Naval Air Station Fallon
100-Man Fallout Shelter (Building No. 802)
800 Complex, Off Carson Road near intersection
of Pasture and Berney Roads
Fallon
Churchill County
Nevada

HABS No. NV-33-A

HABS
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Buildings Survey
National Park Service
Western Region
Department of the Interior
San Francisco, California 94107

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HISTORIC AMERICAN BUILDING SURVEY
NAVAL AIR STATION FALLON
100-MAN FALLOUT SHELTER (BUILDING 802)
HABS NO. NV-33-A

Location: The 800 Complex is located in the southeast corner of the Naval Air Station Fallon, Fallon, Churchill County, Nevada. The 100-Man Fallout Shelter (Building 802) is located north of the Guard Shack (Building 801) and west of the Headquarters building (800).

USGS Grimes Point Quadrangle (7.5')
UTM Coordinates:

100-Man Fallout Shelter (Building 802)	11 4362850 351735

Present Owner: Naval Air Station Fallon
4755 Pasture Road
Fallon, Nevada 89496-5000

Present Occupant: Vacant

Present Use: Presently not in use.

Significance: 100-Man Fallout Shelter (Building 802) is significant due to its association with the 800 Complex. The Air Force-built buildings in the 800 Complex are significant for their role in the Semi-Automatic Ground Environment (Project SAGE) air defense system, and as exceptionally important examples of the architecture of the Cold War. The period of significance of the property extends from 1961, when construction started, through its abandonment by the Air Force in 1975. Built in 1962, the 100-Man Fallout Shelter served as part of the general fallout protection for the Fallon Air Force Station, especially the fallout shielded Building 800.

PART 1. HISTORICAL INFORMATION

A. Physical History:

1. **Date of erection**: The 100-Man Fallout Shelter (Building 802) was constructed in 1962 (Mikesell 1998).
2. **Architect**: The architectural firm responsible for designing this type of fallout shelter is Richard J. Donovan Inc., Architects-Engineers, of Winchester, Massachusetts.
3. **Original and subsequent owners**: The original owner was the Air Force who used the 800 Complex as the Fallon Air Force Station from 1962 to the early 1970's. After the Air Force left, NAS Fallon has been the owner.
4. **Builder, contractor, suppliers**: Unknown
5. **Original plans and construction:** The 100-Man Fallout Shelter (Building 802) appears as it did when constructed and has not been altered.
6. **Alterations and additions:** The 100-Man Fallout Shelter (Building 802) appears as it did when constructed and has not been altered.

B. Historical Context

1. **Description**: Descriptive information for the 800 Complex and 100-Man Fallout Shelter (Building 802) was gathered from the *Draft Inventory and Evaluation of National Register Eligibility for Cold War-Era Buildings and Structures, Naval Air Station Fallon, Nevada* (Mikesell 1998). 100-Man Fallout Shelter (Building 802) is the 100-Man Fallout Shelter for the 800 Complex on what was the Fallon Air Force Station. The 800 Complex includes a group of buildings and structures located near the southwestern corner of Main Side at Naval Air Station (NAS) Fallon. The fenced complex is about 5.5 acres in area and includes nine permanent buildings, fuel tanks, seven trailers, and temporary buildings. Of these buildings, only buildings 800, 801, 802, 804, 806 and the fuel tanks contribute to the significance of this property.

The 800 Complex is a distinctively Cold War property. It was built to house a state-of-the-art computer, radar interpretation system, and counter-measure control office, designed to assume control of part of the American response to a nuclear attack, should the primary control center be disabled. Although it is not the only such Back-up Interceptor Control (BUIC) building, there can be no doubt that the building was associated directly with leading edge technologies and strategies. Architecturally, the heavily fortified buildings are uniquely Cold War structures, individually and as a group. Building 800, which housed BUIC system, was built to withstand a near-miss nuclear attack. The 100-Man Fallout Shelter (Building 802), the bomb shelter, was similarly designed to be "fallout shielded." The 800 Complex represents exceptional significance within the Cold War context on the basis of its close association with an important element of the Cold War defense strategy and because it embodies the distinctive architecture of the Cold War

2. **Historical information**: Descriptive information for the 800 Complex and 100-Man Fallout Shelter (Building 802) was gathered from the *Draft Inventory and Evaluation of National Register Eligibility for Cold War-Era Buildings and Structures, Naval Air Station Fallon, Nevada* (Mikesell 1998). The significance of 100-Man Fallout Shelter (Building 802) is the significance of the whole of the 800 Complex. What follows is a review of the 800 Complex at NAS Fallon in history.

The 800 Complex includes remnants of an Air Force Station built within the boundaries of a Navy Auxiliary Air Station. The Air Force first came to Fallon in 1956, when the 858th Aircraft Control & Warning (AC&W) squadron was assigned to what was called Fallon Air Force Station. The squadron initially operated mobile radar units. In 1959, however, plans were approved for construction of a permanent radar tower, unit and necessary control and auxiliary buildings. These permanent buildings were completed by 1961 and all still exist.

3. **Function of the 800 Complex with the SAGE system:** The 800 Complex at NAS Fallon was a BUIC I, II and III back-up unit to the Winnemucca, Nevada Semi-Automatic Ground Environment (SAGE) Control Center. A BUIC was capable of handling the important work of the SAGE Control center, should the control be destroyed or disabled. There were two components to the operation at the 800 Complex: day-to-day monitoring of the skies; and the presence as a back up for the control of American counter-measures in the event of an air attack. The first function operated daily; the second function, of course, was never needed.

The Air Force moved on to the Navy Station at Fallon (then a Naval Auxiliary Air Station) in 1956, at about the same time that the Navy was just beginning to build a permanent station there. The Air Force would call the facility Fallon Air Force Station. The function of this facility changed over time. Initially, the Air Force assigned the 858th AC&W Squadron. It was tasked with the operation of two sets of mobile radar units: an AN/MPS-7 and an AN/MPS-14 unit. Briefly in 1959, an AN/FPS-3 unit was assigned there as well. The AN/FPS-7 was one of the first radar systems designed specifically to be compatible with the SAGE network; General Electric built it. The AN/FPS-14 was what was called "gap finder" radar and was also specifically built to be SAGE compatible; Bendix built it.

In the early 1960s, the mission of the Fallon Air Force Station was upgraded substantially. The bulk of the 800 Complex was built in 1961. The mission of the 1961-built station was to operate an AN/FPS35 radar unit. The specifications of the AN/FPS-35 are discussed below. Briefly, this unit was one of the more ambitious SAGE-compatible radar units from the early 1960s: it was first deployed in 1960, making Fallon Air Station one of the first stations to use it. The movable radar antenna weighed seventy tons and drew an enormous amount of electric power. The construction at the 800 Complex reflected the needs of this huge unit. The radar tower, Building 804, was large chiefly because it was designed to hold this bulk antenna. The external power plant, Building 806, as well as the fuel tanks, were constructed because there was insufficient power in the local grid system to supply the antenna, and to ensure a power supply in the event the local grid was inoperable. The operations building, Building 800, was initially a lightly reinforced concrete block building designed to control the radar operations and feed the data to other SAGE-related installations, probably to the SAGE control center in Winnemucca.

In 1962 (only one year after the initial construction), Building 800 was upgraded with a "Concrete Fallout Shielding." The new construction did not increase the interior space of the building. Rather, the work was entirely exterior to the 1961 concrete block building. The new construction included a thick (generally 1' 2") poured-in-place reinforced concrete wall around the exterior, leaving a three-foot airspace between the new and old walls. The functions of the interior rooms did not change between 1961 and 1962; the improvement, however, suggests that the Air Force placed great value on the data coming from the radar at this site.

The building was dramatically upgraded in 1965 and 1969 to transform it into a BUIC, or back-up SAGE center. The upgrade involved construction at the east end of the original building. As noted earlier, the

BUIC program included three phases, called BUIC I, BUIC II, and BUIC 111. The work on Building 800 was designed to upgrade it to a BUIC III status.

The 1965 and 1969 additions had two things in common: they were heavily reinforced ("fallout shielded") and they were dominated by computer rooms and a large radar screen display room. The BUIC II and III systems apparently relied upon a Burroughs-built computer that was compatible with the IBM-built SAGE computer. The computer room, built in 1965, included the thickest walls built at Building 800 - 1' 4" - and was accessible from two small doors. A data display room, which accommodated twelve radar screens, was a thickly reinforced room measuring 40' x 40'. The 1969 construction brought Building 800 to its current appearance and included some rooms that were not defended to fallout-proof conditions. These included a briefing room and an entry vestibule. By 1969, the building included the following rooms that had fallout-proof walls: the telephone line room; mechanical rooms; the computer room; the data display room; a room for programmers; and incidental rooms. such as the bathrooms' located near the center of the building.

Other construction during the 1962-1969 period supports the high-security nature of the operation. The 100-Man Fallout Shelter (Building 802), was built in 1962, at the time in which Building 800 was fallout shielded." The guard shack, Building 801, was built in 1961 and later expanded.

The 800 Complex had two major functions: the operation of the radar unit; and the BUIC operation. The two were related but not identical. The AN/FPS-35 radar was but one of many radar units in the area, although it was a particularly powerful (although error-prone) unit. The AN/FPS-35 was operated jointly by the Air Force and the FAA after about 1965. The radar unit was not protected in the manner of Building 800: the antenna was totally exposed and the walls of the tower on Building 804 are not "fallout shielded." It may be concluded that the BUIC function of Building 800 was regarded as more important than that of the radar set nearby.

The total operation at the 800 Complex, built no doubt at great expense, was surprisingly short-lived. The AN/FPS-3: antenna was removed in 1971: two generations of smaller radar units have been used since then. The Air Force abandoned the entire 800 Complex at about that time, turning the radar unit (Building 804) over the FAA and the rest of the buildings to the Navy. Building 804 is still used as a FAA radar tower. The range department of Naval Strike and Air Warfare Center uses building 800. The other buildings inside the 800 Complex gate are used for incidental purposes, including a Sea Air and Land (SEALS) base, recently established in the 800 area.

PART II. ARCHITECTURAL INFORMATION

A. General Statement

1. **Architectural character:** Architectural and Engineering information for the 800 Complex and the 100-Man Fallout Shelter (Building 802) was gathered from the *Draft Inventory and Evaluation of National Register Eligibility for Cold War-Era Buildings and Structures, Naval Air Station Fallon, Nevada* (Mikesell 1998) and from the 100-Man Fallout Shelter (Building 802) design plans (Donovan 1962). The 100-Man Fallout Shelter (Building 802) is a reinforced concrete fallout shelter, built partially underground. Plans identify it as a "100-Man Fallout Shelter." It was apparently a standard building design, developed for the Air Force by Richard J. Donovan Inc. of Architects-Engineers, Winchester, Massachusetts.

2. **Condition of fabric:** The condition of the 100-Man Fallout Shelter (Building 802) is not in good condition and considered a health hazard. The concrete cap is cracked and raised in locations. The interior has been flooded with approximately six inches of waste water an unknown amount of times. Interior partition walls and the concrete cap itself contain asbestos.

B. Description of Exterior:

1. **Overall dimensions:** The overall dimensions of the rectangular 100-Man Fallout Shelter (Building 802) are 36' 0" across the front and 84' 5" long. The 100-Man Fallout Shelter (Building 802) has only one story which is three feet underground.
2. **Foundations:** The floor of the 100-Man Fallout Shelter (Building 802) is a four-inch concrete slab. The 1' 8" end wall, the 1' 0" entry passage walls and the sides of the zinc coated corrugated metal structure are resting on 1' 0" by 2' 0" concrete piers.
3. **Walls:** Half circle structure in cross section is based on a zinc coated, 10 gage metal arch with a minimum of 3' 0" of fill on top capped by a 3" gunited concrete slab. The top cap of gunited concrete is mixed with asbestos. The end wall is 1' 8" thick concrete. The entry passage has descending steps to a 3' 4" wide passage that turns back on itself. The outer walls of the passage are 1' 0" thick concrete and the interior passage wall is 9" thick concrete.
4. **Structural system, framing:** The structural system is described above in "Walls." All end concrete, passageway concrete and a zinc coated, 10 gage metal arch side walls are load bearing. The floor system is a 4" concrete slab with ½ " molded plastic joint filler with 1" mastic sealer between walls and concrete slab. The roof framing is a zinc coated, 10 gage metal arch with a minimum of 3' 0" of fill on top capped by a 3" gunited concrete slab.
5. **Bulkheads:** Bulkheads are constructed of 10 gage metal arch riveted into the concrete end wall and passageway walls.
6. **Chimneys:** The exhaust air vent is located at the bunk end of the building. It has a 1'6" interior dimension that right angles down the outside of the wall, right angles up 9' 0" through the gunited concrete and ends in a downward facing gooseneck. The intake air vent of similar dimension extends up out of the filter chamber near the entrance. Also, there is two 4" vents for the pit and the latrine and a 2" vent at the passage way for the entry way drain.
7. **Openings:** There are two openings in the 100-Man Fallout Shelter (Building 802). The front entrance is a 36' 0" long, 3' 4" wide passage that turns back on itself. The wall material and thickness is 1' 0" thick concrete and the interior passage wall is 9" thick concrete. The passageway entry has no door. The second opening is an escape hatch in the ceiling of the bunkroom. The escape hatch is 2' 6" in diameter and is accessed by a ladder through a 2' 6" steel pipe welded to the arch.
8. **Roof:** The roof is a half circle arch made from a 10 gage, metal arch with three feet of sand and fill piled on top, finished with a 3", 2/1 slope gunited concrete cap. The concrete passageway has a square and flat slab roof.

C. Description of Interior:

1. **Floor Plans:** The 100-Man Fallout Shelter (Building 802) includes three rooms: a bathroom/kitchen area; sitting area; and sleeping area. The rooms are 16 feet wide and measure 14 feet, 27.5 feet and 32 feet respectively. Plans show sleeping bunks to be built by the government in the sleeping area and tables and chairs for the sitting area.
2. **Stairway:** The only stairway is drops 3' 2" into the passage way with five steps. No railings or features are present.
3. **Flooring:** The flooring is unfinished 4" concrete slab.
4. **Wall and ceiling finish:** The interior of the 10 gage metal arch has been painted with a lead based paint. Interior partition walls are made of asbestos impregnated sheet rock and painted with the same lead based paint as the 10 gage metal arch.
5. **Openings:** All interior openings, except those to the toilets and the storage room, are trimmed openings with no doors. The toilets and storage room typical, simple wood doors. The interior passage way door is a standard metal door. There is a metal panel access door to the filter room at the bottom of the stairs.
6. **Decorative features and trim:** There are no decorative features or trim.
7. **Hardware:** There is no notable or original hardware in the 100-Man Fallout Shelter (Building 802).
8. **Mechanical equipment:**
    a. **Heating, air conditioning, ventilation:** The ventilation fan is a 2680 C.F.M., with a 15" diameter wheel. It is located in the air filter room. The intake vent is on the passageway side and the exhaust vent is at the bunk side.
    b. **Lighting:** Lighting consisted of 21 10" shallow steel dome light fixtures hanging from the ceiling.
    c. **Plumbing:** The 100-Man Fallout Shelter (Building 802) has two latrines with a holding tank. A sink stands in the kitchen and is connected to a 1000-gallon tank that is located in the fill beyond the 10 gage metal arch. A showerhead and drain are located at the entry way with a turn on knob.
9. **Original furnishings:** Plans show that the government was supposed to make both bunks for the sleeping room and tables and chairs for the sitting room. Some of the bunks still exist.

D. Site:

1. **General setting and orientation:** The general setting of the 100-Man Fallout Shelter (Building 802) is relatively flat, cold desert environment of shadscale vegetation. The immediate surroundings are a bladed flat compound with the original Fallon Air Force Station buildings and the more recent additions. The only shelter the 100-Man Fallout Shelter (Building 802) would get during the day is shade from Building 800 in the morning.
2. **Historic landscape design:** The historic landscape design varies only by having the original 800 complex buildings, buildings 800, 801, 802, 804, 806 and the fuel tanks.
3. **Outbuildings:** There are no outbuildings associated with the 100-Man Fallout Shelter (Building 802).

Part III. Sources of Information

Donovan, Richard J.

1962 United States Air Force, 100 Man Fallout Shelter, A.C.&W., Architectural Building Type A, Plan, Index, Sections and Details. Prepared by Richard J. Donovan, Inc., Architects-Engineers, Winchester, Massachusetts.

Mikesell, Stephen

1998 Draft Inventory and Evaluation of National Register Eligibility for Cold War-Era Buildings and Structures, Naval Air Station, Fallon, Nevada. Prepared for Department of the Navy, Western Division, Naval Facilities Engineering Command, San Bruno, California.

Part IV. Project Information

This report is a mitigative report required by the Memorandum of Agreement between the Naval Air Station Fallon, the Nevada State Historic Preservation Office and the Advisory Council on Historic Preservation for the demolition of the 100-Man Fallout Shelter (Building 802). The photographer is Mr. Ludwick of Fallon, Nevada.

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Date: October 1998

10. LOCALE/ENVIRONMENT