Section

17

Transit Resources

17.1 Transit Resources

a. *Introduction*

The Transit Resources Division is responsible for administering the Canal tugboat and launch fleets, deckhand crews and land transportation, resources that are critical to the success of the waterway's main mission. As a result, every effort should be made to comply with the basic requirement of ensuring the availability of tugs, launches, vehicles, and deckhand crews at scheduled times, locations and numbers in support of the daily operation.

b. *Organization and responsibilities*

The Transit Resources Division is divided into the Administrative staff, the Relation with the People and Budget Operations teams and the Tugboat, Maritime Transportation

and Deck Assistance sections, and Land Transportation Unit, under the supervision of an executive manager.

The Transit Resources Division is responsible for providing an efficient and safe support to Canal operations as they relate to transiting vessels. In general, this encompasses labor-management relations, adequate safety provisions on the job site, adequate work site facilities, providing performance specifications for design and purchase of tugboats and launches, adequate and supportive working relationships with other Panama Canal Authority departments, divisions and units, and good working relationships with organizations outside the ACP.

(1) *Tugboats:* Administratively, the Tugboat Section (OPRR) is divided into the Tugboat Operations Units, Atlantic and Pacific, each managed by a Unit Chief under the direct supervision of the Section Manager. Each unit chief is responsible for the crewing and operation of the tugboats, and training of personnel.

Operationally, this section provides tugboat services to transiting vessels and they are scheduled by the Maritime Traffic Control Unit transit controller. Services include, but not limited to, assisting vessels in and out of all locks and also through the Neopanamax Locks, Gaillard Cut, at mooring stations, tie-up stations, commercial dead tows, towing of ACP equipment such as dredges, cranes, scows, caisson and barges. Occasionally, they also provide services at the port terminals at either entrance of the canal. If required, tugboats will participate in emergency situations, marine firefighting and vessels aground. Normally, 60% of the tug fleet is assigned to the southern district and 40% to the northern district. The tugboats are assigned to ships by the transit controllers, and the ACP pilots direct the maneuver as required to support the transiting vessels.

(2) *Maritime Transportation and Deck Assistance:* Administratively, the Maritime Transportation and Deck Assistance Section (OPRT) is divided into the Launch Operations and Deck Assistance Units, Atlantic and Pacific, North and South, each managed by Unit General Foreman under the direct supervision of the Section Manager; Unit general foreman and supervisors are responsible for the crewing, operation, training of launch crews, management of deckhand crews to transiting ships, and training of personnel.

Operationally, the section provides launch transportation for the pilots, deckhands, boarding officers and others to the transiting ships. OPT traffic controllers inform the section of the pilots and ship schedules and locations and the unit must ensure that the necessary launch and deckhand support is provided.

(3) *Land Transportation Unit (OPRD)*: The Land Transportation Unit is managed by a Unit Supervisor under the direct supervision of the division executive manager. The Land Transportation Unit is responsible for the management and operation of a vehicular fleet consolidated system, comprised of vehicles and special equipment used to satisfy land transportation needs and provides support for Canal Authority

main activity. It has a dispatching office in Panama and Colon, manned by vehicle drivers, supervisors and administrative personnel.

17.2 Tugboat Section

a. *Mission*

The mission of the Tugboat Section is to provide tug services for the safe and efficient transit of vessels through the Panama Canal. The tug fleet is normally distributed as follows: 60% of the fleet to the Southern District and 40% to the Northern district.

(1) *Operational Responsibility*

As assigned by the Maritime Traffic Control Unit (OPTC-T), the Tugboat Section provides docking, undocking, and maneuvering assistance to transiting vessels, as well as towing assistance to vessels not under power and other non-self-propelled floating equipment, such as barges, cranes and drill rigs. They also provide assistance, such as salvaging grounded vessels, and fighting waterfront and shipboard fires. In the case of shipboard firefighting, the Security and Emergency Response Division provides the incident control and direction.

(2) *Maintenance Responsibility*

Coordinates with the Fleet Management Section (OPMA) for programmed tugboat maintenance required to achieve and maintain a level of operational readiness that is:

(a) Commensurate with the primary mission of providing safe and efficient transit services, and

(b) Adequate to maintain the condition of each tugboat during its service life.

b. *Twenty-Four-Hour Point of Contact*

(1) Pacific Tugboat Operations Clerk (Tel. 272-2989/2940)
(2) Atlantic Tugboat Operations Clerk (Tel. 443-5367/5368)

c. *Transit Related Communications*

(1) The OPTC-T transit controller assigns the tugboats to the transiting vessels and the pilot communicates to the tugboat master the desired tugboat support. It is essential that masters on tugboat, at all times, keep radio communication channels open with MTC and with the pilots. The radio should be continuously guarded by the master or by a crew member with adequate English communications skills.

(2) Masters are required to properly acknowledge all instructions and assignments from Maritime Traffic Control Unit (OPTC-T) and from pilots.

(3) Refer to Section No. 6 "Communications," for accepted communications between personnel engaged in transit related activities.

d. *Standard Assignment Waiting Stations*

All tugboats should be on station, standing by for their assigned jobs, rather than waiting for a call from OPTC-T or the pilot. The "Standard Waiting Stations" appear in the table below.

When approaching an assigned job, masters should report to the pilot by giving the tugboat's name, location, and readiness to work.

ASSIGNMENTS	STATION
TRANSITING	
MIRAFLORES LOCKS	
Northbound vessels	1st near Dock 6 2nd before arriving to the locks
Southbound vessels	1st and 2nd near Pedro Miguel Locks
PEDRO MIGUEL LOCKS	
Northbound vessels	1st and 2nd near Miraflores Locks
Southbound vessels	Station 1971 (near Gold Hill)
GAILLARD CUT	
Northbound vessels	Station 2090 (near Pedro Miguel Locks)
Southbound vessels	Buoy 91 (near Gamboa sandblast area)
GATUN LOCKS	
Northbound vessels	Buoy 11 (Gatun Lake)
Southbound vessels	Buoy 10 (Atlantic Entrance)
DOCKING	
BALBOA PIERS	
Northbound vessels	Near Balboa Yacht Club
Southbound vessels	Buoy 30 (near Diablo Landing)
CRISTOBAL PIERS	
Northbound vessels	Buoy 5
Southbound vessels	Mole Buoy

Table I - Standard Waiting Stations for Tugboats (“meeting points”)

NOTE: *Remember that occasionally tugs are used to stand-by the dredges.*

e. *Dead Tows*

The phrase "dead tow" is applied to vessels that are towed because they are not self-propelled. Dead tows require special planning and preparations by the office of the Canal Operations Captain (COC), OPTC-T, OPRR and OPTC based on dead tow particulars such as: hull configuration; type and number of tugboats assisting; availability of tackle, such as deck winches, bridles, chains and hawsers, etc. The following procedures are intended to assure that necessary preparations are made in advance of the actual time of transit:

(1) Prior to its arrival, the agent provides information on the dead tow to the office of the COC. The Canal Port Captain (CPC) on duty relays the information to the Tugboat and Transportation and Deck Assistance Section Managers, who in turn inform the Tugboat Chief, North or South, and the Launch and Deckhand Operations General Foreman, respectively, for them to initiate preparation.

(2) When the dead tow arrives and prior to being scheduled for transit, it is inspected by a CPC and a representative of OPRR, if available. Based on this inspection, the particulars and information required for transiting are recorded by the CPC in the form called "Tow Sheet." This form is then sent to OPRR and OPTC-T for their information and action. Normally, the "Tow Sheet" is prepared at least 24 hours prior to the scheduled transit time of the dead tow.

f. *Reporting Tugboat Out of Service*

(1) The tugboat master on watch has the authority to take a tugboat out of service. In making this decision the master may rely on the recommendation of the engineer on duty.

(2) When the master decides to take the tugboat out of service, he shall immediately notify the OPTC-T watch supervisor, specifying the reason for the outage, the estimated out-of-service time, and other pertinent information.

(3) The shore station will be kept informed and may assist in the repairs, prepare a stand-by tugboat for service and/or notify the respective Tugboat Operations Clerk on duty for required coordination.

(4) In the event of serious injury and/or property damage, the engineer in the shore station or the Tugboat Operations Clerk (TOC) will immediately inform the Tugboat Section Manager and work with OPTC-T to coordinate appropriate assistance.

g. *Guests on Tugboats*

Anyone aboard an OPRR tugboat that does not have an official function on board is considered a guest.

(1) Guests shall not board a tugboat without prior authorization of the Tugboat Section Manager. Approval of such a request is a privilege extended to the requestor by the Panama Canal Authority.

(2) Any person desiring to board a tugboat as a guest must complete Part I of the OPRR form, "Request to Board OPRR Tugboats as a Guest," and submit same to the Tugboat Section Manager, at least three working days prior to the date of the desired visit. The signing of this form releases the ACP and the Panamanian Government from any liabilities that could result from injuries to the guest while aboard the tugboat. The original of this form will be retained by the guest and a copy will be retained by OPRR.

(3) OPRR employees desiring to have a guest aboard a tugboat shall forward such a request through their immediate supervisor and, in the event of approval of his request, will accompany the guest during the visit.

17.3 Maritime Transportation and Deck Assistance Section

a. *Mission*

The Maritime Transportation and Deck Assistance Section is charged with providing water transportation for designated ACP personnel and deckhand service to transiting vessels in a safe and expeditious manner. The authority for ACP to establish the requirement and to provide deckhands on transiting vessels is found in *ACP Navigation Regulations, Annex, Article 107(3).* The number of deckhands required for a ship is found in Section 2 of this manual ("Operating Procedures").

Operational Responsibility: In coordination with OPTC-T, the section provides deckhand crews to transiting vessels and launch service to pilots, deckhand crews, admeasurers, boarding, and other authorized ACP personnel.

b. *Twenty-Four-Hour Point of Contact*

(1) Pacific Small Craft Operations Foreman (Tel. 276-3366 / 3659)

(2) Atlantic Small Craft Operations Foreman (Tel. 443-5303 / 5677)

c. *Facilities Used for Launch and Deckhand Operations*

The various launch landings and shore side facilities used by OPRT in accomplishing its mission are:

(1) *Pacific*

(a) *Building 701, Corozal:* South Launch and Deckhand Operations office (duty station for administrative personnel).

(b) *Corozal Dock:* Launch landing with a dispatcher and operational launches. Used mainly to transport deckhands to northbound vessels and disembark deckhands from southbound vessels. Tugboat crews also use launches at this landing during watch change time.

(c) *Mine Dock:* Launch landing with a dispatcher and operational launches. Used mainly as point of embarking pilots assigned to northbound vessels and point of disembarking pilots assigned to southbound vessels; and for admeasurement/ boarding personnel going to and returning from vessels in the Pacific Anchorage.

(d) *Diablo Dock:* Point of embarking for the extra pilots going to northbound vessel and point of disembarking for extra pilots on southbound vessels. Tugboat crews also use launches at this landing during watch change time.

(e) *Miraflores Dock:* Launch landing without a dispatcher, but with operational launch. Used mainly as point of embarking and disembarking pilots and deckhands assigned to ships moored at Miraflores Lake mooring station. All jobs are coordinated through Paraiso Landing dispatcher. Provisions may be made to coordinate jobs from Corozal Landing, in case it is deemed necessary. Tugboat crews also use launches at this landing during watch change time.

(f) *Paraiso Landing:* Launch/tugboat landing with a dispatcher and operational launches. Used mainly as point of embarking and disembarking deckhands going to southbound vessels and coming from northbound vessels respectively. Tugboat crews also use launches at this landing during watch change time.

(2) *Atlantic*

(a) *Building 18, Gatun:* North Launch and Deck Assistance Operations office (duty station for administrative personnel).

(b) *Building 13, Gatun Landing:* North launch and deckhand operations office; duty station for deckhands and Gatun launch crews; launch landing with dispatchers for launches and deckhands, and operational launches. Used mainly for embarking deckhands going to northbound vessels and disembarking deckhands coming from southbound vessels, and for transporting extra or shuttle pilots to and from vessels. Tugboat crews also use launches at this landing during watch change time.

(c) *Davis Landing:* Launch landing with dispatcher and operational launches. Used mainly to embark deckhands going to southbound vessels and disembark deckhands coming from northbound vessels. Tugboat crews may use launches at this landing for watch change.

(d) *Cristobal Boathouse:* Duty station for Cristobal launch crews. Launch landing with a dispatcher and operational launches. Serves mainly as a point for embarking and disembarking pilots going to southbound vessels and coming from northbound vessels, respectively. Admeasurement/boarding personnel leave from and return to this landing when performing duties in the Atlantic anchorage.

d. *Standard Boarding Station for Pilots, Deckhands and Boarding Officers*

The standard vessel boarding and disembarking stations/locations for launches used by pilots, deckhand gangs and boarding officers are shown in Tables II and III, on the following pages.

ASSIGNMENTS	STATIONS
PILOTS	
NORTHBOUND VESSELS	
Boarding, 1st Control Pilot	Pacific Anchorage
Boarding, Extra Pilots	Buoy 26 (Near Diablo Landing)
Boarding, All Pilots	Rodman Piers, Balboa Moorings
Boarding/Disembarking MF Lake Moorings	Miraflores Lake
Boarding/Disembarking in Gamboa	Chagres Crossing
Boarding/Disembarking in Gatun Anchorage	Gatun Anchorage
Disembarking in Gatun Approach	Near Davis Landing
Disembarking in Cristobal	Basin, Anchorage or Dock 16
SOUTHBOUND VESSELS	
Boarding, 1st Control Pilot	Near Atl. Breakwater, Anchorage or Dock 16
Boarding, Extra Pilots	Near Davis Landing
Disembarking, 1st Control and Bow Pilots	Near Gatun Locks (when vessel exits)
Disembarking, 2nd Control Pilot	Gatun Anchorage
Embarking, 1st and Extra Pilots	Gatun Anchorage
Boarding/Disembarking in Gamboa	Near Buoy 91
Boarding, 2nd Control in Paraiso Landing	Paraiso Reach
Boarding/Disembarking MF Lake Moorings	Miraflores Lake
Disembarking, 1st Control and Extra Pilots	Balboa Reach
Disembarking at Docks	Balboa Basin
Disembarking at End of Channel	Near Buoy 1

TABLE II - Standard Waiting Stations for Launches (“meeting points”)

ASSIGNMENTS	STATIONS
DECKHANDS	
NORMAL TRANSIT – NORTHBOUND VESSELS	
Boarding, Southern District, Miraflores	
Boarding, Southern District, Cocoli	South of Buoy 24 (Near Dock 6)
Buoy 12 (Pacific Entrance)	
Boarding/Disembarking MF Lake Moorings	Miraflores Lake
Disembarking, Southern District, Miraflores	
NORMAL TRANSIT – SOUTHBOUND VESSELS	
Boarding, Northern District, Gatun Locks	
Boarding, Northern District, Agua Clara Locks	

TABLE III - Standard Waiting Stations for Launches ("meeting points")

e. *Launch Transportation of Non-ACP Personnel*

(1) The CPC authorizes passage of agents and transiting ship personnel on OPT launches. When approved, the CPC or his designee will give the launch dispatcher the name and destination of the passenger(s).

(2) The passenger(s) will present a valid *cédula* or passport to the launch dispatcher.

(3) The passenger(s) will present a completed Form No. 4698-S (OPT) or 4699-S (OPT) to the launch dispatcher prior to receiving transport. The forms are sent to the OPT Administrative Unit for processing.

f. ***Embarking or Disembarking During Transit***

(1) The Panama Canal Authority (ACP) does not provide commercial launch services on a regular basis at this time. However, under special circumstances, and in exceptional cases, embarking and disembarking may be accommodated. The operation will take place only after approval by the Canal port captain on duty on the side of the Isthmus under his supervision. These services will entail a charge, unless otherwise authorized as official or courtesy.

(2) Passengers and crew members aboard vessels, agents, agents' representatives, vessels' contractors or ACP employees or others on Official or Courtesy transits, utilizing Authority launch service **without** a service charge, will only be permitted to embark or disembark from transiting vessels in the Canal at the

Balboa Basin at the Pacific terminal (Diablo Landing), Gamboa at Chagres Crossing (Gamboa Landing), and Gatun Lake Landing at the Atlantic terminal. The number of personnel should be limited and large groups avoided.

(3) Designation of these sites by the Executive Vice President for Operations are based on safety and operational considerations. Every effort will be made to limit the use of the Gamboa Landing for official Canal business due to facilities and resource limitations. Pilots, tugboat personnel, deckhands, and other Authority employees on duty will be governed by operational requirements when performing their official duties.

(4) *Subject to operational and safety considerations, the following are exceptions to the above rules:*

- Personnel utilizing Authority launch service **with** a service charge may also embark or disembark a transiting vessel at the Balboa or Cristobal anchorages and the Mine Dock.

- In cases of dire need or an emergency, personnel may also embark or disembark at the locks. This will require previous approval of the Transit Operations Division Executive Manager who will provide authorization on a case-by-case basis.

- Prevailing tariff rates will apply to ACP launch service and for gangway handling when embarking or disembarking at the locks. Shipping Agents will be charged based on CPC approval.

(5) *When authorization to embark or disembark at the locks has been granted:*

- Permission will be communicated by MTC to the appropriate control house operator and the Admeasurement Unit manager.

- Each occasion that a gangplank is secured to a vessel, the operations supervisor will notify the Admeasurement Unit and district port captain.

- The message must name the person or persons and baggage or packages involved and the steamship agency requesting the service.

- Only those person(s) and material identified and approved will be permitted to be embarked or disembarked.

(6) Steamship agents will make arrangements with the government customs and immigration offices whenever required.

(7) *Use of Davis and Paraiso landings:*

- These facilities are not suitable for use by the general public. They were constructed only as work areas with no controlled access or contraband control measures.

- Due to the movement of tugs and the maneuvering of ships in these areas, boarding is more complex than normal. The close proximity to the locks normally makes it impractical to use the accommodation ladder, leaving only the pilot ladder.

- With the exception of pilots assigned to transiting vessels or going to or from the tie-up station, admeasurers measuring vessels, Transit Operations Division personnel and deckhands assisting transiting ships, boarding of vessels in these areas by Authority employees requires specific approval by the Transit Operations Division Executive Manager.

- These facilities are not to be used by non-Authority personnel for embarking/disembarking vessels in transit except when absolutely necessary due to an emergency. In these cases, it requires the specific approval of the Transit Operations Division, who will have to determine that the emergency is such that it precludes the use of one of the other sites designated for that purpose.

(8) *Weapons in Authority buildings and facilities.* Carrying weapons within Authority buildings and facilities is prohibited, except in the case of law enforcement officials or employees of the Authority who are authorized to carry weapons in the performance of their official duties. Exceptions to this regulation must be approved by the Protection and Emergency Response Division manager.

(9) Ship's business and commercial enterprise activities should be conducted in the ports or in the anchorage areas using PMA equipment.

g. *Deckhand Trainer Service*

(1) There is a deckhand trainer on watch 24 hours a day, seven days a week, in each district. Their main functions are to provide continuous on-the-job training and instructions to the deckhand force, with emphasis on safety, and to conduct investigations of line of duty accidents. They are also required to fill out paperwork required for treatment and investigation (Forms Nos. 5029, CSS Forms).

(2) Besides OPRT personnel, deckhand trainers are often requested, upon availability, to escort pilots and OPR tugboat crews to a medical facility or to meet them there. The purpose is to obtain employee and medical personnel statements required on ACP injury/medical forms. This service must be requested through the launch and deckhand operations supervisor or the small craft operations foreman on duty in the launch/deckhand operations office.

h. *Deckhands at Cucaracha Tie-Up Station*

(1) *Description*: Cucaracha Tie-up Station (see Figure 1) is a 1,125-foot-long dock, with a total usable area of 1,373 feet in length, which is located on the east bank of Cucaracha Reach at the southernmost end of Culebra Cut. There are eleven mooring bitts along the face of the dock. The bitts are of rigid construction and capable of accepting any vessel that transits the Canal.

In addition, two mooring stations are located on the shore side of the tie-up dock: One at the northernmost part of the dock and one at the southernmost part of the dock. Each station is equipped with a single hook. The mooring hooks are rated at 100 tons each and are the quick-release type, capable of swinging through an arc of 180 degrees. Each station is also equipped with a single speed electric capstan.

(2) *Tie-up procedure*:

(a) Approach: The pilot shall maneuver his vessel with the aid of tugboats, as required, to make a soft parallel landing so that only the flat part of the vessel's hull makes contact with the dock.

(b) Communications: Good radio communications shall exist between the pilot, tie-up station foreman and tug(s) during the mooring or unmooring operation. The working radio channel for the operation is 4B (Pilot). All communications shall be in English. The tie-up foreman shall communicate with the pilot to provide guidance in tie-up position, which is set by markers.

(c) Tug requirements: One or two tugboats shall normally be assigned to a vessel when mooring and unmooring. Tug(s) shall be assigned at the pilot's request.

(d) Mooring line arrangements: The vessel shall provide lines and shall operate winches as directed by the pilot or deckhand leaders.

For vessels over 300 feet in length the following lines are utilized:

- Two headlines
- Two stern lines
- Two forward spring lines
- Two after spring lines
- Two forward breast lines
- Two after breast lines

For vessels 300 feet in length or less the following lines are utilized:

- Two headlines
- Two stern lines
- Two forward spring lines
- Two stern spring lines
- One forward breast line
- One after breast line

If, because of the vessel's size, a breast line forward or aft cannot be lead out of a chock that is located on the forecastle or stern of the vessel, every effort should be made to lead a breast line out from a chock that is located on the main deck. The chock located nearest to the bow or stern should be used when this occurs.

(e) Shore side line handling requirements: One ACP deckhand leader with transit radio on channel 4B (Pilot) and eight deckhands for one vessel or twelve deckhands for

two vessels arriving at the same time are required. Deckhands shall be positioned to receive and shift lines as soon as the ship is within heaving line range of the dock.

(f) On board line handling requirements: For northbound vessels, the ACP deckhands shall send heaving lines ashore. For southbound vessels, the vessel's crew shall handle the lines under the pilot's guidance.

Mooring line sequence:

- Forward and after spring lines out first
- Head and stern lines out next
- Forward and aft breast lines out last

Once the vessel is made fast, the ACP deckhands shall disembark and it shall be the responsibility of the vessel's crew to let go and retrieve the mooring lines when departing the tie-up station.

(g) Use of the vessel's anchor: Once the vessel is moored, the pilot shall order the offshore anchor to be walked out with enough chain so that it lays flat on the bottom. Note that the anchor must not be dropped, but must be walked out.

(h) Proper watch standing: The master shall have his crew tend the mooring lines and keep the lines tight. Keeping the mooring lines tight will prevent a surge of the vessel by transiting vessels navigating in the channel close to the tie-up station. The master shall be advised regarding the time the next pilot will board and shall stand watch on VHF Channel 12 for any updates (via the Flamenco Signal Station).

(3) *Minimum acceptable clearance between vessels*: The minimum acceptable clearance between vessels moored at the tie-up station shall be 50 feet forward and 50 feet aft.

(4) *Minimum safe speed*: Pilots are instructed to proceed with caution and at safe minimum speed when passing by the Cucaracha Tie-up Station while a vessel is moored.

(5) *Mooring restrictions*: Vessels classified as Precaution Designator 1 (PD-1) or 2 (PD-2) and vessels without holding tanks will not be allowed to moor at Cucaracha unless an emergency occurs.

(6) *Vessel size limitations*:

- One vessel: Any length.
- Two vessels: The combined length of the two vessels shall not exceed 1,225 feet.

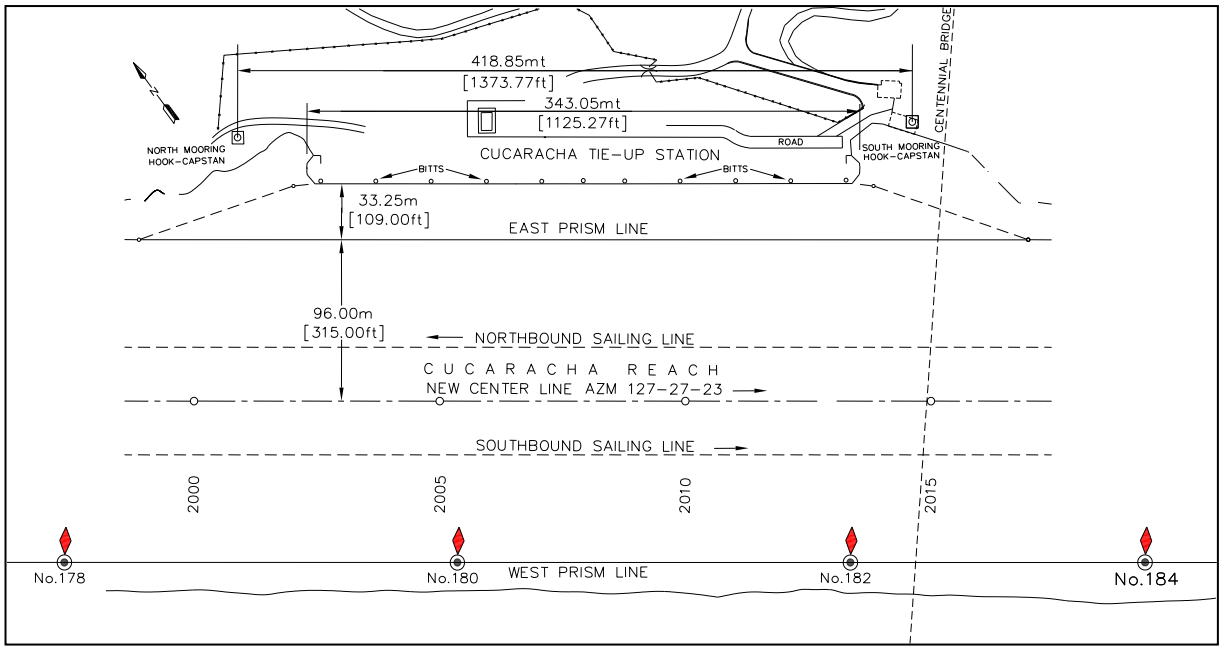

FIGURE 1 – Cucaracha Tie-Up Station

i. *Deckhands at Cartagena Tie-up Station (Southern)*

(1) *Description*:

Cartagena Southern Tie-up Station consists of five mooring islands or breasting dolphins (See Figure 2). The breasting dolphins are of rigid construction, capable of accepting vessels that transit the Canal providing that certain procedures are strictly adhered to. Vessels must land perfectly parallel to the structure so that the weight of the vessel is equally distributed on each breasting dolphin. The vessel should have little or no headway at this time. The fendering system in these breasting dolphins is spring-mounted and designed to withstand compression forces, but cannot accommodate shear or twist. On initial contact, the resultant forces may spring a vessel away from the structures. Care should be exercised at this time so that the assisting tugs are not utilizing full power or are not flush alongside as the combined forces of the vessel springing away and the tug pushing could cause considerable damage to the vessel.

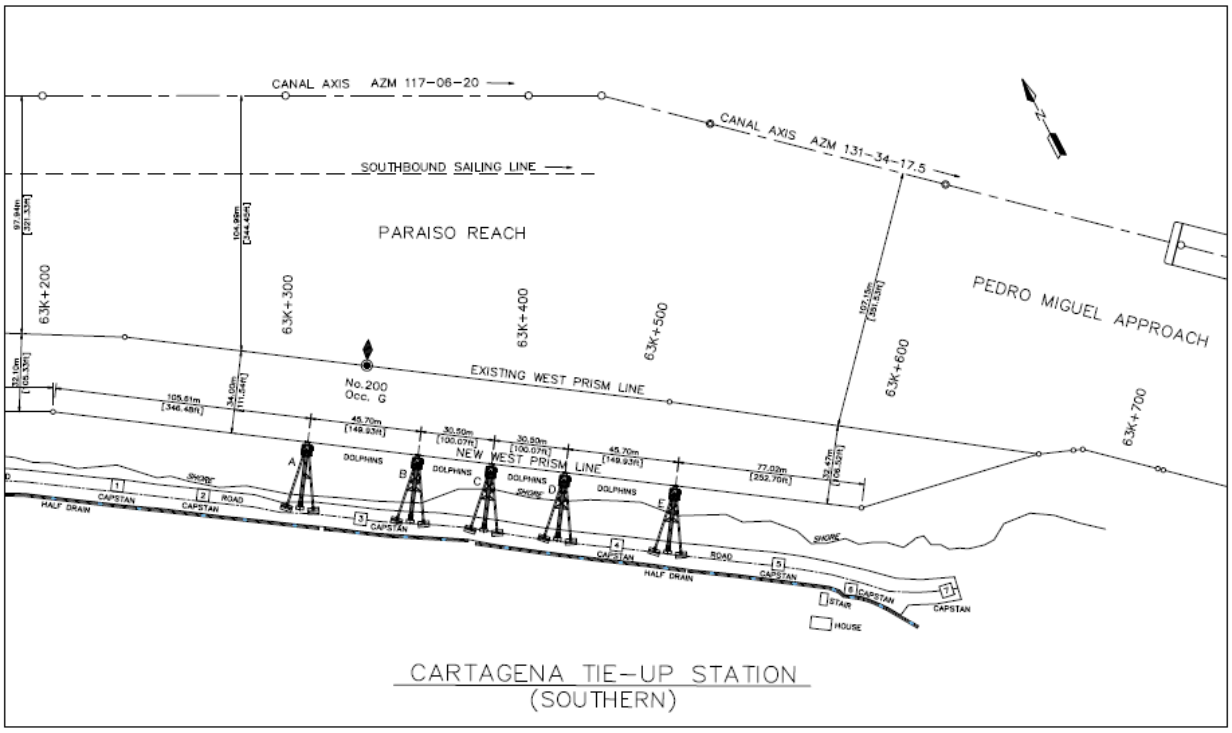

FIGURE 2 – Cartagena Tie-up Station (Southern)

(a) For the purpose of identification, the breasting dolphins are lettered A through E starting with the northernmost breasting dolphin. The distances between the breasting dolphins are as follows:

- Between A and B: 150 feet (45.7 meters)
- Between B and C: 100 feet (30.5 meters)
- Between C and D: 100 feet (30.5 meters)
- Between D and E: 150 feet (45.7 meters)

Total distance between dolphins A to E: 500 feet (152.4 meters).

(b) Each breasting dolphin is equipped with a single-speed electric capstan and one 100-ton quick-release hook. The hook can swing through an arc of 180 degrees. The design of the breasting dolphin's face piece requires that the flat part of the vessel's hull rest on the face piece. The face piece will not adjust to any curvature in the hull plating. Vessels that do not have a sufficient flat hull surface to rest against to at least to two face pieces will not normally be moored at the tie-up station.

(c) In addition, seven mooring stations are located on the landside of the breasting dolphins with two hooks each. They are numbered from 1 through 7, starting with the northernmost station.

Total distance between mooring stations 1 to 7: 1145 feet (349.1 meters).

(d) Each station is also equipped with a single-speed electric capstan. All mooring hooks are rated at 100 tons and are of the quick-release type, capable of swinging through an arc of 135 degrees.

(e) The system is provided with a remote release control. From a control panel, the hooks might be released individually or all together simultaneously.

(2) *Vessel Suitability*:

The Transit Operations Division Executive Manager or his designee will determine a vessel's suitability for use of the Cartagena Southern Tie-up Station based upon its ability to rest securely on the breasting dolphins, its mooring arrangements, its protrusions, dangerous cargo restrictions, availability of holding tanks or other approved means to prevent discharge, or other unsanitary liquids, etc. Once the vessel's suitability has been established, MTC may schedule use of Cartagena Tie-up Station (Southern) using the following guidelines:

(a) Cartagena Tie-up Station (Southern) has no limitation of vessel's size.

(b) Vessels less than 300 feet should tie-up using breasting dolphins B-C or C-D.

(c)Vessels over 300 feet should tie-up with her midship section as close as possible to mooring dolphin C (the middle one).

(d) The minimum acceptable clearance between vessels moored at the tie-up southern and northern stations shall be 150 feet (45.7 meters).

(e) Deviations from these procedures must be approved in advance by the Transit Operations Division Executive Manager or his designee.

(3) *Tie-up Procedure*:

(a) Approach: The pilot shall maneuver his vessel with the aid of tugboats, as required, to make a soft parallel landing so that only the flat part of the vessel's hull makes contact with the face pieces.

(b) Communications: Good radio communications shall exist between the pilot, tie-up station foreman and tug(s) during the mooring or unmooring operation. The working radio channel for the operation is 3B (Maneuver). All communications shall be in English. The tie-up foreman shall communicate with the pilot to provide guidance in tie-up position, which is set by markers.

(c) Tug requirements: One or two tugboats shall normally be assigned to a vessel when mooring and unmooring. Tug(s) shall be assigned at the pilot's request.

(d) Mooring line arrangements: The vessel shall provide lines and shall operate winches as directed by the pilot or deckhand leaders.

- For vessels over 300 feet in length the following lines are utilized:

- Two headlines
- Two stern lines
- Two forward spring lines
- Two after spring lines
- Two forward breast lines
- Two after breast lines

• For vessels over 300 feet in length or less the following lines are utilized:

- Two headlines
- Two stern lines
- Two forward spring lines
- Two stern spring lines
- One forward breast line
- One after breast line

• If, because of the vessel's size, a breast line forward or aft cannot be lead out of a chock that is located on the forecastle or stern of the vessel, every effort should be made to lead a breast line out from a chock that is located on the main deck. The chock located nearest to the bow or stern should be used when this occurs.

(e) Shore side line handling requirements: One ACP deckhand leader with transit radio on channel 3B (Maneuver) and twelve deckhands per station (southern and northern) are required. Deckhands shall be positioned to receive and shift lines as soon as the ship is within heaving line range of the dock.

Prior to the vessel's arrival, the deckhands will have messengers lines leading from the breasting dolphin to the appropriate mooring hook for each mooring line that they expect to receive. When the first heaving line is sent from the vessel, they are to tie all the messengers to the heaving line from the vessel at the same time.

(f) On board line handling requirements: For northbound vessels, the ACP deckhands shall send heaving lines ashore. For southbound vessels, the vessel's crew shall handle the lines under the pilot's guidance.

• Mooring line sequence:

- Forward and after spring lines out first
- Head and stern lines out next
- Forward and aft breast lines out last

• Once the vessel is made fast, the ACP deckhands shall disembark and it shall be the responsibility of the vessel's crew to let go and retrieve the mooring lines when departing the tie-up station.

(g) Use of the vessel's anchor: Once the vessel is moored, the pilot shall order the offshore anchor to be walked out with enough chain so that it lays flat on the bottom. Note that the anchor must not be dropped, but must be walked out.

(h) Proper watch standing: The master shall have his crew tend the mooring lines and keep the lines tight. Keeping the mooring lines tight will prevent a surge of the vessel by transiting vessels navigating in the channel close to the tie-up station. Note that the master shall be advised regarding the time the next pilot will board and shall stand watch on VHF Channel 12 for any updates (via the Flamenco Signal Station).

(4) *Minimum Acceptable Clearance Between Vessels*: The minimum acceptable clearance between vessels moored at the southern and northern tie-up stations shall be 150 feet (45.7 meters).

(5) *Minimum Safe Speed*: Pilots are instructed to proceed with caution and at safe minimum speed when passing by the Cartagena Tie-up Station while a vessel is moored.

(6) *Mooring Restrictions*: Vessels classified as Precaution Designator 1 (PD-1) or 2 (PD-2) and vessels without holding tanks will not be allowed to moor at Cartagena unless an emergency occurs.

(7) *Vessel Size Limitations*: There are no size limitations at Cartagena Tie-up Station (Southern).

j. *Deckhands at Cartagena Tie-Up Station (Northern)*

(1) *Description*:

Cartagena Northern Tie-up Station consists of four mooring islands or breasting dolphins (See Figure 3). The breasting dolphins are of rigid construction, capable of accepting vessels that transit the Canal providing that certain procedures are strictly adhered to. Vessels must land perfectly parallel to the structure so that the weight of the vessel is equally distributed on each breasting dolphin.

The vessel should have little or no headway at this time. The fendering system in these breasting dolphins is spring-mounted and designed to withstand compression forces, but cannot accommodate shear or twist. On initial contact, the resultant forces may spring a vessel away from the structures. Care should be exercised at this time so that the assisting tugs are not utilizing full power or are not flush alongside as the combined forces of the vessel springing away and the tug pushing could cause considerable damage to the vessel.

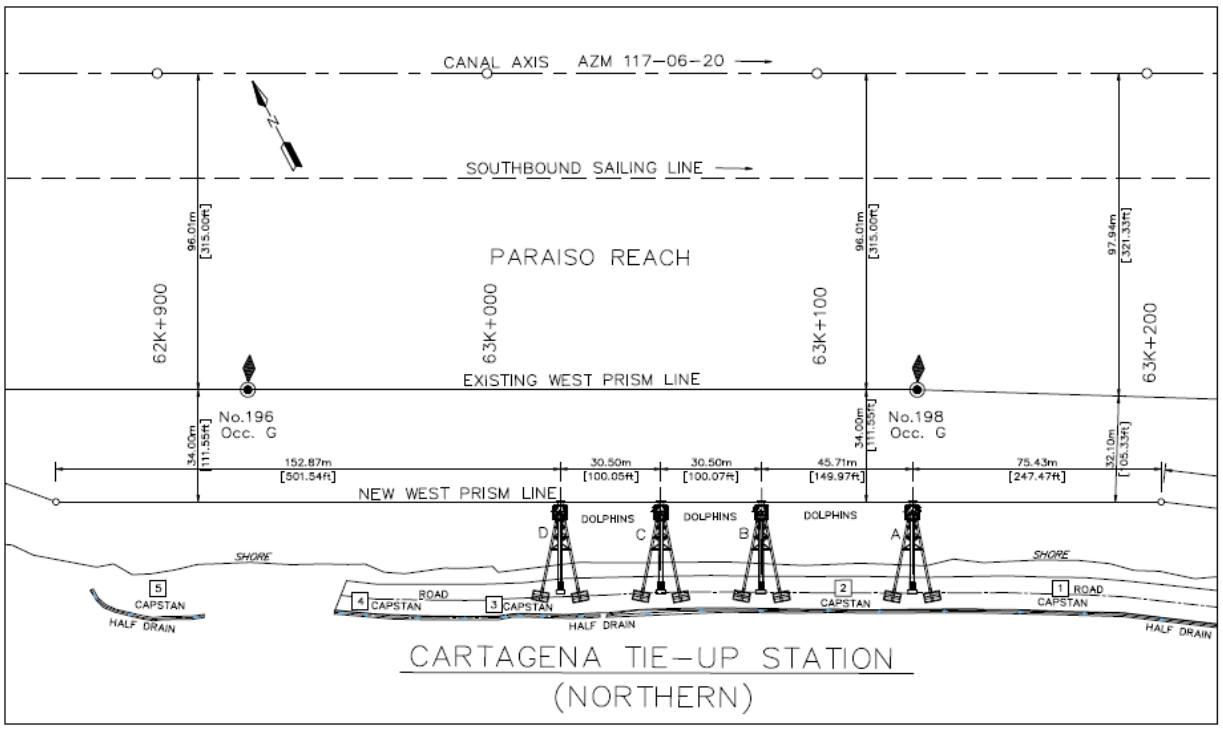

FIGURE 3 – Cartagena Tie-up Station (Northern)

(a) For the purpose of identification, the breasting dolphins are lettered A through D starting with the northernmost breasting dolphin. The distances between the breasting dolphins are as follows:

- Between A and B: 150 feet (45.7 meters)
- Between B and C: 100 feet (30.5 meters)
- Between C and D: 100 feet (30.5 meters)

Total distance between dolphins A to D: 350 feet (106.7 meters).

(b) Each breasting dolphin is equipped with a single-speed electric capstan and one 100-ton quick-release hook. The hook can swing through an arc of 180 degrees. The design of the breasting dolphin's face piece requires that the flat part of the vessel's hull rest on the face piece. The face piece will not adjust to any curvature in the hull plating. Vessels that do not have a sufficient flat hull surface to rest against to at least to two face pieces will not normally be moored at the tie-up station.

(c) In addition, five mooring stations are located on the landside of the breasting dolphins with two hooks each. They are numbered from 1 through 5, starting with the northernmost station.

Total distance between mooring stations 1 to 5: 915 feet (278.96 meters).

(d) Each station is also equipped with a single-speed electric capstan. All mooring hooks are rated at 100 tons and are of the quick-release type, capable of swinging through an arc of 135 degrees.

(e) The system is provided with a remote release control. From a control panel, the hooks might be released individually or all together simultaneously.

(2) *Vessel Suitability:*

The Transit Operations Division Executive Manager or his designee will determine a vessel's suitability for use of the Cartagena Tie-up Station (Northern) based upon its ability to rest securely on the breasting dolphins, its mooring arrangements, its protrusions, dangerous cargo restrictions, availability of holding tanks or other approved means to prevent discharge, or other unsanitary liquids, etc. Once the vessel's suitability has been established, MTC may schedule use of Cartagena Tie-up Station (Northern) using the following guidelines:

(a) Cartagena Tie-up Station (Northern) has an 815 feet vessel’s size limitation.

(b) Vessels less than 300 feet should tie-up using breasting dolphins B-C or C-D.

(c) Vessels over 300 feet should tie-up with her midship section as close as possible to mooring dolphin B.

(d) The minimum acceptable clearance between vessels moored at the tie-up southern and northern stations shall be 150 feet (45.7 meters).

(e) Deviations from these procedures must be approved in advance by the Transit Operations Division Executive Manager or his designee.

(3) *Tie-up Procedure*:

(a) Approach: The pilot shall maneuver his vessel with the aid of tugboats, as required, to make a soft parallel landing so that only the flat part of the vessel’s hull makes contact with the face pieces.

(b) Communications: Good radio communications shall exist between the pilot, tie-up station foreman and tug(s) during the mooring or unmooring operation. The working radio channel for the operation is 3B (Maneuver). All communications shall be in English. The tie-up foreman shall communicate with the pilot to provide guidance in tie-up position, which is set by markers.

(c) Tug requirements: One or two tugboats shall normally be assigned to a vessel when mooring and unmooring. Tug(s) shall be assigned at the pilot’s request.

(d) Mooring line arrangements: The vessel shall provide lines and shall operate winches as directed by the pilot or deckhand leaders.

- For vessels over 300 feet in length the following lines are utilized:
  - Two headlines
  - Two stern lines
  - Two forward spring lines
  - Two after spring lines
  - Two forward breast lines
  - Two after breast lines

- For vessels over 300 feet in length or less the following lines are utilized:
  - Two headlines
  - Two stern lines
  - Two forward spring lines
  - Two stern spring lines
  - One forward breast line
  - One after breast line

- If, because of the vessel's size, a breast line forward or aft cannot be lead out of a chock that is located on the forecastle or stern of the vessel, every effort should be made to lead a breast line out from a chock that is located on the main deck. The chock located nearest to the bow or stern should be used when this occurs.

(e) Shore side line handling requirements: One ACP deckhand leader with transit radio on channel 3B (Maneuver) and twelve deckhands per station (southern and northern) are required. Deckhands shall be positioned to receive and shift lines as soon as the ship is within heaving line range of the dock.

Prior to the vessel's arrival, the deckhands will have messengers leading from the breasting dolphin to the appropriate mooring hook for each mooring line that they expect to receive. When the first heaving line is sent from the vessel, they are to tie all the messengers to the heaving line from the vessel at the same time.

(f) On board line handling requirements: For northbound vessels, the ACP deckhands shall send heaving lines ashore. For southbound vessels, the vessel's crew shall handle the lines under the pilot's guidance.

- Mooring line sequence:
  - Forward and after spring lines out first
  - Head and stern lines out next
  - Forward and aft breast lines out last

- Once the vessel is made fast, the ACP deckhands shall disembark and it shall be the responsibility of the vessel's crew to let go and retrieve the mooring lines when departing the tie-up station.

(g) Use of the vessel's anchor: Once the vessel is moored, the pilot shall order the offshore anchor to be walked out with enough chain so that it lays flat on the bottom. Note that the anchor must not be dropped, but must be walked out.

(h) Proper watch standing: The master shall have his crew tend the mooring lines and keep the lines tight. Keeping the mooring lines tight will prevent a surge of the vessel by transiting vessels navigating in the channel close to the tie-up station. Note that the master shall be advised regarding the time the next pilot will board and shall stand watch on VHF Channel 12 for any updates (via the Flamenco Signal Station).

(4) *Minimum Acceptable Clearance Between Vessels*: The minimum acceptable clearance between vessels moored at the southern and northern tie-up stations shall be 150 feet (45.7 meters).

(5) *Minimum Safe Speed*: Pilots are instructed to proceed with caution and at safe minimum speed when passing by the Cartagena Tie-up Station while a vessel is moored.

(6) *Mooring Restrictions*: Vessels classified as Precaution Designator 1 (PD-1) or 2 (PD-2) and vessels without holding tanks will not be allowed to moor at Cartagena unless an emergency occurs.

(7) *Vessel Size Limitations*: There is an 815 feet vessel's size limitation at Cartagena Tie-up Station (Northern).

17.4 Land Transportation Unit

The Land Transportation Unit is responsible for providing land transportation across the Isthmus for Canal pilots, as well as local transportation service for pilots in the city areas of Panama and Colon. It is also responsible for the transportation of tugboat crews within all Canal operating areas.

If a disruption of the public land transportation occurs, such as road blockage or fuel shortage, the *Contingency Plan for Land Transportation* (http://portalacp/sites/op/opp/oppd/plancontingencia/c_operativo/default.aspx or refer to the Canal Port Captain Manual) will be activated.

17.5 Tugboat Fleet Specifications

Table IV shows the ACP tugboat fleet specifications, on the following page. For future updates on available ACP tugboat resources and specifications, access the following link:

http://portalacp/sites/operaciones/OPM/opma/tugs/Forms/Por%20tipo%20de%20Informe.aspx

17.6 Launch Fleet Specifications

Table V shows the ACP launch fleet specifications, on page 26. For updates on available ACP launch resources and specifications, access the following link:

http://portalacp/sites/operaciones/OPM/opma/lcha/Forms/Tipo%20de%20Informe.aspx

TUG	YEAR BUILT	HULL No.	LOC.	MAIN ENG.	PROPUL.	HP	L.O.A.	BEAM	MOLDED DEPTH	D.W.L. DRAFT		GROSS TON.	FLUID CAP. (GALS.)		
										FWD	AFT		FUEL	WATER	FOAM
CACIQUE I	1998	137	PAC	EMD-645-E6	2 V-S CYCL	2X1500	95'-00"	34'-00"	11'-09"	17'-00"	17'-00"	286	28,908	3,104	1,240
GILBERTO GUARDIA	1997	135	PAC	EMD-645-E6	2 V-S CYCL	2X1500	95'-00"	34'-00"	11'-09"	17'-00"	17'-00"	286	28,908	3,104	1,240
GUIA	1987	88	PAC	EMD-645-E6	2 V-S CYCL	2X1500	95'-00"	34'-00"	11'-07"	17'-00"	17'-00"	286	27,426	7,016	1,249
CECIL F. HAYNES	1997	136	ATL	EMD-645-E6	2 V-S CYCL	2X1500	95'-00"	34'-00"	11'-09"	17'-00"	17'-00"	286	28,908	3,104	1,240
LIDER	1988	89	ATL	EMD-645-E6	2 V-S CYCL	2X1500	95'-00"	34'-00"	11'-07"	17'-00"	17'-00"	286	28,616	6,056	1,249
D.P. McAULIFFE	1989	93	PAC	EMD-645-E6	2 V-S CYCL	2X1500	95'-00"	34'-00"	11'-09"	17'-00"	17'-00"	286	28,616	6,056	1,249
UNIDAD	1990	95	PAC	EMD-645-E6	2 V-S CYCL	2X1500	95'-00"	34'-00"	11'-09"	17'-00"	17'-00"	286	28,616	6,056	1,249
COCLE	2001	75	PAC	DEUTZ SBV-8 M-628	SRP-1515 FP SCHOTTEL	2X2200	101'-00"	36'-07"	15'-08"	16'-03"	16'-03"	382	38,462	3,011	4,886
COLON	2001	74	PAC	DEUTZ SBV-8 M-629	SRP-1515 FP SCHOTTEL	2X2200	101'-00"	36'-07"	15'-08"	16'-03"	16'-03"	382	38,462	3,011	4,886
HERRERA	2002	76	PAC	DEUTZ SBV-8 M-630	SRP-1212 FP SCHOTTEL	2X2200	101'-00"	36'-07"	15'-08"	16'-03"	16'-03"	382	38,462	3,011	4,886
LOS SANTOS	2002	77	ATL	DEUTZ SBV-8 M-631	SRP-1212 FP SCHOTTEL	2X2200	101'-00"	36'-07"	15'-08"	16'-03"	16'-03"	382	38,462	3,011	4,886
BOCAS DEL TORO	2007	4892	PAC	WARTSILA 9L20	LCT FS 250-SBN-K	2 x 2414	89'-10"	38'-03"	16'-05"	17'-06"	17'-06"	327	29,243	3,242	1,838
DARIEN	2007	4893	PAC	WARTSILA 9L20	LCT FS 250-SBN-K	2 x 2414	89'-10"	38'-03"	16'-05"	17'-06"	17'-06"	327	29,243	3,242	1,838
VERAGUAS II	2007	4894	PAC	WARTSILA 9L20	LCT FS 250-SBN-K	2 x 2414	89'-10"	38'-03"	16'-05"	17'-06"	17'-06"	327	29,243	3,242	1,838
CHIRIQUI III	2007	4895	PAC	WARTSILA 9L20	LCT FS 250-SBN-K	2 x 2414	89'-10"	38'-03"	16'-05"	17'-06"	17'-06"	327	29,243	3,242	1,321
PANAMA XIV	2008	4896	PAC	WARTSILA 9L20	LCT FS 250-SBN-K	2 x 2414	89'-10"	38'-03"	16'-05"	17'-06"	17'-06"	327	29,243	3,242	1,321
RIO INDIO	2008	4898	PAC	WARTSILA 9L20	LCT FS 250-SBN-K	2 x 2414	89'-10"	38'-03"	16'-05"	17'-06"	17'-06"	327	29,243	3,242	1,321
RIO BAYANO I	2008	4897	ATL	WARTSILA 9L20	LCT FS 250-SBN-K	2 x 2414	89'-10"	38'-03"	16'-05"	17'-06"	17'-06"	327	29,243	3,242	1,321
RIO TUIRA	2008	4899	ATL	WARTSILA 9L20	LCT FS 250-SBN-K	2 x 2414	89'-10"	38'-03"	16'-05"	17'-06"	17'-06"	327	29,243	3,242	1,321
CALOBEVORA	2010	4987	PAC	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849

TABLE IV - Tugboat Fleet Specifications (continues)

TUG	YEAR BUILT	HULL NO.	LOC.	MAIN ENGINE	PROPUL.	HP	L.O.A.	BEAM	MOLDED DEPTH	D.W.L. DRAFT		GROSS TON.	FLUID CAP. (GALS.)		
										FWD	AFT		FUEL	WATER	FOAM
CHANGUINOLA	2010	4988	PAC	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
SIXAOLA	2010	4989	PAC	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
TERIBE	2010	4990	ATL	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
SAJALICES	2010	4991	ATL	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
PEQUENI	2010	4992	PAC	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
BELEN	2010	4993	PAC	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
DOLEGA	2010	4994	PAC	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
ESTI	2010	4995	ATL	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
FARFAN	2011	4996	PAC	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
PACORA	2011	4997	PAC	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
PARITA	2011	4998	PAC	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
TONOSI	2011	4999	PAC	GE 12V228	SRP 1515 FP SCHOTTEL	2 x 2923	89'-10"	40'	16'-07"	18'-03"	18'-03"	359	30,565	3,170	1,849
CERRO ITAMUT	2013	720	ATL	GE 8L250	SRP 1515 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO PICHACHO	2013	721	ATL	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO SANTIAGO	2013	722	PAC	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO PANDO	2013	723	PAC	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO JEFE	2013	724	ATL	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO AZUL	2014	725	ATL	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO CANAJAGUA	2014	726	PAC	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO MAJAGUAL	2014	727	PAC	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO CAMPANA	2014	728	ATL	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113

TABLE IV - Tugboat Fleet Specifications (continues)

TUG	YEAR BUILT	HULL NO.	LOC.	MAIN ENGINE	PROPUL.	HP	L.O.A.	BEAM	MOLDED DEPTH	D.W.L. DRAFT		GROSS TON.	FLUID CAP. (GALS.)		
										FWD	AFT		FUEL	WATER	FOAM
CERRO LA VIEJA	2014	729	ATL	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO TIGRE	2014	730	ATL	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO PUNTA	2014	731	PAC	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO GRANDE	2014	732	PAC	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113
CERRO ANCON	2015	733	PAC	GE 8L250	SRP 2020 FP SCHOTTEL	2 x 3125	94'-10"	44'-03"	16'-11"	20'-03"	20'-03"	484	32,387	4,385	2,113

TABLE IV - Tugboat Fleet Specifications

NAME	LOC	KNOTS	CONST	RET	BUILDER	HULL	ENGINES	HP/INJ/RPM	PROP	LOA	BEAM	DRAFT	TONS	FUEL
MAKO	PAC	8.00	1977	2005	PCC	STL	1GM-8V-71	260/N60/1950	4/SS-30X22	48'	14'3"	5'2"	27.20	1000
FLYINGFISH	ATL	12.13	1983	2008	Twin Cities Shipyard	AL	1GM-8V-71	305/N65/2100	4/SS-32X22	56'8"	14'6"	5'2"	16.50	260
RAY II	PAC	12.87	1983	2009	Twin Cities Shipyard	AL	1GM-8V-71	305/N65/2100	4/SS-32X22	56'8"	14'7"	5'2"	16.50	260
SAILFISH II	PAC	12.33	1983	2010	Twin Cities Shipyard	AL	1GM-8V-71	305/N65/2100	4/SS-32X22	56'8"	14'7"	5'2"	16.50	260
TERN II	ATL	12.13	1983	2011	Twin Cities Shipyard	AL	1GM-8V-71	305/N65/2100	4/SS-32X22	56'8"	14'6"	5'2"	16.50	260
ALBACORE II	ATL	15.41	1987	2012	Aluminum Boat	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'2"	5'2"	16.96	416
TRUCHA	PAC	14.90	1987	2013	Aluminum Boat	AL	2DD-8V-71N	305/N65/2100	4BL/NB-28X26	53'	15'2"	5'2"	16.96	416
UMBLA	PAC	16.06	1987	2014	Aluminum Boat	AL	2DD-8V-71N	305/N65/2100	4BL/NB-28X26	53'	15'2"	5'2"	16.96	416
XAREO	PAC	15.91	1987	2015	Aluminum Boat	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'2"	5'2"	16.96	416
CORVINA	ATL	14.05	1989	2016	Aluminum Boat	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'2"	5'2"	17.00	416
MACABI	PAC	15.91	1989	2017	Aluminum Boat	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'2"	5'2"	17.00	416
MANTA	PAC	15.91	1989	2018	Aluminum Boat	AL	2DD-8V-71N	305/N65/2100	4BL/NB-28X26	53'	15'2"	5'2"	17.00	416
REMORA II	ATL	15.93	1989	2019	Aluminum Boat	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'2"	5'2"	17.00	416
SABALO	ATL	15.95	1992	2022	Aluminum Boat	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'2"	5'2"	17.00	416
SIERRA	ATL	16	1992	2021	Aluminum Boat	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'2"	5'2"	17.00	416
SWORDFISH	PAC	16.08	1992	2020	Aluminum Boat	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'2"	5'2"	17.00	416
CONGO	ATL	14.95	1993	2023	Aluminum Boat	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'2"	5'2"	17.00	416
MERO	PAC	16.08	1993	2024	Aluminum Boat	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'2"	5'2"	17.00	416

TABLE V – Launch Fleet Specifications (continues)

NAME	LOC	KNOTS	CONST	RET	BUILDER	HULL	ENGINES	HP/INJ/RPM	PROP	LOA	BEAM	DRAFT	TONS	FUEL
CAZON	PAC	15.00	1994	2025	Swiftships	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'2"	5'2"	20.13	416
AGUJA	ATL	21.00	1996	2026	Halter Marine	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'3"	5'2"	21.00	540
JUREL	ATL	21.00	1998	2027	CT Fire Boat Corp.	AL	2MTU S60 HETXC	600/4T/2101	4BL/NB-30X33	53'	15'	5'2"	21.00	540
GUABINA	PAC	21.00	1998	2028	CT Fire Boat Corp.	AL	2MTU S60 HETXC	600/4T/2102	4BL/NB-30X33	53'	15'	5'2"	21.00	540
LISA	PAC	21.00	1999	2029	CT Fireboat Corp.	AL	2MTU S60 HETXC	600/4T/2103	4BL/NB-30X33	53'	15'	5'2"	21.00	540
ATUN	ATL	21.00	2000	2030	CT Fireboat Corp.	AL	2MTU S60 HETXC	600/4T/2104	4BL/NB-30X33	53'	15'3"	5'2"	21.00	540
LENGUADO	ATL	21.00	2004	2031	ACP	AL	2MTU S60 HETXC	600/4T/2100	4BL/NB-30X33	53'	15'	5'2"	21.00	540
ANGUILA	PAC	21.00	2010	2030	Ascon Shipyards	AL	2MTU S60 HETXC	600/4T/2150	4BL/NB-32X33	53'	17'	4'5"	21.00	555
ARENQUE	PAC	21.00	2010	2030	Ascon Shipyards	AL	2MTU S60 HETXC	600/4T/2150	4BL/NB-32X33	53'	17'	4'5"	21.00	555
DORADO III	ATL	21.00	2010	2030	Ascon Shipyards	AL	2MTU S60 HETXC	600/4T/2150	4BL/NB-32X33	53'	17'	4'5"	21.00	555
LUCIO	PAC	21.00	2010	2030	Ascon Shipyards	AL	2MTU S60 HETXC	600/4T/2150	4BL/NB-32X33	53'	17'	4'5"	21.00	555
MAKO I	ATL	21.00	2010	2030	Ascon Shipyards	AL	2MTU S60 HETXC	600/4T/2150	4BL/NB-32X33	53'	17'	4'5"	21.00	555
RAYA	ATL	21.00	2010	2030	Ascon Shipyards	AL	2MTU S60 HETXC	600/4T/2150	4BL/NB-32X33	53'	17'	4'5"	21.00	555
VELA III	ATL	21.00	2011	2031	Ascon Shipyards	AL	2MTU S60 HETXC	600/4T/2150	4BL/NB-32X33	62'6"	18'2"	8'8"	25.00	555
MORENA I	ATL	21.00	2011	2031	Ascon Shipyards	AL	2MTU S60 HETXC	600/4T/2150	4BL/NB-32X33	62'6"	18'2"	8'8"	25.00	555
COJINUA I	PAC	21.00	2011	2031	Ascon Shipyards	AL	2MTU S60 HETXC	600/4T/2150	4BL/NB-32X33	62'6"	18'2"	8'8"	25.00	555
BARRACUDA III	PAC	21.00	2011	2031	Ascon Shipyards	AL	2MTU S60 HETXC	600/4T/2150	4BL/NB-32X33	62'6"	18'2"	8'8"	25.00	555

TABLE V – Launch Fleet Specifications (continues)

NAME	LOC	KNOTS	CONST	RET	BUILDER	HULL	ENGINES	HP/INJ/RPM	PROP	LOA	BEAM	DRAFT	TONS	FUEL
BALLENA*	L/C	30.51	1987	2007	Monark	AL	2YAMAHA/OB	200/NA/5000	3/AL-14.5X19	34.3	10'	1'6"	7.83	200
CACHALOTE*	L/C	30.51	1988	2008	Sea Ark	AL	2YAMAHA/OB	250/NA/5000	3/AL-14.5X19	36.3	10'	1'6"	7.83	250
DELFIN*	L/C	30.51	1988	2008	Sea Ark	AL	2YAMAHA/OB	225/NA/5000	3/AL-14.5X19	36.3	10'	1'6"	7.83	250
TAMBORIL* (EVAC)	GAM													

TABLE V – Launch Fleet Specifications (**Emergency Aquatic Transportation*)