

Los Angeles/Long Beach Harbor Safety Committee  
**CERTIFIED BOLLARD PULL TEST RESULTS**

As of August 2017

**AMNAV MARTIME CORP.\*\*\***

<b>Name</b>		<b>Total HP (Adv)</b>	<b>Ahead Short Tons</b>	<b>Astern Short Tons</b>	<b>Prop</b>	<b>Length</b>	<b>Test Port</b>	<b>Bollard Pull Issued Date (and ETIP extension status when applicable)</b>
INDEPENDENCE		5080	65.4	67.9	Z	78	Longview, WA	04/09/07 (ETIP extension)
AVENGER		NR		18.2	T	91.8	NR	03/09/04 (ETIP extension)
DEFIANT		NR	38.7	23.1	T	97.7	NR	02/25/04 (ETIP extension)
DELTA LINDSEY		NR	93.5	87.3	Z	100	NR	09/09/10 (ETIP extension)
ENTERPRISE		NR		30.7	T	99	NR	03/09/04 (ETIP extension)
LIBERTY		NR	39.2		Z	94.7	NR	08/15/05 (ETIP extension)
PATRICIA ANN		NR	68.9	66.6	Z	78	NR	01/02/08 (ETIP extension)
PATRIOT		NR		33	T	68.9	NR	10/06/09 (ETIP extension)
REVOLUTION		NR	65.2	65.9	Z	78	NR	06/30/06 (ETIP extension)
SANDRA HUGH		NR	66.4	67.5	Z	78	NR	07/31/07 (ETIP extension)
FREEDOM		4400		50	Z	86	Oakland, CA	11/25/15

SARAH		4732		61	Z	81.5	Oakland, CA	6/23/16
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As of April 2015

**BAYDELTA MARTIME CORP.\*\*\***

Name	Total HP (Adv)	Ahead Short Tons	Astern Short Tons	Prop	Length	Test Port	Bollard Pull Issued Date (and ETIP extension status when applicable)
DELTA BILLIE	NR	93.7	93.7	Z	100	NR	04/04/09 (ETIP extension)
DELTA CATYRUN	NR	92.3	91.6	Z	100	NR	01/05/2011 (ETIP extension)

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**CROWLEY MARINE SERVICES, INC.\*\*\***

Name	Total HP (Adv)	Ahead Short Tons	Astern Short Tons	Prop	Length	Test Port	Bollard Pull Issued Date (and ETIP extension status when applicable)
SCOUT	4730	52		T	103	Richmond, CA	12/07/09 (ETIP extension)
MASTER	4730	52.3	43.8	TR	103	Treasure Island, CA	5/10/10 (ETIP extension)
LEADER	4730	58.9		TR	103	Richmond, CA	9/29/09 (ETIP extension)
ADMIRAL	4730	54.4		TR	103	Richmond, CA	11/2/09 (ETIP extension)
VALOR	6772	91	90.3	Z	100	Everett, WA	7/20/07 (ETIP extension)
GOLAIH	5000	55	51.8	Z	98.9	Everett, WA	12/13/14
GUARD	NR	50.3	47.4	TR	120	NR	07/23/07 (ETIP extension)
RESOLUTE	NR		78.6	Z	110	NR	02/26/04 (ETIP extension)
TIOGA	NR	54.1	52.9	Z	78.7	NR	10/31/13
VETERAN	NR	89.2	90.5	Z	100	Everett, WA	6/19/14 (ETIP extension)

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 As of April 2015  
**FOSS MARITIME\*\*\***

<b>Name</b>	<b>Total HP (Adv)</b>	<b>Ahead Short Tons</b>	<b>Astern Short Tons</b>	<b>Prop</b>	<b>Length</b>	<b>Test Port</b>	<b>Bollard Pull Issued Date (and ETIP extension status when applicable)</b>
CAMPBELL FOSS	5000	63.5	68.6	Z	78	Portland, OR	12/21/11 (ETIP extension)
BRYNN FOSS	3000	52.6	44.9	Z		Pt. Tacoma, WA	8/3/07 (ETIP extension)
ALTA JUNE	5000	66.8	64.8	Z	73.4	Pt. Tacoma, WA	8/6/08 (ETIP extension)
CAROLYN DOROTHY	5080 *Non-hybrid mode	64 53	62.7	Z	78	Pt. Tacoma, WA	1/27/09 (ETIP extension)
ARTHUR FOSS			54.7	TR		Richmond, CA	12/19/08 (ETIP extension)
LYNN MARIE	6250		74.9	Z	92	Richmond, CA	9/30/04 (ETIP extension)
EDITH FOSS	NR	24.8	13.8	T	73.3	NR	06/23/11 (ETIP extension)
MORGAN FOSS	NR	64	60.9	Z	78	NR	08/31/05 (ETIP extension)
PACIFIC ESCORT	NR	36.8	32.3	TR	100.2	NR	3/12/03 (ETIP extension)
PACIFIC KNIGHT	NR	26.1	14	T	77.2	NR	04/06/02 (ETIP extension)
PACIFIC QUEEN	NR	24.6	13.7	T	77.2	NR	07/24/1997 (ETIP extension)

\* Foss Maritime will notify the Marine Exchange and local pilots when operating in non-hybrid mode.

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As of July 2015

**MILLENNIUM MARITIME\*\*\***

<b>Name</b>	<b>Total HP (Adv)</b>	<b>Ahead Short Tons</b>	<b>Astern Short Tons</b>	<b>Prop</b>	<b>Length</b>	<b>Test Port</b>	<b>Bollard Pull Issued Date (and ETIP extension status when applicable)</b>
MILLENNIUM MAVERICK	4200	51.7	49.8	Z	100	LA	12/11/12 (ETIP extension)
TIM QUIGG	3600	50	52.6	Z	80	LA	5/3/11 (ETIP extension)
MILLENNIUM DAWN	4400	60.6	56.3	Z	105	SFO	1/25/11 (ETIP extension)
JOHN QUIGG	4022	52.3	48.3	Z		LA	11/7/12 (ETIP extension)
ERNEST CAMPBELL	3000	39.9	27	Z	107	SFO	1 /25/2011
ROBERT FRANCO	6850	89	91	Z	100	Everett	4/4/2013
MICHELLE SLOAN	5150	69	65.4	TR	80	LA	4/23/15
LELA FRANCO	5150	66.2	63	Z	80	LA	6/30/15

\*\*\* Updated bollard pull information and Escort Tug Inspection Program (ETIP) information are available from the Marine Exchange of Southern California Web page: [www.mxsocal.org](http://www.mxsocal.org). ETIP compliant vessels have received an extension on their bollard pull date from the State of California.

Note: Pursuant to State Regulations, tugs must have their bollard pull re-tested every three years or be accepted into the ETIP to extend their bollard pull date.

- \* Equipped with Kort-type Nozzles
- \*\*\*\* Equipped with Flanking Rudders
- + Equipped with Kort-type Nozzles and Flanking Rudders
- ++ Sister tug to be tested within 6 months of relocation to LA/LB
- S Single Screw
- T Twin Screw
- TR Tractor Tug
- Z Z-Drive Tug
- NR Not reported

1. Due to its specific design, a tractor-type tug can, under certain circumstances, apply significantly increased tension on the tow line.
2. Flanking rudders can, under certain conditions, increase usefulness and effectiveness when the tug operates astern.
3. Kort-type nozzles increase bollard pull when going ahead (towing), but can reduce it when going astern (backing).
4. Z-Drive-type tugs have kort-type nozzles, which increase the bollard pull when going ahead. Rotating nozzles give the vessel approximately 90% of ahead bollard pull when going astern.