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MILITARY USE OF OFFSHORE PLATFORMS

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A feasibility study as to the possible use of offshore oil platforms as operating bases for Anti-Submarine Warfare (ASW) helicopters and/or as sensor stations in a sea lines of communication/sea surveillance mission. The capability of existing platforms is investigated as to their physical properties to support such operations, their locations, and possible political and legal problems that may impact the military use. The platforms are found to be capable of supporting an ASW/sea surveillance mission but legal constraints and the location of existing platforms could limit such use to U.S. coastal waters.

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MILITARY USE OF OFFSHORE PLATFORMS

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Abstract of

A MILITARY USE OF OFFSHORE PLATFORMS

A feasibility study as to the possible use of offshore oil platforms as operating bases for Anti-Submarine Warfare (ASW) helicopters and/or as sensor stations in a sea lines of communication/sea surveillance mission. The capability of existing platforms is investigated as to their physical properties to support such operations, their locations, and possible political and legal problems that may impact the military use. The platforms are found to be capable of supporting an ASW/sea surveillance mission but legal constraints and the location of existing platforms could limit such use to U.S. coastal waters. Examination of the feasibility of the mission for and compatibility with the operation of Naval Air Reserve ASW Helicopter Squadrons indicates that these squadrons could conduct detachment size operations from the offshore platforms, during peacetime for training and wartime mobilization to provide ASW/sea surveillance missions for protection of U.S. coastal waters.

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MILITARY USE OF OFFSHORE PLATFORMS

CHAPTER I

INTRODUCTION

Study Objective: To determine the military feasibility of using offshore platforms in ocean surveillance and/or protection of Sea Lines of Communications (SLOCs) during wartime.

Background: The mission of defense of load-out ports, SLOCs, and discharge terminals for ocean shipping in wartime competes with other important defense force requirements for limited U.S. Navy assets. Therefore, any new and innovative way to use available weapons systems to meet the challenge should be closely examined.

The use of offshore oil platforms as operating bases for ASW helicopters, supported by special underseas sound surveillance systems, radar and electronic warfare devices is one method by which present U.S. Navy SLOC protection forces could be augmented.

Recent Soviet writings indicate that the Soviet Union is prepared to carry out anti-SLOC operations to disrupt the flow of men, material and equipment to the western world in wartime. Soviet fleet exercise OKEAN 75 seems to bear this out as tactics were rehearsed for cutting open ocean SLOCs.[1]

There are some who suggest, however, that a conflict between the Soviet Union and NATO countries will be a short blitzkrieg like event and consequently there is little need to be concerned about long-term SLOC protection. This assumption could be disastrous and increases the chance for defeat since prepositioned overseas war stocks (POMCUS) in Europe would probably be consumed quickly. While there are plans and forces to protect the open ocean Sea Lines of Communication from the U.S. East Coast to Europe in a NATO scenario, the oil sea route in areas other than the North Atlantic and the Pacific are currently devoid of concentrated Allied Naval power of surface ocean surveillance systems. The oil SLOC from the Persian Gulf to the United States and Western Europe is, perhaps, one of the most critical which lacks protection.

Another aspect of the problem is that the U.S. has no deep water ports that will accommodate very large crude oil carriers (VLCCS). Currently, there are two offshore discharge facilities being developed in the Gulf of Mexico to allow offloading of VLCCs. At an offshore discharge facility, the VLCC pumps crude oil ashore via a mono-buoy and pipeline system. Offloading takes about 24 to 36 hours,[4] during which time, the offloading VLCC and others queued for discharge are vulnerable to attack.

It is estimated that over one-half of the future United States oil production will be coming from as yet undiscovered reserves. Offshore areas will be the site of over 60 percent of all future discoveries over the next fifteen years. By 1985 offshore reserves will probably account for 35 percent of all oil produced in the non-communist world, up from 20 percent today. Since each well is serviced by an offshore platform, it seems prudent to develop contingency plans and ocean surveillance/protection packages which can be positioned aboard offshore platforms in strategic areas of the world to provide SLOC defense.

CHAPTER II

PRESENT AND PROJECTED LOCATIONS OF OFFSHORE PLATFORMS

Where are platforms located that lend themselves to military use? This chapter investigates the applicabilty of existing platforms and potential future drilling sites to the feasibility of military use.

Before examining locations, however, it is necessary to review the platforms in use. There are two types of offshore platforms: (1) permanent production platforms; and (2) mobile marine drilling rigs. The permanent platform is located in proven producing oil fields and accommodates the necessary pumping equipment, personnel, and other hardware for the production operation. Mobile marine drilling rigs are varied in size, depth capacity, mode of operation, and capabilities. They range from a floating derrick-type drilling barge to sleek conventional-hulled drill ships. The most common and versatile types are the semi-submersibles and jack-ups which are large, sturdy, and capable units able to house at least one helicopter and 20-30 personnel in addition to their normal crew compliment.

The rapid growth of offshore oil activity has resulted in large numbers of offshore platforms being used around the world. The mobile fleet of offshore rigs has almost doubled in the last five years and currently numbers 400-plus units with another 28 were being built in 1978. The Gulf of Mexico is the largest offshore drilling area in the world, with 25 percent the world's inventory of mobile offshore rigs in operation. Thirty-five percent of all mobile rigs are employed off North America, 18 percent in the North Sea area, 14 percent in South America and 12 percent in the Middle East.[1] Offshore rigs are versatile and can operate just about anywhere around the world, including water depths to 2,000 feet, over 100 miles off the coast. Drilling in 5,000 to 6,000 feet of water is within range of current technology. The locations of mobile platforms in areas of the world other then the United States is tracked and published by Foreign Scouting Service of Petro-Consultants, Inc., represented by Oil Research Sales Corp., 1307 Capital National Bank Building, Houston, Texas 77002. The listing is updated monthly and is relatively expensive.

For the purposes of the present study, offshore platforms which are less than 30 miles offshore are not considered candidates for military use since the ease of land basing versus the problems of remote offshore basing negate any ASW reaction time advantage of forward basing. Other factors which will usually invalidate a platform's usefulness are: distance to deep water (greater than 100 fathoms), proximity of islands, and accessibility to the platform area.

The major areas of the world where offshore facilities would prove most useful militarily are those areas presently not covered by allied Naval Task Group (NTG) or Maritime Patrol Aircraft (MPA) deployments. This essentially involves the entire world except for the Northern Atlantic Ocean, the Mediterranean Sea, and some areas of the Pacific Ocean.

From a military standpoint a logical starting point for the search for offshore platforms is near the source of the major petroleum SLOC's: the Middle East. The Persian Gulf continues to have significant offshore activity, both in permanent platforms and mobile rigs. However, the nature of that body of water, since it averages about 150 miles in width and has only one entrance, precludes the feasible use of platforms militarily. The Gulf of Oman, Arabian Sea, Gulf of Suez, and, in fact, the entire Indian Ocean presently do not show any significant offshore activity. The oil tankers route to Europe and North America around the Horn of Africa reveals no offshore platforms within range (100-150 miles). There is significant activity off the West African countries of Angola, Cabinda, Zaire, Gabon, and Nigeria. However, these rigs are within 60 miles of the coast and the areas are relatively remote from major routes in the South Atlantic.

The offshore oil activity of Northern Europe and the United States will be addressed later as these areas are extensively covered by NTG and MPA deployments. The coasts of the South American continent show minimal offshore activity except in the Caribbean. Venezuela has some offshore activity but it is confined to Lake Maracaibo and also near Trinidad. There is some low level Caribbean offshore exploration south of Barbados. An additional factor in this area is the high number of islands which in effect creates a barrier of islands across the Southern Caribbean.

Eastward from the Persian Gulf, the Indian Ocean and Straits of Malacca reveal no activity or known potential. There is some exploration in the Java Sea between Java and Sumatra, an area which is remote from any sea lanes. The South China Sea between Malaya and Borneo is a bright spot where military potential for petroleum platforms may exist. There are presently two permanent platforms about 150 miles east of Malaya and 100 miles west of Natuma Island with exploration continuing in the area. The proximity to the SLOC running through the Straits of Malacca make this area a candidate for military use, barring restrictions of international law. The waters of the rest of the Western Pacific including the Sea of Japan reveal no working offshore oil fields and little possible future exploration in the vicinity of shipping lanes.

Two active offshore areas are located on the west coast of the United States. They are the Santa Barbara Channel off California and Cook Inlet off Alaska. Both of these areas are in U.S. territorial waters, but also are close to adjacent land masses making the rigs unnecessary for military use.

It is evident from the discussion thus far that offshore platforms in normally unpatrolled areas of the world are not in locations which lend them to military use in either a surveillance or SLOC protection role. The one exception is the Malaysian site in the South China Sea, which is relatively close to a major choke point (Straits of Malacca).

The Mediterranean Sea has some offshore activity but the locations are in confined areas remote from major sea lines. The North Sea contains an extensive system of both permanent platforms and mobile rigs. The area is patrolled by MPA and naval vessels from the United Kingdom, the Netherlands, Norway, and other NATO Allies. United States military use of North Sea platforms does not seem necessary.

Two offshore areas with significant military value exist in United States waters. The Gulf of Mexico off the coast of Louisiana and Texas contains numerous permanent platforms as well as mobile rigs. There are platforms between 50-150 miles off the Gulf Coast in depths of 200-400 feet. There are also many platforms in the vicinity of proposed offshore discharge facilities off the coast of Louisiana and Galveston which will receive crude oil from super tankers (VLCC). These platforms are capable of providing a base for a helicopter or other sensor systems.

The second United States offshore area is the Baltimore Canyon/Georges Bank area off the northeastern coast. Presently, drilling activity is exploratory in the Baltimore Canyon off New Jersey using mobile rigs (semi-submersibles). Of ten holes drilled only one produced a reported gas discovery. However, drilling activity is expected to continue and expand to the Georges Bank area east of Cape Cod. Platforms in these areas are situated where they could have significant application in the protection of the approaches to major United States east coast ports.

The development of a military surveillance or ASW reactionary system for deployment aboard an offshore platform seems appropriate for scenarios in the Gulf of Mexico and the United States east coast. It may be significant that the oil industry overbuilt mobile rigs such as jack-ups and semi-submersibles anticipating an exploration boom following the 1973 oil embargo. Although the current surplus of rigs peaked in 1977 and while usage is presently nearing 100 percent, indications are that many of these modern rigs will be unused in the foreseeable future. Such platforms, with their vast potential appear to be ideal as offshore stations for military surveillance and ASW helicopter reaction forces in the relatively long approaches to United States east coast ports.

In summary, an analysis of current offshore platform location in areas of the world not normally covered by NTG and MPA deployments does not reveal significant areas outside of U.S. territorial waters where these facilities could be put to military use such as surveillance stations and quick reaction helicopter bases. The lone exception is the Malaysian area of the South China Sea. The Gulf of Mexico and the east coast of the United States show promise as sites for extending the outer defenses of the country's ports in wartime.

Should the Department of Defense consider this concept for the employment of offshore platforms, attractive, official agreements would have to be reached with the oil companies which own or operate these platforms. Informal interviews with senior officials from several oil companied indicate a general receptiveness to the concept with some reservations. Specifically, the companies would need to examine the compatability of military personnel and hardware aboard the platforms. Although they see no significant technical problems, the effect of this concept on day-to-day oil platform production and operations would have to be more fully determined. A formal CNO request to the executive management of the major oil companies concerned, is required to establish the liaison necessary to set up operational feasibility exercise.

CHAPTER III

MILITARY HELICOPTER OPERATIONS FROM OFFSHORE PLATFORMS

This chapter addresses the feasibility of supporting U.S. Armed Forces helicopters from offshore facilities. The capabilities of commercial helicopters currently in use servicing these offshore facilities will also be outlined.

Almost all existing offshore facilities have helicopter landing platforms which are capable of supporting a wide variety of helicopters. All of the large ocean-going semi-submersible rigs have helicopter decks which are stressed to accommodate large helicopters such as the S-61, S-64, SH-3, H-47, etc. The smaller rigs, which are located close to shore in relatively shallow water, can accommodate medium-sized helicopters such as the Bell 205, 206 and 212. All of these helicopters are primarily employed in transporting oil company employees and light logistic support. Each of the charter aircraft companies which are contracted by U.S. oil companies to support their offshore facilities maintain extensive operations bases ashore. These operations base complexes are situated within commuting distance of the off-shore rigs serviced by its helicopters.

Liaison with Evergreen Helicopters, Inc., the world's largest charter aircraft company combining helicopters and fixed wing transports, confirmed the feasibility of accommodating the Navy's SH-2F, SH-3H or CH-46 helicopters aboard the semi-submersible rigs serviced by their fleet of over 100 helicopters. This company operates a fleet of new Sikorsky S-61N helicopters which are very similar to the U.S. and Royal Navy's SH-3 "Sea King." The S-61 has also supported offshore drilling opertions worldwide, especially in the North Sea.

Embarkation of Navy SH-2F LAMPS MK-I, SH-3H, or SH-60B LAMPS MK-III anti-submarine warfare helicopters aboard off-shore oil rigs is possible. While the SH-3H helicopter has an ASW advantage over the smaller SH-2F by virtue of its tethered sonar, both LAMPS helicopters have a surface-search radar installed on all models. Early production models of the SH-3H (Groups A, B and C) carried the standard LN-66 surface-search radar, but this non-acoustic sensor was removed in later models to incorporate a third centerline fuel cell. The following Table lists warfare capabilities attributed to these Navy ASW helicopters.[1]

TABLE 1

SH-2F	SH-3H	SH-60B
LN66 Radar RO-238 Sonobuoy Rec ALR-66 ESM ASQ-81 MAD AKT-22 Data Link Visual Surveillance	LN66 Radar (Gps A-C) No Radar (Gp C & Sub.) No ESM RO-238 Sonobuoy Rec. AKT-22 Data Link ASN-123 TACNAV Visual Surveillance	APS-124 Radar Proteus Processor ALQ-142 ESM ASQ- 81 MAD Sierra Research Data Link (new Visual Search
1st Convergence Zone 1.2 hrs on-station	100 nm radius at 120 kts; 2.0 hrs on-station	100 nm radius at 150 kts; 2.0 hrs on-station

Due to the strategic location of U.S.-owned offshore facilities, it is possible that one or more of these types of helicopters could be employed in an ocean surveillance role. Employment of the Coast Guard's HH-3 and new Short-Range Recovery Helicopter (H-52 replacement) is also possible. The limited number of SH-2F airframes currently in the U.S. Navy inventory (approx. 90) prevents a favorable assessment of employing these LAMPS MK-I helicopters aboard offshore rigs. The number of combatants capable of deploying with LAMPS MK-I helicopters actually exceeds the number of aircraft available. A continuing, critical shortage of repair parts has allowed the LAMPS MK-I community to meet only its presently assigned peacetime deployment commitments. Construction of new SH-2F helicopters has been studied by the Navy, but apparently is not planned. Therefore, it appears that an investigation of the feasibility of embarking SH-2Fs aboard offshore rigs is not in order.

On the other hand, there are 256 SH-3 helicopters in the Navy's current inventory (as of February 1978). This helicopter is multi-sensored, has a primary mission of local ASW in a search or reactive mode and is normally flown from aircraft carriers. Operations are usually conducted out to the first convergence zone range, but the capability exists for performing reactive operations out to second convergence zone ranges. Secondary missions include search and rescue, medical evacuation and logistic support.[2] The Navy's ten active duty HS (helicopter anti-submarine) squadrons had their squadron UE (unit equipage) reduced from eight to six helicopters in FY-78. Four HS reserve squadrons (HS-74, 75, 84, 85) are in commission operating the SH-3D helicopter; however, the tentative FY-80 DOD budget proposes decommissioning all four squadrons.

Due to the similarity of the Navy SH-3 and the commercially operated S-61, and the availability of adequate SH-3 assets, it appears that the SH-3 is a likely candidate for ocean surveillance and ASW missions from offshore rigs. The latest SH-3H models (Group E) have received the new ASN-123 Tactical Navigation (TACNAV) system which greatly improves the navigational accuracy of the SH-3. An onboard acoustic processor for the SH-3Hs sonobuoys is currently undergoing OPEVAL (Operational Evaluation) at Air Test and Evaluation Squadron ONE (VX-1), Patuxent River, MD. This Sonar Data Computer (SDC) greatly improves the active sonar capability of the SH-3H while giving the aircraft an autonomous sonobuoy processing capability. It also gives the SH-3H a down-link command capability for triggering new command-activated sonobuoys (CASS, DICASS, etc.). The SH-3H is expected to remain in the active inventory until the mid 1990s even though most of the airframes were built in the 1960s. No follow-on ASW aircraft is currently being considered to replace the SH-3H aboard aircraft carriers, although the Navy's V/STOL program includes a "Type C" proposal which is envisioned to replace the SH-60B LAMPS MK-III after the year 2000.

The Navy's newest helicopter, the SH-60B LAMPS MK-III is currently undergoing engineering development with an IOC (initial operational capability) of 1984. Production decisions will be made at the third Defense Systems Acquisition Review Council (DSARC-3) in 1982. Two hundred and four helicopters will be procured for 119 new FFG-7 and DD-963 class frigates and destroyers.[3] The number of helicopters to be manufactured is supposed to satisfy deployment, training and pipeline requirements. Therefore, it is unlikely that SH-60B assets would be available for deployment aboard offshore facilities even in the late 1980s unless such a mission were established now.

The newest version of the SH-3H (Group E) is the one Navy ASW helicopter which can be easily adapted to use aboard existing offshore rigs. Most of the large semi-submersible rigs have landing platforms which can accommodate a 21,000 pound SH-3H. No hangar facilities are available on the oil platforms, but maintenance spaces would be available to perform limited aircraft upkeep. All Navy SH-3s have automatic blade fold systems. The normal crew on the large semi-submersible rigs runs 85 to 88 men, and accommodations are provided for 100. Berthing of the additional naval personnel aboard the rig should therefore present no difficulty.

The SH-3s tethered, variable-depth sonar is a particularly attractive sensor for deployment aboard offshore rigs. Since most passive acoustic sensors are relatively ineffective against a diesel-electric submarine (while on battery power), the SH-3Hs new AQS-13E/SDC sonar data computer provides a realistic counterforce against that threat, expecially under reverberation or ambient noise limited conditions. The SH-3s sonobuoy acoustic processor, the SDC, would permit a single SH-3 to simultaneously process audio signals from one to four similar type sensors (sonobuoys) in the following sets:

TABLE 2

		Passive
4	LOFAR (SSQ-41A)	(Non-directional)
2	DIFAR (SSQ-53)	(Directional)
	or VLAD	(Normal Resolution)
3	DIFAR or VLAD	(Reduced Resolution)
		Active
4	CASS (SSQ-50)	(Range & Doppler)
4	RO (SSQ-47B)	(Range & Doppler)
4	DICASS (SSQ-62)	(Range, Bearing & Doppler)

With 400 HZ 115 VAC electrical power available aboard the offshore rig, an on-deck SH-3H with SDC could continuously monitor sonobuoys located within the VHF line-of-sight range from the helicopter's sonobuoy receiver antennas at landing platform height (approx. 70 feet). An initial

"trigger" from these sonobuoys could be reacted to by employment of the SDC's improved active sonar which provides a detection enhancement of over 20 decibels under reverberation limited conditions and up to 13 db under wideband ambient noise limited conditions. The localization phase of the ASW mission would be conducted with active sonar and MAD, then using a hover-launched MK-46 torpedo for the subsurface attack. Assuming an active sonar range of 6,000 yards and a five minute "dip time," one SH-3 can search over 300 square miles per hour (transit time omitted).

Maintenance equipment, consumables, and ground support equipment for the SH-3 would not be prepositioned aboard the rigs. Although the SH-3s engines can be started on internal battery power or external 28 VDC, 400 Hertz 115 VAC is preferred for ground-testing of electronic equipment. Voltage inverters to convert 60 Hz 110 VAC or 28 VDC to 400 Hz 115 VAC should be provided for extended operations from oil rigs. Limited "pack-up" kits could be made available from HS squadrons' type commanders in order to support such independent operation. Large, heavy replacement parts, such as main gearboxes, main rotor blades, and T-58 engines could be transported to the offshore facilities as external helo cargo, but would be required only in emergencies. These large aircraft components could be prepositioned at nearby military bases or civilian helicopter operations bases.

All weather, day and night operations by HS flight crews from offshore rigs should present no serious difficulties. FAA regulations presently require a licensed weather observer aboard each rig intended to be used as an instrument landing facility. Most semi-submersible rigs have a "visiometer" installed aboard to measure visibility range at the helicopter platform level. Ceiling height measurement lights have been installed on some rigs, but difficulties have been experienced with their use due to the high reflectance from the rig's superstructure lighting. Flood lights are installed to illuminate the landing platform; Navy-style deck edge lights are not usually installed. All offshore rigs in the Gulf of Alaska, for example, have U.S. Navy-type TACAN (tactical navigation) equipment installed. This UHF band navigation equipment is less susceptible to electrical interference than the low frequency non-directional beacon equipment which is installed on virtually all offshore rigs. The height of the rig's landing platform is approximately 70 feet, which is similar to the 60 foot deck elevation of an aircraft carrier. The large semi-submersible drilling rigs are designed to withstand 115 knot winds, 110 foot seas and anchors secure the rig in a 3 knot current. Stability in high sea states should be much better than large surface combatants or even an aircraft carrier.

Most offshore facilities utilize VHF line-of-sight communications equipment to control the approaches and departures of helicopters; VHF COMM equipment is common to all civilian aircraft. Since most Navy helicopters do not possess this VHF communication equipment (only VH-3Ds assigned to VIP transport have VHF COMM equipment), portable UHF transceivers would have to be installed aboard the rigs to support Navy helicopter operations. Air search radar is not normally installed aboard the offshore rigs; most have a surface search radar comparable to the Navy's LN-66.

Commercial helicopter charter companies do not normally refuel their helicopters aboard the offshore rigs. Most rigs, however, have an emergency cache of 600 gallons of Jet-A fuel which is an adequate substitute for Navy JP-5. Fresh water should be available in sufficient quantity aboard all semi-submersible rigs to support 100 personnel, plus allow the daily washing of the embarked helicopters. The SH-3s should be washed with fresh water after every low-level sortie to prevent airframe corrosion and salt encrustation of the engine inlet guide vanes. Consumables such as engine and gearbox oil, hydraulic fluid, etc., would have to be available to support sustained operations from the rigs.

Commercial helicopter charter firms, such as Evergreen Helicopter, Inc., and Petroleum Helicopter, Inc., operate a wide variety of helicopters which could possibly be used for defense-related missions. All of their helicopters have a primary tasking of logistics and personnel support. Evergreen Helicopters operates the new Sikorsky S-61N which carries a sophisticated $500,000 avionics/communications system. All commercial helicopters could be used to logistically support a defense mission plus provide visual surface surveillance. The following is representative of the avionics equipment installed in the S-61N helicopter:

- TACAN
- Dual radar altimeters
- X-band interrogating multi-mode radar
- Flight director
- VLF navigation equipment (Global Navigation System's GNS-500A or OMEGA)
- VOR/DME NAV equipment
- LF/ADF
- ILS (Instrument Landing System)

The S-61N has an oversized cargo door (larger than the SH-3s) opening into a 31 foot cabin area. The S-61N is significantly longer than the Navy's SH-3. The S-61N can also carry external loads of more than 7,000 pounds. At the present time, the S-61N is primarily operated for oil companies having rigs located in hostile weather environments such as the Gulf of Alaska and the North Sea. In these areas, all of the helicopters must possess a truly "all weather" capability plus an amphibious hull design should an emergency landing become necessary.

Based upon the number of helicopter assets available throughout the Navy, it appears that only the SH-3H helicopter is available in numbers to be operated from offshore rigs. The short-range limited endurance and ASW sensors aboard the SH-2F, when compared to the SH-3, suggests that the SH-3 helicopter would be the better choice of aircraft to fulfill a platform defense/ocean surveillance/ASW mission from offshore rigs. An increase in the production buy of SH-60B helicopters is another possible option. The fact that only a limited number of SH-3Hs have the LN-66 surface search radar, however, is of concern. With the LN-66 radar, the Group A, B and C SH-3Hs can still obtain 5 1/2 hours endurance by using two external fuel tanks. In order to accomplish an ocean surveillance or radar flood/hold down mission with the helicopter's LN-66 radar, radar-equipped SH-3Hs should be identified for possible offshore facility detachments. A total of 30 SH-3Hs currently have the LN-66 radar installed. Of these, 16 of the Groups A & B SH-3Hs are slated for conversion to Group E SH-3Hs, which now programs the removal of the LN-66 radar.

Since fleet HS squadrons are currently total airframe limited in performing their primary mission of local ASW protection for CV Task Groups, it is suggested that the four reserve HS squadrons be tasked to perform the ASW and ocean surveillance mission from offshore rigs. Their onboard acoustic and non-acoustic sensors would give each oil platform an autonomous ASW capability. The variety of possible scenarios could include the use of reserve SH-3s in SLOC protection in the Caribbean and the Gulf of Mexico.

The proposed FY-80 DOD budget includes $6.4M for the Arapaho/Reserve Merchant Ship Defense System (RMSDS) project which envisions the deployment of reserve SH-3 helicopters aboard commercial containerized ships in direct support of convoys. In addition to the U.S. Navy's "sunk cost" and proposed FY-80 R&D investment in this project and in conjunction with the U.S. Navy, the Royal Navy (U.K.) has allotted $10M for test and evaluation of this concept. The British are also contributing a commercial merchant vessel for the test and evaluation of the Arapaho concept. Construction began on the support vans and deck plates for the containerized ships, but was stopped when R&D funds were slashed from the FY-78 DOD budget. The vans which have already been completed together with some that are partially completed, are presently in storage at Floyd Bennett Field in New York. The use of U.S. and NATO containerized ships for transporting reserve helicopters to oil rigs and SLOC protection missions worldwide would free naval vessels and Air Force C-5As for other priority missions.

CHAPTER IV

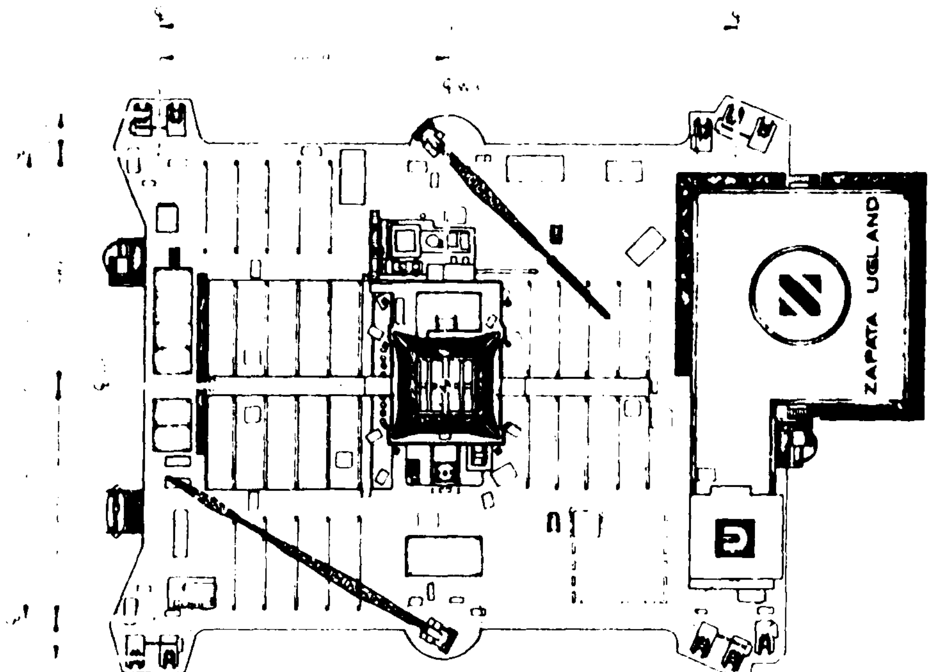
TECHNICAL ASPECTS OF OFFSHORE PLATFORMS IN SUPPORT OF MILITARY OCEAN SURVEILLANCE OPERATIONS

Can present offshore platforms support military operations and equipment? This chapter examines the general engineering feasibility and equipments required to use offshore oil platforms for ocean surveillance and ASW defense.

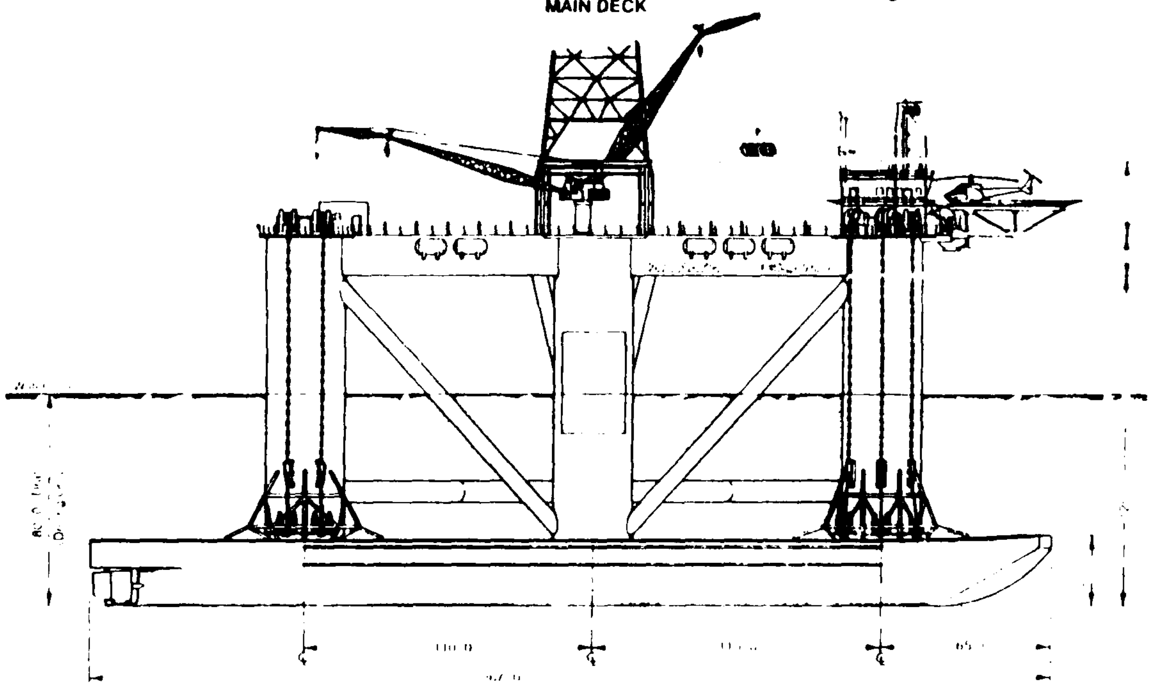
As of 1978 there were a total of 400 mobile oil rigs with another 28 under construction.[1] Although differing in construction, all the mobile platforms are basically a work/living station which is anchored to, or jacked-up from, the seabed. Each platform is self-sufficient in that it produces it's own electricity and water which is used for drilling and crew support. Logistic support is provided by boat and/or helicopter thus most platforms have a heliport as an intergral part of the rig. A listing of all mobile platforms and their basic characteristics is contained in the Register of Offshore Units, Submersibles and Diving Systems, 1977-1978, by Lloyd's Registry of Shipping.

While a listing of fixed platforms could not be located for the study it is known that many of these rigs have heliports, electrical generation equipment, etc., that could support possible military operations. The fixed platforms are normally constructed after oil or gas has been discovered

ZAPATA UGLAND



MAIN DECK



OUTBOARD PROFILE
(STARBOARD)

FIGURE 1

ZAPATA UGLAND

Nominal water depth rating 600' (with modifications to 1000')

Hull—Dimensions

Registered Norway. Built 1974 by Bethlehem Beaumont, Texas

Overall Length 367'

Overall Width 210'

Drilling Draft 80'

Displacement 30,000 short tons (maximum total)

Propulsion Self propelled

Anchoring System Ten 40,000 lb Baldt Moorfast anchors
Ten 3" x 3,500' chain lines.
Four dual and two single wildcat anchor windlass units

Drilling Slot (Moonpool) 24' x 24

Cranes Two National OS-435 hydraulic cranes, 120' booms, 85 ton capacity at 30' radius, each driven by Caterpillar D-343 TA engine

Speed in Calm Sea 9 knots

Storage

Drilling Water 10,000 bbls

Potable Water 700 bbls

Diesel Fuel 10,000 bbls

Liquid Mud 1,700 bbls

Bulk Material 20,700 cu ft

Sack Material 4,000 sacks

Desalinization Unit Two Colt ZVC, 15,000 GPD

Heliport 84' x 84' (for S-61 helicopter)

Quarters Air conditioned for 85 persons, with galley and separate recreation room

Personnel Survival Two Brucker capsules, one self righting lifeboat
One Schat Davit covered lifeboat

Drilling Equipment

Drawworks Oilwell E-3000 double drum with Elmagco 7838 auxiliary brake with 1⅝" drill line, driven by two EMD 79MD dc electric motors

Pumps Two Oilwell 1700 PT triplex single acting piston slush pumps, each with centrifugal charge pump and Hydril K-20-5000 pulsation dampener. Each pump driven by two EMD 79MD dc electric motors totaling 1,600 hp continuous, 2,000 hp intermittent

Power Four EMD Model 16 E8 power units, each consisting of Model 645 16 cylinder engine driving Model A20-6, 600 volt, 3-phase, 60 Hz alternator. Each unit rated at 1,500 kw. dc power provided through SCR rectifier system. Total engine power 8,000 hp

Rotary Oilwell 37½"

Crown Block Lee C. Moore with nine 60" sheaves, 750 tons

Traveling Block Oilwell 650 with six 60" sheaves 650 tons with Rucker-Shaffer Motion Compensator 18' stroke

Hook BJ 5500, 500 tons

Swivel Oilwell PC 650, 650 tons

Riser Pipe Equipment 685' of 24" OD pipe with 45' stroke telescoping joint, 685' of 16" OD pipe with 45' stroke telescoping joint

BOP Equipment Cameron subsea two stack system
One 21¼" 2,000 psi wp Shaffer spherical unit
One 21¼" 2,000 psi wp Cameron type U double
Two 13⅝" 10,000 psi wp Shaffer spherical units
Two 13⅝" 10,000 psi wp Cameron type U doubles
Payne hydraulic controls
Four Rucker riser tensioners 80,000 lb capacity
Four guideline tensioners 20,000 lb capacity

Derrick Lee C. Moore 160' bolted dynamic derrick 40' x 40' base, 1,300,000 lbs capacity

Substructure Bethlehem substructure 40' x 40' Casing capacity 600,000 lbs., setback capacity 350,000 lbs

Mud Mixing Pumps Two Mission 6" x 8"

Cementing Unit Howco Twin HT 400

Drill Collars and Drill Pipe 9½" OD x 3" ID x 32' collars, 8" OD x 3" ID x 32' collars, 6½" OD x 2 [illegible]" ID x 32' collars, 5" OD, 19.50 lb., Grade S135, Range 2 5" OD 19.50 lb., Grade E Range 2

FIGURE 2

and serve as offshore support bases servicing numerous active wells in their immediate area.

No one platform is illustrative of all types but, as an example, the Zapata Ugland (ZU) semi-submersible has been selected for examination of its characteristics and determination of what additional equipment/sensors may be required for it to be used as a military offshore station. Figures 1 and 2 depict the overall platform dimensions and principal characteristics. Those features that require a closer examination include electrical power, water, personnel support, heliport, navigation/communications aids, and general storage capability.

Most rigs have more than adequate power available to support any reasonable military equipment load. The ZU's power is produced by four 1500 kilowatt alternator units (Model A20-6) providing 600 volt, 3-phase, 60 Hertz (Hz) power. Direct current requirements are supplied by six Hutchison-Hayes Selenium Controlled Rectifiers.[2] Most government equipment, to include airborne helicopter systems, require one or more of the following to operate: 110-125 volts, 60 Hz or 400 Hz; 220-230 volts, 60 Hz or 400 HZ; and/or 28 volts direct current. These power requirements can easily be provided by using appropriate transformers, power rheostats, and converters. A 5 to 1 reduction transformer with a 220 volt center tap would reduce the 600 VAC produced on the ZU to 120 and 220 VAC, 3-phase, 60 Hz power. To obtain the 400 Hz power needed, the 220 VAC, 3-phase, 60 Hz power could be run through a power converter to get 400 Hz. Direct current power (28 VDC) can be provided by the use of a power rheostat to lower the generated DC voltage down to 28 volts. Note: Other platforms may have different power outputs thus different transformers would be required for each platform used. A review of the Register of Offshore Units, Submersibles and Diving Systems, 1977-1978, indicates that there are no unusual platform power systems thus the necessary transformers, rheostates, and converters should be available within normal military supply channels.

Drilling and crew support requies a huge amount of potable water, The ZU has two Colt 7-VC desalinization units which produce 15,000 gallons per day. Excess water produced is stored--up to 700 barrels--for use on high demand days.[3] Additional fresh water would be required beyond normal needs to wash down ASW helicopters to prevent airframe corrosion and engine inlet guide vane salt encrustation.

The ZU has air conditioned living and messing facilities for 85 people and a separate recreation room.[4] Additional temporary living facilities can be provided by securing portable living units to the platform deck. The oil companies at times use portable fiberglass units as temporary shelters.

Military collapsible "Bare-Base" units could also be used. The USAF Tactical Air Command has developed Bare-Base units for contingency employment and these units could possibly be erected below decks to conserve top deck space. Another required item is personnel survival equipment. Maritime law requires adequate survival equipment to be aboard the platforms for the number of personnel aboard. Additional military personnel above the normal crew may require, as a minimum, installation of life rafts in numbers to accommodate the added people in case of emergency platform evacuation.

Heliport size and weight load capabilities vary among platforms. The larger and newer units are normally built to accommodate the Sikorsky S-61 or S-70 helicopters. The ZU heliport measures 84 feet by 83 feet and is stressed for a 25,000 pound load.[5] This is more than adequate for the newest Navy anti-submarine warfare (ASW) helicopter, the SH-3H, which has a 21,000 pound gross weight limitation.

The mobile platforms usually have, as a minimum, navigation/communication equipment to support open ocean transit and helicopter operations. This basic equipment includes surface search radar, position fixing equipment, depth sounder, direction finding gear, radio telephone, and VHF radios. In addition, platforms operating in severe weather areas have other navigation/landing aids. Specific platform gear must be determined on a case by case basis.

Since all military aircraft do not have VHF communication capability, a UHF radio would have to be installed on the platform to provide two-way communication. Numerous military UHF radios are available to meet this requirement. For example, it may be possible to obtain surplus Air Force AN/ARC-34 UHF radios since this radio is being replaced on several types of aircraft.

Any sustained military offshore platform use will require separate storage space to accommodate needed equipment, supplies, and critical spare parts. Helicopter fuel will also be required. The ZU has 20,700 cubic feet of bulk storage space and additional space is available. There are four 45 foot by 85 foot open areas under the main deck that can easily be converted to storage space by simply adding decking.[6] On some platforms, existing helicopter fuel storage includes 3 to 4 thousand gallons of emergency supplies which are contained in 55 gallon drums. Collapsible storage bladders could be strap hung below decks to support extended helicopter operations. The number and size of the bladders would be determined by operational requirements. Resupply could be accomplished either by boat or vertical replenishment by helicopter.

The concept of using offshore platforms is envisioned in one of two principal modes, that of a pure sensor platform or one in which a helicopter is used in conjuction with platform sensors to prosecute possible hostile craft. Around the continental United States the primary threat is submarines, whereas in other areas the threat could possibly include surface and air threats.

The U.S. Navy is investigating various underwater submarine detection sensors which could possibly be used around offshore platforms. These sensor programs are classified but information as to system status and capabilities is contained in the U.S. Navy ASW Master Plan dated 15 September 1978, classified SECRET NOFORN. These sensors could be deployed from several platforms to increase area coverage with raw sensor data relayed back to a central platform for analysis and action. Separate analysis equipment could be installed on this central platform or the data fed on board the helicopter for analysis. Upon detection of a possible threat, the helicopter would launch and use its sonobuoys to localize and attack as appropriate. The approach of using the on board helicopter analysis equipment would resolve two other potential problems, control of classified equipment and analysis equipment acquisition.

Hardware/equipment required to implement this approach would include the underwater sensors and a data relay system. Data relay systems are available, e.g., the Army's In-flight Data Transmission System (large but transportable), but the exact system for this application would depend on the sensor selected, the amount and rate of data transfer required.[7] Data transfer to shore for processing is possible but would be much more demanding. Most data link systems are line-of-sight and mobile oil platforms are normally beond line-of-sight range of the shore. Transfer of data to shore was attempted in the USAF Texas Tower radar platforms off the New England coast in the 1950s and 1960s but was unsuccessful. The Texas Towers had to analyze their own data and direct fighter intercepts from their facilities.[8]

Sensors needed for surface surveillance are presently available on most mobile platforms. Surface search radars similar to the Navy's LN-66 system are normally installed or could be easily installed. This system, weighing less than 200 pounds, would provide a surface picture out to approximately 50 miles. Many platforms, including the ZU, have direction finding equipment which could also be used to obtain a line of bearing on surface vessels' communication transmissions. Another possible sensor is electronic support measures equipment (radar receivers); however, this equipment is usually classified.

The Navy and the Air Force have several radar receiver systems that could be installed on oil platforms to detect, identify, and provide a line of bearing to a hostile threat emitter. These receivers are software programmable thus could be programmed for only enemy emitter signals and would not identify friendly emitters. The Navy's AN/SLR-21 system is especially attractive due to its low cost and capabilities. This system is designed to cover the E through J threat-bands and will detect and DF both pulsed and continuous wave (CW) signals.[9] This system would also serve as an air surveillance sensor.

The need for air surveillance should be carefully evaluated because this equipment will probably require more deck space and special considerations of any sensor employed. Present offshore oil platforms do not have any air surveillance capability thus this equipment would have to be added. A review of the U.S. Navy Radar Systems Survey indicates two possible candidate systems, the AN/TPS-63 (-65) and the AN/TPS-32 (-64). The system in parenthesis is an updated version in each case. Both systems are transportable but system capability and weight differ considerable. The TPS-63 weighs 10,000 pounds versus 23,268 pounds for the TYS-32; however, the TPS-32 detection range is approximately three times that of the TPS-63. Although use of either system is possible, numerous problems are anticipated. Shore based systems could provide better coverage and would simplify transmittal of data for subsequent action upon detection of possible hostile aircraft.

In summary it is feasible from an engineering viewpoint to use offshore oil platforms as military sensor stations. The platforms have adequate capabilities to support both the equipment and personnel required to conduct ocean surveillance and SLOC protection.

The necessary equipment/sensors required to fulfill the desired missions--subsurface and surface surveillance and to a lesser degree air surveillance--are available or are under development within the military.

CHAPTER V

SUITABILITY OF NAVAL AIR RESERVE ASW HELICOPTER SQUADRONS TO CARRY OUT OPERATIONS FROM OFFSHORE PLATFORMS

As has been seen throughout this study, the positioning of many of the world's offshore oil rigs leaves them open to attack by both surface ships and submarines. While a case has been presented for the use of offshore platforms as Anti-Submarine Warfare (ASW) operating pads for helicopters, their use in this role may be denied or controlled because of territorial jurisdiction over the offshore platform by the host country. If a country is opposed to the use of offshore platforms as ASW defense bases by the United States Navy, there would be important legal difficulties in establishing a case for the use of them in the face of host country denial. This impediment to use of the platforms does not pertain, of course, in waters where the United States exercises jurisdiction. "Home waters" of the United States not only avoid the legal complications sighted above, but also are perfectly suited for the use of Naval Air Reserve ASW helicopter squadron assets. This chapter will explore how the mission of offshore platform defense is ideally suited to the employment of Naval Reserve helicopter squadrons.

In order to understand the implications of a mission of protection of oil rigs on the Naval Reserve it is necessary to understand some basic facts about Naval Air Reserve organization.

The Naval Air Reserve consists of squadrons that fulfill the same missions as active Navy ones. To do this and to remain at a high state of readiness, the Naval Air Reserve was reorganized a few years ago so that Naval Air Reserve squadrons would become "mirror-images" of their active counterparts. There are, however, two types of Naval Air Reserve squadrons, Reserve Force Squadrons and Squadron Replacement Units. The Reserve Force Squadrons are known as "hardware" units because they are complete entities in and of themselves. They are manned to full wartime allowances and possess the actual aircraft and supporting equipment, i.e., "hardware," they would need upon mobilization to carry out assigned missions. When one speaks of a Reserve Force Squadron, then, one is referring to an intact fighting unit. A Squadron Replacement Unit (SRU) is also known as a squadron but is in fact a "manpower pool" designed to meet specific mobilization requirements of active Navy aircraft squadrons. If one reviews an active squadron's manpower authorization documents, one notices that upon full wartime mobilization the squadron would be allowed more ground personnel and aircrews than during peacetime. Where do these qualified, ready-to-operate persons come from? The answer is SRUs. To facilitate training by aircraft type Reserve Force Squadrons and SRUs are co-located at Naval Air Stations and certain other military flying facilities so that the aircraft possessed by the Reserve Force Squadron can be shared with the SRU for training purposes.

The Commanding Officer of the Reserve Force Squadron, usually a drilling inactive reservist (although TAR officers have been assigned as well) is in fact serving in a designated Command at Sea billet with full responsibilities for the readiness and operations of his squadron just as if the squadron were active Navy. The Commanding Officer of a SRU is essentially the administrative head of the manpower pool, but does enjoy many of the prerogatives of command although his is not a Command at Sea billet. He would, upon activation, perform some duty other than CO within the Navy squadron he was detailed to. He is responsible, however, for the readiness of the men assigned to him and therefore directs an active program of training and flying in cooperation with the co-located Reserve Force Squadron Commanding Officer. As of today, there is no formal chain of command link between the two positions.

This background on organization is important to a understanding of how a Reserve Force Squadron operates. First, it is a fulltime flying partner with active Navy squadrons. It accomplishes this by being staffed with a cadre of active duty officers and men, usually TARs (Training and Administration of Reserves Program). Headed by an Officer-in-Charge who is the defacto Commanding Officer during periods when the inactive reservist CO is not on duty (either drilling or Active Duty for Training), the squadron's active duty contingent performs all of the normal functions of a Navy squadron with, generally speaking, its about one-third of the enlisted men and one-twentieth of the officers. The flying program of the squadron is one that is carried out on a daily basis because in order to train and maintain the qualifications of the inactive reserve maintenancemen and flight crews, more time than the one regular weekend a month drill period is needed. Therefore, Selected Air Reserve (SAR) pilots and aircrewmen schedule additional flying consistent with their civilian work schedules.

The reservists carry out their required training during four periods of activity, normal drill weekends, additional drill periods, Annual Active Duty for Training (ACDUTRA) which is normally from 12 to 16 days once a calendar year, and Special Active Duty for Training periods. Special ACDUTRA is usually scheduled on an individual basis while Annual ACDUTRA involves the full squadron practicing its mobilization readiness by deploying to an area of the world where it would be required to perform in wartime and exercising its full range of mission requirements. The SRUs typically do not deploy on an Annual ACDUTRA as a unit (they have no unit mission per se) but their members have the same availability as Reserve Force Squadron members do to drills and ACDUTRA. It is not unusual for Naval Air Reserve aircraft from a certain location to be "cross-manned" by Squadron and SRU personnel for training missions. This does not happen during squadron evolutions such as Annual ACDUTRA or regular drill weekends, but most likely will occur during additional drill periods and Special ACDUTRA periods because SRU aircrewmen also must meet fleet standards for all basic individual qualifications. This "cross-manning" will be referred to again later and can be an important aspect of mission planning.

Reserve Force Squadrons are required to maintain the same readiness standards in all respects as their active Navy counterparts. Thus, by type model aircraft, they are fully interchangable operationally with active Navy squadrons with the obvious exception that they are not normally involved in performing their military duties on a day to day basis. This supposed lack is often compensated for by the fact that every flying officer in a reserve squadron is a fleet veteran and most likely has more flying hours and experience than the typical active Navy squadron officer who is on his first tour of flying duty and is training to achieve initial designation in type aircraft.

It appears that Naval Air Reserve ASW helicopter squadrons are well suited to the role of offshore platform protection. Their mode of operation for training lends itself to any mission that provides an opportunity for the squadron to carry out, as much as possible, its expected wartime mobilization duties during regular drill weekends and Annual ACDUTRA periods. If the squadrons are sited near the expected area of offshore protection operations such as NAS New Orleans, NAS Pensacola, or other military airfield along the coast of the Gulf of Mexico (or East and West Coasts of the United States), they can easily perform training missions over and from the actual platforms they would use under mobilization conditions. Arrangements could be made between the U.S. Navy and the offshore oil rig owners and operators so that the reserve aircraft could practice their skills during drill weekends and at other times when pilots and aircrewmen were available for training.

If the offshore platform protection mission were to be assigned to a Reserve Force Squadron, the following considerations should be made.

1. Location. Ideally, squadrons should be assigned duties adjacent to their homeport operating base. This would facilitate training and protection missions short of squadron mobilization.

2. Mission. The mission could be either a collateral or primary one. If the mission is collateral the squadron would only do that mission under certain narrowly specified circumstances. The current primary mission of ASW helicopter squadrons is to act as part of an air wing aboard a CV. The two missions are incompatible. If the squadron is expected to deploy aboard a carrier in wartime it obviously cannot perform an offshore platform protection role. The recommended mission assignment for offshore platform protection, then, should be a primary one.

3. Mission Planning and Preparation. If the offshore protection mission were assigned as primary then the squadron plans in support of the mission would be focused on a new set of unique obligations. The squadron would have to investigate and catalog all offshore platforms within its assigned geographic protection sector. It would generate a "preference" file of rigs from which to work in a hot war and develop and maintain "pack-up" kits of support equipment tailored to operations from these selected offshore platforms. The squadron would have to devise plans for their employment in various scenarios ranging from full mobilization, partial mobilization, crisis period assistance operations, as well as normal operations and training. Under full mobilization, selected helicopter-capable platforms would receive detachments which would operate in a cooperative

mode with other Naval forces detailed into the area. Partial mobilization might call for the use of a limited number of aircrews in a protective role. Crisis period plans might involve estimating and identifying the number of aircrews and other squadron drilling personnel who could be available on short notice to accept voluntary Special ACDUTRA. This would provide a way for the Navy to expand its ASW assets quickly with out regard to putting into operation full mobilization plans. It should be noted that under less than full mobilization, not only would Reserve Force Squadron crews be available, but SRU pilots and "ground pounders" could fly and operate alongside their hardware squadron member counterparts thus increasing the available manpower significantly. Such combined operations have been accomplished on a limited basis in the past and could be a valuable short-term alternative to actual mobilization of air reserve assets. It should also be noted that while legal job protection vis-a-vis a reservist and his civilian employer exists during Annual ACDUTRA, these safeguards are not usually available under Special ACDUTRA which, in reality, is a voluntary request by the member to be called to active duty for a specified length of time.

If one considers what other plans the nation may have for protection of the offshore assets in wartime, it is obvious that the assignment of this mission to shore-based reserve helicopter squadrons will be complimentery to any other force so tasked. Helicopters are used in working with ASW surface vessels in many modes of operation. The SH-3 is compatible with both U.S. Navy and U.S. Coast Guard ship's command and control systems. The assignment of helicopters to duties in direct support of defense of offshore platforms also can release limited ship assets to operate in areas where no offshore platforms exist. HS assets could also release land-based VP aircraft from close-in surveillance operations in the Gulf of Mexico and other coastal areas.

It is envisioned that the HS squadrons assigned to the offshore protection role might operate in at least three different modes of detached operation, single aircraft aboard platform, multiple aircraft off platforms in the near vicinity, and off the "beach" with platform landing and maintenance in an emergency

In the first situation, a single helicopter is stationed on a rig from which it flies in some sort of normal patrol or is maintained in a quick reaction mode. It may not have any other counterpart military helicopter in the same area and as such it conducts independent operations. It would require the full range of support, discussed in previous chapters. Weapons loading equipment and storage aboard the platforms may be required.

The second mode of operation would place two or more helicopters on platforms working in a cooperative mode far from the shore to provide not only normal patrols but could concurrently maintain one as a "ready launch" reactive helicopter to assist the patrolling one. In this regard, the patrolling helicopter might operate unarmed to increase endurance while the reactive helicopter would be armed, ready to attack. In the mutual support mode, logistics could be handled by squadron military helicopters in accordance with desires of the squadron Operations Department rather than depend on outside help.

A third possibility is one where the rigs to be protected are near the shore yet susceptible to attack by submarines. The squadron could employ a land-based detachment much as in case two above but with all operations originating ashore with the oil rigs used only for emergency landings.

Modes one and two would require extensive knowledge of the local platforms, their capabilities, their electrical systems, their manning and usability as bases, as well as their availability for storage of parts, fuel and weapons.

The Reserve ASW Helicopter Force Squadrons could operate in any of these modes, and if assigned these duties as a primary mission, train to quickly take up these operation in any of the circumstances sighted earlier.

CHAPTER VI

SOME LEGAL CONSTRAINTS IN THE MILITARY USES OF OFFSHORE PLATFORMS

A central requirement for the use of offshore platforms by the United States in wartime would appear to be that such use would not violate the sovereignty and status of non-belligerent states who did not desire to acquiesce to such use.

The act of attachment or resting of an oil rig or other offshore platform to the ocean floor or seabed extends the jurisdiction of the adjacent coastal state to it up to 200 miles (over 200 miles for "broad margin" countries) under the negotiating text of the United Nations Law of the Sea Treaty. This treaty would have the sea waters of the world split into six parts.

1. Internal Waters: Areas such as a bay, inside the baseline from which the other areas are determined; full national sovereignty.

2. Territorial Sea: Encompasses seas out to the so-called 12 mile limit; full national sovereignty except for "innocent passage" of ships.

3. Contiguous Zone: A "pollution control" and economic area from 12 to 24 miles out where the coastal state has the right to "prevent infringement of its customs, fiscal, immigration and sanitary standards."[1]

4. Exclusive Economic Zone: 12 to 200 miles including the contiguous zone where the coastal state has jurisdiction over the waters, seabed and its subsoil but for maritime purposes is treated as high seas.

5. Continental Shelf Extending Beyond 200 Miles: "Broad margin" countries have jurisdiction over the seabed and its subsoil but not the waters above.

6. International Areas: The residual seas after accounting for the other five areas.[2]

While the Law of the Sea Treaty is still under negotiation and not accepted international law, coastal states, lured on by fishing and mining interests and other riches of the sea are manifesting a creeping jurisdiction over adjacent seas and seabed.

> "In the 20 years since the first UN conference on the Law of the Sea, claims of territorial seas have consistently expanded. Sixty-nine percent of coastal states now claim terrtorial seas of 12 nautical miles or more. Eleven states claim territorial seas of 200 miles."[3]

The Foreign Affairs Magazine article cited above also makes the point that United States policy appears to be passive vis a vis creeping jurisdiction.

> "In the overwhelming majority of cases, the United States has treated the state of 'relations' with the country involved as more important than the high seas freedom that may have been lost."[4]

In recent years also the United States view toward pollution control at sea and seabed mining prospects appear to coincide with the increasing expansion of the sea zones under coastal state control.

The Law of the Sea Conference also discussed coastal state rights to jurisdiction over "artificial islands," as quoted in the UN Chronicle:

> ". . . the coastal state has sovereign rights . . . with regard to: the establishment and use of artificial islands, installations and structures."[5]

Article 60 of the Informal Composite Negotiating Text (ICNT) of the Law of the Sea Conference states:

> "(Coastal states have) an exclusive right to construct artificial islands, installations and structures."[6]

By extension of the right to "establish, construct and use" and implicit in the exercise of sovereignty is that such states have effective control over "artificial islands" or offshore platforms in all forms, including police and military control.

One legal right reserved to the owners and operators of such platforms, however, is that of self-defense. Self-defense and humanitarian intervention are recognized rights of states vis-a-vis their citizens under threat in another country's territory. It would appear, though, that the preemptive use of an offshore platform by the military of a country when the platform is not under its territorial jurisdiction and its citizens working on the rig are not in immediate danger is contrary to international law.

Another aspect of the situation is that of access to the offshore platform by military ships, aircraft and personnel beyond the 12 mile limit. The exercise of sovereignty in the so-called 12 to 24 mile "contiguous zone" over immigration leads one to believe that comings and goings about the platform can be regulated strictly by that state.

Additionally, there is the problem of "innocent passage."

> "The sovereignty of a coastal state extends throughout its territorial sea (and the air-space about it) except that other states shall enjoy the right of innocent passage through, but not overflight over, the territorial sea. Passage is defined as innocent as long as it is not prejudicial to the peace, good order or security of the coastal state. Submarines must transit on the surface."[8]

Under this definition a warship could not, for example, approach outside of the territorial waters of a neutral or non-belligerent state and launch uninvited aircraft to the offshore platform, nor in wartime could it legally undertake a military mission such as resupply or operation of or from platform if that act was prejudicial to the status of the sovereign state. If the host state allowed the use of offshore platforms for military purpose by one side in a conflict, the opposing force could conceivably consider that an act which violated the host state's neutral or non-belligerent status.

The conclusions reached in this research into the possible military use of offshore platforms in an ASW role can be summarized as follows:

Sovereign states have an exclusive right under inter-nation law to control activities on offshore platforms sitting on their "jurisdictional" seabeds (with the exception of self-defense where the owners and/or operators are from another state), that they have the right of control over personnel on the platform and therefore their comings and goings, that warship passage through territorial waters must conform to the principle of innocent passage and that all air flight over territorial seas is under the control of the soveriegn state without regard to the sea-going principle of innocent passage. Therefore the use of off-shore oil platforms not located under United States juris-diction by the U.S. Navy as ASW platforms appears to be contrary to international law unless specifically authorized or invited by the state having sovereignty. Even in this case there may be an argument about military activity unless it can be shown to be "defensive" or "protective."

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

Co l sions:

- Offshore platforms do appear to have potential for military uses.
- The most feasible locations of offshore platforms for military uses are along the United States East Coast and in the Gulf of Mexico.
- U.S. Navy ASW helicopter assets for an offshore platform mission appear to be available and compatible with existing platforms.
- The military mission for offshore platforms appears to be compatible with Naval Air Reserve concept of operations.
- Military use of offshore platforms appears to be technically feasible from a hardware and equipment interface standpoint. In addition to helicopter operations, platforms can be utilized on base stations for surveillance sensor systems.
- Offshore platforms are a viable military asset for remote basing of helicopters or sensors when they are far enough offshore to provide a decreased

helicopter reaction time. An example of these conditions is the U.S. East Coast with its extensive continental shelf.

- There appear to be significant international law constraints on the military uses of platforms off foreign coasts. This factor leads to the conclusion that military use of offshore platforms should be initially limited to adjacent to the United States.

Recommendations:

- Develop contingency plans for the deployment of Reserve HS detachments to offshore platforms.
- Assign Group A, B or C SH-3Hs to the Naval Air Reserve HS squadrons in order to maintain a radar capability. Additionally, retrofit reserve aircraft with the ASN-123 TACNAV and AQS 13E/SDC sonar.
- Develop a support package for military operations from offshore platforms. The package should include fuel storage additions (storage bladders, etc.), communications modifications, power transformers/convertors, and additional lighting/navigation devices.

- Establish liaison between the Department of the Navy and owners and operators in order to develop training plans and establish hard requirements for this concept.

- Invite comment on the concept and conclusions from:

  Chief of Naval Operations (OP-095)

  Commandant, U.S. Coast Guard

  Naval Air Systems Command (NAVAIR AIR 5104B) PMA 255F

  Chief of Naval Reserve

  Naval Coastal Systems Laboratory
  (Coastal Warfare Department: Panama City, Florida)

  Commander, Helicopter Anti-Submarine Wing ONE

  Commander, ASW Wing, U.S. Pacific Fleet

  Commander, Helicopter Reserve Wing

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