

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

As of December 2015

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

<b>Name</b>	<b>Total HP (Adv)</b>	<b>Ahead Kips</b>	<b>Astern Kips</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	130.81	135.85	Z	78	Longview, WA	04/09/07 (ETIP extension)
AVENGER	NR		36.49	T	91.8	NR	03/09/04 (ETIP extension)
DEFIANT	NR	77.32	46.2	T	97.7	NR	02/25/04 (ETIP extension)
DELTA LINDSEY	NR	187.06	174.7	Z	100	NR	09/09/10 (ETIP extension)
ENTERPRISE	NR		61.46	T	99	NR	03/09/04 (ETIP extension)
LIBERTY	NR	78.47		Z	94.7	NR	08/15/05 (ETIP extension)
PATRICIA ANN	NR	137.72	133.28	Z	78	NR	01/02/08 (ETIP extension)
PATRIOT	NR		65.98	T	68.9	NR	10/06/09 (ETIP extension)
REVOLUTION	NR	130.3	131.7	Z	78	NR	06/30/06 (ETIP extension)
SANDRA HUGH	NR	132.86	135.04	Z	78	NR	07/31/07 (ETIP extension)
FREEDOM	4400		100	Z	86	Oakland, CA	11/25/15

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As of April 2015

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

Name	Total HP (Adv)	Ahead Kips	Astern Kips	Prop	Length	Test Port	Bollard Pull Issued Date (and ETIP extension status when applicable)
DELTA BILLIE	NR	187.42	187.36	Z	100	NR	04/04/09 (ETIP extension)
DELTA CATYRUN	NR	184.66	183.14	Z	100	NR	01/05/2011 (ETIP extension)

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

<b>Name</b>	<b>Total HP (Adv)</b>	<b>Ahead Kips</b>	<b>Astern Kips</b>	<b>Prop</b>	<b>Length</b>	<b>Test Port</b>	<b>Bollard Pull Issued Date (and ETIP extension status when applicable)</b>
SCOUT	4730	104-		T	103	Richmond, CA	12/07/09 (ETIP extension)
MASTER	4730	104.6	87.66	TR	103	Treasure Island, CA	5/10/10 (ETIP extension)
LEADER	4730	117.88		TR	103	Richmond, CA	9/29/09 (ETIP extension)
ADMIRAL	4730	108.80		TR	103	Richmond, CA	11/2/09 (ETIP extension)
VALOR	6772	182	180.54	Z	100	Everett, WA	7/20/07 (ETIP extension)
GOLAIH	5000	110.08	103.560	Z	98.9	Everett, WA	12/13/14
GUARD	NR	100.6	94.87	TR	120	NR	07/23/07 (ETIP extension)
RESOLUTE	NR		157.1	Z	110	NR	02/26/04 (ETIP extension)
TIOGA	NR	108.2	105.84	Z	78.7	NR	10/31/13

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**FOSS MARITIME\*\*\***

Name	Total HP (Adv)	Ahead Kips	Astern Kips	Prop	Length	Test Port	Bollard Pull Issued Date (and ETIP extension status when applicable)
CAMPBELL FOSS	5000	126.94	137.18	Z	78	Portland, OR	12/21/11 (ETIP extension)
BRYNN FOSS	3000	105.2	89.7	Z		Pt. Tacoma, WA	8/3/07 (ETIP extension)
ALTA JUNE	5000	133.52	129.52	Z	73.4	Pt. Tacoma, WA	8/6/08 (ETIP extension)
CAROLYN DOROTHY	5080 *Non-hybrid mode	128 106	125.4	Z	78	Pt. Tacoma, WA	1/27/09 (ETIP extension)
ARTHUR FOSS			109.31	TR		Richmond, CA	12/19/08 (ETIP extension)
LYNN MARIE	6250		149.8	Z	92	Richmond, CA	9/30/04 (ETIP extension)
EDITH FOSS	NR	49.58	27.56	T	73.3	NR	06/23/11 (ETIP extension)
MORGAN FOSS	NR	127.90	121.8	Z	78	NR	08/31/05 (ETIP extension)
PACIFIC ESCORT	NR	73.64	64.54	TR	100.2	NR	3/12/03 (ETIP extension)
PACIFIC KNIGHT	NR	52.2	28	T	77.2	NR	04/06/02 (ETIP extension)
PACIFIC QUEEN	NR	49.2	27.4	T	77.2	NR	07/24/1997 (ETIP extension)

PACIFIC STAR	6610	158.4	148.6	T	98	Pt. Tacoma, WA	06/18/2008 (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 Kips</b>	<b>Astern Kips</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	103.4	99.6	Z	100	LA	12/11/12 (ETIP extension)
TIM QUIGG	3600	100	105.24	Z	80	LA	5/3/11 (ETIP extension)
MILLENNIUM DAWN	4400	121.29	112.61	Z	105	SFO	1/25/11 (ETIP extension)
JOHN QUIGG	4022	104.64	96.58	Z		LA	11/7/12 (ETIP extension)
ERNEST CAMPBELL	3000	79.72	54.19	Z	107	SFO	1 /25/2011
ROBERT FRANCO	6850	178	182	Z	100	Everett	4/4/2013
MICHELLE SLOAN	5150	138	130.8	TR	80	LA	4/23/15
LELA FRANCO	5150	132.4	125.9	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.