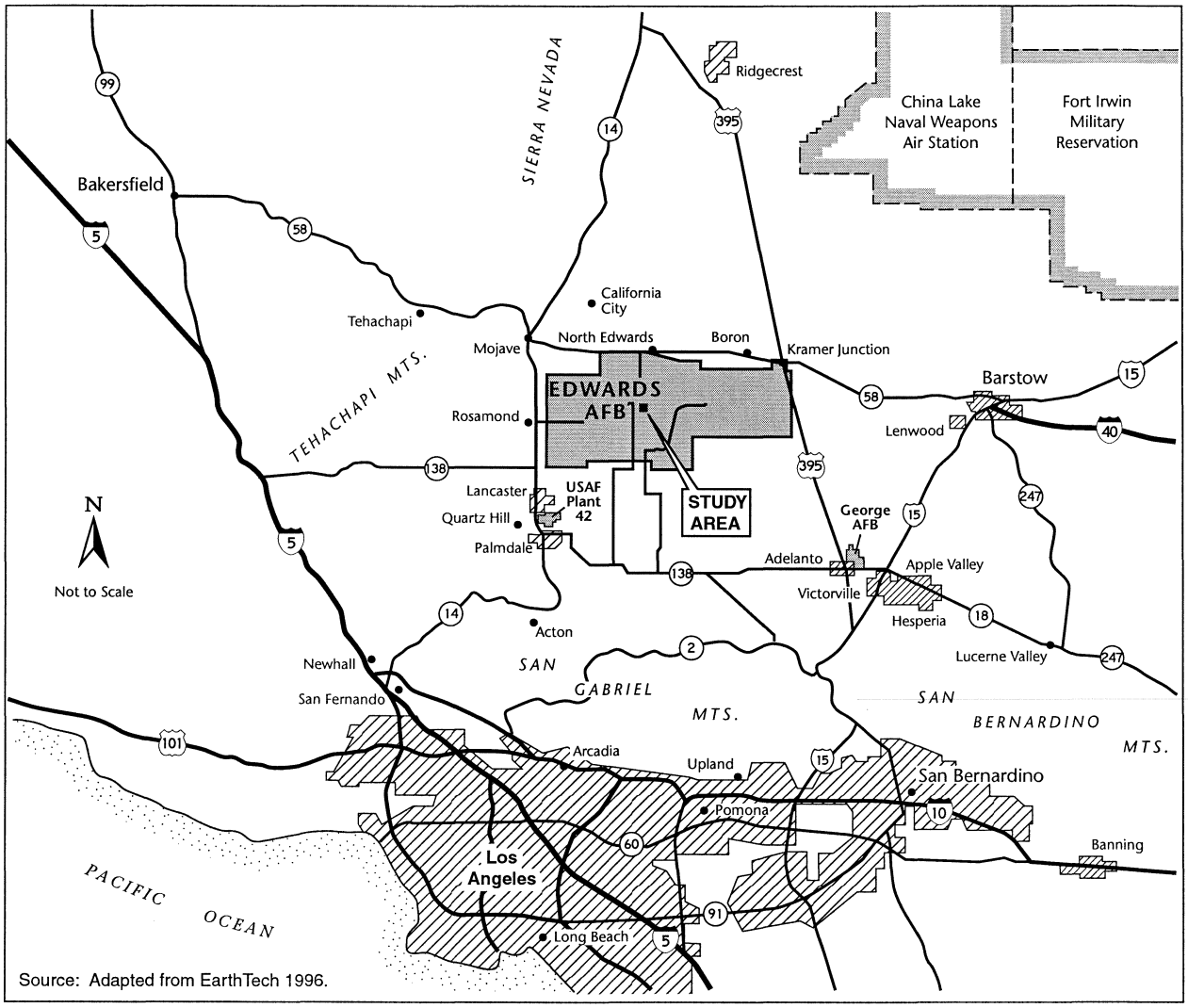
Supplemental Material

Project vicinity and location maps follow this page. In addition, xerographic photocopies of historic photographs follow the maps. Prints and negatives of those images are archived at the AFFTC History Office. Because documentation of the status of the photographs as public domain is not available at this time, photographic copies are not included in this recordation.

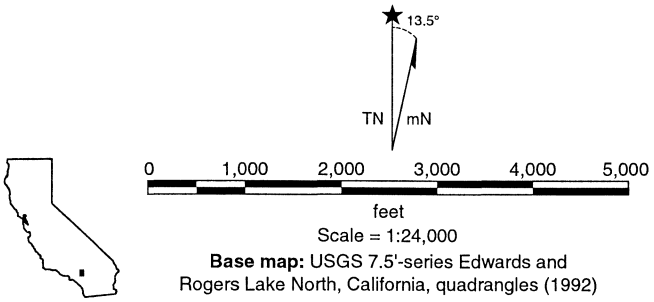
PROJECT INFORMATION

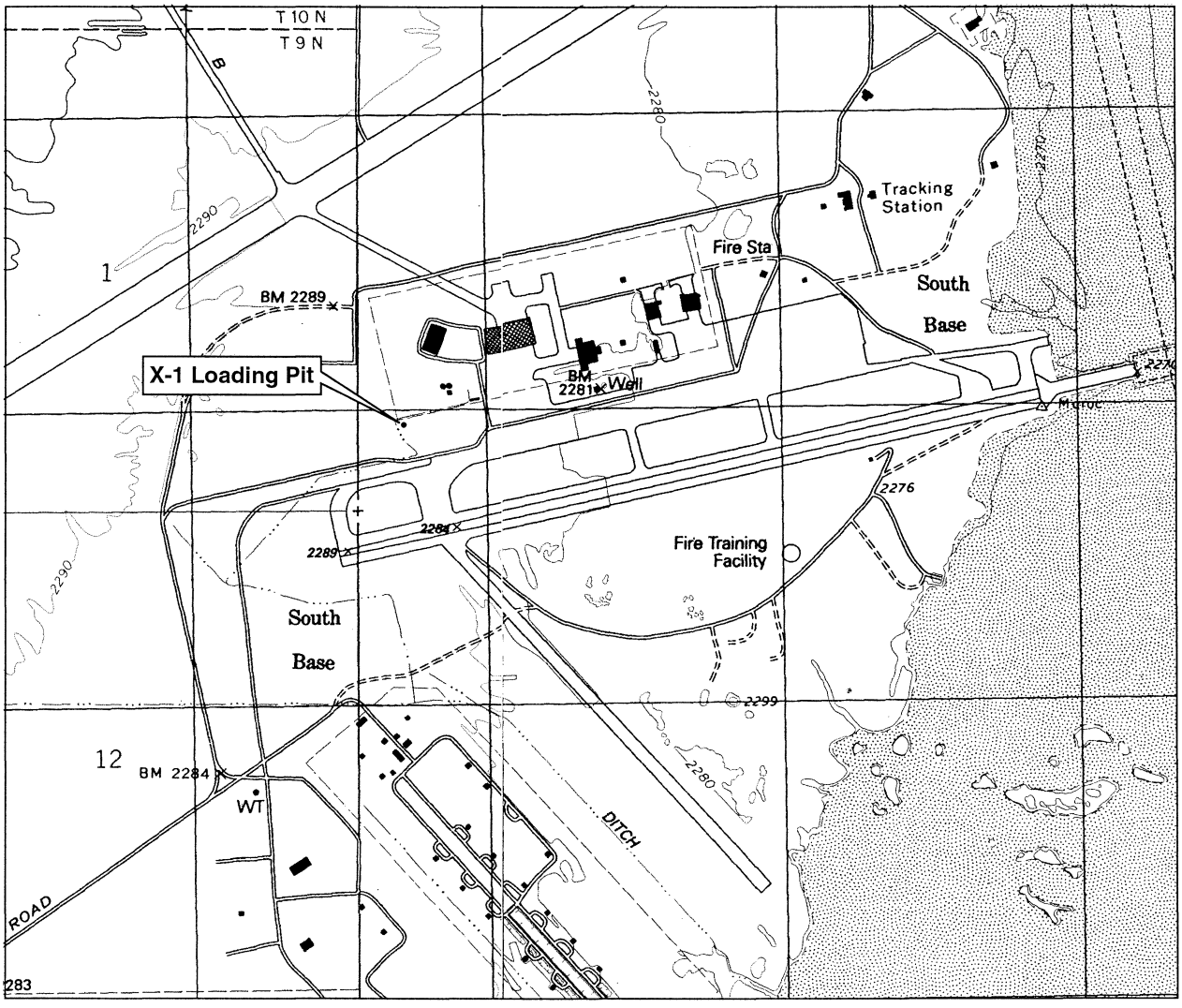
This report has been prepared to mitigate potential adverse effects caused by base activities and general deterioration. The X-1 Loading Pit is no longer in use and is subject to the elements. A previous inventory study recommended the resource eligible for listing in the National Register of Historic Place under Criteria A and B, for its association with the historically significant X-1 research program and with persons significant to that program.





Project Vicinity Map, Edwards AFB, California





Location of X-1 Loading Pit



The Loading Pit, Two XS-1 Aircraft and a B-29 Transport.
View to the Southeast. 1947.



Ramp End of Loading Pit, XS-1 Aircraft and Fuel Tanks.
View to the Northwest. Circa 1950.



XS-1 Aircraft in Loading Pit, B-29 Transport in Background.
View to the Southwest. Circa 1950.