

NAMS Certified Marine Surveyor  
Hull & Machinery  
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ARM / MTS  
Commercial Marine Surveying

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October 24, 2022

**CONDITION AND VALUATION SURVEY / APPRAISAL REPORT**

VESSEL: P/V "CALIFORNIA"

File No. 22031

**BOPC Received**  
**11-7-2022**

*This report is issued in accordance with the terms and conditions attached as enclosure  
#2*

This is to certify that the undersigned Marine Surveyor did on 10/05/2022, acting at the request of Mr. Jason Covell, attend on board the vessel P/V "CALIFORNIA". The vessel was inspected afloat at Pier 9, San Francisco.

The reason for the above listed attendance was to perform a Condition and Valuation Survey. The purpose of the survey was for establishing the general condition of the vessel, as well as the Fair Market Value (FMV) and Replacement Cost New (RCN). The intended user of the survey is the San Francisco Bar Pilots, the California Board of Pilot Commissioners, and Interested Underwriters.

**SCOPE OF WORK**

As part of the appraisal process, I inspected the vessel afloat at Pier 9, San Francisco.

I investigated the value of the vessel based upon the definition of value listed above.

Sales Comparison (Market) Approach, Cost Comparison Approach, and Income Approach were considered. No information regarding the vessel's income was provided so this approach was not used. Since this is a specialized, unique vessel with few, in any, sales/listing comparables available, the Market Approach was not used. The cost approach was used to develop the opinion of value and is detailed in the appraisal section of the report on pages 18-23.

## GENERAL INFORMATION

*Client:* San Francisco Bar Pilots  
*Vessel Name:* "P/V "California"  
*Official Number:* 1108685  
*IMO / Other No.:* 9245471  
*Owner:* San Francisco Bar Pilots Protection and Benevolent Association  
*Address:* Pier 9 East End, San Francisco, CA 94111  
*Home Port:* San Francisco  
*Gross Tons:* 222 GT ITC / 190 GRT  
*Net Tons:* 66 NT ITC / 138 NRT  
*Builder:* Marco Shipyards, Seattle, WA  
*Year Built:* 2001  
*Intended Service:* Pilot station vessel  
*Cruising Speed/Max Speed:* 14.3 kts. at 85% / 15.3 kts. at 100%  
*Last Dry Docking:* June, 2020  
*Conversions/ Modifications:* During the last dry docking the following work was reportedly accomplished:

- Hull cleaning
- Renew anodes
- ABS 5-year Load Line Survey
  - Port & Starboard forward fuel tanks cleaned and inspected
  - Sea Chest strainers R&R & Clean
  - ABS Airpipe vent checks
  - Hull gauging
  - Flume tank inspection
    - Drained and cleaned
- New hot water heater installed

During the August to November 2019 dry docking the following work was reportedly accomplished:

- Underwater hull paint
- Anode replacement
- Tune up port and starboard propellers
- Straighten deck rails where needed
- Rebuild RHIB hydraulic cylinders
- Inspect and open port and starboard steering cylinders

## VESSEL PARTICULARS

<i>Length Over All:</i>	104' 02"
<i>Registered Length:</i>	96.6'
<i>Registered Beam:</i>	28.1'
<i>Draft:</i>	9'
<i>Registered Depth:</i>	13.0'
<i>Shell Plate:</i>	Sheer strake: ½" steel plate Side/ bottom shell: ¼" steel plate Bottom over props: 3/8" steel plate Flat keel: ¾" steel plate Deckhouse: ¼" & 3/16" steel plate
<i>Transverse Frames:</i>	10" x ¼" Flanged plate
<i>Longitudinal Frames:</i>	Side longs: 3" x 2" x ¼" angles Bottom longs: 4" x 3" x ¼" angles

## GENERAL DESCRIPTION AND ARRANGEMENT



The P/V "California" is an all welded steel pilot station vessel with twin diesel propulsion. The vessel has a large open foredeck with a handrail inset approximately 3' from the deck edge. The vessel's anchor is stowed on the foredeck aft of a low breakwater. There is a raised escape hatch from the pilot's berth aft of the breakwater. Side decks lead aft past the

deckhouse to the aft deck. A handrail inset approximately 1' from the deck edge surrounds the side decks and aft deck. Located on the port side aft is an after steering station. There is a flush escape hatch from the crew's quarters aft and a deck hatch into the lazarette on the starboard side aft. On the stern there is a ramp containing a stainless steel hydraulically actuated cradle, which carries the vessel's 15' outboard powered rigid inflatable rescue boat.

The pilothouse sits forward of amidships and is seven steps above the main deck. The pilothouse is outfitted with advanced navigational electronics, three computer systems,

a centerline operator's chair, and two passenger seats on each side. There are fold down boarding platforms on each bridge wing. Aft of the pilothouse on the second deck is a pneumatically retractable mast and a large open deck containing two automatic inflatable life rafts and an emergency litter.

On the main deck in the deckhouse forward is a lounge area with a large fixed table with swivel chairs, three fixed upholstered chairs to starboard, and an entertainment center and computer station forward. Aft of the lounge on the main deck is the vessel's galley, which contains a full commercial grade kitchen including range, under counter refrigerator, dishwasher, garbage compactors, double door refrigerator, double door freezer, and a chest freezer.

In the hull forward is a void tank that is accessible through a bolt on hatch on the collision bulkhead. The next compartment aft is a storeroom above, with a void area below accessible through a deck hatch (hatch screwed down at the time of survey, area was not inspected). A watertight door separates the storeroom from the pilot's berthing area, which sits approximately below the pilothouse. The pilot's berthing area contains eight berths, storage lockers, settees, and a head on the port side containing a sink, a toilet, and a shower, and a head on the starboard side containing a sink and toilet. The pilot's berth is accessed from stairs aft that lead up to the lounge, or from an escape hatch forward leading onto the foredeck. Below the pilot's berth in the bilge area is a void separated from the other bilge compartments by watertight bulkheads fore and aft. Aft of the pilots berthing area is the engine room containing the vessel's main engines, two auxiliary gensets, and support machinery. The engine room is accessed from a watertight door aft from a passageway that leads upstairs to the galley area or aft to the crew's quarters. The crew's quarters contain three single berth staterooms and one double berth stateroom, as well as a head containing a toilet, sink, and stall shower. There is an emergency escape hatch from the crew's head, onto the aft deck. The lazarette is accessed through a deck hatch to starboard and contains the vessel's steering gear, including the steering hydraulic power units, and the hydraulic power units used to raise and lower the escape boat.

The vessel is well fendered by "D" rubber, which is continuous all of the way around the sheer, except for the aft ramp. Additionally, there are aircraft type tires, 10 on each side, with additional "D" rubber backing up the tires.

The vessel's fuel oil is contained in two double bottom tanks amidships and two day tanks located in the engine room aft. The vessel's freshwater is contained in two tanks totaling 800 gallons in the engine room. Additionally there are two 400 gallon per day water makers on board for freshwater production.



The vessel is equipped with static flume type anti-roll tanks located amidships beneath the pilothouse.

## PROPULSION

<i>Number of Engines:</i>	Two
<i>Fuel:</i>	Diesel
<i>Make/Model:</i>	Caterpillar 3508B turbo after cooled (US EPA Tier 1 compliant)
<i>Total Horsepower:</i>	2,200
<i>Port Serial Numbers:</i>	7SM00394
<i>Starboard Serial Numbers:</i>	7SM00393
<i>Port Engine Hours:</i>	13,233 (hour meter); 78,750 (actual)
<i>Starboard Engine Hours:</i>	13,290 (hour meter); 78,807 (actual)
<i>Cooling:</i>	Freshwater through Johnson Duramax cupronickel grid coolers
<i>Exhaust:</i>	Dry stack
<i>Starting:</i>	Ingersoll Rand pneumatic
<i>Reverse/Reduction Gear:</i>	Twin Disc MG 5301-DC Port S/N: 3AJ-238 Stbd. S/N: 3AJ-237
<i>Gear Ratio:</i>	4.06:1
<i>Engine/Gear Foundations:</i>	Integral welded steel girders, engines mounted on Lo-Rez vibration isolators

**Propulsion Comments:**

According to the Marine Superintendent the engine hour meter reset itself requiring the need to add 65517 hours to each hour meter

Port main engine had top end overhaul at 35,332 hours on 12/11/2009

Starboard main engine had top end overhaul at 35,333 hours on 12/11/2009

Port & Starboard Generators completely overhauled 2020 (engine and generator ends)

Port & Starboard Reduction Gear completely overhauled 2020



Port main engine



Starboard main engine

## AUXILIARY EQUIPMENT

*Auxiliary generator(s):* Two Northern Lights MP445H-KC-65KW  
*Rating:* 65 kW; 81 kva  
*Gen. Hours:* Port 40,061.9; Stbd 44,539.2  
*Cooling:* Fresh water through Johnson Duramax cupronickel grid coolers  
*Exhaust:* Dry stack  
*Pumps:* Grundfos JPS-2A fresh water pump.  
Price Pump CD100AI-350-6A111PFO A/C cooling pump.  
(2) AMT 670-94-0400 Propeller shaft bearing cooling pumps.  
Ingersoll Dresser 0200-5052B fuel oil transfer pump.  
(3) Barnes 100CE bilge fire pumps.  
Diesel America West DDL48-2PT portable emergency pump (tagged as last run/tested 6/15/2020).  
(2) Barnes submersible sewage pumps located in sewage tank.  
(2) ½ hp sewage overboard pumps.  
Wilden pneumatic lube oil transfer.  
*Other Equipment:* F.A.S.T. Systems M/N MX-1 300 gal. marine sewage system S/N 11772.  
(2) Racor model 79/1000MAV fuel water separator.  
Beam Systems M.N 2089 central vacuum.  
Sure Site visual level indicators on all tanks.  
Fuel transfer manifold.  
One Village Marine Tec M/N PW1600 GPD fresh water makers.  
Bilge suction manifold.  
(2) Quincy M/N 310-104 air compressors with 80 gallon receivers.  
(2) Racor 75/500 Max fuel water separators on gensets.  
(2) Sure Drain BVD-2 automatic air receiver drains.  
ST Bilge Boy M/N BB00311DXX oily bilge water separator S/N 24481 (replacement element 391951588).

Levoit air purifier, one in lounge and one in pilots' quarters.

## **ELECTRICAL SYSTEM**

### *AC System Description:*

AC power is provided by either genset, or by shore power. 208 Volt power leads to a Harris Electric switch panel with three circuit breakers isolated by a slide bar. The switch panel has volt, amp and hertz meters for the ships power, and a volt meter for shore power. There is also a ground fault amp meter. The main breaker is located in the engine room. There are sub-panels located in the galley and the pilothouse. Shore power is supplied through a marine type 100 amp receptacle located on the port stern.

### *DC System Description:*

Each genset has its own 8-D 12VDC cranking battery, each charged by separate McCarron VMI 30 amp chargers. There are two 24VDC banks for each main engine control system, each bank having two 8-D 12VDC batteries charged by separate McCarron 40 amp chargers. Each 24VDC bank has its own circuit breaker panel. There are four 8-D batteries in two 24VDC banks in plastic battery boxes located aft of the pilothouse, each bank is charged by a separate McCarron 25 amp charger. There are three circuit breaker panels in the pilothouse.

### *Battery charger(s):*

Two McCarron type VMI 24403, M/N 200-2440-03, 24 volt 40 amp.

Two McCarron type VMI 12302 M/N 200-1230-03 12volt 30 amp.

Two McCarron type VMI 24252 M/N 200-2425-03 24 volt 25 amp.

## MISCELLANEOUS EQUIPMENT AND SYSTEMS

<i>Marine Sanitation Device:</i>	Three marine toilets discharge into a 150 gal. Sewage tank using fresh water. Two Barnes submersible sewage pumps pump effluent to the F.A.S.T. MSD which has an electric blower and two 360 GPD overboard pumps. Sewage can also be pumped from the holding tank overboard or ashore.
<i>Bilge Pumps/piping:</i>	Three Barnes 2" x 2" bilge/fire pumps with a manifold system with bronze gate valves and sacrificial zincs. Bilge discharge is above the water line and there are check valves in each bilge suction, to prevent back flooding.
<i>Bilge Pumps Tested:</i>	No
<i>Domestic Water System:</i>	Village Marine Tec PW 1600 GPD reverse osmosis water makers feed two 800 gal. total water tanks. Grundfos JPS-2 fresh water pump with a Well-X-Troll 32 gal. pressure tank. One A.O Smith ETC-80-210 80 gal. Electric hot water tank.
<i>Ventilation:</i>	Engine room has Woods Marine axial fan blowers with automatic dampers for fixed fire extinguishing system.
<i>HVAC Systems:</i>	The lounge and pilots berth has ducted forced fan blowers with 4 kW inline heaters. The pilothouse has ducted forced fan blowers with 1.5 kW inline heaters and an Aqua Air Conditioning reverse cycle AC/heater.
<i>Alarms:</i>	Harris Electric with panels in the pilothouse and engine room with the following alarms: Port main engine: Low water level Low oil pressure High water temperature Low after cooler water level Shaft cooling water flow Low control volts Starboard main engine: Low water level Low oil pressure High water temperature Low after cooler water level Shaft cooling water flow

Low control volts  
Auxiliary 1:  
Low oil pressure  
High water temperature  
Low water level  
Auxiliary 2:  
Low oil pressure  
High water temperature  
Low water level  
Engine room bilge  
Engine room aft bilge  
Forepeak bilge  
Pilots quarters bilge  
Storeroom bilge  
Crews bilge  
Lazarette bilge  
Day tank 1 high level  
Day tank 1 low level  
Starting air pressure  
Grey water tank high level  
Sewage tank high level  
Sewage alarm  
Cerbenas Pyrotronics System 3, M/N PS-35,  
smoke/fire detection system with sensors in  
pilothouse, lounge/galley, berths/stores, crews  
berthing and engine room (inspected 2/2022)  
Low voltage alarm on pilothouse panel  
*Other:* Gray water tank with auto / manual pump out  
Tank Sentry TS 3004 tank level monitor

## **STEERING SYSTEM**

*Number of Stations:*

There are four steering stations, one on each side of the pilothouse, the ships wheel (low pressure hydraulic helm pump), or the aft station on the port aft deck. There is also a steering station in the lazarette equipped with a rudder angle indicator for remote operations in case of a control system failure.

*Description/Type of Equipment:*

Low voltage electric jog levers control electric pilot valves, controlling one of two hydraulic power units located in the lazarette. The hydraulic units power rams attached to tiller

arms on each rudderstock. The rudders are interconnected by a jockey bar. The vessel can also be steered by the helm pump alone in an emergency.

### **PROPELLERS SHAFTS RUDDERS**

(Information contained below from last survey in dry dock)

<i>Shaft Size:</i>	6" x 27' 4 3/4"
<i>Material:</i>	Aquamet 19
<i>Struts:</i>	Solid plate steel "V" struts
<i>Bearings:</i>	Bronze shelled cutless on stern and struts
<i>Stuffing Box:</i>	Dripless
<i>Propeller Size/Type:</i>	64" x 65" 5-blade
<i>Material:</i>	Nickel aluminum bronze
<i>Condition:</i>	Unknown; underwater body not inspected
<i>Rudder Description:</i>	Steel plate foil spades
<i>Rudder Stuffing Box:</i>	Bronze
<i>Other:</i>	Disc shaft brakes on propeller shaft

### **CORROSION CONTROL**

<i>Zincs:</i>	In seachests, on propeller shafts, rudders
<i>Condition:</i>	Unknown; underwater body not inspected
<i>Bonding system:</i>	Grid coolers bonded to hull
<i>Other:</i>	Capac Electro catalytic cathodic protection system part no. EA-22

Corrosion Control Comments:

Reportedly the Capac system malfunctioned and was totally rebuilt.

### **THROUGH HULL FITTINGS**

<i>Material:</i>	Integral welded steel
<i>Valves:</i>	Bronze globe and ball
<i>Condition:</i>	U/K

### **TANKAGE**

<i>Fuel Tanks:</i>	Two double-bottom, two day tanks
<i>Total Capacity:</i>	9,024 gal.
<i>Material:</i>	Integral welded steel
<i>Grounding:</i>	Yes
<i>Shut Off Valves:</i>	Yes remote on main deck

*Fresh Water Tanks:* Two  
*Total Capacity:* 800 gal.  
*Material:* Integral welded steel

*Other:* Lube oil: 49 gal.  
Grey water: 61 gal.  
Sewage: 150 gal.  
Waste oil: 70 gal.  
Anti roll: 7,052 gal.

## **GALLEY EQUIPMENT**

The following galley equipment was noted on board at the time of survey:

- Breville espresso maker
- Cold well icebox
- Elkay water cooler
- Bloomfield coffee maker
- Sharp microwave oven
- Bosch dishwasher
- M3 Turboair under counter refrigerator
- Broan Elite trash compactor
- Lang commercial restaurant electric range with 4 burners, grill, oven and hood with exhaust fan and Ansul fire extinguishing system
- Cospolich double door refrigerator
- TRUE T-19F freezer
- Excellence chest freezer
- Norcold refrigerator in salon
- Waring 4-slot toaster
- Zojirushi rice maker
- Cuisinart food processor

## **GROUND TACKLE**

*Anchors:* Fortress FX-125 (69 lb.)  
*Windlass:* Hand reel in forward storeroom  
*Chain:* 30' (est.) of ½" galvanized  
*Rode:* 300' (est.) of 1" Sampson braid nylon

## **FIRE AND SAFETY**

*No. Portable Extinguishers:* 14  
*Type/Size:* See table in following comments (see F&R's)  
*Date Last Inspection:* 2/07/2022

*Type Of Fixed System and Size:* Fixed Co2 with (4) 100# bottles engine room;  
Ansul R-102 system in stove hood

*Approximate Size of Engine Space:* Engineered system

*Date Last Inspection:* 2/07/2022

*Fire Main, Hose, Nozzle:* (2) Main deck stations with 50' of hose,  
nozzle and spanner in fixed boxes

*Fire Axe:* Yes (2)

*Number/Type Pfds:* 15 Type I, 6 immersion suits

*Ring Buoys:* (2) With light/line; (2) with line (see F&R's)

*Epirb:* Category I (tested) (battery exp. 8/2026;  
Registration exp. 6/08/2024; hydrostatic  
release exp. 8/2024)

*Flares:* Yes (see comments)

*Life Raft:* Two 8 man automatic in cradles exp. 11/2022  
(see Findings and Recommendations); port  
and starboard side hydrostatic releases exp.  
3/2023

*Horn:* Yes (tested)

*Bell:* Yes

*Navigation Lights:* Masthead, stern, sidelights, pilot vessel

*Navigation Lights Tested:* Yes

*General Alarm:* Yes (with strobe in engine room-tested)

*Oil Discharge Placard:* Yes

*Garbage Discharge Placard:* Yes

*Carbon Monoxide Alarm:* See Surveyor's Notes

*First Aid Kit:* Yes

*Other:* Fire and smoke alarms in all areas  
Stokes emergency litter  
Fixed fire monitors on each bridge wing  
Dual Light emergency lighting throughout  
vessel (see F&R's Best Practices)  
Zoll defibrillator (pad expires 10/07/2026,  
batteries not marked) (see Findings and  
Recommendations)  
AED pack  
Medical oxygen (last serviced 1/23/2020- see  
F&R's Best Practices)  
Trauma Kit  
Inflatable splints  
Sked Stretcher  
Switlik MOB Pack mounted on aft railing  
expires 12/2023 (see comments below)

**Fire and Safety Comments:**

**Flares:**

- (6) Red Parachute expiration date 12/2023
- (8) Hand red expiration date 2/2024
- (6) Hand orange smoke expiration date 2/2024

The Switlik MOB Pack was originally set up to be automatically deployed by a switch engaging a solenoid from the pilothouse. That system no longer functions and it can now only be deployed manually (see F&R's)

**Portable Fire Extinguishers:**

NO.	TYPE	SIZE OLD	SIZE NEW	LOCATION	INSPECTION
1	DC	B-II	80:B	Pilothouse	2/07/2022
2	C02	B-I	5:B	Pilothouse	2/07/2022
3	C02	B-I	5:B	Pilothouse	2/07/2022
4	DC	B-I	10:B	Lounge	2/07/2022
5	C02	B-III	10:B	Galley	2/07/2022
6	DC	B-I	10:B	Pilot's berth	2/07/2022
7	DC	B-I	10:B	Pilot's berth	2/07/2022
8	DC	B-I	10:B	Crew's berth	2/07/2022
9	DC	B-II	80:B	Engine room	2/07/2022
10	DC	B-III	120:B	Engine room	2/07/2022
11	Co2	B-II	10:B	Engine room	2/07/2022
12	C02	B-II	10:B	Engine room	2/07/2022
13	C02	B-II	10:B	Engine room	2/07/2022
14	DC	B-II	80:B	Engine room	2/07/2022

**NAVIGATION/ELECTRONIC EQUIPMENT**

The vessel is equipped with the following navigation/electronic equipment:

- Two (2) Furuno RPU-013 radar units with Furuno MU-201 CR displays and Furuno RCU-028 controls
- One Furuno GP150 GPS receivers (6416-4299)
- One Furuno GP170 GPS receivers (6452-1768)
- Furuno FCV-292 color depth sounder (8990-6151)
- Lenovo ThinkPad laptop with HP Laserjet model 1020 printer
- Chart plotting software
- Two SEA 156 VHF radios (AE10415; AE10411)
- Two SEA 157 VHF radios (KS10146; KS10132)
- Raytheon RAY 430 loud hailer (406036)
- Speery Navigat X MK I digital gyrocompass
- Simrad AP80 Autopilot

- Simrad Taiyo TD-L1550A direction finder (1270030)
- Carlisle & Finch C4-2 search light with dual remote controls
- Dirigo 6" compass for autopilot
- Ritchie 3" steering compass
- Furuno FA-150 Universal AIS (035021)
- Briartek DF-101 MOB direction finder (5840-01-576-1584)
- National Weather Service barometer
- Chelsea Chronometer
- Hose McCann model SW sound powered telephone
- Raymarine ST60+ Windpoint meter
- (2) Viewsonic color monitors with Dell Optiplex computer
- Cerberus Pyrotronix System 3 universal fire alarm control (tagged as inspected 2/22)
- Cradle Point W Pipe wireless internet router
- Watch alarm
- Fujinon 7x50 binoculars
- Headhunter TS3004 Tank Sentry
- Airphone RA-A onboard telephone with the following phone locations
  - Bridge
  - Eight pilot berths
  - Engine room
  - Five crew berths
  - Aft steering station
  - Galley
  - Lazarette

The following entertainment electronics were found onboard:

- Digital Optics audio video selector
- KVH Sat control
- Samsung 40" wide screen flat panel color television
- Lenovo laptop with HP Laser Jet 1020 printer and Dell monitor
- Direct TV controller box
- Clarion CMD5 Stereo Disc/AM/FM/Sat/Aux
- Samsung Blu-Ray
- Sound Stream USB-8A remote speaker

## DECK EQUIPMENT

The vessel is equipped with a 2003 Northwind aluminum hull rigid inflatable, HIN NWD97145L303. The vessel is powered by a Honda 50 hp 4-stroke outboard. The vessel is stowed on a stainless steel cradle mounted in the stern ramp that is hinged on the forward end to allow the ramp to be angled down by hydraulic rams for launching and retrieving. The ramp is equipped with a Pullmaster Hydraulic winch for launch and retrieval.



Rescue boat was equipped with a B:10 (old USCG size B-I) DC fire Extinguisher (tagged as inspected 2/2022), and a flare kit with (4) hand red (exp. 11/2024); (3) hand orange flares (exp. 10/2024) and (5) aerial red flares (exp. 10/2024)

## FINDINGS AND RECOMMENDATIONS

HIGH PRIORITY (Recommendations to do immediately due to safety issues):

1. The USCG has changed their fire extinguisher ratings, going from the B-1, B-2 etc., to a UL rating system. For commercial vessels over 65', 100-500 GRT they require a minimum of three 20-B extinguishers plus an additional 20-B extinguisher for each 1000 hp and fraction of 1000 hp. Based upon the USCG requirement (46 CFR 25.30-20(b)(1) the vessel would need a minimum of five 20-B extinguishers. Both American Boat and Yacht Council (ABYC) and National Fire and Protection Association (NFPA) require additional extinguishers, over and above those required by the USCG. NFPA has not yet updated their requirements to reflect the new ratings. ABYC recommends four 20-B extinguishers plus three additional 20-B extinguishers for the vessel horsepower (2200) for a total of seven 20-B units. RECOMMEND since the vessel currently only carries four portable extinguishers over 20-B rating, three additional 20-B extinguishers need to be added (see table 3 from ABYC A-4 attached as enclosure 4).

2. The emergency diesel pump was tagged but the last test recorded was on 6/15/2020. RECOMMEND test / operate pump monthly and tag accordingly.
3. The MOB Systems man overboard buoy mounted on the starboard aft rail was originally equipped with a solenoid operated switch from the pilothouse. The solenoid is now adrift and no longer functions, and the unit needs to be deployed manually. When I asked the operator that was on the vessel at the time of survey, he was not aware of this and did not know how to deploy the device manually. RECOMMEND that either the original remote deployment device be repaired or the crew runs drills on how to deploy the device manually. Best practice would be to both repair the remote deployment and have drills on manual deployment.

MODERATE PRIORITY (Recommendations which should be accomplished as soon as possible):

1. The Zoll defibrillator batteries are recommended to be changed every 5 years. There was no record of when the batteries were last changed. RECOMMEND change batteries and record date on unit.
2. The starboard side engine room lights did not illuminate when switched on. RECOMMEND troubleshoot and repair as necessary.
3. The AC saltwater cooling pump, which reportedly failed and sprayed saltwater into the Capac system is now plumbed on the pump discharge side with a male metallic hose barb fitting into a female schedule 40 PVC coupler. RECOMMEND threading a metallic fitting into a PVC fitting risks cracking the PVC and causing a leak failure. Change PVC fitting to metallic.
4. The airphone station tag in the lazarette at the emergency steering station is detached and is wedged behind an electrical wire bundle. RECOMMEND remount tag in a conspicuous location.
5. The ring buoy water lights both illuminated when tested. However, there was no label on the housing as to when the batteries were last changed. RECOMMEND change batteries annually and record battery change with a label affixed to the outside of the casing (or another recording device i.e. logbook).

LOW PRIORITY (Recommendations considered as best practices or betterment):

1. All of the emergency lights illuminated when tested. However, each light had a marking on them as to the last test (except for two) ranging from 2016 to 2020. RECOMMEND Best practice would be to inspect lights on a monthly basis.

2. In the two aft most crew staterooms the trim on the bilge hatches were not secured and fell into the bilge when the hatches were removed. RECOMMEND reattach trim.
3. The life raft inspections were within criteria at the time of inspection but will expire in 11/2022. RECOMMEND renew inspection when due.
4. The medical Oxygen carried is only required to be refilled every three years. However, best practice would be to inspect the unit monthly (open valve and see if the pressure is adequate) and have the unit inspected by a qualified professional annually.

### APPRAISAL

<i>Opinion of Fair Market Value:</i>	\$1,245,000
<i>Opinion of Replacement Cost New:</i>	\$11,664,000
<i>Opinion of Fair Market Value of Tender:</i>	\$21,000
<i>Opinion of Replacement Cost New of Tender:</i>	\$80,000

#### Notes for Appraisal:

- A. An "as is, where is", cash equivalency, 100% ownership interest assumption was made in determining the opinion of Fair Market Value.
- B. The estimated Fair Market Value is the definition from the American Society of Appraisers (ASA) Machinery and Technical Specialties (MTS) Committee: "*Fair Market Value* is an opinion expressed in terms of money, at which the property would change hands between a willing buyer and a willing seller, neither being under any compulsion to buy or to sell and both having reasonable knowledge of relevant facts, as of a specific date."
- C. The estimated Replacement Cost New is the definition from the ASA MTS Committee website: "*Replacement Cost New* is the current cost of a similar new property having the nearest equivalent utility as the property being appraised, as of a specific date."
- D. Other terms used in this report have the following definitions:  
Physical Obsolescence:  
Physical obsolescence is a form of depreciation in which loss in value is due to the using up or expiration of its useful life caused by wear and tear, deterioration, exposure to various elements, physical stress and similar factors.

**Economic Obsolescence:**

Economic obsolescence is a form of depreciation in which loss in value is caused by external factors. In the case of the P/V CALIFORNIA it is due to CARB requiring machinery upgrades to US EPA Tier 4.

**Extraordinary Assumptions:**

"An assignment specific assumption as of the effective date regarding uncertain information used in an analysis which, if found to be false, could alter the appraiser's opinions or conclusions".

- E. Sales Comparison (Market) Approach, Cost Approach, and Income Approach were considered. No information regarding the vessel's income was provided so this approach was not used. Since this is a specialized, unique vessel with few, if any, sales/listing comparables available, the Market Approach was not used.
- F. Using the Cost Approach I took the estimated replacement cost of \$8,100,000 (based upon the reported build cost of the P/V Drake in 2009). The Producer Price Index for "Ship Building and Repairing, Nonmilitary" was obtained from the Federal Reserve of St. Louis <sup>1</sup>. The index for 1/2009 was 186.7 and for 10/2022 it was 269.5. The formula for the current value is:

$$\text{Current Value} = (\text{Current Index} / \text{Base Index}) \times \text{Cost}$$

Using this formula:

$$\text{Current Value} = 269.5/186.7 \times \$8,100,000, \text{ or } \$11,664,000$$

- G. For the Cost Approach calculations, I assumed a replacement cost of \$11,664,000, and a residual salvage value of \$250,000.
- H. The California Air Resources Board (CARB) has harbor craft regulations requiring diesel engines on commercial vessels to be compliant with U.S. E.P.A. emission tiers through 2022. The new regulations going into effect in 2023 are expected to require (the final rules have not been published) Tier 1 engines with the original date of manufacture between 1994-2001 to comply with the amended regulations by 12/31/2024 (page 78, table 16 of "Proposed Amendments to the Commercial Harbor Craft Regulation"-see enclosure 3).

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<sup>1</sup> <https://fred.stlouisfed.org/series/PCU336611336611A>

- I. The cost to comply with the amended regulations, which includes design, stability calculations, repowering with USEPA Tier 4 final engines equipped with Diesel Particulate Filters (DPF), is estimated to be in the range of \$3,000,000 to \$4,000,000, potentially more than the vessel's fair market value.
- J. The reduction in value caused by the external requirement posed by the amended Commercial Harbor Craft regulations would be Economic Obsolescence.
- K. Using a Normal Useful Life (NUL) for use in the Cost Approach of 30 years is how Physical Obsolescence (depreciation) is calculated. This would result in a depreciation factor of 70%. Calculating the depreciation using the difference between the date of construction (2001) and the CARB required compliance date of 12/31/2024, or 23 years, would result in a depreciation factor of 91.3%. The difference between the two results (i.e. using 70% vs. 91.3%) would be the Economic Obsolescence to be applied.
- L. Since the vessel has been maintained but not significantly improved (i.e. repowering or other major improvement) the Effective Age (EA) would be the calendar age of 21.
- M. The calculation of Fair Market Value (Fair Value) by the Cost Approach, with only Physical Obsolescence (depreciation) considered, and using a 30-year NUL is as follows:

Current Replacement Cost New	\$11,664,000
Less Terminal Value	<u>- \$250,000</u>
	\$11,414,000
Less depreciation (11,414,000 x .70)	<u>- \$7,989,800</u>
	\$3,424,200
Plus Terminal Value	<u>+ \$250,000</u>
	\$3,674,200

- N. The calculation of Fair Market Value (Fair Value) by the Cost Approach, with only Physical Obsolescence (depreciation) considered and using a 23-year NUL is as follows:

Current Replacement Cost New	\$11,664,000
Less Terminal Value	<u>- \$250,000</u>
	\$11,414,000
Less depreciation (11,414,000 x .913)	<u>- \$10,421,478</u>
	\$992,522
Plus Terminal Value	<u>+ \$250,000</u>

\$1,242,522

- O. The difference between the two calculations, or \$2,431,678, is the amount of Economic Obsolescence to apply as follows:

Fair Market Value calculated using a 30-year NUL:	\$3,674,200
Less Economic Obsolescence:	<u>-\$2,431,678</u>
Fair Market Value with Amended Commercial Harbor Craft regulations considered:	<b>\$1,242,522</b>

- P. The calculated Fair Market Value was rounded up to \$1,245,000.

- Q. For the tender the following assumptions were assumed:

Replacement cost new of \$80,000  
NUL of 25 years  
A terminal value of \$2000

The difference between the vessel's age and the current date would be the amount of Physical Obsolescence applied (2022-2003=19 years). 19/25 results in depreciation due to Physical Obsolescence of \$59,280. After deduction of the terminal value, application of the depreciation, and adding back the terminal value, the resulting number is \$20,720, which is the Fair Market Value by the cost approach. It should be noted that 3 sales comparables of the same builder of similar age and size were located that averaged \$21,834. Averaging the two approaches yields a value of \$21,297, which is the opinion of Fair Market Value. This amount was rounded down to \$21,000.

- R. The following assumptions were made regarding the valuation:

- Information provided by others that was considered in the valuation is from sources believed to be reliable and no further responsibility is assumed for its accuracy.

- S. The following Extraordinary Assumptions were made regarding the valuation:

- The condition of the underwater body and running gear supports the appraisal values.
- The proposed CARB Commercial Harbor Craft rule amendments go into effect as currently written.

- T. No Hypothetical Conditions were assumed:

U. The following Limiting Conditions apply to the report:

- All information presented in this report is true and accurate to the best of the surveyor / appraiser's knowledge and belief.
- The surveyor / appraiser renders no opinion as to legal title. Prevailing liens or other encumbrances were disregarded, and the property was appraised as if free and clear, unless otherwise specifically stated.
- This study was made for the purpose stated and cannot be relied on for any other purpose. This report is for your internal use only and, unless otherwise stated, should not be disseminated to the public or third parties in any part of form.
- All estimates of value are presented in this report and the surveyor / appraiser's considered opinion. The opinion of value is only valid for the stated effective valuation date (effective date is located adjacent to the signature line on the last page of the report), and for the stated purpose (located on the first page, second paragraph).
- I reserve the right to make such adjustments to the valuation herein reported as may be required by consideration of additional or more reliable information that may become available.
- Testimony or attendance in court by reason of this appraisal shall not be required unless arrangements for such services have previously been made.
- Neither all, nor any part, of this report is to be conveyed to the public through advertising, public relations, news, sales, or other media without written consent and approval of the undersigned.
- This appraisal was made in accordance with the code of ethics set forth by the American Society of Appraisers.
- This appraisal did not consider the possibility of the existence of hazardous materials or toxic wastes. Should there be concerns about the existence of such substances on the property, we consider it imperative that you retain the services of a qualified independent engineer or contractor to determine the existence and extent of any hazardous materials, as well as the costs associated with any required or desirable treatment or removal.
- This examination has been conducted without making removals, or opening up to expose areas or components ordinarily concealed, or testing for tightness, or testing and/or running machinery or equipment, and does not, therefore, address any damages and/or deficiencies which might have been revealed if such procedures had been executed.
- No incline experiment, stability studies or stability analysis was performed in conjunction with this condition and valuation survey. This report and the attending surveyor and this office express no opinion relative to the stability of this vessel. **FURTHER, THIS LIMITED REPORT IS ISSUED IN ACCORDANCE WITH THE TERMS AND CONDITIONS ATTACHED AS ENCLOSURE #2.**

Acceptance of this report or its use for any purpose shall serve as acknowledgment of and agreement with these terms and conditions.

### SURVEYOR'S NOTES

- A. Vessel's call sign is WDA4337
- B. Radio station license posted expires 19/April/2031
- C. ABS International Load Line Certificate # 00215207-4277791-012 dated 1/June/2020 expires 20/July/2025
- D. There was a Stability Letter issued by ABS dated 17/Sept/2012 posted onboard
- E. United States Coast Guard Certificate of Documentation dated 9/July/2022 expires 31/Aug/2023
- F. Carbon Monoxide (CO) is an odorless gas produced during the burning of hydrocarbons. Vessel equipped with gasoline engines and enclosed accommodation spaces are required by American Boat and Yacht Counsel (ABYC) A-24.7.1 to be equipped with a CO detection system. Vessels equipped with solid fuel or LPG appliances, or diesel engines, are recommended to be equipped with a detection system
- G. With the exception of the deficiencies noted above, this vessel appeared to be in satisfactory condition for operation as a Pilot Station Vessel.

This report is issued without prejudice to any parties who may be concerned.



10/05/2022  
Effective Date

TEICHEIRA MARITIME SURVEYORS, INC.  
Dana R. Teicheira  
NAMS Certified Marine Surveyor  
ASA Accredited Senior Appraiser

#### Enclosures

- 1. Appraisal Certification
- 2. Survey Terms and Conditions
- 3. CARB proposed amendments to Harbor Craft Regulations
- 4. ABYC A-4 Table 2 fire extinguishers for vessels greater than 65'

