

A Short History of the Beginnings of U. S. Navy Radio Communications and the United States Navy Point Isabel Wireless Station

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The Navy's Role in Early Radio Development and Its Use

American military communications as a separate discipline began with Confederate forces in 1862 and the Union Signal Corps was to form in 1863. Innovations were to follow as methods advanced from flag and torch signaling to telegraph and numerous other inventive schemes.

Few know of the important role that the United States Navy played in the development and perfection of long-range radio communications at the turn of the 20th century. Still fewer remember or are acquainted with the Navy wireless transmission facility which once existed in the southwest portion of Port Isabel. How and why this station came to exist will be explained here. Its evolutionary background was definitively addressed by Captain Linwood S. Howeth in his 1963 book *History of Communication-Electronics in the United States Navy*, U. S. Government Printing Office. What immediately follows are extracts and paraphrases from his comprehensive study.

The first electrical use in communications in the U.S. Navy was that of electrical signaling lights in 1875. It was the Spanish –American War which brought forth the establishment of coast signal stations. By April 1898, 230 land stations along the coasts of the country were tied together with telegraph and telephones and used various physical systems to communicate to ships off-shore. These stations, primarily lighthouse and weather service facilities, were manned by Navy personnel. The operation was termed the Coastal Signal System.

The system which we now call radio consists of the sending of electromagnetic waves created by a generator and received by a conductor connected to a suitable receiving circuit. Michael Faraday and James Clerk Maxwell had laid the scientific groundwork for electromagnetism in the mid-19th century. While others were to build upon their work such as Dr. Mahlon Loomis as early as 1872 to be followed by Amos Dolbear in 1882 and Phelps and Edison in 1885, it was Heinrich Hertz, before his death in 1884, that developed an oscillator for generating high-frequency electro-magnetic waves, essentially the first radio transmitter.

Recognizing the fact that it would be of great use to the service, U.S. Navy Lt. Bradley A. Fiske researched and experimented with wireless communications in the decade following 1885. His work therefore preceded that of Marchese Marconi. Marconi was less an inventor than an individual who could develop engineering and applied research. This in the 1890s he did, accumulating information on radio signaling from numerous individuals, including Prof. Popoff in Russia. The outcome was by July 1898 the steamer *Flying Huntress* became the first ship outfitted with radio for commercial purposes.

In early 1899 several dramatic incidents related to maritime safety and the use of radios accelerated their installation. That year the Royal Navy commenced testing aboard three of its ships. By 1900 it had installed radio equipment in 26 ships and coast stations.

In September 1899 the U. S. Navy authorized personnel to observe radio communications monitoring the America Cup Races. In November this generated a favorable report to the Secretary of the Navy. The Navy in fact had by October 1899 been conducting its own tests on non-Marconi equipment but experienced interference problems. However a report recommended further testing and the establishment of a station at Newport, Rhode Island.

In 1901 the Navy was operating in a more observatory mood rather than experimenting. However, some personnel were assigned to Europe to acquaint themselves with the operation of radios. In 1902 no decision was made on the purchase of Marconi equipment though it was deemed superior to that of the Germans. Still prior to the end of the year, six different manufacturers were ready for comparative tests.

By January 1902 the Navy was issuing instructions that ships masts be prepared to accommodate antennas. Ships under construction were required to be provided with masts suitable for use of radiotelegraph apparatus.

Shore radio stations by May 1902 were to be located at five East Coast lighthouse stations and one near San Francisco.

Training operators was slow to be implemented and when in 1903 13 students were assigned to a school at the Brooklyn Navy Yard, the number was far less than that required.

In 1903 seven manufactured systems were tested aboard two warships, the USS Topeka and USS Prairie. Reception distances ranged up to 62 miles for Slaby-Arco (Germany) to only 13 nautical miles for Rochefort. Lack of equipment and trained operators hindered the testing. By September the Navy had acquired 37 Slaby-Arco devices and 18 by other manufacturers. Naturally American manufacturers began to complain about the purchases from the German outfit.

In this period individual naval squadrons were more or less autonomous. This type of organization was a deterrent to early rapid development of naval radio communications. Additional transmitter stations were set up in 1903, two along the northeast coast, one in Puerto Rico, and two in the Philippines. Lack of trained personnel had only five stations manned by summer 1903. By the summer exercises of 1903, seven warships were equipped with radios, this being the Navy's first strategic use of them. "Old Navy" had reactionary views of this new technology and the issue was heatedly debated.

The efforts of the Marconi interests to establish a wireless monopoly and the shady dealings of the De Forest Co. lead the Navy to ask that the Government have absolute control of wireless stations in "time of national peril." An international conference on the subject of radio was held in Berlin in August 1903. No protocol was agreed upon by the attending nations.

An Interdepartmental Board appointed by President Theodore Roosevelt submitted to him in July 1904 a report recommending that the Navy be designated to provide coastwise radio communications for the U. S. Government and when not in competition with commercial stations to receive and transmit all radio messages to and from ships at sea. It would also empower the Army to erect stations and sought legislation to prevent radio telegraphy by monopolies or trusts. Vested interests kept these proposals from going to Congress.

In 1904 the Navy contracted with the American De Forest Radio Co. to provide and install three 35 kw transmitters and receiving equipment and accessories. These would be used to signal the Canal Zone and Guantanamo Bay, Cuba from Key West, Florida. These were completed in late 1905 and for the latter in early 1906. At each location three masts of 208' each were set in a 300' triangular arrangement. In 1906 the Navy was reporting it had 60 transmitters furnished by eight manufacturers. Ranging from 1 to 35 kw in power they averaged 7 kw.

Early Navy radio had two components. One was the shore radio system under the individual commandants of the Shore Establishment Notice to Mariners. Fifty ships provided weather data for this system. Naval time was also transmitted. Atmospheric disturbances continued to plague transmissions from still rather primitive equipment.

The second system was fleet radio. It often lacked discipline and unified protocols. One success story of fleet radio was however during the San Francisco earthquake of April 1906. The USS Chicago moved into the area was able to provide valuable transmissions after other sources were disrupted.

In May 1906 a second International Radio Telegraphic Conference was held in Berlin. After considerable debate from delegates of 27 nations, a protocol, to be effected July 1, 1908, was adopted. It stipulated that any brands of radio equipment could be used to send and receive radio message, that inter-ship communications would be instituted, that radio stations would give priority to distress calls, and that all would work toward the elimination of interference between stations.

In this period the U. S. radio industry was in perpetual disarray with conflicting claims, patents, inventions, etc. In 1907 Lee De forest joined with James Dunlop Smith, a star salesman, and Samuel Darby, an honest patent attorney. They formed the De Forest Radio Telephone Co. One of its first customers of its radiotelephone was the Navy which in 1906 had purchased 26 of them. These were improperly utilized and for this reason proved a failure.

Reginald Fessenden of the National Electric Signaling Co. worked on continuous wave reception in the first decade of the 20th century. He would not succeed until De Forest developed equipment to satisfactorily generate local oscillations. Fessenden won a Navy contract in late 1908 for 100 kw transmitters capable of signals across arrange of 3,000 miles. These never met specifications. The company did sell the Navy 50 sets of other transmitters over the next two years.

It was the Poulsen system of continuous undamped oscillation and California scientists/entrepreneurs at the Federal Telegraph co. that provided the Navy reliable 35 kw transmitters. This company was eventually purchased by the Navy during World War I.

With the U. S. Senate still being appointed by state legislatures prior to the passage of the 17th Amendment, many felt that the majority of Senators was under the influence of big business hence opposed to Government control of radio.

An July 1909 collision of two passenger ships SW of Nantucket greatly influenced public opinion. About 1, 650 persons were saved and only six reported lost due to radio messages received on shore and relayed requesting rescue efforts by two vessels in the area.

Finally becoming effective 1 July 1911 was the Radio Ship Act of 1910. It mandated provisions for radios in vessels carrying over 50 passengers on the high seas.

After many a year, in 1909 Democrats gained control of the house. This led to the ratification of the 1912 Berlin Wireless Telegraph Treaty. Congress then finally authorized Government control of radio in 1912. It was the sinking of the *Titanic* in April 1912 which soon brought needed amendments resulting in the Radio Act of 1916.

Although Navy line officers were frequently reactionary in regards using radio for tactical purposes, they were eased into its use. In the summer of 1911 the Navy used its first radio plan. It was a fairly simple one.

Undamped waves, as emitted by an arc transmitter, were a breakthrough for long-distance transmissions and were nicknamed "the Navy darling." To go along with this in 9/12 a transmitter frequency changer had been perfected. An enthusiastic Navy asked Congress for a \$1 million appropriation for construction of high-powered radio stations in the Canal Zone, California, Hawaii, Samoa, Guam, and the Philippines. It was approved and later raised to \$1.5 million.

The end of 1912 saw the organization of the Office of Superintendent Naval Radio Services. This would be a major step for technical control and training. On 12 May 1913 the Navy Department issued the "Battle Signal Book of the United States Navy, 1913". This was a "strictly confidential" radio codebook.

When President Woodrow Wilson sent ordered troops to Veracruz, Mexico on 4/21/14 radio communications proved inadequate. Finally a warship had to be stationed at Tampico in order to receive messages via the station at Key West.

Prior to WWI an accelerated period of radio improvements occurred with both private and Navy scientists contributing. Receivers, amplifiers, vacuum tubes, and condensers were upgraded in performance.

In the Navy Act of August 1916 Congress authorized a \$600 million program for the construction of ten battleships, six battle cruisers, and 140 more naval vessels during the next three years.

The Establishment of the Point Isabel Wireless Station

With the opening of the Panama Canal in August 1914 adequate communications between Washington and the Canal Zone became pressing, especially if war was to ensue.

In preparing for the possible U. S. entrance into the Great War additional stations were constructed. The Navy Communication Service set up the Point Isabel Navy Wireless Station within the Eighth District having New Orleans as District Center. This district also operated stations in Pensacola, Florida and the Heald Bank (Texas) Lightship.

The first inkling of the Navy's interest in the Point Isabel site is reported in the 1/15/14 issue of *The Daily Sentinel*, a Brownsville, Texas newspaper. It noted that the local engineer Kowalski, employed to survey the area for possible sites had recommended three alternative satisfactory locations at Point Isabel. In its 1/19/14 issue, the paper stated that Lt. Commander A. J. Hepburn was closeted with Point Isabel landowners to secure a wireless station site jointly owned by James B. Wells and Charles Champion. The latter had delivered an option for his half undivided interest at a very low price and even stated that he was willing to donate the land to the Navy if necessary. H. Skelton who previously held an option on the site from Champion had relinquished it upon learning of the Navy's interest.

The paper went on to report the background for the siting. The Point Isabel Station would be in almost a direct line with the station on the California coast and one at Panama so would occupy the most strategic position of any wireless in the United States. If established it would put the three sites, the one on the Pacific coast, the one at Arlington (Virginia), and the proposed one at Point Isabel in a V shape covering the whole of North America. It was hinted that its establishment might even entice the Navy to improve the harbor at Brazos Santiago.

By December 1914 the land title had still not been cleared to the satisfaction of the Department of Justice. At this time an agent was sent into the interior of Mexico, which was undergoing many domestic revolutionary disturbances, to obtain an affidavit from a woman whose family once was connected to the property. In the beginning of January 1915 word came that the affidavit had been secured and that J. B. Weller had sold and deeded his ten acres to the government. On 1/5/15 this was confirmed in a letter to Valley Congressman John Nance Gardner from R. S. Griffin, Engineer-in-Chief U.S. Navy, and that payments to Weller and Champion would be on the way. In addition he noted that construction contracts would be let soon. By the 17th John E. Green and Lt. White had arrived in Brownsville to close the land deal. They revealed that the construction contract would be let about 3/1. It was on 7/8/15 however that the newspaper reported that the construction work would begin at once and that the construction contract had been let a month earlier.

As extracted from the Navy Department Annual Report, R. S. Griffen, Engineer-in-Chief, Bureau of Steam Engineering (U.S. Navy) noted "The new station at Point Isabel, Tex. is in operation and has contributed to efficient communications with vessels in Mexican waters."

Josephus Daniels, Secretary of the Navy, in the same Annual Report for Fiscal Year 1916, 12/1/16, had also reported "In addition, a new medium-power station has been completed and will soon be in service at Point Isabel, Tex. This will be of great service to the merchant marine in that section, as well as to the Government in facilitating communications within Mexican waters."

The fact is the towers were indeed up by the second half of 1916 when famed Brownsville photographer took pictures of them from atop the Point (now Port) Isabel Lighthouse. He was documenting in part the encampment of the First New York Cavalry. This unit had been sent to the Lower Rio Grande Valley in response to bandit and other incursions occurring from Mexico during its period of revolution. Part of this Army force was encamped and utilizing the area set aside for the wireless station.

A May 18, 1916 newspaper article tells something of the logistics involved in the station's erection. Headlined: "Heavy Machinery Rushed to Point for Big Wireless", the article went on to relate:

The Rio Grande Railway Company is preparing to handle heavy shipments of machinery and other equipment for the great government wireless plant that is being rushed to completion at Point Isabel. Officers of the road stated yesterday that most of the machinery has been received in the local yards and was now being loaded on cars preparatory to shipment to the Point. One indication of the great size and capacity of the plant can be gained from the size of the engine alone which weighs 27,000 lbs. Other machinery and equipment is massive and heavy in proportion.

The Point Isabel plant, which will be one of the transcontinental stations is being rushed to early completion and should be in operation within a few weeks.

Less than a month later the same paper headlined this item: "President Asks Haste on Radio at Point Isabel". This article read:

Work on the government's great radio station at Point Isabel is being rushed with all possible dispatch, and one of its 330-foot towers has been completed and work has been begun on the other. Workmen are putting in ten hours per day on the job, and a night shift would be used if there were electric lights.

The unusual rush to complete the station is the result of instructions from President Wilson himself, who asked all possible speed be made.

Extraordinary precautions have been taken to safeguard the giant steel towers that are pushing skyward. Arms and ammunition have been issued to every man on the job while sandbags have been provided for defense in case of attack.

The urgency involved the considerable military operations then being conducted along the border and even into Mexico in pursuit of bandits, revolutionaries, and others making incursions into the U.S.

To help augment the station's communication with the outside world a new telegraph line was completed from Brownsville to the wireless station on 6/29/16. A lesser wireless station at Fort Brown had received its first ever transmission (from Arlington VA) on 10/7/14.

Congress was to declare war against Germany and her allies on April 6, 1917. In its Annual Report of November 1917, the Navy Department was to report that it had 1,282 new radio installations on its vessels.

Before the war Germany had considered establishing refueling stations in Mexico, so this added impetus to good radio communications in the Gulf of Mexico. A successful German U-boat fleet in the area could have wreaked havoc. Prior to the war the United States had some history of intervention in the area including Nicaragua (1912) and Mexico (1914). These types of military actions also lifted the importance for reliable radio communications for the area. Point Isabel became an important link.

The Navy had a secret strategic plan, Plan Black, prior to the war. It dealt with the Caribbean area. This plan was made obsolete by the realities of the 1914 situation. The U.S. Navy then entered into the process of unparalleled expansion, moving away from a coastal defense strategy to broader goals. Radio communications would play an important part.

Navy records state the following:

Point Isabel, Tex. (TL-R) disestablished 24 August 1923

Brownsville, Tex. (TL-R) established 24 August 1923

TL = low powered transmitter; R = receiver

The shift in designation from a medium power transmitter in 1915 to a low power one in 1923 likely indicates an advancement in powerful transmitters over the period rather than a physical diminishment of the existing system. The transmitter at Fort Brown was still active in 1926. Its status after that year until May 1944 when Fort Brown was deactivated is unknown.

When the Point Isabel Station was deactivated the local population continued to call its compound area "The Reservation" and did so for many a year. The station was abandoned for the most part then buildings on it were rented out until 1936 when the whole reservation was put on a reserve basis.

The Physical Station

The history of Port Isabel is concisely laid out by The Handbook of Texas Online (Appendix 1). About one-half its area had come into the possession of Judge James B. Wells 1886. Charles Champion purchased for \$17,500 the other half-interest in 1904 from E. K. Butler, President of the International Harvester Company of Chicago. It was from the estates of Wells and Champion that the station land was purchased. The Champion House/General Store constructed in 1899 remains today as a unique landmark and is part of the Port Isabel Museum complex. Together

with the Port Isabel Lighthouse constructed in 1853, they are lasting reminders of the community's history.

The station encompassed an area of approximately 20 acres. In the year 2006 this area is bounded by W. Madison Street on the south, W. Adams Street on the north, S. Musina Street on the east, and Leal Street on the west. Dividing the Reservation and equally spaced were the east-west street W. Madison and to its north W. Jefferson. At a later time Cisneros Street and Yterria Street to its east were carved out in a north-south direction.

The Reservation was then approximately 1320' east to west and 660' north to south. With one tower located near the southwest boundary and the other along the northeast boundary, the maximum distance between them could have been about 1250'. The towers were 330 feet in height. The two triangular steel towers were affixed to concrete bases none of which exist today.

Port Isabel resident Mrs. Harbert Davenport in an address to the Lower Rio Grande Valley Historical Society, with some hyperbole, related "In 1916 (during World War I) the largest wireless station in the world was stationed at the Point."

The 1916 photos of Point Isabel by Robert Runyon were taken to document the site as it existed at that time and also to portray the military activities in the area. Because of "Bandit" problems and other incursions from Mexico occurring at the time both regular Army and National Guard troops were dispatched to the Lower Rio Grande Valley and other U.S.- Mexico border areas. The First New York Cavalry was encamped in Point Isabel. Part of the contingent was set up at the new wireless station as indicated by the photos of tents and horse-drawn ambulances adjacent to the towers.

Runyon's 1916 photos indicate that the supporting infrastructure at the station was only partially in place. Next to the southwest tower may be a transmission building. To its north is what appears to be a sizeable barracks, likely for enlisted personnel. To its east is what may be an administration building besides which stands slightly elevated water tank. Lastly there is one building farther north, which is the housing for officers.

In January 2006 a survey of the whole former wireless station area revealed that only five of the original structures which once existed on the station still exist. Three of the former four barracks buildings along the north side of West Jefferson Street are extant. Each is separated by an intervening lot having a small residence on it. The former barracks at 202 has a garage constructed and attached to its front. The barracks at 212 is considerably altered with a second floor placed on it. The third barracks in the line at 220 is the most authentic and unchanged in outside appearance. It is in the process of restoration to near its original 1916 exterior appearance.

Behind several of these barracks and close to them there once existed catchment cisterns to collect rainwater running off the roofs of the barracks. The concrete lids of these were demolished and the cisterns filled in, though excavations would certainly reveal the internal structures of the original tanks.

On the northeast corner of Cisneros and Madison is a square two story original building which has undergone extensive change. It is stuccoed and its main entrance has been changed from the north to the south side of the structure. In the service alley behind it are four original concrete foundation blocks about sixteen feet apart in a square conformation. They once supported a tower upon which was a large water tank. This tower and tank are visible in some Runyon photos.

On the southwest corner of the intersection of Adams and Musina Streets is the First United Methodist Church. It consists of a complex of buildings. The main sanctuary however is a wooden structure moved to that site from elsewhere on the Reservation. It once served as an enlisted man's barracks. A small bell tower was added to its front.

On the northwest corner of the intersection of Monroe and Musina is a small brick building which is said by some old timer residents to have been used as a water plant for the station. This has not been confirmed, but the industrial looks of the building lend credence to this possible use.

The remainder of The Reservation has been subdivided into lots and most are occupied by modest residential structures. There are no commercial buildings in the area, but there are at least four churches and a two-block area having a recreational park in it named Washington Park.

From 1907 to 1927, with the exception of the wireless station, little developmental activity had occurred in the seaside community. It was mainly utilized for recreational activities such as fishing, boating and swimming. On 8/30/27 the townsite was sold to Capt. C. R. Tyrell and associates who commenced to subdivide it and generate lot sales. On August 1, 1930 the name of the town was officially changed from Point Isabel to Port Isabel.

During the Great Depression of the 1930s the property went into bankruptcy court.



Twin antennae of the U.S. Wireless Station in 1916. The First New York Cavalry camp utilizes some of the reservation area as well as the town itself.

Southwest radio antenna of the U. S. Navy Wireless Station, Point Isabel, TX in 1916 when the First New York Cavalry unit sent to quell border unrest was encamped at the site.



Northeast view of the Wireless Reservation with the Champion Building in the left foreground, 1916.

The USS Arizona built in the Brooklyn Navy Yard in 1915 and shown here in the East River after commissioning in 1916. She displays the latest in Navy wireless receiving and transmitting antennae. She was to be destroyed in the Japanese attack on Pearl Harbor on December 7, 1941.



USS Texas in 1907 with some of the first radio antennae on U. S. Navy ships.

Receiving radio equipment of the 1914 era. The caption reads: "Typical receiving room installation. 1914 equipment consisting of Type A (Cohen) receiver, Wireless Specialty Co. (IP75) receiver, crystal detector, ultraudion detector."



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Electrician Mates stationed at the U. S. Navy Wireless Station, Point Isabel, 1919 and brides. It would be several years before the rate of Radioman was to be established by the Navy

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