CHAPTER 5

Assessing Thirty Years of Federal Environmental Regulation of Upstream Oil and Gas Activities

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§ 5.01. Introduction.

During the Southwestern Legal Foundation’s Fiftieth Annual Institute it is appropriate to reflect upon the major legal events that have shaped the oil and gas industry. Among the monumental legal developments of our time is the creation of a comprehensive body of federal environmental law. Beginning in 1970 with the Clean Air Act (CAA), Congress set about federalizing environmental problems previously addressed under state nuisance law and a weak disjointed body of state statutory law. Throughout the 1970s, 1980s, and 1990s, Congress assembled a highly complex body of environmental requirements that have fundamentally altered, forever, the exploration, development, and production of oil and gas. Every business decision must now be evaluated in conjunction with its environmental consequences. Like tax law, environmental law has become an integral part of the oil and gas developer’s decision-making process.2

2 If a timeline were to be constructed of significant collateral legal events impacting the oil and gas industry, it would probably begin with antitrust law and the break-up of the Standard Oil Trust at the turn of the Twentieth Century, followed by the conservation law movement in the 1920s and 1930s. This would be followed by federal tax law developments designed to promote oil and gas investment and federal natural gas regulation beginning in the 1950s. Federal oil price regulations entered the scene in the 1970s, as well as most of the major environmental laws addressing air and water pollution. The 1980s were dominated by the development of environmental laws that regulate by imposing cleanup liability on a broadly defined group of owners, operators, and generators of waste.

During the 1990s, the industry has been experiencing the impact of basic changes in natural gas regulation and the effects of increasing demands under existing environmental laws. Therefore, the 1990s’ oil and gas lawyer must not only master the discipline of “oil and gas law,” but must also have a working knowledge of environmental law and public utility law.

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This article provides a functional overview of the role environmental law plays in the exploration, development, and production of oil and gas. The goal is to assist oil and gas lawyers in identifying situations where their clients’ activities potentially impact the environment and trigger federal environmental law issues.

§ 5.02. Analyzing Environmental Law.

There are a number of ways environmental laws can be analyzed. First, the various laws can be categorized by the techniques they use to accomplish a goal. For example, the Clean Water Act (CWA) seeks to control water pollution by specifying, for each point source discharging a pollutant, the precise composition of the waste stream after specific control technologies have been applied to the waste stream. This is often referred to as a “command-and-control” regulatory technique because it specifies the precise technology that must be used and the precise results that must be achieved in treating the discharged effluent. These obligations are contained in a permit that must be obtained before any discharge can occur. The second major category of environmental law does not specify any sort of regulatory requirement. Instead, it operates after the fact by imposing liability on classes of parties that have some relationship to an environmental problem. The potential liability is what causes the parties to take action, before the fact, to try and avoid or minimize future environmental risk. The most notable example of this type of approach is the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

The environmental laws can also be analyzed by focusing on the impacted environmental media, such as air, water, and land. This is generally how the environmental laws developed, with Congress first focusing on air emissions, then water discharges, and finally on land disposal. However, such a media analysis makes it difficult to identify the complex interrelationships among the statutes and also fails to


4 See generally Pierce, “The Emerging Role of ‘Liability-Forcing’ in Environmental Protection,” 30 Washburn L. J. 381, 382 (1991) (“Liability-forcing refers to regulatory programs that require designated ‘responsible parties’ to fix the environmental problem which they have, in part, created”).


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account for the nonmedia-specific statutes such as the Endangered Species Act⁶ and the Emergency Planning And Community Right-To-Know Act.⁷

The approach used in this article to analyze the environmental laws employs a three-step process which includes the following:

1. Focusing on the industry activity;
2. Identifying potential environmental impacts associated with the activity; and
3. Identifying the environmental laws that may be triggered by the impacts associated with the activity.

The industry activities associated with upstream oil and gas development are divided into the leasing, development, and production stages for analysis.

§ 5.03. Environmental Issues Associated with Oil and Gas Leasing.

The act of obtaining an oil and gas lease⁸ has no impact on the environment. However, obtaining an oil and gas lease, or other oil and gas interest, has environmental implications that must be evaluated when deciding whether to acquire the interest. These implications fall into two broad categories: First, if an oil and gas lease is obtained, can the area encompassed by the lease be developed for oil and gas? This category addresses land use limitations that are often a byproduct of environmental regulation. Second, what potential environmental liability is associated with the act of taking title to, or developing, the oil and gas interest? This category addresses the “flypaper” effect of certain environmental laws where the mere ownership of an interest can create potential liabilities.

[1] Land Use Limitations.

Upstream oil and gas activities are seldom impacted by the sort of environmental land use limitations imposed on downstream activities.

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⁸ Similar observations can be made concerning conveyance of a mineral interest, assignment of an oil and gas leasehold interest, and acquisition of other ownership and development rights in oil and gas.
For example, with the downstream refining segment of the oil and gas industry, the Clean Air Act (CAA) can impose major land use limitations as major emitting facilities compete for available pollution increments.\textsuperscript{9} For upstream activities, the most common potential land use limitations will be under Section 404 of the Clean Water Act\textsuperscript{10} and, to a lesser extent, Section 9 of the Endangered Species Act.\textsuperscript{11} The potential also exists for a new form of environmental zoning under the Safe Drinking Water Act’s programs for “critical aquifer protection areas”\textsuperscript{12} and “wellhead protection areas.”\textsuperscript{13}

[a] **Clean Water Act Section 404 “Wetlands” Protection.**

If an oil and gas lease includes an area designated as a “wetland” under the Clean Water Act, oil and gas development at a minimum will require careful regulatory analysis; in some cases, development may not be permitted. Therefore, at the lease acquisition stage of a project the wetland status of the leased land must be carefully evaluated. This analysis can be difficult because “wetland” is defined using the broad concept of “waters of the United States.” Although the reach of the Clean Water Act is limited to activities impacting “navigable waters,” the term “navigable waters” is defined by the Act as “waters of the United States.”\textsuperscript{14}

[i] **“Waters of the United States.”**

Defining the phrase “waters of the United States” is a necessary first step for evaluating whether several Clean Water Act programs apply to upstream oil and gas activities. In addition to the wetland issue, the jurisdictional reach of the regulatory programs applicable to the disposal of produced water and storm water runoff,\textsuperscript{15} and the

\textsuperscript{9} This is often the case whether the refinery is in a “dirty” air area, designated as nonattainment for a criteria air pollutant, or a “clean” air area, designated as attainment but subject to the Act’s prevention of significant deterioration program. See generally Clean Air Act §§ 171–173, 42 U.S.C. §§ 7501–7503 (1994) (general nonattainment provisions) and Clean Air Act §§ 160–169, 42 U.S.C. §§ 7470–7479 (1994) (prevention of significant deterioration provisions).


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liability and regulatory programs associated with oil spills, both depend upon the legal scope of the phrase "waters of the United States."

The jurisdictional reach of "waters of the United States" was addressed in *United States v. Riverside Bayview Homes* where the Court held the phrase could encompass wetlands that were adjacent to a recognized body of navigable water. Riverside had commenced construction on land it owned by bringing in fill material. The United States Army Corps of Engineers found the construction site was a wetland and therefore could not be filled unless the Corps issued Riverside a permit in accordance with Section 404 of the Clean Water Act. Riverside challenged the Corps' authority to regulate the construction site arguing, among other things, that the site was not "waters of the United States."

The Court stated the practical challenge facing the Corps and the regulated community as follows:

In determining the limits of its power to regulate discharges under the Act, the Corps must necessarily choose some point at which water ends and land begins. Our common experience tells us that this is often no easy task: the transition from water to solid ground is not necessarily or even typically an abrupt one. Rather, between

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16 33 U.S.C. § 1321(b)(3) (Supp. II 1997) (prohibiting the discharge of oil "into or upon the navigable waters of the United States").
18 "Wetlands" are defined by the Corps as follows:

The term wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

33 C.F.R. § 328.3(b) (1998).

19 Section 404 of the Clean Water Act authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits "for the discharge of dredged or fill material." CWA § 404(a), 33 U.S.C. § 1344(a) (1994). The Corps of Engineers defines "fill material" as "any material used for the primary purpose of replacing an aquatic area with dry land or of changing the bottom elevation of an waterbody." 33 C.F.R. § 323.2(e) (1998). The term "discharge of fill material" means "the addition of fill material into waters of the United States" and includes:

Placement of fill that is necessary for construction of any structure in a water of the United States; the building of any structure or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills.

20 Riverside, N. 17 supra, 474 U.S. at 124.
open waters and dry land may lie shallows, marshes, mudflats, swamps, bogs—in short, a huge array of areas that are not wholly aquatic but nevertheless fall far short of being dry land. Where on this continuum to find the limit of "waters" is far from obvious.\textsuperscript{21}

To assist in defining regulated "waters," the Court noted that the underlying goal of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."\textsuperscript{22} The Court translated this into a water quality impact analysis in which the issue is whether the challenged area has the capacity to impact recognized "waters of the United States" to such an extent as to justify regulation of the challenged area in order to effectively protect the unchallenged area.\textsuperscript{23} In \textit{Riverside} the Court deferred to the Corps' "ecological judgment" that in order to adequately protect the water quality of recognized waters of the United States it was necessary to regulate activities on adjacent wetlands.\textsuperscript{24}

The Court in \textit{Riverside} was careful to note that it was not addressing whether the Corps had authority to regulate nonadjacent wetlands;

\begin{itemize}
\item \textsuperscript{21} \textit{Id.} at 132.
\item \textsuperscript{22} \textit{Ibid.} (quoting Clean Water Act § 101(a), 33 U.S.C. § 1251(a) (1994)).
\item \textsuperscript{23} The Court observed in \textit{Riverside}:

Protection of aquatic ecosystems, Congress recognized, demanded broad federal authority to control pollution, for "[w]ater moves in hydrologic cycles and it is essential that discharge of pollutants be controlled at the source." . . .

[\textsuperscript{T}he evident breadth of congressional concern for protection of water quality and aquatic ecosystems suggests that it is reasonable for the Corps to interpret the term "waters" to encompass wetlands adjacent to waters as more conventionally defined . . . We cannot say that the Corp's conclusion that adjacent wetlands are inseparably bound up with the "waters" of the United States—based as it is on the Corps' and EPA's technical expertise—is unreasonable . . . [T]he Corps' ecological judgment about the relationship between waters and their adjacent wetlands provides an adequate basis for a legal judgment that adjacent wetlands may be defined as water under the Act. The Corps has concluded that wetlands may affect the water quality of adjacent lakes, rivers, and streams even when the waters of those bodies do not actually inundate the wetlands . . . In short, the Corps has concluded that wetlands adjacent to lakes, rivers, streams, and other bodies of water may function as integral parts of the aquatic environment even when the moisture creating the wetlands does not find its source in the adjacent bodies of water . . . Because respondent's property is part of a wetland that actually abuts on a navigable waterway, respondent was required to have a permit in this case.

\textsuperscript{24} The Court upheld the district court findings that "the wetland located on respondent's property was adjacent to a body of navigable water, since the area characterized by saturated soil conditions and wetland vegetation extended beyond the boundary of respondent's property to Black Creek, a navigable waterway." \textit{Riverside}, N. 17 \textit{supra}, 474 U.S. at 131.

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wetlands which are isolated from any recognized "waters of the United States."25 Instead, the court held that when you have undisputed "waters of the United States," the Corps can regulate wetlands adjacent to such waters because the Corps has determined that a failure to regulate activities on adjacent wetlands can negatively impact recognized waters of the United States.

Often oil and gas developers encounter wetland areas that are not associated with any recognized waters of the United States; areas commonly known as "isolated wetlands." Some lower federal courts have held that isolated wetland areas can be subject to Section 404 jurisdiction if some nexus exists between the area and interstate commerce.26 This raises the ultimate jurisdictional issue of whether "waters of the United States" requires some likely ecological impact—as opposed to merely a theoretical ecological connection—with recognized waters of the United States. The Court in Riverside relied on the Corps' ability to establish a direct ecological impact on the integrity of waters of the United States when their adjacent wetlands are not also regulated. Lower federal courts however have relied on theoretical ecological connections which, in most cases, will not have any impact on the quality of water in recognized waters of the United States.27 The scope of "waters of the United States" under the Clean Water Act will be greatly influenced by which analysis courts employ to define the Act's jurisdictional reach. The Court's analysis in Riverside suggests the standard may be much more demanding than

25 The Court stated: "We are not called upon to address the question of the authority of the Corps to regulate discharges of fill material into wetlands that are not adjacent to bodies of open water . . . and we do not express any opinion on that question." Riverside, N. 17 supra, 474 U.S. at 131 n.8.

26 See, e.g., Leslie Salt Co. v. United States, 55 F.3d 1388, 1390 (9th Cir. 1995), cert. denied Cargill, Inc. v. United States, 516 U.S. 955, 116 S. Ct. 407, 133 L. Ed. 2d 325 (1995) (abandoned pits constructed for industrial purposes became subject to § 404 regulation because they had a "connection to the aquatic ecosystem in their role as habitat for migratory birds"); Hoffman Homes, Inc. v. Administrator, U.S.E.P.A., 999 F.2d 256 (7th Cir. 1993) (dicta in the court's opinion suggested isolated wetlands can be regulated under § 404 if there is evidence the area was actually used by migratory birds, thereby providing the necessary nexus with interstate commerce).

27 For example, in Leslie Salt Co. v. United States, the Ninth Circuit Court of Appeals held that use of industrial pits by migratory birds made the pits part of an "aquatic ecosystem" and therefore subject to regulation under § 404 of the CWA. The court found that the pits were "isolated, seasonally dry intrastate waters used only by migratory birds" which had "no hydrological connection to any other body of water . . ." Leslie Salt Co. v. United States, 55 F.3d 1388, 1390, 1395 (9th Cir. 1995), cert. denied Cargill, Inc. v. United States, 516 U.S. 955, 116 S. Ct. 407, 133 L. Ed. 2d 325 (1995).
what has been required by the Seventh and Ninth Circuit Courts of Appeal.

[ii] Practical Response to the Wetlands Issue.

The oil and gas developer needs to be aware that certain areas may be deemed wetlands. If an area is a wetland subject to the Corps’ Section 404 permitting authority, the developer must consider, at the lease-acquisition stage, the problems associated with exploring for, developing, and producing oil and gas within the wetland area. To determine if a wetland issue exists, examine the proposed development site for the following:

1. Low areas in which water stands during a portion of the growing season.28
2. Soil that is water-saturated during a portion of the growing season.29
3. Vegetation commonly found in areas that have standing water during a portion of the growing season.

Note that the elements of hydrology, soil conditions, and vegetation combine to identify wetland areas. The hydrology of the area creates the standing water which produces hydric soils that support the growth of vegetation one would expect to encounter in wetland areas. Since most wetlands lack standing water and water-saturated soils during a portion of the growing season, the developer must be careful not to summarily conclude that the area is not a wetland. If there is a chance the area could be a wetland, the best course of action is to contact the appropriate U.S. Army Corps of Engineers District Office for assistance in determining the status of the area.

[iii] Permit Requirements.

If the area contains a wetland subject to the Corps’ Section 404 permitting jurisdiction, the next step will be to determine whether a permit will be required for the proposed activity. If the wetland covers only a portion of the leased area, simply conducting operations on a nonwetland portion of the lease may be the best way to address the

28 One piece of useful information is determining whether the area is located in a floodplain.
29 See generally Recognizing Wetlands published by the U.S. Department of Commerce, National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22616. This brochure can be obtained by calling (703) 487-4650.
matter.\textsuperscript{30} Since the land use impact of oil and gas operations can be substantial, and potentially long term, all anticipated land use needs should be considered when devising a wetland-avoidance development plan.

Certain activities may be exempt from permit requirements. For example, certain discharges of dredged or fill material do not require a permit when they relate to the "[c]onstruction or maintenance of . . . temporary roads for moving mining equipment, where such roads are constructed and maintained in accordance with best management practices" as defined by Corps regulations.\textsuperscript{31} If the activity is not covered by an exemption, the next step is to determine whether it can be permitted under a "general" permit as opposed to an "individual" permit. Pursuant to Section 404(e) of the CWA, the Secretary of the Army is authorized to issue general permits, on a State, regional, or nationwide basis, for:

\begin{itemize}
  \item Any category of activities involving discharges of dredged or fill material if the Secretary determines that the activities in such category are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment.\textsuperscript{32}
\end{itemize}

The Secretary has issued thirty-nine nationwide permits designed to streamline, to varying degrees, compliance with Section 404 of the CWA.\textsuperscript{33} However, the nationwide permit program is currently under revision to provide greater protection of wetland resources.\textsuperscript{34}

If the activity is not encompassed by a general permit, an individual permit will be required. Issuance of an individual permit may require compliance with National Environmental Policy Act (NEPA) environmental assessment and environmental impact statement requirements.\textsuperscript{35} Under the Corps' NEPA compliance regulations, certain activities enjoy a "categorical exclusion" from the environmental

\textsuperscript{30} However, this management option is possible only if the developer is first alerted to the wetland problem, identifies the wetland areas, and then avoids conducting activities which impact the wetland areas.
\textsuperscript{31} 33 C.F.R. § 323.4(a)(6) (1998).
\textsuperscript{35} National Environmental Policy Act, 42 U.S.C. § 4332(C) (1994).

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assessment/impact statement process. 36 Certain projects will only require a NEPA environmental assessment. 37

[b] Endangered Species Act Section 9 Habitat Protection.

Congress, 38 and the United States Supreme Court, 39 have acknowledged that in order to protect a species the habitat required for its survival must also be protected. Section 9 of the Endangered Species Act (ESA) provides that: “with respect to any endangered species of fish or wildlife listed [pursuant to the Act] . . . it is unlawful for any person . . . to . . . take any such species.” 40 The Act defines “take” to include “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” 41 The Secretary of Interior has, by regulation, defined the term “harm” contained in the statutory definition as follows:

Harm in the definition of “take” in the Act means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. 42

The land use limitation is created by the presence of a threatened or endangered species which would be killed or injured by development activities. For example, in the process of making a road and clearing and using a drill site, endangered or threatened species could be inadvertently killed or injured by the activity. This would constitute “harm” under the Secretary’s regulation which would be a “take” under the statute, thereby causing a violation of the Endangered Species Act. The Secretary’s definition of “harm” was upheld by the United States Supreme Court in Babbitt v. Sweet Home Chapter of Communities for a Great Oregon. 43

36 For example, 33 C.F.R. § 230.9(i)(4) (1998) excludes rights-of-way for “[o]il and gas seismic and gravity meter survey for exploration purposes.”
37 Section 230.7 identifies activities that normally will require preparation of an environmental assessment but not an environmental impact statement. 33 C.F.R. § 230.7 (1998).
38 See 16 U.S.C. § 1531(a)(1) (1994) (Congressional finding that “various species of fish, wildlife, and plants in the United States have been rendered extinct as a consequence of economic growth and development”).
42 50 C.F.R. § 17.3 (1998).

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[i] Practical Response to the Endangered Species Issue.

Oil and gas developers must ascertain whether any endangered or threatened species are likely to exist in the area where development is planned. Looking for species problems prior to development can avoid accidental "takes" that can result in liability and interruption of operations. Although the Endangered Species Act (ESA) does not require the developer to look for endangered or threatened species, many other environmental laws impose such an obligation as a condition to issuance of a permit, such as a Section 404 wetlands permit or a stormwater discharge permit. The actions of other federal agencies that may impact protected species are coordinated through Section 7 of the ESA which requires such agencies to:

[1]nsure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary . . . to be critical . . . .

Some of the most common "action" of the agency that can impact species is the issuance of permits.

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44 For example, the CWA § 404 nationwide permit program imposes, as one of the "General Conditions" to qualify for a permit, the following:

11. Endangered Species: (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or critical habitat might be affected or is in the vicinity of the project, and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized.

(b) Authorization of an activity by a nationwide permit does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. Fish and Wildlife Service and National Marine Fisheries Service on their world wide web pages at

http://www.fws.gov/[[tilde]]9endspp/endspp.html and
http://kingfish.spp.mnfs.gov/tmcintyr/prot-res.html #ES and Recovery, respectively.


45 See text accompanying Ns. 88–95 infra.

The burden of determining whether an activity will interfere with a threatened or endangered species is on the oil and gas developer. In many cases the obligation to obtain a stormwater discharge permit, for road and drillsite construction activities, will prompt a careful "look" for threatened and endangered species. The best approach will be to contact the U.S. Fish and Wildlife Service and the appropriate state wildlife agency. The U.S. Fish and Wildlife Service, and their state counterparts, maintain detailed information on threatened and endangered species and the geographic areas they inhabit.

[ii] Incidental Take Permits.

If it is determined that proposed oil and gas operations will likely interfere with a threatened or endangered species, the developer should seek an "incidental take" permit. Section 10 of the ESA authorizes the Secretary of Interior to issue a permit for "any taking otherwise prohibited by section [9] . . . if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." 47 For example, the operation of a bulldozer to build a road may incidentally disrupt the nesting of an endangered species. Such habitat modification, if it results in death or injury to an endangered species, would be a violation of Section 9 of the ESA—unless it is done in accordance with a Section 10 incidental take permit.


The next regulatory attack on groundwater contamination will be through various types of federally-funded environmental zoning which restricts land uses with a potential for groundwater pollution. The Resource Conservation and Recovery Act (RCRA) attempts to prevent groundwater pollution by ensuring hazardous wastes are properly managed when generated, transported, treated, stored, and disposed. 48 The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) operates when there is a release or threatened release of a hazardous substance. 49 Therefore, in general terms RCRA

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49 See, e.g., CERCLA § 104(a), 42 U.S.C. § 9604(a) (1994) (authorizing Environmental Protection Agency to respond to a release, or substantial threat of a release, of a hazardous substance).

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addresses management of the waste and CERCLA provides a cleanup mechanism in the event the RCRA management provisions fail to achieve the desired level of environmental protection.\textsuperscript{50} The "critical aquifer" and "wellhead protection" programs of the Safe Drinking Water Act (SDWA)\textsuperscript{51} have the potential to provide an even greater level of pollution prevention by zoning out activities likely to cause groundwater contamination.

Where an aquifer has been identified as the sole or principal drinking water source for an area, the SDWA authorizes funding for state demonstration programs to create "critical aquifer protection areas."\textsuperscript{52} The goal is to define the aquifer area and then create a comprehensive plan to protect the aquifer from possible contamination. Although not expressed in the SDWA, one of the most effective techniques for protecting designated areas will be land use restrictions. For example, the drilling of underground injection wells might be prohibited in the protection area.

"Wellhead protection" programs have matured beyond the demonstration stage and are required by the SDWA.\textsuperscript{53} "Wellhead protection area" is defined to include "the surface and subsurface area surrounding a water well or wellfield, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such well or wellfield."\textsuperscript{54} States are directed to develop "control measures" to protect the water supply within each wellhead protection area.\textsuperscript{55}

Although these programs have not yet resulted in comprehensive environmental zoning, it is likely that state and local governments will experiment with zoning as a technique for protecting groundwater resources.\textsuperscript{56} This will likely result in additional restrictions on mineral

\textsuperscript{50} However, RCRA also contains its own cleanup mechanisms. See, e.g., RCRA § 7003, 42 U.S.C. § 6973 (1994) (providing EPA authority to respond to situations that present an imminent and substantial endangerment to health or the environment).


\textsuperscript{53} 42 U.S.C. § 300h-7(a) (1994) provides, in part: "The Governor . . . of each State shall . . . adopt and submit to the Administrator a State program to protect wellhead areas within their jurisdiction from contaminants which may have any adverse effect on the health of persons."

\textsuperscript{54} 42 U.S.C. § 300h-7(e) (1994).

\textsuperscript{55} 42 U.S.C. § 300h-7(a)(4) (1994).

\textsuperscript{56} See generally Trail Enterprises, Inc. v. City of Houston, 957 S.W.2d 625, 138 O. & G.R. 454 (Tex. App.—Houston [14th Dist.] 1997), review denied, cert. denied 119 S. Ct. 802, 142 L. Ed. 2d 663 (1999) (City of Houston, by ordinance, established "control area" around Lake Houston area to prohibit the drilling of oil and gas wells that could contaminate the lake).
development and, in some cases, an outright prohibition on development in designated areas.


Mere ownership or control of property can give rise to environmental clean-up obligations under several of the federal environmental laws. Liability is premised on a statutorily-defined "status" regarding the environmental problem. For example, liability can be based on a person's status as the "owner" of land where an environmental problem exists. Therefore, a person proposing to acquire an oil and gas lease must consider how it may impact their "status" under the environmental laws. The lessee may actually cumulate several status positions as the lease is developed. The landowner/lessor must also be concerned about their respective environmental status as oil and gas development proceeds. The goal for each party is to fully assess their potential environmental status liabilities when considering whether to acquire a lease or mineral interest, or to grant a lease or mineral interest. Once the environmental risks are identified, specific strategies can be pursued to address the risks.

[a] Assessing Potential Environmental Status Liabilities.

In the oil and gas context, status liability under the federal environmental laws will most likely arise under Section 107(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Section 7002 and Section 7003 of the Resource Conservation and Recovery Act (RCRA), Section 311(f) of the

57 E.g., CERCLA § 107(a)(1), 42 U.S.C. § 9607(a)(1) (1994) (imposing liability on the "owner or operator of a vessel or facility" from which there is a release, or threatened release, of a hazardous substance that results in the incurrence of response costs).


59 For example, under CERCLA acquisition of the oil and gas lease may make the lessee an "owner," development of the lease may confer "operator" status on the lessee, and the creation and disposal of wastes associated with development may give rise to "arranger" and "transporter" status. CERCLA § 107(a)(1), (3), (4), 42 U.S.C. § 9607(a)(1), (3), (4) (1994).

60 See generally Pierce, "The Impact of Landowner/Lessor Environmental Risk on Oil and Gas Lessee Rights and Obligations," 31 Tulsa L. J. 731, 731-737 (1996), reprinted at 34 Public Land & Resources L. Dig. 127 (1997) (analyzing landowners' CERCLA liability associated with the activities of their oil and gas lessee).


Clean Water Act (CWA), 63 and Section 1002(a) the Oil Pollution Act (OPA). 64 When assessing liability, it is best to view each Act individually, without any attempt to rationalize or coordinate one Act with the others. Although Congress may, for certain definitions, use references between the Acts, 65 Congress has not achieved any real coordination among the environmental laws. Therefore, an activity that escapes one Act may not escape others and it is often possible to have a single situation covered by several Acts.

[i] CERCLA “Owner” or “Operator.”

CERCLA imposes cleanup liability on the current 66 “owner” of the “facility” where a hazardous substance problem exists. 67 “Facility” is defined broadly to include “any site or area where a hazardous substance has . . . come to be located . . . .” 68 “Owner” is simply defined as “any person owning . . . such facility . . . .” 69 Anyone familiar with the “bundle-of-sticks” analysis of property ownership should be able to recognize several instances in which an oil and gas lessee could be an “owner.” If the lessee escapes “owner” status, he may qualify for “operator” status under CERCLA. 70 “Operator” is defined by CERCLA as “any person . . . operating such facility . . . .” 71 This definition substitutes use of, or control over, the facility are part of what is known as the “Solid Waste Disposal Act (SWDA).” However, the Resource Conservation and Recovery Act (RCRA) amended substantial portions of the SWDA and most people simply refer to the SWDA as RCRA. This article will refer to the collective provisions of the SWDA as RCRA.

64 OPA § 1002(a), 33 U.S.C. § 2702(a) (1994).
66 Although CERCLA also imposes liability on “past” owners and operators “at the time of disposal,” and on persons that create, manage, transport, and dispose of hazardous substances, the focus of this article is on the preleasing concerns of a developer who has had no prior contact with the proposed leased area. CERCLA § 107(a)(2)-(4), 42 U.S.C. § 9607(a)(2)-(4) (1994).
68 CERCLA § 101(9)(B), 42 U.S.C. § 9601(9)(B) (1994). In addition to this general catch-all definition, the following examples are provided by the definition: “[A]ny building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft.” CERCLA § 101(9)(A), 42 U.S.C. § 9601(9)(A).
for title to an interest in the facility. Even though the person may not “own” the facility, if they are using the facility, or have control over the facility, they can be held liable for clean-up costs based on their “operator” status. If the oil and gas lessee undertakes operations on a lease which includes a facility area, the lessee may become a CERCLA “operator” of the facility.

[ii] RCRA “Contributor.”

RCRA imposes clean-up liability on any person “who has contributed or who is contributing” to the “past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment . . . .”72 If the area is already contaminated at the time the lessee undertakes its development operations, the lessee may be found to have “contributed” to the problem.73

72 RCRA § 7002(a)(B), 42 U.S.C. § 6972(a)(B) (1994) (citizen suit provisions giving “any person” the right to seek a court order to “restrain any person” or to “order such person to take such other action as may be necessary, or both”). RCRA § 7003(a), 42 U.S.C. § 6973(a) (1994) confers identical authority on the Environmental Protection Agency.

73 It is important to note that §§ 7002 and 7003 are not subject to any sort of “petroleum exclusion” such as is found in CERCLA. See CERCLA § 101(14), 42 U.S.C. § 9601(14) (1994) (“The term [hazardous substance] does not include petroleum, including crude oil or any fraction thereof”). Also, these sections apply to problems created by nonhazardous “solid waste” and would not be affected by the exploration and production waste exemption from the definition of a “hazardous waste” under Subtitle C of RCRA. See “Regulatory Determination for Oil and Gas and Geothermal Exploration, Development and Production Wastes,” 53 Fed. Reg. 25446 (July 6, 1988).

It is also possible to have a “hazardous” exploration and production waste under §§ 7002 and 7003 even though the waste is covered by the exploration and production waste exemption—and is therefore not “hazardous” for purposes of RCRA’s Subtitle C program. “Hazardous,” for purposes of Subtitle C regulation, is governed by the Subtitle C regulatory definition of “hazardous.” Therefore, a developer would not have to concern itself with the Subtitle C generator, transporter, and treatment, storage, and disposal requirements imposed on other Subtitle C hazardous wastes. However, if the lawfully-disposed waste ever creates a problem (meeting the “imminent and substantial endangerment” criteria), it may be dealt with as a “solid waste” under §§ 7002 and 7003, and can even be a “hazardous” waste under RCRA’s general definition provisions which state:

The term “hazardous waste” means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may—

(A) cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

(B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

[iii] CWA "Owner or Operator."

Section 311(f) of the CWA imposes cleanup liability on the "owner or operator of an onshore facility" from which there is a discharge of oil or a hazardous substance into "waters of the United States."\(^{74}\) In *Quaker State Corp. v. U.S. Coast Guard*,\(^{75}\) the owner of a surface estate in the land at the time oil seeped from a waste water containment pit was found to be the party responsible for reimbursing the Coast Guard for $430,000 it spent responding to the oil spill.\(^{76}\) Oil and gas operations had been conducted on the leased land in the past; the pit had been used to manage produced water at some unknown time at least fifteen years prior to the spill that triggered the cleanup. Although Section 311(f) of the CWA expressly applies to "oil" as well as "hazardous substances," the discharge must be into "waters of the United States."\(^{77}\) There is no similar water nexus requirement in CERCLA or RCRA.

[iv] OPA "Responsible Party."

Section 1002 of the OPA imposes cleanup liability, and damages\(^{78}\) on the "responsible party" for a facility "from which oil is discharged, or which poses the substantial threat of a discharge of oil"\(^{79}\) into "waters of the United States."\(^{80}\) "Responsible party" is defined to include the following:

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Remington Arms, 989 F.2d 1305, 1314–1316 (2d Cir. 1993) (noting broader "solid waste" definition in § 7002 than the definition used for Subtitle C program).

\(^{74}\) CWA § 502(7), 33 U.S.C. § 1362(7) (1994) ("navigable waters" are defined as "waters of the United States").


\(^{76}\) In a subsequent opinion the judge commented on the potential liability of the mineral interest owner, Kendall Refining Company, by making the following conclusions of law:

20. Kendall Refining Company not only was Quaker State’s lessor, but was the owner of the oil and gas rights to Lot 128, at least from 1965 through the time of the discharge. Ownership of the oil and gas carries with it the right to use the surface of the land for oil and gas purposes.

21. Quaker State as a matter of law could not be the sole cause of the discharge, due to Kendall’s status and involvement with the site, including its request for Quaker State to perform abandonment activities thereon to Kendall’s benefit, and due to others’ prior use of the site and pit.


\(^{78}\) OPA § 1002(b), 33 U.S.C. § 2702(b) (1994).

\(^{79}\) OPA § 1002(a), 33 U.S.C. § 2702(a) (1994).

\(^{80}\) OPA § 1001(21), 33 U.S.C. § 2701(21) (1994) (defining "navigable waters" as "waters of the United States").

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(B) Onshore facilities
In the case of an onshore facility (other than a pipeline), any person owning or operating the facility, except a Federal agency, State, municipality, commission, or political subdivision of a State, or any interstate body, that as the owner transfers possession and right to use the property to another person by lease, assignment, or permit.\textsuperscript{81}

\ldots

(E) Pipelines
In the case of a pipeline, any person owning or operating the pipeline.

(F) Abandonment
In the case of an abandoned . . . onshore facility . . . pipeline, or offshore facility, the persons who would have been responsible parties immediately prior to the abandonment of the . . . facility.\textsuperscript{82}

Although the OPA provides for a broader range of compensation and damages than permitted under CERCLA, RCRA, and the CWA, the OPA is limited to “oil” contamination, requires a nexus with “waters of the United States,” and applies only to “an incident occurring” on or after August 18, 1990.\textsuperscript{83}

[b] Lessee Strategies.
To avoid assuming an unwanted status with a contaminated area, a developer needs to be aware of environmental problems associated with the area he proposes to lease. At a minimum this will require an on-site inspection of the area to be leased. If there appear to be problem areas, the developer has two basic options: (1) avoid the problem altogether by not leasing the property, or by excluding the problem areas from the lease;\textsuperscript{84} or (2) attempt to define and leverage

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\textsuperscript{81} This definition suggests that nongovernmental landowners who lease to a third party will remain a “responsible party” as an “owner.” It also suggests that a lessee of a governmental body will be regarded as an owner or operator.


\textsuperscript{83} OPA, Pub. L. No. 101–380, 104 Stat. 484, 506 (1990) (OPA § 1020); OPA § 1017(e), 33 U.S.C. § 2718(e) (1994) (“Nothing in this title shall apply to any cause of action or right of recovery arising from any incident which occurred prior to August 18, 1990”).

\textsuperscript{84} Another option would be to try to tailor the lease rights so they exclude any right to use or control the problem area other than the exclusive right to any oil or gas that might be produced from beneath the area. This would protect the lessee’s right to remove oil and gas located within the problem area from adjacent property, without giving the lessee any sort of easement or development rights physically within the problem area. The goal is to avoid any kind of interest

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the risk by obtaining reliable information concerning the problem and then obtaining indemnity agreements from the landowner, mineral owner, or other parties having an existing status with the property. 85

[c] Landowner Strategies.

The landowner’s basic concern is that a mineral developer will create environmental problems on the land for which the landowner will ultimately be liable because of its status as the “owner” of the property. This problem arises whenever the landowner conveys a mineral interest or grants an oil and gas lease; in each situation the grantee will typically obtain an express or implied right to make reasonable use of the surface to develop the granted minerals. 86 The techniques the lessor can use include: (1) select only well-known, well-financed oil and gas grantees and lessees with a reputation for doing things right; (2) provide for continuing liability of the original grantee/lessee in the event a subsequent transferee fails to comply with the covenants of the agreement; (3) clearly define surface use rights and obligations to minimize the creation of environmental problems; (4) provide for a broad indemnity agreement regarding environmental matters; (5) provide for attorneys’ fees and litigation costs in the event the covenants are breached or it is necessary to sue to establish indemnity rights; and (6) police the agreement to ensure it is being honored. 87

§ 5.04. Environmental Issues Associated with Drilling Activities.

Drilling activities require the disruption of the surface to build roads, prepare the drill site, and support various operations associated with drilling. Drilling also generates several wastes that must be properly

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85 If it is not possible to negotiate an indemnity agreement, or the party offering to indemnify has inadequate assets, the only option may be to invest additional effort in fully defining the problem, and the associated risk as an oil and gas lessee, and then trying to draft the lease to place the lessee in the best position possible should the problem result in a future clean-up action.


87 See Pierce, “Incorporating a Century of Oil and Gas Jurisprudence into the ‘Modern’ Oil and Gas Lease,” 33 Washburn L. J. 786, 795–800 (1994) (discussing language the landowner or lessor can use to apply the listed techniques in either a mineral deed or oil and gas lease).
managed. The two federal environmental laws primarily implicated by drilling activities are the Clean Water Act and the Resource Conservation and Recovery Act.

[1] Stormwater Discharges and Drill Site Construction.

The water pollution program that casts the widest regulatory net to date is the Clean Water Act stormwater discharge permit program. Section 402(p) of the CWA authorizes the regulatory infrastructure to control discharges of "storm water" into "waters of the United States."\(^8\) Oil and gas operations can trigger Section 402(p) obligations in two ways. Of primary importance at the drilling stage of development are the EPA’s stormwater discharge permit requirements for construction activities, which include "clearing, grading and excavation activities except: operations that result in disturbance of less than five acres of total land area which are not part of a larger common plan of development or sale."\(^9\) To determine whether a permit is required, the total surface disturbance associated with the activity must be aggregated to calculate the five-acre threshold.\(^10\) The EPA is currently fashioning a regulatory program that will extend stormwater permitting to construction activities that disturb less than five acres.\(^11\)

The second type of stormwater permit applicable to oil and gas operations concerns discharges associated with "industrial activity" which is defined to include "oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products,


\(^11\) "Reissuance of NPDES General Permits for Storm Water Discharges from Construction Activities," 63 Fed. Reg. 7858, 7861 (Feb. 17, 1998) (includes separate small construction sites which collectively have the potential of disturbing five or more acres if they are part of a larger common plan of development).


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finished products, byproducts or waste products located on the site of such operations." However, when an operator takes action to channel water around an oil and gas operating site, a stormwater discharge permit will not be required unless the resulting discharge is contaminated by oil or hazardous substances. If a permit is required, the activity will in most cases be eligible for coverage under a "general" permit which avoids the additional expense and delay associated with obtaining an "individual" permit.


Drilling operations create large volumes of wastes that can adversely impact the environment when improperly managed. Although many drilling wastes contain hazardous constituents, and would otherwise be governed by the hazardous waste provisions of the Resource Conservation and Recovery Act, the EPA has elected to manage exploration and production wastes as nonhazardous wastes. The

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93 40 C.F.R. § 122.26(b)(14)(iii) (1998) (including facilities in Standard Industrial Classifications (SIC) 10 through 14; SIC 13 is "Oil and Gas Extraction").

94 This result is dictated by CWA § 402(1)(2) which provides:

The Administrator shall not require a permit under this section, nor shall the Administrator directly or indirectly require any State to require a permit, for discharges of stormwater runoff from mining operations or oil and gas exploration, production, processing, or treatment operations or transmission facilities, composed entirely of flows which are from conveyances or systems of conveyances (including but not limited to pipes, conduits, ditches, and channels) used for collecting and conveying precipitation runoff and which are not contaminated by contact with, or do not come into contact with, any overburden, raw material, intermediate products, finished product, byproduct, or waste products located on the site of such operations. CWA § 402(1)(2), 33 U.S.C. § 1342(1)(2) (1994). See also 40 C.F.R. § 122.26(a)(2) (1998) (the regulatory restatement of the § 402(1) (2) prohibition). But see 40 C.F.R. § 122.26(c)(1)(iii) (1998) (articulating the exception to the prohibition for stormwater that has become "contaminated by contact with" oil or hazardous substances from the site).


96 Pursuant to RCRA § 3001, 42 U.S.C. § 6921 (1994), the EPA promulgated characteristics and lists to identify wastes that must be regulated as "hazardous waste" to effectively protect human health or the environment. However, with respect to "drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas," a 1980 amendment to RCRA directed the EPA to conduct a study to determine whether such wastes should be managed as hazardous wastes under Subtitle C. EPA completed its study in 1987, and in 1988 issued its decision to exempt certain wastes generated during the exploration, development, and production of oil, gas, and geothermal resources from Subtitle
EPA's exemption from hazardous waste management extends to items such as produced water, drilling fluids, drill cuttings, rigwash, and well completion, treatment, and stimulation fluids.\textsuperscript{97} However, the exemption does not include such things as "unused fracturing fluids or acids" or "oil and gas service company wastes."\textsuperscript{98} Although EPA's regulatory determinations contain examples of exempt and nonexempt wastes, the authoritative document for defining the scope of the exemption is EPA's 1987 Report to Congress.\textsuperscript{99} EPA also published a "clarification" designed to assist in defining the exemption's scope, which provides, in part:

[For a waste to be exempt from regulation as hazardous waste under RCRA Subtitle C, it must be associated with operations to locate or remove oil or gas from the ground or to remove impurities from such substances and it must be intrinsic to and uniquely associated with oil and gas exploration, development or production operations (commonly referred to simply as exploration and production or E&P); the waste must not be generated by transportation or manufacturing operations.

A simple rule of thumb for determining the scope of the exemption is whether the waste in question has come from down-hole (i.e., brought to the surface during oil and gas E&P operations) or has otherwise been generated by contact with the oil and gas production stream during the removal of produced water or other contaminants from the product (e.g., waste demulsifiers, spent iron sponge). If the answer to either question is yes, the waste is most likely considered exempt.\textsuperscript{100}

If the waste is not encompassed by the exemption, it must be properly evaluated to determine whether it must be managed as a

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\textsuperscript{97} "Regulatory Determination for Oil and Gas and Geothermal Exploration, Development and Production Wastes," 53 Fed. Reg. 25446, 25453 (July 6, 1988).

\textsuperscript{98} 53 Fed. Reg. 25446, 25454.


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RCRA hazardous waste. This involves a four-step process: First, the developer must determine if the material is a “solid waste.”101 This entails a very technical, convoluted analysis to ascertain whether the material is being “discarded” and will therefore become part of the waste problem.102 In most cases, when the material is being thrown away, the analysis is simple—the material is discarded and therefore a solid waste. However, when the material is not thrown away, but rather is sold, or used for some other purpose, the analysis becomes much more difficult. The second step is to determine whether the solid waste is expressly exempt from RCRA Subtitle C regulation either because it is defined not to be a “solid” waste103 or defined not to be a “hazardous” solid waste.104 If the material is a solid waste, and not expressly excluded under step two, the third step is to determine if the waste is on any of the hazardous waste “lists” found at 40 C.F.R. Part 261, Subpart D.105 If the waste is on a list, it will be deemed a “listed” hazardous waste. If the solid waste is not on one of the Subpart D lists, the fourth step is to determine whether testing of the waste will trigger one of the regulatory “characteristics” of a hazardous waste.106 If the solid waste tests positive for one of the hazardous characteristics, it will be deemed a “characteristic” hazardous waste. If the waste is not on one of the lists, and does not trigger a hazardous characteristic, it will not be subject to RCRA regulation under the Subtitle C hazardous waste program.

However, if the material is either a listed or characteristic hazardous waste, the person creating—“generating”—the waste must comply with specific RCRA Subtitle C regulations designed to effectively manage hazardous waste.107 Typically the “weak link” in the Subtitle

102 40 C.F.R. § 261.2(a)-(e).
103 40 C.F.R. § 261.4(a) (1998) (listing materials that are deemed not to be “solid” wastes).
104 40 C.F.R. § 261.4(b) (1998) (“solid wastes” that are expressly defined not to be a “hazardous waste”). This is where the oil and gas exploration and production waste exemption is found. 40 C.F.R. § 261.4(b)(5) (1998).
106 The four RCRA hazardous characteristics are these: ignitability (40 C.F.R. § 262.21 (1998)), corrosivity (40 C.F.R. § 262.22 (1998)), reactivity (40 C.F.R. § 262.23), and toxicity (40 C.F.R. § 261.24 (1998)). Often it is the “toxicity” characteristic which triggers regulation since it employs a procedure that tests for contaminants such as benzene.
C regulatory system is the reliance it places on the generator of the waste to be cognizant the wastes they are creating need to be evaluated. The linchpin, and the weakest link, of the RCRA Subtitle C program is 40 C.F.R. Section 262.11, which provides “[a] person who generates a solid waste . . . must determine if that waste is a hazardous waste.” If the generator is unaware of the hazardous nature of the waste, and never takes the necessary action to evaluate and test the waste, it will most likely be improperly managed at the point of generation and when the generator or others are transporting, treating, storing, or disposing of the waste. A generator’s failure to comprehend, and competently discharge, its obligations at this critical stage of RCRA regulation will ensure monumental problems for all parties involved.

Even if the waste escapes RCRA’s Subtitle C hazardous waste regulation, it still must be managed intelligently with a full appreciation that all waste carries with it associated environmental risks. For example, it is important to keep in mind that although exploration and production wastes are “exempt” from Subtitle C hazardous waste regulation, such wastes frequently contain hazardous constituents. Therefore, it is possible for a Subtitle C-exempt waste to be a hazardous “substance” under CERCLA. This means that although it may be perfectly “legal” under RCRA to dispose of the exempt waste on site, by land farming, at a landfill, or by using it for dust suppression on roads, it may not be prudent because of the future cleanup risks posed by such disposal practices. For example, if the waste is taken to a landfill, and the landfill subsequently requires a clean-up, hazardous constituents in the waste could qualify it as a CERCLA hazardous substance and expose the developer generating the wastes to CERCLA liability. If the wastes are disposed of on

108 40 C.F.R. § 262.11 (1998). The generator must also undertake the difficult task of determining whether they are generating a “solid waste.”

109 It would also be “legal” under CERCLA since the only regulatory obligation CERCLA imposes is found at § 103, which requires reporting of a release of reportable quantities of a hazardous substance. CERCLA § 103(a), 42 U.S.C. § 9603(a) (1994).

site, the landowner might object to his potential CERCLA status as an "owner" at the time of disposal.¹¹¹

In addition to CERCLA there are other "status" liability considerations when disposing of industrial wastes. First, although the waste may not be a RCRA Subtitle C hazardous waste, it is subject to RCRA regulation when it presents an "imminent and substantial endangerment" to health or the environment. For example, RCRA Section 7003 provides, in part:

Notwithstanding any other provision of this chapter, upon receipt of evidence that the past or present handling, storage, treatment, transportation or disposal of any solid waste or hazardous waste may present an imminent and substantial endangerment to health or the environment, the Administrator may bring suit on behalf of the United States in the appropriate district court against any person (including any past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility) who has contributed or who is contributing to such handling, storage, treatment, transportation or disposal to restrain such person from such handling, storage, treatment, transportation, or disposal, or to order such person to take such other action as may be necessary, or both.¹¹²

Similar imminent hazard liability-triggering provisions are found at RCRA Section 7002 governing citizen suits.¹¹³ The potential for using CERCLA and RCRA's imminent hazard provisions to police the exploration and production exemption was expressly noted by the EPA in its Regulatory Determination:

EPA is concerned over the lack of Federal authority under Subtitle D of RCRA to address treatment and transportation of oil and gas

¹¹¹ The oil and gas developer would be a CERCLA "arranger" and an "owner" and the "operator" at the time of disposal. CERCLA § 107(a)(2), (3), 42 U.S.C. § 9607(a)(2), (3) (1994).

¹¹² RCRA § 7003, 42 U.S.C. § 6973 (1994). As noted previously, this provision applies to nonhazardous "solid waste" as well as general definition, non-Subtitle C, "hazardous waste."

wastes. The Administrator therefore will work with Congress to develop any additional legislative authorities that may be needed to address these issues. In the interim, EPA will use section 7003 of RCRA and sections 104 and 106 of CERCLA to seek relief in those cases where wastes from oil and gas sites pose substantial threats or imminent hazards to human health and the environment. Oil and gas waste problems can also be addressed under RCRA section 7002.114

If the waste finds its way into "waters of the United States," Section 311 of the Clean Water Act, and Section 1002 of the Oil Pollution Act, may impose cleanup obligations on the "owner," "operator," or "responsible party."115

§ 5.05. Environmental Issues Associated with Production Activities.

Once a well is completed, new demands will be placed on the immediate environment as the lease is prepared for production. Depending upon whether the well is producing oil, gas, oil and gas, water, or impurities such as hydrogen sulphide, various storage, metering, separation, treating, and transportation facilities will need to be constructed and operated in conjunction with the well. Each produced substance, and each facility used to produce, separate, meter, store, treat, and transport produced substances, present environmental issues. For example, oil is a produced substance that can cause pollution—and there are many environmental laws designed to manage oil to prevent pollution, and to impose cleanup obligations in the event prevention efforts fail. Also, there are facilities used in the production process that can create pollution problems. For example, mercury from gas meters may escape into the environment; emissions from internal combustion engines used to compress gas may cause air pollution. The production process can also create byproducts that cause problems, such as radioactive scale in production facilities that becomes concentrated, known as "naturally occurring radioactive materials" or simply "NORM."116

116 The EPA has described the NORM problem as follows:

NORM is formed by co-precipitation of soluble radium from the formation water (produced
All of the environmental concerns discussed in prior sections of this article apply with equal force to the production stage of operations. The legal obligations, and resulting environmental risks, are cumulative. For example, the stormwater discharge permit requirements apply to the production stage of operations in the same manner they apply to the drilling stage.\textsuperscript{117} Production activities can result in "status" liability under CERCLA, RCRA, CWA, and the OPA.\textsuperscript{118} Production activities can result in RCRA waste management problems thereby triggering the same sort of RCRA solid/hazardous waste analysis examined in relation to drilling activities.\textsuperscript{119} However, in addition to these concerns, the production phase introduces new environmental obligations under the Clean Water Act,\textsuperscript{120} Safe Drinking Water Act (SDWA),\textsuperscript{121} Migratory Bird Treaty Act (MBTA),\textsuperscript{122} Clean Air Act (CAA),\textsuperscript{123} and Emergency Planning and Community Right-To-Know Act (EPCRA).\textsuperscript{124}

\textbf{1] Disposal and Management of Produced Water.}

Oil and gas operations frequently generate large volumes of produced water which must be properly managed to avoid pollution problems. To avoid "legal" problems, produced water must either be injected into an underground formation in compliance with the Safe Drinking Water Act, or discharged in accordance with the Clean Water Act. These management options for produced water are set out in the CWA which prohibits the discharge of a "pollutant."\textsuperscript{125} However, the

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\textsuperscript{117} See text accompanying Ns. 88–95 supra.
\textsuperscript{118} See text accompanying Ns. 66–83 supra.
\textsuperscript{119} See text accompanying Ns. 96–115 supra.
\textsuperscript{125} The basic statutory prohibition on water pollution is found in § 301 of the CWA which states: "Except as in compliance with this . . . [Act], the discharge of any pollutant by any person shall be unlawful." CWA § 301(a), 33 U.S.C. § 1311(a) (1994).

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CWA expressly excludes from the definition of "pollutant" the following:

[W]ater, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil or gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if such State determines that such injection or disposal will not result in the degradation of ground or surface water resources. ¹²⁶

Therefore, if produced water is being injected pursuant to a state-issued permit under a SDWA underground injection control (UIC) program, ¹²⁷ the CWA will not regulate the discharge. However, note that if the injection well is not "approved" by the state, not only will the injection be a violation of the SDWA, it could also be an illegal "discharge" of a "pollutant" under the CWA. ¹²⁸

[a] Underground Injection.

Today, with most land-based operations, produced water will be managed under the SDWA instead of the CWA. The underlying goal of the SDWA is to protect drinking water supplies from contamination. ¹²⁹ A major regulatory focus of the Act is controlling pollution that may impact underground water supplies. ¹³⁰ The SDWA seeks to prohibit any underground injection activity which "endangers drinking water sources" by establishing minimum requirements for state underground injection control (UIC) programs. ¹³¹ Therefore,

¹²⁸ Assuming the placement of the produced water into an underground geologic structure could be considered a discharge into "waters of the United States."
¹²⁹ The SDWA establishes national drinking water standards by setting "maximum contaminant levels" (MCLs) for water that will be delivered to a user of a "public water system" which includes any water distribution system that serves twenty-five or more individuals or has fifteen or more service connections. 42 U.S.C. § 300f(1), (4) (1994).
¹³⁰ Approximately, one-half of the regulatory provisions of the SDWA are dedicated to the operation of public water systems and the other half are dedicated to protecting what are primarily groundwater sources of drinking water.

[M]ay result in the presence in underground water which supplies or can reasonably be expected to supply any public water system of any contaminant, and if the presence of such contaminant may result in such system's not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons.
whenever an oil and gas developer desires to engage in "underground injection," they must obtain the proper UIC permit from the state. If they do not obtain the proper permit, or they elect to dispose of the produced water in some manner other than underground injection, the CWA will be implicated.

[b] Surface Disposal.

The surface disposal of produced water will in most cases require a CWA discharge permit; unless the discharge does not impact "waters of the United States." Defining "waters of the United States" for purposes of Section 301 creates the same sort of analytical problem discussed in relation to the CWA's wetlands protection program. However, courts have generally, without clearly articulating their reasoning, applied an analysis similar to that of the Court in Riverside Bayview Homes where a direct impact on undisputed waters of the

42 U.S.C. § 300h(d). "Contaminant" includes "any physical, chemical, biological, or radiological substance or matter in water." 42 U.S.C. § 300f(6).

132 The Act defines "underground injection" as "the subsurface emplacement of fluids by well injection." Expressly excluded is "underground injection of natural gas for purposes of storage." 42 U.S.C. § 300h(d)(1) (1994). This definition was recently found to apply to the injection of fluids as part of a hydraulic fracturing treatment on an oil and gas well. LEAF v. EPA, 118 F.3d 1467 (11th Cir. 1997) (citizen suit challenging adequacy of Alabama's UIC program because it did not require UIC permits to conduct hydraulic fracturing on methane gas wells).

133 Injection associated with oil and gas operations will typically require a "Class II" injection permit which includes wells handling fluids:
(1) Which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.
(2) For enhanced recovery of oil or natural gas; and
(3) For storage of hydrocarbons which are liquid at standard temperature and pressure.
40 C.F.R. § 144.6(b) (1998). However, since the EPA has created five different classes of injection wells, the operator must ensure they have the proper UIC permit to authorize the injection of a particular waste is a particular well. 40 C.F.R. § 144.6 (1998) (injection well classifications); ARCO Oil and Gas Co. v. E.P.A., 14 F.3d 1431, 130 O. & G.R. 175 (10th Cir. 1993) (wastes generated by carbon dioxide well could not be injected in a Class II injection well).

134 Only a "discharge" of a pollutant is unlawful under the CWA. CWA § 301(a), 33 U.S.C. § 1311(a) (1994). Recall that "discharge of a pollutant" is defined to mean "any addition of any pollutant to navigable waters." CWA § 502(7), 33 U.S.C. § 1362(7) (1994).

135 If the discharge is encompassed by CWA § 301, it is prohibited unless a permit is obtained for the discharge under § 402, which provides: "the Administrator may . . . issue a permit for the discharge of any pollutant . . . notwithstanding [the general prohibition on any discharge in § 301]." CWA § 402(a), 33 U.S.C. § 1342(a) (1994).

136 See text accompanying Ns. 14–27 supra, discussing the Court's analysis in Riverside Bayview Homes, N. 17 supra.
United States was determinative. For example, in *Quivira Mining Co. v. United States E.P.A.*, the analytical technique employed by the court was to trace the discharges from the arroyos where they occurred to what would be considered undisputable waters of the United States. The court found:

Substantial evidence before the Administrator supports his finding that during times of intense rainfall, there can be a surface connection between the Arroyo del Puerto, San Mateo Creek and navigable-in-fact streams. Further, the record supports the finding that both the Arroyo del Puerto and San Mateo Creek flow for a period after the time of discharge of pollutants into the waters. Further, the flow continues regularly through underground aquifers fed by the surface flow of the San Mateo Creek and Arroyo del Puerto into navigable-in-fact streams.

However, the court’s analysis in *Quivira Mining* also contains broad references to impacts on interstate commerce. For example, the language quoted above is followed by the statement:

The court finds that the impact on interstate commerce is sufficient enough to satisfy the commerce clause. And, as noted above, it was the clear intent of Congress to regulate waters of the United States to the fullest extent possible under the commerce clause.

If it was truly “the clear intent of Congress to regulate waters of the United States to the fullest extent possible under the commerce clause,” the analysis should be pretty simple—every drop of water in the United States is subject to regulation under the Clean Water Act. However, if the court is using “waters of the United States” as a limitation on “the clear intent of Congress,” then the analysis is more consistent with the Court’s analysis in *Riverside*. It is also consistent with the water flow tracing done by the court to establish that the Arroyo del Puerto was a water of the United States. Therefore, the

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138 The court also referred to the arroyos as “gullies.” *Quivira Mining*, N. 137 supra, 765 F.2d at 127. A common dictionary definition of arroyo is “a small steep-sided watercourse or gulch with a nearly flat floor: usually dry except after heavy rains.” Urdoang, The Random House Dictionary of the English Language 76 (College ed. 1968).

139 *Quivira Mining*, N. 137 supra, 765 F.2d at 130. The court also refers to United States v. Texas Pipe Line Co., 611 F.2d 345, 65 O. & G.R. 51 (10th Cir. 1979), where a similar tracing to an indisputable water of the United States was used to establish jurisdiction over an oil spill under § 311 of the CWA.

140 *Quivira Mining*, N. 137 supra, 765 F.2d at 130.

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analysis should begin, and end, with creating a reasonable nexus between the point of discharge and an indisputable "water of the United States." Arguably Congress imposed its own commerce limitation in the CWA by requiring some direct, potential impact between a discharge into the waters at issue and waters that all can agree are not an issue because of their undeniable role in interstate commerce.

As a practical matter, however, "your" client doesn't want to be the one that risks tens of thousands of dollars in fines, penalties, disrupted operations, and attorneys' fees to try to distinguish nonwaters of the United States from "waters of the United States." Therefore, if produced water is not going to be injected, a CWA discharge permit should be pursued. The "national pollutant discharge elimination system" is governed by CWA Section 402 which requires a "NPDES" permit for any discharge of a pollutant into waters of the United States. Among the requirements incorporated into the permit will be "effluent limitations" established specifically for the industry and activity seeking the discharge permit. Upstream oil and gas development activities have been placed into the "Oil and Gas Extraction Point Source Category." This category has been divided into five subcategories: Offshore, Onshore, Coastal, Agricultural and Wildlife Water Use, and Stripper. Because the effluent limitations vary among the five subcategories, the first task is to define the geographical context of the facility that is generating the discharge.

The three major geographic divisions of the oil and gas industry, for the establishment of effluent limitations, are "onshore," "offshore," and "coastal." The dividing line between "onshore" and "offshore" operations is the ordinary low water mark of the coastline: areas landward of the mark are "onshore" and areas seaward of the mark are "offshore." "Coastal" areas are landward of the low water mark, offshore is the ordinary low water mark of the coastline.

142 "Effluent limitation" is defined by the CWA as "any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources." CWA § 502(11), 33 U.S.C. § 1362(11) (1994).
145 40 C.F.R. § 435.30 (1998) (onshore); 40 C.F.R. § 435.10 (1998) (offshore). The regulations use the "inner boundary of the territorial seas" as the dividing line. However, CWA § 502(8), 33 U.S.C. § 1362(8) (1994), defines "territorial seas" as "the belt of seas measured from the line of ordinary low water along the portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters, and extending seaward a distance of three miles." Therefore, a simpler way to describe the line dividing onshore from offshore is the ordinary low water mark of the coastline.

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but take place in or on “waters of the United States” or are located in areas designated “coastal” by regulation.\textsuperscript{146} The fourth category, “agricultural and wildlife water use,” also has a geographic component: it applies only to operations west of the 98th meridian.\textsuperscript{147} However, this category also focuses on the unique quality of the produced water and how it will be used. The water must be of such quality that it can be used for agricultural purposes and is in fact used for wildlife or livestock watering or to support other agricultural activities.\textsuperscript{148}

The importance of identifying the applicable subcategory is revealed when comparing effluent limitations. For example, the effluent limitation for discharges governed by the onshore subcategory is “no discharge.”\textsuperscript{149} If the same operation were conducted within the offshore, coastal, or agricultural subcategories it is possible that a discharge within defined parameters would be permitted.\textsuperscript{150} The fifth subcategory, the “stripper” subcategory, applies to any onshore oil well that produces ten barrels or less each day, and is based on the economics of the well instead of its geographic location.\textsuperscript{151} However, the EPA has not established effluent limitations for the stripper subcategory. Therefore, the regulatory agency must use its best professional judgment concerning the required level of control and ensure that any permitted discharges comply with state water quality standards.\textsuperscript{152} This means the specific requirements for a stripper permit will be established on a case-by-case basis.\textsuperscript{153}

Once the proper subcategory and associated effluent limitations are identified, the next task is to determine whether an individual permit must be obtained or whether a general permit option is available.\textsuperscript{154}

\begin{itemize}
\item \textsuperscript{146} 40 C.F.R. § 435.40 (1998).
\item \textsuperscript{147} 40 C.F.R. §§ 435.50–435.52 (1998).
\item \textsuperscript{148} 40 C.F.R. §§ 435.50–435.52 (1998).
\item \textsuperscript{149} 40 C.F.R. § 435.32 (1998).
\item \textsuperscript{150} E.g., 40 C.F.R. § 435.13 (1998) (permitting discharges of produced water, within defined parameters, from offshore operations); 40 C.F.R. § 435.42 (1998) (permitting discharges of produced water, within defined parameters, from existing coastal operations); 40 C.F.R. § 435.52 (1998) (permitting discharges of produced water, within defined parameters, from agricultural and wildlife water use operations).
\item \textsuperscript{151} 40 C.F.R. § 435.60 (1998).
\item \textsuperscript{152} CWA § 402(a)(1), 33 U.S.C. § 1342(a)(1) (1994); 40 C.F.R. § 125.3(2) (1998).
\item \textsuperscript{153} To avoid confusion as to when the onshore “no discharge” effluent limitation applies, 40 C.F.R. § 435.30 (1998) states that if the “onshore” activity also falls within the coastal, stripper, or agricultural subcategories, it will not be governed by the onshore provisions.
\item \textsuperscript{154} See 40 C.F.R. § 122.21 (1998) (individual permits); 40 C.F.R. § 122.28 (1998) (general
\end{itemize}
Several general permits have been issued covering activities encompassed by the Oil and Gas Extraction Point Source Category. 155


The oil and gas industry is unique in that one of its major environmental problems is the very commodity the industry is organized to produce. Oil, when improperly managed, can be a major environmental hazard—particularly when it finds its way into water. The Clean Water Act and the Oil Pollution Act combine to provide a comprehensive regulatory program to address oil that may impact “waters of the United States.” 156 The CWA contains the basic prohibition on oil discharges, 157 establishes oil spill reporting obligations, 158 penalties, 159 and cleanup obligations, 160 and also authorizes the creation of spill prevention programs. 161 The Oil Pollution Act supplements the CWA’s spill prevention programs 162 and adds authority for the recovery of clean-up costs 163 and a broad range of consequential damages 164 associated with a discharge, or a “substantial threat of a discharge,” of oil. 165

permits). Subsection (c) of § 122.28 authorizes Regional EPA Administrators to establish general permits covering discharges from offshore oil and gas exploration and production facilities within the Region’s jurisdiction.


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The discharge of oil into "waters of the United States" is prohibited by Section 311 of the CWA.\textsuperscript{166} The EPA has determined that a discharge of oil includes any amount sufficient to "[c]ause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon the adjoining shorelines."\textsuperscript{167} If a discharge as defined occurs, any person in charge of the discharging vessel or facility must "immediately notify the appropriate agency of the United States Government."\textsuperscript{168} Under Section 311, an oil spill can result in fines and clean-up obligations, or government clean-up cost reimbursement.\textsuperscript{169}

\textsuperscript{166} The basic prohibition is found at § 311(b)(3) which provides, in part:

The discharge of oil or hazardous substances (i) into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone, or (ii) in connection with activities under the Outer Continental Shelf Lands Act . . . or the Deepwater Port Act . . . or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States . . . in such quantities as may be harmful as determined by the President under paragraph (4) of this subsection, is prohibited, except . . . [certain discharges specifically authorized by the CWA].


\textsuperscript{167} 40 C.F.R. § 110.3(b) (1998). This is known as the "sheen" test and was developed by the EPA in response to the CWA's statutory charge to identify "those quantities of oil and any hazardous substances the discharge of which may be harmful to the public health or welfare or the environment of the United States." CWA § 311(b)(3), 33 U.S.C. § 1321(b)(3) (Supp. II 1997). "Harmful" quantity of oil also includes any discharge of oil that violates an applicable water quality standard. 40 C.F.R. § 110.3(a) (1998). "Sheen" is defined by the EPA as "an iridescent appearance on the surface of water." 40 C.F.R. § 110.1 (1998).


\textsuperscript{169} The producer will typically be fined whenever oil gets into waters of the United States from its facility. See, e.g., United States v. Texas Pipe Line Co., 611 F.2d 345, 346-347, 65 O. & G.R. 51 (10th Cir. 1979) (oil company fined for discharge of oil from its pipeline that was damaged by farmer's bulldozer operator; the company was not at fault in any way and was commended by the government for its prompt reporting, effective clean-up, and cooperation). If the producer fails to respond to the situation, the appropriate governmental authority can step in, conduct the clean-up, and obtain reimbursement of its clean-up costs. However, CWA § 311(f)(2) establishes a limited defense when:

[A]n owner or operator of an onshore facility can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses.


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In addition to the deterrent effect of its broad liability provisions, Section 311 also establishes several mandatory oil spill prevention programs.\textsuperscript{170} The program impacting upstream oil and gas operations is the EPA's Spill Prevention Control and Countermeasure (SPCC) Plan requirements.\textsuperscript{171} The EPA recently summarized the function of the SPCC Plan as follows:

Preparation of the SPCC Plan requires that a facility owner or operator analyze how to prevent oil discharges, thereby promoting appropriate facility design and operations. The information in the SPCC Plan also promotes efficient response in the event of a discharge. Finally, proper maintenance of the SPCC Plan promotes important spill-reducing measures, facilitates leak detection, and generally ensures that the facility deters discharges at its peak capability.\textsuperscript{172}

Effectively planning for spills also provides the analytical framework for taking advance action to prevent spills.

Any facility that meets all of the following criteria will be subject to the SPCC Plan requirements:

1. Geography. The facility is located in an area from which it could "reasonably be expected to discharge oil in harmful

\textsuperscript{170}Section 311 requires the adoption of regulations "establishing procedures, methods, and equipment and other requirements for equipment to prevent discharges of oil and hazardous substances from vessels and from onshore facilities and offshore facilities, and to contain such discharges." CWA § 311(j)(1)(C), 33 U.S.C. § 1321(j)(1)(C) (1994).


\textsuperscript{172} "Agency Information Collection Activities: Submission for OMB Review; Comment Request; Spill Prevention, Control and Countermeasure Plans," 63 Fed. Reg. 14919, 14920 (March 27, 1998). The SPCC Plan should be "a carefully thought-out plan, prepared in accordance with good engineering practices, and which has the full approval of management at a level with authority to commit the necessary resources." 40 C.F.R. § 112.7 (1998).
quantities," applying the sheen test, into waters of the United States. 173

2. Type of Facility. The facility is a "non-transportation-related" facility 174 "engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing or consuming oil and oil products"; and

3. Tank Size. The facility encompasses any single above-ground storage tank with a capacity in excess of 660 gallons, or a group of smaller-volume above-ground tanks with a total capacity in excess of 1,320 gallons, or the total capacity of all underground storage tanks is in excess of 42,000 gallons. 175

SPCC Plan preparation guidelines are found at 40 C.F.R. Section 112.3(d) and (e) and Section 112.7. 176 Once a plan is prepared, it must be reviewed and certified by a registered professional engineer 177 and maintained at the facility; or at the operator's nearest field office if the facility is not staffed at least eight hours a day. 178 Changes in facility design or operation that may impact the likelihood of a spill require preparation of a revised SPCC Plan, 179 and all plans must undergo a complete review at least once every three years. 180

If a discharge from the facility could cause a "substantial harm" to the environment, Section 311 requires the preparation of a

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173 The geography element of the test is:

[B]ased solely upon a consideration of the geographical, locational aspects of the facility (such as proximity to navigable waters or adjoining shorelines, land contour, drainage, etc.) and shall exclude consideration of manmade features such as dikes, equipment or other structures which may serve to restrain, hinder, contain, or otherwise prevent a discharge of oil from reaching navigable waters of the United States or adjoining shorelines.


174 This would exclude transportation pipelines beyond the lease area and related breakout storage tanks needed for operation of the pipeline. See generally Appendix A to Part 112—Memorandum of Understanding Between the Secretary of Transportation and the Administrator of the Environmental Protection Agency, 40 C.F.R. Part 112, at 419–420 (1998).


176 40 C.F.R. § 112.3(d), (e) and § 112.7 (1998).

177 To become effective the reviewing engineer must certify that the Plan "has been prepared in accordance with good engineering practices." 40 C.F.R. § 112.3(d) (1998).

178 40 C.F.R. § 112.3(e) (1998). If the facility experiences a spill of more than 1,000 gallons of oil into waters of the United States, or the facility has experienced two reportable spills of any quantity of oil during any twelve month period, the SPCC Plan for the offending facility must be submitted to the EPA. 40 C.F.R. § 112.4(a) (1998).

179 40 C.F.R. § 112.5(a) (1998).

180 40 C.F.R. § 112.5(b) (1998).

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“Response Plan.” This “substantial harm” category of facilities includes “tank vessels,” offshore facilities, and certain onshore facilities that have a total oil storage capacity of one million gallons or more, or have a capacity of 42,000 gallons or more and transfer oil over water to or from vessels. The Response Plan must “plan for responding, to the maximum extent practicable, to a worst case discharge, and to a substantial threat of a discharge, of oil or a hazardous substance.”

[b] Oil Spill Management Under the Oil Pollution Act.

Many of the spill prevention goals of the OPA were achieved through amendments to Section 311 of the Clean Water Act. However, the codified version of the OPA contains several spill prevention provisions not found in Section 311, the most notable being its financial responsibility requirements for certain vessels and offshore facilities. The OPA imposes enforceable “financial responsibility” requirements to ensure funds are available in the event of a spill by requiring the “responsible party” to provide specified security such as insurance, surety bond, and letter of credit. Other portions of the OPA address prevention in the context of oil terminal and tanker oversight and monitoring, and provisions designed to improve vessel design and operation, personnel training, and emergency preparedness.

However, for upstream oil and gas operations, the provisions of the OPA that will have the greatest impact concern the new liabilities the OPA imposes on the owner or operator of a facility in the event of a discharge, or substantial threat of a discharge, of oil. Section 1002 of the OPA provides, in part:

[E]ach responsible party for a vessel or a facility from which oil is discharged, or which poses the substantial threat of a discharge

184 OPA § 1016(a), (c), 33 U.S.C. § 2716(a), (c) (1994 and Supp. II 1997).
of oil, into or upon the navigable waters or adjoining shorelines or the exclusive economic zone is liable for the removal costs and damages specified in subsection (b) that result from such incident.

The “removal costs and damages specified in subsection (b)” include reimbursement of clean-up costs incurred by private parties and governmental entities, plus a wide range of other costs and consequential damages associated with injury to natural resources, real and personal property, subsistence use of natural resources, governmental revenues and services, and profits and earning capacity.

[c] Managing Oil Spills and Oil Wastes Under CERCLA and RCRA.

When evaluating environmental risk associated with the management of oil, and oil-related wastes, the oil and gas developer must consider the real limitations that exist on CERCLA’s petroleum exclusion and RCRA’s exploration and production waste exemption. CERCLA’s petroleum exclusion was defined broadly in Wilshire Westwood Associates v. Atlantic Richfield Corp. to include “unrefined and refined gasoline even though certain of its indigenous components and certain additives during the refining process have themselves been designated as hazardous substances within the meaning of CERCLA.” However, the same court of appeals has held that the petroleum exclusion does not apply to crude oil tank bottoms because they are a waste associated with petroleum instead of “crude oil or any fraction thereof.” If the waste is one generated in the process of producing petroleum, as opposed to the produced petroleum itself, it most likely will not be covered by the petroleum exclusion and can be addressed under CERCLA if it contains a hazardous substance.

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191 CERCLA § 101(14), 42 U.S.C. § 9601(14) (1994) expressly excludes from the definition of hazardous substance “petroleum, including crude oil or any fraction thereof.”
192 Recall that certain exploration and production wastes are exempt. See text accompanying Ns. 96–115 supra.
193 881 F.2d 801 (9th Cir. 1989).
194 Wilshire, N. 193 supra, 881 F.2d at 810.
Although the waste may be encompassed by RCRA’s exploration and production waste exemption, it will not matter for purposes of CERCLA liability. Exemption from RCRA Subtitle C hazardous waste regulation does not impact the status of the material if it otherwise qualifies as a CERCLA hazardous substance. Nor will the exemption protect the waste from recourse under the “imminent and substantial endangerment” cleanup authorities in Section 7002 and Section 7003 of RCRA. Important concepts to remember when evaluating environmental risks associated with oil and gas operations include (1) substances expressly “excluded” under CERCLA can be addressed under RCRA’s imminent hazard authority and, when a nexus exists with “waters of the United States,” under the CWA (and when the substance is oil, under the OPA); and (2) wastes “exempted” under Subtitle C of RCRA can be addressed under CERCLA and, when a nexus exists with water, under the CWA (and when the waste is oil, under the OPA).


Production operations emit air pollutants that may be subject to regulation under the Clean Air Act (CAA). Operation sites are a source of volatile organic compounds (VOCs) associated with the oil and gas product. Internal combustion engines used to power drilling rigs, compressors, pumps, and other facilities are a source of nitrogen oxides, carbon monoxide, and particulates. Glycol dehydrators can be a source of hazardous air pollutants. Asbestos and lead associated

196 See text accompanying Ns. 109–111 supra.
198 “Oil” is defined by the OPA as:

[O]il 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, but does not include petroleum, including crude oil or any fraction thereof, which is specifically listed or designated as a hazardous substance under . . . [CERCLA § 101(14)].

200 VOCs are unburned hydrocarbons that interact with nitrogen oxides in the presence of sunlight to form ozone which is the major component of photochemical smog. See Squillace and Wooley, Air Pollution 6 (3d ed. 1999).
201 Among the hazardous air pollutants associated with upstream oil and gas operations are benzene, toluene, ethyl benzene, xylenes, methanol, mercury compounds, formaldehyde, hexane, and asbestos.

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with older lease facilities can also trigger regulatory requirements. The practical problem for the oil and gas developer is determining when its emissions are likely to trigger regulation under the CAA. Most emissions associated with upstream oil and gas operations will not be regulated because the emission source does not emit pollutant volumes sufficient to trigger classification as a “major source.” Therefore, the first step in analyzing whether the CAA applies to an operation is to determine if the facilities are a “major source” of a regulated air pollutant. This task is accomplished by first identifying how much of each regulated pollutant the facility is capable of emitting during a year of operation.

“Major source” classification under the CAA varies with the particular pollutant, or class of pollutants, being regulated. For example, “major source” for purposes of regulating the ambient air pollutants is defined as follows:

Except as otherwise expressly provided, the terms “major stationary source” and “major emitting facility” mean any stationary facility or source of air pollutants which directly emits, or has the potential to emit, one hundred tons per year or more of any air pollutant (including any major emitting facility or source of fugitive emissions of any such pollutant, as determined by rule by the Administrator).

However, if the pollutant is regulated as a “hazardous” air pollutant, “major source” is defined as:

[A]ny stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per

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202 However, even though an emission course is not covered by federal standards, it may be covered by more stringent or special state requirements such as the obligation to inventory emissions and pay an emissions fee. E.g., Tex. Admin. Code tit. 31, § 101.10 (1998) (requiring emissions inventories from certain nonmajor sources of air pollution), and Tex. Admin. Code tit. 31, § 101.27(a)(3) (1998) (requiring payment of emissions fees by certain air pollution sources).

203 The one air pollution control program that can apply to any size of facility is the EPA’s asbestos program. If an activity will disturb anything possibly containing asbestos, the CAA’s pre-work notice and work practice requirements must be carefully followed. 40 C.F.R. § 61.145 (1998).


year or more of any hazardous air pollutant or 25 tons per year or
more of any combination of hazardous air pollutants.\footnote{206}

Major source classification can also vary depending on the location
of the emissions source. Pollution volumes necessary to constitute a
"major source" are ratcheted down when the air quality is more
polluted. For example, the major source classification for a source of
VOCs in a nonattainment area is 100 tons per year (tpy). However,
the major source emission volume trigger decreases as the nonattain­
ment status of the area worsens: Serious Nonattainment (50 tpy),\footnote{207}
Severe Nonattainment (25 tpy),\footnote{208} and Extreme Nonattainment (10
tpy).\footnote{209} If the source is located in an area classified as "attainment"
for certain ambient pollutants, it may be subject to the CAA's
"prevention of significant deterioration" program.\footnote{210} If the source is
located where it can impact certain parks and wilderness areas, it might
also be subject to the Act's visibility protection program.\footnote{211} Therefore,
to determine the major source status of a facility, the developer must
know (1) the types and volumes of emissions created by the facility;
(2) the status of the pollutant as either an ambient or hazardous air
pollutant; and (3) if covered by the ambient program, the classification
of the particular area in which the source is located to ascertain
whether the major source volume trigger has been reduced.

When regulating hazardous emissions associated with oil and gas
wells, and pipeline facilities, the EPA is limited in its ability to
aggregate emissions and to regulate oil and gas wells as area sources.
Section 112(n)(4) of the Act provides, in part:

E.P.A., 59 F.3d 1351, 1364–65 (D.C. Cir. 1995) (addressing the "considering controls" portion
of § 112(a)(1)). In addition to a regulated "major" source, there can also be regulated "area"
sources under the hazardous air pollutant program. Any nonmajor source of a hazardous air
pollutant can be regulated as an "area source" when additional regulation is necessary to protect

\footnote{207} CAA § 182(c), 42 U.S.C. § 7511a(c) (1994).


\footnote{209} CAA § 182(e), 42 U.S.C. § 7511a(e) (1994).

\footnote{210} CAA §§ 160–169, 42 U.S.C. §§ 7470–7479 (1994). The major source trigger to be subject
to this program is 100 tpy of any air pollutant emitted by facilities contained on a list found
at CAA § 169; if not one of the facilities on the list, the trigger is 250 tpy of any air pollutant.
CAA § 169(1), 42 U.S.C. § 7479(1) (1994) (for example, "petroleum refineries" are on the 100
tpy trigger list).

program applies only to facilities contained on a list found at CAA § 169A(7) and which have
the potential to emit 250 tpy of any pollutant. CAA § 169A(7), 42 U.S.C. § 7491(7) (1994).}
(A) Notwithstanding . . . [the definitions of major source and area source], emissions from any oil or gas exploration or production well (with its associated equipment) and emissions from any pipeline compressor or pump station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources, and in the case of any oil or gas exploration or production well (and its associated equipment), such emissions shall not be aggregated for any purpose under this section.

(B) the Administrator shall not list oil and gas production wells (with its associated equipment) as an area source category under subsection (c), except that the Administrator may establish an area source category for oil and gas production wells located in any metropolitan statistical area with a population in excess of one million, if the Administrator determines that emissions of hazardous air pollutants from such wells present more than a negligible risk of adverse effects to public health.

This prevents the EPA from combining emissions from several individual well sites to determine whether the 10/25 tpy major source threshold is met.

Another specific exemption enacted for the oil industry is Section 819 of the Clean Air Act Amendments of 1990 which created a limited exemption for "stripper" wells located in nonattainment areas. Section 819 provides that the additional requirements of the ozone, carbon monoxide, particulate, sulfur oxides, nitrogen dioxide, and lead nonattainment programs, contained in the 1990 amendments:

[S]hall not apply with respect to the production of and equipment used in the exploration, production, development, storage or processing of —

(1) oil from a stripper well property, within the meaning of the June 1979 energy regulations (within the meaning of [Section] 4996(b)(7) of the Internal Revenue Code of 1986, as in effect before the repeal of such section) [10 barrels or less each day]; and

212 This is another instance where the location of the operation can impact its status under the CAA’s air pollutant provisions.

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(2) stripper well natural gas, as defined in section 108(b) of the Natural Gas Policy Act of 1978 (15 U.S.C. § 3318(b)) [60 Mcf or less each day].

except to the extent that provisions of such amendments cover areas designated as Serious pursuant to part D of title I of the Clean Air Act and having a population of 350,000 or more, or areas designated as Severe or Extreme pursuant to such part D.215

Violations of the CAA can be addressed through a menu of administrative fines, civil penalties, and criminal sanctions.216 Citizens are also given authority to enforce the Act.217


Traditionally, drilling and production processes have employed various pits and tanks to hold wastes that contain oil and other substances that can kill or injure wildlife—particularly birds.

The Migratory Bird Treaty Act (MBTA)218 provides: "it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill . . . any migratory bird."219 The protected "migratory bird" includes a variety of common species found throughout the United States—chances are, if it is a bird, it is a "migratory" bird subject to the MBTA.220 Violation of the MBTA is a misdemeanor; a "knowing" violation is a felony.221

216 CAA § 113(b)-(d), 42 U.S.C. § 7413(b)-(d) (1994).
The list of birds now protected as “migratory birds” under the MBTA is a long one, including many of the most numerous and least endangered species one can imagine. Although the MBTA initially protected only a small number of birds, in 1971, the Secretary of the Interior expanded its coverage to apply to nearly all birds indigenous to the North America, including the wren, robin, crow, chickadee, oriole, sparrow, warbler, blackbird, bluebird, and many others.
221 16 U.S.C. § 707 (1994). Although § 707(a) makes it a misdemeanor to violate the act, punishable by a fine of "not more than $500" and imprisonment for "not more than six months," under the Alternative Fines Act an "individual" violating the MBTA could be fined up to $5,000 and an "organization" up to $10,000. Under 18 U.S.C. § 3559(a)(7) (1994 and Supp. II 1997), such a violation is classified as a Class B misdemeanor which, under 18 U.S.C. § 3571(b)(6), (c)(6) (1994), authorizes the enhanced $5,000/$10,000 fines. Anyone who "knowingly" violates

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Until recently, it was assumed that if a migratory bird landed in an open pit or tank and was killed, the owner or operator of the pit or tank would be liable under the MBTA. This is the position taken by the U.S. Fish and Wildlife Service which administers the MBTA and is based on two early cases under the MBTA. In *United States v. Corbin Farm Service*, an alfalfa field was treated with a pesticide which poisoned migratory birds feeding in the field. Charges under the MBTA were brought against the farmer who owned the field, the pesticide dealer who provided advice to the farmer, and the pilot who applied the pesticide. The court refused to dismiss the charges, noting that the MBTA made it illegal “at any time, by any means or in any manner, to . . . kill . . . any migratory bird.” The court concluded that the MBTA was not intended to regulate merely those who hunt or capture migratory birds but included those who “kill” migratory birds, even when the killing was unintentional. The second case was *United States v. FMC Corp.*, where FMC was held strictly liable for the deaths of birds that were poisoned when they landed in a wastewater storage pond used in FMC’s manufacturing process. The court on appeal affirmed FMC’s conviction, reasoning that FMC was strictly liable for creating a condition on its property that was dangerous to birds.

In the more recent MBTA cases, courts have been willing to reexamine the underlying purpose, and the corresponding scope, of the MBTA. In a series of cases where environmental organizations have attempted to equate the destruction of migratory bird “habitat”

The MBTA “shall be guilty of a felony and shall be fined not more than $2,000 or imprisoned not more than two years, or both.” 16 U.S.C. § 707(b). Under the Alternative Fines Act, the fine could be up to $250,000 for an individual and $500,000 for an organization. 18 U.S.C. § 3571(b)(3), (c)(3).

222 444 F. Supp. 510 (E.D. Cal. 1978), aff'd 578 F.2d 259 (9th Cir. 1978).
223 444 F. Supp. at 532.
224 Ibid.
227 572 F.2d at 904–905 (the wastewater had become contaminated with a pesticide FMC was manufacturing).
228 572 F.2d at 907.

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with a "taking or killing" of the migratory bird, judges have responded with restrictive interpretations of the MBTA. For example, in *Newton County Wildlife Ass'n v. U.S. Forest Service*, the court stated:

[I]t would stretch this 1918 statute far beyond the bounds of reason to construe it as an absolute criminal prohibition on conduct, such as timber harvesting, that indirectly results in the death of migratory birds. Thus, we agree with the Ninth Circuit that the ambiguous terms "take" and "kill" in 16 U.S.C. § 703 mean "physical conduct of the sort engaged in by hunters and poachers, conduct which was undoubtedly a concern at the time of the statute's enactment in 1918."  

Similarly, in *Mahler v. U.S. Forest Service*, the court concluded:

Properly interpreted, the MBTA applies to activities that are intended to harm birds or to exploit harm to birds, such as hunting and trapping, and trafficking in birds and bird parts. The MBTA does not apply to other activities that result in unintended deaths of migratory birds.

Since the issue concerning the scope of the MBTA remains largely undecided, the best response to this environmental risk is to simply eliminate pits and open tanks or, if that is not feasible, place netting over the open pits and tanks containing materials hazardous to birds. Eliminating pits can also provide benefits under the CWA, OPA, CERCLA, and RCRA by eliminating the risk of liability in the event oil, a solid waste, or a hazardous substance, migrates from the pit at some future date.


Maintaining certain volumes of hazardous material can give rise to reporting obligations under the Emergency Planning and Community Right-To-Know Act (EPCRA). Most oil and gas operations will trigger reporting under EPCRA because produced oil, and several other chemicals routinely used in oil and gas operations, are "hazardous

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229 113 F.3d 110 (8th Cir. 1997).  
230 Id. at 115.  
232 Id. at 1579.  
chemicals” under the Act. EPCRA incorporates the hazard communication program under the Occupational Safety and Health Act (OSHA)\(^\text{234}\) to define “hazardous chemicals” subject to EPCRA’s reporting obligations. The presence of any OSHA hazardous chemical at a facility, in excess of 10,000 pounds, will trigger an initial reporting obligation under Section 311 of EPCRA and annual reports under Section 312.\(^\text{235}\) The goal of the Act is to provide information to the local fire department, local emergency planning agency, and state emergency planning agency, concerning the existence, location, and nature of hazardous material so they can respond effectively in the event there is a release of the material into the environment.

EPCRA also imposes emergency planning obligations whenever a listed “extremely hazardous substance” is on site in a “threshold planning quantity.”\(^\text{236}\) EPCRA requires reporting of any release of a listed “extremely hazardous substance,” or a CERCLA “hazardous substance,” when the release exceeds a regulatory “reportable quantity” and results in exposure to persons beyond the site on which the facility is located.\(^\text{237}\) To be subject to the Section 304 reporting requirement, the facility must produce, use, or store a “hazardous chemical.” Although petroleum is not an extremely hazardous substance, nor is it a CERCLA hazardous substance, the operator must determine whether the oil contains any hazardous substances, such as benzene, in such concentration and volume as to independently trigger a Section 304 report.\(^\text{238}\)

Certain manufacturing operations must also prepare and file an annual “toxic chemical release report” which itemizes all toxic releases from the facility during the preceding calendar year.\(^\text{239}\) Traditionally, exploration and production activities have not been required to make a toxic chemical release report because they do not meet the toxic release reporting thresholds. However, many treatment or processing

\(^{238}\) The § 304 reporting obligation is broader that the CWA § 311 and CERCLA § 103 reporting obligations. In addition to reporting the release to the National Response Center, the facility owner or operator must also report to all impacted local emergency planning committees and state emergency response commissions. EPCRA § 304(b), 42 U.S.C. § 11004(b) (1994); 40 C.F.R. § 355.40(b) (1998).
facilities can trigger the threshold and the EPA is currently considering whether to expand this program to industries that do not currently meet the threshold.

§ 5.06. Conclusions.

During the past thirty years, environmental law has gradually become an integral part of the oil and gas industry. At the exploration and production stage of operations the primary concerns have been with preventing water contamination and the avoidance of unnecessary liability associated with development wastes. The next thirty years will likely bring more focused regulation of exploration and production wastes and a clearer definition of the oil and gas developer’s "status" under the environmental laws. Also, as various types of "environmental zoning" develop, it will become more difficult to site oil and gas operations. As with the first thirty years of environmental regulation, operators that can effectively incorporate environmental requirements into their business practices will prosper; those who cannot, or will not, will disappear.