H061.3 Sealift, Seabees, and Navy Medicine Corps in Desert Shield/ Desert Storm

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Sealift

The long-established maritime superiority of the United States Navy enabled the largest and fastest strategic sealift in history with more than 240 ships delivering 18.3 billion pounds of equipment and supplies to the theater during Phase I and Phase 2 of Operation Desert Shield and during the Desert Storm combat phase. Military Sealift Command-controlled ships transported 3.4 million tons of cargo and equipment and 6.8 million tons of fuels halfway around the world to the Middle East (and much of it back.) Over 90% of cargo was transported into theater via sealift and 95% was returned the same way. This massive sealift primarily supported the ground and air force build-up and campaign. Naval forces arrived in theater with full sea-based, self-sustained logistics support capability that required minimal airlift and sealift for deployment and support. The Combat Logistics Force performed superbly in meeting the afloat Navy needs. For example aircraft readiness on the carriers averaged 90% thanks to organic naval logistics support. Only 4.4% of the tonnage of supplies transported by sealift was for the Navy, and almost all of that was for three Fleet Hospitals ashore

The Military Sealift Command (MSC,) commanded by Vice Admiral Francis R. Donovan, was the maritime component of U.S. Transportation Command, a supporting command to U.S. Central Command. MSC had three major forces. The Naval Fleet Auxiliary Force (which included the Combat Logistics Force,) consisted of those auxiliary ships such as tankers, stores ships, ammunition ships and tenders

providing direct support to U.S. Navy afloat forces. The Special Mission Support Force included vessels such as oceanographic research ships, missile tracking and cable laying/repair ships. The third MSC component was the Strategic Sealift Force, which included 25 Afloat Prepositioning Force ships, eight fast sealift ships, two hospital ships, and two USMC Aviation Support Ships.

Significant enhancements in U.S. Strategic Sealift capability, initiated by President Carter (1977 Presidential Review Directive 18, which created the Rapid Deployment Joint Task Force) came to fruition in the mid-1980's and played a key role during Desert Shield/Storm. Prior to the late 70's, the U.S. was dependent on a dwindling U.S.-flag merchant fleet and an aging national defense reserve fleet consisting of mothballed WWII-era cargo ships. The twin jolts of the Iranian hostage crisis and the Soviet invasion of Afghanistan, both in 1979, led to the announcement of the Carter Doctrine at the beginning of 1980 that the U.S. would use force, if necessary, to defend allies and interests in the event of a Soviet or proxy attack in the Persian Gulf region. It also led to the realization that U.S. logistics capability to support large-scale combat in the region was woefully inadequate. As a result, requirements were established and funded ($7 billion) for the procurement of Afloat Pre-positioned Ships (APS,) Fast Sealift Ships (FSS) and the Ready Reserve Forces (RRF) to rectify the decline in sealift capability.

In October 1981, President Reagan announced the "Reagan Corollary" to the Carter Doctrine, which stated the U.S. would intervene to protect Saudi-Arabia, which was threatened by the Iran-Iraq War (started by Iraq in 1980.) As a result, the Reagan Administration continued and accelerated the Carter Administration sealift program. By 1990, available U.S. sealift forces were specifically sized and located for a global war originating out a conflict in the Arabian Gulf. About three quarters of the deliveries made by ships during Desert Shield/Storm were the direct result

of the $7 billion dollar investment in strategic sealift programs starting in the late 1970's.

The key elements of MSC's Strategic Sealift Force were the Afloat Preposition/Maritime Preposition ships (APS/MPS,) the Fast Sealift Ships (FSS) and Ready Reserve Force (RRF.) The MPS/APS ships were positioned to deliver their cargo to the Arabian Gulf at least two weeks sooner than the fastest seaborne deliveries from the continental U.S. The eight Fast Sealift Ships could transit twice as fast as conventional sealift and together could transport the equipment of an entire U.S. Army heavy division (i.e., armored or mechanized infantry.) The Ready Reserve Force would deliver additional divisions augmented by the use of U.S.-flag merchant ships in the Sealift Readiness Program, the charter of commercial vessels, and if necessary, requisition of additional U.S.-flag vessels.

At the outset of Desert Shield, there were eleven Afloat Prepositioned Ships (APS,) most located at Diego Garcia (a British possession in the central Indian Ocean, extensively built up with U.S. facilities beginning with the Iranian hostage crisis in 1979.) The APS ships were loaded with ordnance, fuel and supplies for U.S. Air Force and U.S. Army units (the personnel would fly to the theater.) One of the APS (M/V NOBLE STAR) was loaded with the gear for a naval field hospital (Navy Field Hospital FIVE.) The APS were manned by civilian crews under contract to Military Sealift Command (MSC.) One APS was not available for use at the time.

There were also 13 Maritime Prepositioning Ships, at that time divided between three squadrons located in the Atlantic, Diego Garcia and Guam. The MPS ships were loaded with equipment and 30-days supply for three Marine Expeditionary Brigades. Like the APS, the MPS were manned continuously by civilian crews.

Based on requirements laid out during the Carter Administration, the U.S. purchased eight high-speed SL-7 container ships (originally built in the Netherlands

and West Germany in 1972 and 1973 for commercial service) and modified them to serve as fast sealift ships (FSS,) for the rapid deployment of Army equipment. These were subsequently designated the ALGOL-class T-AKR. Each FSS was (and still is) 946-feet long and each could carry up to 700 Army vehicles, including the M1A1 Abrams main battle tank and the Bradley Armored Fighting Vehicle. Each had a full crew of 40, a top speed of 33-knots, and were designed to transit at a sustained speed of 30 knots. Based in the U.S., the FSS were maintained in a 96-hour condition of readiness, manned with a skeleton civilian crew.

In addition, two supertankers were acquired by the U.S. Navy and converted to the large 1,000-bed hospital ships MERCY (T-AH-19) and COMFORT (T-AH-20,) with conversion completed in 1986 and 1987. These ships were also operated by civilian crews (although the 1,250-person medical complement would consist of active-duty and reserve Navy personnel) under MSC control and maintained in a similar readiness status as the FSS.

Also during the Carter Administration in the late 1970's, the U.S. Navy began purchasing militarily useful ships to augment the aging mothball fleet of mostly World War II-vintage cargo ships. Over the next ten years the "Ready Reserve Force" increased to 96 ships. These ships included 17 Roll-On/Roll-Off (RO/RO) ships, as well as barge carriers, breakbulk ships, and small tankers maintained in an inactive status without crews at various ports by the Maritime Administration (MARAD.) The ships had different assigned readiness status, and could be activated in 5, 10 or 20 days depending on readiness status. Upon receipt of activation orders, the ships would be towed to shipyards for mechanical preparations to sail, with crews drawn from available U.S. civilian merchant mariners. MARAD was also responsible for maintaining two USMC Aviation Support Ships (WRIGHT (T-AVB-3) and CURTISS (T-AVB-4),) also acquired and converted in the mid-1980's.

Following the Iraqi invasion of Kuwait on 2 August 1990, the first U.S. ground combat forces on the scene in Saudi Arabia were two brigades on the 82nd Airborne Division airlifted into theater beginning on 8 August. However, these Army forces were initially reliant on provisions from the U.S. Marine Corps. All the heavy U.S. Army forces were almost entirely dependent on sealift for their equipment and sustainment.

Following the deployment order on 7 August 1990, the MPS ships of MPS Squadron TWO (MPSRON 2) at Diego Garcia and MPSRON 3 at Guam were shortly underway for the Arabian Gulf. (MPSRON 1 at Morehead City, NC was activated for Phase II of Desert Shield.) Ten Afloat Preposition Ships (APS) were also shortly bound for the Arabian Gulf.

On 14 Aug 7 the first two of three MPS from Diego Garcia arrived at Jubayl, Saudi Arabia with U.S. Marine Corps air ordnance embarked. This was the first non-exercise employment of MPS. The ships would have been there sooner, but were held off awaiting King Fahd's formal assent for additional U.S. forces to land in Saudi Arabia. Within four days of their arrival at Jubayl, Navy cargo handlers offloaded more cargo from the three ships than could be carried by 3,000 C-141 flights. This was followed by two more MPS ships. The first two APS ships, with U.S. Air Force ordnance, arrived in Saudi Arabia between 17 and 19 August.

The Maritime Pre-positioning Concept was validated during Desert Shield/ Storm. No other alternative could have achieved the early force closure observed beginning 14 August 1990, only seven days after the deployment order. By 25 August, the 16,600 Marines of the 7th Marine Expeditionary Brigade were married up with their equipment, constituting the first heavy ground combat capability in theater. The two squadrons of Maritime Pre-position ships (MPS) delivered unit equipment and 30-days of supplies for two Marine Expeditionary Brigades (MEBs)

totaling 45,000 men, during Phase 1 of Desert Shield. This would have required 2,100 lifts by C-5 aircraft.

On 17 August 1990, Fast Sealift Ships ALTAIR (T-AKR-291) and CAPELLA (T-AKR-293) departed Savannah, Georgia with equipment of the 24th Infantry Division (Mechanized) embarked. Although it took six days to activate the ships (instead of the planned four days) and actual average speed was limited to 23 knots, vice 30, due to adverse weather and waiting at the Suez Canal, both ships arrived in Saudi Arabia on 27 August, with ALGOL (T-AKR-287,) arriving on 4 September and DENBOLA (T-AKR-289) on 6 September, with additional 24th Mech equipment.

Unfortunately, FSS ANTARES (T-AKR-294,) carrying many of 24th Mech's tanks, broke down in the middle of the Atlantic and had to be towed to Rota, Spain by ocean tug USNS APACHE (T-ATF-172.) Her cargo was then cross-decked by Seabees and soldiers to ALTAIR, which was returning from Saudi Arabia, which then delivered the tanks and other cargo three weeks later than planned. ANTARES had previously suffered an engine room fire returning from an exercise in South Korea. Interim repairs had been made, but a complete overhaul had been deferred due to funding. Sending ANTARES to sea was a deliberate calculated risk (win some, lose some.) Of the seven operational FSS, five of them completed three deliveries each during Phase I of Desert Shield (through the end of November 1990) and on later transits averaged 27 knots. The FSS delivered 20% of all cargo during Phase I.

MSC activated 44 ships of the Ready Reserve Force for Phase 1 of Desert Shield. This proved more challenging than the APS/MSS and FSS. A particular difficulty was finding enough engineers qualified to operate the older power plants. Of the 44 ships, only 12 were activated on time and another 12 were 1-5 days late, and the others even later. Nevertheless, once activated, the ships maintained an impressive 93% readiness level. It also quickly became apparent that the 17 RO/

ROs were not enough, so more had to be chartered. It turned out that chartering a commercial cargo ship was actually faster and cheaper than activating and deploying an RRF ship. Fortunately, owners were amenable to charter (thanks to USN control of the sea.) Charter ships actually carried about 30% of total cargo during Phase I.

A particularly significant MSC charter was that of the Dutch "Float on/Float off" heavy lift ship SUPER SERVANT III, which embarked minesweepers IMPERVIOUS (MSO-449,) ADROIT (MSO-509,) LEADER (MSO-490) and newly-commissioned AVENGER (MCM-1) at Norfolk and transported them to Bahrain, arriving on 1 October 1990. (GUARDIAN (MCM-5) crossed over on her own power in a 41-day transit.)

Despite the challenges, by November 1990, Sealift delivered the gear and sustainment for a 100,000-man force including the 24th Mechanized Division (primarily aboard FSS) followed by the 101st Air Assault Division, 3rd Armored Cavalry Regiment, 1st Armored Cavalry Division and associated corps command element. This equipment included 700 tanks, 1000 armored fighting vehicles, 145 AH-64 Apache attack helicopters and 294 155mm self-propelled howitzers. All of this was accomplished despite the fact that no "time-phased force and deployment data" existed, because the Operational plan to counter an invasion of Kuwait had not been completed. Basically, the entire operation had to be done on the fly.

During Phase I of Desert Shield (which ended 5 December 1990,) sealift delivered 1,034,900 tons of equipment, 135,100 tons of supplies and 1,800,00 tons of petroleum products. Of 173 ships involved, 124 were U.S.-flag vessels, which delivered 85% of the tonnage. During the first three weeks of Desert Shield, MSC delivered more tonnage to the Gulf than during the first three months of the Korean War.

The U.S. Army forces in Saudi Arabia would more than double during Phase II of Desert Shield with the decision to transport the entire U.S. Army VII Corps from Europe to Saudi Arabia. The VII Corps was a heavily armored force originally intended to duke it out with the Soviet Red Army in the Fulda Gap between East and West Germany in the event the Cold War turned into World War III. VII Corps included the Ist Mechanized Division, 1st and 3rd Armored Divisions, and the 2nd Armored Cavalry Regiment. It was calculated that moving the 50,500 pieces of equipment of the Seventh Corps would take 111 shiploads (it actually took more like 140.)

During Phase 2 of Desert Shield, MSC controlled seven Fast Sealift Ships, four Maritime Preposition Ships, six Afloat Preposition Ships, 39 Ready Reserve Force ships and 45 merchant charters. Once again, the FSS showed their worth; several made seven round trips during Phase II. All told, through all of Desert Shield, the seven FSS delivered 14% of the total tonnage of equipment and cargo. During Phase II, sealift delivered 1,270,300 short tons of equipment (235,400 more than Phase I,) 404,700 tons of supplies (triple that of Phase I) and 3,500,000 tons of fuel (1.7M more than Phase I.) During Desert Shield, the seven SL-7 Fast Sealift Ships delivered cargo equivalent to 116 WWII Liberty Ships.

By the onset of Desert Storm combat operations in January 1991, U.S. forces had built up vast stores of equipment and supplies, enough to overwhelm the Iraqi forces occupying Kuwait, thanks to U.S. Sealift capability. Strategic sealift was a major success, thanks to the major U.S. investment initiated in the late 1970's (and which still significantly underpins the current U.S. strategic sealift capability) as well as to the well-developed port infrastructure in Saudi Arabia and in Europe (for the on-load of VII Corps.) Most important of all was sea control (largely taken for granted by other services.) The massive flow of material was uncontested, and not because the Iraqis lacked the means to contest it had they been able to do so.

Because the U.S. Navy had command of the sea, the charter market (for civilian ships) was responsive to requests because ship owners knew their ships would be safe, even going into a war zone. This success was all the more remarkable given that early and accurate identification of lift requirements was difficult and changed often. Those who lived through it would likely characterize the initial phases as borderline chaos, but the ingenuity, determination, and perseverance of the Military Sealift Command overcame all obstacles and literally delivered victory to the coalition force and freedom for the Kuwaiti people.

And then MSC brought much of the equipment and supplies back, a monumental task almost as challenging as getting it there in the first place.

Seabees in Desert Shield/Desert Storm

When the first three ships of Maritime Preposition Squadron TWO (MPSRON 2) arrived at Jubayl, Saudi Arabia on 15 August 1990, a detachment of 210 Seabees from Amphibious Construction Battalion ONE was already waiting for them, having arrived on 13 August. Trained in cargo handling, the Seabees used the MPS ship's own cranes to offload cargo containers filled with ammunition, food and other gear, while light armored vehicles (LAV,) amphibious assault vehicles (AAV,) and artillery rolled directly off the ships onto the quay. Seabees then offloaded the next two of the five ships of MPSRON 2. Meanwhile, personnel of the 7th Marine Expeditionary Brigade (7th MEB) began arriving by air on 14 August. By 25 August 1990, the 15,242 Marines of 7th MEB were fully "married up" with their equipment (123 armored vehicles and 124 aircraft, including F/A-18 Hornet fighter-bombers,) in a blocking position north of Jubayl to counter the Iraqis if they crossed the Kuwaiti border into Saudi Arabia.

With the initial deployment order on 7 August 1990, Navy Mobile Construction Battalions FOUR, FIVE, SEVEN and FORTY (NMCBs 4, 5, 7, and 40) were alerted to deploy to the Arabian Gulf area. Between 10-20 August, 100

Seabees of Amphibious Construction Battalion TWO (ACB2) departed Norfolk on amphibious ships loaded with Marines. Over the next months, the Seabees of ACB2 would participate in numerous amphibious exercises in the Gulf region as part of the deception plan to convince the Iraqis that an amphibious assault into Kuwait was in the offing.

The next Seabee units to arrive after the cargo handlers were Construction Battalion Unit 411, with 80 Seabees commanded by Lieutenant Susan Globokar, and Construction Battalion Unit 415, commanded by Lieutenant Lynn Bever. These were the first Seabee units commanded by women to deploy to a war zone. Their first task was to set up Naval Field Hospital FIVE, which had been delivered by an Afloat Pre-position Ship. Originally intended for Dhahran, the location was shifted further north to Jubayl at the direction of the Commander of Marine Forces Central Command (MARCENT,) Lieutenant General Walt Boomer, who wanted the hospital closer to where his Marines might be fighting. Although this shift caused some disruption, by the end of August the Seabees had transformed the over 400 shipping containers into an actual hospital, assisted by medical personnel arriving by air, who pitched in with heavy manual labor as well. The operating rooms, intensive care and radiological facilities of Fleet Hospital FIVE were operational by the beginning of September.

By 14 September 1990, the initial elements of each of the four deploying NMCBs had arrived in the theater, each with 89 Seebees who could operate for 30 days without supply. NMCB 40 deployed from Guam, and the main body was in Saudi Arabia by 27 September. By 18 October, the main bodies of all four battalions were in place. NMCB 5 deployed from Port Hueneme and NMCB 4 deployed from Puerto Rico, both to Saudi Arabia. NMCB 7 deployed from Okinawa to Bahrain. Of note, NMCB 5 named their cantonment near Jubayl airport in honor of Steelworker Second Class Robert Dean Stethem, a Seabee diver, who was

tortured and killed during the hijacking of TWA Flight 847 on 15 June 1985 by Iranian-backed Lebanese Hezbollah terrorists.

The Seabees quickly went to work doing what they have done since first going ashore with U.S. Marines in 1942. In addition to unloading MPS ships, the Seabees built storage facilities in the ports, paved roads, widened taxiways, drilled water wells, installed electrical systems, erected tent facilities, and generally improved the habitability of Marines. The Seabees also built fighting bunkers, tank barriers and ammunition storage sites. Improving airfields and creating base camps for Marines was the first priority. Improving "quality of life" for Marines came later.

The Seabees built base camps for the 3rd Marine Air Wing, Marine Air Groups 11, 13, 16, and 26, and the 1st and 2nd Marine Divisions. NMCB 7 in Bahrain supported Army and Air Force units in addition to Marines. NMCB 7 built an aviation storage facility, a munitions transfer road, and a 60,000 square foot parking apron.

The largest Seabee project during Desert Shield was a 15,000 person camp for the Second Marine Expeditionary Forces (2nd MEB,) which was the largest multi-battalion Seabee project since the Vietnam War. Construction began in late November and eventually involved all the Seabee units. Dubbed "Wally World," the complex consisted of six 2,500-man modules, including office space, berthing, hygiene facilities, roads and parking. Another major project was the headquarters complex for the First Marine Expeditionary Force (1 MEF.) Throughout Desert Shield, Seabees worked seven days per week in two 12-hour shifts, only taking off on Thanksgiving and Christmas. Conditions were extremely difficult, ranging from the intense heat of the late summer to cold winter nights, and the sand that was very hard on equipment.

Described as “new generation Seabees,” numerous innovative construction techniques and equipment were incorporated in order to erect buildings as much as 80% faster than conventional means. Automatic building machines produced K-span arches that stretched fabric membranes over steel frames that formed “sprung instant” and “clamshell” structures that were then emplaced on concrete slabs. The area around Jubayl was quickly covered with Seabee-built huts and tent cities.

As Desert Shield went on, additional Seabee units deployed to the region. The 3rd Naval Construction Regiment, a reserve regiment, was mobilized to provide command and control over the deployed battalions, under the command of Captain Michael Johnson (CEC.) In December, reserve NMCB 24 was mobilized and deployed to relieve NMCB 4. Reserve NMCB 74 relieved NMCB 7 at Bahrain (NMCB 7 moved to Jubayl.) NMCB 74 moved into the Seabee Camp Tom Orr and finished construction at the Navy’s Administrative Support Unit (ASU) Bahrain, as well as continuing improvements to Shaikh Isa airfield for Marine Air Group 11 and Bahrain Defense Force units. NMCB 5 and NMCB 40 were joined by Details 15 and 16 from NMCB 1, which was deployed to Rota, Spain. NMCB 5 and NMCB 40 continued extending airfields, installing tank barriers and establishing ammunition and water supply points. By the onset of Desert Storm, 2,800 Seabees with 1,375 pieces of construction equipment were deployed to the region.

The air campaign for Desert Storm commenced on 16 January 1991 (17 January in the Gulf.) U.S. Army, Marine and coalition forces began moving north from their defensive positions toward the Kuwait boarder in preparation for the ground offensive to eject the Iraqis from Kuwait. U.S. Navy Seabees played an absolutely critical role in the preparations that enabled the First Marine Expeditionary Force (I MEF) to assault into southern Kuwait and for the U.S. Army’s “Hail Mary” end-around western Kuwait. Spearheaded by the First Marine Division,

the U.S. Marines were to attack into southern Kuwait, where Iraqi defenses were the strongest, in order to fix Iraqi units in place, until the U.S. Army could roll them up from the western flank. The logistics preparations for the Marine's supporting attack and the Army's main attack were immense. In addition, in order to maintain operational security, these logistics preparations had to be done only at the last possible moment. Without the U.S. Navy Seabees, this would not have been possible.

In order to support the planned I MEF attack into Kuwait, the Commanding General of the Direct Support Command, (future Commandant of Marine Corps) Brigadier General Charles C. Krulak, directed that a logistics support base be established in the desert about 35 miles south of the Kuwait Border and 36 miles west of Ras-al Mishab on the coast. Before the base could be established, Seabees of NMCBs 5, 40, and 74 and Marine engineers had to widen the two-lane dirt track between Ras-al Mishab to the logistics base (named al-Kibrit by the Marines) to eight lanes, and improved the adjacent dirt airstrip to be C-130 capable. Between late December and 6 February, 1.8 million gallons of fuel and 15,800 tons ammunition were concentrated at al-Kibrit. The Navy 1st Medical Battalion also set up a 470-bed hospital at al-Kibrit. The Seabees also built an Enemy Prisoner of War (EPW) camp, capable of holding 40,000 prisoners.

In early February, the commander of MARCENT/I MEF, Lieutenant General Boomer, moved his planned main point of attack even further west, necessitating another major logistics base be established 23 miles west of al-Kibrit, which the Marines would name al-Khanjar. With his confidence that the Seabees and Marine engineers could get the necessary infrastructure in place in time, LTG Boomer was able to back off his position that a supporting amphibious assault on the coast of Kuwait was required. (This shift became apparent during a meeting aboard the Naval Forces Central Command (NAVCENT) flagship USS BLUE RIDGE (LCC-19,) on

2 February 1991, between LTG Boomer, Vice Admiral Stan Arthur, and General Schwarzkopf.)

With the onset of the ground campaign fast approaching, between 6 and 20 February, NMCB's 5, 24, 74 and 40 and Marine engineers built the largest ammunition supply point in the history of the Marine Corps. The work included 24 miles of blast wall berms, and two 5,700-foot dirt airstrips for C-130 operations. The complex covered 11,280 acres and was stockpiled with 5 million gallons of fuel and one million gallons of water. The complex also had a naval hospital with 14 operating rooms, established by the Marine 2nd Medical Battalion (also staffed with Navy personnel.)

During this period, which turned out to be the wettest in Saudi Arabia in years, Seabees built and maintained over two hundred miles of roads just south of the Kuwait border in order to support both the Marines and U.S. Army forces further to the west. As many as 500 heavy haulers and thousands of tactical vehicles traversed this 6-lane road every day. The Seabees also built a 1500-foot runway for remotely-piloted vehicles (RPV) for tactical aerial reconnaissance.

As part of the deception plan to hide the westward movement from the Iraqis, Seabees participated with the Marine Task Force Troy in creating a "phantom" force. The Seabees constructed 35 wood and canvas tanks and artillery pieces and emplaced them in the night along the Kuwait border. The mock equipment was realistic enough to draw concentrated Iraqi mortar fire.

As Marine reconnaissance teams began infiltrating into Kuwait on 17 February, the Seabees commenced bulldozing channels through the berm on the Saudi side of the border to enable Marine forces to pass. On 21 February, Marine forces moved into position to attack into Kuwait, drawing sporadic artillery fire as Seabees kept working, until the main attack commenced on 24 February. On the day before the attack, the Seabees dug in the position for the 1st Marine Division

command element. Once the attack was underway, Seabees continued work on improving the main supply route while Marine engineers improved lanes through the breeches in Iraqi defenses. The day after the attack commenced, advanced parties from NMCB 5 and NMCB 24 entered Kuwait and prepared positions for the I MEF command element and to repair airfields, maintain roads, and build more EPW camps, all while surrounded by hundreds of burning Kuwaiti oil wells, which the Iraqis had sabotaged as a last act of spite before most of them tried to flee. Following the cease-fire on 28 February, Seabees in Kuwait began returning to their units south of the border. During Desert Storm, U.S. Marines captured, destroyed or damaged 1,060 tanks, 608 armored personnel carriers, 432 artillery pieces – thanks to the roads, airfields, ammunition and water supply points built by U.S. Navy Seabees.

The last word goes to Lieutenant General Boomer – to staff remarked, "Seabees were doers. They don't talk a lot of bullshit - they just go out and do the job."

(I would note that on 1 November 1943, Chief Carpenter Samuel J. Cox, led 62 Seabees of the 53rd Construction Battalion ashore in the second wave at Yellow Beach on Japanese-held Bougainville. I believe even my grandfather would have been amazed and proud of what the Seabees accomplished during Desert Shield/ Storm.)

Navy Medicine in Desert Shield/Desert Storm

"The President of the United States takes pleasure in presenting the Silver Star to Hospital Corpsman Third Class Anthony Martin, United States Navy, for conspicuous gallantry and intrepidity in action against the enemy while serving as a Corpsman attached to Company L, 3rd Battalion, 9th Marines, FIRST Marine Division, in action on 24 February 1991 in support of Operation DESERT STORM during an Iraqi mortar barrage. On that date Petty Officer Martin and Marines of

Company L were assaulting across Al Wafra oil field when the Americans came across a large group of Iraqi soldiers waving white flags. The Marines began frisking them when they suddenly came under attack from an enemy mortar barrage. As 82-millimeter mortar rounds exploded around him, Petty Officer Martin repeatedly ran to the rescue of wounded Marines. His gallant actions and dedicated devotion to duty, without regard for his own life, were in keeping with the highest traditions of military service and reflect great credit upon himself and the United States Naval Service."

Petty Officer Martin was one of 5,800 U.S. Navy Hospital Corpsmen to deploy with their assigned Marine units during Desert Shied/Storm. He was one of only six U.S. Navy personnel to be awarded a Silver Star during the conflict. Since the establishment of the U.S. Navy Hospital Corps in 1898 (which brought some semblance of order out of the Navy's ad hoc medical system,) Navy Hospital Corpsman have provided medical care to U.S. Marines. Since World War I, Navy Hospital Corpsmen have served as integral members of Marine Corps units, providing battlefield first aid to the wounded, frequently under direct enemy fire. The nature of their work requires extreme courage, and over the years Hospital Corpsmen have been awarded 23 Medals of Honor, 179 Navy Crosses, 950 Silver Stars, and over 1,600 Bronze Stars with Combat "V." (and 31 U.S. Army Distinguished Service Crosses.) Fortunately during Desert Storm, the U.S. victory was so overwhelming that the vast majority of wounded were captured Iraqis (who received far better medical care from the U.S. than they ever did from their own country.)

Upon the Iraqi invasion of Kuwait on 2 August 1990, U.S. medical capability in the U.S. Central Command theater was almost entirely sea-based, with some capability aboard the Middle East Force flagship, USS LASALLE (AGF-3) and Hospital Corpsman aboard ships of the Middle East Force. This was quickly

augmented by the significant medical capability aboard the aircraft carriers DWIGHT D. EISENHOWER (CVN-69) and USS INDEPENDENCE (CV-62,) which were in theater by 7-8 August. In fact Navy ships and Fleet Hospitals provided well over two-thirds of in-theater medical capability for the first four months of Desert Shield.

More Hospital Corpsmen arrived with the 7th Marine Expeditionary Brigade at Jubayl on 14 August. Typically, eleven Corpsmen were assigned to each company of Marines. Additional Navy medical personnel from Naval Hospital Portsmouth, Virginia flew in to meet the arrival of Afloat Preposition Ship M/V NOBLE STAR which arrived at Jubayl on 15 August and offloaded 400 containers with all the equipment to set up Fleet Hospital FIVE (FH 5.) With the significant help of Naval Construction Battalion Units 411 and 415, FH 5 was set up in 16 days (and cared for its first patient only five days after construction began.) FH 5 was a 500-bed forward deployed medical facility, with operating rooms, intensive care units and radiological facilities. This was the first deployment of FH 5, and for a time it was the only such facility in the region. Two more such Fleet Hospitals (FH 6 and FH 15) were set up in late January 1991 after the onset of the air campaign and in preparation for expected increased casualties during the impending ground offensive. The three Fleet Hospitals combined cared for over 32,000 patients, including members of all coalition forces, expatriates, enemy prisoners of war and Kuwaiti refugees. The Navy (and Air Force) Field Hospitals were equipped with the newer "Deployable Medical Systems (DEPMEDS)" whereas the initial Army light divisions (82nd Airborne) deployed with Vietnam-era hospital equipment, but by December 1990 had also converted to DEPMEDS.

Additional medical capability arrived on 1 September when the SEVENTH Fleet command ship, USS BLUE RIDGE (LCC-19) arrived at Bahrain with her medical facility. This was followed on 4 September through 8 September by the arrival of 18 Amphibious ships from both the Atlantic and Pacific Fleet, many with significant

capability to care for wounded personnel. The most significant arrival, however, was the Hospital Ship USNS COMFORT (T-AH- 20,) which reached the Gulf of Oman on 7 September.

The Hospital Ships USNS MERCY (T-AH-19) and COMFORT were converted from San Clemente-class commercial supertankers (originally built in 1974-1976.) Conversions began in 1984 and were completed in 1986 and 1987 respectively at a cost of $208M per ship. They were and are the largest hospital ships in the world. Each ship has 1,000 beds, with 50 trauma stations in the casualty receiving area, twelve operating rooms, a 20-bed recovery room, 80 intensive care beds, and 16 light and intermediate care wards. The ships were assigned to Military Sealift Command (MSC) and were manned by civilian crews (about 12 when in reduced operating status and about 60 when fully activated.) At the time, the ships were in a 96-hour alert status (now they are in 76 hour status.) When activated, a "Medical Treatment Facility" of about 1,200 medical personnel is embarked, under the command of a Navy Medical Corps or Navy Nurse Corps captain.

Desert Shield deployment orders were issued on 7 August 1990. On 10 August MERCY and COMFORT were activated and commenced deployment preparations. COMFORT departed Baltimore on 11 August and then deployed for the Middle East on 14 August. On 15 August, MERCY deployed from San Diego. COMFORT transited the Suez Canal on 30 August and transited the Strait of Hormuz on 8 September. By 23 September, MERCY had arrived in the Arabian Gulf and the two ships steamed together for the first time. Together with FH 5, the MERCY and COMFORT provided the most comprehensive medical care facilities in the theater and the best capability to deal with a major influx of combat casualties. The hospital ships mirrored fully staffed hospitals in CONUS. At the onset of the ground campaign on 24 February, both ships were moved into position off Khafji,

Saudi Arabia, just south of the Kuwait border, in order to be as close to the battlefield as possible without going into mined waters.

Ultimately, more than 6,100 active-duty Navy men and women deployed to the theater to provide medical care to coalition forces. A major challenge was to continue the high level of care in stateside hospitals as active-duty medical personnel were deployed forward. As a result, over 10,400 Navy medical reservists were mobilized to fill staffing gaps in CONUS hospitals, and were among the very first Navy reservists to be activated. Managing the disruption caused by the sudden departure of much of the hospital staffs was a major accomplishment of the Navy Medical Corps, and the fact that care for dependents continued unabated was a major morale booster for Navy personnel deployed to the theater ashore and afloat.

An "unsung hero" of Desert Storm was the Navy Forward Laboratory (NFL,) which did fall under COMUSNAVCENT, and which played a key role in minimizing the effect of infectious diseases and medical ailments endemic to the region, not just for Navy, but for all U.S. military personnel. The Navy was uniquely prepared, medically, to operate in the Middle East thanks especially to the U.S. Naval Medical Research Unit No. 3 (NAMRU-3) in Cairo, which has operated since 1947, even during periods when the U.S. and Egypt had broken off diplomatic relations. NAMRU-3 led the world in research on infectious diseases in the Middle East. When Desert Shield began, the Navy had a world-class diagnostic laboratory, and extensive research and disease surveillance program, and medical personnel with extensive experience in the region.

In September 1990, the NFL was established in Jubayl, Saudi Arabia, with a staff of eight: four Medical Service Corps Officers (microbiologists,) two Medical Corps Officers (infectious disease specialists,) and two Hospital Corpsmen (advanced laboratory technicians.) The pre-tested Mobile Laboratory gear came

from the Navy Environmental and Preventive Medicine Unit in Naples (NEPMU 7.) Attached to the Naval Logistics Support Command in Bahrain, the NFL reported directly to the NAVCENT Surgeon, and became the theater-wide infectious disease reference laboratory for coalition forces. The NFL also played a key role in preparations for potential Iraqi use of biological warfare (BW) agents. The capability of the NFL was augmented by several deployed Vector Control and Preventive Medicine teams; between 140 and 160 preventive medicine specialist were ashore and more were afloat on Navy ships.

Compared to previous desert combat operations, casualties due to heat stress/heat stroke and disease were drastically reduced thanks to the NFL and preventive medicine teams. As the only in-theater capability to detect epidemic diarrheal agents, the NFL was credited with preventing a major diarrhea outbreak, saving 10-20% of the Navy and Marine Corps force by immediate implementation of effective preventive measures and use of special antibiotics. (Try being on an aircraft carrier when half the crew had "Pharaoh's Revenge." It wasn't pretty.) The NFL also was the first to identify problems with fielded medical BW diagnostic systems (30-40% false positive) as well as problems with Environmental Sample BW Detection Kits, developing work-arounds just in time for the start of the ground campaign.

The performance of Navy Medicine in Desert Shield and Storm was simply extraordinary. In only a few months, a complete medical system was in place, with thousands of beds to support tens of thousands of Navy and Marine (and other) personnel, with a full range of services, including preventive and environmental medicine, food inspection, medical and dental care, medical maintenance, supply and logistics support, and the capability for the movement and evacuation of patients.

An article in the New England Journal of Medicine summed it up better than I can;

"It is difficult to describe adequately the professionalism, hard work and sacrifice that have gone into the preparations of the past six months...Even though there were relatively few casualties as a result of Operation Desert Storm, the level of preparedness was high. Medical units were in place, well-equipped, staffed with trained and capable personnel, and ready to perform their mission under the most difficult circumstances."

Sources include: "Medical Support for American Troops in the Persian Gulf," by Brig. Gen. Ronald R. Blanck, D.O., M.C. and Col. William H. Bell, M.S.C., in the "New England Journal of Medicine," 21 March 1991. "Navy Medical Support: Winning the Battle Against an Unseen Enemy" by Liz Lavallee, Navy Bureau of Medicine and Surgery, at history.amedd.army.mil, Sep/Oct 1992. "Military Medicine in Operations Desert Shield and Desert Storm: The Navy Forward Laboratory, Biological Warfare Detection, and Preventive Medicine" at gulflink.health.mil. "Desert Shield at Sea: What the Navy Really Did" and "Desert Storm at Sea: What the Navy Really Did" both by Marvin Pokrant (the NAVCENT/C7F CNA Rep during both operations): Greenwood Press, 1999. Also useful is the Department of the Navy, Office of the Chief of Naval Operations, "The United States Navy in Desert Shield, Desert Storm" of 15 May 1991 which has the best chronology and other facts and figures, although some number of them are "first reports (always wrong.) I would note that these are more "PC" than my account. Also, "Shield and Storm: The United States Navy in the Persian Gulf War" by Edward J. Marolda and Robert J. Schneller: Naval Historical Center, 1998) is excellent.