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# **SEPTEMBER 1983**

**OCEAN ENGINEERING** AND CONSTRUCTION PROJECT OFFICE CHESAPEAKE DIVISION NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON, D.C. 20374

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Of the 20 moorings inspected, 9 were found to be satisfactory for continued use at their rated class, 10 require reclassification or downgrading to a lower mooring class, and 1 was found to be in poor condition and recommended for overhaul at the earliest practical time.

In addition, a thorough design review should be conducted to determine the adequacy of these Japanese designed and built moorings to withstand the forces associated with the various mooring classes defined in NAVFACENGCOM's DM-26.

Specific comments concerning each of these moorings and recommendations for future actions are included within this report.

#### Abstract

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This report contains results of the inspection of 20 fleet moorings operated and maintained by the Public Works Center, Yokosuka, Japan. A CHESNAVFACENGCOM-assigned Engineer-in-Charge and divers from Underwater Construction Team Two conducted the inspection from 1-7 May 1983.

Of the 20 moorings inspected, 9 were found to be satisfactory for continued use at their rated class, 10 require reclassification or downgrading to a lower mooring class, and 1 was found to be in poor condition and recommended for overhaul at the earliest practical time.

In addition, a thorough design review should be conducted to determine the adequacy of these Japanese designed and built moorings to withstand the forces associated with the various mooring classes defined in NAVFACENGCOM's DM-26.

Specific comments concerning each of these moorings and recommendations for future actions are included within this report.

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## PWC YOKOSUKA FLEET MOORING INSPECTION REPORT

## 1.0 INTRODUCTION

1.1 <u>Background</u>. Under the COMNAVFACENGCOM Fleet Mooring Maintenance (FMM) Program, CHESNAVFACENGCOM has been assigned the responsibility to plan and conduct periodic diver inspections of all fleet moorings worldwide. In carrying out this responsibility, CHESNAVFACENGCOM designated an Engineer-in-Charge (EIC) to provide inspection planning and onsite technical direction for the underwater inspection of fleet moorings located near the Public Works Center Yokosuka, Japan. The actual underwater portion of the inspection was performed by divers of Underwater Construction Team Two (UCT TWO). The inspection was conducted 1-7 May 1983.

**1.2** <u>General Mooring History.</u> PWC Yokosuka currently operates and maintains 20 fleet moorings, all of which are originally of Japanese design. These are reported as eight CC-, two A-, and ten D-class moorings. The geographic locations of these moorings in relation to the US Fleet Activity, Yokosuka, and Tokyo Bay are shown in Figures 1 and 2.

Of the 20 moorings, 10 are incorporated into 2 mooring clusters. Six of the CCclass moorings (D2N, D2S, D3N, D3S, D4N, and D4S) are incorporated into one cluster (see Figure 3) while four D-class moorings (X-6, X-7, X-8, and X-9) comprise the second cluster (Figure 4). As can be noted in both of these schematics of mooring clusters, two moorings share a common leg. In Figure 4, for example, the southwestern leg of mooring X-6 is the northeastern leg of mooring X-7. The remaining ten moorings are either freeswinging moorings or bow/stern moorings.

Table 1 contains a summation of the PWC Yokosuka mooring numbers, classes, and dates of last mooring overhauls.

## 2.0 INSPECTION PROCEDURES

2.1 <u>Inspection Objectives.</u> The purpose of the mooring inspections was to determine the general physical condition of the buoys and chain assemblies and, when possible, to verify or update existing as-built and maintenance records. Divers inspected only a





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MOORING	MOORING	WATER	LAST	LAST REPORTED
NUMBER	CLASS	DEPTH (FT.)	OVERHAUL	CONDITION
D-12-N	٨R	42	SEP 82	Good
D-12-S	AR	30	APR 83	Fair
D-2-N	CCR	46	SEP 82	Fair
D-2-S	CCR	47	SEP 82	Fair
D-3-N	CCR	47	SEP 82	Good
D-3-S	CCR	40	SEP 82	G <b>oo</b> d
D-4-N	CCR	39	SEP 82	Good
D-4-S	CCR	39	SEP 82	Fair
D-5-N	CCR	34	APR 83	Fair
D <b>-</b> 5-S	CCR	30	APR 83	Fair
X-1	DR	32	SEP 82	Fair
X-2	DR	20	SEP 82	Fair
X-3	DR	34	SEP 82	Good
X-4	DR	14	SEP 82	Fair
X-5	DR	26	SEP 82	Good
X-6	DR	26	SEP 82	Fair
X-7	DR	30	SEP 82	Good
X-8	DR	30	SEP 82	Fair
X-9	DR	30	SEP 82	Fair
X-15	DR	43	SEP 82	Fair

# TABLE I. PWC YOKOUSKA FLEET MOORINGS

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NOTE: Above data provided to CHESNAVFACENGCOM by PWC Yokosuka in April 1983.

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portion of the submerged buoy hull and chain assemblies in order to compile a general description of the mooring's condition. The existence of fairly consistent measurements during this inspection provides a good indication of the mooring's overall condition. It should be kept in mind that periodic underwater inspections are intended as an expedient and relatively inexpensive supplement to accurate maintenance records. As such, they cannot fully substitute for a complete inspection involving recovery of the mooring and the measurement and evaluation of each component.

Chain wire diameter measurements are used to evaluate the condition of a mooring. After the chain was cleaned to bare metal, a selective sampling of the wire diameter of chain links and connecting hardware was taken in order to determine the amount of deterioration due to corrosion and wear. "Single link" measurements were taken where the chain was slack to detect corrosion loss. "Double link" measurements were taken where two links connected under tension to detect the combined effects of corrosion and wear. Chain links and other components which measured 90 percent or greater of original wire diameter are considered to be in "good" condition; measurement between 80 percent and 90 percent of original diameter is considered "fair" condition and is usually cause for the mooring to be downgraded in classification; any measurement less than 80 percent is considered "poor" and is cause for the mooring to be declared unsatisfactory for fleet use.

When a mooring is constructed from oversized chain, a measurement between 80 and 90 percent of the original wire size results in a mooring being considered in "fair condition", but no downgrading is required if the worn chain is still larger than required.

Standard underwater inspection procedures do not call for the inspection of any part of the mooring which has been buried. Ground legs and risers were observed only to the point at which they became buried; no attempt was made to locate and inspect anchors or other mooring materials which were not readily visible.

# 2.2 <u>Buoy.</u>

2.2.1 <u>Buoy Topside</u>. Each buoy was inspected to determine its general condition. The buoy markings were checked for conformance to those noted in applicable charts. Physical damage such as holes, dents, or listing was described. The fiberglass was inspected for cracks, wear, peeling, or rust-bleeding. Hatches, openings, and penetrations, were examined and worn material and rust were reported.

The buoy fenders and chafing rails were checked for integrity and secure connection to the buoy. Buoy top jewelry was measured with calipers to find the overall outside dimensions and areas of most severe reduction in wire size.

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**2.2.2** <u>Buoy Lower Portion</u>. Divers inspected the buoy below the waterline. The thickness of marine growth was recorded, two 1-foot-square areas were selected and cleared of growth without damaging the fiberglass, and the condition of the fiberglass was noted.

2.3 <u>Riser.</u> To determine chain wear, each riser chain was inspected by taking three consecutive double link measurements, using precut gauges and/or calipers, at both ends and at the center of the riser. To determine original chain size, divers took single link caliper measurements of the wire diameter. Divers also documented the type of hardware connecting the riser chain to the sinker. In many cases, Japanese chain of sizes between standard American sizes was installed. When this occurred, the divers used the next larger precut gauge, and all measurements below 80 percent were verified with calipers.

2.4 <u>Ground Legs.</u> To determine chain wear, three consecutive double link measurements were made at both ends and at the center of each leg until the chain was buried in the seafloor. Where a segment of chain was resting on the bottom and was not in tension, single link measurements were taken instead of double link measurements. To determine original chain size, divers took single link caliper measurements of its wire diameter. The hardware connecting the ground legs to the sinker was documented.

2.5 <u>Sinkers.</u> When visible, the sinkers were examined for general or localized wear. Wire diameters of the sinker hairpins were measured with calipers.

2.6 <u>Anchors.</u> No anchors were sighted during the course of the inspection

2.7 <u>Buoy Survey.</u> With the assistance of the Public Works Office, a rough geographic survey was conducted. Preliminary survey markers were created and marked with paint only until more permanent concrete monuments can be installed. The data in Appendix B gives the benchmark locations and the transit angles to the buoys obtained by backsighting from known points ashore. Until the new benchmarkers are accurately surveyed and tied into the local grid, no precise determination of the buoy locations can be made from this data.

3.0 INSPECTION SUMMARY

An in-depth discussion of the inspection results is contained in Annex A. Annex B contains buoy location survey data, Annex C contains photographs, and Annex D contains a copy of the preliminary report of the results of the inspection. A detailed evaluation of the information gathered during the inspection indicates the following:

- Of the 20 moorings inspected, 4 are in good condition and are satisfactory for continued use at their rated class; 3 are in good condition but should be reclassified due to undersized leg chain; 5 are in fair condition and satisfactory for their rated class due to oversized chain; 7 are in fair condition and should be downgraded; and 1 is in poor condition and should be overhauled. Table 2 presents the status of the PWC Yokosuka fleet moorings.
- Per DM-26, a class CC mooring requires three double legs attached to three spider plates. Although eight of the PWC Yokosuka moorings have been reported as CC class, each has only three or four single legs and, therefore, does not meet the DM-26 requirements for a class CC mooring.
- o The schematic drawing of mooring X-1 indicates that its two ground legs should be 80 degrees apart. In fact, these legs are parallel to each other and high lateral wind loadings could result in lateral displacement of a vessel moored between moorings X-1 and X-2.
- Only three of the four ground legs of mooring D3S were found to be connected to the sinker, and their orientation could not be determined. This missing leg could adversely affect the performance of other moorings D3N, D4N, and D4S within the cluster of moorings of which mooring D3S is a part.

o The schematic drawing of mooring X-8 (Figure A-18) shows that its two anchors are installed 180 degrees apart. Since X-8 is part of a bow/stern mooring, this angular orientation may be too large for the anchors to develop sufficient holding power when a large load is applied perpendicular to a line between the two anchors.

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- o The ground legs of half of the mooring systems (10 of 20) were completely buried in the mud bottom and inaccessible for inspection.
- o None of the PWC Yokosuka fleet moorings have a cathodic protection system installed.

#### 4.0 COMMENTS/RECOMMENDATIONS

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As a result of an analysis of the data collected during the inspection, the following comments/recommendations are pertinent:

- o Since none of the moorings reported as CC class meet DM-26 requirements for this class mooring, each of these should be downgraded commensurate with the number, wire size, and condition of its ground legs.
- o The parallel legs of mooring X-1 should be removed, reoriented, and reinstalled during the next scheduled overhaul.
- o In view of the missing ground leg of mooring D3S, recommend that the design of the mooring cluster be reviewed in order to determine the gravity of the loss of this leg on the performance of the overall cluster.
- o The perpendicular legs of mooring X-8 should be repositioned 120° apart during the next scheduled overhaul.
- o Since the vast majority of these moorings were designed and built by the Japanese, probably prior to World War II, a review of the design of each of these moorings should be conducted in order to determine whether the current configurations are adequate to meet expected load requirements.

ŝ	MOORING	REPORTED			N POOR	REMARKS	STATUS
ς Σ	DI2N	AR	-			Reclassfify to class B mooring due to wire diameter of ground leas	SAT
8 8	D12S	AR		~		Reclassify to class B mooring due to worn riser and wire diameter of ground legs	SAT
<b></b>	D2N	CCR		-		Reclassify to class C mooring to correspond with condition of D2S	SAT
2) 2)	D2S	CCR		-		Reclassify to class C mooring due to wire diameter of ground legs	SAT
		CCR		-		Reclassify to class B mooring due to wire diameter of ground legs	SAT
	CONFIGURATION CONFIGURATION	CCR			-	One of four ground legs missing. Review entire mooring cluster for adequacy	UNSAT
	D4N	CCR	-			Reclassify to class C mooring due to wire diameter of ground legs	SAT
	D4S	CCR	-			Reclassify to class C mooring to correspond with condition of D4N	SAT
8	D5N	CCR		~		Reclassify to class D mooring due to wire diameter of ground legs	SAT
	D5S	CCR		-		Reclassify to class D mooring to correspond with condition of D5N	SAT
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# INSPECTION SUMMARY

TABLE 2

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# TABLE 2 (CONT'D)

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# INSPECTION SUMMARY

MOORING NUMBER	REPORTED CLASS	CON GOOD		N POOR	REMARKS	STATUS
X-1	DR		-		Two ground legs run parallel into the bottom.	SAT
X-2	DR	500				SAT
X-3	DR	~				SAT
X-4	DR		-		Downgrade to a class F mooring due to worn ground legs.	SAT
X-5	DR		-		Oversized chain.	SAT
ZX-6	DR		-		Oversized chain.	SAT
	DR		-		Oversized chain.	SAT
รัฐ มีรู้X-8	DR					SAT
<sup>8</sup> ×-۶	DR		4		Oversized chain.	SAT
X-15	DR					SAT
TOTALS		7	12	ŀ		

## MOORING INSPECTION RESULTS

This Annex contains the following information for each mooring:

- o a summation of the inspection data obtained by the CHESNAVFACENGCOM EIC and UCT-TWO divers,
- o a diver data reporting form, and

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o a schematic drawing of the mooring which includes the latest as-built information. These drawings were submitted to CHESNAVFACENGCOM by PWC Yokosuka in April 1983.

Table A-1 lists the mooring class chain size requirements and was used in formulating the recommendations for downgrading certain PWC Yokosuka fleet moorings. Where chain was buried in the mud, preventing direct diver measurement, the record drawings were considered the best available data. In some cases diver measurements were used to update as-built dimensions. These updates are noted on the schematics.

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#### TABLE A-I MOORING CLASS CHAIN SIZE REQUIREMENTS

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Mooring Class	Required Riser Cha	Wire Diameter (in) in Ground Legs
AA	4	(23/4
BB	3 1/2	Double 2 1/2
CC	3 1/2	21/4
DD	3	3
А	2 3/4	2 3/4
В	2 1/2	2 1/2
С	2 1/4	2 1/4
D	2	2
E	3/4	3/4
F	/4	1 1/4
G	3/4	3/4

SOURCE: COMNAVFACENGCOM Design Manual Twenty-Six (DM-26), "Harbor and Coastal Facilities"

# INSPECTION RESULTS MOORING DI2N

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This is a large Japanese-built drum-type buoy with a hawsepipe. The buoy was fiberglass coated, but the fiberglass is badly chipped. The hull of the buoy below the waterline is covered with several inches of heavy marine growth. The top of the riser measured greater than 90 percent of its original wire diameter but is moderately rusted. The chafing rail is badly dented.

## <u>Riser</u>

The riser is 3-inch chain and measurements taken were all greater than 90 percent. In fact, the smallest double link measurement taken was 5 7/8 inches. The riser enters the bottom at a water depth of 40 feet.

#### Ground Legs/Sinkers/Anchors

Not visible for inspection.

## **Recommendation**

This mooring is in good condition.

As-built information contained in Figure A-1 reveals that the legs of this mooring were 2-1/2 inch wire diameter when installed. A class A mooring requires ground legs of 2 3/4-inch diameter. Therefore, recommend that this mooring be reclassified from a class A to a class B mooring.

LEH DEPTH:			+		LUCA I		うく		2		
COMPONEN COMPONEN	4,	ج 	NCHOR	SIZE/TY	ÞE:	NI		_ BUOY	TYPE:	HUJO	W/HAUSEPPE
COMPONEN BLIOY HARDW	🔲 sand		M MUD		] clay		CORAL		ROCK	Visibi	ity $\mathcal{A}'$ D = depth NI = not inspected, inaccessi
COMPONEN BUIOY HARINY						COND	ITION				
BUOY HARD	IS	ź	NEW	SIA	ופרב רוו	* ×	nod	BLELIN	° °¥	٥	COMMENT
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	VARE										BUN'S FIBERGHASS COATING IS
Uthout 1	"/2"										OHIPPED. HEAVY MARINE FRONTH
SHACKLE 4	**										BELOW WATER LINE. TOP HARDWAR
CISER CHAIN	\$										IS MODERATELY RUSTED AND THE
											CHAFING PAIL IS DENTED. SHALLES
NEARI	BUOY		<i>.</i> 0				シン			-0	RISED DOUBLE LINK MEASINGE HEAT WA
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# INSPECTION RESULTS MOORING D12S

## Buoy

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This is a large Japanese-built drum-type buoy with a hawsepipe. The top deck plate, top hardware and hawsepipe are all badly rusted. The buoy is fiberglass coated and has two rubber fenders. ad P. Susceedal Person in

## <u>Riser</u>

One double link measurement near the mud line was between 80 and 90 percent of the chain's original 3-inch diameter. About 15 feet of rusty riser chain snakes on the bottom before being attached to a cast steel sinker by a 4 1/2- inch shackle. The smallest double link measurement obtained was 5 1/4 inches (87.5 percent).

#### Ground Legs

The upper sections of two ground legs were visible. Leg A was measured and found to have a wire diameter of 2 1/2 inches. This leg and Leg B (which had a single link measurement of 2 5/16 inches) are connected to a cast steel sinker with 4 1/2-inch shackles. A fourth shackle is also attached to the hairpin of the sinker.

#### Sinker/Anchors

Not visible for inspection.

#### **Recommendation**

This mooring is in fair condition.

As-built information contained in Figure A-2 reveals that the legs of this mooring were 2 1/2-inch wire diameter when installed. A class A mooring requires ground legs of 2 3/4-inch diameter. Therefore, recommend that this mooring be reclassified from a class A to a class B mooring.

39-35 1 ONG: 35 17 44	RUM W/HAWSERSE	24	Visibility D = depth NI = not inspected, inacc		DCOMMENT		TOP DECK PLATE / TOP HARDWAR	HAWSEARE BADLY RUSTED.	FIBERGLASS COATING (RUBBER	FENDERS OK,		10' 5 %" DL.	15' 5 34" D.L.	30' 5 14" D.L. (872), FIFTEW FEI	OF RUSTY RISER ON BATTOM CONNE	30' TO A SINKER WITH A 4/2"SHACELE	The LEGS VISIBLE. ONE "EN	BOTTOM S'FROM SINKER. SECOND	30' 2 The ENTERS BATTOM 16' FROM	SWKEP.		AWAHDES NOT VISIBLE						HULER HARDING
A 1 AT 139-3					LE LINK %	80+ 80-								2														DIVERS: M
bkosuk	UI Z		CORAL	NDITION	DOUB	- 90+						7 7	5	1														IES
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CI ASS	ANC				ī				_		-+			-			9	77	00	21								ENGINEEL
D128 .					PONENTS		HARDWARE	"SHACKLE	" SHACKLE	CHAIN		NEAR BUOY	MIDDLE	NEAR GRD RG	JND RING	UPPER END	MIDDLE	ENTERS BOTTOM	UPPER END	MIDULE	ENTERS BOTTOM	UPPER END	MIDDLE	ENTERS BOTTOM	UPPER END	MIDDLE	ENTERS BOTTOM	MAY 1983
MODRING NO	VA LER DEPT				COMF		BUOY	234'	4/4	RISER			RISER		0UD	BRUG-	LEG NO A	10501	BENG-11 GROUND	LEG NO B	2300							

42, FIGURE A-2. MOORING DI2S SCHEMATIC DRAWING רביזעווו | שוּא NN 2-5 ~ -Hand Parter COMPONENTS BO 181 ю С P.I.I. がながった Spurial polinait whice 212"  $\mathcal{O}$ 2 1/2 " 17/16 4 'n LOCATION: E 13-7" 34' 26'4' 1 e S MOORING D - 12 4 81 19 MS4 M51 MOOKING MS Z E SM 4 4 7 2 L 2 <del>0</del> 25 ۵ 1 ۲. م R υ JOHING SINCKLE SUNCEUF. SIACLE ITEM RISER ANCHOR SINKER CHAIN (ماسك) BUOY LEG RUCY 90 Г. U. ¥ T I ESIN 154 MS1 M5g 0 180° ċ J MSa В 42 2700. Å:2 n-zi-a d V-12-5 L'SY2 A-8

CHESNAVFACENGCOM REPORT FPO-1-83(25), "PWC YOKOSUKA FLEET MOORINGS INSPECTION REPORT",

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This is a large Japanese-built drum-type buoy with a hawsepipe. The buoy is fiberglass coated. There is some light rusting of the top deck plate under the fiberglass and a medium amount of rust streaking of the side plating. The galvanized pipe chafing rail is rusted and flaking badly. A heavy coating of marine growth covers the buoy bottom below the water line.

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SPALESSON REPORT DUILD

# **Riser**

The riser consists of 3 1/2-inch chain. However, double link measurements of the lower half of this chain were between 80 and 90 percent of its original wire diameter. The riser enters the bottom at a depth of 60 feet.

#### Ground Legs/Sinker/Anchors

Not visible for inspection.

#### **Recommendation**

This mooring is in fair condition.

The worn condition of the riser chain of this mooring would dictate that this mooring be downgraded to a class A mooring. The ground leg diameters of 2 3/4 inches (Figure A-3) are also satisfactory for a class A mooring. However, this is part of a bow/stern mooring system and its classification should not exceed that of its sister mooring. Since mooring D2S can meet only the requirements of a class C mooring, recommend that this mooring be reclassified to a class C mooring.

D2N CLASS. CC LOCATION: 28050KA LAT: 139-37-35 LONG: 35-17-44	I. 60' ANCHOR SIZE/TYPE: WI BUOY TYPE DRUM W HAWSE PIPE	SAND MUD CLAY CORAL ROCK Visibility C C D = depth NI = not inspected, inaccessible	CONDITION	DNENTS NI NEW SINGLE LINK & DOUBLE LINK % D COMMENT	90+ 80+ 80- 90+ 80- 80- 80- 80-	ARDWARE FIBERGLASS COATED BUDY. LIGHT	UD LINK RUSTING OF TOP DECK UNDER	FIBERCHE FIBERCHES AND ROST STREAKING	HACKLE OF SIDES, CHAFING RAIL RUSTING/	CHANDE. BUDY HULL OK. HEAVY	IEAR BUOY 3/2" 10 MARINE GROWTH.			VD RING	PPER END SINKER VISIBLE AT BATTOM	IDDLE OF 10' CEATER IN HUD.	NTERS BOTTOM	PPER END		NTERS BOTTOM	PPER END		NTERS BOTTOM	PPER END	IDDLE	NTERS BOTTOM	MAY 83 ENGINEER IN CLIARGE JONES DIVERS: LITTLE SHUERN
MOORING NO.: D2V	WATER DEPTH: 60'	воттом туре:		COMPONENTS		BUOY HARDWARE	3 1/2 " END LINK	3 1/2 " SHACKLE	512 " SHACKLE	RISERCHAN	NEAR BUOY	RISER MIDDLE	NEAR GRD RG	GROUND RING	UPPER END	LEG MIDDLE	ENTERS BOTTOM	CBOLIND UPPER END	LEG MIDDLE	ENTERS BOTTOM	UPPER END	LEG MIDDLE	ENTERS BOTTOM	UPPER END	GROUNI) LEG MIDDLE	ENTERS BOTTOM	DATE: 4 HAY 83

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CHESNAVFACENGCOM REPORT FPO-1-83(25), "PWC YOKOSUKA FLEET MOORINGS INSPECTION REPORT",

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# INSPECTION RESULTS MOORING D2S

## Buoy

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This is a large Japanese-built drum-type buoy with a hawsepipe. The buoy is fiberglass coated, but there is some rusting of the metal hull beneath the fiberglass. There is some green paint near the buoy's water line. Standard paint is black or white.

### <u>Riser</u>

The riser was originally 3 1/2-inch chain which is now worn to between 80 and 90 percent of that figure near the mud line. The riser enters the bottom at a depth of 46 feet.

## Ground Legs/Sinker/Anchors

Although buried in the bottom, the divers were able to feel the top of the sinker and the top links of the three legs attached to it.

#### Recommendation

This mooring is in fair condition.

The worn condition of the riser chain indicates that this mooring should be downgraded from a class CC to a class A mooring. However, as-built information contained in Figure A-4 reveals that the legs of this mooring were 2 1/4-inch wire diameter when installed. A class A mooring requires ground legs of 2 3/4-inch diameter. Therefore, recommend that this mooring be reclassfied from a class CC to a class C mooring.

CHESNAVFFORNGODM REPORT FPO-1-93(25), "PHC YOKOSUMA FLEET MODDINGS INSPECTION REPORT

	-31.25 LONG: 35-17-22.25	EUM W/HANDERRE	Visibility $\frac{1}{2}$ $\frac{1}{2}$ D = depth NI = not inspected, inaccessible		D		RUST UNDER FIBERGLASS	GREEN PAINT NEAR WATELIAN			10 DIVER COULD REL TOP OF SWIKER	30' BURIED IN HUD BOTTOM. THERE	46' IEGS AND A RICER ARE	SUACKLED TO A 314 "HALPENIS.	NEAR BOTTOM RISER HEASUREN	BETWEEN SUAND 90 AERENT.											AEDINE/SAKO
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	CLASS:	<	-		Z											· ·							$\rightarrow$				ENGINE
<b>3</b>	<u>. D2S</u>	HE 46			PONENTS		HARDWARE				NEAR BUOY	MIDDLE	NEAR GRD RG	UND RING	UPPER END	MIDDLE	ENTERS BOTTOM	UPPER END	MIDDLE	ENTERS BOTTOM	UPPER END	MIDDLE	ENTERS BOTTOM	UPPER END	MIDDLE	ENTERS BOTTOM	MAY 83
332 1	MOORING NC	WA FER DEPT	BOTTOM TYF		COMI		BUOY					RISER		GROI	3			GROIND					2				DATE

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# INSPECTION RESULTS MOORING D3N

#### Buoy

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This is a large Japanese-built drum-type buoy with a hawsepipe. The buoy has a 12-foot diameter and is fiberglass coated. The hull of the buoy under the fiberglass is both dented and rusted. The buoy identification numbers need to be repainted and the chafing rail is badly rusted.

#### <u>Riser</u>

The riser consists of 3 1/2- and 3 1/4-inch chain. All measurements were greater than 90 percent. The upper section of the riser is covered with heavy marine growth and vertically enters the bottom at a water depth of 42 feet.

#### Ground Legs/Anchors/Sinker

Not visible for inspection.

#### **Recommendation**

This mooring is in fair condition.

As-built information contained in Figure A-5 reveals that the legs of this mooring were 2 1/2-inch wire diameter when installed. A class B mooring requires ground legs of 2 1/2-inch diameter. Therefore, recommend that this mooring be reclassified from a class CC to a class B mooring.

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CHESNAVFACENGCOM REPORT FP0-1-83(25), "PWC YOKOSUKA FLEET MOORINGS INSPECTION REPORT",

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# INSPECTION RESULTS MOORING D35

## Buoy

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This is a large Japanese-built drum-type buoy with a hawsepipe. The buoy is fiberglass coated but its sides have heavy rust bleeding. The pipe-type chafing rail is badly damaged.

#### <u>Riser</u>

The riser measured better than 90 percent of its original 3-inch wire diameter. The upper section of the riser chain is covered with moderate marine growth while the lower section is clean. About 8 feet of riser chain lies in a ball on the bottom before its bitter end is shackled to a cast steel sinker.

#### Ground Legs

About 5 feet of each of three ground legs were visible before the legs entered the bottom. Two of the legs were measured to be between 80 and 90 percent of their original wire diameters, while the third leg was measured to be greater than 90 percent. The fourth leg was not attached to the sinker.

## Sinker/Anchors

Although part of the sinker was visible the anchors were buried.

### Recommendation

This mooring is in poor condition.

Although Figure A-6 shows that mooring D3S is designed with four ground legs, only three were found to be connected to the sinker. Because this mooring is part of a cluster of moorings (see Figure 2), the missing leg could adversely affect the performance of moorings D3N, D4N and D4S as well. Recommend that the adequacy of this mooring cluster be reviewed in view of a missing leg from mooring D3S. Until this review can be completed, recommend that this mooring system's usage be limited to absolutely necessary situations. In addition, a class CC mooring requires three double legs. This mooring consists of only four single legs. After the results of the above review are known and corrective maintenance actions are completed, this mooring should be reclassified to a class mooring commensurate with the wire sizes of its component mooring material.

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INAVERITYSOUN REPORT FORSTLAD IES, STAT KONDERNA FILTET MILLONGS INGREITSTN AR LITH

1, 10, 35-17-31.25	W/HAWSEPIPE	111. 4-6' 0 - 4000 M - 200 M -	NILY U = depth NI = not inspected, inaccessible		COMMENT		FUSERIASS OK. PUST BLEEDING ON	SDEC. CHAFING ROM DANALEN			CHODERTE GROWTH		CLEAN CHAIN. EIGHT FOT Lave BAL	of RUSER CHAIN ON BYTON . 4/5.1	SHACKLE CONDECTS RISER TO THE	Sulf EL. ONLY FIVE FEET OF THREE LEGS	WERE OBSERVED BY THE DIVERS. THE	FOURTH LEG NAS MISSING.						MISSING			DING/SAKO
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MOORING NC	WA IER DEPT	BOTTOM TV5			COMI		BUOY	4"SHA	4/2" 5	RISER		RISER		GROI	BRUG	LEG ND A	N.E.	BRG GROUND	LEG NO.B	36	Beve		WEST				DATE: 51

40' DIVERS FOUND ONLY THRIE FLEV FIRM BOTTM רבריכעוו ש,גג m ころホる 6 - n 2 **COMPONENTS** 15' 185' 110, 185, 125' 200' 62, 110 LEGS (MAY 1983)  $\mathcal{M}$ 336 LOCATION : E 139° 39' 2614" N 35° 17' 31 14" SANPOL TONILAGE WIRE 4 Å" 2 <u>'</u>,″ 4 /4 4 /5 4 /5 3% 4 12" 'n 1 112 WELL n MOORING 101 87 101 I FIGURE A-6. MOORING D3S SCHEMATIC DRAWING AI AI AI AI MOORING MS 2 SHACKLE MS 2 SHACKLE MS 3 Δ ۲ ع 27 しい 1 J5 | J5 2 BS മ R Ľ ((LUMP) **BUOY** SIIACKLE SHACKLE ITEW CHIAIN JOINING RING RISER Cullin LEG Buoy è NOTE: N-E-0 000 T I 5-5-0 1.4-0 4155 F.O. ~ 8 153 C 7 22 35 (تى<sub>تى</sub>تى 27.0° A-21

CHESNAVFACENGCOM REPORT FPO-1-83(25), "PWC YOKOSUKA FLEET MOORINGS INSPECTION REPORT"

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# INSPECTION RESULTS MOORING D4N

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This is a large Japanese-built drum-type buoy with a hawsepipe. The buoy is fiberglass coated, but there is some evidence of rusting of the metal hull under this coating. Overall, this buoy is in good condition.

## Riser

The riser chain was originally 3 1/2-inch wire diameter. All measurements taken were greater than 90 percent of the initial diameter. The riser chain vertically enters the bottom at a water depth of 38 feet.

#### Ground Legs/Sinker/Anchors

Not visible for inspection.

#### **Recommendation**

This mooring is in good condition.

As-built information contained in Figure A-7 reveals that, when installed, the wire sizes of the ground legs met the requirements for a class C mooring, since one leg contains only 2 1/4-inch chain. Recommend this mooring be reclassified from a class CC mooring to a class C mooring.

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39, ł 1 איקן ועציינע FICH POTEN 17 17 COMPONENTS 120, 125 150, 125 1280, 200, 1380, 200, 62, ELEV , ЧЪ 212 Ζ 3/2" 4 1/8 4, 5√3" 2∕4" 3/4 44" WIER 3% : 0 1.0CATION: E 134" 31'2531" 22. 17' 20/2 ì Law BI TEM NYARAL TOWARE Ń MOORING 15 61 t 2 J5 1 L2 ۲3 SSM SSM 150 MOORTING MER. E B5 . S M5 I Z A-Av Ъ Ľ ٤ 1:100 SIACKIL JOINING SILACIE SIACKLE **INCIDA** (cruntp) CILAIN SHIKER RIFER LEG RING BUOY FIGURE A-7. MOORING D4N SCHEMATIC DRAWING °9 ž کر ک £Β. ESH) 152 -<u>8</u> 52 ¥ ¥. 1553 Δ •00; <u>5</u>2 2 153 - 52 \_ 2-5-0 270°---24

CHESNAVFACENGCOM REPORT FPO-1-83(25), "PWC YOKOSUKA FLEET MOORINGS INSPECTION REPORT"

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# INSPECTION RESULTS MOORING D4S

#### Buoy

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This is a large Japanese-built drum-type buoy with a hawsepipe. The buoy's fiberglass coating and fenders are in good condition. The buoy's identification number needs to be repainted. The top jewelry is badly rusted.

## <u>Riser</u>

The riser was originally 3 1/2-inch chain and still measures greater than 90 percent of that size. The riser enters the bottom at a water depth of 33 feet.

## Ground Legs/Sinkers/Anchors

Not visible for inspection.

#### Recommendation

This mooring is in good condition.

As-built information contained in Figure A-8 reveals that the ground legs of this mooring were 2 7/8-inch diameter when installed. This would dictate that the mooring is satisfactory for utilization as a class A mooring (2 3/4-inch diameter). However, this is part of a bow/stern mooring system and its classification should not exceed that of its sister mooring. Since mooring D4N can meet only the requirements of a class C mooring, recommend that this mooring be reclassified to a class C mooring.

HERVIERDENGON REPORT FPO-1-831251, HERVIERD FILEET HILEDINGS (NSPEITION REPORT

CERS     EXS     EXS     EXS       CILASS     CLASS     CL       D:     D 4/S     CLASS     CL       FE:     J 33     ANCHOR:     ANCHOR:       FE:     J 33     ANCHOR:     MUD       PE:     J SAND     MID     MUD       PE:     J SAND     MID     MUD       PC     HARDWARE     NI     NEW       PONENTS     NI     NEW     MUD       PC     HARDWARE     NI     NEW       PL/UK     NI     NEW     MUD       PL/UK     NI     MUD     MUD       PACKLE     NI     MUD     MUD       NEAR BUOY     MIDDLE     MUD     MUD       NIDDLE     NIDDLE     NIDDLE     NIDDLE       ENTERS BOTTOM     V     NIDDLE     NIDDLE       NIDDLE     NIDDLE     V     NIDDLE       NIDDLE     NIDDLE     V     NIDDLE       NIDDLE     V     V     V       NIDDLE     V     V     V       NIDDLE     V     V     V       NIDDLE     V     V     V		LOCATION: XXXSVXA LAT/39-39-22 LONG: 35-17-24.5	SIZE/TYPE: NI BUOY TYPE: DEM W/HAWE PITE	$\Box$ CLAY $\Box$ CORAL $\Box$ ROCK Visibility $\frac{2}{2} \frac{4}{D} = depth$ NI = not inspected, inaccessible	CONDITION	SINGLE LINK % DOUBLE LINK % D COMMENT	90+ 80+ 80- 90+ 80- 80- 80	FIBERGLASS COATED. FEUDERS	GOD CON DITIOD. IDENTIFICATION	NUMBER NEEDS REPAINTING. TOP	JEWELRY BADLY RUSTED.		* V S	UUU 15'	VU 33' ENTER BOTTON			GROWD LEGS/SINKEP /ANCHORS	BUR IED.									
CERS     EXS     EXS </td <td></td> <td>LOCATION: YERSUI</td> <td>rpe: NI</td> <td>] сгау 🗌 соваг</td> <td>CONDITION</td> <td>NOT NOT NOT</td> <td>80+ 80- 90+</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3 7 7</td> <td>UU.</td> <td>23</td> <td></td>		LOCATION: YERSUI	rpe: NI	] сгау 🗌 соваг	CONDITION	NOT NOT NOT	80+ 80- 90+						3 7 7	UU.	23													
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		o. D4S	TH: 33	PE: S		<b>PONENTS</b>		HARDWARE	id LINK	SHACKLE	HACKLE	e chan	NEAR BUOY	MIDDLE	NEAR GRD RG	UND RING	UPPER END	MIDDLE	ENTERS BOTTC	UPPER END	MIDDLE	ENTERS BOTTC	UPPER END	MIDDLE	ENTERS BOTTC	UPPER END	MIDDLE	

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2 È 37′ רבאקדא | הידא - m ω N 3 -- N FIRM ROMON .s.) COMPONENTS 120' 195' 190 171 62, ł S 3/1 2 1/3 2 48 4.11" 4 ° 0 4 SYNEON TONHAGE SIZE 9 % 2 % 47. 'n ئ LOCATION: E 139° 39'22" N 35° 11'24%" 4 m ຳ 5 [16 WPI] す NOORING 101 50 I 2 52 MS 4 MS 3 MS 3 MSF 151 A1 A2 N N Ē 5 22 ß μ 8 ī Ľ 3 BUOY (Juur) MOORING DOINING SINCELE SILACKLE SINKER RISER ANCHOR Youa ITEM CHAIN RING LEG Ř. ŝ 159 °9 S FIGURE A-8. MOORING D4S SCHEMATIC DRAWING П. В. M52 NSI JS, Š 180° R ]52 ¢ 1:55 8 <u>\_</u> Щ3 В MSS AI Q SSS SSS حظم -0<sup>D-3.5</sup> 2100 N55 -**A2** 1-27 C

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CHESNAVFACENGCOM REPORT FP0-1-83(25), "PWC YOKOSUKA FLEET MOORINGS INSPECTION REPORT"

# INSPECTION RESULTS MOORING D5N

## Buoy

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This is a Japanese-built drum-type buoy with a hawsepipe. The buoy is fiberglass coated and has two rubber fenders. The top deck is covered with moderate rust, and the chafing rail is rusted through.

## <u>Riser</u>

The riser chain was originally 2 3/4 inches and is worn to between 80 and 90 percent of this value. The upper section is covered with a heavy marine growth while the lower section is clean. About 20 feet of riser chain lies on the bottom before disappearing into the mud.

## Ground Legs/Sinker/Anchors

Not visible for inspection.

#### **Recommendation**

This mooring is in fair condition.

As-built information contained in Figure A-9 reveals that the minimum wire diameter of one leg was only 2 inches when installed. Therefore, recommend that this mooring be reclassified to a class D mooring.

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# INSPECTION RESULTS MOORING D55

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This is a Japanese-built drum-type buoy with a hawsepipe. The buoy is fiberglass coated and has two rubber fenders in good condition. The top plate, top jewelry, and hawsepipe are moderately rusted.

#### <u>Riser</u>

The upper section of the riser chain is covered with a heavy layer of marine growth while the lower section is clean. Although the upper chain was measured to be greater than 90 percent of its original wire diameter (2 3/4 inches), measurements obtained near the mud line were between 80 and 90 percent. The riser enters the bottom at a water depth of 30 feet.

# Ground Legs/Sinker/Anchors

The ground legs and anchors are buried in the bottom. A portion of the sinker was visible about 4 feet from where the riser entered the bottom.

#### **Recommendation**

This mooring is in fair condition.

As-built information contained in Figure A-10 reveals that the ground legs of this mooring were 2 1/4-inch diameter when installed. This would dictate that the mooring is satisfactory for utilization as a class C mooring (2 1/4-inch diameter). However, this is part of a bow/stern mooring system and its classification should not exceed that of its sister mooring. Since mooring D5N can meet only the requirements of a class D mooring, recommend that this mooring to be reclassified to a class D mooring.

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CHESNAVFACENGEON REPORT FPO-1-83(25), "PWC YOKOSUKA FLEET MOORINGS INSPECTION REPORT"

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# INSPECTION RESULTS MOORING X-1

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This is a Japanese-built drum-type buoy with a hawsepipe. The buoy is fiberglass coated and its bottom is covered with 2 to 3 inches of marine growth.

### **Riser**

Although the upper section is in good condition, measurements taken of the lower section were all between 80 and 90 percent of its original wire diameter (2 1/2 inches). The lower end of the riser is connected to a sinker at a water depth of 25 feet.

## Ground Legs

About 30 feet of the two parallel ground legs were visible before the ground leg chain entered the bottom. Each of the two ground legs was connected to the hairpin of the sinker with a shackle. Both of the legs enter the bottom to the east of the sinker. Both legs measured to be between 80 and 90 percent.

## <u>Sinker</u>

The mooring's 8 ton sinker was located at the base of the riser. Although partially submerged in the bottom the sinker appears to be in good condition.

## Anchors

Not visible for inspection.

## Recommendation

This mooring is in fair condition.

Although the schematic drawing of this mooring (Figure A-11) indicates the two ground legs should be 80 degrees apart, they do, in fact, run side-by-side until entering the

1-EDVALTAGENDOOM REPORT FPO-1-93 25%, "PWO MONDSVIA FLEET MOORINGS INSPECTION FERTAT"

bottom about 30 feet from the sinker. Recommend that these legs be relayed along their proper orientation during the next scheduled overhaul. In the interim, this mooring should be in satisfactory condition for utilization as a class D mooring.

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# INSPECTION RESULTS MOORING X-2

#### Buoy

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This is a Japanese-built drum-type buoy with a hawsepipe. The buoy is fiberglass coated and its top was recently repainted. The fenders are in good condition but the buoy has a slight list.

## **Riser**

The riser chain was originally 2 1/2 inches of wire diameter and still measures to be greater than 90 percent of this size. The chain has no marine growth on it. Only 3 feet of riser chain lies on the bottom before it is attached to a sinker with a 3-inch end link and a 4-inch shackle.

## Ground Legs

The upper ends of two ground legs were visible. These legs were both attached to the sinker hairpin with end links and shackles. About 3 feet of the northern and 50 feet of the western legs were visible before they enter the bottom.

### Anchors/Sinker

The partially buried sinker appears to be in good condition but the anchors were not visible.

#### **Recommendation**

This mooring is in good condition and satisfactory for continued use as a class D mooring. Figure A-12 is a schematic drawing of the mooring.

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CHESMAVFACEMGCOM REPORT FPO-1-83(25), "PMC YOXOSUKA FLEET MOORINGS INSPECTION REPORT"



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# INSPECTION RESULTS MOORING X-3

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This is a Japanese-built drum-type buoy with a hawsepipe. There is some moderate rust on the top of the buoy and the chafing rail is broken. The buoy has two rubber fenders in good condition and has been partially repainted.

## <u>Riser</u>

The riser originally had a 2 1/2-inch wire diameter and still measures greater than 90 percent of the initial size. The riser enters the bottom at a 25-foot water depth.

#### Ground Legs/Sinker/Anchors

Although the divers could feel the top of the buried sinker, the ground legs, anchors and sinker were not visible.

# **Recommendations**

This mooring is in good condition and satisfactory for continued use as a class D mooring. Figure A-13 is a schematic drawing of the mooring.



# INSPECTION RESULTS MOORING X-4

# <u>Buoy</u>

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This is a Japanese-built drum-type buoy with a hawsepipe. This buoy was recently repainted and is in good condition.

## **Riser**

The riser chain was originally 2 1/2-inch wire diameter and still measures greater than 90 percent of its initial size. About 10 feet of riser chain rests on the bottom (12 feet of water depth) before it is connected to a sinker hairpin with a 3 1/2-inch shackle.

## Ground Legs

The upper portions of both ground legs were visible. About 40–45 feet of the legs were observed before they entered the bottom. Both legs were badly rusted and measured only between 80 and 90 percent of their original wire diameter (1 3/4 inches).

### Sinker/Anchors

Not visible for inspection.

### **Recommendation**

This mooring is in fair condition.

Due to the initial size (1 3/4 inches) and current condition (80–90 percent) of its ground legs, it is recommended that this mooring be downgraded from a class D to a class F mooring. Figure A-14 is a schematic drawing of this mooring.

JARONAL FACENSION REPORT FRO-1-83(05), "PHO YONOSUNA FLEET MODRINGS INSPECTION REPORT

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CHESNAVFACENGEON REPORT FPO-1-83(25), "PWC YOKOSUKA FLEET MOORINGS INSPECTION REPORT"

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# INSPECTION RESULTS MOORING X-5

#### Buoy

This is a Japanese-built drum-type buoy with a hawsepipe. This buoy is fiberglass coated and is in good condition with about 2 inches of marine growth on the bottom.

# **Riser**

There is about 10 feet of riser chain on the bottom, the bitter end of which is connected to a sinker with a 4-inch shackle and a 3-inch end link. Double link measurements were all greater than 90 percent of the original 3-inch wire diameter. The riser is in good condition.

#### Ground Legs

Two ground legs were observed; both had about 75-100 feet of chain visible and both were connected to the sinker with 3-inch shackles and end links. One leg measured greater than 90 percent of the 2 3/4-inch wire diameter guage used while the other measured between 80 and 90 percent.

#### Sinker/Anchors

The top of the sinker was visible but both anchors were buried.

#### **Recommendation**

This mooring is in fair condition and is satisfactory for continued use as a class D mooring. If this is intended for use as a free swinging mooring, three legs are required. Figure A-15 is a schematic drawing of the mooring.

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CHESHAVFACENGCOM REPORT FPO-1-83(25), "PWC YOKOSUKA FLEET MOORINGS INSPECTION REPORT"

# INSPECTION RESULTS MOORING X-6

# Buoy

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This is a Japanese-built drum-type buoy with a hawsepipe. The buoy is fiberglass coated, but the glass is badly chipped. The two rubber fenders are in good condition, but the hawsepipe is badly rusted.

### <u>Riser</u>

The original size of the riser was 2 3/4 inches, and it still measures greater than 90 percent. The upper section of the chain is covered with heavy marine growth, but the section in the wear zone is clean. About 15 feet of the riser chain rests on the bottom before it is connected to a sinker.

#### Ground Legs

The upper portions of three ground legs were observed. The original wire diameter of two of these legs was 2 1/8 inches and one was 2 5/8 inches. Two of the three legs were measured to be between 80 and 90 percent of their original size using a 2 1/4-inch gauge. The as-built diagram indicates that the southern leg of this mooring is also the northern leg of mooring X-7. However, this leg entered the bottom about 50 feet from the X-6 sinker and its commonality with mooring X-7 could not be verified. This leg measured much greater than 90 percent with a 2 1/4-inch gauge, therefore, it is at least 80 percent of its original 2 5/8-inch size.

### Sinker/Anchors

Although the upper portion of the sinkers was visible, the anchors were not.

#### Recommendation

This mooring is in fair condition and satisfactory for continued use as a class D mooring. Figure A-16 is a schematic drawing of the mooring.

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### **INSPECTION RESULTS** MOORING X-7

### Buoy

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This is a Japanese-built drum-type buoy with a hawsepipe. The top plate is covered with moderate rust and the buoy is in need of painting. Its two fenders are in acod condition. The bottom is covered with 2 inches of marine growth.

### Riser

The wire diameter of the riser chain was originally 2 3/4 inches and measurements show that the chain is still greater than 90 percent of this size. There is about 10 feet of riser chain on the bottom before the bitter end is attached to a sinker.

#### Ground Legs

Three legs were observed to be connected to the sinker. Two legs originally were 2 1/8 inches and a third was 2 5/8 inches. A 2 1/2-inch gauge was used to measure all three leas. Leg A measured less than 80 percent. Therefore, it is less than 94 percent of its original 2 1/8-inch size. The data is inconclusive. Leg B measures greater than 80 percent. It, therefore, is greater than 94 percent of its original size. Leg C ("L5" in fig. A-17) measures greater than 90 percent. It is, therefore, greater than 86 percent of its original 2 5/8-inch size.

### Sinker/Anchors

The sinker was visible and appeared to be in good condition, but the anchors were buried.

### Recommendation

This mooring is in fair condition.

Although one leg measures between 80 and 90 percent of its original size (2 5/8 inches), it is still larger than the 2-inch size required. Therefore this mooring is satisfactory for continued use as a class D mooring. Figure A-17 is a schematic drawing of the mooring.

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CHESHAVFACENGCOM REPORT FPO-1-83(25), "PMC YOKOSUKA FLEET MOORINGS INSPECTION REPORT"

### INSPECTION RESULTS MOORING X-8

### Buoy

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This is a Japanese-built drum-type buoy with a hawsepipe. The buoy is fiberglass coated and has two rubber fenders. The chain links at the top of the riser are deeply pitted. The top and side of the buoy are badly rusted beneath the fiberglass.

### <u>Riser</u>

The original wire diameter of the riser chain was 2 3/4 inches. Double link measurements reveal that this chain is still greater than 90 percent of its initial size. About 10 feet of the riser rests on the bottom before being attached to the sinker.

### Ground Legs

The top few links of each of three ground legs were visible before these legs entered the bottom. Each of the legs was measured to be greater than 90 percent of the 2 1/2-inch wire diameter gauge used. As-builts indicate two legs were 2-inch and one leg was 2 3/4-inch when new.

### Sinker/Anchors

The sinker was partially buried but appeared to be in good condition. The sinker's hairpin was measured to be 4 1/2 inches. None of the anchors were visible.

### **Recommendation**

This mooring is in good condition.

The schematic drawing of mooring X-8 (Figure A-18) shows that its two anchors are installed 180 degrees apart. Since X-8 is part of a bow/stern mooring, this angular orientation may be too large for the anchors to develop sufficient holding power when a large load is applied perpendicular to a line between the two anchors. This could result in

CHEDY-U-DENDION REPORT FPO-1-33(CB), MP4C YOH JUKA FLEET MINPENDS INSPECTION PERCENT.

a large displacement of mooring X-8 when pulled toward mooring X-9. Recommend that a review of the design of mooring X-8 be conducted to determine its adequacy and possible design correction to DM-26 standards during the next scheduled overhaul.

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### INSPECTION RESULTS MOORING X-9

#### Buoy

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This is a Japanese-built drum-type buoy with a hawsepipe. The buoy is fiberglass coated and has two rubber fenders. The top deck has a light coating of rust and the identification numbers need repainting.

### <u>Riser</u>

Although the upper portion of the riser chain is in good condition, double link measurements near the mud line showed that this chain is between 80 and 90 percent of its original 2 3/4-inch wire diameter. About 10 feet of chain rests on the bottom prior to connection to a sinker.

### Ground Legs

The upper portions of three ground legs were visible. Although the chain varied in wire size from 2 to 2 3/4 inches, single link measurements were all greater than 90 percent. About 20 feet of Leg A and 30 feet of Leg B were visible. Leg C entered the bottom immediately below its connection to the sinker.

### Sinker/Anchors

The sinker has a 4 7/8-inch hairpin and is in good condition. The anchors were not visible.

### **Recommendation**

This mooring is in fair condition.

Although certain sections of the riser chain are worn to within 80 to 90 percent of its original size, the worn chain is still larger than the 2-inch chain required for a class D mooring. This mooring, therefore, is considered to be satisfactory for continued use as a class D mooring. Figure A-19 is a schematic drawing of the mooring.

### A-60

CHESNAVFROENDOM REPORT FRO-1-83(251, MERC VOHOCURE FLEET MUDRINGS INDREDION REPORT.

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KA LAT 139-39-1235 LONG: 35-17-22.5	BUOY TYPE DEUN UN HAWSE DIPE	$\mathbf{X}$ ROCK Visibility D = depth NI = not inspected, inaccessible	UBLE LINK % D COMMENT	80+ 80-	SLIGHTLY RUSTED TOP DECK.	RUBBER FENDERS. IDENTIFICATION	NUMBERS NEED REPRINTING.			Lio' TEN FEET ON BOTTOM PRIOR TO	15' CONNECTION TO SAUKER UP 3 34"	UN 25 SHACKLE		25' ABOUT 20'UISIBLE		25' ABOUT 30' UISIBLE			25' EUTLES BOTTOM IMMEDIATELY	BELOW CONNECTON TO SINKER		ALL THEFE LEGS CONNECTED TO	SINKER WITH 334" SHACKLES.		DIVERS:
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MOORING NO. X-9 CLASS	WATER DEPTH: 25' A	BOTTOM TYPE:	COMPONENTS		BUOY HARDWARE	1 K" SHACKLE	1 344" SHACKLE	3/2" SHACKLE	RISER CHAILD	NEAR BUOY	RISER MIDDLE	NEAR GRD RG	GROUND RING	UPPER END	ENTERS BOTTOM	UPPER END	LEG MIDDLE	ENTERS BOTTOM		LEG MIDDLE	ENTERS BOTTOM	UPPER END	LEG MIDDLE	ENTERS BOTTOM	DATE: 3 MAY 83 ENGINE

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### INSPECTION RESULTS MOORING X-15

### Buoy

This is a Japanese-built drum-type buoy with a hawsepipe. The fiberglass coating is chipped and in some areas peeling from the buoy. The hawsepipe and its enclosed riser chain are rusted, and the top deck chafing rail is damaged.

### **Riser**

The riser originally had a 3-inch wire diameter, and double link measurements show that the size of the chain is still greater than 90 percent of this figure. The riser enters the bottom at a water depth of 40 feet.

### Ground Legs/Sinker/Anchors

Not visible for inspection.

### **Recommendations**

Although this mooring is in good condition and satisfactory for continued use as a class D mooring, the buoy should be overhauled whenever possible. If this is intended to be used as a free-swinging mooring, three legs are required. Figure A-20 is a schematic drawing of the mooring.

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CHESNAVFACENGCOM REPORT FPO-1-83(25), "PWC YOKOSUKA FLEET MOORINGS INSPECTION REPORT",

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## **ANNEX B**

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## BUOY LOCATION SURVEY DATA

### ANNEX B

<u>YOKOSUKA BUOY LOCATION SURVEY DATA</u>. The most recent available benchmark map was dated March of 1954. Unfortunately, it was not intended for surveying points on the water. One benchmark on the chart had a clear view of the moorings and was utilized. A second benchmark was created at a location where most of the moorings could be seen. At both locations, the angles to the buoys were measured from (a) an orange and white pole visible from both sites, and (b) from magnetic north.

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Until these benchmarks are accurately surveyed, no accurate position data can be generated from these angles. The benchmark map does not list latitude or longitude, only elevations. The temporary benchmark should be replaced with a more permanent concrete monument.

The first benchmark is called BM-10 and the second temporary benchmark was designated T-1 for this inspection.

<u>DESCRIPTION OF BM-10.</u> BM-10 is BM(A-4) from the Yokosuka Naval Base Benchmark Map, March 1954. Photograph 2, in Annex C, shows the Sherman Seawall atop which rests the brass rivet of triangulation station #10. Photograph 3 shows a view looking over this marker out to the buoys. Figures B-1 and B-2, reproduced from the referenced map, show the position of Benchmark BM-10. Photograph 1 shows the location of the orange pole from BM-10 between Drydock #5 and the Sherman Seawall. Photograph 4 is looking north-northeast from BM-10 over Pontoon #5.

<u>DESCRIPTION OF T-1.</u> T-1 is north of the opening of drydock No. 6. Figure B-3, reproduced from the benchmark map, shows the general location of Benchmark T-1 while Figure B-4 provides close-up details. Photographs 5, 6, and 7 are views of T-1 from the north, east, and south. Photograph 8 is a close up view of bench mark T-1.

<u>BUOY ANGLES.</u> Tables 1 and 2 contain the buoy angles measured from each of these two benchmarks.

NOTE: All photographs referenced above are contained in Annex C.

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ON TOP OF THE BRASS RIVET OF TRIANGULATION STATION #10 150' WEST OF PONTOON #5 ON SHERMAN SEAWALL.

FIGURE B-2. BLCWUP OF THE SITE OF BENCHMARK B-10.





# TABLE B-I. BUOY ANGLES FROM BM-10

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BUOY	COUNTER CLOCK	WISE ANGLE	٩A	<b>IGLE</b>	FROM	
NUMBER	FROM ORANG	GE POLE	MAG	NETI	C NORTH	COMMENTS
	•		•			
X-15	75° 54'	00"	250	'00	20" NE	against east shore
D-2N	95 <sup>0</sup> 55'	20"	5 <sup>0</sup>	13'	00" NE	
D-12N	106 <sup>0</sup> 09'	00"	5 <sup>0</sup>	13'	20" NW	
D-2S	107 <sup>0</sup> 26'	20"	6 <sup>0</sup>	30'	40" NW	
D-125	108 <sup>0</sup> 40'	00"	7 <sup>0</sup>	46'	00" NW	
X-3	111 <sup>°</sup> 27'	20''	10 <sup>0</sup>	30'	40" NW	
X-1	113 <sup>0</sup> 51'	20''	12 <sup>0</sup>	57'	20" NW	
D-3N	114 <sup>0</sup> 04'	20"	13 <sup>0</sup>	07'	20" NW	
X-4	116 <sup>0</sup> 23'	00"	۱5 <sup>0</sup>	27'	00" NW	against sea wall
X-2	118 <sup>0</sup> 22'	20"	۲ <sup>0</sup>	27'	20" NW	near wall, to
						right of buildings
D-3S	120 <sup>0</sup> 55'	20''	20 <sup>0</sup>	01'	00" NW	
X-5	121 <sup>0</sup> 57'	20"	21°	04'	00" NW	
D-4N	123 <sup>0</sup> 09'	40"	22 <sup>0</sup>	15'	20" NW	
X-6	127 <sup>0</sup> 20'	20"	26 <sup>0</sup>	21'	20" NW	off stern of barge
X-7	133 <sup>0</sup> 42'	20"	32 <sup>0</sup>	46'	20" NW	standing alone
X-8	139 <sup>0</sup> 47'	00"	38 <sup>0</sup>	50'	20" NW	off bow of barge
X-9	144 <sup>0</sup> 21	20"	43 <sup>0</sup>	י72	20" NW	
D-4S	148 <sup>0</sup> 56'	00"	48 <sup>0</sup>	27'	20" NW	in front of hill
						with bunkers
D-5N	170 <sup>0</sup> 55'	20''	70 <sup>0</sup>	00'	20" NW	
D-5S	173 <sup>0</sup> 55'	20''	72 <sup>0</sup>	55'	20" NW	rusty, no fenders

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# TABLE B-2. BUOY ANGLES FROM T-I

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BUOY	CLOCKWISE ANGLE	ANGLE FROM	
NUMBER	FROM ORANGE POLE	MAGNETIC NORTH	COMMENTS
X-15	11 <sup>°</sup> 41' 00"	139 <sup>0</sup> 32' 00" SW	X-15
D-55	28 <sup>0</sup> 28' 20"	122° 42' 00" SW	Previously hidden
			from BM-10
D-5N	32 <sup>0</sup> 06' 20''	119 <sup>0</sup> 06'20"SW	
D-45	33 <sup>0</sup> 44' 20"	117 <sup>0</sup> 27' 20" SW	
X-9	41 <sup>°</sup> 57' 00"	109 <sup>0</sup> 17' 00" SW	stern of barge
D-4N	43 <sup>0</sup>   9' 00''	107 <sup>0</sup>     ' 20" SW	2
X-8	43 <sup>0</sup>  0' 40"	107 <sup>0</sup> 22' 00" SW	bow of barge
X-7	44 <sup>0</sup> 45' 00"	106 <sup>0</sup> 27' 20" SW	at guaywall
D-3S	46 <sup>0</sup> 26' 20"	104 <sup>0</sup> 46' 20" SW	in front of sand bar
X-6	49 <sup>0</sup> 02' 20"	10 <b>2<sup>0</sup> 09' 20''</b> SW	stern of large barge
X-5	51 <sup>°</sup> 37' 20"	99 <sup>0</sup> 35' 40" SW	bow of large barge
D-3N	54 <sup>0</sup> 51' 00"	96 <sup>0</sup> 21' 00" SW	in front of white
			bridge
D-25	57 <sup>0</sup> 05' 40''	94 <sup>0</sup> 07' 00" SW	right of white bridge
D-125	61 <sup>°</sup> 45' 20"	89 <sup>0</sup> 27' 40" SW	
X-2	68 <sup>0</sup> 39' 00''	82 <sup>0</sup> 34' 00" SW	close to quaywall
			with white building
X-1	68 <sup>0</sup> 42' 20''	82 <sup>0</sup> 28' 00" SW	in front of previous
			buoy
X-4	70 <sup>0</sup> 12' 00"	81 <sup>0</sup> 01' 20" SW	
X-3	70 <sup>0</sup> 50' 20''	80 <sup>0</sup> 21' 20" SW	
D-12N	71 <sup>0</sup> 20' 20''	79 <sup>0 ·</sup> 42' 20" SW	against quaywall
D-2N	76 <sup>0</sup> 02' 00"	75 <sup>0</sup> 10' 20" SW	

# ANNEX C

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# PHOTOGRAPHS

## PWC YOKOSUKA SURVEY PHOTOGRAPHS

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1. Orange and White Striped Reference Pole



2. Benchmark BM-10 Atop the Sherman Seawall



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3. The Sherman Seawall and BM-10



4. Veiw to the North-Northeast of BM-10



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7. Veiw of Benchmark T-1 from the



8. Closeup of Benchmark T-1





# PWC YOKOSUKA INSPECTION PHOTOGRAPHS

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**Typical Rust Bleeding Underneath the Fiberglass** 



Buoy D-4-N. Note Missing Section of Chafing Rail, Rusting, and Spot Painted Pad Eye



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Typical Good Condition of Fiberglass on Buoy Hulls



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Buoy D-5-N. Rusted Hawse Pipe and Riser Material



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Mooring D-5-S. Little Marine Growth, Lightly Rusted Riser Chain Near the Mud Line



**Buoy X-2. Excellent Condition** 



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Rusted Top Deck, Chafing Rail, and Top Hardware of Buoy X-8



Mooring X-9. Riser Chain Connection to Sinker Hairpin with a Shackle

# ANNEX D

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# REFERENCES

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FROM: CHESNAVFACENGCOM WASHINGTON DC

TO:PUC YOKOZUKA JA

INFO PACNAVFACENGCOM PEARL HARBOR HI

COMNAVFACENGCOM ALEXANDRIA VA

UNCLAS //NILOOO//

SUBJ: FLEET MOORING INSPECTION

L. A CHESNAVFACENGCOM/UCT TWO UNDERWATER INSPECTION OF THE 20 MOOR-INGS LOCATED AT YOKOSUKA WAS CONDUCTED DURING THE PERIOD L-6 MAY 83. THIS IS A PRELIMINARY REPORT OF THE INSPECTION RESULTS TO PROVIDE AN ALERT TO SEVERAL SIGNIFICANT FINDINGS:

A. MOORINGS X-3, X-6, X-7 AND X-15: GOOD CONDITION.

B. MOORINGS X-2, X-5 AND X-9: PORTIONS OF CHAIN WERE FOUND TO BE WORN TO BETWEEN &D AND 9D PERCENT OF ITS ORIGINAL SIZE BUT WILL NOT REQUIRE DOWNGRADING SINCE THE CHAIN IS OVERSIZED FOR D-CLASS MOORINGS.

C. MOORING X-1: DESIGN DRAWING INDICATES TWO LEGS AT AD DEGREE SEPARATION. LEGS WERE FOUND TO BE PARALLEL. LATERAL WIND LOADS COULD RESULT IN LARGE LATERAL DISPLACEMENT OF A SHIP MOORED BETWEEN X-1 AND X-2. RECOMMENDED CORRECTING LEG ORIENTATION AT NEXT OVER-

TED JONES 433-3881	CODE: FPO-LC{PDC} LS JUN 83 TJ	COPY TO:	FPO-LC{PDC} TED, FPO-LC, FPO-LOP2, 09/00, 0161, DAILY
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D. MOORING X-A: LOD DEGREE ORIENTATION OF LEGS SHOWN IN DESIGN DRAWINGS APPEARS TOO LARGE FOR ANCHORS TO DEVELOP SUFFICIENT HOLDING CAPACITY. X-A AND X-9 ARE USED AS A BOW-STERN MOORING. EXPECT LARGE DISPLACEMENT OF X-A WHEN PULLED TOWARDS X-9. RECOMMEND REVIEW OF DESIGN ADEQUACY AND CORRECTION IAW DM-26 STANDARD DESIGN FOR BOW-STERN MOORINGS AT NEXT OVERHAUL.

E. MOORING D-3-S: ONLY THREE OF FOUR LEGS SHOWN IN DRAWINGS WERE FOUND TO BE CONNECTED - ORIENTATION UNKNOWN. BECAUSE THIS IS PART OF A SIX BUOY CLUSTER, THE MISSING LEG COULD ADVERSELY AFFECT THE PERFORMANCE OF MOORINGS D-3-N, D-4-N AND D-4-S AS WELL. RECOM-MEND REVIEW DESIGN OF THIS BUOY CLUSTER CONSIDERING THE MISSING LEG.

F. MOORINGS D-12-N AND D-12-S: RECOMMEND DOWNGRADING FROM CLASS A TO CLASS B DUE TO USE OF 2 1/2 INCH CHAIN INSTEAD OF THE 2 3/4 INCH CHAIN REQUIRED FOR CLASS A.

G. MOORINGS D-2-N, D-2-S, D-3-N, D-3-S, D-4-N AND D-4-S: RECOMMEND DOWNGRADING FROM CLASS CC TO CLASS B. THESE MOORINGS UTILIZE THREE 2 1/2 INCH LEGS EACH. CLASS CC MOORINGS REQUIRE THREE PAIRS OF 2 3/4 INCH LEGS EACH.

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H. MOORINGS	D-5-N AND D-5-5	RECOMMEND DOWN	GRADING FROM CLA
CC TO CLASS D.	CLASS CC REQUIRES	S PAIRED 2 3/4 IN	CH LEGS. D-5-N
HAS TWO INCH LEG	S AND D-5-S HAS E	2 1/4 INCH LEGS.	THE TWO BUOYS A
USED AS A SINGLE	BOW-STERN MOORIN	IG.	
I. MOORING	X-4: RECOMMEND D	OUNGRADING FROM	CLASS D TO CLASS
DUE TO 1 3/4 INC	H LEGS BEING WORN	I TO BETWEEN OO AN	ND 90 PERCENT OF
THEIR ORIGINAL S	IZE.		
RECOMMENDED	CLASS DESIGNATION	IS ARE BASED ON SI	FANDARD FLEET
MOORING DESIGNS	CONTAINED IN NAVF	AC DM-26. ALTHOU	JGH THESE MOORIN
ARE OF JAPANESE	DESIGN, IT IS REC	COMMENDED THAT CHA	IN SIZES AND
LEG CONFIGURATIO	NS COMPLY WITH DM	-SP WINIWAR.	
2. ABOVE INFO W	AS DISCUSSED DURI	NG MTG BTWN CDR S	ALTOUN CPWC
YOKOSUKA} AND TE	D JONES {CHESNAVF	ACENGCOM3 OF 6 MA	Y 83.
3. ANTICIPATE D	ISTRIBUTION OF DE	TAILED INSPECTION	REPORT IN
LATE JULY 83- C	HESNAVFACENGCOM P	OC IS MR. TED JON	{505} TA 23
433-3881 OR AUTO	VON 288-3881.		
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FM PHC YOKOSUKA JA

TO CHESNAVFACENGCOM WASHINGTON DC

INFO COMNAVFACENGCOM ALEXANDRIA VA PACNAVFACENGCOM PEARL HARBOR HI UCT TWO

BT UNCLAS //N11000//

SUBJ: FLEET MOORING INSPECTIONS

A. CHESNAVFACENGCOM MASHINGTUN DC 062030Z APR 83

1. INFO REF A, PAPA TWO A THRU D, F AND H PROVID IN PWC YOKOSUKA JA LTR FILE 83042 OF 7 APR 83 PER PHONECON BTWN PWC CODE 102 AND CHESDIV CODE FPG-1 OF 30 MAR 83.

2. INFO REG REF A, PARA TWO E AND G FOLLOW:

A. PARA E: NO ANTICIPATED USE OF CLASS A AND CLASS CC MOORINGS. HM, YC AND YCV BARGES WILL UTILIZE CLASS D MUORINGS X1 THRU X9 DURING PERIOD 1-21 MAY 1983. CLASS D MOORING X-15 HILL BE UTILIZED DURING PERIOD 10-21 MAY 1983.

B. PARA G: ALL MOORINGS ARE JUINT USE WITH GOVERNMENT OF JAPAN. NO U.S. SHIPS HAVE UTILIZED CLASS A AND CLASS CC MODRINGS DURING PAST THREE YEARS. JAPANESE EQUIVALENT OF AGB, AGS, AGE, ARC, ASE, ASU, OD, DOH AND TU RANGING IN SIZE FROM 223 FEET TO 522 FEET AND 950 TONS TO 11,700 TUNS HAVE UTILIZED THESE MOURINGS PAST THREE YEARS. CLASS D MOORING X-15 DEDICATED TO U.S. USE. CLASS D MOORINGS X1 THRU X-9 JOINTLY USED - PRIMARILY BY HM, YC AND YCV BARGES.

3. PWC YOKÚSUKA POINT OF CONTACT IS MR. A. YOSHIZAWA OR MR. D. NIELSEN AT AV 234-7507 DR 234-5342. BT

DLVR: CHESNAVFACENGCOM WASHINGTON DC(9)...ACT

RTD:000-000/COPIES:0009

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A. MAINTENANCE HISTORY - WHEN INSTALLED, WHEN INSPECTED, WHEN OVERHAULED, LAST REPORTED CONDITION, ETC.

8. COPIES OF MOORING DESIGN CALCULATIONS AND DRAWINGS.

C. COPIES OF "AS-BUILT" MATERIALS LIST.

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D. FACILITY MAP SHOWING LOCATION OF ALL MOORINGS WITH SPECIFIC LOCATIONS FOR THOSE CURRENTLY IN USE.

E. ANTICIPATED MOORING USAGE DURING THE INSPECTION PERIOD -TYPES OF SHIPS.

F. PLANNED REPAIRS AND OVERHAULS - PARTICULARLY THOSE BEFORE THIS INSPECTION.

G. TYPES AND CLASSES OF SHIPS USING MOORINGS.

H. WHETHER CATHODIC PROTECTION SYSTEMS ARE INSTALLED AND TYPE OF MATERIAL UTILIZED.

3. PWC, YOKOSUKA IS REQUESTED TO MAIL THE ABOVE INFORMATION AS SOON AS POSSIBLE TO CHESNAVFACENGCOM {CODE FPO-1C7}, BLDG. 212, WASHINGTON NAVY YARD, WASHINGTON, D. C. 20374.

4. ADDITIONALLY, PWC, YOKOSUKA IS REQUESTED TO REPLY BY MESSAGE

WITH THE ABOVE INFORMATION EXCEPT FOR DRAWINGS AND MAPS BY 15 APR 83.

	IL OFFICE STANGOL PHONE	SPECIAL INSTRUCTIONS	
	DIFICE STMBOL AND PHONE	 	
SIGNATURE		 SECURITY CLASSIFICATION	

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	. CHESNAVFACENGCOM POINT OF CONTACT IS MR. J. MCLAUGHLIN OR
м	R. T. JONES <sup>CA</sup> T AUTOVON 286-3881 OR {202} 433-3881.
L	. YOUR TIMELY SUPPORT WILL BE GREATLY APPRECIATED.
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FM CINCPACELT PEARL HARBOR HI

TO COMCOPAC PEARL HARBOR HI

JEFU CHEAV"AT MASHINGIAN DC COMMA, 419 SYSCUM MASHINGTON DC CUT AVFACEDGCOM ALEXANDNIA VA CUMMANTELCOM WASHINGTUN DC CUMMAVSURFPAC SAN DIEGO CA CUMMAVAIPPAC SAN DIEGU CA CG FMEPAC CUMUCEARSYSPAC PEARL HARBUR HI CUMMANMARIAMAS GUAM CUMPACMISTESTEEN PT MUGU CA WESTRAVFACENGED SAN DRUNU CA DICC DIDPAC PEAKE HARBON HI 11CC 611211 PICC DIEGO GARCIA HOUSTUM TA P., C (1) 44 PAC YUKUSUKA JA PHC SAN FRANCISCO CA CUM THREE ZERU HCK GUAM TAVEAU LENTERVILLE BEACH CA SP'STA SFAL BEACH CA VANSHIPHEPEAC SURIC HAY RE SUF AISURI JA SHERYN PURET SUURD HA AGE SAM DIEGO CA THTEEFFAC HANGOH 2A GUA ... MANSHEPPAC UIEGU GARCIA NAVSTA LONG REACH CA MSC PEARL HARBON HI CAVSHIPYD MARE ISLAND CA PACHISRANFAC HAWAREA BARKING SANDS HI COMNAVSEASYSCOM WASHINGTON DC COMNAVELEXSYSCOM WASHINGTON DC CNR ARLINGTON VA COMNAVLOGPAC PEARL HARBOR HI COMSUBPAC PEARL HARBOR HI COMTHIRDFLT COMMARCORBASESPAC CAMP H M SMITH HI COMNAVFORJAPAN YOKUSUKA JA COMUSNAVPHIL SUBIC BAY RP PACNAVFACENGCOM PEARL HARBOR HI CHESNAVFACENGCOM WASHINGTON DC DICC SUWESTPAC MANILA RP UICC FAR EAST YOKOSUKA JA PWC PEARL HARBUR HI PWC SUBIC BAY RP PWC SAN DIEGU CA COM THREE ONE NOR PORT HUENEME CA UCT TWO NAVOCEANSYSCEN SAN DIEGO CA NSD SUBIC BAY RP MCAS INAKUNI JA NAVUSEAWARENGSTA KEYPORT WA WAVMAG LUALUALEI HI SUBASE BANGOR WA NAVPHIBASE CORONADO SAN DIEGO CA NAVSHIPREPFAC GUAM NAVSTA SAN DIEGO CA NAVSHIPYD PEARL HARBOR HI SUBASE PEARL HARBOR HI

81 UNCLAS //011000//

SUBJ: UCT THU FYES EMPLOYMENT TASKING

PLVN: CHESHAVFACENGCUM MASHINGTON UC(9) ... INFO

RTD:000-000/COPIES:0009

114776/235 1 UF 3 M1 0308 235/23:21Z 2103312 AUG 82 CSN:Rx0100304 CINCPACFLT PEARL HARBOR HI

## A. CINCPACELT PEARL HARBOR HI 260654Z JUN 82

1. REF A REQUESTED NOMINATIONS OF PROJECTS FOR UCT TWO ACCOM-PLISHMENT FY83-85. FROM THE RESPONSES TO REF A THE FOLLOWING PROJECTS ARE TASKED FOR ACCOMPLISHMENT IN FY83:

- A. CENTERVILLE BEACH (:LASSIFIED)
- B. ARCTIC WEST (CLASSIFIED)
- C. BARKING SANDS, HI, CABLE LANDING AND REPAIRS D. WPNSTA SEAL BEACH, DEMOLISH ANAHEIM BAY BRIDGE
- D. WPNSTA SEAL BEACH, DEMOLISH ANAH E. NSD SUBIC, PILE REPAIR POL PIER
- E. NSD SUBIC, PILE REPAIR POL PIER F. NSD SUBIC, PILE REPAIR MARINE TERMINAL PIER PHASE I (REPAIR ALL SEVERE AND MAJOR DAMAGE)
- G. NAVSHIPREPFAC SUBIC, INSPECT ALAVA WHARF
- H. FLEET MUORING INSPECTION PACIFIC DATA BASE (PEARL HARBOR HI, GUAM, YOKOSUKA, INANUNI, SASEBO, INDIAN ISLAND WA, BREMERTON WA)
- I. NAVMAG LUALUALEI, INSPECT AMMO PIERS W1-5
- J. UNDERWATER INSPECTION PROGRAM (NSC SAN DIEGO)
- K. SUBASE, BANGOR WA, UNDERWATER INSPECTION
- L. TRIREFFAC BANGOR WA, UNDERWATER MSF RANGE REPAIR
- M. DEGAUSSING RANGE SURVEY, SAN FRANCISCO CA
- N. NAVPHIBASE CORONADO SAN DIEGO CA, PIER INSPECTIONS

# 2. THE FOLLOWING PROJECTS ARE TASKED AS FILL IN WORK FOR FY83:

- A. UNDERWATER INSPECTION PROGRAM (NAVSTA PEARL HARBOR)
  - B. NAVUSEAWAKENGSTA KEYPORT WA, INDIAN IS PHASE TWO MOORING
  - C. NSD GUAM, REPAIRS TO SIERRA WHARF GUAM.
  - REQUIRES COURDINATION WITH ON SITE NMCB FOR ACCOMPLISHMENT.

THE FOLLOWING PROJECTS ARE TENTATIVELY TASKED FOR ACCOMPLISHMENT AS INDICATED:

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- (1) ARCTIC WEST (CLASSIFIED)
- (2) NAVSHIPREPFAC GUAN, REPAIRS TO LIMA WHARF
- (3) FLEET MOORING INSPECTION PACIFIC DATA BASE 9SUBIC BAY, NSF DIEGO GARCIA, PHC SAN DIEGO, NAVSTA SAN
- DIEGO, WPNGTA SEAL BEACH, NAVSTA LONG BEACH) (4) NSU SUBIC, WATERFRUNT FACILITIES INSPECTION
- (5) NSD SUBIC, MONUBUDY FUEL LINE REPAIRS
- (6) DEGAUSSING RANGE SAN FRANCISCO, RANGE INSTALLATION
- (7) UNDERWATER INSPECTION PROGRAM CNAVSHIPY PEARL HARBOR,
- NSC PEARL HARBOR, SUBASE PEARL HARBOR)
- (8) SCARF REPAIR/INSPECTION
- (9) BARKING SANDS, UNDERWATER RANGE REPAIRS
- (10) NSD SUBIC, PILE REPAIR MARINE TERMINAL PIER PHASE 2

14776/235 RXDY00304 2 OF 3 M1 0308 235/23:21Z 210331Z AUG 82 CINCPACFLT PEARL HARBOR HI

### (REPAIRS TO MODERATE AND MINOR DAMAGE)

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(1) ARCTIC BEST (CLASSIF;ED)

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- (2) BARKING SANDS & UNDERWATER RANGE WORK
- (3) FLEET MOORING INSPECTION PACINIC DATA BASE PRAME
- HARBOR HI, GUAM, JAPAN, PUSET SOUND WA)
- (4) UNDERWATER INSPECTION PROCRAM (MARE ISLAND CA)
- (5) SUBASE FEARL, MCON P-088, REPAIR AND EXTEND SEAWALL THIS PROJECT WILL REQUIRE SEPARATE TASKING OF AN RNMCH, COL OR OTHER DREANIZATION AS "PRIME CONTRACTOR" FOR PILE DRIVING AND TOPSIDE ZONE WITH UCT ACCOMPLISHING (AL WATER SUPPORT

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PULIEASULE OTAL DARBOR HI

