

The Regulation of Biodiesel and Biodiesel Feedstocks in Aquatic Environments

Executive Summary

Two statutes essentially control the discharge of “oil” in the nation’s waters: the Federal Water Pollution Control Act (FWPCA)ⁱ and the Oil Pollution Act of 1990 (OPA 90).ⁱⁱ The definition of oil in these statutes is amorphous enough to allow federal agencies to regulate the spill of vegetable oils, and their derivatives such as biodiesel, in the same manner as petroleum-based oils. Under the FWPCA “oil” is defined as “oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.”ⁱⁱⁱ OPA 90 repeats this definition with an additional exclusion for petroleum products that are otherwise specifically designated as hazardous substances.^{iv}

Until recently, there was no requirement beyond these laws for federal agencies to distinguish between animal, vegetable or mineral-based oils despite differences in physical or chemical properties (biodegradability, solubility, etc.) between these oils and petroleum-based oil. Under recent pressure from Congress and the affected animal fat and vegetable oil industries (the AF/VO Coalition), the two leading agencies responsible for enforcing the above laws, the United States Environmental Protection Agency (EPA) and the United States Coast Guard, are in the process of reviewing their current regulations but have yet to implement significant changes.

Biodiesel is a fuel for compression ignition (diesel) engines derived from renewable organic feedstocks such as vegetable oils or animal fats. Chemically, biodiesel is a mono-alkyl methyl or ethyl ester. As such, biodiesel is not classified as a hazardous substance under other relevant environmental laws that control accidental discharges on land or sea. However, biodiesel is currently controlled in the same manner as its feedstocks, vegetable oils and animal fats, as well as petroleum oil under the above two laws.

Legal Framework

On August 18, 1990, in response to a number of catastrophic petroleum oil spills including the infamous EXXON Valdez incident, the U.S. Congress enacted OPA 90. OPA 90 amended FWPCA and essentially assigned liability and structured compensation in order to reduce the risk of oil spills, improve facility and vessel oil spill responses and minimize the impact of oil spills on

ⁱ Federal Water Pollution Control Act, Pub. L. No. 92-500, (1996) (codified at 33 U.S.C.A. §§ 1251 - 1387 (West Supp. 1996)) [hereinafter FWPCA].

ⁱⁱ Oil Pollution Act of 1990, Pub. L. No. 101-380, (1996) (codified at 33 U.S.C.A. §§ 2701 - 2761 (West Supp. 1996)) [hereinafter OPA 90].

ⁱⁱⁱ FWPCA, supra note 1, § 311(a)(1) (33 U.S.C.A. § 1321(a)(1)).

^{iv} See, OPA 90, supra note 2, § 1001 (33 U.S.C.A. § 2701(23)).

the environment. OPA 90 also amended FWPCA by imposing requirements on owners and operators of vessels and facilities that could “reasonably be expected to cause” “substantial” or “significant and substantial” harm to the environment. These requirements include the preparation and submission of response plans to various federal agencies for review and approval.^v

Although mitigating petroleum oil spills was the basis for the enactment of OPA 90, the law is not limited in its applicability to petroleum. It applies to all oils including animal fats and vegetable oils and also applies to spills of derivatives of those oils, like biodiesel, as well. Numerous federal agencies have issued rules and regulations which implement the requirements of OPA 90 and the FWPCA. The relevant agencies and their primary responsibilities are:

- * the U.S. Coast Guard- vessels and marine-transportation-related onshore facilities, including piping and structures used for the transfer of oil to and from a vessel;
- * the U.S. Environmental Protection Agency- large non-transportation-related onshore facilities handling, storing, or transferring oil; as well as the National Contingency Plan which coordinates responses at local and federal levels for oil spills;
- * the Department of Transportation’s Research and Special Programs Administration- tank trucks and railroad tank cars carrying oil;
- * the Department of the Interior’s Minerals Management Service- offshore facilities including any facility on or over U.S. navigable waters; and,
- * the Department of Commerce’s National Oceanic and Atmospheric Administration (NOAA)- natural resource damage assessment regulations.

Under current regulations implementing the FWPCA, all facilities that produce or store biodiesel, like facilities that produce oil, must submit Spill Prevention Containment and Countermeasure (SPCC) plans for approval to EPA. These plans primarily address issues of containment and may be as simple as installing a moat around storage tanks.^{vi} Facilities that have over a million gallon storage capacity and/or are on or next to water must submit Facility Response Plans (FRPs) to EPA. The FRPs implement more sophisticated controls beyond the SPCC’s containment countermeasures. FRPs require dispersal plans for spills, specialists and equipment necessary to act within specific time periods in the event of a “worse case discharge” and even identify authorized facility officers responsible for FRPs immediate implementation. If these facilities engage in the transport of oil in addition to production or storage, they must submit the FRP to the Coast Guard for approval as well.^{vii}

OPA 90 also negatively affects liquid cargo vessels, or tank vessels, that carry vegetable-based oils or their derivatives. Under OPA 90, in addition to facilities, tank vessels are specifically identified and liability is assigned - as much as \$1,200 per ton for these types of vessels.^{viii} The

^v FWPCA, *supra* note 1, § 311(j)(5) (33 U.S.C.A. § 1321(j)(5)).

^{vi} See, 40 C.F.R. Part 112.

^{vii} See, *Id.* for EPA Regulations and 33 C.F.R. Part 154 for Coast Guard Regulations.

^{viii} OPA, *supra* note 2, § 1004(a)(1) (33 U.S.C.A. § 2704(a)(1)).

definition and regulation of a tank vessel under FWPCA and OPA 90 does not take into account the nature of the cargo. Tankers must have their own response plans that include the necessary contractors or specialists and equipment on hand to deal with the both the “average most probable” or “maximum worst probable type of spill.”^{ix} The higher financial responsibility, potential liability and insurance costs legally and customarily borne by tank vessels apply to all such vessels despite any difference in their cargos. Ostensibly, these additional transaction costs reflect the potential variance in environmental impact between a tanker spill carrying petroleum-based oil as cargo and an accidental spill of petroleum from non-tanker vessels which usually only concern spills of bunker fuels or lubricating oils used by that vessel. Nevertheless, when a tanker is carrying animal fat or vegetable oil with much lower risks of environmental harm, their potential threat to the environment is arguably closer to the threat posed by regular vessels that can only spill that vessel’s liquid fuels rather than tankers that can spill liquid cargoes.

Feedstock Issues

The animal fat and vegetable oil industry handles, ships, and stores over 25 billion pounds of animal fats and vegetable oils annually in the United States.^x The industry is concerned that animal fats and vegetable oils are being regulated in the same manner as petroleum despite their different chemical and physical characteristics and potential environmental effects. Recent studies comparing spills of animal fats and vegetable oils with petroleum oil have found that spills of animal fats and vegetable oils in an aquatic environment may not cause “significant” or “substantial” harm. Discharges of animal fats and vegetable oils are orders of magnitude less toxic than petroleum discharges, do not create carcinogenic compounds, and are readily biodegradable by bacteria thus minimizing physical impacts on the environment.

Nevertheless, animal fat and vegetable oil spills, as well as spills of biodiesel, could still have some negative impact on an aquatic environment. Extreme discharges of animal fats, vegetable oils and biodiesel in an enclosed aquatic environment could lead to oxygen depletion as a result of extensive and rapid biodegradation. Discharges of these substances, like petroleum oil, will still foul or coat fur and feathers which can lead to hypothermia, however this is a physical effect rather than a toxic effect. Further, bird and animal body oils are not stripped if coated with vegetable oils or biodiesel as when coated with petroleum oils.^{xi}

Biodiesel oil spills compare even more favorably to petroleum oil spills. Through a process called

^{ix} FWPCA, *supra* note 1, § 311(j)(5) (33 U.S.C.A. § 1321(j)(5)).

^x “Requirement for Differentiation Between Animal Fats and Vegetable Oils and Other Oils under Certain Regulations,” at 3, National Oilseed Processors Association (NOPA), on file with NOPA and author (1997) [hereinafter Requirement for Differentiation].

^{xi} See, “Environmental Effects of Releases of Animal Fats and Vegetable Oils to Waterways,” ENVIRON Corporation, Arlington, VA, (June 1993); and “Diesel Fuel, Beef Tallow, Red Soybean Oil and Crude Soybean Oil: Acute Effects on the Fathead Minnow, *Pimephales Promelas*,” Aqua Survey, Inc., Flemington, NJ, (May 1993).

CytoSol, biodiesel was used to clean-up a fuel oil spill off the coast of Puerto Rico by the MORRIS J. BERMAN. A NOAA marine biologist was quoted as saying that CytoSol was a “logical application of two environmentally promising technologies.”^{xii}

The likelihood of an animal fat or vegetable oil spill comparable in magnitude to a petroleum spill is also very small. Coast Guard data collected from 1986 to 1992 revealed that only about 0.4% of oil spill incidents, both in terms of the number of incidents and the volume of spills, involved animal fats or vegetable oils. These spills are generally very small in volume due to the differences in the operations of the two industries. Petroleum tankers can exceed 250,000 tons capacity whereas vegetable oils are usually carried in parcel tankers with a 3,500 ton capacity. Transfer operations of vegetable oils are also conducted in volumes at a similar magnitude of difference than petroleum oil transfers. Last, facilities that handle or store animal fats and vegetable oils are also usually found near the location of the base raw agricultural material, the Midwest, and not near a seaboard.^{xiii}

Legislative and Regulatory Responses

After OPA 90 was passed, the animal fat and vegetable oil industries requested that EPA and the Coast Guard treat their products differently under their forthcoming OPA 90 implementing regulations and EPA’s National Contingency Plan. Unfortunately, EPA’s response was a determination that they did not have the flexibility or authority under the law to differentiate between types of oils in their National Contingency Plan requirements. The industry, in turn, reacted to this intransigence by legally challenging EPA’s finalized facility-response-plan rule, part of the National Contingency Plan, in the U.S. Court of Appeals.^{xiv} When EPA agreed to re-open the docket and consider a revised rulemaking, the industry agreed to a stay in their litigation. Next, the industry continued to seek relief through legislative means.

The new 104th Congress, under the direction of Speaker Newt Gingrich, created a parliamentary procedure known as Corrections Day. Corrections Day was developed to address limited, discrete, chronic regulatory problems. The result of this procedure was the Edible Oil Regulatory Reform Act (EORRA)^{xv}, which was passed by the House on October 10, 1995. The measure passed the Senate on November 2 and was signed into law by President Clinton on November 20, 1995.^{xvi}

^{xii} Illinois Soybean Farmer, at 12 (March/April 1994).

^{xiii} Requirement for Differentiation, *supra* note 7, at 4-6.

^{xiv} National Oilseed Processors Association vs. U.S. Environmental Protection Agency, D.C. Circuit Court, 94-1643 (September 2, 1994).

^{xv} Edible Oil Regulatory Reform Act, Pub. L. No. 104-55 (1995).

^{xvi} “‘Corrections Day’ Can Provide Relief,” Legal Times, Washington, DC (February 12, 1996).

EORRA amended OPA 90 by requiring regulatory agencies to differentiate between vegetable oils and petroleum oils through the creation of separate classes for animal fats and vegetable oils from petroleum oils, and applying separate standards based on the differences in physical characteristics between those classes.^{xvii} EORRA also excepted tank vessels carrying animal fats and vegetable oils^{xviii} and similarly laden barges^{xix} from OPA 90 requirements.

During the last two and half years since passage of EORRA, the Coast Guard and the EPA have not enacted significant changes in their regulations despite continuing negotiations with industry. On February 29, 1996 the Coast Guard issued its final rule on response plans for marine-transportation-related facilities. While the Coast Guard established the separate categories required by EORRA, it did not differentiate between any applicable requirements between animal fats and vegetable oils and petroleum-based oils.^{xx} Congress further pressured the Coast Guard by inserting language within the authorization for Coast Guard funding that restricted the Coast Guard from spending funds on the enforcement of regulations that did not recognize the difference between animal fats and vegetable oils and other oils,^{xxi} required the implementation of regulations the recognized and provided for the differences between oils, and required the Secretary of Transportation to provide a yearly accounting regarding the Coast Guard's compliance with EORRA.^{xxii} Because biodiesel is a derivative of vegetable oils and animal fats, the prohibition against non-discretionary enforcement applies to spills of biodiesel as well.

On March 14, 1997 a coalition of industry members (AF/VO Coalition), which includes the National Oilseed Processors Association and the American Soybean Association, petitioned the Coast Guard requesting a revision in their response plan rule. While the full details of the proposed revision are confidential, some of the changes include: implementing not just a separate category for "non-petroleum oils" but actual categories for animal fat and vegetable oils (which the Coast Guard has done, but EPA has not); allowing greater flexibility in the National Contingency Plan such as allowing the dispersal of small non-toxic spills in place of clean-up; allowing flexibility in response times for vegetable oil and animal fat facilities that are usually much further from water spills than facilities that are near water; granting a regulatory presumption that animal fat and vegetable oil facilities are to be initially classified as being "reasonably expected to cause" "significant" rather than "significant and substantial" harm and exempting vegetable oil "packet" (small) tanker vessels from being classified the same as the

^{xvii} OPA 90, *supra* note 2, § 2720 (33 U.S.C.A. § 2720).

^{xviii} *Id.*, at § 1004 (33 U.S.C.A. § 2704(a)(1)).

^{xix} *Id.*, at § 1016(a) (33 U.S.C.A. § 2716(a)).

^{xx} 61 F.R. 7890 (February 29, 1996).

^{xxi} Department of Transportation Appropriations Act, Pub. L. No. 104-205, § 354 (1996).

^{xxii} Coast Guard Authorization Act, Pub. L. No. 104-324, § 1120 (1996).

larger petroleum tanker vessels.^{xxiii} These changes would simply the required facility response plans and minimize potential liability for both facilities and vessels. On June 3, the Coast Guard agreed to initiate a future rulemaking and to coordinate it with the related efforts between the AF/VO Coalition and EPA.^{xxiv}

In response to EPA's issuance of its final rule implementing OPA 90, which did not differentiate between types of oils,^{xxv} the AF/VO Coalition filed a petition with EPA requesting reconsideration of the rule as it would apply to facilities that handled, stored or transported animal fats or vegetable oils as well as a stay of enforcement.^{xxvi} Again, the petition submitted to EPA is confidential. However, its suggested regulatory changes are similar to what was suggested to the Coast Guard, outlined above.^{xxvii}

In response to that petition, and the lawsuit filed by the AF/VO Coalition, EPA agreed to the stay and opened the issue to public comment.^{xxviii} The stay of enforcement would also apply to biodiesel spills. On October 20, 1997, citing historical incidents, case histories, and the physical and chemical comparisons between animal fats, vegetable oils and petroleum oils, EPA published a denial of the AF/VO Coalition petition, refusing to modify their 1994 final rule implementing OPA 90.^{xxix} Since then, representatives of the AF/VO Coalition have continued to meet with EPA and have submitted additional comments suggesting specific changes to the EPA final rule.^{xxx} Negotiations with both agencies continue. And, most importantly, the EPA stay of enforcement agreement, which would apply to a biodiesel spill, also continues in force.

^{xxiii} Conversation with Laurie Sahatjian, Dyer, Ellis & Joseph (June 1, 1998).

^{xxiv} Letter from Duncan Smith, Dyer, Ellis & Joseph, to Executive Secretary, Marine Safety Council, U.S. Coast Guard (March 14, 1997), and response (June 3, 1997) [on file at Dyer, Ellis & Joseph and at the National Oilseed Processors Association].

^{xxv} 59 F.R. 34070 (July 1, 1994).

^{xxvi} Letter from NOPA, et. al., to Director, Oil Pollution Response and Prevention Center, U.S. Environmental Protection Agency (August 12, 1994) [on file at Dyer, Ellis & Joseph and at the National Oilseed Processors Association].

^{xxvii} Conversation with Laurie Sahatjian, Dyer, Ellis & Joseph (June 1, 1998).

^{xxviii} 59 F.R. 53742 (October 26, 1994).

^{xxix} 62 F.R. 202 (October 29, 1997).

^{xxx} Letters from Duncan Smith (January 16, 1998) and from Laurie Sahatjian (April 9, 1998), Dyer, Ellis & Joseph, to David Lopez, Director, Oil Pollution Response and Prevention Center, U.S. Environmental Protection Agency [on file at Dyer, Ellis & Joseph and at the National Oilseed Processors Association].

Conclusion

Biodiesel is currently controlled in the same way that animal fats, vegetable oils and petroleum oils are controlled under oil spill laws and regulations. EPA and the Coast Guard may eventually have to bow to the continuing industry and Congressional pressure to differentiate between these oils and their derivatives. If and when that happens, then the biodiesel industry may wish to seek agency confirmation of the nature and extent of the relevant regulatory burdens on biodiesel facilities and tanker vessels. Unless and until the AF/VO Coalition and Congressional pressure is successful in forcing EPA and the Coast Guard to change their regulations, biodiesel facilities and tanker vessels transporting biodiesel will remain controlled in the same manner as if they were petroleum oil facilities or tanker vessels transporting petroleum oil.

ENDNOTES