U.S. Naval Air Station,
Power Plant (Building 47)
Pensacola
Escambia County
Florida

HABS No. FL-249

HABS
FLA,
17-PENSA,
75-

PHOTOGRAPHS

Historic American Buildings Survey
National Architectural and Engineering Record
National Park Service
Department of the Interior
Washington, D.C. 20243

ADDENDUM TO:
U.S. NAVAL AIR STATION, POWER PLANT
(Building No. 47)
328 South Avenue
Pensacola
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Florida

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY
SOUTHEAST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
100 Alabama St. NW
Atlanta, GA 30303

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HISTORIC AMERICAN BUILDINGS SURVEY

Addendum to
U.S. NAVAL AIR STATION, POWER PLANT
(U.S. Naval Air Station, Building No. 47) HABS No. FL-249

Location: 328 South Avenue
Pensacola
Escambia County
Florida

USGS Fort Barrancas Quadrant, Universal Transverse Mercator Coordinates: Zone 16, 474191E, 3357241N

Present Owner: United States of America
Department of the Navy (DON)
Commander, Naval Installations (CNI)
2713 Mitscher Rd. SW
Suite 300 Anacostia Annex (Building No. 168)
Washington, D.C. 20373-5802

Present Occupant: Vacant

Present Use: Vacant

Significance: Constructed from 1905 to 1907, the Power Plant is among the most significant architectural landmarks within Naval Air Station (NAS) Pensacola. With its grand scale and finely crafted detailing and ornamentation, the building is an outstanding local example of Beaux Arts classicism, an architectural movement that enjoyed widespread popularity throughout the nation during the early twentieth century. In addition, the brick chimney that rises from within the building's core is an independent, free-standing structure that is a distinctive and character-defining feature and remains an important physical landmark in the Pensacola area. The Power Plant is associated with an ambitious building program in which the Navy constructed centralized power plants at most of its on-shore installations during the first decade of the twentieth century. The Power Plant reflects the Navy's increased use of and demands for electricity during modernization efforts at the time. For a few years, the Power Plant supplied electricity to the communities immediately adjoining NAS Pensacola. The Power Plant also provided steam heating for many of the buildings at the station. Although the Power Plant was not directly involved with the primary mission of the installation during its years of operation as a navy yard and later as a naval aviation training facility, the building fulfilled a vital support role within the base and improved both the quality of life and efficiency of everyday operations.

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date(s) of erection: 1905-07

2. Architect(s): The architect of the power plant is not known; however, construction documents on file at the Engineering Offices (Building No. 458) at NAS Pensacola indicate that the American Bridge Company prepared the plans for the building's original steel structural support systems. At that time, the American Bridge Company, a subsidiary of the United States Steel Corporation, was among the nation's leading construction firms.

   The designer of the chimney is unknown; however, the only original architectural drawing of the structure includes a reference to the Alphons Custodis Chimney Construction Company. The plans are on file at the Engineering Offices (Building No. 458) at NAS Pensacola.

3. Original and subsequent owners, occupants, uses: The Navy has owned the building since its construction in 1905-07. Originally known as the Central Power House, it provided electricity and steam power in support of the installation's operations. It remained in use until 1973 when a new, more efficient power plant was constructed and became fully operational. Although a portion of the engine room served as a small repair machine shop, the building has essentially remained in an inactive state since the 1970s. At present, the Power Plant is vacant and unused.

4. Builder, contractor, suppliers: Although the contractor for the Power Plant is not known, the New York office of the Alphons Custodis Chimney Construction Company built the radial brick chimney, according to architectural plans and the name plate on the furnace door. This company also constructed radial brick chimneys throughout the nation, including the St. Louis Union Station Powerhouse [Historic American Engineering Record (HAER) No. MO-23].

5. Original plans and construction: The Power Plant is a massive industrial building that rises to a height that is the equivalent of a three-story building, and it provided the primary source of steam and electrical power to the installation throughout much of the twentieth century. Perhaps the best description of the building's original appearance comes from the specifications that the Navy developed soliciting a contractor to build the Power Plant. As noted in the specifications,

> The building [is] to be a one-story structure with the interior space divided longitudinally by asteel and brick partition wall. The exterior walls shall be constructed of steel and brick, with pressed brick, granite, limestone, and terra-cotta facings and trimmings and with large glazed doors and windows. The roof shall be carried on steel trusses supported by the steel columns and the end walls, and shall consist in part of steel purlins carrying the concrete and tin roofing; in part of glazed steel and copper ventilating monitors, and in part of a copper chimney hood. The interior walls of the engine room shall be faced with enameled and pressed brick; the side walls being fitted with steel girder runways supported by the steel columns and designed for carrying a traveling crane, of 10 tons capacity, their entire length. The boiler room shall be fitted with steel-girder framework supported on the east side by the steel wall columns and on the west side by isolated steel columns; the entire construction designed for the support of two suspended coal bunkers of a capacity of 200 tons each. The building shall be fitted with down spouts and the chimney with an extension of the lightning-rod system from a point about 4 feet above the roof, down, using the cables temporarily supplied with the chimney so far as same can be used, and adding what new cable and connections are necessary. A toilet room shall be provided with floor, ceiling, and fixtures complete. A copper chimney hood shall

> also be provided as well as all other material and labor required in its complete and satisfactory construction.[1]

Historic photographs confirm that the building was constructed to the standards noted in the specifications. Most of the original architectural plans could not be found either at NAS Pensacola or at the Cartographic and Architectural Section of the National Archives and Records Administration (NARA) facility at College Park, Maryland. However, many of the original structural drawings are on file in the Engineering Offices (Building No. 458) and are maintained by a private contractor (Hill-Griffin) working for NAS Pensacola.

When completed in 1907, the Power Plant was a majestic structure that was noteworthy not only for its imposing scale, but also for its architectural detailing and ornamentation. The multi-story, round-arched openings, as well as the terra-cotta molding around the arches, in the pilaster, within the entablature, and in the parapet distinguished the building as arguably the most finely crafted and intricately detailed building at the installation.

NARA has a copy of the only original architectural drawing prepared for the radial molded brick chimney. As stated in the specifications that accompanied the drawing, the chimney consisted of a 30'-0" base with a 120'-0" round column (smoke stack) that rises a total height of 150'-0" with a series of stacked brick wall segments. The exterior finish of the base utilized common brick, while the interior of the column had fire brick that contained no iron, pebbles, lime, or other flammable materials. With a 4-1/2" thickness, the fire brick lining rose to a height of 80'-0". The column also made use of perforated radial molded blocks that were uniformly 6-1/2" x 4" on their external faces but varied in length to conform to the thicknesses of each wall segment. Reinforcing rings of galvanized steel, which measured 2-1/2" x 5/8", were installed at regular intervals on the column and provided additional structural support. The column had an ornamental cornice with a cast-iron cap plate that was securely to the top.[2]

The machinery and equipment originally used in the Power Plant were installed independently and under separate contracts from the construction of the building. NAS Pensacola maintains many of the mechanical plans, schematics, and drawings at the Engineering Offices in Building No. 458. One of the oldest drawings in the collection for Building No. 47, entitled "General Arrangement of Machinery" with a handwritten date notation of "August 16, 1907," provides the earliest known depiction of the type and location of equipment originally installed in the Power Plant. This plan notes that the eastern half of the building functioned as the boiler room and contained two sets of paired 300 horsepower (HP) "B&W" boilers. Presumably, the initials stood for Babcock & Wilcox, a manufacturer of boilers during the early twentieth century. The 1907 plan notes that these four coal-powered boilers were located in the south end of the boiler room. Another paired set of coal-powered boilers, identified as "200 HP Aultman Taylor Boiler" were in the north half of the boiler room. The western half of the building functioned as the engine room and contained equipment that was used to generate electricity. The 1907 layout reveals that the engine room originally contained two 50 KW DC generators, one 150 KW DC generators, and two 300 KW DC generators; the manufacturers are not identified. The northern end of the engine room was not used at that time and was left open and unimproved.

6. Alterations and additions: To describe the physical evolution of the Power Plant, this section is divided into two parts. The initial section discusses the building's architectural evolution and describes the major physical changes in chronological order. The second part describes

changes in the kinds of equipment and machinery installed in the Power Plant. All of the information presented in this section comes from Annual Reports of the Bureau of Yards and Docks (BuDocks) and from an analysis of architectural plans from the Engineering Offices (Building No. 458) at NAS Pensacola.

a. Architectural alterations and additions: The one-story room along the south interior wall within the engine room was constructed as a lavatory and locker room addition. Although its exact date of construction is not known, the addition appears on a 1932 plan that shows the layout of the engine room at that time. The addition features wood-frame construction and plastered walls. The restrooms were located in the east end and the lockers were in the west end of the room.

   In 1935, the Annual Report for NAS Pensacola noted the completion of repairs to the building's structural steel columns. The report states that "these columns are encased in brick and terra cotta, and an inspection showed that serious corrosion of the steel was taking place. This work comprised the uncovering of the steel, sand blasting of same, repainting with aluminum and bricking up."[3] This statement indicates that problems associated with the building's structural system were already evident only thirty years after the building's construction.

   In 1940, a small one-story brick addition was constructed onto the west end of the building's south side. Built as a pump house to improve the intake and outflow of salt water used in the plant's operation, the addition measured 42'-7" x 19'-7-1/2" and rose to a height of 45'-0". The addition rested on a continuous-perimeter concrete foundation wall and featured a rowlock brick water table. With a low-pitched, wood-frame shed roof and built-up roofing, the addition utilized load-bearing brick construction. The architectural plans for the addition note a single doorway on the west elevation. Placed under a soldier course brick lintel, the doorway included paired paneled doors, each of which contained a large glazed panel. Concrete steps led from the ground level to the entrance. The south facade contained two window openings, each of which had paired, double-hung windows with six-over-six lights. The east facade had one window opening with a window similar to those of the south facade. All of the window openings had soldier course brick lintels and sills. The interior featured an open plan with concrete floor. The only interior doorway opened into the main building and resulted in modifications to the westernmost window bay on the building's south side. A portion of the granite sill was cut to allow for the installation of a doorway in the opening.

   In 1941, a one-story addition with half-basement was constructed onto the north side of the Power Plant, incorporating elements from a valve pit and an older free-standing and completely independent valve house that was built at the site in 1924. The new valve house occupied the upper level of the 1941 addition, and a transformer room was in the half-basement with the previously constructed valve pit. The entire addition measured 28'-0-1/2" x 27'-6" and rested on a raised continuous-perimeter concrete foundation wall. The addition was constructed of load-bearing masonry in common bond with a header course every sixth row. The walls also featured soldier course lintels over openings. The addition features a built-up roof over a concrete deck. Both the east and west facades contained paired light industrial doors with removable transom bars, as noted on the architectural plans. The doors had removable louvered metal panels above each unit, and similar louvered panels below. The fenestration on the north facade included fixed metal

twelve-light windows with operable hopper or awning units, metal louvers at ground level and operable six-light hopper or awning units along the basement level. The valve house addition was connected to the Power Plant through one of the existing large, multi-story window openings. A single door was inserted below the transom bar and and the rest of the arched opening infilled with brick. The interior concrete floor of the valve room was lower than the window opening and required a five-step concrete staircase for access. A concrete-lined pump pit was located at the southeast corner of the addition, and concrete steps extended below grade to a transformer room at the basement level. Architectural plans note that the doorway contained a light industrial door that likely was similar to, but slightly smaller than, the industrial doors installed in the east and west facades.

Later in 1941, a second-floor addition was constructed onto the pump house, which was built just a year earlier. The architectural plans for this addition note that it was built to house offices that supported the operations of the Power Plant. The addition utilized wood-frame construction with wood siding and a shed roof covered in composition shingles. The windows consisted of single and paired six-over-six, double-hung, wood-sash units. The interior featured an open plan with pine sub-floor covered in linoleum, wood walls, and ceiling. An eighteen-riser straight staircase connected the second-story office to the engine room through the center section of an existing window.

A low-lying transformer wall was constructed on the west side of the building. Constructed with brick in an English bond pattern with a rowlock cornice, the transformer wall likely was built in the early 1940s; however, no architectural plans could be found to confirm its date of construction.

Between 1941 and 1965, a brick veneer was applied to the second floor of the pump house addition so that it matched the brick pump house on the ground floor. An exterior metal staircase was also constructed along the south wall, and one of the window openings on the pumphouse's second story was converted into a doorway. The dates of these alterations are also unknown but may have occurred simultaneously when the exterior brick veneer was added. In 1965, deterioration and corrosion of the embedded structural steel columns, beams, and purlins within the masonry walls necessitated major structural repairs to the building. Architectural plans noted that the lower 15'-5" of some of the existing embedded structural steel columns were removed and replaced with new sections. The entire columns were painted in an attempt to neutralize or impede ongoing corrosion problems. Whenever possible, any original removed brick was reused and new brick was used as necessary. Much of the brickwork in the parapet was either reconstructed or repointed. The exposed interior steel structural system and exterior metalwork were also painted to stabilize any corrosive effects to the metal components. The 1965 work also included minor repairs to windows and doors. According to plans dated 1977, chimney renovations included the repair of stress cracks, the installation of additional steel bands and plastic water table above each band, and the attachment of a safety device and wire cable to the access ladder.

In 1986, the chimney was targeted for repair. Work slated for the project included raking and repointing of the brickwork, repairs to the safety ladder, and the installation of a new obstruction light atop the chimney. These repairs likely were not completed since similar repairs were also included in another set of architectural plans prepared in 1993.

Architectural plans prepared in 1987 by a local architect show that NAS Pensacola intended to remove the boilers, condensers, and most of the building's other machinery and equipment as part of an effort to open up most of the interior space. The project was never fully implemented, and among the only aspects of the work program that were undertaken involved the removal of two steel stacks in the boiler room. Based on an analysis of architectural plans and historic photographs of the building, both stacks were installed between 1936 and 1938.

Between 2002 and 2004, the two-story addition on the building's south side was demolished, which revealed the original arched opening that had been covered by the 1940-41 additions. The opening is largely intact except for the partial removal of the granite sill and the brick wall for a doorway. The original window has also been removed; otherwise, the arched opening is intact and retains most of its salient features.

b. Mechanical and equipment alterations and additions: Changes to the types of mechanical and electrical equipment used to generate electricity and steam in support of the primary function of the Power Plant are best understood through an analysis of interior layouts and plans, the most important of which accompany this written documentation. Much of the equipment depicted on a 1907 drawing entitled "General Arrangement of Machinery" was no longer in place by October 1917 when NAS Pensacola generated a new layout of the equipment in the Power Plant. Although the boiler room remained essentially unchanged, the engine room was rearranged following the relocation of some existing machinery and the introduction of new equipment. This conclusion stems from the limited amount of historic documentation and materials uncovered for this study and from a comparison of each set of layout and floor plans. The two 50 DW DC generators noted on the 1917 plans likely were the same as those shown in 1907. However, the engine room also contained a new 150 KW generator (manufacturer unknown), a high-pressure air compressor (manufacturer unknown) with a capacity of 50 cubic feet per hour, and two other air compressors (manufacturers unknown) with 300 and 600 cubic feet capacities. The Annual Report of 1917 indicates that a 150 KW motor generator set was being installed at that time. The report notes that it was manufactured by Ridgway Dynamo & Engine Company and was purchased for $7,900.00.[4] Finally, a layout of the engine room dated 1918 indicated that a 600 C.F.M, steam-driven, Chicago-Pneumatic air compressor was also being installed in the north end of the engine room.

   As early as 1919, NAS Pensacola proceeded with plans to install a 750 KVA turbo generator, but it was not operational until spring 1921, according to the Annual Report of that year.[5] As the turbo generator was being built, a new electrical switchboard was also installed along the west wall of the engine room. Both the turbo generator and switchboard remain in the building.

   The conversion from coal- to fuel oil-based power resulted in major interior changes to the boiler room and introduced a new generation of mechanical equipment. In 1931-32, a new set of boilers was installed in the northern half of the boiler room. To make way for the new units, the 200 HP Aultman Taylor boilers were removed. The three new units were manufactured by Wickes Boiler Company, and each had a 403 HP capacity. These boilers are extant in the building. Following the construction of these units, the coal bunkers along the east wall of the boiler room were removed, according to the Annual

Report of 1932.[6]

In 1936, one of the original 300 HP B&W boilers was replaced by a more efficient, fuel oil-powered unit. Although the manufacturer is not identified, the architectural plans note that the boiler had a 400 HP capacity. Its installation resulted in the construction of a new steel stack that provided additional ventilation. It extended through the roof near the radial brick chimney. Although the steel stack was removed in 1987, the boiler remains in place. The other original B&W boiler is also noted on the 1936 plans; however, it was removed at an unknown date. Because the Power Plant abandoned coal as a source of power, the unit may have been removed as early as the 1930s since it could no longer be operated. Its concrete foundation is extant.

In the late 1930s, NAS Pensacola sought to increase the electrical generating capacity of the Power Plant and made plans to install a new turbo alternator, condenser, air compressor, and related equipment. The plans, which are on file at NAS Pensacola, note that a 1700 KW turbo alternator was to be installed between existing 500 KW and 750 KW turbo alternators.

A one-story 1940 addition onto the building's south side increased the Power Plant's ability to pump salt water. Architectural plans indicate that the pump house originally had three 100 HP salt water pumps and a single 40 HP pump. The manufacturer of these pumps is not known. All of the pumps have since been removed, and the addition has been demolished.

The next major piece of equipment installed in the Power Plant was the de-aerating feed water heater, which was used to pre-heat water before its delivery to the boiler. The feed water heater was installed in the boiler room along the east wall and directly opposite the base of the radial brick chimney. Plans for its construction are dated 1945 and 1946 and were prepared by Hoffman-Wolfe Mechanical Contractors of Atlanta, Georgia.

The inventory of drawings at NAS Pensacola does not include plans or schematics for any other major piece of equipment or machinery that postdates the installation of the de-aerating feed water heater in the 1940s.

B. Historical Context:

INTRODUCTION

The U.S. Navy established NAS Pensacola (then called Naval Aeronautic Station Pensacola) in 1914, choosing as its site the old Pensacola Navy Yard, already steeped in its own long military history dating back to early Spanish occupation in 1698. Although European nations fought for control of the region because of the strategic value of the Pensacola Bay, and the U.S. Naval Yard stood on the site for eighty-six years, the naval station's most profound legacy is associated not with maritime traditions, but with aviation. The naval aeronautic station that eventually became NAS Pensacola was tasked with creating the Navy's first aviation program at a time when manned flight was scarcely a decade old. At first, the fledgling program vied with the Army's early aviators in logging spectacular (and sometimes fatal) flight records, training a select handful of military pilots, and improving on the simple mechanisms of the earliest airplanes. When, during the first months of the new station's existence, pilots demonstrated that

they could take off and land from the deck of a ship, a unit was dispatched to the United States' intervention in Mexican Revolutionary activities at Veracruz. After successfully operating reconnaissance missions from the USS *Mississippi* and sustaining the first mark of rifle fire from combat experienced by military aviators, the future of naval aviation was assured. The flight school at Pensacola became the premier training ground for naval pilots in the United States. Additional training courses at NAS Pensacola multiplied rapidly, and the program provided hundreds of pilots and thousands of trained technicians for World War I. The arrival of the first aircraft carriers in the 1920s further enhanced the possibilities for aviation at sea, and training programs at NAS Pensacola evolved rapidly to keep pace with new developments. The station, improved and augmented through increased defense spending and New Deal public works programs in the late 1930s, was able to provide the Navy with a steady stream of pilots and other trained personnel to meet the demands of World War II. Today, NAS Pensacola continues to lead the Navy's flight training program, and it anchors the Pensacola community.

NAS Pensacola's physical plant has changed constantly to reflect its evolving mission. The current station incorporates remnants of the early Spanish forts, as well as the core of the old Pensacola Navy Yard complex, now listed as an NHL. In addition, the station retains structures from every major building period, all reflecting NAS Pensacola's important role in military history. One factor governing development at the station has always been the damaging hurricanes and windstorms that rise from the Gulf of Mexico and periodically strike the base, damaging buildings and infrastructure, and necessitating extensive repairs or rebuilding. The phases of construction related to storm damage are also evident in the structures present at the station today. This historic overview provides the background for placing Building No. 47 within a national, regional, and local context.

The Power Plant was constructed during the final years of operation of the Pensacola Navy Yard. The majestic brick building with its Beaux Arts-styled ornamentation and prominent brick radial chimney was part of the Navy's efforts to consolidate steam heating and electrical generating capacities within a single facility. Work on the building began in 1905 and continued into 1906. However, it only became operational in 1907 after Congress appropriated funds to purchase and install the equipment necessary to make the Power Plant functional. When completed, Building No. 47 was among the most opulent structures within the entire military complex, and its central location and finely crafted detailing made it a distinctive and highly visible architectural landmark. Its construction was also part of the Navy's modernization efforts during the early twentieth century, which completely transformed the way the Navy fulfilled its primary defense mission. The Power Plant was shut down after the navy yard was deactivated in 1911; however, it was returned to service just three years later when the Navy designated the base as the first naval aeronautical training station. The Power Plant continued to fulfill its intended function for the next six decades and often received new and more efficient machinery. Among the most significant equipment changes involved the replacement of the coal-powered boilers with new units that utilized fuel oil. In contrast, the building's exterior hardly changed over the years, and the only significant alterations (pump house and valve house additions) were completed just prior to World War II. Soon after the construction of a new power plant in 1973, Building No. 47 was taken out of service. Although a small portion of the building was used as a shop to repair small engines, the Power Plant has essentially remained in a mothball state since the late 1970s.

EUROPEAN SETTLEMENT AND FORTIFICATION IN THE PENSACOLA BAY AREA

NAS Pensacola occupies a peninsular spit of land projecting eastward into the broad Pensacola Bay in Escambia County, Florida. Entry to the bay from the Gulf of Mexico is protected by Santa Rosa Island and Perdido Key, forming an ideal defensive arrangement exploited as early as the seventeenth century by

the Spanish, followed by French, British, and American forces. The first permanent settlement and military fortification in the immediate area was Fort San Carlos de Austria, built in 1698 by Spanish troops under the direction of Andrés de Arriola. Arriola maintained that the Gulf of Mexico—a vital link in the trade routes between Europe and Spanish colonies in Peru and Mexico—would be controlled by the nation that held the Bay of Pensacola.[7] The simple, wood-and-earth fort stood until 1719, when it fell to invading French forces.

Domination of the Pensacola Bay alternated between Spanish and French forces during the following decades, during which the Spanish also built a small fort on Santa Rosa Island. After winning control of Florida following the French and Indian War, the British arrived at Pensacola Bay in 1763 and completed a new palisade fortification in 1771 to protect the growing town of Pensacola, just north of the military site, then called the Royal Navy Redoubt. A decade later, in 1781, the Spanish again regained control of the site, renaming the British palisade Fort San Carlos de Barrancas. This time, they fortified the entrance to the bay more securely, constructing Batería San Antonio (San Antonio Battery) in 1797—a solid brick water battery of semicircular shape designed as a gun emplacement facing the bay.[8] The Spanish remained in control of the Pensacola Bay area, despite skirmishes with the British and with American forces led by Andrew Jackson in 1814, until 1821, when Spain finally ceded Florida to the United States via the Adams-Onis Treaty (*Figure 1*). Andrew Jackson presided over ceremonies in the Plaza of Pensacola on July 17, 1821, celebrating the surrender of the territory by the Spaniards. Jackson then dispatched four army infantry companies to Fort San Carlos and the San Antonio Battery, marking the first occupation of the site by U.S. military forces.[9]

THE U.S. NAVY YARD AT PENSACOLA

The creation of the Territory of Florida by act of Congress on March 30, 1822, with Pensacola as the seat of government, replaced the interim government created by Jackson.[10] A Florida Legislative Council, formed to promote the interests of the new territory, quickly moved to petition the U.S. Senate and President James Monroe for new fortifications on the Pensacola Bay, to include a naval station at Pensacola. Both the president and Secretary of the Navy Samuel Southard approved the plan, agreeing with the recommendation of the Senate Committee on Naval Affairs that the coast of Florida was the ideal site for a new naval depot. Southard commented that such an installation was "indispensable for the economical and efficient management of that portion of our navy which is employed in the West Indies and Gulf of Mexico."[11] Despite recommendations by the Board of Naval Commissioners to await the results of engineering studies on potential Gulf Coast sites, by March 3, 1825, both the House and Senate approved a bill authorizing construction of a navy yard at Pensacola. Objections to the Pensacola Bay site voiced by some military authorities included the shallowness of its channel, which precluded passage by some larger vessels, and its vulnerability to attack from the mainland. Notwithstanding these arguments, a party of three officers, including Commodore Lewis Warrington, Captain James Biddle, and Captain William Bainbridge, embarked for Pensacola in autumn 1825 to select the best location for the new navy yard. After surveying the bay and surrounding area, the three officers confirmed the depth of the channel at a consistent 21'-0", and identified a point near Fort Barrancas, already owned by the U.S. government, as the ideal location.[12]

President John Quincy Adams approved the site selected a day after the report was delivered to him on December 2, 1825, and assigned Commodore Warrington as the first commandant of the Pensacola Navy Yard. Warrington arrived back at Pensacola in April 1826, and construction was soon underway. Construction materials, however, were difficult and expensive to acquire, as was skilled labor. Both had

to be brought from the east at inflated prices, although southern slaves apparently provided menial labor at a lesser charge. Due to the high cost and delay in acquiring men and materials, as well as the onset of yellow fever epidemics in summer 1826 and 1827, construction proceeded slowly, and most facilities were left in a primitive state for some time.[13]

The most urgent need was for a fully equipped hospital. A contractor from Boston charged with building the new wharf, Samuel Keep, complained that yellow fever patients were being cared for in "...a little house called by that inappropriate name, hospital...If the yellow fever comes to the Yard I shall not remain here unless I am absolutely obliged to do so." Although the old Fort Barrancas hospital had been pressed into service, it was rapidly disintegrating, and the new commandant arriving in September 1826, Melancthon T. Woolsey, was forced to rent a two-story wood house near Fort Barrancas to serve the sick of the depot and of the West India Squadron.[14] The yard's surgeon, Dr. Isaac Hulse, also worked to pressure lawmakers to provide a better facility for the squadron's increasing number of sick seamen. Although a hospital was under construction by November 1828, lack of funding kept the work from proceeding. In a letter to Florida Congressman Joseph White, Hulse admonished that "...it is impolitic, as well as inhuman in a government to neglect [the needs] of its servants."[15] By summer 1828, construction had almost ceased at the yard, due primarily to a halt in funding engendered by new hopes of peace with the European forces that had so long beleaguered the Gulf.

Lacking even the most basic facilities needed for the comfort and health of the squadron, the navy yard was even less equipped to address its shipbuilding and repair needs. By the 1840s, the yard still had no permanent wharf, no dry dock, few workshops and even fewer skilled workers. Construction of the yard's infrastructure continued on a piecemeal basis, without any general plan of development, halting every summer when workmen returned to the east to avoid yellow fever, and whenever the scarce funds allocated by Congress were used up. "The decline in piracy and slave running had largely removed the need for a fleet to suppress such operations and had undoubtedly influenced congressional decisions on appropriations for Pensacola. Moreover, the West India Squadron was renamed the Home Squadron in 1841, and its cruising ground was extended farther into the Caribbean Sea and Atlantic Ocean. Consequently, ships of the Home Squadron could make the larger and more adequate navy yards on the East Coast as easily as Pensacola."[16]

While the Pensacola Navy Yard stagnated, it was at least well defended. Between 1829 and 1859, the Army completed four defensive forts to protect Pensacola Bay. Fort Pickens stood on the extreme western tip of Santa Rosa Island, with Fort McRae on the western shore directly opposite. Fort Barrancas was built to the north, on the site of the old Fort San Carlos de Barrancas and next to the San Antonio Battery. The Advanced Redoubt to the north occupied the highland site that dominated Fort Barrancas. Most of the construction was supervised by Major William Chase, a U.S. Army engineer, who persevered in his task despite suffering the same scarcity of materials, manpower, and funding experienced at the navy yard. It would appear that the defensive forts benefited from a comprehensive design by the U.S. Corps of Engineers.[17]

Annual Reports from the BuDocks to the Secretary of the Navy reveal the slow struggle waged by the station's commandants against weather, yellow fever, contractors, and financial deficits. On November 19, 1844, the BuDocks Report took an optimistic tone on the progress of the navy yard:

> At Pensacola, the sum of $166,708 was granted at the last session of Congress for the commencement of works of importance, and for the purpose of gradually enabling that

> establishment to afford repairs and supplies to the vessels standing in need of them and to place it, as rapidly as circumstances permit, in a situation to become the secure resource of the navy in that quarter....A plan of the yard has been prepared and approved; and, as soon as materials can be procured in a sufficient quantity, the works will be commenced, and the yard have an organization corresponding with that of the others, by the employment of additional master mechanics, with the necessary workmen and laborers.[18]

An act of Congress dated July 1, 1844, authorized construction of the permanent wharf, although little action seems to have been taken afterward.[19] Additional requests between 1842 and 1845 included such basic conveniences as officers' quarters, a permanent wharf, and a system of supplying fresh drinking water.

When the Mexican-American War broke out on May 11, 1846, Pensacola was the closest naval establishment to the blockading Home Squadron at Veracruz, 900 miles away. Without a dry dock, the yard was unable to provide more than minor repairs to vessels, and had little food, water, or other goods on hand to supply the ships. A yellow fever epidemic in the squadron sent hundreds of diseased sailors to the Pensacola Naval Hospital, which struggled to support such a burden.[20] The deplorable condition of the only Gulf Coast naval station finally caught the attention of the public and, more importantly, the legislators who could act to fund its improvement.

CONSTRUCTION AND DESTRUCTION IN THE LATE NINETEENTH CENTURY AT THE PENSACOLA NAVY YARD

From 1847 through the 1850s, the Pensacola Navy Yard was abuzz with new activity. BuDocks requested funds for vital infrastructure, such as paving of roads, grading and leveling the yard, adding rail tracks to ease the movement of machinery, and finishing the permanent wharf. The station's commandant was also forced to ask for funds to repair the buildings that were already disintegrating because of the humid climate or poor maintenance.[21] By 1853, a dry dock, a basin for loading and unloading ships, and a railway were in place; in 1856, dredging and the construction of a deep basin for larger ships was accomplished, although the permanent granite wharf was still unfinished. In 1858, shipbuilding finally began at the Pensacola Navy Yard, despite the lack of some important resources, such as a wet basin and fully functional foundry. Two sloops of war, the *Pensacola* and *Seminole*, were launched from the yard in 1859, marking the depot's coming of age after twenty-five years of struggle.[22]

Just as the Pensacola yard was attaining the status of a truly functioning maritime facility, the Civil War put an end to its progress. When Florida seceded from the Union in January 1861, the seventy-man federal garrison at the naval installation was faced with defending itself using only a few operable guns. Therefore, when more than 600 Alabama and Florida troops arrived at the Pensacola Navy Yard on January 12, 1861, Commandant James Armstrong surrendered the yard to the Confederates. The company garrisoned at Fort Barrancas was able to quickly move all men and supplies across the bay to Fort Pickens, which they defended throughout the war, even bombarding the Confederate forces at the navy yard and causing considerable damage in winter 1862. When the Confederates evacuated the area on May 9, 1862, they burned the navy yard to the ground.[23] The BuDocks Report to the Secretary of the Navy on November 4, 1862, states:

> The yard at this place has also been repossessed by the government, but, like that of Norfolk, was found a mass of ruins, the buildings having been burnt and every effort made to destroy all the government property....A statement of the bids received and contracts entered into by

> this bureau, for the fiscal year ending June 30, 1863, will be presented at as early a day as practicable.[24]

In fact, little progress was made in rebuilding the navy yard in the following years. The BuDocks Report to the Secretary of the Navy for 1864 reads in part:

> This yard was also almost entirely destroyed by the rebels, and thus far but little has been done to restore it to its former condition. Some small amount of machinery has been erected to meet the most pressing want of the Gulf Squadron, and it is now proposed to repair a few of the buildings for the accommodation of the officers, stores, &c...."[25]

Accommodation of the officers was in fact one of the most pressing needs at the navy yard in the late war years. When Commandant Ulysses Smith arrived at the destroyed navy yard in spring 1863, he was forced to find lodging in one of the ships docked at the wharf for repairs, for lack of shelter on land. In a letter to the Chief of BuDocks, he makes the first mention of repairing the kitchens, which later developed into the existing officers' quarters:

> I shall endeavor before [ten days'] time to fit up for myself a residence in a kitchen, and for some of the officers a residence in a stable; these being the only two buildings which can at a reasonable cost and in a short time be made available for our use. All the dwelling houses have been destroyed."[26]

A request to BuDocks sixteen months later by Smith's replacement, Commandant James Armstrong, revealed that previous requests for repairs had never been approved by the Navy. He asks for authority to make repairs to several kitchens, which "can be made to answer temporarily by roofing and flooring and closing them against the weather."[27] The terse reply of Chief of BuDocks James Smith indicates the Navy's general attitude towards the yard:

> As yet, the Pensacola Yard is temporary, and therefore, the improvements [to officers' quarters] are to be made for temporary work only. You are authorized to make such accommodations as are *absolutely necessary for the officers, on the most economical plan* (emphasis in the original).[28]

The struggle for funding to upgrade the temporary status of the yard is reflected during the subsequent years by ongoing requests for better officers' housing. In the meantime, officers assigned to the yard dealt with their poor housing by improvising small improvements to the surviving kitchens and stables of the destroyed quarters.

After the termination of the conflict, BuDocks encouraged the Secretary of the Navy to fully repair the station, which was needed by the Gulf Squadron. However, by 1869, the chief of BuDocks advised the Secretary of the Navy that he found the location of the Pensacola Navy Yard "objectionable" due to its exposure to long-range guns from outside the harbor. "The great importance of having a well-equipped yard on the Gulf of Mexico suggests that, before heavy expenditures are made toward reconstructing the yard, it is worth while to institute an examination to ascertain if some more favorable location cannot be found."[29] Although the Pensacola installation was not abandoned, work to repair the damage of the Civil War was again slowed by poor funding and an ambiguous status within the Navy. Appropriations were too small to permit large-scale building, although work on the commandant's quarters did continue. Commandant Woolsey was even permitted a trip to New York accompanied by the architect of BuDocks

to choose prefabricated windows, doors, and other accessories for his new home. The other officers' quarters, however, still consisted of the brick kitchens of the old quarters with makeshift porches and sheds added for increased living space. In 1874 and 1875, BuDocks approved funding for permanent improvements to the quarters consisting of second-story additions and galleries, plus re-roofing, repainting and general repairs as needed to make comfortable family residences for the officers. Despite the improvements, one visitor to the yard in 1881 called the lower floors of the improved quarters "uninhabitable."[30]

Despite Pensacola's status as the only Gulf Coast naval base, its poor equipment and isolation from East Coast materials and workers, added to its various faults of location, endangered the very existence of the yard. An act of Congress closed it on March 3, 1883, pending further investigation by the Navy. Basic maintenance on the public property was performed during its seventeen-year hiatus from active service.[31] Although no new work was performed at the yard in 1898, the Spanish-American War of that year once again focused attention on Pensacola, and by 1900 the navy yard re-opened with new energy.

The BuDocks Report of October 1, 1901, provides a summary of the Pensacola Navy Yard's status at the time:

> Very few works of improvement have been made at this navy-yard since the civil war. At the time of the Spanish war, when it seemed probable that considerable service might be required of this yard, several appropriations by way of repairing and improving the buildings, wharves, dredging, and construction of better coaling facilities were made. The improvement of navigation from the Gulf to the yard has bettered the situation at this yard considerably, and the meager accommodations upon the Gulf coast have appeared to require better facilities for work at this station in case of emergency. Also, the board upon storing torpedo vessels has recommended that the yard be availed of as a site for one of the plants for housing such vessels....This is the only station of this kind recommended by the Board for the Gulf coast, and it is believed that provision should be made for storing a portion of those vessels in these waters.[32]

In 1902 a new floating dry dock was purchased from Spain and hauled to the navy yard, and in 1905 the base served as a rendezvous point for all U.S. squadrons participating in training in the Gulf of Mexico.[33] International developments in the Gulf region kept hope alive for Pensacola. French attempts to finance the construction of the Panama Canal during the 1880s and 1890s finally ended when the United States took over the project in 1904. Progress on the project, which did not end until 1914, elicited much anticipation for increased commercial trade from the Gulf to the Pacific, to be accompanied by more naval activity to protect American interests at sea. At NAS Pensacola, the closest U.S. naval facility to the canal, plans for development included the construction of several buildings. Despite the positive outlook, unforeseen circumstances once again took their toll on the Pensacola Navy Yard. A massive hurricane struck the Florida Panhandle on September 26, 1906, severely damaging the yard's infrastructure and most buildings. The new dry dock was damaged, and the older, smaller dry dock was completely destroyed, incapacitating the yard's repair functions. Worse still, very limited funds were made available for the rebuilding of the yard due to the financial obligations associated with the brand new Navy base at Guantanamo Bay, Cuba. Although some new structures were built in the years following the hurricane, the Pensacola Navy Yard was officially closed on October 20, 1911 (*Figures 2* and *3*).[34]

THE CRADLE OF NAVAL AVIATION: NAVAL AERONAUTIC STATION PENSACOLA, 1914-18

The closure of the Pensacola Navy Yard provoked consternation in the town of Pensacola, whose

residents still valued the yard for the jobs it provided and the income gathered from its activities, as well as for the sense of pride they felt at hosting a U.S. naval installation. Furthermore, the impending completion of the new Panama Canal held the promise of increased military and commercial activity in the Gulf of Mexico. In fact, while it was officially closed, the yard continued to host U.S. Marines performing experimental testing with torpedoes in the Pensacola Bay in 1913.[35]

But while Pensacola's citizens fretted over the fate of the old navy yard, Navy officials looked toward a growing field of expertise that would soon revitalize the old base—naval aviation. Although wary of the experimental new technology, the Navy made tentative steps toward investigating the military applications of aviation by sending Annapolis graduate Lieutenant T. G. Ellyson to learn to fly with airplane manufacturer Glenn Curtiss at his Aviation Camp in San Diego, California, in December 1910. While at the camp, Ellyson assisted Curtiss in outfitting the first "hydroaeroplane," designed to take off and land from the water's surface. The Navy participated in these tests by providing the armored cruiser *Pennsylvania* to hoist the plane aboard after landing. The same month, civilian Eugene Ely was able to successfully take off from the deck of the *Pennsylvania*, proving that airplanes could easily be adapted to serve the Navy in conjunction with maritime vessels. In March 1911, a preliminary appropriation of $25,000.00 was made for the establishment of the Navy's first aviation installation at Annapolis, Maryland.[36]

With just a handful of planes and trained pilots in 1912 and 1913, plus a few enlisted mechanics, the aviation camp bounced between Annapolis and training locations including San Diego, California, and Guantanamo Bay, Cuba. Aviators took advantage of Curtiss' offer to train one pilot for each airplane sold to the Navy, thus increasing the ranks of aviators until an official training program could be started. The experimental and record-breaking flights accomplished by the Annapolis pilots impressed Secretary of the Navy Josephus Daniels enough to appoint a board to create plans for the first Naval Aeronautic Service in 1913. Within weeks the board of officers responded with a recommendation of the old Pensacola Navy Yard as the site for a new naval aeronautic station, and suggested an appropriation of $1,297,700.00 to implement the program. Once approved by Secretary Daniels, the Annapolis aviation group once more packed up their camp to move to Pensacola, arriving on January 20, 1914. The unit, consisting of

> nine officers, twenty-three enlisted men, seven aircraft, and portable hangars and other gear...arrived at Pensacola on board the battleship *Mississippi* and the collier *Orion* to establish a flying school. Lieutenant John Towers was in charge of the unit, and Lieutenant Commander Henry C. Mustin commanded both the *Mississippi* and the aeronautic station.[37]

Although the Pensacola Navy Yard had officially been closed since 1911, it had not been totally abandoned as previously mentioned. Less than two months before the arrival of the *Mississippi* with her cargo of aviators, 856 Marines had temporarily occupied the yard while performing torpedo exercises in the Pensacola Bay, and "...a considerable amount of work was done adapting buildings and quarters for their use." Several hundred Marines stayed on at the new aviation camp for training until at least 1915.[38] Nonetheless, upon his arrival, Lieutenant Commander Mustin reported that the beach was littered with stones, driftwood, and piling, and needed extensive work to clear it for the use of flying boats. In addition, he reported that, "the buildings in general are dilapidated and disreputable in appearance inside and outside." [39] Lacking adequate housing on base, the aviation unit made their home aboard the *Mississippi* and turned their attention to the work at hand. After clearing the beach, the men erected ten temporary canvas hangars along the beach, each with an individual wood runway extending down to the water to ease the planes over the thick sand. In less than two weeks, aviators made the first flight at the new

aeronautic station.[40]

The first months at the station were fraught with excitement and novelty, especially for Pensacolians who witnessed the first flights over the Pensacola Bay. Within weeks, they also witnessed the base's first aviation fatality when Lieutenant J. M. Murray crashed into the bay in a Burgess D-1 flying boat on February 15, 1914. The following month, five submarines and two transport ships from the Atlantic Fleet arrived in the bay for extended operations with the aviation unit to determine visibility of the submarines from the air. Later in the spring, nineteen destroyers converged on the former navy yard in response to rising tension with Mexico, which was suffering revolutionary upheaval. On April 21, 1914, a detachment from the Pensacola station, commanded by Lieutenant P. N. L. Bellinger, was sent aboard the *Mississippi* to assist American forces in seizing the Customs House at Veracruz, Mexico. Another detachment was dispatched to Tampico. At Veracruz, Pilot Bellinger, with three students and two airplanes, formed a unit that proved useful, flying observation missions daily over the city and attempting to locate the camps of enemy attackers. Bellinger even came under fire while flying low, and his plane bore the first marks of naval aviation combat.[41] Soon after the detachment's return to Pensacola, the handful of officers and students settled into their new home, and the base was officially designated as the Pensacola Naval Aeronautic Station (NAS) on July 1, 1914.[42]

As Pensacola NAS's officers worked to develop a more extensive pilot training program, they also labored to improve the base and its equipment, constructing permanent facilities to replace early temporary ones. With a complement of nine officer-pilots and almost fifty enlisted men, the aviation school had a limited number of aircraft for use in training pilots and mechanics. According to a Navy historian in 1930, "The equipment of the Aviation School, at this time, consisted of 3 old Curtiss flying boats, 3 new Curtiss flying boats, 2 Curtiss pontoon-type planes, and 1 Burgess flying boat."[43] In the Annual Report to BuDocks for 1915, Commandant Mustin reported:

> During the year, the establishment and operation of the Station as an Aeronautic School were carried forward. The quarters were occupied by Naval Officers and a start was made at placing the shops in operation....There is no space on the reservation suitable for operation or practice with land aircraft. It is proposed to clear, grade, and surface the area North of the Navy Yard wall, and East of the electric railway; clearing out such residences and buildings [in the nearby town of Woolsey] as may be necessary, and extending on the water front so far as is practicable.[44]

Major hurricanes were reported on July 5, 1916, and October 18, 1916, both reaching wind speeds of over 100 miles per hour and causing extensive damage totaling $420,000.00 for repair or replacement of government property.[45] America's declaration of war on Germany on April 6, 1917, however, ensured that the station received full funding for damage repair, new construction, and the enhancement of its training programs. At the advent of direct U.S. participation in World War I, the Pensacola station was the only naval aviation facility in the country. In 1921 Navy historian Earle Corliss wrote a detailed inventory of the early station: "Its facilities, though efficient, were limited, consisting of three seaplane hangars of steel construction, a brick structure used as a hangar, an airship shed mounted on a barge (capable of accommodating a small type of nonrigid craft), and a few service buildings."[46] In addition to the hangars and shops needed for aviation training, new structures were built for the new "lighter-than-air" dirigible program, and to accommodate maritime supply vessels and other ships visiting the port.[47] By the end of the war in November 1918, over 100 new buildings had been erected and four temporary camps established outside the bounds of the station to serve the needs of the growing training programs. A major

extension to the original navy yard was made to the north, in compliance with Commandant Mustin's recommendation. In addition, Camp Bennett to the west, Camp Mustin to the south, Camp Saufley on Santa Rosa Island, and Camp Bronson north of Pensacola, were all established either to house and process incoming recruits or to serve as training grounds.[48] A 200'-0" observation tower was erected, and most of the hangars on the beach were painted in camouflage patterns to avoid detection by the enemy. Including a completely new 300-bed hospital unit with independent water and sewerage system, expenditures for building and maintenance for Fiscal Year 1918 amounted to the staggering sum of $2.6 million.[49]

With the war effort came ever increasing demands for more naval pilots and mechanics, necessitating changes in the training programs offered at NAS Pensacola (the aeronautical station was officially designated as Naval Air Station Pensacola in December 1917). Both elementary and advanced flight training were provided to officers until May 1918, when NAS Pensacola switched to providing only advanced flight training. "The mission of the station had changed from teaching beginners how to fly to teaching flyers how to fight in the air."[50] In fact, most naval aviators serving in Europe spent their missions patrolling coastlines for mines and submarines, and bombing submarine bases.[51] Training had changed for enlisted men, too. A historian commented in 1930:

> In the early era of the Station each enlisted man was expected to be a jack-of-all-trades. He was expected to know something about such diversified things as motors, rigging, blacksmithing, balloons, and beach work. Naturally, with the widening of the scope of the Station's mission, schools were established to teach the men to be specialists in one given occupation.[52]

To meet the demands of war, NAS Pensacola established new schools for carpenter's mates, radio operators, instrument men, machinist's mates, and specialized mechanics. Between April 1917 and November 1918, the station churned out 5,382 air "mechanicians." During the same period, 921 naval aviators trained at the station, plus sixty-three dirigible pilots and fifteen free balloon pilots.[53] The pace of training accelerated even more rapidly in the final months of the war, when pilots were urgently needed in Europe. In the final frenzied nine months before peace was declared in Europe, NAS Pensacola witnessed eighteen student deaths from crashes and twenty-four serious injuries.[54] Despite the losses, naval aviation had made enormous strides in an incredibly short amount of time, proving itself effective in both combat and observation duties. The station itself reflected the new specialization taking place in naval aviation, with many new shops, hangars, and classrooms to meet the needs of the more varied training programs (*Figure 4*).

DEMOBILIZATION: 1919-35

The population at NAS Pensacola plummeted quickly after the end of World War I. Within months, approximately 5,000 Pensacola servicemen were discharged, leaving much of the station vacant. The Annual Report to BuDocks in June 1920 stated that Camp Bennett had been closed; buildings at Camp Mustin were being used for storage of equipment from other stations; and the buildings at Camp Saufley were deteriorating from disuse. Some structures built especially for the war effort were allowed to disintegrate, since reduced funding limited maintenance capabilities.[55] Many legislators were reluctant to fund naval activities in the post-war climate of disarmament and demilitarization. Furthermore, factions within the Navy, itself, argued over the role of aviation in naval warfare, which depended upon the success of aircraft carriers over traditional battleships. When the USS *Langley* was converted to an aircraft carrier and sent to Pensacola for testing in 1922, the station's future looked bright. Nonetheless, the 1920s were characterized by a lack of direction within the Navy, perhaps characteristic of the United

States' own confusion over its role in the world. Throughout the decade, the aviation school at NAS Pensacola dealt with low reenlistment and few new applicants, and even allowed enlisted men to train as pilots (the term Naval Aviator remained reserved for officers). The Navy tinkered constantly with the program to try to increase the number of aviators graduated annually, with disappointing results. Although 100 students completed the course each year by 1925, only half that number actually passed their flight qualification tests.[56] Officials were reluctant to simplify the tests, however, for fear that the already excessive accident rate would increase as a result.

In the 1920s, the concept of dedicated aircraft carriers began to revolutionize naval aviation. Instead of taking off and landing in water, aircraft could begin to rely on carriers as a home base, with more extensive runways than earlier battleships had provided for planes. Furthermore, new landplanes with increased flying range enabled pilots to make extended forays over land to carry out a variety of missions. Therefore, landplane training was added to NAS Pensacola's curriculum in 1922. With the landplanes came a new system of outlying fields radiating from the naval air station. These fields provided the extra space for take-off and landing required by conventional landplanes and relieved congestion in the air caused by growing numbers of student pilots in training. Since the dirigible program had been cancelled, the former dirigible and balloon field, Station Field (later called Chevalier Field), was enlarged and re-sodded in 1923 to accommodate landplanes. It was enlarged again in 1926. [57] Another landing field was carved out of the town of Woolsey to the north of the station and named Corry Field. Problems with the lease on Corry Field, however, caused the Woolsey airfield to be abandoned, and a new 250-acre Corry Field, donated by the residents of Escambia County, was located approximately three and one-half miles northwest of NAS Pensacola.[58]

The geographical problems that had plagued the old navy yard for almost a century did not present a problem for the workings of the air station, but the base once again suffered from the effects of violent weather in the Gulf. The Annual Report for 1927 described the most recent devastation:

> On September 20, 1926 a tropical hurricane of great intensity struck this station. This storm involved wind velocities of 110 miles per hour from the northeast with gusts much higher than this and it was accompanied by a rise in tide of 8 feet 4 inches above mean high tide, resulting in complete inundation of practically the entire station, and great damage to Public Works and Public Utilities.[59]

Repair and rebuilding began once again, and in 1929 Assistant Secretary of the Navy for Aeronautics David Ingalls testified before the House Appropriations Committee, recommending a $5 million "re-organization and re-modernization" of NAS Pensacola.[60] Although the onset of the Depression prevented the immediate implementation of the planned project, steps were taken to prepare the base for expansion. In 1930, the town of Warrington, established just west of the old navy yard in the nineteenth century, was razed to make room for a planned airfield, and to allow the station to continue growing to meet its training goal.[61]

MOBILIZATION AND WORLD WAR II

After suffering budget cuts that effectively crippled the aviation training program from 1932 to 1933, NAS Pensacola effectively sprang back to life mid-decade. Legislators passed the Vinson-Trammell Act in 1934, authorizing the maximum buildup of naval forces allowed under the Washington and London treaties made following World War I. Although the government still had little funding for military projects, the act helped set the stage for future growth at U.S. naval stations. Then, in 1935, the Aviation

Cadet Act of April 15 created the grade of Aviation Cadet in the Navy, opening up recruitment to a wider range of applicants. The Annual Report of 1936 stated:

> The cadets are selected from graduates of various colleges and universities throughout the country. Classes of about 75 were received monthly, the first arriving July 20, 1935. They undertook an intensive twelve months' course in aviation training, including ground school work and rudimentary naval training. The graduates are assigned to fill aviation cadet quotas in the Fleet.[62]

In addition to augmenting the training program, legislators also granted the station $3,081,500.00 for a new building program in the Authorization Bill approved April 15, 1935.[63] The principal items included in the program anticipated an expanded role for the station in the coming years and included two 500-man barracks, eleven individual married officers' quarters, two steel-and-brick hangars for Station Field, and new roads. All the major contracts were granted to a single firm, the Virginia Engineering Company of Newport News, Virginia. Commandant G. S. Burrell noted in 1936 that the selection of one firm for the whole program "...has greatly simplified the co-ordination of the work and minimized interferences, questions of junctures of work items, [and] duplication of submission of samples and drawings for approval. The Company's performance has been on the whole very satisfactory."[64] Most of the buildings also featured similar massing and details, typified by Building 604 with its massive brick pylons and inset glass panels, providing a uniformity and sense of cohesiveness to the growing base. The construction program, which eventually included "26 modern brick buildings," was completed in 1937, "making it an outstanding year in the history of the Station."[65]

A valuable construction program at NAS Pensacola was obtained by BuDocks through the Works Progress Administration (WPA)—a Depression-Era work relief program—in 1936 and 1937. The work, eventually valued at $243,626.00, included the repair and improvement of buildings and the rail system at the station, in addition to "modernization of plumbing and improvement of sanitation and ventilation [at the] Naval Hospital."[66] In addition, the 457 workers employed on the job helped to prepare the new Corry Field on leased property northwest of the station.[67] Another WPA project completed in 1938 and employing 513 men provided for "a) the construction of an arch type magazine and barricade; b) concrete taxiway...; c) revamping and relocation of railroad tracks; d) slag-asphalt road-paving and parking areas; e) rehabilitation and painting of buildings; and f) miscellaneous items of grading and planting."[68] In 1938 and 1939, the WPA and the Public Works Administration PWA constructed a new marine barracks, new dispensary, steel and brick hangars at Corry Field and Chevalier Field (formerly called Station Field) (with structural steelwork provided by a non-WPA contractor), and two sets of cadet quarters. Part of the same WPA/PWA project included the construction of "a modern 3-story, 3-wing hospital of concrete, brick hollow tile and stone construction...provided to replace the inadequate war-time structure now serving that important activity."[69] Thus, the great public works programs initiated to relieve the economic catastrophe of the Depression also played an important role in preparing the nation's largest naval aviation center for the coming conflict in Europe.

In 1938 the Vinson Navy Bill gave an additional boost to naval aviation, and to NAS Pensacola in particular, by increasing the authorized number of planes to be maintained by the Navy to 3,000—up from only 1,000 aircraft. The bill also established a board of officers to report on the current readiness of naval stations to meet the national defense needs, and to advise on development plans where needed. The board, called the Hepburn Board after its senior member, Rear Admiral Arthur J. Hepburn, recommended a fifty percent increase in pilot training facilities at NAS Pensacola to meet defense needs. A new

construction program beginning in 1939 and continuing throughout the war eventually left the station with eleven hangars and personnel facilities for 15,000.[70]

As the United States entered World War II in 1941, NAS Pensacola stepped up training activities to meet the demand for new pilots, while still busily erecting both makeshift and permanent buildings. Although aviation in the First World War was still in a fledgling state, by 1941, technological advances and the development of combat flying techniques created the bombers and fighter planes that soon became familiar sights over European and Pacific skies. Four new training fields were opened between 1940 and 1942, including Saufley Field in 1940, Ellyson Field in 1941, and Bronson and Barin Fields in 1942.[71] With its six auxiliary training fields now in operation, the station qualified 28,562 fliers between 1941 and 1945. Pilots were trained in one of various schools operating at the base. There was a Naval Photography School, an aerial gunnery school, a flight instructor's school and the Navy's only School of Aviation Medicine to qualify flight surgeons. In addition, patrol maneuvers and scouting and observation from seaplanes were both important areas of instruction. In 1943, NAS Pensacola became the headquarters of Naval Air Training Command. By the end of the war, thousands of metalsmiths, machinists' mates and other technical crew were also trained at NAS Pensacola.

THE COLD WAR: 1946-89

At war's end, rapid demobilization again took its toll at NAS Pensacola. Barin and Ellyson fields were deactivated, while the other training fields were reassigned to new purposes. Naval Air Training Command was reorganized with a number of different subcommands including Naval Air Advanced Training, Naval Air Basic Training, Naval Air Reserve Training, and Naval Air Technical Training Command, which moved to NAS Memphis in 1946. NAS Corpus Christi took charge of basic training duties, while NAS Whiting Field also took on training responsibilities. Within a few years, however, naval organization changed again, and Naval Air Basic Training Command headquarters relocated to NAS Pensacola, where it stayed throughout the Korean War. In 1947, the old Fort Barrancas cantonment, operated by the U.S. Army since the nineteenth century, was officially deactivated and transferred to NAS Pensacola, marking the station's continued westward expansion.

During the following decades, military conflicts in Korea and Vietnam ensured that naval aviators remained in demand. Between 1950 and 1953, NAS Pensacola produced 6,000 aviators at a cost of almost $70,000.00 each.[72] NAS Pensacola's auxiliary fields were reopened in 1951, and helicopters made their first appearance at Pensacola the same year. The first class of helicopter pilots was trained at Ellyson Field beginning in January. The most dramatic development in naval aviation training was the introduction of jet aircraft to the advanced training syllabus in 1955. Sherman Field was built in 1954 on over 900 acres near the old Fort Barrancas cantonment west of NAS Pensacola to accommodate the new jet requirements. In 1955, the Blue Angels jet fighter demonstration team, originally formed in 1946 to demonstrate the capability of naval aviators, relocated from NAS Corpus Christi to NAS Pensacola, where their air shows are still a popular attraction.

During the Cold War period, the U.S. military raced to develop new technologies to maintain heightened strategic advantages over the Soviets. Naval aircraft achieved supersonic flight, adopted complex computerized navigational systems and missile systems, and took off from nuclear-powered aircraft carriers. Aerospace medicine became part of the studies undertaken at the Naval Aviation Medical Center, originally commissioned in 1957. In addition to studying the effects of gravity forces and disorientation on pilots in combat, scientists worked to understand the potential effects of space travel on humans. In the

early 1960s, astronauts from the Mercury and Gemini programs all underwent physical testing and training for water landings at NAS Pensacola.[73]

After the conflict in Vietnam escalated in 1964, pilot training again increased in response. "Pilot production had been as low as 1,413 [annually] in 1962, and as high as 2,552 in 1968, increasing and decreasing with the heat of battle involving carrier deployments in the Far East."[74] Despite financial limitations instituted as the Vietnam War dragged on, NAS Pensacola grew in both size and responsibility as more training and study were needed for highly specialized systems (*Figure 5*). Major damage incurred during Hurricane Camille in August 1969, was quickly repaired and some buildings rebuilt. By 1971, the station covered over 5,500 acres. New training centers were commissioned in the early 1970s, including the Naval Technical Training Center (formerly Naval Communication Center), which was the Navy's locus for electronic warfare and photography training, and the Naval Education and Training Program Development Center, established at Saufley Field in 1974.[75]

Following the Vietnam conflict, Navy budgets fell victim to a large-scale demilitarization campaign in the U.S. government. Nonetheless, NAS Pensacola persevered in its training mission, instructing 1,697 officers and 2,188 enlisted men in 1982. The station also continued as a major contributor to the local and regional economies, with a military payroll of $144,352,908.00, a civilian payroll of $187,635,344.00, and almost $10 million in supply purchases in the same year.[76]

In 1988, the Defense Secretary's Commission on Base Realignment and Closure (BRAC) was formed to recommend base closures in order to streamline the military base structure worldwide. BRAC reflected the general trend toward military downsizing in the 1980s, when long-range nuclear missiles and subsequent arms control talks were the focus of many military leaders. In the 1990s, the end of the Cold War caused further financial cutbacks for the U.S. military, resulting in a greater rate of base closures. NAS Pensacola successfully avoided closure due to its vital position in the Navy's aviation program and its important tenant commands.

Today, NAS Pensacola occupies 8,423 acres, including Corry Station, Saufley Field, Bronson Field, and Sherman Field. The station hosts over ninety defense-related tenant commands, including the Chief of Naval Education and Training, Training Air Wing Six, Naval Aviation Schools Command, the Naval Aerospace Medical Research Lab, and the Naval Air Technical Training Center. The military population consists of over 16,000 people, in addition to 6,000 civilian employees. The station continues to provide top qualified naval aviators and other personnel; over 25,000 Navy and Marine students passed through the various training programs housed at NAS Pensacola, in addition to 1,300 officer candidates.[77]

The considerable history of military occupation in the Pensacola Bay remains evident at NAS Pensacola in structures such as the Fort Barrancas cantonment and the NHL Pensacola Naval Air Station Historic District at the heart of the station. The presence of these early buildings has exerted a significant force in shaping the modern base, as have external factors including periodic destructive hurricanes and legislative favor. Most importantly, the change from a traditional naval shipyard to a modern naval aviation installation with associated technological advances and demands produced a gradual metamorphosis that has resulted in the modern NAS Pensacola. The shift from maritime vessels to aircraft likely saved the Pensacola base from abandonment and led to the development of an active installation vital to the regional economy and to the Navy's aviation program.

DETAILED BUILDING HISTORY

Constructed in 1905-07, the Power Plant was built during a transitional period not only for the naval base at Pensacola, but for the Navy as well. Just five years before work began on the Power Plant, the Navy reactivated the Pensacola Navy Yard after a seventeen-year hiatus. Renewed interest in the navy yard stemmed from the recently resolved Spanish-American War, which underscored the strategic need for a naval base on the Gulf Coast. Despite its uneven history, the Pensacola Navy Yard represented a considerable investment on the part of the Navy and was reactivated with relatively minimal effort and expenditure. As the base reopened, the Navy had embarked on a vast department-wide modernization effort. Just as new inventions and technologies transformed the way in which the Navy fulfilled its primary mission at sea, and modernization also affected the way the Navy built, maintained, and operated its shore establishments. One of the most fundamental innovations of the era was the concept of centralization, and the Power Plant at the Pensacola Navy Yard exemplified this trend. The idea of a central powerhouse was logical since it fulfilled two primary functions of the modern naval base—it consolidated efforts to generate steam to heat buildings, and it provided a means by which the Navy could satisfy its own increased demands for electrical power.

Under an act approved on April 27, 1904, Congress appropriated funds for the construction of the "Navy Yard Pensacola, Central Power House." BuDocks—the Navy department responsible for the construction and maintenance of shore facilities and installations—subsequently prepared separate and very detailed specifications for the construction of both the powerhouse[78] and the radial brick chimney[79] as well as for the installation of coal handling and coal storage equipment for the boiler room.[80] BuDocks issued the specifications for the Power Plant on June 8, 1905, and stated that work would begin immediately upon the execution of the contract and must be completed within twelve months.[81]

Work on the Power Plant began soon after the signing of the contract on August 22, 1905.[82] As reported in its October 1, 1905, assessment of the Pensacola Navy Yard, BuDocks noted that the site for the Power Plant had been cleared and that work had already begun on its foundation. This same report also noted that Congress had authorized the Navy to purchase and install machinery for the Power Plant. Congress initially earmarked $120,000.00 for this effort, but only appropriated $50,000.00 for the fiscal year of 1905. The BuDocks report indicated that the remainder of the funding would be appropriated in the coming year.[83]

During the period in which the building was constructed, power plants were a new and still evolving building type; however, standards and trends in the layout, construction, and use of materials of power plants were already being developed and implemented throughout the United States and Europe. A good summary of the design concepts for a prototypical power plant appears in the HAER documentation prepared for the St. Louis Union Station Powerhouse (HAER No. MO-23). Citing an article appearing in the April 2, 1904, edition of the *Journal of the Royal Institute of British Architects*, by Charles Stanley Peach, the HAER document states that a coal power plant of the era typically included separate engine and boiler rooms with a central partition fire wall. The boiler room contained flues and an overhead device to feed coal to and remove ashes from the boilers. The walls utilized steel skeleton frames with brick curtain walls, and a grid of concrete footings supported the concrete floors. Within the United States, power plants typically had rectangular plans and exterior walls with large, regular fenestration, often with round-arched openings.[84] Although the architect of the Power Plant at NAS Pensacola is unknown, the building's designer incorporated virtually all of the fundamental aspects of design of an early twentieth century power plant.

The original architectural drawings for the building were not found for this study; however, NAS Pensacola retains original plans for the building's steel structural systems; a representative example of the set accompanies this document. The plans indicate that the American Bridge Company, a leading structural engineering firm during the early twentieth century and a subsidiary of United States Steel Corporation, prepared the drawings. These drawings also provide detailed plans for the building's steel-frame walls and construction, roof-framing and -support trusses, and girders for the coal bunkers. The plans also reveal the building's configuration and use of interior spaces.

The radial brick chimney was designed and built under a separate contract. The Alphons Custodis Chimney Construction Company prepared the plans and likely served as the chimney's contractor since the firm's name appears prominently on the furnace door. With offices in New York, this German-based enterprise constructed radial brick chimneys throughout the United States, including the chimney at the St. Louis Union State Powerhouse (HAER No. MO-23).[85]

Work on the Power Plant and chimney continued into 1906, but the date in which both structures were completed is not known. It is unlikely that the building was even operational upon its completion since BuDocks did not issue specifications for the boilers until April 1907. Boilers were an essential part of the Power Plant's capacity to generate steam and electricity, and the lack of such equipment rendered the building non-functional. In its specifications for the boilers, BuDocks stated:

> ...it is the declared and acknowledged intention and meaning to provide and secure and install all machinery and piping necessary to completely equip the boiler room for a central power station, equipment piping, exhaust, drainage, and waste piping, valves, and all other fixtures and fitting essential to the efficient and economical working of the plant.[86]

The Power Plant became operational sometime in 1907, and a layout of the interior from August of that year indicates that the boiler room contained two sets of paired 300 HP B&W boilers, and another paired set of 200 HP Aultman Taylor boilers. The railroad tracks that led directly into the building allowed for efficient transport of the fuel source powering the boilers.

From the outset, the Power Plant was plagued with problems, and the incremental way in which Congress funded its construction hampered efforts to have the building operate and function effectively and efficiently. Continued funding shortages forced the Pensacola Navy Yard to make use of older, recycled equipment in the engine room. As noted, "there are three second-hand generators. The larger, which was transferred from Port Royal, has never operated satisfactorily. The other two, transferred from the old C & R house, are 110 volt machines, and to supply a three wire system, it is necessary to run both machines at once."[87] During its early years of operation, the engine room also lacked a floor and instead had wood planking with large open areas where proposed equipment was to be installed.[88] The reluctance of Congress to provide the monies necessary to make the Power Plant fully operational likely stemmed from the uncertain future of the entire Pensacola Navy Yard. The issue became moot in 1911 when the Navy closed the yard, and for the next three years the new Power Plant and other facilities stood inactive and unused.

With the advent of naval aviation and the Navy's subsequent need to provide training facilities to support that mission, the Pensacola Navy Yard proved to be ideal for training purposes. Its temperate climate provided year-round training opportunities, and the relatively tranquil waters of Pensacola Bay provided a good location for pilots to land the Navy's first generation of sea planes, the backbone of naval aviation at

that time. Moreover, the Pensacola Navy Yard had an existing installation and infrastructure that could be converted to support the Navy's first naval air training facility.

The old navy yard reopened in 1914 and was subsequently re-designated as Naval Aeronautical Station Pensacola. Reactivation brought renewed attention and activity to the base and spurred funding requests, some of which included repairs and improvements to the Power Plant. For example, the Annual Report of 1915 noted that "during the period in which the Yard was closed, a great amount of equipment such as gages, valves, etc., has disappeared from the power plant, and little, if any, repairs have been made. If the plant is placed in operation, as it is expected to be shortly, increased expenditures will be necessary."[89] The report also stated that the steam piping was in good condition and that the installation of a high-pressure air compressor would increase the plant's ability to distribute steam heating. However, the report cited the need for additional pneumatic systems. It also described the electrical distributing system as being "in most discouraging condition" and that further improvements were necessary.[90]

The Navy implemented several changes to the Power Plant after the base reopened and during World War I, but most of the enhancements were relatively small in scale. The Navy's primary focus involved increasing the plant's capacity to generate steam and electricity and improving distribution systems. Most of the upgrades were confined to the engine room, but these efforts were not always successful. In spring 1921, for example, a new 750 KV turbo generator was placed into service, but it developed a leak after a short run and needed repairs. As the annual report for that year states, the station needed to purchase electricity from the Pensacola Electric Co.[91]

The most significant enhancements to the Power Plant took place in the 1930s and early 1940s. The decision to use fuel oil rather than coal as a power source required the replacement of all of the Power Plant's boilers. The installation of other equipment, such as new feed water pumps and salt water circulation pumps, increased efficiency.[92] By 1935, corrosion within the building's brick-encased steel components required repairs. The annual report for that year noted that the brick was removed and that the affected steel members were sandblasted and sealed with aluminum paint to retard any further damage.[93] After NAS Pensacola embarked on an ambitious building campaign in 1935-36 that resulted in the construction of new hangars, barracks, offices, and classroom facilities, increased demands for steam and electricity led to installation of a new turbo-alternator, condenser, and air compressor and other related equipment.[94] In 1940, a one-story masonry addition along the south wall of the building contained a new set of salt water pumps. A year later, a second floor, which contained office space in support of the plant's operations, was added to the new pumphouse. That same year, a new valve house/transformer addition was constructed onto the Power Plant's north side. It was designed by Wyatt C. Hedrick Architects, a Fort Worth, Texas, architectural firm, and built by Hardaway Construction Company of Columbus, Georgia.[95] Both firms received numerous NAS Pensacola contracts in the years immediately preceding and during World War II and played major roles in shaping the physical character of NAS Pensacola at that time.

In 1965, the corrosion within the embedded steel components of the building had again become a problem. The Navy undertook corrective measures and removed significant portions of the steel columns, purlins, and beams. The repair work is most evident in the exterior walls where brick of a slightly different color than the original work shows the location of the embedded steel members. These efforts show the difficulties that the use of such a structural system posed within a marine setting.

The Power Plant continued to fulfill its primary function for the next decade, but increased demands and

new technologies made the Power Plant obsolete. In 1973 NAS Pensacola constructed an entirely new power plant, which ultimately rendered Building No. 47 expendable. After its deactivation, the Power Plant was subject to much discussion among planners, facilities personnel, and others at NAS Pensacola. As early as 1982, the Navy proposed demolishing the building because it was in excess of the Navy's needs.[96] Furthermore, it was expensive to maintain and was not easily converted into other uses or functions. Since it was formed part of a National Historic Landmark and was also a contributing resource within a historic district that was listed in the National Register of Historic Places, Navy officials consulted with the Florida State Historic Preservation Officer (SHPO) on alternate use strategies, in compliance with the National Historic Preservation Act of 1966 and its implementing regulations (16 U.S.C. 470 et seq. and 36 CFR Part 800).[97] The Navy subsequently sponsored a number of studies but ultimately shelved plans to demolish the building. Instead, the Navy placed the Power Plant in mothball status; however, a portion of the engine room was used as a shop to repair small engines and equipment. In 1993, the Navy funded a study to rehabilitate the building and convert it into offices, but the project was eventually canceled. The Power Plant remained essentially unused for another decade.[98]

In September 2004, Hurricane Ivan struck the Gulf Coast and caused extensive damage to NAS Pensacola and other low-lying coastal areas in the region. The Power Plant was among the buildings on the station's waterfront area that was flooded and experienced considerable wind damage. The hurricane also caused segments of the parapet wall to collapse; however, this failure actually stemmed from the inherent qualities of the structure's design and ongoing and never resolved corrosion problem that continued to plague the building. After the storm, the Navy undertook an exhaustive preservation analysis that examined the building's condition and considered a variety of treatment options, in accordance with a Memorandum of Agreement that the Navy signed on March 11, 2005, with the Florida SHPO and Advisory Council on Historic Preservation (ACHP). After considering these options and consulting the SHPO, ACHP, and other interested parties, the Navy announced its decision in September 2005 to demolish the Power Plant and retain and repair the radial brick chimney.

Prepared by: David W. Moore, Jr., Historian
Olivia Chacón, Architectural Historian
Affiliation: HHM Inc.
Date: November 2005

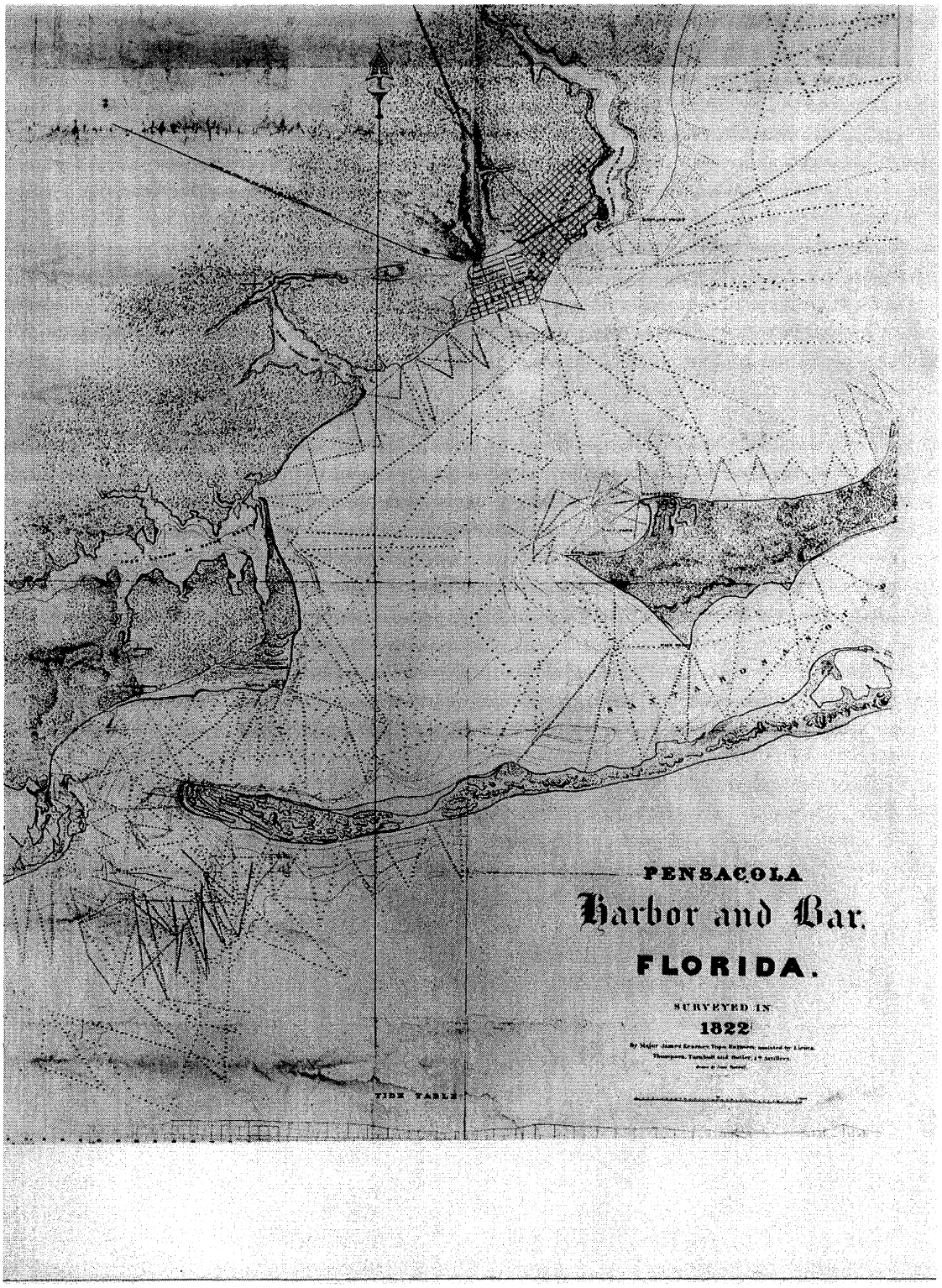
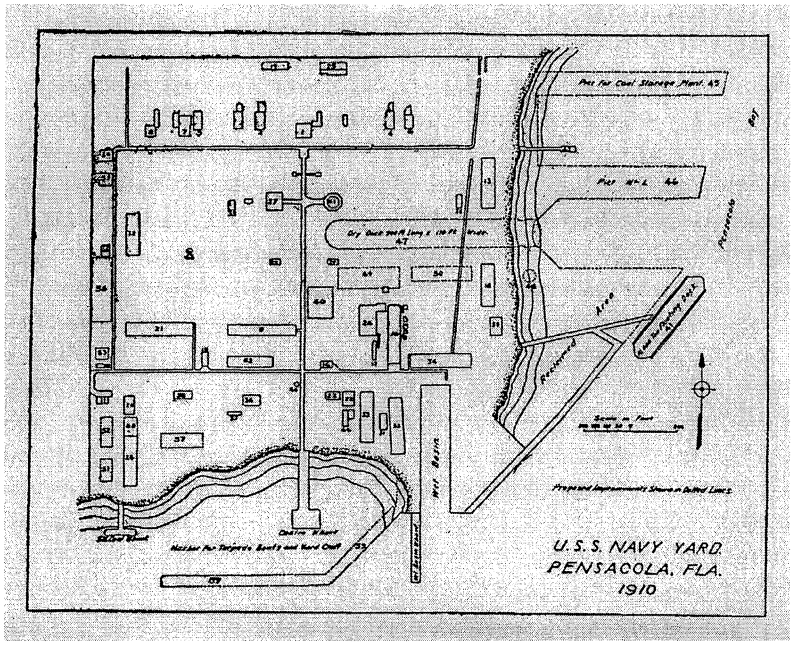


Figure 1. Map and Tide Table of the Pensacola Bay surveyed by the U.S. Army 4th Artillery in 1822, a year after Spain's transfer of Florida to the United States (Map courtesy of the Public Affairs Office, NAS Pensacola, Florida).

Figures 2 and 3. Hand-drawn plan and index showing the state of the Pensacola Navy Yard in 1910, one year before it was officially closed. (Map and index courtesy of the Public Works Center, NAS Pensacola, Florida).



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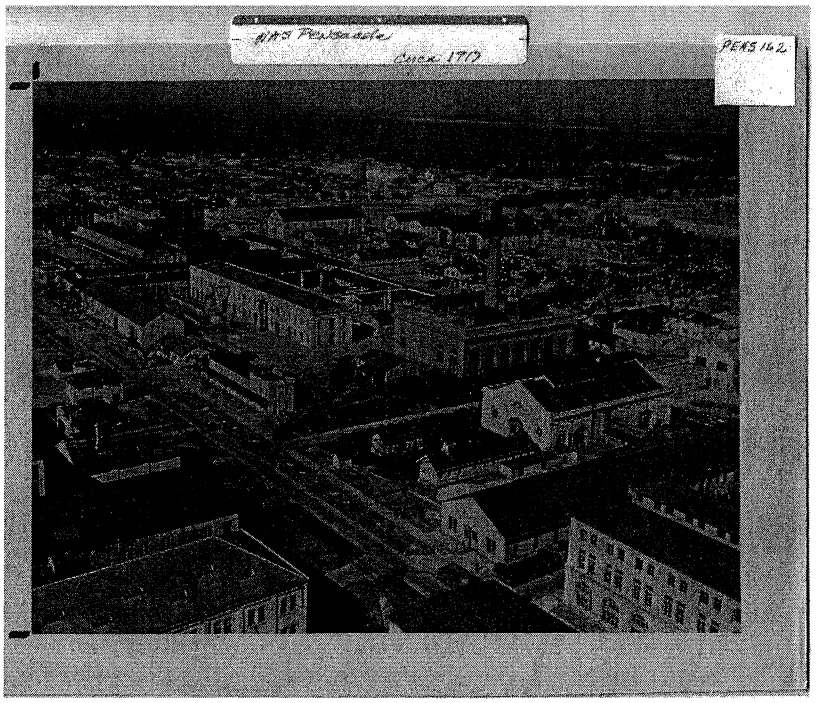

Figure 4. Bird's-eye view of NAS Pensacola ca.1917 (Photo courtesy of the Naval Aviation Museum, NAS Pensacola, Florida).

Figure 5. View of NAS Pensacola ca. 1967 facing east into the National Historic Landmark District. Chevalier Field is to the north (Photo courtesy of the Public Affairs Office, NAS Pensacola).

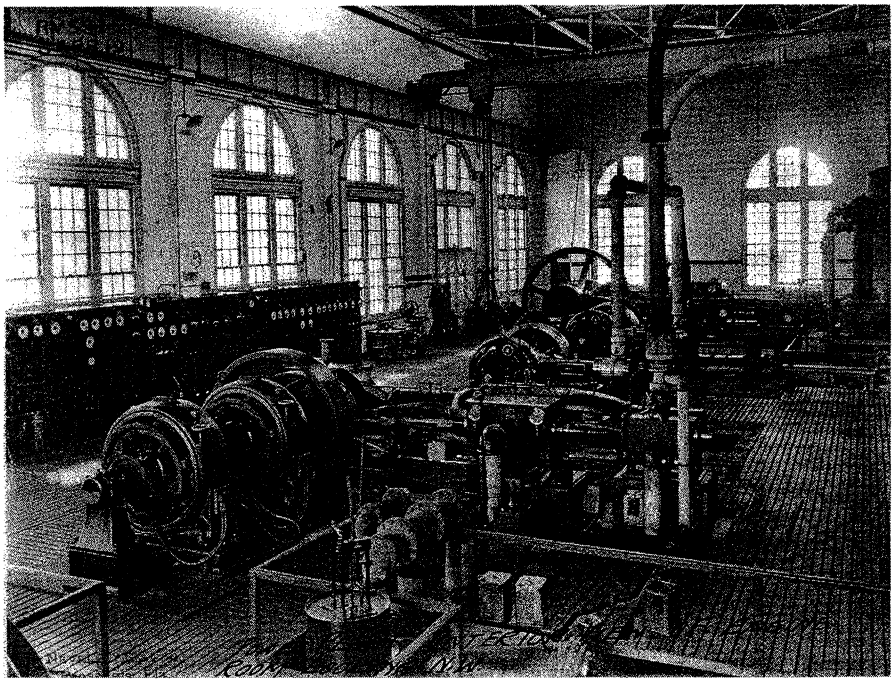

Figure 6. Oblique of south façade of Power Plant (Building No. 47), May 16, 1923. Photographer unknown. (Photo courtesy of Still Pictures Unit, NARA, College Park, Maryland)

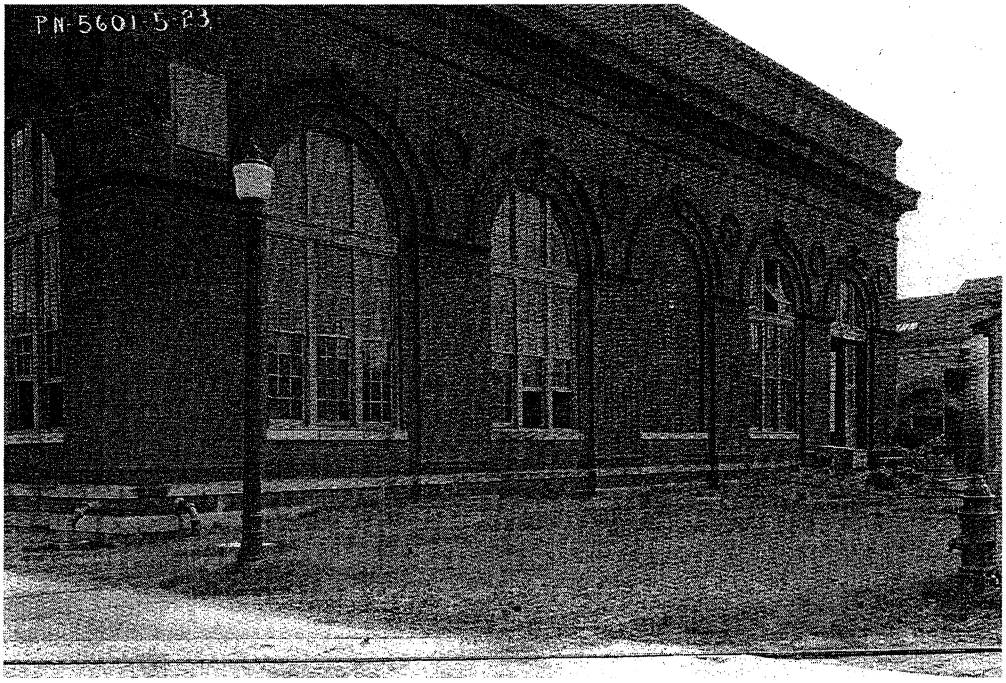

Figure 7. Boiler room of Power Plant (Building No. 47) showing the 200 HP Aultman Taylor Boilers, August 27, 1920. Photographer unknown. (Photo courtesy of Still Pictures Unit, NARA, College Park, Maryland)

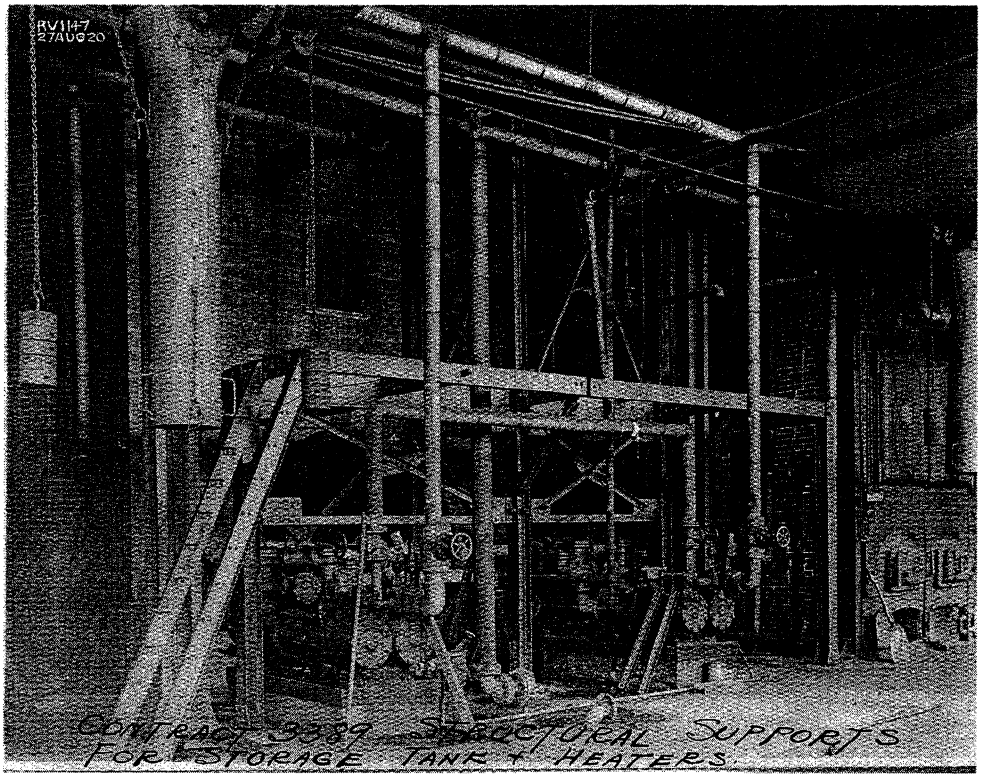

Figure 8. Engine room of Power Plant (Building No. 47) with temporary wood flooring, April 3, 1919. Photographer unknown. (Photo courtesy of Still Pictures Unit, NARA, College Park, Maryland)

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural character: The Power Plant is a large industrial structure that displays elaborate architectural features and ornamentation that is indicative of Beaux Arts classicism. With a rectangular plan, the building is built on a continuous-perimeter concrete foundation wall resting on piles with interior concrete footings on piles. The structure utilizes both steel-frame and load-bearing masonry construction. The exterior walls are clad in brick, with decorative terra-cotta detailing in the entablature, pilasters, arches, rosettes. The building also features a decorative brick parapet wall and granite belt courses and window sills. The north and south facades are characterized by five large bays of fenestration framed with semi-circular, terra-cotta pediments with scrolled acanthus leaf keystones divided by brick pilasters and terra-cotta rosettes. The east and west are divided by seven bays of fenestration with identical architectural features. The low-sloped gable roof features three hipped roof monitors. The building's most distinctive physical feature is the brick chimney that rises from the building's center. Free-standing and structurally independent of the Power Plant, the chimney rises 150'-0" and is a prominent landmark itself.
2. Condition of fabric: The Power Plant is generally in fair condition but experienced damage during Hurricane Ivan. Storm-related damage includes the partial collapse of the parapet on the north and south walls, extensive deterioration to the roof membrane, the loss of some windows and doors, and interior flooding. Although some of the damage can be attributed to the storm itself, existing deficiencies stemming from the inherent qualities of the building's design and structural composition also contributed to deterioration of the building's fabric. Based upon a visual inspection, the walls of the Power Plant are generally plumb and straight, which indicates that the foundation is stable and performing well. Cracks are evident at several places on the masonry walls; however, these problems are caused by corrosion-related expansion of steel structural elements embedded within the masonry walls rather than any foundation-related problems. The use of a borescope during the preparation of preservation analysis reports in 2005 revealed corrosion within the embedded structural steel columns. Other embedded steel structural elements, including the roof beams, purlins, and the steel anchors in the parapet, have corroded to varying degrees that contributed to the partial collapse of the parapet with hurricane-force winds. Many of the windows and doors have been damaged, and the interior was flooded with water during the storm surge associated with Hurricane Ivan.

B. Description of Exterior:

1. Overall dimensions: The building's rectangular footprint includes an area that measures 111'-9" x 140'-3". The one-story structure has exterior walls that rise to a height of 45'-0", thereby creating expansive interior spaces that facilitated the installation of cranes and oversized machinery and equipment. The valve house, a small one-story addition that was constructed in 1941 along the north side of the Power Plant, has a rectangular building footprint that measures 28'-0-1/2" x 27'-6". Architectural plans do not indicate the height of the addition.

   The primary south facade has five, semi-circular arch bays that are equally spaced across the front. The central bay contains a blind window, and the easternmost bay serves as the primary

industrial entrance, where railroad tracks lead directly into the building. The west facade catered to most pedestrian traffic. It has seven, symmetrically arranged, semi-circular arched bays with windows and doors similar to those on the south facade. However, the entrances are slightly above grade and are marked by granite steps.

Rising to an overall height of 150'-0," the radial brick chimney includes a 120'-0" smokestack that rests on a 30'-0" vertical base. The diameter of the opening in the column is 9'-0". The base has a square-shaped footprint that measures 16'-0" x 16'-0".

2. Foundations: The foundation for the original building and subsequent additions could not be observed directly. According to architectural plans, the building features a continuous-perimeter concrete foundation resting on piles. The interior masonry wall also sits on the same foundation system. The 12" reinforced concrete floor structure in the engine room is supported by 2'-3" x 2'-3" x 2'-11" concrete piers resting on piles. The stepped chimney foundation also sits on piles. Although the 1940 pump house addition on the south side has been demolished, its raised continuous concrete foundation wall remains in place. The 1941 addition has a continuous-perimeter concrete foundation wall.

3. Walls: The exterior walls of the Power Plant are faced with red-colored brick laid in common bond with a header course every sixth row. The walls are accented with granite and terra-cotta trim, courses, and ornamentation. Portions of the east and west walls as well as significant portions of the brick in the parapet were reconstructed and/or repointed in 1935 and 1965 to treat corrosion of encased structural steel columns. This repair work required the removal of vertical sections of the original brick-faced walls. Following treatment to the steel columns, the original brick was used for fill and new brick was used as facing. The similar, but slightly different, colored brick used in the repair work is visible on wall surfaces.

   The exterior walls of every facade display Beaux Arts-inspired detailing. The most distinctive features include the large, semi-circular arch openings that define each bay. Each opening, which rises to a height roughly equivalent to three stories, has broad brick voussoirs and terra-cotta molding with a floral motif. Each archway also has an oversized non-structural keystone of terra-cotta with acanthus-like detailing. Each bay is divided by broad, multi-story brick pilasters, with granite bases, terra-cotta molding, and a capital that is similar to the detailing used in the arches. Above each pilaster is a large terra-cotta rosette. The most distinctive rosettes frame the middle bay of the west facade. The rosette north of the center bay is inscribed with "No. 47," indicating the building's designation. The rosette that is south of the middle bay is inscribed with "1905"; this date marks the year in which construction began on the Power Plant. The exterior walls also feature granite water-table belt courses and sills.

   The 1941 brick addition on the building's north side features a common-bond pattern with a header row every sixth row and a cast-stone coping.

4. Structural systems, framing: The structural system consists of two types of wall systems. The exterior east and west walls and the interior center wall dividing the boiler room and engine room consist of built-up steel columns embedded in load-bearing masonry walls. The north and south walls are load-bearing masonry walls. The walls rest on a continuous-perimeter concrete foundation supported by piles. The first floor consists of a reinforced concrete-slab floor. The concrete floor in the engine room on the west side is supported by additional concrete piers on piles to help carry the weight of the equipment. The roof system is

comprised of seven bays of riveted Pratt trusses that span between the steel columns embedded in the east and west walls. The trusses are further stabilized by steel cross bracing and diagonal bracing in the first interior bays in the plane of the bottom chord. Laced built-up beams add lateral support to the bottom chords. Built-up beams spanning between the trusses in a north/south direction function as drag struts.

The 1941 south addition was constructed of load-bearing masonry on a continuous-perimeter concrete foundation. The roof structure consists of a concrete deck with a built-up roof. The chimney is an independent structure from the main building. It is constructed of unreinforced radial brick masonry supported by a stepped foundation resting on piles.

5. Porches, stoops, balconies, bulkheads: Two sets of granite steps on the west facade mark the entrances and open onto the engine room. The sets of stairs consist of four risers and treads. The south set of stairs on the west side has a concrete ramp approximately 3'-0" wide constructed over a middle section of the stairs.

   Wooden stairs and landing mark the double-door entrance that opens into the valve house on the west side of the 1941 addition. The stairs consist of nine risers and include a wood railing. Concrete steps along the same side of the addition lead to the half-basement below the valve house. The stairs include seven risers at 4'-4-1/2" and six treads at 4'-10-1/2". The stairway is bounded on the north and west side by an 8" concrete wall with 1-1/2" metal pipe railing.

   The concrete steps for the 1940 pump house addition are still extant and extend to the earthen fill within the concrete foundation wall. The stairs consist of five risers at 6-1/2" and five treads at 1'-0".

6. Chimneys: The chimney is a free-standing brick structure within the Power Plant that rises from the boiler room to an overall height of 150'-0". It is constructed of unreinforced radial brick masonry that are curved on their outer faces to a specific radius, which enables the chimney to have a rounded exterior surface. As noted by the International Chimney Corporation in its March 28, 1984 description of the structure, the chimney rests on a 30'-0"-high cube-like common brick pedestal, which supports a 120'-0" radial brick smokestack. The column consists of five wall segments of varying heights and thicknesses. According to the report, the column is composed of a 15'-0" wall segment with 20-1/8" wall, a 16'-0" wall segment with 17" wall, a 30'-0" wall segment with 15" wall, a 29'-0" wall segment with 13" wall, and a 30'-0" wall segment with 10-5/8" wall. Beginning approximately 11'-0" above grade elevation, the chimney also features a partial-height lining that extends upward about 79'-0". This lining features a 19'-0" section with a 9" firebrick wall and a 60'-6" section with a 4-1/2" firebrick wall. Although the uppermost 59'-0" section of the chimney was not originally equipped with lining, it presently has a protective plaster coating that was applied at an unknown time. Hardware includes a cleanout door, step irons, rainhood, reinforcing steel bands, metal cap, obstruction lights, and a lightning protection system.[99] The top corners of the chimney's pedestal have angled corners. The chimney is located in the boiler room centered along the interior masonry wall that divides it from the engine room. The pedestal contains two arched openings on the east and west side of the chimney base that allows access through the chimney to a door in the interior masonry wall that leads to the engine room. A set of brick stairs is located in the west archway to accommodate the raised floor in the engine room. The cast-iron furnace door has a name plate that identifies the Alphons Custodis Chimney Construction Company as the builder of the chimney.

7. Openings:

   a. Doorways and doors: The primary industrial entrances are located on the south and north facades, both of which are in the east bay and can be opened to allow a coal car to enter the building. Each opening is at grade level and contains a paired set of full-height doors that slide horizontally on overhead metal rails. Each door contains a single wood pilot rail-and-stile door with side panels and three rows of vertically arranged fixed wood-sash windows. The sets of wood-frame sash windows consist of four fixed units with six lights and two square units with vertical, horizontal, and diagonal muntins. The north doorway is closed and secured, while the south door is damaged and lacks some glazing and wood components. The west facade has two doorways. The north door on the west facade contains a replaced overhead metal door on the exterior. The south door on the west side consists of a sliding overhead door with a pilot door. The door is divided into four panels with one operable pilot door. Each wood panel features a decorative square pattern with an x-shaped relief, a fixed wood sash window with six lights and a fixed square light with vertical, horizontal, and diagonal muntins.

      The one-story addition on the building's north end has three entrances. The doorway at the top of the wooden stairs and landing on the west facade opens onto the valve house. The entrance features double hinged metal doors, each of which contains a six-light vision panel. Plywood sheets obscure the louvered metal panels above the doors. A similar doorway is located on the east facade but lacks a landing or stairway. The addition has another doorway that opens onto the half-basement. According to architectural plans, the entrance, which is located on the addition's west side, contains a single metal hinged door with a four-light vision panel. The doorway also has a metal grate screen door.

   b. Windows and shutters: Each of the building's large window openings contains three double-hung, twelve-over-twelve, wood sash windows with a three-panel, semi-circular, multi-light fixed window above. The windows feature granite sills and steel lintels covered in wood. Although exterior plywood panels cover most of these units, the windows remain visible from the interior and are generally intact and in good-to-fair condition. Exceptions include the upper sashes of the windows in the inner bays of the west facade, which contain large metal vent hoods. Several of the windows are missing glazing.

      The monitor above the engine room has center-pivoting clerestory windows with nine- or fifteen-light wood sashes that operate on a rope and pulley system. See Dormers, cupolas, towers (Section II.B.8.c.) for more detailed information. The majority of the monitor windows are boarded up with plywood.

      Plywood panels also obscure windows on the 1941 addition; however, architectural plans indicate that these windows have center-pivoting sashes. Their condition and status are unknown.

8. Roof:

   a. Shape, covering: The Power Plant has a very low-pitched gabled roof that slopes east and west. High winds from Hurricane Ivan resulted in the loss of most of the single-ply roofing membrane that covered the roof, which has exposed much of the cementitious fiber-like panels that serve as the roof decking. The decking is supported by metal-frame

roof system that features seven bays of Pratt trusses.

The 1941 addition has a built-up roof with concrete decking.

b. Cornice, eaves: The building has an elaborately detailed entablature that extends along the top portion of the building, above the semi-circular openings. Although the architrave is simply detailed, the frieze has both dentil and egg-and-dart molding, made of terra-cotta. Likewise, the decorative molding in the cornice utilizes terra-cotta. The brick parapet that caps the exterior walls features an elaborate cornice with egg-and-dart molding and coping, both of which are of terra-cotta. Large segments of the north and south walls of the parapet collapsed when Hurricane Ivan struck in September 2004. Although the high winds associated with the storm triggered the partial collapse of the parapet segments, structural weaknesses stemming from corrosion within the masonry actually caused the parapet failures.

c. Dormers, cupolas, towers: The Power Plant features three roof monitors that provided additional ventilation and/or natural light for the two expansive rooms within the building. Largely obscured by the brick parapet that extends along the top of the Power Plant, the monitors are of steel-frame construction and feature hipped roofs with wood decking that is covered with composition shingles. A single monitor with an elongated plan extends over the engine room and measures approximately 24'-0" x 100'-0". Each of the two monitors over the boiler room measures approximately 24'-0" x 40'-0". The engine room monitor has center-pivoting clerestory windows that operate on a rope and pulley system. The windows on the east and west sides have nine-light wood sash units, while those on the north and south ends have fifteen lights per sash. Although exterior plywood panels cover these windows, they remain intact and in relatively good condition. A single gravity duct vent extends from the mid-section of the hipped roof; the others were blown from the roof leaving large holes at the peak of the roof. The two monitors over the boiler room have copper louvers; those with south-facing exposures are in the poorest condition and likely were damaged during Hurricane Ivan. The only other feature on the roof is a large centrifugal exhaust fan, which protrudes from the roof near the radial chimney.

C. Description of Interior:

1. Floor plans: A steel-frame, brick-faced partition wall divides the interior into two expansive spaces—the engine room to the west and the boiler room to the east. A small round-arched doorway allows access between the two rooms through an arched east/west passageway that extends through the base of the radial brick chimney in the boiler room. The small area between the interior partition wall and the passageway within the base of the chimney originally contained small toilet facilities; however, the area is now open. Due to the specialized role and function of the Power Plant and the resulting need to house oversized machinery and equipment in which to generate electricity and steam, both the engine and boiler rooms are unpartitioned. The engine room does, however, have a very small one-room enclosed area at the southwest corner. Although its original function is unknown, architectural plans from 1931 indicate that it contained an exhaust silencer for a Lincoln 12-cylinder aircraft engine that was mounted on a platform to power a 150 KW motor generator. The engine room also contains a one-story, flat-roofed internal addition that was built ca. 1932. Architectural plans from that year note that it housed a lavatory and locker room.

Following the construction of the second-floor addition in 1941 onto the pump house extension, the stairs that linked the offices with the engine room extended through the south end of the 1932 lavatory and locker room addition. The building also has mezzanine levels that provide access to the oversized equipment in both the engine and boiler rooms.

The 1941 valve room addition on the building's north side has an open plan with no partition walls either in the upper level or half-basement.

2. Stairways: The building has metal stairs that extend to the mezzanine levels of both the boiler and engine rooms. Most of the metal stairs are behind or adjacent to the major pieces of equipment, including the boilers, condensers, generators, and turbines. Brick steps extend upward through the archway that connects the boiler room to the raised concrete floor of the engine floor. Likewise, concrete steps from the 1941 valve house addition extend upward to the raised engine room floor. The remnants of a wood staircase are extant within the 1932 lavatory and locker room addition within the engine room. This stairway is non-functional after the demolition of the pump house between 2002 and 2004.
3. Flooring: The floors at the ground level of both the engine and boiler rooms have exposed concrete slabs, but the boiler room also has a set of railroad tracks that extends between the easternmost bays of the north and south facades. The mezzanine levels that allow access to the machinery and equipment within the engine and boiler rooms have steel metal grating. The valve house addition on the building's north side has concrete-slab floor on both levels. Flooring in the one-story lavatory and locker room addition within the engine room is not known because it is not accessible.
4. Wall and ceiling finish: The interior walls of the boiler room are exposed brick, portions of which have been painted. Likewise, the interior walls of the engine room above a line approximately 7'-0" above the floor level are also of exposed brick. The bottom portion of the engine room's interior wall—below the 7'-0" line—features white enameled brick, except for the top three courses, which make use of black enameled brick. The lavatory and stock room addition has wood-frame partition walls that are covered with plaster.

   Ceilings for both the engine and boiler rooms are open to exposed roof framing and decking. Although the 1932 lavatory and locker room interior addition has a plastered ceiling, the valve house has a concrete ceiling that is underside of the concrete roof decking.
5. Openings:
   a. Doorways and doors: An round-arched opening is set within the brick chimney but is open and lacks doors. A small round-arched doorway pierces the brick partition wall that divides the Power Plant's interior into two large spaces. A small wall that divides the engine and boiler rooms. A five-panel wood door opens from a very small one-room office at the southwest corner of the engine room. The door has a five-paneled wood door with a fixed transom that is set within a round-arched opening; however, the glazing in the transom and the upper two panels of the door are missing. The lavatory and locker room has hinged wood doors.
   b. Windows: The one-story lavatory and locker room addition within the engine room contains the only interior windows within the Power Plant. This addition has a set of three, double-hung, wood-sash windows with two-over-two-lights and vertical muntins.
6. Decorative features and trim: Not applicable.

7. Hardware: The only notable piece of hardware within the Power Plant is the cast-iron door on furnace within the radial brick chimney. It has a name plate that identifies the Alphons Custodis Chimney Construction Company as the builder of the radial brick chimney.

8. Mechanical equipment:

   a. Heating, air-conditioning, ventilation: The building has a remote boiler that is on the north side of the Power Plant. Air-conditioning is provided by a remote chiller, which is also on the building's north side. The condition of both systems is not known.

   b. Lighting: The boiler room contains pendant incandescent fixtures that are suspended from the roof framing. The engine room has both surface-mounted and suspended fluorescent light fixtures. The monitor over the engine room has clerestory windows that provide a supplemental, yet indirect, source of natural lighting.

   c. Plumbing: According to architectural plans, the restroom in the addition within the engine room contains two water closets; however, safety concerns prohibited a visual inspection of the rooms within the addition.

   d. Elevators: Not applicable.

   e. Specialized equipment: The following list identifies specialized equipment and mechanical systems within the Power Plant. Conditions are not verified since the Power Plant has not been used since the 1970s and has been in a mothball state for several decades. The inventory is not comprehensive but relies on information depicted on architectural plans that accompany this documentation. The inventory groups the equipment into types and lists the number of units that were installed. When known, the manufacturer (or contractor) and the date of installation are provided.

      Boilers (3) – Location: Boiler room (north end); Manufacturer: Wilkes Boiler Company; Installation Date: 1931-32

      Boilers (2) – Location: Boiler room (south end); Manufacturer: Unknown; Installation Date: unknown.

      De-aerating Feed Water Heater (1) – Location: Boiler room (west wall); Manufacturer: Huffman-Wolfe; Installation Date: 1945-46.

      Steam Turbine & Generators (3) – Location: Engine room (south end); Manufacturer: Crocker-Wheeler Manufacturing Company; Installation Date: unknown.

      Condensers (3) – Location: Engine room (south end of ground floor); Manufacturer: unknown; Installation Date: unknown.

      Air Compressors (4) – Location: Engine room (north end); Manufacturer: Chicago Pneumatic; Installation Date: unknown.

      Fresh Water Pumps (4) – Location: Engine room (along north wall); Manufacturer: unknown; Date of Installation: unknown.

D. Site:

1. General setting and orientation: The Power Plant is situated in a central location within the historic core of NAS Pensacola and is in a mixed-use area near the waterfront. Nearby buildings are used primarily for industrial, administrative, or storage purposes; however, most

of them were being demolished when the Power Plant was documented for this study. The land on which the Power Plant was built is relatively level but slopes gently to the south toward Pensacola Bay. Most of the land immediately surrounding the Power Plant contains grass lawns with concrete curbing and asphalt-paved parking lots and driveways. However, an asphalt-paved driveway (Center Avenue) abuts the west side of the building. Also, a driveway with railroad tracks extends into the building from the south side and ends at the opposite (north) end of the building. The west facade features the primary pedestrian entrances where two separate doors open onto the engine room. The primary industrial facade faces south onto the waterfront.

2. Historic landscape design: The only notable landscape design feature associated with the Power Plant is the set of railroad tracks that extended into the east end (boiler room) of the building. Another railroad spur was laid directly east of the Power Plant but has been removed. The date of removal is not known.

3. Outbuildings: Not applicable.

Prepared by: David W. Moore, Historian
Karen E. Hughes, Architectural Historian
Affiliation: HHM Inc.
Date: November 2005

NOTES

[1] U.S. Navy Department, Bureau of Yards and Docks, *Specification No. 1446 for Central Power House, Building No. 47 at the United States Navy Yard, Pensacola, Fla.*, (Washington, DC, June 1905).
[2] U.S. Navy Department, Bureau of Yards and Docks, *Specification No. 1443 for a Perforated Radial Molded Brick Chimney for Building No. 47, Central Power House at the United States Navy Yard, Pensacola, Fla.*, (Washington, DC, June 1905).
[3] Annual Report to the Bureau of Yards and Docks from U.S. Naval Air Station Pensacola Florida, June 30, 1935. NAVFAC Archive, Port Hueneme.
[4] Annual Report to BuDocks from U.S. Naval Air Station Pensacola Florida, June 30, 1917. NAVFAC Archive, Port Hueneme.
[5] Annual Report to BuDocks from U.S. Naval Air Station Pensacola Florida, June 30, 1921. NAVFAC Archive, Port Hueneme.
[6] Annual Report to BuDocks from U.S. Naval Air Station Pensacola Florida, June 30, 1932. NAVFAC Archive, Port Hueneme.
[7] Coleman, James C. and Irene S. *Guardians on the Gulf: Pensacola Fortifications, 1698-1980* (Pensacola: Pensacola Historical Society, 1982), 7; Pearce, George F. *The U.S. Navy in Pensacola: From Sailing Ships to Naval Aviation (1825-1930)* (Pensacola: University of West Florida Press, 1980), 1.
[8] Coleman, *Guardians on the Gulf*, 26-28.
[9] Ibid., 31.
[10] Pearce, *U.S. Navy in Pensacola*, 3.
[11] Coleman, *Guardians on the Gulf*, 5.
[12] Pearce, *U.S. Navy in Pensacola*, 5-10.
[13] Ibid., 11-13.
[14] Ibid., 13, 18.
[15] Ibid., 19.
[16] Pearce, George F. "NAS Pensacola, Florida," in *U.S. Naval and Marine Corps Bases*, 465-466, ed. Paolo Coletta, 466 (Westport: Greenwood Press, 1985).
[17] Coleman, *Guardians on the Gulf*, 33-37.
[18] Annual Report of Chief of the Bureau of Yards and Docks to the Secretary of the Navy, Pensacola Navy Yard, November 19, 1844. NAVFAC Archive, Port Hueneme.
[19] Annual Report of Chief of the Bureau of Yards and Docks to the Secretary of the Navy, Pensacola Navy Yard, October 17, 1849. NAVFAC Archive, Port Hueneme.
[20] Pearce, George F. "NAS Pensacola, Florida," in *U.S. Naval and Marine Corps Bases*, 466.
[21] Annual Report of Chief of the Bureau of Yards and Docks to the Secretary of the Navy, Pensacola Navy Yard, October 25, 1847. NAVFAC Archive, Port Hueneme.
[22] Pearce, George F. "NAS Pensacola, Florida," in *U.S. Naval and Marine Corps Bases*, 466.
[23] Ibid., 466-467.
[24] Annual Report of Chief of the Bureau of Yards and Docks to the Secretary of the Navy, Pensacola Navy Yard, November 4, 1862, NAVFAC Archive, Port Hueneme.
[25] Annual Report of Chief of the Bureau of Yards and Docks to the Secretary of the Navy, Pensacola Navy Yard, October 15, 1864, NAVFAC Archive, Port Hueneme.
[26] Commandant Smith to Chief of the Bureau of Yards and Docks, May 15, 1863, Record Group 71, Entry 5, Records of the Bureau of Yards and Docks, Correspondence with Commandants of Pensacola Navy Yard. NARA, Washington, D.C.
[27] Commandant Armstrong to Chief of BuDocks, November 23, 1864, Record Group 71, Entry 5. NARA, Washington, D.C.
[28] Chief of BuDocks Smith to Commandant Armstrong, December 10, 1864, Record Group 45, Collection of the Office of Naval Records, Subject File U.S. Navy 1775-1910, Navy Yards, NARA, Washington, D.C.

[29] Annual Report of Chief of the Bureau of Yards and Docks to the Secretary of the Navy, Pensacola Navy Yard, October 1, 1869. NAVFAC Archive, Port Hueneme.
[30] Pearce, *U.S. Navy in Pensacola*, 95; 98.
[31] Annual Report of Chief of the Bureau of Yards and Docks to the Secretary of the Navy, Pensacola Navy Yard, October 26, 1883. NAVFAC Archive, Port Hueneme.
[32] Annual Report of Chief of the Bureau of Yards and Docks to the Secretary of the Navy, Pensacola Navy Yard, October 1, 1901. NAVFAC Archive, Port Hueneme.
[33] Pearce, George F. "NAS Pensacola, Florida," in *U.S. Naval and Marine Corps Bases*, 468.
[34] Ibid. 468-469.
[35] Pearce, *U.S. Navy in Pensacola*, 123-125.
[36] Ibid., 128-129.
[37] Ibid., 132.
[38] Annual Report to the Bureau of Yards and Docks from U.S. Naval Air Station Pensacola, Florida, June 30, 1914. NAVFAC Archive, Port Hueneme.
[39] Pearce, *U.S. Navy in Pensacola*, 134.
[40] Ibid.
[41] Ibid., 135.
[42] Ibid., 136.
[43] *Air Station News, Pensacola, Florida.* 1930. "An Historical Note," November 20, 4.
[44] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1915, 40, 18. NAVFAC Archive, Port Hueneme.
[45] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1917, NAVFAC Archive, Port Hueneme.
[46] Corliss, Earle. *Activities of the Bureau of Yards and Docks, Navy Department, World War: 1917-1918* (Washington: U.S. Government Printing Office, 1921), 395.
[47] Ibid., 153.
[48] Pearce, George F. "NAS Pensacola, Florida," in *U.S. Naval and Marine Corps Bases*, 470.
[49] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1918, NAVFAC Archive, Port Hueneme.
[50] *Air Station News, Pensacola, Florida.* 1930. "An Historical Note," November 20, 4.
[51] Pearce, *U.S. Navy in Pensacola*, 159.
[52] *Air Station News, Pensacola, Florida.* 1930. "An Historical Note," November 20, 4.
[53] Pearce, *U.S. Navy in Pensacola*, 158.
[54] Ibid., 157.
[55] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1920. NAVFAC Archive, Port Hueneme.
[56] Pearce, *U.S. Navy in Pensacola*, 165.
[57] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1923. NAVFAC Archive, Port Hueneme; Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1927. NAVFAC Archive, Port Hueneme.
[58] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1927. NAVFAC Archive, Port Hueneme.
[59] Ibid.
[60] Pearce, *U.S. Navy in Pensacola*, 177-178.
[61] Ibid., 178-179.
[62] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1936. NAVFAC Archive, Port Hueneme.
[63] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1936. NAVFAC Archive, Port Hueneme. In the report, NAS Pensacola's commandant attributes funding of the new building program to the "Authorization Bill approved April 15, 1935." He also notes that "Two million dollars of funds were

carried in the Deficiency Act, approved August 12, 1935, while $1,081,500 was made available from the continuing appropriation 'Public Works, Bureau of Yards and Docks.'" The Annual Report contradicts the authoritative U.S. Government Printing Office publication *Building the Navy's Bases in World War II of 1947*, which states that in 1935 "the Congress made no appropriation for naval public works, and such work as could be done was financed out of the ends of appropriations made in earlier years and by allocation from the funds provided by the 1935 Emergency Relief Appropriation Act" (p. 25).

[64] Ibid, 33.

[65] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1937. NAVFAC Archive, Port Hueneme.

[66] Ibid., 48.

[67] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1936. NAVFAC Archive, Port Hueneme.

[68] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1938, 54. NAVFAC Archive, Port Hueneme.

[69] Annual Report to the Bureau of Yards and Docks from NAS Pensacola, Florida, June 30, 1939, 19. NAVFAC Archive, Port Hueneme.

[70] U.S. Government Printing Office, *Building the Navy's Bases in World War II: History of the Bureau of Yards and Docks and the Civil Engineer Corps, 1940-1946, Volume I* (Washington: U.S. Government Printing Office, 1947), 229.

[71] Shettle, 177.

[72] Delaney, Michelle M., ed. *The Cradle: Naval Air Station, Pensacola,* (Pensacola: Pensacola Engraving Company, 1989), 127.

[73] Ibid., 136.

[74] Ibid., 149.

[75] Pearce, George F. "NAS Pensacola, Florida," in *U.S. Naval and Marine Corps Bases*, ed. Paolo Coletta, 474 (Westport: Greenwood Press, 1985).

[76] Ibid.

[77] Pensacola Bay Area Chamber of Commerce, "NAS Pensacola: The Cradle of Naval Aviation," electronic document, www.pensacolachamber.com. Accessed February 18, 2005.

[78] U.S. Navy Department, Bureau of Yards and Docks, *Specification No. 1446 for Central Power House, Building No. 47 at the United States Navy Yard, Pensacola, Fla.,* (Washington, DC, June 1905).

[79] U.S. Navy Department, Bureau of Yards and Docks, *Specification No. 1443 for a Perforated Radial Molded Brick Chimney for Building No. 47, Central Power House at the United States Navy Yard, Pensacola, Fla.,* (Washington, DC, June 1905).

[80] U.S. Navy Department, Bureau of Yards and Docks, *Specification No. 1439 for Coal Handling and Coal Storage Installations for Building No. 47 at the United States Navy Yard, Pensacola, Fla.,* (Washington, DC, June 1905).

[81] U.S. Navy Department, Bureau of Yards and Docks, *Specification No. 1446 for Central Power House, Building No. 47 at the United States Navy Yard, Pensacola, Fla.,* (Washington, DC, June 1905).

[82] BuDocks Report to SECNAV for Navy-Yard Pensacola, Fla., October 1, 1905. NAVFAC Archive, Port Hueneme

[83] Ibid.

[84] Historic American Engineering Record, St. Louis Union Station Powerhouse (HAER No. MO-23), July 1986. Library of Congress, Washington.

[85] Ibid.

[86] U.S. Navy Department, Bureau of Yards and Docks, *Specification No. 1536 for Boiler Room Machinery for Central Power Plant at the United States Navy Yard, Pensacola, Fla.,* (Washington, DC, April 1907).

[87] Annual Report to BuDocks from U.S. Naval Air Station Pensacola Florida, June 30, 1915. NAVFAC Archive, Port Hueneme.

[88] Ibid.

[89] Ibid.

[90] Ibid.

[91] Annual Report to BuDocks from U.S. Naval Air Station Pensacola Florida, June 30, 1921. NAVFAC Archive, Port Hueneme.
[92] Annual Report to BuDocks from U.S. Naval Air Station Pensacola Florida, June 30, 1932. NAVFAC Archive, Port Hueneme.
[93] Annual Report to BuDocks from U.S. Naval Air Station Pensacola Florida, June 30, 1935. NAVFAC Archive, Port Hueneme.
[94] Annual Report to BuDocks from U.S. Naval Air Station Pensacola Florida, June 30, 1938. NAVFAC Archive, Port Hueneme
[95] Class II Property Records for Building 47, Facilities Files, Public Works Office, NAS Pensacola, Florida.
[96] Facilities Files, Public Works Office, NAS Pensacola, Florida.
[97] Ibid.
[98] Ibid.
[99] "Stack Description, International Chimney Corporation," March 28, 1984, Facilities Files, Building 47. NAS Pensacola Public Works Center, Pensacola.

PART III. SOURCES OF INFORMATION

A. Architectural Drawings: [Original and/or early architectural] drawings are held at the National Archives and Records Administration Cartographic and Architectural Unit, College Park, Maryland. They are found within Record Group (RG) 71, Records of the Bureau of Yards and Docks. Plans used for this documentation effort include the following:

1. Original architectural plans could not be found either at NAS Pensacola or at the Cartographic and Architectural Unit of the National Archives and Records Administration, however, many of the original structural drawings are on file at NAS Pensacola and managed by a contractor Hill-Griffin (Building No. 458). Entitled "Central Power House Bldg. #47, U.S. Navy Yard, Pensacola, Fla.," the structural drawings vary in dates from October 10, 1905 to November 6, 1905, and bear a Bureau of Yards and Docks stamp for Drawing No. 6903.
2. The National Archives and Records Administration has a copy of the only original architectural drawing prepared for the radial molded brick chimney. Drawing No. 800-25-13 was prepared by the Alphons Custodis Chimney Construction Co., New York, and is dated November 20, 1905.
3. The National Archives and Records Administration also holds Drawing Nos. 800-25-19 to 800-25-25-26, which include plans for arrangement on the machinery within Building No. 47. Drawings range in date from April to August, 1907, and bear non-contiguous Bureau of Yards and Docks Nos. ranging between 50193 through 50805.

Alteration and renovation drawings for Building No. 47 are on file with contractors Hill-Griffin (Building No. 458) at NAS Pensacola, Pensacola, Florida. As a major industrial building at the air station, Building No. 47 received regular maintenance, and equipment modification and replacement. Numerous plans exist to document actual and planned repair, renovation, and upgrades, as well as plans for intended work that was never initiated. Plans for major alterations include the following:

1. Drawings for a small, one-story brick addition are dated March 20, 1940, and include Bureau of Yards and Docks Drawing Nos. 6453 to 6454.
2. Drawings for a second floor addition constructed onto the pump house are dated August 8, 1941, and bear Bureau of Yards and Docks Drawing Nos. 8660 to 8661.
3. Drawings for the 1941 valve house are dated February 23, 1941 and include Bureau of Yards and Docks Drawing Nos. 6977 to 6980.

B. Historic Views: Photographs are archived at the NAS Pensacola Public Affairs Office and Public Works Center, the National Museum of Naval Aviation at NAS Pensacola, and the University of West Florida Library, Special Collections, the NAS Pensacola Photograph Collection and the Navy Yard at Pensacola Photograph Collection, Pensacola, Florida, and Record Group 71, Records of the Bureau of Yards and Docks, Still Pictures Unit.

C. Interviews: None conducted.

D. Bibliography:

1. Primary and unpublished sources:

National Archives and Records Administration, Washington, D.C.

Record Group 45, Naval Records Collection of the Office of Naval Records and Library. Series 464, Subject Files 1775-1910: Bases, Pensacola, Construction, etc., 1860-1910. National Archives and Records Administration, Washington, D.C.

Record Group 71, Records of the Bureau of Yards and Docks. Entry 5, Letters Received 1842-1885. National Archives and Records Administration, Washington, D.C.

Record Group 71, Records of the Bureau of Yards and Docks. Entry 42, Contracts 1842-1896. National Archives and Records Administration, Washington, D.C.

Record Group 71, Records of the Bureau of Yards and Docks. Records relating to the design and construction of shore establishment facilities, 1824-1963: Drawings 800-3-15 to 800-45-18. Cartographic and Architectural Unit, National Archives and Records Administration, College Park, Maryland.

Record Group 71, Records of the Bureau of Yards and Docks. Still Pictures (General) 1876-1955: Still Pictures Unit, National Archives and Records Administration, College Park, Maryland.

United States Navy Department, Bureau of Yards and Docks, Washington, D.C.

Specification No. 1446 for Central Power House, Building No. 47 at the United States Navy Yard, Pensacola, Florida. Washington, D.C.: 1905.

Specification No. 1443 for a Perforated Radial Model Brick Chimney for Building No. 47, Central Power House at the United States Navy Yard, Pensacola, Florida. Washington, D.C.: 1905.

Library of Congress, Washington, D.C.

Historic American Engineering Record. St Louis Union Station Powerhouse (HAER No. MO-23)

Naval Facilities Engineering Command Archive, Port Hueneme, California. Annual Reports of the Bureau of Yards and Docks, NAS Pensacola, Florida, 1842-1939.

Construction Contracts, NAS Pensacola, Florida, various dates, Record Group 2.

Detailed Inventory of Naval Shore Facilities, NAS Pensacola, Florida, various dates, Record Group 2.

Property Record Cards, NAS Pensacola, Florida, various dates, Record Group 2.

NAS Pensacola Public Works Center (Building No. 3560), Pensacola, Florida.

Facilities Files, General.

Facilities Files, Photographs.

Installation Maps, NAS Pensacola, Florida, various dates.

NAS Pensacola Public Works Center (Building No. 3560), Pensacola, Florida.
Photograph Collection.

National Museum of Naval Aviation, Pensacola, Florida.
Photograph Collection.

University of West Florida Special Collections Department, Pensacola, Florida. Manuscript and Archival Collections.
Rare Books and West Florida Regional Publications.
Map Collection.
Photograph Collections.

Young, Rear Admiral Lucien. *A Brief History of the United States Navy Yard and Station, Pensacola, Florida and its Possibilities.* Pensacola, Florida: privately printed, no date, copy available at the Rare Books Collection, University of West Florida.

2. Secondary and published sources:

Air Station News, Pensacola, Florida, "An Historical Note," November 20, 1930.

Coleman, James C. and Irene S. *Guardians on the Gulf: Pensacola Fortifications, 1698-1980.* Pensacola: Pensacola Historical Society, 1982.

Corliss, Earle. *Activities of the Bureau of Yards and Docks, Navy Department, World War:1917-1918.* Washington: U.S. Government Printing Office, 1921.

Delaney, Michelle M., ed. *The Cradle: Naval Air Station, Pensacola.* Pensacola: Pensacola Engraving Company, Inc., 1989.

Manuel, Dale. *Pensacola Bay: A Military History.* Charleston, South Carolina: Arcadia Publishing, 2004.

Pearce, George F. *The U.S. Navy in Pensacola: From Sailing Ships to Naval Aviation (1825-1930).* Pensacola: University of West Florida Press, 1980.

Pearce, George F. "NAS Pensacola, Florida," in *U.S. Naval and Marine Corps Bases*, ed. Paolo Coletta, 464-471. Westport: Greenwood Press, 1985.

Pensacola Bay Area Chamber of Commerce, "NAS Pensacola: The Cradle of Naval Aviation," electronic document, www.pensacolachamber.com. Accessed February 18, 2005.

Shettle, M.L., Jr. *United States Naval Air Stations of World War II, Volume One.* Bowersville, Georgia: Schaertel Publishing Company, 1995.

E. Likely sources not yet investigated:

Additional records for the history of the Pensacola Navy Yard and NAS Pensacola may yet be found in other series and subgroups within Record Group 71, in Record Group 72, "Records of the Bureau of Aeronautics" (1911-46), and for later periods, Record Group 181, "Records of Naval Districts and Shore Establishments."

F. Supplemental material:

None provided.

PART IV. PROJECT INFORMATION

The mitigative documentation of Building No. 47 at NAS Pensacola, Florida, was undertaken from July to October 2005 by HHM Inc, of Austin, Texas, in accordance with a Memorandum of Agreement among DON, NAS Pensacola, and the Florida State Historic Preservation Officer. The project was sponsored by DON, Naval Facilities Engineering Command, Engineering Field Division South (NAVFAC EFD SOUTH), Charleston, South Carolina, and managed by Ron N. Johnson, Registered Preservation Architect, Head of Cultural Resources Branch, and Historic Preservation Officer for NAVFAC EFD SOUTH. The principals involved in managing the documentation included Rick Mitchell (HHM), Project Director; Laurie A. Gotcher (HHM), Project Manager; and David Moore (HHM), Quality Assurance Manager. The fieldwork was conducted by Jennifer Ross (HHM), Senior Architectural Historian, and Leah Roberson (HHM), Field Technician. Mr. Moore, Senior Historian, prepared the significance and building history documentation sections, and Karen Hughes (HHM), Senior Architectural Historian, completed the architectural portions. Olivia Chacón (HHM), Architectural Historian, prepared the general historical context. Ms. Chacón, Ms. Ross, Sarah Beth Valenzuela (HHM), Intern Architect, and Anna Madrona (HHM), Senior Historian, conducted technical reviews. Editing, report layout, and graphics were managed by Lori Smith (HHM), Copy Editor and Production Manager, and Julio Chacón (HHM), Graphic Artist. Large-format photography was undertaken by Ms. Hughes and Justin Edgington (HHM), Historian.