

Paper #2-4

U.S. ENVIRONMENTAL REGULATORY AND PERMITTING PROCESSES

Prepared by the Environmental & Regulatory Subgroup
of the
Operations & Environment Task Group

On September 15, 2011, The National Petroleum Council (NPC) in approving its report, *Prudent Development: Realizing the Potential of North America's Abundant Natural Gas and Oil Resources*, also approved the making available of certain materials used in the study process, including detailed, specific subject matter papers prepared or used by the study's Task Groups and/or Subgroups. These Topic and White Papers were working documents that were part of the analyses that led to development of the summary results presented in the report's Executive Summary and Chapters.

These Topic and White Papers represent the views and conclusions of the authors. The National Petroleum Council has not endorsed or approved the statements and conclusions contained in these documents, but approved the publication of these materials as part of the study process.

The NPC believes that these papers will be of interest to the readers of the report and will help them better understand the results. These materials are being made available in the interest of transparency.

The attached paper is one of 57 such working documents used in the study analyses. Also included is a roster of the Subgroup that developed or submitted this paper. Appendix C of the final NPC report provides a complete list of the 57 Topic and White Papers and an abstract for each. The full papers can be viewed and downloaded from the report section of the NPC website (www.npc.org).

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A. Air Quality

1. Background

Until the passage of the Clean Air Act of 1970 (CAA) (42 U.S.C. § 7401 et seq., as amended), air quality regulations were primarily passed and enforced by individual states or regional jurisdictions. The federal government primarily conducted research of air quality problems and provided techniques to minimize air pollution, particularly for interstate transport of air pollution. With the passage of the CAA, the regulation of air quality in the US became subject to federal law with the goals of: 1) improving areas of poor air quality; and 2) preventing the deterioration of areas of good air quality. The passage of the National Environmental Protection Act of 1969 (NEPA), the CAA, and other environmental laws lead to the creation of the US Environmental Protection Agency (EPA), and provided the EPA with authority to develop and enforce regulations in cooperation with the states.

The CAA of 1970 required EPA to develop regulatory programs for stationary sources (i.e., factories, power plants) and mobile sources (i.e., automobiles, trucks) of air pollution. This included establishing a National Ambient Air Quality Standard (NAAQS) for each of the listed criteria air pollutants (i.e., particulates, ground-level ozone (O₃), carbon monoxide (CO), oxides of nitrogen (NO_x), and sulfur dioxide (SO₂)). EPA set initial criteria pollutants standards in 1971 and is required to re-examine each standard every 5 years. Lead (Pb) was added as a criteria pollutant in 1977.

The CAA was modified in 1977 and 1990 (Clean Air Act Amendments of 1990 (CAAA 1990)) to include other requirements and enhance existing requirements, including New Source Performance Standards (NSPSs), Prevention of Significant Deterioration (PSD), emissions trading, acid rain, ozone depletion in the upper atmosphere, National Emission Standards for Hazardous Air Pollutants (NESHAPs), and a national operating permit program (Title V Permits).

2. Roles of States and Tribal Jurisdictions

The CAA and its amendments establish a fundamental role for states and tribes through delegation of programs (i.e., Title V Permits, PSD, NSPSs, NESHAPs) and the creation of State Implementation Plans (SIPs) or Tribal Implementation Plans (TIPs) (hereinafter, the use of SIP encompasses both SIPs and TIPs). The delegated programs are often incorporated into state and tribal programs by reference (NSPSs and NESHAPs) and otherwise must be reviewed and approved by EPA (Title V Permits). Certain delegated programs can be included in SIPs, but a state or tribe can opt not to adopt a delegated program and EPA will then have primacy to implement the program.

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States and tribes are required to develop SIPs in exchange for partial federal funding of their air quality programs. A SIP must establish regulations and processes and policies that are designed to achieve compliance with the NAAQSs and comply with other CAA requirements. The SIPs typically include programs for permitting of new sources (i.e., permits to construct new or modified facilities), treatment of “grandfathered sources” that were in existence at the time of the SIP introduction, emissions inventory, and adoption of federal standards (i.e., NAAQSs, NSPSs, NESHAPs). States can adopt state-specific standards that are no less stringent than the federal CAA requirements. Certain states have statutory requirements providing that state regulations can be no more stringent than federal law. The SIP program is intended to improve air quality in those areas of the state that exceed one or more of the NAAQSs and prevent deterioration of air quality in areas in attainment with the NAAQS. Tribal jurisdictions have been slow to develop and implement plans equivalent to SIPs, but recently several tribes have or are in the process of addressing Title V permitting and other federal requirements.

States and tribes may also implement state only regulations that address air quality. For example, fugitive dust regulations can require permitting and best practices to minimize fugitive dust from construction operations and roadways. State and local agency regulations can limit odorous emissions from industrial, commercial, agricultural and other sources.

3. Emissions Standards

EPA is required to establish emissions standards for certain types of sources that contribute significantly to air pollution (New Source Performance Standards or NSPSs) and to address emissions of approximately 189 hazardous air pollutants (HAPs) (National Emission Standards for Hazardous Air Pollutants or NESHAPs). The NSPSs and NESHAPs are federally mandated emissions standards that are applicable to significant sources of air pollution, typically by source or industry type. Examples of such sources within the oil and gas industry include, but are not limited to, reciprocating internal combustion engines (RICE), glycol dehydrators, storage vessels for applicable hydrocarbon liquids, gas processing plant sweetening units, and steam generators. Leak detection and repair (LDAR) is another example of a federally mandated emissions standard for certain facilities (e.g., gas processing plants, refineries). LDAR programs require sources to detect leaks from and require repair of components such as valves, flanges, pumps, compressors, and other components. Such leaks are commonly referred to as fugitive leaks of volatile organic compounds (VOCs).

Congress included a provision in the CAA, commonly referred to as 112(n), (codified at 42 U.S.C. § 7412(n)(4)(A)), stating that oil and gas exploration and production well emissions will not be aggregated for any purpose under this section, interpreted as determining applicability for NESHAPs. However, 112(n)(4)(B) allows regulation of exploration and production facilities that impact urban areas 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.”

4. Interstate and International Air Pollution

Air pollutants travel between states and countries and can contribute to local or regional exceedance of NAAQSs far downwind of the sources. The CAA provides authority for interstate commissions on air pollution control and regional strategies for addressing specific industries and pollutants. The Acid Rain Program (CAA amendments of 1990, codified at 42 U.S.C. § 7651 et seq., as amended) is an example of an interstate program that includes emissions trading for SO₂. The Western Regional Air Partnership (WRAP) is an example of a regional program with state, tribal and federal agency participants that is studying the issues of ground-level ozone and regional haze in western states, with a particular focus on oil and gas industry contributions to these air pollution problems.

5. Prevention of Significant Deterioration (PSD) Major Source Permits

Very large stationary sources that emit more than 250 tons per year of a criteria pollutant, or make a significant modification to an existing PSD major source, are required to obtain a PSD construction permit (CAA 1977 amendments, codified at 42 U.S.C. § 7470, as amended). The PSD permitting program requires installation of best available control technology (BACT) for new emissions sources based on a cost/benefit analysis that considers the feasibility and availability of the technology, installation and operating cost of the technology, and any adverse environmental impacts from use of the technology. The program also requires public review and commenting on proposed PSD construction permits.

6. Title V Major Source Permits

Many permitting decisions and minimum permitting thresholds are set by individual states (as defined in their SIPs). Larger sources of air emissions are required to obtain federal operating permits commonly referred to as “Title V Operating Permits” (CAA 1990 amendments, codified at 42 U.S.C. § 7661). Title V Operating Permit sources are permitted to emit air emissions greater than: 100 tons per year of any criteria pollutant; and/or 25 tons per year of aggregated HAPs; and/or 10 tons per year of any individual HAP. Examples of HAPs that may be emitted by oil and gas activities include benzene from refineries, BTEX (benzene, toluene, ethyl benzene and xylene) from glycol dehydrators, and formaldehyde from engines and turbines. The Title V Operating Permit program provides the public and state agency compliance personnel a document that outlines a major source’s compliance requirements for applicable rules and other permit conditions, such as limits on pollutant emissions.

7. Minor Source Permits

In addition to the federal permitting programs, most states have regulations to permit minor sources (defined as a source that does not meet PSD major or Title V Operating Permit permitting thresholds). States vary in how minor sources are permitted. Some states require new source construction permits and operating permits while other states only require operating permits. States will typically use permits by rule or general or standard permits for sources that have similar emissions sources and when there are numerous facilities to permit. Oil and gas facilities typically fall into this category and

many oil and gas producing states have either a permit by rule (for very small facilities), general permit, or standard permit for certain types of oil and gas facilities. In addition to the inclusion of applicable NSPS and NESHAP regulations in these permits, many states will also include minor source BACT control requirements on the emissions sources, or even more stringent limitations for sources located in a NAAQS nonattainment area.

8. Ground Level Ozone

The impact of oil and gas activities on air quality has increasingly come into focus, especially with respect to ground level ozone. The initial ozone standard was a 1 hour standard of 0.08 ppm in 1971. The standard changed to an 8 hour standard of 0.084 ppm in 1997, an 8 hour standard of 0.075 ppm in 2007, and an anticipated 8 hour standard ranging from 0.06-0.07 ppm in 2012.¹ Ground level ozone is formed in the lower atmosphere as a result of VOCs mixing with NO_x in the presence of sunlight. High ozone levels generally occur during the summer months (i.e., May through September) although occasionally high ozone levels are observed in other seasons. These high ozone events are commonly called ozone episodes and traditionally occurred in high population centers where VOC and NO_x emissions from vehicles combined with emissions from other industrial and biogenic sources (e.g., trees) during summer days with calm winds. With the advent of the lower 8 hour ozone standards, ozone episodes occur in more rural areas, including the Rocky Mountain corridor. Oil and gas operations are believed to play a role in the more rural areas. Control of oil and gas emission sources of VOCs and NO_x are increasingly being required by some states as an ozone attainment strategy. The control strategies are focused on either reducing the amount of natural gas that is emitted (e.g., VOCs from leaks) or reducing emissions from combustion sources (e.g., NO_x from engines). Examples of such control requirements include cleaner combustion engines, leak detection and repair programs, the use of catalytic converters on certain engines, and vapor recovery units or flares on crude oil tanks and glycol dehydrators.

9. Greenhouse Gas Emissions

Greenhouse gases (GHGs) are comprised of six significant compounds: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). There has been extensive debate over whether the CAA provides EPA the necessary authority to regulate GHG emissions. In April of 2007, the Supreme Court of the United States ruled in Massachusetts v. EPA, 549 US 497 (2007), that CO₂ is an air pollutant and that the EPA must make a determination if CO₂ emissions must be regulated. The Court ordered EPA to determine whether or not there is sufficient evidence to support the statement “that emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare.”²

¹ EPA. Ground-level Ozone. Accessed April 2011 at <http://www.epa.gov/groundlevelozone/>

² EPA, Endangerment and Cause or Contribute Findings for Greenhouse Gases. Accessed April 2011 at <http://www.epa.gov/climatechange/endangerment.html>

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EPA issued a proposed endangerment finding on April 17, 2009, indicating that GHG emissions threaten the public health and welfare of current and future generations.³ The endangerment finding became effective on January 14, 2010 and EPA now considers CO₂, and by definition the other significant GHGs, a regulated air contaminant. There continues to be political debate over whether Congress should allow the EPA to regulate GHG emissions under the CAA. In the meantime, the EPA has promulgated a PSD and Title V GHG Tailoring Rule.⁴ This rule limits any permitting requirements and BACT determinations for GHG emissions to only those facilities that already require a PSD or Title V permit for criteria pollutants or HAPs, or those facilities that are above certain GHG emissions thresholds. EPA intends to review these thresholds in the near future to potentially regulate smaller GHG sources. There have been numerous lawsuits challenging the Endangerment Finding, the final EPA rule on GHG emissions from motor vehicles, and the Tailoring Rule. It is anticipated that the US District Court will hear one or more of the lawsuits. Any decision is likely to be appealed to the US Supreme Court.

In 2008, Congress appropriated funds to EPA and mandated that the agency implement mandatory reporting of GHG emissions to obtain a more exact national GHG inventory. A GHG inventory is an accounting of the amount of GHG emitted into or removed from the atmosphere over a specified period of time. It provides information on the sources of emissions and removals, as well as background on the methods used to make the calculations. Policy makers use GHG emission inventories to track emission trends, develop strategies and policies, and assess progress. Scientists use GHG emission inventories as inputs to atmospheric and economic models.

EPA issued a regulation (pursuant to 42 U.S.C. § 114 of the CAA) to initiate a GHG inventory (the Mandatory Reporting Rule [MRR]). In response to the FY2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161)⁵, EPA issued regulations for the Greenhouse Gas Reporting Program (GHGRP) at 40 CFR Part 98 (published in the Federal Register October 30, 2009 and effective on December 29, 2009). This regulation requires certain sources and suppliers in the United States to report GHG emissions. Suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to EPA. This action included reporting requirements for 31 of the 42 emission sources listed in the April 10, 2009 proposed rule.⁶ EPA will use the reporting system to provide a better understanding of sources of GHG emissions. On April 12, 2010, EPA issued four new proposed rules that amend Part 98. These proposals require reporting of emissions data from oil and natural gas

³ Ibid.

⁴ EPA, Climate Change - Regulatory Initiatives. Accessed April 2011 at <http://www.epa.gov/climatechange/initiatives/>

⁵ Accessed April 2011 at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_bills&docid=f:h2764enr.txt.pdf%20.

⁶ EPA, Greenhouse Gas Reporting Program. Accessed April 2011 at <http://epa.gov/climatechange/emissions/ghgrulemaking.html>

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systems, industries that emit fluorinated GHGs, and facilities that inject and store CO₂ underground for the purposes of geologic sequestration or enhanced oil and gas recovery. EPA has also proposed to add three new reporting requirements to the General Provisions (Subpart A). EPA announced plans to finalize all four of these proposals such that they would become effective starting in 2011.⁷

⁷ Ibid.

B. Water Quality (Ground and Surface)

The United States Federal regulatory schema for the protection of water quality is mandated under the authority of the Clean Water Act (CWA) for surface waters and the Safe Drinking Water Act (SDWA) for groundwater. The U.S. Environmental Protection Agency (EPA) is authorized to implement the requirements of the CWA, SDWA, and subsequent amendments. The CWA and SDWA each include various programs for which the EPA establishes a minimum set of criteria. Each state must demonstrate to EPA the ability to meet the criteria to receive delegation of the authority. Delegation of specific programs can be to state environmental agencies or natural resource agencies.

1. Surface Water Quality and Discharges

Companies that discharge pollutants directly to surface waters of the United States are required to obtain and comply with permits issued pursuant to the CWA, National Pollutant Discharge Elimination System (NPDES) program. The NPDES program is administered by EPA or the delegated state agencies. The appropriate agency includes effluent limitations and monitoring requirements in the permits for direct discharges into waters of the United States. Effluent limits are based upon available technology or meeting EPA-approved state water quality standards, whichever is more stringent.

The EPA has issued regulations for the technology-based requirements for direct discharges from oil and gas extraction facilities into surface waters.. The effluent guidelines at 40 CFR 435, Subpart C, establish best practicable control technology (BPT) requirements for onshore facilities. During the issuance process for the guidelines, EPA identified technologies that operators could use to comply with the technology-based standard. The onshore effluent limitation guidelines state that based upon using best practicable control technology, the limitation is “no discharge” of waste water pollutants into navigable waters from any source associated with production, field exploration, drilling, well completion, or well treatment.

As a result, the CWA and implementing regulations require exploration and production companies to obtain an NPDES permit for the discharge of any pollutants to waters of the United States. Currently, effluent guidelines prevent most discharges of exploration and production wastewater to waters of the United States except for discharges:

- To certain coastal areas;
- From stripper oil wells in certain areas; and
- Of low-salinity produced waters which are of beneficial use in arid regions west of the 98th meridian (generally, the western part of the United States).

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Water produced from shale gas wells that are located west of the 98th meridian may be regulated under the Agriculture and Wildlife Water Use Subcategory of the Oil and Gas Extraction Category (40 CFR Part 435, Subpart E). Produced water discharges can be authorized under that subcategory if the water is used for and of the quality for agriculture or wildlife watering. The subcategory only allows the discharge of produced water. The discharge of all other wastewater streams, such as completion fluids, is not authorized under Subpart E.

2. Discharge into Publicly Owned Treatment Works

Exploration and production wastewater may be discharged into publicly owned treatment works (POTWs). Each POTW has a NPDES permit to regulate the discharge of wastewater directly to waters of the United States.

The CWA and EPA regulations also set standards for the pretreatment of wastewater that will be introduced to a POTW. The CWA includes the prohibition of waste that interferes with, passes through, or is otherwise incompatible with POTW operations.⁸ The nationally applicable pretreatment standards are found at section 307(b) of the General Pretreatment Regulations for Existing and New Sources of Pollution (Pretreatment Regulations) at 40 CFR Part 403.

Pretreatment standards are applicable to any user of a POTW, which is defined as a source of an indirect discharge into the POTW.⁹ The national pretreatment standards include a general prohibition and specific prohibitions.¹⁰ The general prohibition prohibits any user of a POTW to introduce a pollutant into the POTW that will cause pass through of a pollutant or interference with treatment. The regulations define both pass through and interference. Section 307(d) of the CWA prohibits discharge in violation of any pretreatment standard.¹¹ These requirements impact onshore operators that send waste water to a POTW for treatment and discharge. Such operators must ensure that the waste water meets the nationally applicable pretreatment standards prior to sending the waste water to the POTW.

3. Stormwater

Stormwater runoff from construction sites and industrial activities is addressed under the CWA and EPA regulations. Section 402(I)(2) of the CWA specifies that EPA and state agencies shall not require NPDES permits for uncontaminated stormwater discharges from oil and gas exploration, production, processing or treatment operations, or transmission facilities. Section 323 of the Energy Policy Act of 2005 added a new provision to the CWA defining the term “oil and gas exploration, production, processing,

⁸ 33 U.S.C. § 1317(b)(1).

⁹ 40 C.F.R. 403.3(h).

¹⁰ 40 C.F.R. 403.5.(a)(1) and (b).

¹¹ 33 U.S.C. § 1317(d).

or treatment operations or transmission facilities” to mean “all field activities or operations associated with exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activity.”¹²

The effective requirements are in the stormwater regulations in place prior to the 2006 rule (which was vacated), plus the additional Energy Policy Act clarification of the activities included in the CWA § 402(l)(2) exemption. The regulations that are currently effective are:

40 CFR 122.26(a)(2) The Director may not require a permit for discharges of storm water 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 that has not come into contact with, any overburden, raw material, intermediate products, finished product, byproduct or waste products located on the site of such operations.

40 CFR 122.26(e)(8) For any storm water discharge associated with small construction activity identified in paragraph (b)(15)(i) of this section, see 122.21(c)(1). Discharges from these sources, other than discharges associated with small construction activity at oil and gas exploration, production, processing, and treatment operations or transmission facilities, require permit authorization by March 10, 2003, unless designated for coverage before then. Discharges associated with small construction activity at such oil and gas sites require permit authorization by June 12, 2006.

Under these regulations, oil and gas-related construction is subject to the conditional exemption and does not require a permit. However, operators should still implement best management practices when undertaking earth disturbing activities to prevent discharging pollutants, including sediment, that would cause or contribute to any water quality violation, or that would trigger stormwater permitting requirements.

4. Groundwater Quality

There are several relevant statutory provisions in the SDWA applicable to the oil and gas industry. Specifically the SDWA:

- Directs the EPA to promulgate regulations for state underground injection control (UIC) programs and mandates that the regulations contain minimum requirements

¹² 33 U.S.C. § 1362(24).

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for programs to prevent underground injection that endangers drinking water sources;¹³

- Authorizes the EPA to delegate primary enforcement authority (primacy) for UIC programs to the states, provided that state programs prohibit any underground injection that is not authorized by a state permit;¹⁴
- Provides separate authority for states to attain primacy specifically for oil and gas (i.e., Class II) wells;¹⁵ and
- Grants the EPA emergency powers to issue orders and commence civil action to protect public water systems or underground sources of drinking water.¹⁶

The EPA may take action when: 1) a contaminant present in or likely to enter a public drinking water supply system or underground drinking water source poses a substantial threat to public health; and 2) state or local officials have not taken adequate action.

The SDWA is the primary federal statute that governs injection wells and requires the EPA to promulgate regulations to protect drinking water sources from contamination through underground injection. The EPA is not to prescribe requirements which could impede oil and gas production. The EPA established five classes of injection wells, categorized by purpose, potential for endangering drinking water, depth of injection, and characteristics of their injectate quality.

Class II injection wells are broadly defined as related to oil and gas injection activities. Activities in this class relate to the disposal of fluids associated with oil and gas exploration and production, enhanced recovery operations, and the storage of liquid hydrocarbons. Enhanced recovery describes all efforts to increase ultimate production of oil and gas from a reservoir, and this typically involves injection. The use of the enhanced recovery terminology is considered to encompass other nomenclature in common usage such as pressure maintenance, secondary recovery, and tertiary recovery. All enhanced recovery techniques include methods for supplementing natural reservoir forces and energy, or otherwise increasing ultimate recovery. Such techniques include water injection, gas injection, gas cycling, and miscible chemicals and thermal processes.

Class II UIC programs are administered by the EPA or by states where the EPA has approved primary enforcement authority (primacy). The 1980 amendments to the SDWA allowed a State with an existing regulatory program to obtain primary enforcement authority from the EPA, as long as the state is able to demonstrate that its program was effective in protecting underground sources of drinking water (USDWs), rather than adopting the complete set of Federal requirements. States with UIC program primacy receive federal funding for program implementation.

¹³ SDWA Section 1421.

¹⁴ SDWA Section 1422.

¹⁵ SDWA Section 1425.

¹⁶ SDWA Section 1431.

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In general, the EPA determines which fluids may be injected into Class II wells in direct implementation UIC programs. States with primacy follow EPA-approved primacy agreements in ascertaining whether specific fluids are qualified for injection into their Class II wells.

The following are several minimum requirements for Class II wells:

- Only approved fluids may be injected;
- No injection may endanger a USDW;
- No well may be used for injection without a permit, unless authorized by rule; and
- All injection wells must demonstrate mechanical integrity at least once every 5 years.

The Energy Policy Act of 2005 amended the SDWA UIC provisions to specify further that the definition of “underground injection” excludes the injection of fluids or propping agents other than diesel fuels used in hydraulic fracturing operations related to oil, gas, or geothermal production activities.¹⁷ The regulatory interpretation of this is currently being litigated.

¹⁷ SDWA section 1421(d).

C. Water Use Permitting and Approval

1. Background

Water use and development is primarily regulated by state laws. Although the federal government has authority to regulate several aspects of water resources, it traditionally has deferred water use regulation to the states. However, federal water project development and related regulatory programs have gradually led to an increased secondary involvement of the federal government in water use management. State legislatures and courts have developed laws and regulations over the years to regulate allocation of waters within their borders. While there has historically been a distinction in the laws between water quantity and quality issues, those lines are becoming more blurred in recent times, and influence the other's decision-making processes.

2. Ground Water

Ground water regulation generally takes one of three forms: ownership theory, right of capture theory and appropriation doctrine. The ownership theory recognizes a private property right interest of the owner of the overlying land. Use of the water is generally subject to a reasonable use concept in relation to the rights of others overlying the same ground water basin. Right of capture theory contemplates that landowners have a right to capture ground water by pumping wells on their land. This approach often leads neighboring landowners to develop wells to protect the ground water beneath their lands from being captured by an adjacent landowner. The appropriation doctrine typically requires a permit to use ground water.

Additionally, some states distinguish between tributary ground water (which is hydrologically connected to surface waters) and non-tributary ground water. In the case of tributary ground water, these states have regulated this use under their surface water laws in a conjunctive use approach, which is commonly defined as the coordinated management of surface water and groundwater supplies to maximize the yield of the overall water resource.

Most states have developed some form of ground water regulation which may include permits for drilling, permitting/registration of use, priorities of uses, regulation on the rate of extraction, reporting of use, and designation of critical areas, among other activities. Some states have even developed short-term/temporary authorizations for use of ground water that can be particularly beneficial to the oil and natural gas industry. Such authorizations typically do not authorize use for a long period of time, may be subject to restrictions during drier conditions, and typically can be issued quickly without the lengthy administrative process associated with the longer-term more permanent water authorizations/registrations/rights. Additionally, a few states have delegated some

regulatory authority to local entities such as ground water conservation districts, commissions, etc.

3. Surface Water

Two forms of surface water regulation have emerged over time; riparian and prior appropriation. In general, states located east of the 100th Meridian, the wetter half of the United States, have relied on the riparian doctrine for water management, while states west of the 100th Meridian, the more arid west, have, for the most part, adopted prior appropriation laws.

Under riparian rights, riparian landowners have a right to the reasonable use of water in surface water bodies flowing through or adjacent to their land. This right is generally considered to be correlative with other riparian uses, and available water must be shared by holders of riparian rights to a common water body in an equitable manner. Principal attributes of a riparian right include: dependency on ownership of the riparian land; the right runs with the land; the right is correlative with other riparian users in that available water must be shared in a reasonable use fashion; and the right is never subject to loss due to non-use.

Due to the increasing demand, competition for water and the need for water planning, most Eastern U.S. states have supplemented this doctrine with various degrees of regulation, and now manage water under what is sometimes called “regulated riparianism.” Such regulatory regimes can involve separate requirements for riparian versus non-riparian uses, and may include: registration, authorization, use reporting, prioritization of uses, and pass-by flow requirements (prescribed quantity of flow that must be allowed to pass a prescribed point downstream from a water supply intake at any time during which a withdrawal is occurring), among other things. Some states have delegated partial regulatory authority to entities such as multi-state river basin commissions or to local municipal/county/parish jurisdictions.

The history of the prior appropriation doctrine traces back to early days of western settlement. Riparian law limited the ability of the West to develop as water use needs could often occur at a great distance from riparian water lands, and highly variable seasonal flows could limit the availability of water from western stream flows to meet demand. With this challenge in mind, western water law evolved into what is now referred to as the appropriation doctrine – often described as “first in time, first in right.” Some fundamental elements of an appropriative water right include: intent to put the water to a beneficial use evidenced through making an application; actual diversion of water; and physical beneficial use of water as defined in applicable statutes. In recent years, some states have recognized in-stream uses, such as recreation and environmental flows, as being beneficial uses of water even though they may not involve a physical diversion of water.

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Historical uses of surface waters were often not officially recorded. In this regard, states have gone through administrative processes to adjudicate these uses into the current appropriation system. Unappropriated water is generally available for new appropriation unless the water has been withdrawn from availability. This withdrawal action has recently been seen in some states for the purpose of protecting environmental flows. When there are insufficient quantities of water to meet the needs of all appropriative water right holders, water use is regulated based on priority “first in time, first in right.” Some state regulations contain preferences for particular uses of water that may result in an additional prioritization during times of insufficient water.

Appropriative water rights can typically be transferred along with changes in use and diversion points. However, these fundamental changes to the water right typically trigger significant administrative review and, potentially, public notification processes.

As with ground water rights, some states have developed procedures for short-term/temporary authorizations of surface water that many times are a good fit for oil and natural gas operations. These authorizations typically do not vest a long-term right to water and may be subject to restriction during drier times. However, many times they can be issued in a short period of time as compared to the longer administrative process typically associated with assignment or transfer of more permanent water rights.

An appropriative water right holder who fails to make use of all or a part of their allocation may be subject to cancellation or reduction of that right. Typically, this cancellation or reduction process is over a 5 to 10 year period of time and varies by state. This possibility of the loss or reduction of water right distinguishes prior appropriation water rights from riparian rights. A few appropriation states have delegated some elements of water rights regulation/administration to local entities such as river basin authorities, water masters, etc.

Major rivers typically run through multiple states and are many times subject to interstate water compacts. Such interstate compacts require the approval of all participating states and Congress. An example is the Colorado River Compact, dating from 1922, between seven states. Water is typically apportioned among the states on the basis of flow, volume or storage. Some compacts also address water quality issues. It should be noted that apportionment of water supply through means of an interstate compact may rely on base flow assumptions that should be examined with reference to supply/demand ratios for the river system in question, natural variability and observed longer term trends in variability, the potential for groundwater depletion, among other factors.

Federal water projects are typically subject to state water allocation laws. Thus, while the federal government may be the owner and in control of a major reservoir project, the water impounded in such is subject to state water allocation laws.

4. Reserved Rights

Federal agencies and Indian tribes many times have what are referred to as reserved rights that were implied or granted at the time their respective lands were reserved from the public domain. The nature and extent of these rights vary and are dependent on the underlying purposes of the subject lands. Reserved rights effectively withdraw water from availability to others under state laws. In a prior appropriation system, which is where most of the reserved rights issues take place, the date of the creation of the reserved right establishes its priority versus all other subsequent appropriations. Considerable controversy arises with regard to how much water is needed to meet the need of the federal/tribal reserved right and results in significant negotiation/litigation, which leads to uncertainty in state water allocation and water planning.

In the case of a federal navigation system, the federal government relies on the commerce clause of the US Constitution to exert regulatory authority to protect waters to the extent they preserve the navigation function of the system.

5. Federal Initiatives

There has been an intense effort by the federal government in recent years to advance the concept of a national water policy vision. This effort has manifested itself in various forms of draft legislation and new federal agency programmatic initiatives. One such federal agency initiative has been the US Army Corps of Engineer's "Building Strong Collaborative Relationships For A Sustainable Water Resources Future." This multi-year effort resulted in a "National Report: Responding to National Water Resources Challenges, August 2010."¹⁸ The report stated that "this initiative represents a dialogue exploring the perspectives of the states, interstate, and stakeholder perspectives on water resources planning and challenges throughout the Nation." While this report recognizes the historical "primacy of state water rights and responsibilities," it clearly charts a course toward "integrated water resources management," a "sustainable national water resources future direction" and development of "supporting strategies to elevate water resources and related infrastructure as a critical national priority."

The policy statements in this report, in combination with similar federal initiatives, has presented a concern to state water agencies across the country as evidenced by recent letters and resolutions of their state water associations. The Western States Water Council issued Position #323 by way of Resolution regarding "A Shared Vision on Water Planning and Policy – July 2010."¹⁹ This resolution stated, in part, that: "any vision for

¹⁸ U.S. Army Corps of Engineers, National Report: Responding to National Water Resources Challenges, August 2010, Version 1.1, dated 9/17/10. Accessed April 2011 at www.building-collaboration-for-water.org/

¹⁹ Western States Water Council, July 2010, Resolution of the Western States Water Council Regarding A Shared Vision on Water Planning and Policy. Accessed April 2011 at [www.westgov.org/wswc/-32310july23 shared vision water policy reso.pdf](http://www.westgov.org/wswc/-32310july23%20shared%20vision%20water%20policy%20reso.pdf)

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any water policy, water plan or planning process must recognize, defer to and support state, tribal and local government water plans and planning processes,” and that such a vision should recognize that “states are primarily responsible for allocating and administering rights to the use of water for myriad uses; and are in the best position to identify, evaluate and prioritize their needs.” The resolution further stated that “nothing in any act of Congress should be construed as affecting or intending to affect or in any way to interfere with the laws of the respective states relating to (a) water or watershed planning, (b) the control, appropriation, use, or distribution of water used in irrigation or for municipal or any other purposes, or any vested right acquired therein, or (c) intending to affect or in any way to interfere with any interstate compact, decree or negotiated water rights agreement.”

Additionally, the Interstate Council on Water Policy issued a comment letter (February 2010)²⁰ to a draft version of the Corps of Engineers report stating, among other things, that the final report should “promote the leadership role of states, interstate organizations and tribal governments as crucial in resolving the difficult choices that must be made in balancing resource availability among competing and changing needs and opportunities.”

It is expected that the dialogue between the Federal government and the states regarding a National water policy vision will continue. The consequences of this dialogue for use of water by the oil and natural gas industry remain to be determined.

²⁰ Interstate Council on Water Policy, 2010, Regarding: COMMENTS, Corps’ December 2009 Draft Report “Building Strong Collaborative Relationships for a Sustainable Water Future.” Accessed April 2011 at www.icwp.org/cms/legpol/ICWP_CommentsOnCorpsDec2009DraftReport5Feb2010.pdf

D. WASTE MANAGEMENT

Hazardous waste is regulated under Subtitle C of the Resources Conservation and Recovery Act (RCRA) (42 U.S.C. § 6901 et seq, as amended). Nonhazardous waste is regulated under Subtitle D of RCRA and depends primarily on state controls. As part of the 1980 RCRA Amendments, provision was made for the special nature, high volume, and low toxicity of wastes generated by oil and gas exploration and production (E&P) operations (codified at 42 U.S.C. § 6921(b)(2)(A), and commonly referred to as Section 3001(b)(2)(A) or the Bentsen Amendment). Congress determined that E&P wastes required special consideration. It exempted E&P wastes from regulation under Subtitle C of RCRA and directed EPA to study E&P wastes and submit a report to Congress evaluating the status of the management and potential risk to human health and the environment. Within six months of completing the report, EPA was required to make a Regulatory Determination as to whether E&P wastes warrant regulation under Subtitle C of RCRA or some other set of regulations.

EPA conducted the study on E&P wastes and submitted a three-volume Report to Congress,²¹ and published the Regulatory Determination²² on June 30, 1988. The Regulatory Determination included that regulation of oil and gas E&P wastes under RCRA Subtitle C, Hazardous Waste Management, was not warranted. Instead, EPA decided to implement a three-pronged strategy to address the issues posed by E&P wastes by:

- Improving federal programs under existing authorities in Subtitle D of RCRA (solid wastes), the Clean Water Act, and the Safe Drinking Water Act;
- Working with states to encourage changes and improvements in their regulations and enforcement; and
- Working with Congress to develop any additional statutory authorities that may be required.

The EPA Regulatory Determination and subsequent Clarification of the Regulatory Determination²³ include lists of exempt and nonexempt wastes at oil and gas E&P locations. In deciding which wastes are E&P exempt, EPA focused on wastes necessary to conduct primary field operations (including centralized facilities and gas plants) and unique to oil and gas exploration activities (including cuttings and drilling muds). Waste materials from maintenance of production equipment and transportation-related (i.e., pipeline and trucking) wastes, are nonexempt. The exemption only relieves E&P wastes from the regulatory burden of RCRA Subtitle C (i.e., hazardous waste), not from Subtitle

²¹ EPA, Report to Congress, Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas, and Geothermal Energy, Vols. 1–3 EPA530-SW-88-003 (1987).

²² Regulatory Determination for Oil and Gas and Geothermal Exploration, Development and Production Wastes, 53 Fed. Reg. 25446 (July 6, 1988).

²³ Clarification of the Regulatory Determination for Wastes from the Exploration, Development and Production of Crude Oil, Natural Gas and Geothermal Energy, 58 Fed. Reg. 15284 (March 22, 1993).

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D (non-hazardous and special wastes). If a waste is determined to be an “exempt” E&P waste it may still be regulated by the state.

States are the primary regulatory authority of Subtitle D waste, including E&P exempt waste. Nonexempt and nonhazardous waste generated by E&P operations may be subject to state regulations requiring certain handling and treatment prior to disposal. States have the authority to develop more stringent waste management requirements through their oil and gas commissions or environmental agencies. For example, the Colorado Oil and Gas Conservation Commission has developed waste management practices and soil standards similar to residential cleanup standards.

States are required to submit Solid Waste Management Plans to EPA for approval and funding. EPA regulations and RCRA amendments since 1988 have increased the emphasis on Subtitle D wastes, and established additional minimum standards that state programs must include for Subtitle D waste management.

Federal land managers may require additional waste management requirements for operators, including how E&P exempt wastes are handled, stored and disposed. Private landowners may also restrict how an operator manages and disposes of E&P wastes on the surface of private land.

All wastes located at E&P sites are not necessarily exempt, and nonexempt wastes are not necessarily hazardous. Exempt wastes may be harmful to human health and the environment if not properly managed. Prudent operators manage waste at oil and gas E&P locations to minimize the amount generated, and dispose of the waste in a manner that is protective of human health and the environment. Guidance published by EPA, states and industry trade organizations is utilized by operators to properly manage E&P waste and minimize the amount generated and disposed. For example:

- EPA issued a publication that includes sensible waste management practices at E&P locations,²⁴
- American Petroleum Institute (API) published waste minimization practices at E&P locations, including source reduction, beneficial use, recycling, waste minimization, proper waste handling, waste treatment, and proper disposal practices;²⁵ and
- Texas Railroad Commission published waste minimization technical assistance for oil and gas operators.²⁶

²⁴ EPA, 2002, Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations, EPA530-K-01-004, Accessed April 2011 at <http://www.epa.gov/osw/nonhaz/industrial/special/oil/oil-gas.pdf>.

²⁵ American Petroleum Institute (API), February 1997, Environmental Guidance Document: Waste Management in Exploration and Production Operations,” API Bulletin E5, Second Edition..

²⁶ Railroad Commission of Texas, July 2001, Waste Minimization in the Oil Field, Accessed April 2011 at <http://www.rrc.state.tx.us/forms/publications/wasteminmanual/wastemin.pdf>.

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The Interstate Oil and Gas Compact Commission (IOGCC)²⁷ is a multi-state government agency that advocates for environmentally-sound ways to increase the supply of American energy. In 1989, the IOGCC formed a Council on Regulatory Needs to assist EPA with its approach to E&P wastes. In 1990 (updated in 1994), the council produced a study that outlines goals and criteria for state programs to use in regulating E&P wastes including an ongoing effort to peer review state regulatory programs using the guidelines.

In 1999, the State Review of Oil and Natural Gas Environmental Regulations (STRONGER)²⁸ was formed to reinvigorate and carry forward the state review process begun cooperatively in 1988 by EPA and the IOGCC. STRONGER is a non-profit, multi-stakeholder organization whose purpose is to assist states in documenting the environmental regulations associated with the exploration, development, and production of crude oil and natural gas. Reports of the reviews are available from STRONGER and the IOGCC. STRONGER shares innovative techniques and environmental protection strategies and identifies opportunities for program improvement. The state review process is a non-regulatory program and relies on states to volunteer for reviews.

The Natural Resources Defense Council (NRDC) submitted a Petition for Rulemaking on September 8, 2010,²⁹ requesting the EPA reconsider its 1988 Regulatory Determination to exempt E&P wastes under Subtitle C of the RCRA. The petition requests the EPA to designate wastes associated with the exploration, development, or production of crude oil, natural gas or geothermal energy as hazardous wastes under RCRA.

As noted above, industry continues to advocate that EPA's conclusions in the 1988 Regulatory Determination are correct. Because of the high volume and low toxicity of wastes generated by oil and gas E&P operations, and the unique nature of the operations, these wastes require special consideration. EPA's three pronged strategy to address the issues posed by E&P wastes is still applicable today. Any issues associated with E&P exempt wastes can be addressed under existing Subtitle D authority and working with States to improve their regulations and enforcement. Additional support for STRONGER to identify gaps in State programs and funding to correct the gaps will result in a regulatory framework that is protective of human health and the environment without the regulatory burden and associated costs of regulating E&P wastes under Subtitle C of the RCRA. It is industry's position that this effort demonstrates that there is no need to increase federal regulation of E&P wastes.

²⁷ <http://www.iogcc.state.ok.us/>

²⁸ <http://www.strongerinc.org/about/overview.asp>

²⁹ Natural Resources Defense Council to EPA Administrator, Re: Petition for Rulemaking Pursuant to Section 6974(a) of the Resource Conservation and Recovery Act Concerning the Regulation of Wastes Associated with the Exploration, Development, or Production of Crude Oil or Natural Gas or Geothermal Energy. (September 8, 2010). Accessed April 2011 at http://docs.nrdc.org/energy/files/ene_10091301a.pdf

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E. Spill Prevention, Control and Countermeasure

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In 1973, under the authority of § 311 of the Clean Water Act (CWA), the Oil Pollution Prevention regulation established requirements for the prevention of, preparedness for, and response to oil discharges at specific non-transportation-related (non-DOT) facilities.³⁰ The regulation requires operators to develop and implement Spill Prevention, Control, and Countermeasure (SPCC) Plans for these facilities to prevent oil from reaching navigable waters³¹ and adjoining shorelines, and to contain discharges of oil. In 1990, the Oil Pollution Act³² amended the Clean Water Act to require oil storage facilities that meet specific criteria to prepare Facility Response Plans.

A facility is covered by the SPCC rule if it is a non-DOT facility, it has an aggregate aboveground oil storage capacity greater than 1,320 U.S. gallons or a completely buried storage capacity greater than 42,000 U.S. gallons, and there could be a reasonable expectation of an oil discharge into or upon navigable waters of the U.S. or adjoining shorelines. In assessing a facility's oil storage capacity, only containers of 55 gallons or greater need to be included. Also, a definition of "oil" was established. Under SPCC regulations, oil includes, but is not limited to, petroleum products such as crude oil and natural gas condensate, refined petroleum products, petroleum-based fuels, oil sludge, oil refuse, animal oils, fats, and greases, and vegetable oils. The definition also includes produced water if there is enough oil or condensate entrained in the water that, if released, could result in a discharge as described in 40 CFR § 112.1(b).

Using industry data, the SPCC program, along with the E&P industry's efforts, has been effective in inland spill prevention and containment. An API report titled *Analysis of U.S. Oil Spillage* (API Publication 356, August 2009)³³ states that from 1998 to 2007, the total volume of oil spills from inland SPCC regulated facilities (excluding refineries) declined by 76% from the previous decade. Furthermore, spills at these facilities often go to secondary containments, reducing the direct impact to waterways.

In 2002, the EPA published a final rule amending the SPCC rule. These amendments included, among other modifications, revised requirements for SPCC Plans and for Facility Response Plans (FRPs), new subparts outlining the requirements for various classes of oil, revised the applicability of the regulation, and amended the requirements for completing SPCC Plans. After publication, several members of the regulated

³⁰ EPA Emergency Management, Oil Pollution Prevention Regulation Overview. Accessed April 2011 at <http://www.epa.gov/emergencies/content/lawsregs/opprover.htm>

³¹ On November 26, 2008, the EPA amended a Clean Water Act (CWA) section 311 regulation that defines the term "navigable waters". In this action, EPA announced the vacatur of the July 17, 2002, revisions to the definition of "navigable waters" and restored the regulatory definition of "navigable waters" promulgated by EPA in 1973; consequently, EPA amended the definition of "navigable waters" in part 112 to comply with that decision.

³² EPA, Emergency Management, Oil Pollution Act Overview, Accessed April 2011 at www.epa.gov/emergencies/content/lawsregs/opaover.htm January 28, 2011, update.

³³ Accessed April 2011 at <http://www.api.org/ehs/water/spills/upload/356-Final.pdf>

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community submitted comments and/or filed legal challenges regarding certain aspects of the rule. A 2006 report prepared for the U.S. Department of Energy by Advanced Resources International, Inc. titled *Assessment of the Potential Costs and Energy Impacts of Spill Prevention, Control, and Countermeasure Requirements for U.S. Oil and Natural Gas Production*,³⁴ expressed concern about the potential impact of these requirements on economically marginal oil and natural gas producers. According to the report, the energy supply and related economic impacts associated with these changes, assuming prices consistent to conditions in 2002, could be summarized as follows:

- The U.S. oil & gas industry would spend nearly \$3.2 billion complying with the new requirements.
- Shut-in crude oil production would amount to over 326,000 barrels per day, amounting to 9% of U.S. oil production. Shut-in natural gas production would amount to nearly 125 Bcf annually, amounting to about 1% of U.S. natural gas production.
- Public and private royalty holders would lose nearly \$300 million in revenues from the lost production. State governments would lose over \$139 million in lost revenues from severance taxes, and \$170 million in state income taxes, while the federal government would lose over \$1.3 billion in federal income tax receipts.

A Government Accounting Office report in 2007 titled *Aboveground Oil Storage Tanks: Observations on EPA's Economic Analyses of Amendments to the Spill Prevention, Control, and Countermeasure Rule*, concluded that "EPA's economic analysis of the 2002 SPCC amendments had limitations that reduced its usefulness for assessing the amendments' costs and benefits. In particular, EPA's analysis did not assess the uncertainty associated with key assumptions and data, as directed by Office of Management and Budget (OMB) guidelines."³⁵ Comment papers were also submitted by the American Petroleum Institute (API) and the Independent Petroleum Association of America (IPAA) expressing concerns over the potential economic implications of these amendments.

The EPA responded by amending the SPCC rule again in 2006.³⁶ The 2006 amendments streamline the requirements for oil-filled operational equipment, motive power containers, mobile refuelers, and facilities with smaller oil storage capacities (qualified facilities). The rule was amended yet again in December 2008 in order to provide

³⁴ Accessed April 2011 at

http://fossil.energy.gov/programs/oilgas/publications/environment_otherpubs/SPCC_Impact_Exploration_and_Production_8.pdf

³⁵ U.S. Government Accountability Office, GAO-07-763, at p.4 - 5. For example, the EPA analysis assumed the extent to which facilities were already in compliance and that impact on costs, and did not estimate the benefits associated with the amendments. Accessed April 2011 at www.gao.gov/new.items/d07763.pdf

³⁶ EPA, Emergency Management, Spill Prevention, Control and Countermeasure (SPCC) Rule. Accessed April 2011 at <http://www.epa.gov/emergencies/content/spcc/index.htm>

increased clarity of the rule, to tailor requirements to particular industry sectors, and to streamline certain requirements for those facility owners or operators subject to the rule. The amended 2008 rule also included an important distinction between a loading/unloading rack and a loading/unloading area, which had been a concern of the oil & gas industry for years.

After further public comment, final amendments to the SPCC rule were published in November 2009.³⁷ These final amendments modified the amended December 2008 rule by removing the provisions to exclude farms and oil production facilities from the loading/unloading rack requirements, removing the provision to exempt produced water containers at an oil production facility, and providing alternative qualified facility eligibility criteria for oil production facilities. Also included in the 2008 and 2009 amendments were alternative secondary containment options for flow-through process vessels and produced water containers at oil production facilities.

The final amended SPCC rule went into effect on January 14, 2010 with a compliance date of November 10, 2011, for all facilities except for drilling, production and workover facilities that are offshore or that have an offshore component, and onshore facilities required to have and submit FRPs. Those facilities have a compliance date of November 10, 2010.³⁸

In reaction to the final rule, efforts are underway to effectively implement the new SPCC regulations, both by industry and by government agencies. API has prepared a revision of their API Bulletin D16, *Suggested Procedure for Development of a Spill Prevention Control and Countermeasure Plan*.³⁹ Meanwhile, the EPA is updating its *SPCC Guidance for Regional Inspectors*, originally published in November 2005. In spite of its title, the document is a valuable source of information for owners and operators of SPCC regulated facilities.

Although the final rule goes a long way in addressing the concerns of the oil & gas industry, some industry issues still remain, including:

- Classification of gas processing plants and compressor stations (production or non-production facilities);
- Interpretation of certain sections of the rule, especially at the EPA Regional level; and
- Lack of criteria or method to determine if a spill could reasonably be expected to reach navigable waters.

³⁷ Ibid.

³⁸ EPA Oil Pollution Prevention Regulation Overview, Accessed April 2011 at www.epa.gov/emergencies/content/lawsregs/opprover.htm. Updated January 2011.

³⁹ Fifth Edition, April 2011. Announcement accessed April 2011 at <http://www.api.org/Standards/new/bull-d16.cfm>

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After a long and arduous rulemaking process, it can be said that some concessions were won and some were lost, but, overall, the oil and gas industry is left with a viable SPCC program which should continue to be effective in preventing and containing oil spills.

F. Wetlands

1. Background:

Wetlands are defined in the Ramsar Convention, as agreed upon by the United States of America, as:

- Article 1.1: Wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters.
- Article 2.1: Wetlands may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six meters at low tide lying within the wetlands.⁴⁰

The *Classification of Wetlands and Deepwater Habitats of the United States* scientifically defines wetlands as:

- Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water, and
- Wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly (wetland plants); (2) the substrate is predominantly undrained (wetland) soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.⁴¹

2. Federal Regulation Overview

Wetlands are found throughout the nation and may take many familiar forms, such as swamps, salt marshes, and riverine forests. Disturbances of areas identified scientifically as wetlands are regulated pursuant to the Federal Water Pollution Prevention and Control Act (33 U.S.C. § 1343), also known as the Clean Water Act. For example, there are requirements if an activity would result in the discharge of dredged or fill material into the wetland and the wetland meets any of the following criteria:

- The wetlands border the ordinary high water mark, which is a line on the shore established by the fluctuations of water, or
- The wetlands are adjacent to, but not directly bordering, a relatively permanent tributary.⁴²

⁴⁰ Ramsar Convention Secretariat, 2006. *The Ramsar Convention Manual: a guide to the Convention on Wetlands (Ramsar, Iran, 1971)*, 4th ed. Ramsar Convention Secretariat, Gland, Switzerland, Accessed April 2011 http://www.ramsar.org/pdf/lib/lib_manual2006e.pdf

⁴¹ Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. Accessed April 2011 at <http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm> (Version 04DEC1998).

⁴² U.S. Army Corps of Engineers, Limits of Jurisdiction, 33 C.F.R. § 328.4.

Activities that might result in the discharge of dredged or fill material into regulated wetlands require regulatory approval prior to initiation. Dredged material and fill discharge permits are commonly referred to as “Section 404 permits,” since the permit program is defined by Section 404 (33 U.S.C. § 1344) of the Clean Water Act. Most states rely on the federal government to regulate wetlands, though Michigan and New Jersey have assumed that role from the federal government.⁴³

The U.S. Army Corps of Engineers (Corps) is the primary federal agency that conducts: (1) determinations of regulatory jurisdiction; (2) Section 404 permitting; and (3) enforcement of federal wetlands regulations. Other agencies that routinely cooperate with the Corps in its wetlands regulation mission are the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service, the National Oceanographic and Atmospheric Administration (NOAA), the U.S. Department of Agriculture, U.S. Department of Interior, and state and local level natural resource and environmental agencies.

Significantly bolstering Section 404 permitting are state-administered programs under the Coastal Zone Management Act (CZM) (16 U.S.C. § 1455b). State CZM regulatory authority is restricted to a participating state’s coastal zone. Wetlands in the coastal zone are subject to CZM permitting. Without CZM approval, dredge and fill discharges into coastal wetlands cannot receive a Section 404 permit. CZM approval and Section 401 Clean Water Act water quality certification is a mandatory threshold for issuance of a Section 404 permit.

3. Section 404 Wetlands Jurisdiction

Prescriptive steps are followed to ascertain whether particular lands are subject to Section 404, as follows:

- Conduct a wetland delineation using the *1987 Corps of Engineers Wetlands Delineation Manual* and appropriate Regional Supplement to determine if wetlands are present,⁴⁴
- If the wetland delineation is positive for wetlands presence, determine if the wetlands are within the jurisdiction of the Corps,⁴⁵ and
- If the wetland delineation is negative or inconclusive for the presence of wetlands, a jurisdictional determination can be requested from the Corps to verify compliance with wetlands regulations.⁴⁶

⁴³ EPA, State, Tribal, Local, and Regional Roles in Wetlands Protection, January 2009, Accessed April 2011 at <http://www.epa.gov/owow/wetlands/facts/fact21.html>

⁴⁴ U.S. Army Corps of Engineers, *1987 Corps of Engineers Wetlands Delineation Manual* and Regional Supplements to Corps Delineation Manual, Accessed April 2011 at http://www.usace.army.mil/CECW/Pages/reg_supp.aspx

⁴⁵ EPA, Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States, December 2, 2008, Accessed April 2011 at http://www.epa.gov/owow/wetlands/pdf/CWA_Jurisdiction_Following_Rapanos120208.pdf

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Project sponsors typically conduct wetland delineations with the assistance of a specialized wetlands consultant. A wetland is considered present when a combination of wetland plants, soils, and water regime are all present for at least 5% of the growing season.⁴⁷ Typically, a wetland delineation is also required by the Corps to evaluate a permit application and document a permit decision.

A positive wetland delineation requires an analysis of nexus or connection to the Corps' jurisdictional authority. The nexus may be:

- Obvious where a wetland adjoins an ordinary high water mark, such as on a permanently flowing tributary; or
- More obscure in an adjacent wetland situation, such as on an intermittent tributary, and require a more detailed analysis of hydrologic and ecologic factors.⁴⁸

If nexus with the Corps' jurisdiction is confirmed, then the wetland is regulated under Section 404 and a permit from the Corps is required before dredge material or fill can be discharged.

If the lands of interest are positive for wetlands and negative for nexus (i.e., not regulated under Section 404), the project sponsor will next determine if state wetland regulations exist for the non-Section 404 wetlands. Indiana, Ohio, and Wisconsin have wetlands regulations that cover such wetlands⁴⁹ and other states are considering similar regulations.

A negative wetland delineation indicates that lands of interest are not wetlands and therefore not regulated under Section 404; however, all lands, including wetlands and uplands, within the boundaries of an approved state CZM program are regulated. As a matter of assurance, a negative wetland delineation may be submitted to the Corps for its concurrence thereby removing any doubt over Corps wetlands jurisdiction.

In some instances, such as heavily disturbed sites, a wetland delineation may yield inconclusive results. Problem areas are addressed in the *1987 Corps of Engineers Wetlands Delineation Manual* and project sponsors will often employ wetlands specialists for guidance. Project sponsors can solicit the Corps, as the official arbiter of

⁴⁶ U. S. Army Corps of Engineers, Regulatory Guidance Letter, Jurisdictional Determinations, No. 08-02, 26 June 2008, Accessed April 2011 at <http://www.usace.army.mil/CECW/Documents/cecwo/reg/rgls/rgl08-02.pdf>

⁴⁷ US Army Corps of Engineers, Methods to Determine the Hydrology of Potential Wetland Sites, WRP Technical Note HY-DE-4.1, January 1998, Accessed April 2011 at <http://el.erdc.usace.army.mil/elpubs/pdf/hyde4-1.pdf>

⁴⁸ EPA, Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States, December 2, 2008, Accessed April 2011 at http://www.epa.gov/owow/wetlands/pdf/CWA_Jurisdiction_Following_Rapanos120208.pdf

⁴⁹ Association of State Wetland Managers, State Summaries, Accessed April 2011 at <http://www.aswm.org/state-summaries>

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wetlands jurisdiction, to furnish an official determination of wetlands jurisdiction where a problem area is concerned.

4. Section 404 Wetlands Permits

A Section 404 permit from the Corp is required prior to initiating any project that will result in the discharge of dredged or fill material into wetlands, including redistribution of project site soils, which are subject to Section 404. Nationwide, the Corps has 38 districts, each of which has a unique approach to wetlands permitting. The Corps intentionally places discretionary authority with district engineers to formulate wetlands permitting in a way that acknowledges different wetlands conditions are found in different districts. Regardless of the unique manner in which Corps districts approach permitting, all projects must adhere to the Section 404 Clean Water Act requirements.⁵⁰

In relation to the requirements, Section 404 permit actions must affirmatively answer the following:

- That the proposed discharge is the least damaging practicable alternative after considering cost, technology, and logistics,
- That the proposed discharge complies with other environmental standards, especially CZM and Section 401 Clean Water Act water quality certification,
- That the proposed discharge will not significantly degrade wetlands, and
- That all appropriate and practicable steps have been imposed to minimize wetland impacts.⁵¹

Section 404 permits fall into the following classes:

- Standard individual permits used for complex, controversial, and large activities,
- Regional general permits used for activities commonly conducted in and unique to a district,
- Programmatic permits used for activities commonly conducted in and unique to a district and within CZM boundaries where the CZM authority is the lead permitting agency,
- Nationwide permits used for minor activities commonly conducted in all districts, and
- Letters of permission used for non-controversial, small-scale activities with de minimis affect to wetlands.

⁵⁰ For example, the EPA regulations clarify that the § 404 requirements apply in addition to the EPA Guidelines, 40 C.F.R. 230.10, 2010, Accessed April 2011 at http://www.access.gpo.gov/nara/cfr/waisidx_10/40cfr230_10.html

⁵¹ EPA regulations, Restrictions on Discharge, 40 C.F.R. 230.10, 2010, Accessed April 2011 at http://www.access.gpo.gov/nara/cfr/waisidx_10/40cfr230_10.html

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The regulations for the Corps permit application process and the dredged and fill material discharge evaluation steps are found at 33 CFR § 325⁵² and 40 CFR § 230,⁵³ respectively. In summary, the Corps will balance the need for a project against public interest factors, including affects to wetlands, and determine if the project is eligible for a Section 404 permit. If a project is eligible, the Corps will condition its permit to assure the Section 404 requirements are met and will require compensatory mitigation to offset wetland ecological functions that are lost as a result of the project.

Wetlands compensatory mitigation is an integral part of the Section 404 permit process.⁵⁴ When wetlands are impacted by dredged or fill material discharges, compensatory mitigation is required and it is carried out in accordance with the steps at 33 CFR § 332.⁵⁵ In summary, the Corps applies a “watershed approach” to wetlands mitigation. Wetlands mitigation is conducted within the same watershed as the permitted impacts, and the mitigation preferences are in the order of: (1) mitigation bank credit purchase; (2) in-lieu fee program credit purchase; (3) permittee-responsible on-site or in-kind project; and (4) permittee-responsible out-of-kind or off-site project.⁵⁶

5. Wetlands and Coastal Zone Management Act Programs

Thirty states and the territories of American Samoa, Guam, Northern Mariana Islands, and the Virgin Islands have approved coastal zone programs.⁵⁷ Illinois is expected to have its coastal program approved in 2011, meaning every state along the Atlantic, Pacific, Gulf of Mexico, and Great Lakes coasts will have approved CZM programs. The purpose of CZM programs is to regulate development to mitigate impacts to coastal resources.

Coastal zones typically have extensive areas of wetlands of multiple wetland types, ranging from salt marsh seaward, and transitioning to freshwater wetlands inland. Depending on how a state’s CZM program is structured, it may issue: (1) CZM consistency statements where the Corps retains lead agency status, such as Texas; or (2) CZM permits where the CZM program takes lead agency status, such as Louisiana. Regardless of the Corps’ role, the Corps must issue any Section 404 permit, except in Michigan and New Jersey as mentioned earlier as having assumed Section 404 primacy. The Corps’ permit, including conditions and mitigation, and the CZM permit must be

⁵² 2010 version accessed April 2011 at http://www.access.gpo.gov/nara/cfr/waisidx_10/33cfr325_10.html

⁵³ 2010 version accessed April 2011 at http://www.access.gpo.gov/nara/cfr/waisidx_10/40cfr230_10.html

⁵⁴ See General policies for evaluating permit applications, 33 CFR § 320.4, 2010 version accessed April 2011 at http://edocket.access.gpo.gov/cfr_2010/julqtr/pdf/33cfr320.4.pdf

⁵⁵ See 33 CFR § 332, Compensatory Mitigation for Losses of Aquatic Resources, 2010 version accessed April 2011 at http://www.access.gpo.gov/nara/cfr/waisidx_10/33cfr332_10.html

⁵⁶ General compensatory mitigation requirements. 33 C.F.R. § 332.3. 2010 version accessed April 2011 at http://edocket.access.gpo.gov/cfr_2010/julqtr/pdf/33cfr332.3.pdf

⁵⁷ US Dept of Commerce, NOAA, Coastal Zone Management Act, accessed April 2011 at http://coastalmanagement.noaa.gov/czm/czm_act.html

consistent in states that issue CZM permits. In the alternative, the CZM consistency statement must approve the Corps permit and mitigation. If a CZM permit or consistency statement is denied, a Section 404 permit cannot be issued. This reflects the importance of CZM programs to the Section 404 wetlands permit process.⁵⁸

6. Section 404 and Special Aquatic Sites

Section 404 Clean Water Act jurisdiction, permitting, and enforcement applies to more than just wetlands. Other special aquatic sites that fall under Section 404 jurisdiction are:

- Sanctuaries and refuges,
- Mud flats,
- Vegetated shallows,
- Coral reefs, and
- Riffle and pool complexes.⁵⁹

Discharges of dredged or fill material into the aquatic ecosystem, wetlands included, will also trigger a Section 404 affects analysis of the following:

- Substrate,
- Suspended particulates and turbidity,
- Water,
- Current patterns and water circulation,
- Normal water fluctuations,
- Salinity gradients,
- Threatened and endangered species,
- Fish, crustaceans, mollusks, and other aquatic organisms in the food web, and
- Other wildlife.⁶⁰

⁵⁸ See Note about Corps and State 404 requirements at EPA regulations, Subpart B, Compliance with the Guidelines at 40 C.F.R. 230.10 (2010)

⁵⁹ EPA regulations, 40 C.F.R. Part 230, Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material, Subpart E—Potential Impacts on Special Aquatic Sites, 2010 version accessed April 2011 at http://water.epa.gov/lawsregs/rulesregs/cwa/upload/CWA_Section404b1_Guidelines_40CFR230_July2010.pdf

⁶⁰ EPA regulations, 40 C.F.R. Part 230, Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material, Subpart C-Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem, and Subpart D-Potential Impacts on Biological Characteristics of the Aquatic Ecosystem, 2010 version accessed April 2011 at http://water.epa.gov/lawsregs/rulesregs/cwa/upload/CWA_Section404b1_Guidelines_40CFR230_July2010.pdf

7. Section 404 and Future Regulation

The U.S. Supreme Court in Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001),⁶¹ limited the jurisdiction of the Clean Water Act to wetlands connected with or adjacent to tributaries considered navigable.⁶² As a result, legislative efforts have been exerted in Congress to expand the wetlands jurisdiction of the Corps. To date those efforts have been:

- H.R.5194/S.2780, Clean Water Authority Restoration Act of 2002 (failed to pass),
- H.R.962/S.473, Clean Water Authority Restoration Act of 2003 (failed to pass),
- H.R.1356, Clean Water Authority Restoration Act of 2005 (failed to pass),
- S.1870, Clean Water Restoration Act of 2007 (failed to pass), and
- S.787, Clean Water Restoration Act (failed to pass).⁶³

The U.S. Supreme Court's decisions in Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers and Rapanos v. United States,⁶⁴ restricted the Corps' wetlands jurisdictional authority. However, as was noted above, states may have wetlands regulations that define a state's wetlands jurisdictional authority differently and more expansively than Section 404. It is unlikely that most states will attempt to assume Section 404 authority from the federal government or expand upon current wetlands jurisdiction in the foreseeable future.

⁶¹ Accessed April 2011 at EPA Office of Wetlands, Oceans, and Watersheds, at <http://www.epa.gov/owow/wetlands/pdf/2001supremecourt.pdf>

⁶² 33 CFR § 329.10 Existence of obstructions. 2010 version accessed April 2011 at http://www.access.gpo.gov/nara/cfr/waisidx_10/33cfr329_10.html

⁶³ See list and examples at <http://www.govtrack.us/congress/bill.xpd?bill=s109-912&tab=related>.

⁶⁴ 547 U.S. 715 (2006). Accessed April 2011 at EPA Office of Wetlands, Oceans, and Watersheds, at http://www.epa.gov/owow/wetlands/pdf/Rapanos_SupremeCourt.pdf.

G. Wildlife and Habitat

In the United States, wildlife is considered to be state property and state wildlife agencies each have jurisdiction to manage wildlife within the state boundaries. There are numerous federal laws that protect some aspect of wildlife or habitat.⁶⁵ The U.S. Fish and Wildlife Service (USFWS) has authority over the key federal wildlife laws, including the Endangered Species Act, Bald and Golden Eagle Act, and Migratory Bird Treaty Act. The USFWS coordinates with state wildlife agencies in the implementation of the federal acts in regard to habitat and wildlife management. Other federal agencies must consider and comply with the wildlife laws when making decisions. The following are summaries of several key federal wildlife laws and summaries of a few state wildlife regulatory programs.

1. Endangered Species Act (ESA)

The Endangered Species Act (ESA), 16 U.S.C. §§ 1531-1544, December 28, 1973 (as amended 1976-1982, 1984 and 1988) provides broad protection for species of fish, wildlife and plants that are listed as threatened or endangered in the U.S. or elsewhere. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. The ESA outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species, and contains exceptions and exemptions. The ESA also is the enabling legislation for the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Criminal and civil penalties are provided for violations of both the ESA and the CITES.

The ESA provides a means to protect threatened or endangered species and the ecosystems that support them. It requires federal agencies to ensure that activities undertaken on either federal or non-federal property do not have adverse impacts on threatened or endangered species or their habitat. In a 1995 ruling, the U.S. Supreme Court upheld interpretations of the Act that allow agencies to consider impact on habitat as a potential form of prohibited “harm” to endangered species. Agencies undertaking a federal action (such as a Bureau of Land Management or Bureau of Ocean Energy Management review of proposed oil and gas extraction production operations) must consult with the U.S. Fish and Wildlife Service, and an Environmental Impact Statement must be prepared if “any major part of a new source will have significant adverse effect on the habitat” of a federally- or state-listed threatened or endangered species.

Determination of Endangered and Threatened Species (ESA § 4)

Section 4 of the ESA requires the Secretary of the Interior (Secretary) to list species as endangered or threatened because of any of a number of factors, including habitat destruction, overutilization, disease or predation, inadequacy of regulatory mechanisms, or other natural or man-made factors. In the case of marine plants, fish or wildlife, the

⁶⁵ See U.S. Fish and Wildlife Service, Digest of Federal Resource Laws, accessed April 2011 at <http://www.fws.gov/laws/lawsdigest/resourceclaws.htm>

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Secretary of Commerce determines whether the Secretary of the Interior will list a species or change the status of a species from threatened to endangered.

The ESA requires the Secretary to publish the lists of all species determined to be endangered or threatened, the range over which they are endangered or threatened, and their critical habitats. The Secretary must revise the lists periodically to reflect recent actions, and is required to review the list at least every five years to determine the need for removal or change in status. Once listed, regulations must be issued to provide for the conservation of threatened species.

The Secretary must develop and implement recovery plans for the conservation and survival of listed species, unless such plans will not promote species conservation. Plans are to include site-specific management actions, measurable criteria which, when met, would result in delisting, and estimates of time and cost for intermediate and final goals of recovery plans. Notice and opportunity for public review and comment must be provided for recovery plans, and all information presented during the comment period must be considered prior to plan approval.

The ESA requires the Secretary to establish and publish agency guidelines to insure that the purposes of this section are achieved efficiently and effectively. This includes procedures for dealing with petitions, criteria for making findings regarding petitions, a ranking system for priority review of species, and a system for developing and implementing recovery plans. If a state agency files comments disagreeing with all or part of a regulation proposed under the authority of this section and a regulation is adopted anyway, or a state agency petition does not result in a regulation, the Secretary must submit a written justification to the state agency.

Cooperation with the States (ESA § 6)

Section 6 of the ESA requires the USFWS to cooperate to the maximum extent practicable with the states, including consulting with a state before acquiring land, water or interests for conservation of listed species. The Secretary may enter into cooperative agreements with states for administration and management of areas established for conservation of listed species. Cooperative agreements may also be entered into with states which establish and maintain adequate and active programs for conservation of listed species. For a program to be considered adequate and active, the Secretary annually must find that: the state agency has authority to conserve resident listed species; acceptable conservation programs have been established and provided to the Secretary for all resident listed species; the agency is authorized to determine the status and requirements for survival of resident species of fish and wildlife, and to establish programs, including land or other acquisitions, for conservation of resident listed species; and provision is made for public participation in the listing process.

Interagency Cooperation (ESA § 7)

Listing of a species or designation of critical habitat under the ESA triggers a range of protective measures. Section 7 of the ESA requires all federal agencies to ensure that any proposed action will not jeopardize the continued existence of a threatened or endangered

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species. The ESA regulations define the term “action” to include “all activities or programs of any kind authorized, funded, or carried out in whole or in part, by Federal agencies” (50 C.F.R. § 402.02).

Section 7 triggers a two-step process. The first step, informal consultation, is when the federal agencies determine whether the action may affect a listed species or critical habitat (50 C.F.R. § 402.13). A Biological Assessment is required for major construction activities that may impact a listed species or critical habitat (50 C.F.R. § 402.02). If the USFWS concurs that the action is not likely to adversely affect the species or habitat, nothing further is required. Otherwise, formal consultation is necessary to determine if the action will jeopardize the continued existence of a listed species or destruction or adverse modification of critical habitat (50 C.F.R. § 402.14(h)). If such impact may occur, then “reasonable and prudent alternatives must be considered” (50 C.F.R. § 402.14(h)). Assessments must be completed before actual construction or construction contracts are entered into. Assessments may be part of the National Environmental Policy Act compliance by the agency.

Prohibited Acts (ESA § 9)

Section 9 of the ESA prohibits the “take” of listed species. “Take” is defined broadly as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct” (16 U.S.C. § 1532(19)). This broad definition of take creates a very low threshold with a strict liability law.

2. Marine Mammal Protection Act (MMPA)

The Marine Mammal Protection Act (MMPA) (16 U.S.C. §§ 1631 - 1423(h))⁶⁶ was enacted in 1972 to protect all marine mammals. The MMPA prohibits the “take” of marine mammals in United States waters and by US citizens on the high seas, and prohibits the importation of marine mammals and marine mammal products into the US.

3. Bald Eagle Protection Act of 1940 (BEPA)

The Bald Eagle Protection Act (BEPA) (16 U.S.C. 668 - 668d) prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions. The BEPA imposes criminal and civil penalties on anyone (including associations, partnerships and corporations) in the U.S. or within its jurisdiction who, unless excepted, takes at any time or in any manner a bald or golden eagle or any part, nest or egg of these eagles. The statute imposes criminal and civil sanctions as well as an enhanced penalty provision for subsequent offenses. Further, the BEPA provides for the forfeiture of anything used to acquire eagles in violation of the statute. If compatible with the preservation of bald and golden eagles, the Secretary of the Interior may issue regulations authorizing the taking, possession and transportation of these eagles (§ 668a). Regulations were issued in 2009 allowing take permits under this provision of the law.

⁶⁶ The Marine Mammal Commission's annotated version of the Marine Mammal Protection Act of 1972, as amended 2004 and 2007, may be accessible from NOAA's National Marine Fisheries Service, accessed April 2011 at <http://www.nmfs.noaa.gov/pr/pdfs/laws/mmpa.pdf>

This act can also require certain distance and timing restrictions on activities based upon nest location.

4. Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act (MBTA) of 1918 implemented the 1916 convention between the United States and Great Britain for the protection of birds migrating between the United States and Canada. Similar conventions between the United States and Mexico (1936), Japan (1972) and the Union of Soviet Socialist Republics (1976) further expanded the scope of international protection of migratory birds. Each new treaty has been incorporated into the MBTA as an amendment and the provisions of the new treaty are implemented domestically.⁶⁷

The MBTA established federal responsibilities for the protection of nearly all species of birds, their eggs and nests. The MBTA made it illegal for people to “take” migratory birds, their eggs, feathers or nests. “Take” is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof. This impacts the oil and natural gas industry in that operations arguably must be conducted with best practices to protect migratory birds from harm, injury or death. (16 U.S.C. §§ 703 and 704) The MBTA is a strict liability law with criminal provisions for enforcement. (16 U.S.C. §§ 706 and 707)

The MBTA does not necessarily prevent states and territories from making or enforcing laws or regulations not inconsistent with the MBTA or which give further protection to migratory birds, nests and eggs, if such laws and regulations do not extend open seasons. (16 U.S.C. § 708.)

5. Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 661 - 667e) was enacted March 10, 1934, to provide the basic authority for the U.S. Fish & Wildlife Service (USFWS) to be involved in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It also requires federal agencies that construct, license or permit water resource development projects to first consult with the USFWS (and the National Marine Fisheries Service in some instances), and the applicable state(s) fish and wildlife agency, regarding the impacts on fish and wildlife resources, and implement measures to mitigate these impacts.

The FWCA authorizes the Secretaries of Agriculture and Commerce to provide assistance to Federal and State agencies in order to protect and increase the supply of wildlife and wildlife resources, as well as to study the effects of domestic sewage, trade wastes, and other pollution on wildlife. FWCA requires that wildlife conservation be given equal consideration to other features of water-resource development programs through planning, development, maintenance and coordination of wildlife conservation

⁶⁷ Protection of Migratory Game and Insectivorous Birds, 16 U.S.C. 701-719(c))

and rehabilitation. Wildlife and wildlife resources are defined by the FWCA to include: birds, fish, mammals and all other classes of wild animals and all types of aquatic and land vegetation upon which wildlife is dependent.

As a collaborative effort, federal agencies and the USFWS must develop measures to protect, develop, and improve wildlife. Any reports or decision-making documents subsequently prepared by any federal agency must include the recommendations of the USFWS and the affected state(s) for protecting fish and wildlife. Where possible, the agency must incorporate these recommendations in the project plans. The constructing, licensing, or permitting federal agency is to include in the project plans such justifiable means and measures as it finds should be adopted to obtain maximum overall project benefits.

6. Control of Illegally Taken Fish and Wildlife

The Lacey Act of 1900, and the Lacey Act Amendments of 1981, as amended,⁶⁸ (16 U.S.C. §§ 3371-3378) were enacted to protect both plants and wildlife by creating civil and criminal penalties for a wide array of violations. The Lacey Act most notably prohibits trade in wildlife, fish, and plants that have been illegally taken, transported or sold. It was the first federal law protecting wildlife, although today it is primarily used to have a single statute for many of these issues and prevent the importation or spread of potentially dangerous non-native species.

7. State Wildlife Regulations

All wildlife not lawfully acquired and held by private ownership is declared to be the property of the state. Game laws are statutes which regulate the right to pursue and take or kill certain kinds of fish and wild animals or game. The scope can include the following: restricting the days to harvest fish or game, restricting the number of animals per person, restricting species harvested, and limiting weapons and fishing gear used. Wildlife management and conservation laws were established in certain states to provide authority to manage lands for state listed threatened or endangered species and other wildlife and habitat programs (e.g., reintroductions, sensitive habitats). Below are a few examples of state specific regulatory programs.

Colorado (Colorado Revised Statutes, Title 33)

It is the policy of the State of Colorado that wildlife and their environment be protected, preserved, enhanced, and managed for the use, benefit, and enjoyment of the people of the state and its visitors. The Division of Wildlife is charged with developing a comprehensive program to offer the greatest possible variety of wildlife-related recreational opportunities, with continuous planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities.

⁶⁸ The Lacey Act Amendments of 1981 (16 U.S.C. §§ 3371 - 3378), as amended, repealed certain sections of The Lacey Act of 1900 ([18 U.S.C. 43 - 44](#)), and another act, and provided a single comprehensive statute. See USFWS summary accessed April 2011 at <http://www.fws.gov/laws/lawsdigest/LACEY.HTML>.

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Wildlife management must be done consistent with, or more stringent than, the Federal Migratory Bird Treaty Act and the Endangered Species Act (§ 33-1-115, C.R.S.). The state has authority to manage all nongame wildlife for human enjoyment and welfare, for scientific purposes, and to insure their perpetuation as members of ecosystems. The state can afford protection to species or subspecies of state indigenous wildlife found to be endangered or threatened within the state. Wildlife "management" means collection and application of biological information to increase the number of individuals within species of wildlife to the optimum carrying capacity of their habitat and maintaining such levels. The term includes the entire range of activities that constitute a modern, scientific resource program including, but not limited to, research, census, law enforcement, habitat acquisition and improvement, and education (§§ 33-2-102 and -103, C.R.S.). The state can establish programs, including acquisition of land or aquatic habitat, for management of nongame, endangered, or threatened wildlife, and enter into agreements with federal agencies, political subdivisions or private persons for administration and management of any area established under this section or utilized for management of nongame, endangered, or threatened wildlife (§§ 33-2-106 and -107, C.R.S.). The state has broad wildlife management and habitat protection authority.

Texas

The Parks and Wildlife Department (TPWD) regulates the taking and conservation of fish, oysters, shrimp, crabs, turtles, terrapins, mussels, lobsters, and all other kinds of marine life, or sand, gravel, mud shell or marl (Tex. Parks & Wild. Code, 1.1.011). The state Wildlife Conservation Act of 1983 provides a comprehensive method for the conservation of an ample supply of state wildlife resources to insure reasonable and equitable enjoyment of the privileges of ownership and pursuit of same, and to provide a flexible law to enable the Parks and Wildlife Commission to deal effectively with changing conditions to prevent depletion and waste of wildlife resources (Tex. Parks & Wild.Code, 5.61.002).

The TPWD has authority to develop and administer management programs to insure the continued ability of nongame species of fish and wildlife to perpetuate themselves successfully, including research, acquisition of habitat, species reintroduction and population. The state has authority to administer endangered species provisions governing permit application, hearings, identifying endangered fish and wildlife or goods made from them which may be possessed, propagated or sold, and publication and distribution of endangered species lists to the public (Tex. Parks & Wild.Code, 5.68.014.).

Pennsylvania (Pennsylvania Consolidated Statutes, Titles 30, 32, and 34)

The Commonwealth has authority to protect, propagate, manage and preserve the game or wildlife population as a natural resource (30 Pa.C.S. § 2506 and 34 Pa.C.S. § 2161). This includes working with federal agencies on threatened and endangered species and MBTA. The Game Commission may issue permits for the importation, exportation, sale, exchange, taking or possession of birds or animals classified as endangered or threatened, living or dead, or parts, including eggs, and permits for native birds or animals taken

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from the wild and which are classified as endangered or threatened in Title 58 (Oil and Gas). The Fish and Boat Commission regulates aquatic species and habitat.

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H. Cultural and Archaeological

There is a long history of laws and regulations enacted to preserve the historical, cultural and paleontological resources in the United States. Federal agencies must consider the effects of projects they approve, or federal undertakings, on cultural and historic properties. Additionally, they must provide opportunity for the Advisory Council on Historic Preservation (ACHP) and/or State Historic Preservation Offices (SHPO) for comment and consultation prior to project approval. For paleontological resources, federal agencies are required by law to manage and protect these resources on Federal and Tribal lands using scientific principles and expertise. Processes and requirements under these regulations pertain to any surface disturbing activity on federal and tribal lands, as well as projects that involve federal minerals underlying fee or state surfaces. As such, energy projects that are considered federal actions⁶⁹ and/or federal undertakings⁷⁰ mandate compliance to protect such resources.

1. Cultural, Archaeological, and Paleontological Resources

Cultural resources or historic property include archaeological, historic, or architectural sites, structures, artifacts, or places of traditional cultural or religious importance to specified social and/or cultural groups. Archaeology is the study of human culture in historic as well as pre-historic times, by examining the material remains of early human settlements. These remains may range from tool and weaponry artifacts, to human remains or plant fossils, to ruins of an old building. A broad study of human culture, archaeology is often regarded as a subset of anthropology.⁷¹ Paleontology is the study of prehistoric life, including floral and faunal organisms' evolution and interactions with other organisms and their environments.

2. Statutes

Congress has emphasized the importance of cultural resource protection in the National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. §§ 470-470b, 470c-470n):

⁶⁹ "Approval of specific projects, such as construction or management activities located in a defined geographic area. Projects include actions approved by permit or other regulatory decision as well as federal and federally assisted activities." 40 CFR § 1508.18(b)4

⁷⁰ "A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; those requiring a Federal permit, license or approval; and those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency." 36 CFR § 800.16(y)

⁷¹ "Why is Archaeology Important," by Abhijit Naik, Buzzle.com, accessed April 2011 at <http://www.buzzle.com/articles/why-is-archaeology-important.html>

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“The historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in order to give a sense of orientation to the American people. . . . The preservation of this irreplaceable heritage is in the public interest so that its vital legacy of cultural, education, aesthetic, inspirational, economic, and energy benefits will be maintained and enriched for future generations of Americans.”⁷²

The National Historic Preservation Act (NHPA), Archaeological Resources Protection Act (ARPA) ([16 U.S.C. §§ 470aa - 470mm](#)) and the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. §§ 3001-3013) are the key statutes that congress enacted for the protection of cultural and historic properties.⁷³ Additionally, there are other provisions in numerous other statutes that also provide for the management and protection of cultural and historic resources.

a. The National Historic Preservation Act (NHPA)

The NHPA, passed in 1966, as amended, called for the establishment of a National Register of Historic Places that would include significant districts, sites, buildings, structures, and objects in American history, architecture, archaeology, and culture. NHPA is procedural in nature and provides for detailed and rigorous consultation requirements for proposed federal, federally assisted, or federally licensed undertakings that have potential to affect historic and cultural resources included or eligible for inclusion in the National Register.⁷⁴

Section 106 of the Act details the process through which cultural or historic resources may be identified; including identification of adverse effects⁷⁵ from federal undertakings and guidelines for consultation by federal agencies with the State historic preservation officer (SHPO) and/or Tribal historic preservation officer (THPO).⁷⁶ The goal of the

⁷² 16 U.S.C. § 470(b)(2), (4).

⁷³ Sandra B. Zellmer, “*Cultural and Historic Resources, Sacred Sites, and Land Management in the West*” (Rocky Mountain Mineral Law Foundation (RMMLF) 2003, *Public Land Law, Regulation, and Management*)

⁷⁴ See regulations for Protection of Historic Properties, 36 C.F.R. §§ 800.1 - 800.16 (2010).

⁷⁵ Adverse effect: alteration of the characteristics of a cultural property that may qualify it for the National Register, thereby reducing or eliminating the resource’s use potential, diminishing its integrity, or disqualifying it from Register eligibility. Determination of adverse effect to cultural properties is guided by criteria in the Advisory Council’s regulations, 36 C.F.R. 800.5.

⁷⁶ 36 C.F.R. §§ 800.1, 800.2. (2010). Federal agencies are encouraged to coordinate compliance with section 106 and the procedures in this part with any steps taken to meet the requirements of the National Environmental Policy Act (NEPA). Agencies should consider their section 106 responsibilities as early as possible in the NEPA process, and plan their public participation, analysis, and review in such a way that they can meet the purposes and requirements of both statutes in a timely and efficient manner. The

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Section 106 process is, through consultation, to resolve adverse affects to cultural or historic resources. The Advisory Council on Historic Preservation (ACHP), whose members are appointed by the President, provides oversight to the federal agencies and resolves disputes that may arise between the agency and SHPO and/or THPO. As directed by NHPA, the ACHP serves as the primary federal policy advisor to the President and Congress; recommends administrative and legislative improvements for protecting our nation's heritage; advocates full consideration of historic values in federal decision making; and reviews federal programs and policies to promote effectiveness, coordination, and consistency with national preservation policies.⁷⁷ Compliance with NHPA “requires planning to avoid or mitigate harm to historic resources, but does not prohibit projects simply because they are likely to cause such harm.”⁷⁸

Section 106 regulations were revised in 1999 by the ACHP in an effort to improve and streamline as part of President Clinton’s reinventing government initiatives. The revised regulations, including a new section (36 C.F.R. § 800.8), encouraged the integration of the resolution of adverse effects on historic properties into agency National Environmental Policy Act (NEPA) compliance.⁷⁹ The revision allows federal agencies to utilize the NEPA process for Section 106 purposes.

The Bureau of Land Management (BLM), in 1997, executed a national programmatic agreement (PA) to help guide their planning and decision making as it affects historic properties. The PA is between the BLM, ACHP and the National Conference of State Historic Preservation Officers, and was executed to “ensure that BLM will organize its programs to operate efficiently, effectively, according to the spirit and intent of the NHPA, and in a manner consistent with 36 CFR Part 800; and that the BLM will integrate its historic preservation planning and management decisions with other policy and program requirements to the maximum extent.”⁸⁰ The PA legally replaces 36 CFR

determination of whether an undertaking is a 'major Federal action significantly affecting the quality of the human environment,' and therefore requires preparation of an environmental impact statement (EIS) under NEPA, should include consideration of the undertaking’s likely effects on historic properties. A finding of adverse effect on a historic property does not necessarily require an EIS under NEPA. 36 C.F.R. 800.8(a)(1) (2010).

⁷⁷ See Advisory Council on Historic Preservation website, accessed April 2011 at www.achp.gov, for more information.

⁷⁸ Preservation Coalition of Erie County v. Fed. Transit Admin., 129 F. Supp. 2d 551, 555 (W.D.N.Y. 2000) (citing Nat. Resources Defense Council v. City of New York, 672 F.2d 292, 299 (2nd Cir. 1982)).

⁷⁹ 61 Fed. Reg. 48,580, 48,582 (Sept. 13, 1996).

⁸⁰ Programmatic Agreement Among The Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservations Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act, p. 2. Accessed April 2011, at <http://www.blm.gov/heritage/docum/finalPA.pdf>

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Part 800, the ACHP government-wide regulations, and provides the Council an advisory-consultative role in the BLM management process when a proposed land use may have an effect on a nationally significant cultural property. Those offices not operating under the national PA are required to follow Section 106 regulations at 36 CFR Part 800. The BLM announced, September 17, 2010, a draft revised National PA that emphasizes BLM's requirement to consult with tribes to obtain their views on the potential effect of actions on resources of significance to tribes and resolution of any adverse effects stemming from those actions.⁸¹

Generally, properties that have achieved significance within the past 50 years are not eligible for the National Register.⁸² However, the 1992 NHPA amendments provide that "properties of traditional religious and cultural importance," or TCPs (Traditional Cultural Properties) to an Indian Tribe may be eligible. Additionally when Federal undertakings may affect TCPs, consultation occurs between the agency and the affected American Indian Tribe.⁸³

Each federal agency is responsible for the historic properties they manage or have an interest in, and are instructed to find, take note of, and nominate sites or objects into the National Register. Additionally, Section 110 of the NHPA (16 U.S.C. 470) sets out broad responsibilities for each agency of the government. These responsibilities mandate that historic preservation is integrated into ongoing programs managed by agencies.⁸⁴

b. Other Statutes

The foundational statutes for the Bureau of Land Management (BLM), the U.S. Forest Service (USFS) and the National Park Service (NPS), are found in the Federal Land Policy Management Act of 1976 (FLPMA) (43 U.S.C. § 1731), National Forest Management Act of 1976 (NFMA) (16 U.S.C. 472a et seq.), and National Park Service Organic Act, 1916, (16 U.S.C. 1, 2, 3, 4), respectively, and all include cultural, archaeological, and paleontological resource protection as a component of their overall missions. These Acts also mandate that the agencies complete resource management planning. The purpose of resource management planning is to implement each agency's congressional mandate at a more localized level. This includes management prescriptions for cultural, archaeological, and paleontological resources. Resource management plans also analyze other land and resource uses, such as oil and gas, and

⁸¹ BLM Seeks Input on Revised Historic Preservation Agreement, BLM press release Sept. 17, 2010, accessed April 2011, at BLM website last updated Oct. 7, 2010, at http://www.blm.gov/wo/st/en/info/newsroom/2010/september/NR_09_17_2010.html

⁸² 36 C.F.R. § 60.4 (2010).

⁸³ 16 U.S.C. § 470a. (d).

⁸⁴ See, for example, The Secretary of the Interior's Standards and Guidelines for Federal Agency Historic Preservation Programs Pursuant to the National Historic Preservation Act, at National Park Service Federal Agency Preservation Assistance Program website, accessed April 2011, at http://www.nps.gov/hps/fapa_110.htm, and published at 63 Fed. Reg. 20,496, 24 April 1998.

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take into account the impact that may occur to cultural, archaeological, and paleontological resources.

The Archaeological Resource Protection Act (ARPA) ([16 U.S.C. §§ 470aa - 470mm](#)), passed by Congress in 1979, protects archaeological resources on all federal public and tribal lands. It prohibits the excavation, removal, alteration or destruction of archaeological resources without a permit. It also prohibits the sale, purchase, transport or receipt of such resources removed from public and tribal lands. ARPA includes the definition of archaeological resources: “any material remains of past human life or activities which are of archaeological interest.” All resources covered under this definition must be at least 100 years of age.⁸⁵

The Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. §§ 3001-3013) was enacted in 1990 to compliment ARPA by regulating the discovery and removal of human remains and cultural items from federal and tribal lands. However, NAGPRA put forth requirements for repatriation to lineal descendants or appropriate tribes as well as requirements for federal agencies and museums to inventory all human remains, funerary objects, and sacred objects.⁸⁶

The Paleontological Resources Preservation Act (PRPA) (16 U.S.C. §§ 470aaa - 470aaa-11), passed in 2009, requires the Secretaries of the Interior and Agriculture to manage and protect paleontological resources on Federal land using scientific principles and expertise, and includes specific provisions addressing management of these resources. The PRPA affirms the authority for many of the policies the Federal land managing agencies already have in place for the management of paleontological resources such as issuing permits for collecting paleontological resources, curation of paleontological resources, and confidentiality of locality data.⁸⁷ BLM Manual 8270 and BLM Handbook H-8270-1, and updates, contain the agency's guidance for the management of paleontological resources on public land.⁸⁸ The manual has more information on the authorities and regulations related to paleontological resources. The Handbook gives procedures for permit issuance, requirements for qualified applicants, information on paleontology and planning, and a classification system for potential fossil-bearing geologic formations on public lands. However, if fossils are found in direct association with archaeological materials, they are also considered to be archaeological resources and are protected by the Archaeological Resources Protection Act.

⁸⁵ 16 U.S.C. § 470bb(1)

⁸⁶ Sandra B. Zellmer, “*Cultural and Historic Resources, Scared Sties, and Land Management in the West*” (Rocky Mountain Mineral Law Foundation (RMMLF) 2003, *Public Land Law, Regulation, and Management*)

⁸⁷ 16 U.S.C. §§ 470aaa-3, -4, and -8.

⁸⁸ See BLM website at "Paleontology Laws," for Manual, Handbook, and revisions, accessed April 2011 at http://www.blm.gov/wo/st/en/prog/more/CRM/paleontology/paleontological_laws.html

3. Chronology of significant Cultural Laws and Related Executive Orders⁸⁹

- Antiquities Act (1906)
- Organic Act (1916)
- Historic Sites Act of 1935
- National Historic Preservation Act (1966)
- National Environmental Policy Act (1969)
- Executive Order No. 11593 Protection and Enhancement of the Cultural Environment (1971)
- Archeological and Historic Preservation Act (1974)
- American Indian Religious Freedom Act (1978)
- Archaeological Resources Protection Act (1979)
- Native American Graves Protection and Repatriation Act (1990)
- Religious Freedom Restoration Act (1993)
- Executive Order No. 13006 Locating Federal Facilities On Historic Properties In Our Nation's Central Cities (1996)
- Executive Order 13007: Indian Sacred Sites (1996)
- Executive Order 13175: Consultation and Coordination with Indian Tribal Governments (2000)
- Executive Order No. 13287 Preserve America (2003)
- Paleontological Resources Preservation Act (2009)

4. 2003 National Petroleum Council (NPC) Study (Archaeology)

“Due to liberal interpretation of current regulations, operators are frequently required to perform exhaustive cultural resource studies far beyond the scope of their projects. Improved methods for determining site significance are critically needed. In-depth consultation and review should not be mandated if a site is not unique or lacks significance. BLM should ensure that its national historic trail and visual resource management guidelines are used objectively and consistently to avoid unintended effects to private landowners, lessees, and state and federal revenues.” (Natural Gas Supply, Balancing Natural Gas Policy, Fueling the Demands of a Growing Economy, Vol. II Integrated Report, Chapter 4, page 187, National Petroleum Council, September 2003.)⁹⁰

⁸⁹ See, also, U.S. Fish & Wildlife Service website, Digest of Federal Resource Laws, accessed April 2011 at <http://www.fws.gov/laws/lawsdigest/resourcelaws.htm>

⁹⁰ Accessed April 2011 at www.npc.org, Reports, Natural Gas.

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I. Local Ordinances - Noise, Visual, Odor, Nuisance

1. Legal Framework

Today, the regulation of oil and gas exploration and production activities by sub-state or local governmental units has reemerged after a lengthy period when conflicts over oil and gas projects at the local level had diminished. In significant part, this is because, after a long decline of onshore operations outside of established fields and basins, exploration and drilling have recently boomed in areas unfamiliar with such activities. Shale gas development in particular has resulted in renewed and energetic debate over the role and oversight of local government.

Oil and gas activities take place where the oil and gas is located and found. Historically, that has tended to involve rural areas, although there are clear exceptions. Population growth and exurban development have led to the phenomenon of people moving to where the oil and gas wells are being drilled. As many operators have found who work in natural gas plays that encompass expanding urban or exurban areas, those who move to what they believe to be rural surroundings not only desire urban amenities, but also the "peace and quiet" they attribute to rural environments. Particularly in these areas, operators are challenged to familiarize themselves with local ordinances that may govern aspects of their drilling and production operations that are not addressed by state (or federal) permit requirements. This challenge is further complicated by occasional instances of conflict between state and local government requirements or policy preferences, and by the capability of local residents to organize to pressure local governments to impose more stringent requirements on oil and gas activities, particularly when many believe that these activities have taken on the character of a nuisance.

Oil and gas activities are treated as any other prospective use under zoning ordinances and are subject to traditional rules relating to judicial review of zoning decisions. Land use regulation through zoning, planning, and subdivision regulatory mechanisms date from the first comprehensive zoning ordinance enacted by New York City in 1916. Widespread use of zoning throughout the urban areas of the United States followed determination by the U.S. Supreme Court's that zoning was a constitutionally valid exercise of the police power in the decision of *Village of Euclid v. Ambler Realty Co.*, 272 U.S. 365 (1926). The *Village of Euclid* decision was followed by adoption of the Standard Zoning Enabling Act (SZA) and the Standard Planning Enabling Act by the United States Department of Commerce under the guidance of Herbert Hoover in 1924. Within three years, over 45 states had adopted statutes authorizing at least some of their local government units to engage in comprehensive zoning and/or planning efforts. The principal purpose of the SZA in the 1920s was to provide a model enabling act to be passed by state legislatures clearly giving local governments the power to zone and plan. Without such an enabling act, such governmental units may not have had the authority to zone. The effect of *Village of Euclid* and the SZA was to remove the legal or

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constitutional constraints on the exercise of comprehensive land use regulatory powers by local governments.

Another development has been home rule. The concept of home rule gives local government units to which home rule is delegated substantially greater freedom to exercise the police power than had existed prior to the adoption of constitutional and statutory home rule regimes. During the middle of the twentieth century, home rule and the land use powers that accompany home rule were largely concentrated in municipalities. Counties, the usual provider of governmental services in the rural regions of the United States where oil and gas activities more commonly occurred, often lacked most of the traditional police powers exercised by the cities. In addition, counties were often left out of the home rule movement that transformed local governmental law in the twentieth century. In recent years, more and more counties have been delegated home rule powers.

For local governmental units that have home rule authority, either granted by the state constitution or by state legislation, the power to zone arises from the charter of the local governmental unit. Essentially, a home rule provision transfers to the local government, the full breadth and extent of the police power that otherwise resides in the state legislature.

Grants of home rule power differ from state-to-state, but for this discussion, it is important to ascertain whether home rule power is considered preemptible or non-preemptible. Most states provide for preemptible home rule power. A preemptible home rule system means that while the local governments have all of the power that the state has, the state may, through the exercise of its legislative prerogative, limit, condition, or abrogate the local government's power.

Two oil and gas producing states, California, and Colorado, have non-preemptible home rule constitutional provisions. In theory, that means that, as to matters relating exclusively to local or municipal affairs, the state has no power to act. In other words, the home rule unit has sole authority to regulate on matters relating to local or municipal affairs. As to matters of statewide concern or hybrid state/local concern, these two states treat local powers as preemptible.

However, as a practical matter, the regulation of oil and gas operations is not going to be treated as a matter of exclusive local concern even in these states. Courts acknowledge the importance of consistency at the state level in regulation of drilling and production operations. Courts have also recognized a prevailing state interest in consistency of rules that govern safety, management of the oil and gas resources themselves, and protection of the environment. The consequence is that, for many issues, the preemption analysis for non-preemptible home rule states reaches similar results to the analysis in preemptible home rule states.

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The operation of a particular local zoning ordinance depends upon the relevant statutes, charter provisions, and ordinances. The local jurisdiction's legislative body is generally the only entity that can adopt a land use or zoning ordinance. In addition to the adoption or amendment of ordinances, local government legislative bodies often participate in the final approval decision concerning discretionary permits or other administrative decisions. A typical zoning ordinance will establish a citizen-staffed commission, sometimes called the planning commission, zoning commission, or planning and zoning commission. The zoning ordinance will often delegate to this administrative body the power to develop the comprehensive plan and to make decisions on subdivision plat applications. It also may have the power to make recommendations regarding zoning ordinance amendments. In larger or more populous jurisdictions, the commission will usually be supported by a professional staff of planners. Most local governments involved in zoning will have another citizen-staffed agency known variously as a board of adjustment, board of zoning appeals, zoning board of adjustment, or board of appeals. This board usually has the power to grant variances and to hear appeals from orders or decisions made by governmental officials working in the land use field.

As a general rule, states do not allow local governments to make resolutions or rules that completely prevent the use, development, or recovery of any mineral, forest or agricultural resource. While this does not preclude all local regulation of natural gas and oil development - local governments can impose reasonable conditions on application approvals - land use and zoning ordinances must allow effective utilization of oil, natural gas and other mineral resources.

Many states prohibit a local government from adopting standards or requirements that are lower or less stringent than the equivalent state standards. As an example, in Montana, "a local government with self-government powers is prohibited the exercise of any power in a manner inconsistent with state law or administrative regulation in any area affirmatively subjected by law to state regulation or control."⁹¹

Another form of restriction is typified in Pennsylvania, where the Pennsylvania Oil and Gas Act preempts local regulation of most matters relating to drilling and production activities, and places this authority in the hands of the state's Department of Environmental Protection. According to the act, local regulations may not apply to matters such as well location, protection of water supply, well site safety, and notice of permits, well site bonding, and more. However, it is important to note that preemption of the Oil and Gas Act only applies to wells and extraction. It does not apply to using zoning or subdivision and land development ordinances to guide growth and development that results from the industry activity and to protect community assets.

⁹¹ Mont. Code Ann. § 7-1-113 (2009) accessed April 2011 at <http://data.opi.mt.gov/bills/mca/7/1/7-1-113.htm>

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Texas provides an example of the balance that is customarily struck between the interest accorded the state in development of natural gas and oil resources for the benefit of the state, and the interest accorded local governments in oversight of matters of local concern. It also reflects a state policy that favors consistent regulation of safety of drilling and production operations, conservation of the resource, and protection of the environment. In Texas, a state with a long history of natural gas and oil development, the Railroad Commission regulates the exploration and production of oil and natural gas. Texas law assigns to the Railroad Commission the primary responsibilities of preventing waste of oil and gas resources, protection of surface and subsurface water, and ensuring all mineral interest owners have an opportunity to develop their fair share of the minerals underlying their property. The Railroad Commission does not have jurisdiction over roads, traffic, noise, odors, leases, pipeline easements, or royalty payments. Permits issued by the Commission for oil and gas exploration, production, and waste disposal do not limit any independent authority of a municipality, county or other state agencies with respect to road use. Noise, odors and other nuisance related issues would be governed by local ordinances. Texas also provides that all general law municipalities in the state have the power "to adopt ordinances for good government, peace or order which are necessary or proper for carrying out a power granted by law."

The website "Haynesville Shale Education Center,"⁹² that is maintained by the Louisiana Oil and Gas Association, reports that the Louisiana Department of Natural Resources (DNR) and the Office of Conservation have rules and regulations in place to ensure that drilling operations occur safely and in a manner that protects the environment. The Haynesville Shale Sites are inspected regularly by local and state authorities. After an operator completes a well, the size of the pad site may be reduced, fenced and landscaped per local ordinances. Local ordinances dictate the type of landscaping that must be used at a production site. Local ordinances also govern abatement of noise from drilling operations, and operators must comply with local ordinances that specify the decibel levels allowed. In the Haynesville area, some principal municipal and parish governments have been working on a comprehensive set of ordinances "to give local governments leverage in controlling drilling in the Haynesville Shale natural gas field," according to the Shreveport *Times*. This report says, "the ordinances are aimed at protecting water, limiting road damage, and controlling noise, lighting and hours of operation at drilling sites."

Colorado offers a somewhat different and evolving model. Colorado's Oil and Gas Conservation Act regulates many aspects of oil and gas development and production in the state, Section 34-60-101, C.R.S., et seq. The purpose of the act is to promote the development and production of oil and gas, prevent waste, and protect the property rights of oil and gas owners and producers. A board, called the Oil and Gas Conservation Commission, has many land-use and zoning powers that have been traditionally exercised by local governments. For example, the commission regulates well placement and

⁹² Accessed April 2011 at <http://www.loga.la/haynesville-shale-education.html>

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spacing, lighting, noise levels from drilling operations, and environmental reclamation after a site is abandoned. While the act allows the commission to regulate many aspects of oil and gas development and production, the Colorado Supreme Court determined in *County Commissioners v. Bowen/Edwards Assoc.* (830 P.2d 1045 (Colo. 1992)) and *Voss v. Lundvall Bros, Inc.* (830 P.2d 1061 (Colo. 1992)) that the act does not preempt all aspects of local government's authority to regulate oil and gas development and production facilities.

Colorado law provides statutory municipalities and counties with broad land-use and planning powers. The Colorado Supreme Court has determined that a statutory local government may enact a local oil and gas ordinance provided that it does not conflict with a state statute or adversely impact the production of oil and gas or the property rights of the owners of a gas field or oil pool. The state's Supreme Court has also ruled that counties may not enforce regulations that directly conflict with Colorado's Oil and Gas Conservation Act. For example, a county may not adopt a noise ordinance pertaining to oil and gas development and production that is more stringent than the state's noise regulation. However, the court also determined that a county regulation and a statute may remain in effect provided that the two laws do not conflict. The court did not provide a more specific guideline for determining if a county regulation conflicts with state law.

The Colorado Constitution grants home rule cities broader authority over local and municipal matters than statutory counties and municipalities. A home rule city's ordinances pertaining to local matters, such as planning and zoning, supersedes conflicting state laws. A home rule municipal ordinance may remain in effect provided that the ordinance does not conflict with a state interest. However, in a 1992 case, the Colorado Supreme Court determined that laws based on the state's interest concerning the efficient production of oil and gas and the protection of the property rights of the mineral owners may take precedence over some home rule municipal ordinances.

In that case, the court considered a City of Greeley ordinance that prohibited all oil and gas drilling activity within the city's boundaries. The court determined that the city's total ban was illegal because it conflicted with "the interest of the state in promoting the efficient and fair development, production, and utilization of oil and gas resources in the state" (*Voss v. Lundvall Bros, Inc.* 830 P.2d 1061 (Colo. 1992)). However, the court recognized that the city has an interest in land-use control within its border. Furthermore, nothing in the Oil and Gas Conservation Act preempts all of a local government's land-use authority over land that might be subject to oil and gas development and operations within its boundaries. In Colorado, it currently appears conflicts between the home rule cities and the state are to be determined on a case by case basis.

2. Noise

Although noise in the work or occupational environment is regulated by the federal or state Occupational, Safety, and Health Administration (OSHA), community noise has

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largely been left to local communities to resolve. In the Noise Control Act of 1972 (42 U.S.C. 4901, et seq.), congress directed the EPA to publish scientific information about the kind and extent of all identifiable effects of different qualities and quantities of noise. EPA was also directed to define acceptable levels under various conditions that would protect public health and welfare with an adequate margin of safety.

EPA subsequently published a very detailed report in March 1974 entitled “Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA550/9-74-004). Similarly, EPA published a model community noise ordinance in 1975 for use by cities and communities to develop noise control ordinances. Due to political policy and internal review, EPA was never able to develop and enforce federal standards for community noise and left it primarily in the hands of states and local communities.

There is no composite record on the specific number and location of state or local community noise standards. An internet search for the term “community noise standards,” returned approximately 342,000 results, making it futile to provide a composite summary of this subject. Rather than attempt to address all community noise standards and their impact to the oil and gas industry, a case history regarding community noise issues in the San Juan Basin will be provided. The San Juan Basin is the second largest land producing natural gas basin in the lower 48 United States and is located primarily in northwest New Mexico and southwest Colorado.

Community noise became a prevalent issue in the San Juan Basin beginning about 1998. The San Juan Basin is known as a mature basin, meaning the reservoir pressures have steadily dropped over the years since production was first started. Given this maturity, there has been a need to increasingly add compression into the field to sustain production volumes at or near present levels, which is approximately 3.5 billion cubic feet of natural gas/day. This field compression is usually powered by natural gas-fired, reciprocating internal combustion engines (RICE), very similar to engines that power automobiles and trucks. Where this compression was added to wellsites near rural or semi-rural areas with nearby homesites, complaints naturally arose and calls were made for governmental action. Most companies tried to address complaints directly by installing either noise barriers or enclosures around the compressor-engine combinations, with some but not total success. These complaints escalated to governmental agencies with oversight of oil and gas activity in an attempt to resolve this issue.

Since 60-70% of the acreage in the San Juan Basin being developed was under the oversight of the Bureau of Land Management (BLM), the local Farmington BLM office conducted a 6-9 month study of the noise issue, taking input from both the community and oil and gas industry. With this input, the Farmington BLM adopted a standard⁹³ that

⁹³ NTL 04-2 FFO - Notice to Lessees and Operators on Onshore Oil and Gas Leases Within the Jurisdiction of the Farmington Field Office (FFO)-Management of Sound Generated by Oil and Gas Production and Transportation

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generally required any noise source to be controlled such that it did not create a sound level greater than 48.6 dB(A) at a distance of 100 feet from an occupied building. This standard came into effect in 2000, and exists to this date.

The City of Farmington, like many communities, developed a noise standard based upon local zoning. That standard basically set minimally acceptable sound levels at the property line based upon zoning of the affected area and the time of day. That ordinance is summarized in Table I below and applies to any source of noise and not just the oil and gas industry.

Table I – City of Farmington, NM Noise Ordinance

Zoning	Time of Day	Sound Level Limit dB(A)
Residential	7am-7pm	60
	7pm-7am	50
Commercial	7am-7pm	65
	7pm-7am	55
Industrial	At all times	75

The City of Aztec took a slightly different approach and addressed community noise specifically attributable to oil and gas activity. Their ordinance requires certain noise abatement technologies irrespective of sound levels and a general prohibition on creating a noise nuisance. Its requirements are provided below:

Sec. 15-25. Sound Emissions.

All operations during the construction, maintenance, and operation of the minor and/or major oil and gas facility shall be conducted in such a manner so as to make the least noise possible. Intermittent operations (e.g., mobile vehicles or equipment, drilling and work-over rigs, etc.) will conduct their operations in a manner that does not create a noise nuisance to surrounding residents or public gathering areas. Continuous operations (e.g., well site compression, pump-jacks, etc.) shall use the following noise mitigation measures, as required, to minimize disturbance to nearby residential or public gathering areas. Mitigation measures may include, but are not limited to:

- 1. Exhaust from all engines, motors, coolers and other mechanized equipment shall be vented away from the closest existing residences unless otherwise specified by New Mexico Environmental Department permit restrictions.*
- 2. All facilities with engines or motors not electrically operated shall be equipped with hospital grade mufflers that achieve at least a 25 dB noise reduction. Such equipment shall be installed and maintained in proper working condition.*
- 3. All mechanized equipment associated with the oil and gas facility shall be anchored or mounted on vibration dampeners so as to minimize transmission of vibration through the ground.*
- 4. All facilities within the city limits that have compressors, engines or motors which generate sound and located within four hundred (400) feet of an existing residential, office, institutional, commercial or industrial structure will be placed behind a maintained, acoustically designed barrier or be contained within a maintained,*

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acoustically insulated structure to further reduce sound and to provide less of a visual impact. Under certain circumstances, additional noise abatement measures may be required and may include, but are not limited to, the following:

5. Installation of electric engines and/or motors.

6. Vegetative screening consisting of trees and shrubs placed within the fenced enclosure.

7. Solid wall or fence of acoustically insulating material surrounding all or part of the facility.

8. Sound management plan identifying hours of maximum sound emissions, type, frequency and level of noise to be emitted and proposed mitigation measures.⁹⁴

All of these standards establish enforceable conditions for community noise. There is no approval required of the respective agency but when an affected landowner believes that a given oil and gas facility does not meet these conditions, a complaint to the respective agency can be filed and investigated for validity. If proven to be valid, then the company is afforded a reasonable time to bring the facility into compliance with the applicable standard or face the possibility of fines or shutting down the facility in question.

The community noise issues that arose starting in 1998 have increasingly been resolved to the extent that there are few complaints for the thousands of compressors, engines, and other noise generating equipment that exists in the field today. This is partly a result of the standards referenced above, but more importantly, industry has shown greater recognition and sensitivity to the issue of community noise and has taken upfront, proactive steps to employ noise abatement at compressor-engine installations near residential areas in an attempt to address concerns before they become complaints. This “good neighbor” approach has resulted in far fewer complaints to the federal and local agencies.

⁹⁴ Aztec City Code, Chapter 15 – OIL AND GAS WELLS, 2007 MAR 06, 15-11

