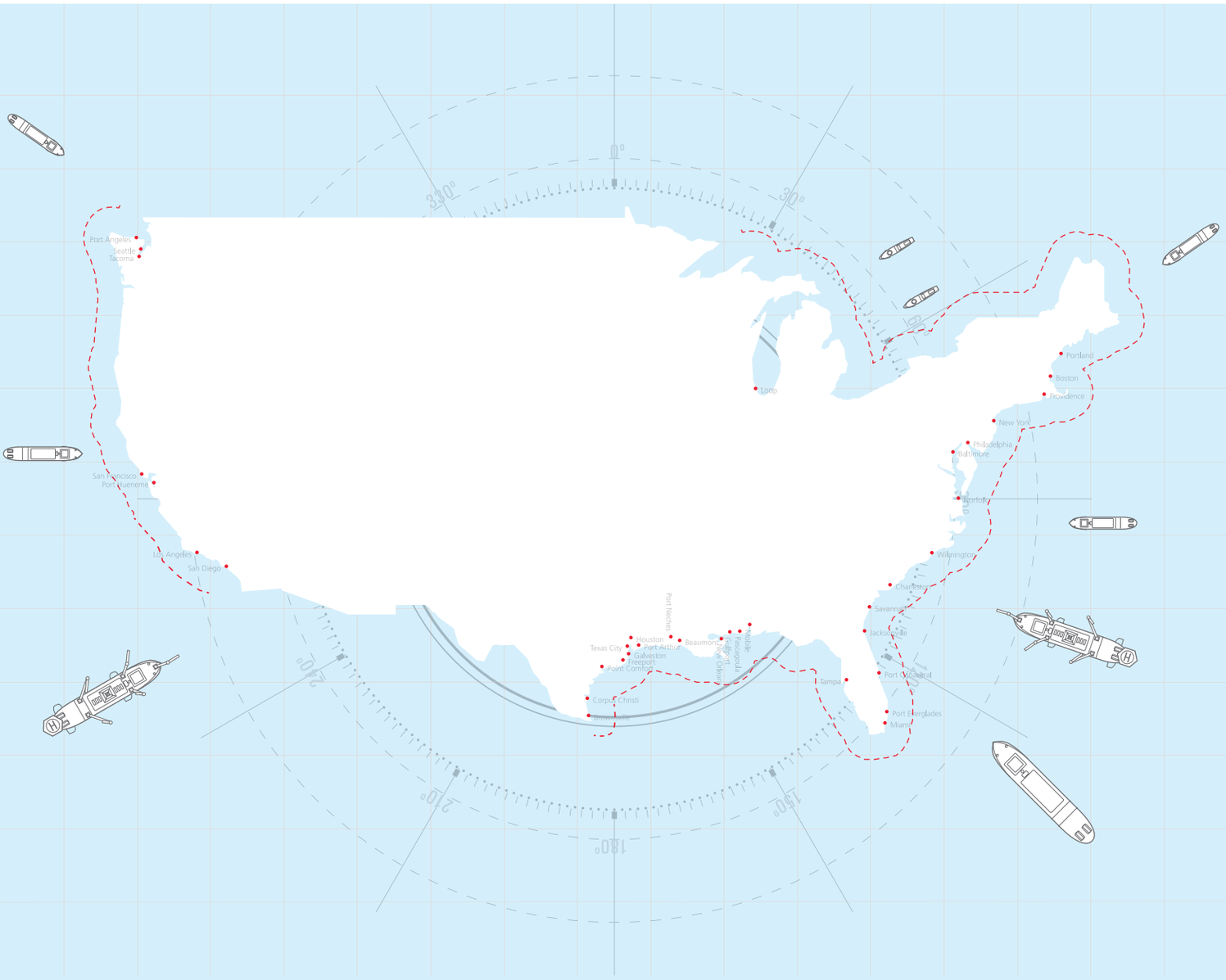

DON'T LET THE NEW VESSEL GENERAL PERMIT LOCK YOU OUT OF THE USA

VESSEL GENERAL PERMIT. WE'RE READY. ARE YOU?

IT'S MORE THAN JUST OIL. IT'S LIQUID ENGINEERING.

Castrol Marine

From **19th Dec 2013**, the revised Vessel General Permit (VGP) mandates the use of Environmentally Acceptable Lubricants (EALs) in all oil-to-sea interfaces by every vessel travelling within 3 miles of the coast of the United States.

Be ready with Castrol BioRange – Castrol BioStat and BioBar are OSPAR registered lubricants that meet EAL criteria for full VGP compliance, yet with no compromise in lubricant performance.

Vessel General Permit. We're ready. Are you?

- Castrol BioStat and BioBar – tested and designed for use in seawater
- Developed in partnership with OEMs and legislators
- Global availability

Why the change?

The US Environmental Protection Agency regulates, with the Vessel General Permit, discharges incidental to the normal operation of all commercial vessels calling in the waters of the United States. The EPA's original VGP, issued in 2008, will expire on 19th December 2013 and the 2013 VGP will replace it.

EPA now recognises that the impact of lubricant discharges (not accidental spills) to the marine ecosystem is substantial. For all applications where lubricants are likely to enter the sea, the 2013 VGP mandates use of environmentally acceptable lubricant formulations, instead of mineral oils, as these lubricants can offer significantly reduced environmental impacts across all applications (EPA 2011c).

What 'vessels' are covered?

Most commercial marine vessels more than 79 feet in length, irrespective of when and where they were constructed. The EPA's website[1] gives more detail about what else is covered (e.g. in some circumstances, mobile drilling rigs or vessels under construction) and what is not (e.g. most vessels under 79 feet and vessels of the Armed Forces).

Most commercial vessels under 79 feet will come under the EPA's small Vessel General Permit (sVGP - when issued).

What are the 'waters of the United States'?

In broad terms, anywhere within 3 miles of the US coast.

How do I get a VGP?

By submitting a Notice of Intent (NOI) to discharge to the EPA prior to entering US waters. Generally this needs to be provided to the EPA at least 7 days in advance for electronic NOI and 30 days for paper NOI. The VGP provides a copy of the NOI and further details about how it applies and submission deadlines. Once issued, permits will last for 5 years but annual reports must be provided to the EPA to demonstrate compliance.

What is an 'Environmentally Acceptable Lubricant'?

EAL are defined by the EPA as lubricants that are "biodegradable", "minimally toxic," and "not bioaccumulative".

Biodegradable: How quickly is the chemical going to break down naturally in the sea?

Bioaccumulative: The potential for a chemical to accumulate in the fatty tissues of organisms and enter the food chain.

Toxic: The potential for a chemical to kill or harm marine life.

EPA definition of **'Environmentally Acceptable Lubricants'** includes products that are labeled under OSPAR, Blue Angel, European Ecolabel, Nordic Swan and Swedish Standard SS 155470[2]

All vessels calling in US waters, irrespective of when they were constructed, must use an Environmentally Acceptable Lubricant in all oil-to-sea interfaces and two-stroke engines that generate wet exhaust, unless technically infeasible.

[1] http://www.epa.gov/npdes/pubs/vgp_permit2013.pdf

[2] If products do not have one of the labels above, they will be classified as environmentally acceptable if meeting the criteria set by EPA for biodegradation, bioaccumulation, and toxicity:

- To be classified as "biodegradable" a lubricant must contain at least 75% (w/w) of a constituent substance or constituent substances (only stated substances present above 0.10% shall be assessed) that each demonstrate either the removal of at least 70% of dissolved organic carbon, production of at least 60% of the theoretical carbon dioxide, or consumption of at least 60% of the theoretical oxygen demand within 28 days. Acceptable test methods to demonstrate biodegradability include: Organization for Economic Co-operation and Development (OECD) Test Guidelines 301 A-F, 306 (marine), and 310, ASTM 5864, ASTM D-7373, OCSPP Harmonized Guideline 835.3110, and International Organization for Standardization 14593:1999. For lubricant formulations, the 10% (w/w) of the formulation that need not meet the above biodegradability requirements, up to 5% (w/w) may be non-biodegradable (but not bioaccumulative) while the remainder must be inherently biodegradable. For grease formulations, the 25% (w/w) of the formulation that need not meet the above biodegradability requirement, the constituent substances may be either inherently biodegradable or non-biodegradable, but may not be bioaccumulative. Acceptable test methods to demonstrate inherent biodegradability include: OECD Test Guidelines 302C (>70% biodegradation after 28 days) or OECD Test Guidelines 301 A-F (>20% but <60% biodegradation after 28 days).
- "Not bioaccumulative" means the lubricant's partition coefficient in the marine environment is log KOW <3 or >7 using test methods OECD 117 and 107 or it's molecular mass > 800 Daltons.
- "Minimally-toxic" means a substance must pass either acute (short term) or chronic (long term) toxicity tests. Acute tests must be carried out on 3 trophic levels and chronic on 2. Both marine and freshwater test methods are valid. Products can be assessed by either testing the fully formulated product and its main components or by testing each of the components in the formulation for their toxicity.

What are "oil-to-sea interfaces"?

Environmentally Acceptable Lubricants must be used in controllable pitch propeller and thruster hydraulic fluids and other oil-to-sea interfaces including lubrication discharges from paddle wheel propulsion, stern tubes, thruster bearings, stabilisers, rudder bearings, azimuth thrusters, propulsion pod lubrication, and wire rope / mechanical equipment subject to immersion.

Any equipment on the deck of a vessel which has contact with water when at sea is covered as well as lubricants used in two stroke diesel inboard engines that generate wet exhaust (e.g. two-stroke diesel inboards).

How is the VGP being enforced?

The EPA is relying on vessel operators to self-report EAL usage; vessel operators must keep records onboard of Material Safety Data Sheets (MSDS) for all EALs used in oil-to-sea interfaces.

Operators must also document whether the EALs are registered under a labelling program (e.g. DfE, Blue Angel).

If it is technically infeasible to use an EAL, recordkeeping must document the reason.

The Coast Guard will carry out spot checks of vessels to verify compliance. The range of action taken for non-compliance will start with written warnings and move up to fines (typically from $1,000-$25,000) depending on the severity and frequency of the non-compliance.

What Castrol products meet the new requirements?

Castrol Bio Range products are registered under OSPAR (Oslo and Paris Convention) and therefore meet the criteria for being 'Environmentally Acceptable Lubricants' under the VGP. The Castrol Bio Range includes Castrol BioStat, Castrol BioBar and Castrol BioTac.

MARINE AND OFFSHORE APPLICATIONS	CASTROL GRADE	COMPLIANCE
Controllable Pitch Propeller and Thruster Hydraulic Fluid	BioBar (22, 32, 46, 68, 100)	OSPAR registered and VGP compliant
Paddle Wheel Propulsion	BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant
Stern Tubes	BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant
Thruster Bearings	BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant
Stabilisers	BioBar (22, 32, 46, 68, 100) BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant
Azimuth Thrusters	BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant
Propulsion Pod Lubrication	BioStat (68, 100, 150, 220, 320)	OSPAR registered and VGP compliant

Castrol's BioStat Range consists of environmentally acceptable stern tube and thrusters lubricants with esters synthesised from renewable biological sources. They have reduced environmental impact when compared to conventional lubricants with demonstrable benefits in the following key environmental performance criteria:

- Superior biodegradation[3]
- Significantly reduced bioaccumulation[4] and toxicity[5]
- Enhanced renewability

The Castrol BioStat Range (68, 100, 150, 220 and 320 viscosities) are fully tested and registered according to OSPAR requirements and approved by the Norwegian and UK regulators for use offshore. The range therefore meets the requirements for 'Environmentally Acceptable Lubricants' under the 2013 US Vessel General Permit.

Castrol's BioBar Range consists of environmentally acceptable hydraulic fluids with esters derived from naturally occurring plant oils. They have reduced environmental impact when compared to conventional lubricants with demonstrable benefits in the following key environmental performance criteria:

- Superior biodegradation[3]
- Significantly reduced bioaccumulation[4] and toxicity[5]
- Enhanced renewability

The Castrol BioBar Range (22, 32, 46, 68 and 100 viscosities) are fully tested and registered according to OSPAR requirements and approved by the Norwegian and UK regulators for use offshore. The range therefore meets the requirements for 'Environmentally Acceptable Lubricants' under the 2013 US Vessel General Permit.

What about small vessels < 79 feet?

The Small Vessel General Permit (sVGP) is still currently under revision. It is likely that the sVGP will be issued in the summer of 2013, with its requirements coming into force on 19th December 2014.

The sVGP applies to all non-recreational, non-military vessels less than 79 feet in length operating in US waters. However, small vessels already permitted under the Vessel General Permit are not required to also be permitted under the small Vessel General Permit. For example, life boats on a larger vessel would be permitted under the "mother vessel" VGP permit.

The sVGP specifies that vessels may not discharge oil, including oily mixtures, in quantities that may be harmful or cause a visible sheen. They may also not use any dispersants, cleaners, chemicals, or other materials or emulsifiers that would remove the appearance of a visible sheen.

The permit requires that, unless technically infeasible, vessels must use EALs in all machinery and equipment, including, but not limited to; stern tubes, wires, and two-stroke outboard motors, where discharges of oil to surrounding waters are likely to occur.

[3] As measured in OECD 306 product level testing

[4] Using OSPAR criteria for assessing bioaccumulation potential

[5] As measured in ISO 10253 / ISO 14669.

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