

Washington International Law Journal

Volume 6 | Number 3

7-1-1997

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Recommended Citation

Deborah K. Espinosa, Comment, *Environmental Regulation of Russia's Offshore Oil & Gas Industry and Its Implications for the International Petroleum Market*, 6 Pac. Rim L & Pol'y J. 647 (1997).

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ENVIRONMENTAL REGULATION OF RUSSIA'S OFFSHORE OIL & GAS INDUSTRY AND ITS IMPLICATIONS FOR THE INTERNATIONAL PETROLEUM MARKET

Deborah K. Espinosa[†]

Abstract: Due to Northeast Asia's increasing energy demand, the Russian Far East's immense oil and gas reserves, and the close physical proximity between the two regions, international petroleum companies are exploring Russia's offshore petroleum reserves in the Far East. The Russian offshore industry, however, presents foreign investors with many legal uncertainties including exposure to environmental liabilities. This Comment suggests that Russia's environmental regulatory system, which includes a constitutional right to a healthy environment, presents international petroleum companies with a new set of circumstances to which they must adapt if Russian reserves are to satisfy Northeast Asia's rising energy needs. To do otherwise would be to expose themselves to greater liability in an already risky investment climate.

I. INTRODUCTION

One of the most significant events in the evolution of the international oil and gas market¹ is the entrance into the market of the petroleum-producing countries of the former Soviet Union.² With the enactment of the long-awaited Russian Federation Law on Production Sharing Agreements ("PSA"),³ Russia has joined the club of petroleum-producing countries which contracts out to international oil and gas consortia the rights to explore and exploit its energy resources.⁴ In so

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¹ See, e.g., Ernest E. Smith & John S. Dzienkowski, *A Fifty-Year Perspective on World Petroleum Arrangements*, 24 TEX. INT'L L.J. 13 (1989).

² The petroleum-producing countries of the former Soviet Union include the Russian Federation, Kazakstan, Azerbaijan, and Turkmenistan. The impact of these transitional economies' entry into the world petroleum market has recently been considered. See Thomas W. Wälde, *International Energy Investment*, 17 ENERGY L.J. 191 (1996) (discussing how petroleum countries in transition may force petroleum legislation and contracting to evolve).

³ *Law on Production Sharing Agreements, No. 225-3, ECONOMIC LAW OF RUSSIA, available in LEXIS, Intlaw Library, RFLAW File [hereinafter PSA Law]*.

⁴ Petroleum-producing countries often lack the capital and technology necessary to develop the resources themselves. PSAs represent considerable value to such countries. See, e.g., Sola Adepetun,

doing, Russia moved one step closer to participating in the Northeast Asian energy market.

There has never been a better time than the present to export Russian energy resources to Northeast Asia. As economies of Northeast Asia continue to expand,⁵ so too do these countries' energy needs.⁶ To date, regional demand for oil and natural gas exceeds regional supply.⁷ The region is considered to be at "an energy crossroads" in that it must decide whether to cooperate to exploit its own energy resources or continue to depend on far away markets.⁸ As one commentator characterized the energy situation in the region, "Virtually all foreseeable futures pose unsettling dilemmas for Asia."⁹

Russia is particularly well-situated to meet Northeast Asia's energy needs. Russia possesses the largest supply of natural gas in the world and a significant portion of global oil reserves.¹⁰ Much of these resources lie in the Russian Far East ("RFE"), an area which shares a border with China and North Korea and at one point lies only fifty miles from Japan. And yet, the RFE's capacity to supply its energy-hungry neighbors is constrained in part by its legal system.

The legal obstacles to foreign investment in the Russian oil and gas sector are substantial.¹¹ Analysts characterize the situation as "a disaster for investors."¹² And, "The severity of the tax burden is rivaled only by the frequency and unpredictability with which it changes."¹³ Other related problems include constantly changing export duties and overlapping

Production Sharing Contracts—The Nigerian Experience, 13 J. ENERGY & NAT. RESOURCES L., 21, 21-22 (1995).

⁵ KEUN-WOOK PAIK, GAS AND OIL IN NORTHEAST ASIA 3 (1995)

⁶ *Id.* at 4-5.

⁷ *Id.* at 5. Estimates indicate that in the next decade, Asia will consume more oil than that which North America consumes. Joseph Stanislaw & Daniel Yergin, *Oil: Reopening the Door*, 72 FOREIGN AFFAIRS 81, 90 (1993).

⁸ *NE Asia 'at Crossroads'—Russian Gas Beckons*, INT'L GAS REP., Feb. 16, 1996, available in 1996 WL 8731199. Between 1990-92, Middle Eastern oil comprised 72-75 percent of Japanese energy consumption, 74-75 percent of South Korean, and 79-80 percent of Taiwanese. PAIK, *supra* note 5, at 6.

⁹ Kent E. Calder, *Asia's Empty Tank*, 75 FOREIGN AFF. 55, 56 (1996).

¹⁰ The former Soviet Union is reputed to have the third largest proven oil reserves in the world after the Middle East and Venezuela. *Rushing In and Out of Russia*, ENERGY ECONOMIST, July 1995, available in LEXIS, Energy Library, ALLNWS File.

¹¹ Foreign investment is considered an essential requirement to Russia exploiting its oil and gas resources, particularly offshore. See, e.g., Stanislaw & Yergin, *supra* note 7, at 86-87.

¹² Vladimir Khrenov & John Sheedy, *Production Sharing in Russia: Investors Share Hope*, PETROLEUM ECONOMIST, May 1996, at 83.

¹³ *Id.* See also Judith Robinson, *Russian Oil and the Tax Dilemma*, TAX NOTES INT'L, Nov. 6, 1995, available in LEXIS, Fedtax Library, TNI File.

jurisdiction between federal, regional, and local authorities.¹⁴ An additional complicating factor which has been little analyzed is the legal uncertainties which Russian environmental law presents foreign investors.¹⁵

In traditional petroleum-producing countries, uncertainty as to environmental obligations and potential liabilities has not operated as a disincentive to investment.¹⁶ The overwhelming majority of petroleum-producing countries neglect the environmental aspects of energy resource development.¹⁷ In order to attract international petroleum companies, countries typically choose not to enact strict environmental requirements.¹⁸ The situation in the Russian Federation is somewhat different. Russia, as one of the successor states of the Soviet Union, inherited an extensive legal framework for environmental protection. That framework, however, creates broad and ambiguous duties which, thus far, have been erratically enforced.

This Comment begins by describing the RFE's physical capacity to meet the energy needs of Northeast Asia. The section includes a historical account of efforts to exploit the offshore oil and gas reserves in the region. Part III briefly recounts Soviet environmental law and policy. Part IV surveys the current legal framework for exploitation of offshore energy resources. The need for environmental regulation of offshore exploration and exploitation activities is examined in Part V by looking at its environmental impacts.¹⁹ Part VI analyzes the environmental obligations of prospective mineral developers during the three stages of an offshore project. This Comment concludes that because of Russia's fairly advanced

¹⁴ See, e.g., Chris Ferguson, *Safeguarding Against Unexpected Local Taxes*, EAST/WEST COMMERCANT, Nov. 25, 1996, available in LEXIS, Market Library, IACNWS File (discussing the "Krasnodar case" where a conflict arose between federal and local authorities over tax revenues).

¹⁵ See, e.g., John Kingston, *Environmental Rules Adding to the Burdens in Russia*, PLATT'S OILGRAM NEWS, Sept. 25, 1996, available in LEXIS, Energy Library, PONEWS File. See also Nicholas A. Robinson, *Environmental Protection Legislation in Russia's Oil and Gas Industry*, in INTERNATIONAL OIL AND GAS INVESTMENT: MOVING EASTWARD? 253 (Thomas W. Wälde & George K. Ndi eds., 1994) (suggesting necessary environmental protection legislation).

¹⁶ For example, Indonesia and the Gulf states have few environmental restrictions on offshore oil and gas activities. ZHIGUO GAO, INTERNATIONAL PETROLEUM CONTRACTS: CURRENT TRENDS AND NEW DIRECTIONS 96-99 (1994); MARIA GAVOUNELI, POLLUTION FROM OFFSHORE INSTALLATIONS 136-139 (1995).

¹⁷ Zhiguo Gao, *International Petroleum Exploration and Exploitation Agreements: A Comprehensive Environmental Appraisal*, 12 J. ENER. & NAT. RESOURCES. L. 240 (1994). Not surprisingly then, there is a dearth of legal scholarship on the issue. *Id.* at 240-41.

¹⁸ *Id.* at 250.

¹⁹ This Comment is limited to discussing regulation of pollution from sea-bed activities. Regulation of pollution from land-based development, dumping, and vessels is beyond the scope of this study. These classifications, although artificial because these activities have a cumulative impact, are common. GAVOUNELI, *supra* note 16, at 36.

environmental regulatory structure (albeit unenforced so far), Russia presents international petroleum companies with a new set of circumstances to which they must adapt if they want to participate in the "new Middle East."²⁰ As the rule of law takes hold in Russia and other petroleum-producing transitional economies, however, the oil and gas industry would be well-advised to adopt industry-wide environmentally-sound development practices. The alternative is exposure to uncertain and increasing liability as Russia's legal regime matures.

II. THE RUSSIAN FAR EAST

A. *Geographic Profile of the Russian Far East*

The RFE shares a 2200 km (1342 mile) border with China, much of it along the Amur River.²¹ The region also borders Mongolia, North Korea, the Sea of Japan, the Sea of Okhotsk, the Pacific Ocean, and the Arctic seas of East Siberia and the Laptev. The Japanese island of Hokkaido lies a mere eighty kilometers (fifty miles) from the tip of Sakhalin Island.²² Some 9216 km (5620 miles) to the east across Siberia and the Ural mountains is Moscow.²³

The RFE comprises thirty-six percent of the Russian Federation's land mass, or roughly three-quarters the size of the contiguous United States.²⁴ The Khabarovsk Krai alone is 1.5 times larger than France.²⁵ The RFE is a group of eleven territories with no collective political authority. These territories include: the Republic of Sakha (also known as Yakut-Sakha); Primorskii Krai (or the Maritime Province); Khabarovsk Krai; the Magadan, Amur, Sakhalin and Kamchatka Oblasts; and the Jewish, Koryak,

²⁰ Lynnley Browning, *Russia Moves to Stifle Oil Market Fears*, LLOYD'S LIST, Nov. 1, 1995, available in LEXIS, News Library, TXTNWS File. "Someday, Russia's Barents and Kara Sea provinces and its Okhotsk Sea province north of Japan will probably replace both the Gulf of Mexico and the North Sea as the world's big offshore petroleum plays for the first half of the 21st century." Dev George, *Revival!*, OFFSHORE, May 1996, at 32.

²¹ ELISA MILLER & ALEXANDER KARP, *POCKET HANDBOOK OF THE RUSSIAN FAR EAST: A REFERENCE GUIDE* 3 (1994).

²² Matthew J. Sagers, *Prospects for Oil and Gas Development in Russia's Sakhalin Oblast*, 36 *POST-SOVIET GEOGRAPHY* 274, 275 (1995).

²³ MILLER & KARP, *supra* note 21, at 3.

²⁴ Holly Strand, *The Russian Far East*, in *ENVIRONMENTAL RESOURCES AND CONSTRAINTS IN THE FORMER SOVIET REPUBLICS* 79, 79 (Phillip R. Pryde ed., 1995):

²⁵ MILLER & KARP, *supra* note 21, at 3.

and Chukotsk Autonomous Republics.²⁶ All but one of the territories have equal status in the Russian Federation; the Republic of Sakha enjoys greater autonomy.²⁷

The region is one of the least developed areas of the Russian Federation. Only eight million people reside on 6,215,900 km² of land.²⁸ The RFE economy relies heavily on extractive industries.²⁹ The region produces almost all of the nation's diamonds and tin and more than half of its gold and fish products.³⁰ The RFE's energy sector is comprised of oil, natural gas, coal, and nuclear power generation.³¹

B. Oil & Gas Resources in the Russian Far East

Five years ago, Russia was the world's largest oil producer.³² In his Pulitzer Prize-winning book, author Daniel Yergin speculated that Soviet exports could become more crucial to world markets than they already were.³³ Backing up this claim is the RFE's 339 million metric tons (308.2 million tons) of industrial-grade oil.³⁴ Approximately sixty percent of the region's oil reserves are on land, and the remainder lie on the adjoining continental shelf off Sakhalin Island in the Sea of Okhotsk.³⁵ Currently, all oil and gas production in the region is onshore.

Russia is also the world's largest natural gas producer, generating approximately 2.1 billion cubic meters (76 billion cubic feet) of gas per day.³⁶ The RFE possesses 1.5 trillion cubic meters of confirmed reserves.³⁷ The Republic of Sakha, Sakhalin Oblast, and Kamchatka and Magadan hold

²⁶ Strand, *supra* note 24, at 79.

²⁷ For example, republics have the right to establish their own state languages. *Constitution of the Russian Federation*, art. 68.2, ECONOMIC LAW OF RUSSIA, available in LEXIS, Intlaw Library, RFLAW File [hereinafter KONST. RF].

²⁸ Strand, *supra* note 24, at 79.

²⁹ MILLER & KARP, *supra* note 21, at 2.

³⁰ *Id.* at 2.

³¹ *Id.* at 108.

³² Stanislaw & Yergin, *supra* note 7, at 85.

³³ DANIEL YERGIN, *THE PRIZE: THE QUEST FOR OIL, MONEY & POWER* 774 (1991).

³⁴ A.S. Sheingauz, *Natural Resources Potential, in THE RUSSIAN FAR EAST: AN ECONOMIC HANDBOOK* 16 (Pavel A. Minakir & Gregory L. Freeze eds., 1994).

³⁵ *Id.* Onshore deposits are located on Sakhalin Island, thirty-eight percent in the Republic of Sakha and one percent in the Magadan Oblast. *Id.*

³⁶ James W. Skeleton, Jr., *Investing in Russia's Oil and Gas Industry: The Legal and Bureaucratic Obstacles*, 8 NAT. RESOURCES & ENV'T 26, 26 (1993).

³⁷ Sheingauz, *supra* note 34, at 16.

fifty-nine, forty, and one percent of the gas, respectively.³⁸ Actual reserves are expected to far exceed known quantities.³⁹ One estimate indicates 24.2 trillion cubic meters of potential natural gas reserves.⁴⁰

The area's huge energy resources and proximity to Far Eastern markets constitute the main attractions to foreign oil companies.⁴¹ These factors are expected to open up new markets for Russian oil and gas in the Pacific Rim.⁴²

1. *Historical Interest in the RFE's Offshore Oil and Gas*

Onshore commercial production of Sakhalin's petroleum resources began in 1921 when the island was under Japanese occupation.⁴³ Offshore activities began in 1957.⁴⁴ Petroleum was first discovered on the northeast shelf of Sakhalin Island in the Sakhalin Gulf, the Tatarskii Strait and the southwest portion of Sakhalin.⁴⁵ By 1967, five fields had been discovered with twenty-eight oil wells and drilling was underway in fifty-one new areas.⁴⁶ By 1970, production onshore was showing signs of strain.⁴⁷ As a consequence, and given the highly technical nature of extracting petroleum from Sakhalin's continental shelf,⁴⁸ the Soviets decided to enlist the cooperation of foreign firms.⁴⁹

Soviet-Japanese negotiations to develop Sakhalin's offshore resources were prompted by two additional factors: a downturn in production due to the Soviet's aging technology and Japan's energy needs on the eve of the OPEC oil crisis.⁵⁰ In 1975, after several years of tense negotiations, the Soviet Union and the Japanese consortium Sodeco (three percent of which was owned by the U.S. firm Gulf Oil) agreed to the joint exploration of Sakhalin's continental shelf.⁵¹ Gulf Oil was to provide

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ KEUN-WOOK PAIK, *supra* note 5, at 82.

⁴¹ *Green Light for Sakhalin-2 as Foreign Investment Starts Moving Ahead*, PETROLEUM ECONOMIST, July, 1, 1996, at 48, 48.

⁴² *Id.*

⁴³ STEPHEN LEWARNE, *SOVIET OIL: THE MOVE OFFSHORE* 83 (1988).

⁴⁴ Sagers, *supra* note 22, at 277.

⁴⁵ LEWARNE, *supra* note 43, at 81.

⁴⁶ *Id.* at 83.

⁴⁷ *Id.*

⁴⁸ For example, from mid-September to mid-May ice floes permeate the Sea of Okhotsk. *Id.* at 84.

⁴⁹ *See Id.* at 83.

⁵⁰ *Id.* at 84.

⁵¹ *Id.* at 85-88.

technology and capital for the new consortium.⁵² Throughout the life of the agreement, the Soviets tried to acquire foreign technology and training, both Japanese and American, while at the same time minimizing foreign participation; such dependence left the Soviet Union uncomfortable.⁵³

The 1979 Soviet invasion of Afghanistan sounded the death knell for the development of Sakhalin's offshore deposits.⁵⁴ In response to the invasion, the U.S. imposed a series of sanctions, which, when combined with plummeting world oil prices in the mid-1980s, effectively terminated foreign cooperation in Soviet offshore activities.⁵⁵ Without American technology, characterized as "intrinsic to Japan's success in the region," the Soviet Union discontinued developing in the region.⁵⁶

2. *Current Projects/Proposals*

Russia's transition to a market economy⁵⁷ has had a substantial effect on its oil and gas industry in that it now produces barely over a quarter of its Soviet production levels.⁵⁸ As one of the world's largest producers of oil and natural gas, Russia derives sixty-nine percent of its federal budget from the energy sector.⁵⁹ Although Russia has significant onshore petroleum reserves, V.P. Shcherbakov of the Russian Federation Committee on Geology and Use of Mineral Resources notes that "future development of the Russian petroleum industry will be connected with offshore hydrocarbon resources."⁶⁰ According to Mr. Shcherbakov, Russia's "primary task" is the creation of a petroleum industry with up to 20.9 metric tons (twenty-three million tons) of oil per year extracted from Sakhalin Island's northeast shores.⁶¹ A proposed undersea pipeline from Sakhalin to Hokkaido, Japan could provide fuel for "energy-starved Japan."⁶² Another

⁵² *Id.* at 87.

⁵³ *Id.* at 92.

⁵⁴ *Id.* at 94.

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ See, e.g., MAXIM BOYCKO ET AL., *PRIVATIZING RUSSIA* (1995).

⁵⁸ V.P. Shcherbakov, *Russian Market Reforms to Speed Development of Offshore Resources*, OFFSHORE, Oct. 1996, at 92.

⁵⁹ *Mixed Emotions*, RUSSIAN PETROLEUM INVESTOR, Nov. 1996, at 12. See, e.g., Matthew J. Sagers, *The Russian Natural Gas Industry in the Mid-1990s*, 36 POST-SOVIET GEOGRAPHY 521 (1995) (discussing the opportunities and constraints facing Russia's natural gas industry).

⁶⁰ Shcherbakov, *supra* note 58, at 92.

⁶¹ *Id.*

⁶² Vijai Maheshwari, *A Sleepy Island Awaits a Gusher . . . And Japan Gets in on the Action*, BUS. WK, Jan. 27, 1997, at 4.

proposal in the works is for a 1700 mile (2736 km) pipeline between Russia and a site near Tokyo.⁶³

Four major development projects are either underway or proposed off Sakhalin Island. Sakhalin-I is a \$15 billion project involving an American company, a Japanese company, and two Russian partners. First negotiated in 1988,⁶⁴ the international consortium is now comprised of Exxon Neftegas (30%), Japan's Sodeco (30%) Sakhalinmor-neftegas-Shelf (23%), and Rosneft-Sakhalin (17%).⁶⁵ The production sharing agreement has been approved,⁶⁶ exploratory drilling was completed in the summer of 1996,⁶⁷ and oil and gas are expected to start flowing in six to nine years.⁶⁸ An estimated 424 billion cubic meters of gas and 2.4 billion barrels of oil are recoverable from these fields.⁶⁹

Sakhalin-II is also valued at \$15 billion.⁷⁰ Two fields off the coast of Sakhalin, Piltun-Astokhskoy and Lunskeye, are being developed by Sakhalin Energy Investment, a joint-venture comprised of Marathon (30%), Mitsui (20%), McDermott (20%), Shell (20%), and Mitsubishi (10%).⁷¹ The first oil and gas could flow from this field by early 2002.⁷² Combined reserves in the area are expected to amount to 750 million barrels of oil and 494 billion cubic meters of gas.⁷³ The production sharing agreement has been approved,⁷⁴ and the appraisal phase began in June 1996.⁷⁵ Oil and gas from these fields will flow to Sakhalin's onshore production facility.⁷⁶ After processing, the oil and gas will move 625 km to the liquefied natural gas ("LNG") plant and oil export terminal at Prigorodnoye.⁷⁷ Conventional

⁶³ *Pipelines*, OIL & GAS J., Dec. 9, 1996 at 37.

⁶⁴ PAIK, *supra* note 5, at 214.

⁶⁵ Iain Esau, *Sakhalin Platform Deal for Kvaerner*, LLOYD'S LIST, Jan. 21, 1997, available in LEXIS, News Library, TXTNWS File.

⁶⁶ *Campaign '96*, RUSSIAN PETROLEUM INVESTOR, Nov. 1996, at 11. For an explanation of Russia's production sharing agreements, see discussion *infra* part IV.C.

⁶⁷ Maheshwari, *supra* note 62, at 4.

⁶⁸ Neil Potter, *Investors Gear Up for Sakhalin Projects*, LLOYD'S LIST, Apr. 4, 1996, available in LEXIS, News Library, TXTNWS File. There are three fields on the northeast shelf: Odoptu (discovered in 1977), Chayvo (discovered in 1979), and Arkutun-Dagi (discovered in 1989). *Id.*

⁶⁹ *Id.*

⁷⁰ Imbert Mathee, *On the Cusp of a New Oil, Gas Boom Seattle Could Prosper from Russia's Venture*, SEATTLE POST-INTELLIGENCER, July 6, 1996, at A1.

⁷¹ Potter, *supra* note 68.

⁷² *Id.*

⁷³ *Green Light*, *supra* note 41, at 48.

⁷⁴ *Campaign '96*, *supra* note 66, at 9, 11.

⁷⁵ Maheshwari, *supra* note 62, at 4.

⁷⁶ Potter, *supra* note 68.

⁷⁷ *Id.*

tankers are expected to export the oil and gas⁷⁸ to markets in Japan, South Korea, and Taiwan.⁷⁹

Sakhalin-III, which allocates rights to the East Odoptu and Ayashsky fields and the Kirinsky block, was awarded to the Mobil/Texaco consortium.⁸⁰ The volume of Sakhalin-III's reserves has not yet been disclosed.⁸¹ In terms of the federal government's development priorities, the Sakhalin-III project made the proverbial "short list" in October 1996.⁸² It appears that two separate production sharing agreements are "in the works."⁸³

The Sakhalin-IV tender was announced in the fall of 1994.⁸⁴ This project is located northwest of Sakhalin Island in Sakhalin Bay.⁸⁵ The three areas up for tender are estimated to contain 200 million metric tons of oil and sixty to seventy billion cubic meters of natural gas.⁸⁶

III. SOVIET ENVIRONMENTAL LAW & POLICY

Before discussing Russia's environmental legislation, a review of Soviet environmental law and policy is included in order to make clear the historical context from which Russian environmental law has emerged and the enduring consequences of that history. This policy is best summed up by Alexei Yablokov, former Minister of the Environment under President Yeltsin, "We had a slogan—'The plan is the law.'"⁸⁷

⁷⁸ *Id.*

⁷⁹ Robert Corzine, *Russia Energy Deals Gather Pace*, FIN. TIMES, June 24, 1994, at 4.

⁸⁰ Robert DiNardo, *Mobil, Texaco Finish Up Kirinskiy Talks, But with Much Left to be Decided*, PLATT'S OILGRAM NEWS, available in LEXIS, Energy Library, PONEWS File.

⁸¹ Alexander Karetin, *Sakhalin Oil Could Define Alaska-Russian Far East Ventures*, 20 ALASKA J. COMMERCE 11, 11 (1996).

⁸² *Campaign '96*, *supra* note 66, at 10.

⁸³ Jane Upperton, *Rosneft Targets Bigger Stake in Sakhalin*, PLATT'S OILGRAM NEWS, Oct. 11, 1996, available in LEXIS, Energy Library, PONEWS File.

⁸⁴ Jack Holton, *Sakhalin—Giant Reserves and Hungry Markets*, PETROLEUM ECONOMIST, Sept. 1995, at 16, 16.

⁸⁵ *The Four Sakhalin Ventures*, APS REVIEW GAS MARKET TRENDS, Sept. 19, 1994, available in LEXIS, Market Library, PROMT File.

⁸⁶ Sagers, *supra* note 22, at 286.

⁸⁷ Robyn Dixon, *Russia: Scum of the Earth—Environmental Pollution*, THE AGE (Melb.), Nov. 26, 1994, available in LEXIS, World Library, TXLINE File. The "plan" refers to the Soviet Union's national Five-Year economic plans to increase industrial and agricultural production. Governmental bureaucrats set detailed and ambitious production quotas for each product (e.g., in 1980, 435 million cubic meters of gas and 168 million tons of steel were planned). ALEC NOVE, AN ECONOMIC HISTORY OF THE U.S.S.R. 377 (1982). At one time the national plan had 60,000 separate headings. A.G. AGANBEGIAN, INSIDE PERESTROIKA: THE FUTURE OF THE SOVIET ECONOMY 91 (1989). Quotas were then divided by the number

Imagine the United States without the Environmental Protection Agency, the Natural Resources Defense Council, and Greenpeace. Envision a chemical company drafting the Clean Water Act and a timber company enforcing the Federal Land Policy and Management Act. That picture is, in effect, what was once the environmental policy of the Soviet Union. For approximately seventy years, the government of the U.S.S.R. acted simultaneously as legislator, enforcer, violator, and adjudicator. Producers were rewarded for output regardless of economic or social costs. That policy, combined with a prohibition on public participation, left the lands of the former Soviet Union poisoned, her resources depleted, and her citizens ill.⁸⁸

One would naturally assume that in a society with state indifference to the environment, legislation regulating Soviet industries must have been minimal if not non-existent. Such is not the case. Rather, the Soviet Union established one of the most advanced regulatory structures on the planet encompassing restrictions on the use of land, water, air, minerals, forests, and the animal world.⁸⁹ Most enterprises of economic or military significance, however, were *de facto* exempt from complying with the law.⁹⁰ Regulations were routinely ignored in order to fulfill the plan.⁹¹ The ecological consequences of routine circumvention of state authority are only now beginning to be known.

At the heart of this paradox, in which the state created a system to regulate its own use of natural resources while at the same time boldly ignoring them, is the policy of state ownership. That is, the government

of enterprises (to an extent taking into consideration its capital and labor capacity) to calculate each enterprise's quota. Early in Soviet history, failure to meet individual plans resulted in harsh consequences. See, e.g., ROBERT CONQUEST, *HARVEST OF SORROW: SOVIET COLLECTIVIZATION AND THE TERROR FAMINE* (1986).

⁸⁸ For two excellent accounts of the impact of Soviet policy on the environment and public health, see MURRAY FESHBACH & ALFRED FRIENDLY, JR., *ECOCIDE IN THE USSR* (1992); D.J. PETERSON, *TROUBLED LANDS* (1994).

⁸⁹ By 1985, approximately 670 federal environmental laws were listed in Volume IV of the USSR Code of Laws. Zigurds L. Zile, *Implementation of Environmental Law in the USSR*, in *SOVIET ADMINISTRATIVE LAW: THEORY AND POLICY* 262 (G. Ginsburgs et al. eds., 1989). For analyses of Soviet environmental law, see *infra* notes 90, 94, and O.S. Kolbasov, *The Concept of Ecological Law*, 4 *CONN. J. INT'L L.* 267 (1989); Peter B. Maggs, *Marxism and Soviet Environmental Law*, 23 *COLUM. J. TRANSNAT'L L.* 353 (1985); Nicholas Robinson, *Perestroika and Priroda: Environmental Protection in the USSR*, 5 *PACE ENV'T'L L.R.* 351 (1989).

⁹⁰ Peter M. Langrind, *An Overview of Environmental Law in the USSR*, 11 *N.Y.L. SCH. J. INT'L & COMP. L.* 483, 486 (1990); Nicholas A. Robinson, *Pollution Controls Developing in Ex-U.S.S.R.*, *NAT'L L. J.*, Apr. 13, 1992, at 27.

⁹¹ Langrind, *supra* note 90, at 486-87.

owned all means of production, including land.⁹² Significantly, as owner, the state was the sole benefactor of all legitimate economic activity.⁹³ As a consequence, the state's interests in generating revenue far exceeded those of complying with its own environmental regulations.

Despite efforts to reform the legal system in the late 1980s,⁹⁴ lack of enforcement persisted.⁹⁵ Legislative improvements were passed in vain due to the difficulties of enforcement and adjudication, "[E]nforcement agencies continued to lack adequate staff, independence, and authority to sanction offenders. Furthermore, the Soviet court system was not equipped to punish violators of the environmental laws or to make major policy decisions."⁹⁶

Ultimately, the interests of the state property regime fundamentally conflicted with its own restrictions for the prevention of environmental degradation. Today, as the Russian Federation continues its journey towards a "market-oriented" economy, replete with consumer products, foreign investment, and private property, many of the former rights and responsibilities of the government are being shifted to the private sector.

IV. LEGAL FRAMEWORK FOR EXPLOITING OIL AND GAS RESOURCES

A. *Law on Underground Resources*

The 1992 Law on Underground Resources establishes the regulatory framework for the exploration, utilization, and conservation of the Russian Federation's underground natural resources within its territories and on its continental shelf.⁹⁷ The primary goal of the law is to ensure the sustainable development of the subsoil resources, "The main objective of state regulation of the use of underground resources shall be ensuring replacement of the mineral raw materials base, its rational use and

⁹² JÁNOS KORNAI, *THE SOCIALIST SYSTEM: THE POLITICAL ECONOMY OF COMMUNISM* 71 (1992).

⁹³ *Id.*

⁹⁴ Elena Kirillova, *Environmental Law in the New Soviet Union*, 14 INT'L ENV'T. REP. CURRENT REP. 578 (1991); Eugene N. Lisitsyn, *Environmental Law and Management in the USSR: A Reflection on Contemporary Reforms*, 17 REV. SOCIALIST L. 125, 129-32 (1991).

⁹⁵ Kirillova, *supra* note 94, at 584.

⁹⁶ Kathleen M. Maloney-Dunn, Comment, *Russia's Nuclear Waste Law: A Response to the Legacy of Environmental Abuse in the Former Soviet Union*, 10 ARIZ. J. INT'L & COMP. L. 365, 384 (1993).

⁹⁷ *Law on Underground Resources, No. 2395-1, Feb. 21, 1992*, ECONOMIC LAW OF RUSSIA, available in LEXIS, Intlaw Library, RFLAW File. For discussion of this law, see Kevin J. Vaughan, *Russia's Petroleum Industry: An Overview of Its Current Status, the Need for Foreign Investment, and Recent Legislation*, 25 LAW & POL'Y INT'L BUS. 813, 828-831 (1994); Brian L. Zimble, *Russian Foreign Investment and Natural Resources*, 14 WHITTIER L. REV. 477, 484-491 (1993).

conservation in the interests of the present and future generations of the peoples of the Russian Federation."⁹⁸

The law authorizes the licensing of rights to explore for and produce underground resources through auctions and tenders.⁹⁹ The law also imposes a system of payments for the use of non-continental shelf underground resources.¹⁰⁰ Failure to comply with this law subjects the violator to criminal and administrative liability.¹⁰¹

B. *Law on the Continental Shelf*

Russia enacted its federal Law on the Continental Shelf in 1995.¹⁰² The continental shelf is defined as "the sea bottom and bowels of the submarine areas outside the territorial sea of the Russian Federation . . . across the entire area of the natural extension of its dry land territory and up to the external boundary of the submarine outskirts of the continent."¹⁰³ The continental shelf extends 200 nautical miles.¹⁰⁴ As expected, the law provides that the Russian Federation has the exclusive, sovereign right to prospect and develop its mineral and live resources on its continental shelf.¹⁰⁵ The Federation also has "the exclusive right to permit and regulate building, exploitation and use of artificial islands, installations and structures on the continental shelf."¹⁰⁶ Extraction of mineral resources on the continental shelf is subject to the authority of the Government of the Russian Federation.¹⁰⁷ The law creates a system of monetary payments for the use of mineral and live resources on the continental shelf.¹⁰⁸

⁹⁸ *Law on Underground Resources*, *supra* note 97, art. 35.

⁹⁹ *Id.* arts. 13, 17. For a description of the tender process, see Holton, *supra* note 84, at 24.

¹⁰⁰ *Law on Underground Resources*, *supra* note 97, arts. 39-43.

¹⁰¹ *Id.* art. 49.

¹⁰² *Law on the Continental Shelf of the Russian Federation*, Federal Law no. 187, Nov. 30, 1995, ECONOMIC LAW OF RUSSIA, available in LEXIS, Intlaw Library, RFLAW File.

¹⁰³ *Id.* art. 1.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* art. 5(2).

¹⁰⁶ *Id.* art. 5(3).

¹⁰⁷ *Id.* art. 4.

¹⁰⁸ *Id.* art. 40.

C. *Law on Production Sharing Agreements*¹⁰⁹

In December 1995, Russian President Boris Yeltsin signed into law the Law on Production Sharing Agreements ("PSA"), effective on publication January 11, 1996.¹¹⁰ This law establishes the rights and responsibilities of parties to production sharing contracts who are engaged in the exploration, development, and production of Russia's mineral wealth.¹¹¹ The law is intended to coexist with the Law on Underground Resources to create a framework for oil and gas exploration.

The law is considered to be "one of the most significant legal instruments of a major former socialist country in its journey towards an envisaged market economy."¹¹² Although the PSA Law is a landmark piece of legislation which moves Russia's legal environment closer to international standards for oil and gas development, the law has also been

¹⁰⁹ Petroleum legislation providing for exploration and exploitation of energy resources is typically divided into two types of legal arrangements: concessions and contracts. GORDON H. BARROWS, *WORLDWIDE CONCESSION CONTRACTS AND PETROLEUM LEGISLATION* 1 (1983). Concessions, the most widely used arrangement, are loosely defined as grants of specific rights and privileges by a government. *Id.* at 4; ZHIGUO GAO, *supra* note 16, at 12. Examples of countries which use concessions include Australia, the United States, and Thailand. Concessions differ from contracts in that concessions allocate all production to the concessionaire while imposing correspondingly higher tax and royalty rates. BARROWS, at 1. Contracts, on the other hand, allocate only some of the production to the contractor and the rest to the host government. *Id.* Petroleum contracts come in three forms: the production sharing contract, the risk service contract, and the pure service contract. *Id.* A production sharing contract, which the Russian Federation employs, is defined as, "[A]n agreement under which a foreign company, serving as a contractor to the host country/its national oil company, recovers its costs each year from production and is further entitled to receive a certain share of the remaining production as payment in kind for the exploration risks assumed and the development service performed if there is a commercial discovery." ZHIGUO GAO, *supra* note 16, at 72.

¹¹⁰ The law was published in *Ross. Gazeta*, Jan. 11, 1996. *PSA Law*, *supra* note 3. Prior to the enactment of Russia's *PSA Law*, international oil companies had been granted rights to explore on Russia's land and continental shelf by virtue of specifically enacted legislation which had been individually negotiated. This ad hoc type of authorization to explore and exploit a country's natural wealth is not the preferred type of authorization.

¹¹¹ For in-depth analyses of the *PSA Law*, see Ernest Chung, *Recent Development, Petroleum Investment in the Russian Federation—Russian Federation Law No. 225-FZ on Production Sharing Agreements*, 37 HARV. INT'L L.J. 551 (1996); Scott C. Senecal & Elena L. Daly, *Russia*, INT'L FIN. L.R., Apr. 1996, at 40-44; Thomas W. Wälde & Martin Friedrich, *Russian Federation: Law on Production Sharing Agreements*, 35 I.L.M. 1251 (1996); Peter Houlder, *New Law Favours Local Firms (Russia's Oil Industry)*, PETROLEUM ECONOMIST, Aug. 1, 1996, at 26; Peter B. Maggs, *Russia's New Production Sharing Law Provides for Arbitration, But is Hampered by Politics*, 11 MEALEY'S INT'L ARB. REP. 24 (1996); David R. Nelson, *Russia's Production Sharing Law—A Foundation for Progress (Production Sharing Agreements for Oil and Gas Leases)*, OIL & GAS J., Jan. 29, 1996, at 106.

¹¹² Wälde & Friedrich, *supra* note 111, at 1251.

widely criticized.¹¹³ Amendments to the PSA Law are currently being negotiated.¹¹⁴

V. ENVIRONMENTAL IMPACT OF OFFSHORE DEVELOPMENT

Offshore development activities, i.e., exploration, development and production, can have a profound deleterious effect on the marine environment.¹¹⁵ Impacts include alteration of the seabed topography, destruction of biota and their habitat, and damage to physical processes necessary to management of the ecosystem.¹¹⁶ Perhaps the most widely known example of the potential environmental consequences of offshore oil and gas development is the accident that occurred in 1969 off the coast of Southern California.¹¹⁷ There, on January 28, 1969, a well drilled from a platform blew out.¹¹⁸ The well was plugged eleven days later but not before thousands of barrels of oil had spilled in the ocean and onto nearby beaches.¹¹⁹ The estimated total spillage was one to three million gallons of oil, or 24,000 to 71,000 barrels.¹²⁰ Significantly, the Santa Barbara oil spill is widely recognized as the catalyst that prompted the U.S. Congress to pass the National Environmental Policy Act of 1969.¹²¹

The environmental risks inherent to offshore oil and gas development include those resulting from oil spills as well as those from regular operations.¹²² Oil spills are typically the first image that comes to mind; and

¹¹³ See, e.g., *Investors Criticize Russia's Production Sharing Law*, 7 INT'L TAX REV. 3 (1996).

¹¹⁴ *Law on Amendments to the Federal Law on Production Sharing Agreements (Draft)*, RUSSIAN PETROLEUM INVESTOR, Nov. 1996, at 72. See also *Amendments and More Amendments*, RUSSIAN PETROLEUM INVESTOR, Nov. 1996, at 23.

¹¹⁵ For a full treatment of the environmental impacts of offshore oil and gas development, see LONG-TERM ENVIRONMENTAL EFFECTS OF OFFSHORE OIL AND GAS DEVELOPMENT (Donald F. Boesch & Nancy N. Rabalais eds., 1987).

¹¹⁶ FILLMORE C. F. EARNEY, MARINE MINERAL RESOURCES 112 (1990).

¹¹⁷ See generally ROBERT EASTON, BLACK TIDE: THE SANTA BARBARA OIL SPILL AND ITS CONSEQUENCES (1972). Other destructive blowouts include the North Sea Ekofisk Complex's Bravo platform blowout in 1977 and the 1979 Gulf of Campeche's Ixtoc I blowout (off the Yucatan peninsula in the Gulf of Mexico). The North Sea blowout lasted nine days, the Ixtoc blowout nine months. EARNEY, *supra* note 116, at 267.

¹¹⁸ WALTER J. MEAD ET AL., OFFSHORE LANDS: OIL AND GAS LEASING AND CONSERVATION ON THE OUTER CONTINENTAL SHELF 15 (1985)

¹¹⁹ *Id.*

¹²⁰ *Id.* at 15 n.16. There are conflicting estimates of the total volume of oil spilled. The highest estimate appears to be 3,300,300 gallons of oil spilled. EASTON, *supra* note 117, at 251.

¹²¹ MEAD, *supra* note 118, at 15.

¹²² Thomas A. Grigalunas & James J. Opaluch, *The Environment, in* MANAGING THE OUTER CONTINENTAL SHELF LANDS: OCEANS OF CONTROVERSY 60 (R. Scott Farrow ed., 1990).

yet, these types of incidents are rare. Far more common are the daily small accidental spills and intentional discharges.¹²³

The main marine pollutants from oil and gas development are: halogenated hydrocarbons, petroleum and its derivatives, other organic chemicals, nutrient chemicals, inorganic chemicals, suspended solids, radioactive substances, and thermal waste.¹²⁴ The risk associated with exposure to these pollutants is a function of their toxicity.¹²⁵ Noise pollution also impacts marine environs.¹²⁶

Offshore oil and gas development poses risks to ecological interests, commercial interests, and social interests. Exposure to crude oil at sublethal concentrations can significantly affect the behavior and development of marine organisms.¹²⁷ For example, among higher organisms respiration, burrowing, feeding, and reproductive activities are altered.¹²⁸ The ultimate impact of exposure depends on the nature and extent of the contaminated area, the species, and the dependence of the organism on the impacted area.¹²⁹

Besides impacting marine life, whole ecosystems may also suffer from contact with marine pollutants. Long-term effects include residual contamination and slow recovery of damaged biota.¹³⁰ In addition, oil and gas operations may result in physical habitat alterations.¹³¹

¹²³ Jerry M. Neff et al., *Offshore Oil and Gas Development Activities Potentially Causing Long-Term Environmental Effects*, in LONG TERM ENVIRONMENTAL EFFECTS, *supra* note 115, at 149.

¹²⁴ GAVOUNELI, *supra* note 16, at 34.

¹²⁵ JOHN C. REIS, ENVIRONMENTAL CONTROL IN PETROLEUM ENGINEERING 4 (1996). Toxicity is measured as the pollutant's concentration in water that results in the death of half of the exposed organisms within a given length of time. *Id.*

¹²⁶ *Id.* at 127.

¹²⁷ *Id.* at 89.

¹²⁸ *Id.* One study of the impact of spilled crude oil on Pacific herring revealed that exposure to oil significantly increased the frequency of abnormal larvae including spinal deformities. *Id.* at 90. For a discussion of impacts on marine mammals, see Joseph R. Geraci & David J. St. Aubin, *Effects of Offshore Oil and Gas Developments on Marine Mammals and Turtles*, in LONG-TERM ENVIRONMENTAL EFFECTS, *supra* note 115, at 587.

¹²⁹ Donald F. Boesch et al., *An Assessment of the Long-Term Environmental Effects of U.S. Offshore Oil and Gas Development Activities: Future Research Needs*, in LONG TERM ENVIRONMENTAL EFFECTS, *supra* note 115, at 16. The animals most threatened by crude oil are those which rely on their fur or feathers for thermal insulation. *Id.* at 17. Oil coated fur or feathers do not repel water or act as thermal insulators. REIS, *supra* note 125, at 91. The exposed animals or birds are then susceptible to drowning and hypothermia. *Id.* Marine wildlife that inhale or ingest petroleum vapors may also experience respiratory problems. Boesch et al., at 18. Turtles are particularly threatened by this type of exposure; tar gets caught in their mouths which then impedes their ability to eat. *Id.*

¹³⁰ Boesch et al., *supra* note 129, at 21.

¹³¹ *Id.* at 25.

Commercial interests threatened by offshore oil and gas development include financial losses to commercial fishermen resulting from damage to the fish stock and to fishing gear from contact with oil and gas-related obstructions or debris.¹³² Oil and gas development may have long-term effects on fisheries in three ways. First, species that reproduce near the water surface may suffer if an oil spill occurs at the same time as the gestation period.¹³³ Second, the effects of chronic releases of toxic petroleum compounds on the juveniles and adults of species which are found on or near the bottom of the sea is similarly catastrophic.¹³⁴ Third, physical destruction or alteration of critical habitats from an oil spill threatens the mortality of fisheries.¹³⁵

Finally, public health may be jeopardized by offshore oil and gas activities. Human exposure to toxic contaminants may occur through ingestion, inhalation, or skin contact.¹³⁶ Acute effects from exposure through the ingestion of seafood include irritation to the mouth, throat and stomach, digestive disorders, and respiratory problems.¹³⁷ Chronic exposure to petroleum derivatives may harm kidneys, livers, and the gastrointestinal tract.¹³⁸

A. *Environmental Impacts in Russia*

First the Soviet Union, and now the Russian Federation, has experienced catastrophic environmental damage from the development of their energy resources. A January 1997 Russian tanker accident in the Sea of Japan is but one example.¹³⁹ Oil spills take place with "disastrous

¹³² Grigalunas & Opaluch, *supra* note 122, at 62.

¹³³ Boesch et al., *supra* note 129, at 19.

¹³⁴ *Id.*

¹³⁵ *Id.* at 19-20.

¹³⁶ REIS, *supra* note 125, at 94.

¹³⁷ *Id.* at 94-95.

¹³⁸ *Id.* at 95.

¹³⁹ Teresa Watanabe, *Oil Spill Threatens Fish, Future of Japanese Town*, LOS ANGELES TIMES, Jan. 9, 1997, at A1. On Jan. 2, 1997, an estimated 962,000 gallons of oil spilled into the Sea of Japan when a Russian tanker split apart. *Id.* The spill has threatened an endangered species of bird, a nuclear power plant, and 100 km of Japan's coastline. *Oil Spill Threatens Rare Bird*, GREENWIRE, Jan. 23, 1997, available in LEXIS, Envir Lib, GRNWRE File; *Oil Spill Threatens Nuclear Power Plant*, GREENWIRE, Jan. 13, 1997, available in LEXIS, Envir Lib, GRNWRE File; *Oil from a Russian Crude Tanker that Sank in the Sea of Japan has Hit the Japanese Coast Affecting the Main Island of Honshu*, OGI Newsletters (OIL & GAS J.), Jan. 13, 1997, at 4.

frequency" in the oil and gas fields and pipelines of western Siberia.¹⁴⁰ Aleksei Yablokov, Chairman of the Russian Security Council's Interdepartmental Commission for Environmental Safety, estimated the annual number of major spills to be around 700.¹⁴¹ Western estimates are considerably higher—40,000 accidents each year.¹⁴² These spills not only occur frequently, they tend to be of significant magnitude. A 1994 spill in the Komi Republic spewed at least two million barrels of oil onto the fragile Arctic tundra—nearly eight times the amount of the Exxon Valdez crude oil spill in Alaska in 1989.¹⁴³ Oil spills in these northern latitudes are particularly damaging because rates of biological activity decrease making an ecosystem's recovery much slower.¹⁴⁴

Gas leaks, although less frequent, appear no less damaging. Methane emissions exert a strong impact on global warming.¹⁴⁵ Twenty-eight percent of all the methane accidentally released from oil and gas productions in the world is released in Russia.¹⁴⁶ Methane is lost through leaks in the production, processing, transmission, storage and distribution processes.¹⁴⁷ In a dramatic example of a methane release, a gas leak in a pipeline near Ukhta, about 800 miles northeast of Moscow, created a 25,000 foot high "fireball."¹⁴⁸

These frequent spills and leaks are caused by poor field practices and an out-dated and dilapidated infrastructure.¹⁴⁹ The International Energy Agency reported that approximately twenty-three percent of the accidents were the result of poor construction work, sixteen percent due to external corrosion, and thirteen percent because of stress erosion.¹⁵⁰ Refurbishment of existing natural gas pipelines and compressor stations has been

¹⁴⁰ Anna Scherbakova & Scott Monroe, *The Urals and Siberia*, in ENVIRONMENTAL RESOURCES AND CONSTRAINTS, *supra* note 24, at 69.

¹⁴¹ *Russia Counts the Cost of Pipeline Ruptures as New Spill Hits Komi*, EAST EUR. ENERGY REPORT, Feb. 27, 1995, available in LEXIS, World Library, EEENR File.

¹⁴² *Russia's Debilitated Energy Lifelines*, PLANECON REPORT, May 2, 1995, at 1.

¹⁴³ Matthew J. Sagers, *Oil Pipeline Ruptures in Komi Republic: Magnitude and Potential Impact*, 35 POST-SOVIET GEOGRAPHY 431 (1994).

¹⁴⁴ PHILIP R. PRYDE, ENVIRONMENTAL MANAGEMENT IN THE SOVIET UNION 203 (1991).

¹⁴⁵ Thomas Land, *Russia Steps On the Gas Leaks: Russia's Accident Prone Pipeline System is Blamed for the World's Highest Rate of Methane Emissions*, LLOYD'S LIST, May 16, 1996, available in 1996 WL 6708487.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ *Russia's Debilitated Energy Lifelines*, *supra* note 142, at 1.

¹⁴⁹ DANIEL YERGIN & THANE GUSTAFSON, RUSSIA 2010 AND WHAT IT MEANS FOR THE WORLD 278 (1993).

¹⁵⁰ INT'L ENERGY AGENCY, ENERGY POLICIES OF THE RUSSIAN FEDERATION 170 (1995).

characterized as the most immediate problem for the Russian gas pipeline system.¹⁵¹ Twenty-eight thousand kilometers, or twenty percent of Russia's pipelines, need to be immediately replaced.¹⁵² Given the frequency with which Soviet/Russian infrastructure has failed in the past, combined with the slow rate of environmental recovery due to Russia's northerly location, environmental regulation of the offshore oil and gas industry warrants special attention.

VI. ENVIRONMENTAL REGULATION OF OFFSHORE DEVELOPMENT

To illustrate the uniqueness of Russia's regulatory regime, this section first briefly considers the spectrum of other petroleum producing countries' efforts to regulate the environmental impact of offshore activities. It then turns to Russians' constitutional and statutory rights with respect to the environment. How those rights are purportedly protected where offshore development activities impact the marine environment is considered by looking at investors' environmental obligations at each stage of a project.

A. *The Spectrum of Environmental Regulation*

There is a broad spectrum in how rigorously countries regulate offshore development activities. At one end of the spectrum are those countries that place few environmental duties on investors, such as Thailand. At the other end are countries that systematically and rigorously regulate each stage of offshore development, such as the United States.

Thailand is representative of countries with relatively lax environmental regulation. The underdeveloped nature of its regulatory system is reflected in the terms of its petroleum concession system.¹⁵³ Thailand's Petroleum Act generally provides "the concessionaire shall take appropriate measures in accordance with good petroleum industry practice to prevent pollution in any place by oil, mud or any other substance."¹⁵⁴ No reference is made to duties under national environmental legislation. In the

¹⁵¹ Sagers, *supra* note 59, at 551.

¹⁵² *Id.*

¹⁵³ ZHIGUO GAO, *supra* note 16, at 49. Thailand uses a concession contract when authorizing a foreign company to explore and exploit its resources on the continental shelf. *Id.* at 29.

¹⁵⁴ 1971 Petroleum Act § 75, GOV'T GAZETTE, SPECIAL ISSUE, Apr. 23, 1971, at 43 *quoted in* ZHIGUO GAO, *supra* note 16, at 49.

event of a pollution discharge, the contract requires investors to "take immediate action to combat such pollution."¹⁵⁵ The Thai regulatory structure is considered one of the least protective among petroleum-producing countries. "In short, international oil companies in Thailand have been operating under no real obligation to protect the environment."¹⁵⁶

Representative of the opposite end of the regulatory spectrum is the system operating in the United States. Given the complexity of the U.S. regime, discussion of relevant U.S. legislation is included throughout the following discussion.

B. Constitutional & Statutory Rights

The Constitution of the Russian Federation, adopted by national referendum on December 12, 1993, guarantees the right to a healthy environment as well as judicial recourse if one's rights have been violated. Article 42 specifically provides a constitutional right with respect to the environment, "Everyone shall have the right to [a] favourable environment, reliable information about its state and for a restitution of damage inflicted on his health and property by ecological transgressions."¹⁵⁷ The Federal Law on the Protection of the Natural Environment further guarantees individuals the "right to the protection of their health from the unfavorable impact of the natural environment caused by economic or any other activity."¹⁵⁸ In the event an individual's right to a favorable environment or to protection of an individual's health is violated, both the Constitution and the Law on Protection of the Natural Environment provide for compensation through judicial and/or administrative relief.¹⁵⁹ In contrast to

¹⁵⁵ *Id.*

¹⁵⁶ ZHIGUO GAO, *supra* note 16, at 50.

¹⁵⁷ KONST. RF, *supra* note 27, art. 42.

¹⁵⁸ *Law of the Russian Federation on the Protection of the Natural Environment (with Amendments of Feb. 21, 1992 and June 2, 1993)*, ECONOMIC LAW OF RUSSIA, available in LEXIS, Intlaw Library, RFLAW File [hereinafter *Law on Environmental Protection*]. This law acts as the basic umbrella law providing broad goals and principles for environmental protection in the Russian Federation. For lengthy analyses of this law, see Alex Dehgan, *A Criticism of the New Mechanisms for Environmental Protection in the Russian Federation*, 19 REV. CENT. & E. EUR. L. 661 (1993); Andrew R. Bond & Matthew J. Sagers, *Some Observations on the Russian Federation Environmental Protection Law*, 33 POST-SOVIET GEOGRAPHY 463 (1992).

¹⁵⁹ "Everyone shall be guaranteed judicial protection of his rights and freedoms." KONST. RF, *supra* note 27, art. 46. "This right shall be guaranteed . . . by the compensation in judicial or administrative proceedings of the harm inflicted on the health of individuals as a result of the pollution of the natural environment." *Law on Environmental Protection*, *supra* note 158, art. 11.

the Russian Federation, few countries' constitutions provide such a right.¹⁶⁰ As the following discussion reveals, Russians' constitutional and statutory rights are not likely to be realized under existing environmental law regulating the offshore oil and gas industry.

C. *Environmental Duties at the Pre-Contract Stage*

In Russia, the first stage of an offshore project is the solicitation of bids and the awarding of contracts. It is at this stage when most environmental duties are imposed on an investor. An investor's primary duty is to complete an environmental impact assessment which is then submitted to a state ecological commission for evaluation and approval.

1. *When Ecological Examinations Are Required*

The federal Law on the Continental Shelf provides that before the execution of federal "strategy, programmes, and plans," an authorized federal body is to carry out a "state ecological expert examination," i.e., an environmental impact assessment.¹⁶¹ Where an oil or gas project is financed by foreign investors, these examinations are specifically required.¹⁶²

The primary principle which guides the ecological examination process is the presumption of the potential ecological danger of any activity.¹⁶³ Other principles which guide the process include: (1) the ecological examination shall be conducted prior to the decision to begin a project; (2) the evaluation is comprehensive, reliable and complete; (3) those conducting the examinations are independent, and their opinions are

¹⁶⁰ Yu. S. Shemshuchenko, *Chelovyek i yevo pravo na byezapasnyu (zdorovuyu) okruzhaiushchuyu sredu*, 10 GOS. I PRAVO 120 (1993) (surveying countries where constitutional environmental rights are enjoyed).

¹⁶¹ *Law on the Continental Shelf*, *supra* note 102, art. 31.

¹⁶² *State Ecological Expert Examinations of Enterprises with Foreign Investments*. RF Ministry of Environmental and Natural Resource Protection Letter No. 01-12/65-1571, RUSDATA DIALINE—RUSLEGISLINE, May 21, 1993, available in LEXIS, Europe Library, RUSLEG File. This requirement is similar to the U.S. requirement to conduct an environmental impact statement at the lease sale stage. *Secretary of Interior v. California*, 464 U.S. 312, 338 (1984) (interpreting the Outer Continental Shelf Lands Act (OCSLA) and concluding that OCSLA and NEPA are compatible).

¹⁶³ *Law on Ecological Examinations*, No. 174-FZ, RUSDATA DIALINE—RUSLEGISLINE, Nov. 23, 1995, available in LEXIS, Europe Library, RUSLEG File. On November 25, 1995, the RF *Law on Ecological Examinations* replaced a general clarification letter on environmental impact assessments from the Ministry of Ecology and Natural Resources. *Developments in Environmental Protection Regime*, EAST EUR. BUS. L., July 1996, available in LEXIS, Europe Library, EEBLAW File.

scientifically valid and objective; and, (4) public opinion is taken into consideration.¹⁶⁴

The ecological examination requirement applies to both public and private projects where the project may have "a pernicious influence on the natural environment."¹⁶⁵ Mandatory state examinations are to precede "the making of a commercial decision" or prior to issuance of a license.¹⁶⁶ Because the Law on Ecological Examinations is aimed at realizing the constitutional right of citizens to a healthy environment,¹⁶⁷ a project is to be authorized only after an ecological commission's positive conclusion that the project is environmentally compatible.¹⁶⁸ This differs from the U.S. Environmental Impact Statement ("EIS") required under the National Environmental Policy Act¹⁶⁹ ("NEPA") in that Russia's impact assessment requirement is not intended to be merely procedural.¹⁷⁰ Whether realization of a proposed energy project is prevented based on an ecological commission's disapproval remains to be seen.

2. *Ecological Examinations: Process & Evaluation*

To obtain ecological approval, an investor must prepare and submit documents establishing the environmental impact of the proposed project as well as its compatibility with the environment. Although federal, regional, and local governments have authority to conduct ecological examinations, proposed activities on the continental shelf are under exclusive federal jurisdiction.¹⁷¹ The State Committee for Environmental Protection¹⁷² creates

¹⁶⁴ *Law on Ecological Examinations, supra* note 163, art. 3.

¹⁶⁵ *Law on Environmental Protection, supra* note 158, art. 36.1. In the United States, an environmental impact statement is required for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C) (1996).

¹⁶⁶ *Law on Environmental Protection, supra* note 158, art. 36-37.

¹⁶⁷ *Law on Ecological Examinations, supra* note 163, preface.

¹⁶⁸ *Law on Environmental Protection, supra* note 158, art. 36.2.

¹⁶⁹ 42 U.S.C. § 4332(C).

¹⁷⁰ The U.S. Supreme Court interpreted the requirement that an EIS be completed for every "major federal action significantly affecting the natural environment" does not impose substantive duties mandating particular results, "NEPA does set forth significant substantive goals for the Nation, but its mandate to the agencies is essentially procedural." *Vermont Yankee Nuclear Power v. NRDC*, 435 U.S. 519, 558 (1978).

¹⁷¹ *Law on the Continental Shelf, supra* note 102, art. 6.

¹⁷² By Presidential decree, the federal Ministry of Environment and Natural Resources ("MNER") was abolished and in its place acts the State Committee of the Russian Federation for Environmental Protection and the Ministry of Natural Resources. *Decree of the President of the Russian Federation No. 1177 of Aug. 14, 1996 on the Structure of the Federal Bodies of Executive Power (with Additions and Amendments of Aug. 22, Sept. 6, Nov. 29, 1996)*, ECONOMIC LAW OF RUSSIA, Sept. 6, 1996, available in

a commission of experts and authorizes the commission to conduct the evaluation.¹⁷³ These commissions have the authority to demand all necessary information from governmental and private sources.¹⁷⁴

State ecological commissions are comprised of outside experts and staff members of the federal and regional State Committee on Environmental Protection.¹⁷⁵ An "expert" is a "specialist who has scientific and/or practical knowledge in the field in question."¹⁷⁶ Representatives of investors or their contracting parties are prohibited from participating in the evaluation process.¹⁷⁷ Given Russia's loose guidelines by which these commissions are created, as well as the apparent power to disapprove a project, membership on these commissions could be subject to corruption.

The commission has four months within which to evaluate the proposed project and issue its decision.¹⁷⁸ Assuming two-thirds of the commission approves the project,¹⁷⁹ the State Committee on Environmental Protection will confirm the commission's decision and the investor may begin the project.¹⁸⁰ If over one-third of the commission rejects the project, however, additional experts are invited to consider the project for two more months.¹⁸¹ Head of the former ministry's State Environmental Evaluation Department, Gennady Chegasov, noted, "This provision eliminates the possibility of leaving the project suspended without decision, be it positive or negative."¹⁸² If a negative evaluation is again issued, the project is rejected but additional documents may be submitted provided they address the concerns stated in the initial evaluation.¹⁸³ Information on the results of the state ecological expert examination is to be made available to interested

LEXIS, Intlaw Library, RFLAW File. Throughout this Comment, the State Committee for Environmental Protection is used in place of the MNER.

¹⁷³ *Law on Ecological Examinations*, *supra* note 163, art. 14.5.

¹⁷⁴ *Statute of Rules for Performing State Ecological Expert Examination*, RF Government Decree No. 698, RUSDATA DIALINE—RUSLEGISLINE, June 11, 1996, available in LEXIS, Europe Library, RUSLEG File [hereinafter *State Ecological Examination Regulations*].

¹⁷⁵ *Law on Ecological Examinations*, *supra* note 163, art. 15.

¹⁷⁶ *Id.* art. 16.1.

¹⁷⁷ *Id.* art. 16.2.

¹⁷⁸ *State Ecological Examination Regulations*, *supra* note 174, art. 7.

¹⁷⁹ *Id.* art. 19.

¹⁸⁰ *Id.* art. 23.

¹⁸¹ *Id.*

¹⁸² *Two Down, Five to Go*, RUSSIAN PETROLEUM INVESTOR, Oct. 1996, at 67.

¹⁸³ *State Ecological Examination Regulations*, *supra* note 174, art. 28.

organizations.¹⁸⁴ It is not clear whether the ecological opinion itself is to be made available to all interested parties.

The criteria upon which an evaluation is based are: (1) whether the planned activity conforms with environmental laws; (2) the environmental impact of the planned activity and whether compatibility with the environment is substantiated; and, (3) the adequacy of preventative measures.¹⁸⁵ Prior to the issuance of these regulations, few oil and gas project proposals were approved on the first submission because of the lack of guidelines for applicants.¹⁸⁶ After reviewing more than 100 energy projects in four years, Chegasov recalls he "could not remember a single case in which potential investors faced no problems at all in obtaining the coveted stamp of approval."¹⁸⁷ In October 1996, the Chairman of the State Duma Committee for Ecology, Tamara Zlotnikova, admitted of the ecological approval process, "Currently, this process is essentially arbitrary. Investors must redo ecological impact studies several times to obtain government approval, resulting in numerous delays and high costs."¹⁸⁸ Unfortunately, the criteria in the June 1996 regulation remain ambiguous in that they identify broad categories but no definitive standards.

3. *Public Participation in the Ecological Evaluation Process*

Unlike in Russia where the mineral developer has the affirmative duty to prepare an impact assessment which is then subject to state approval, in the U.S. federal agencies are the entities that must complete EISs.¹⁸⁹ This aspect of the EIS requirement is considered a hallmark of NEPA in that the EIS serves the function of full disclosure of all possible effects to the general public, other governmental entities, and other persons within the leasing agency.¹⁹⁰

Full-disclosure, however, appears not to be a primary objective of the state ecological examination in Russia, although there are a few provisions

¹⁸⁴ *Law on Ecological Examinations*, *supra* note 163, arts. 7, 8; *State Ecological Examination Regulations*, *supra* note 174, art. 27.

¹⁸⁵ *State Ecological Examination Regulations*, *supra* note 174, art. 15.

¹⁸⁶ *Filling in the Blanks*, *RUSSIAN PETROLEUM INVESTOR*, Oct. 1996, at 66-67.

¹⁸⁷ *Id.* at 68.

¹⁸⁸ *Id.* at 66-67.

¹⁸⁹ EISs are then reviewed by another agency, the Environmental Protection Agency ("EPA"), to ensure NEPA compliance. 42 U.S.C. § 7609 (1996).

¹⁹⁰ *Environmental Defense Fund v. U.S. Army Corps. of Engineers*, 325 F. Supp. 749 (E.D. Ark. 1972), *vacated* 342 F. Supp. 1211 (E.D. Ark. 1972).

to encourage public participation in the decision-making process. Citizens and public interest environmental organizations may submit "well-argu[ed] proposals concerning the ecological aspects of the planned activities."¹⁹¹ The commission is obligated to "study" the materials submitted by the public.¹⁹² The public may "take other actions in the field of ecological examination which are not contrary to legislation of the Russian Federation."¹⁹³ This provision leaves open the possibility of the public commenting on draft evaluations, provided those evaluations are made available. Because there is no requirement to issue a draft evaluation for public comment, however, this opportunity seems unlikely. The public may also obtain information on results of the ecological examination.¹⁹⁴ Whether this provision means the completed evaluation is to be made publicly available is unclear. Finally, representatives of public interest organizations may participate in commission sessions as "observers."¹⁹⁵

Public ecological expert examinations may be conducted by public interest environmental organizations at their initiative and expense provided implementation of the proposed project would affect the interests of the population.¹⁹⁶ These organizations have the right to obtain the documents submitted by the investor for state evaluation.¹⁹⁷ Members of public commissions are held to the same standards as state commissions.¹⁹⁸

Public interest organizations are precluded from conducting a public ecological expert examination where information on the planned activity constitutes a "state, commercial or other secret protected by law."¹⁹⁹ How inclusive is the concept of "commercial" secret is not indicated. A broad interpretation of all three types of secrets would hinder public participation.

The evaluation generated from the public ecological expert examination must be sent to the State Committee for Protection of the Environment for confirmation as well as to the applicant, and to regional

¹⁹¹ *Law on Ecological Examinations*, *supra* note 163, art. 19.1. A "Directive on Guaranteeing Public Participation in the State Ecological Evaluation" is pending as of April 1997. This directive is intended to determine the rules by which public interest environmental organizations may participate in the evaluation process. *Federal Mandate*, RUSSIAN PETROLEUM INVESTOR, Oct. 1996, at 68.

¹⁹² *Law on Ecological Examinations*, *supra* note 163, art. 19.2.

¹⁹³ *Id.* art. 19.1.

¹⁹⁴ *Id.*

¹⁹⁵ *Id.* art. 22.3.

¹⁹⁶ *Law on Environmental Protection*, *supra* note 158, art. 39; *Law on Ecological Examinations*, *supra* note 163, art. 19.1; art. 20.

¹⁹⁷ *Law on Ecological Examinations*, *supra* note 163, art. 22.3.

¹⁹⁸ *Id.* art. 22.4.

¹⁹⁹ *Id.* art. 24.1.

and local governments.²⁰⁰ If the evaluation is confirmed, it has the legal force of a state ecological expert examination.²⁰¹ The Committee, however, has not been provided guidelines for confirmation. Unfortunately, the highly technical (and expensive) nature of evaluating the impact of projects on the continental shelf will likely preclude environmental organizations from conducting independent evaluations. Interestingly, the public ecological evaluation may be published in the mass media,²⁰² whereas there is no provision for publication of the *state* ecological evaluation.

4. *Sanctions and Appeals*

Investors are exposed to criminal liability if they fail to submit documents for ecological examination or falsify the documents and such violations result in grave direct or indirect ecological and other consequences.²⁰³ If not held criminally liable, a violator may be subject to civil or administrative liability.²⁰⁴ Individuals are also liable for failure to comply with findings of the commissions, although whether this liability is civil or criminal is unclear.²⁰⁵

Applicants, public organizations, and other "interested" persons may appeal the decisions of the state ecological expert commissions in court.²⁰⁶ This provision provides a critical mechanism for judicial review of commissions' decisions.

Once a project receives its stamp of approval, there appears to be no mechanism for re-evaluating the decision in light of new scientific information. Nor must an investor complete an additional assessment before beginning exploration. In comparison, the U.S. Outer Continental Shelf Lands Act ("OCSLA") requires application of NEPA at the lease sale, exploration, and development and production stages.²⁰⁷ The leasing agency

²⁰⁰ *Id.* art. 25.1.

²⁰¹ *Id.* art. 25.2.

²⁰² *Id.* art. 25.4.

²⁰³ *Id.* arts. 30-31.

²⁰⁴ *Id.* arts. 32-34.

²⁰⁵ *Id.* art. 30.

²⁰⁶ *State Ecological Examination Regulations*, *supra* note 174, art. 29.

²⁰⁷ *Village of False Pass v. Clark*, 733 F.2d 605, 609 (9th Cir. 1984). In OCSLA, the U.S. Congress asserted jurisdictional control and power of disposition over the subsoil and seabed of the outer continental shelf. 43 U.S.C. § 1332(a)(1) (1996). The coastal zone falls under coastal state jurisdiction by virtue of the Submerged Lands Act of 1953, as amended. 43 U.S.C. § 1311 (1996). According to OCSLA, the Secretary of the Interior is authorized to lease for production federally-owned offshore fields to private developers through competitive bidding. 43 U.S.C. § 1337 (1996).

can issue a license before it produces a complete EIS, but the lessee's right to begin developing oil and gas resources does not vest completely until completion of a series of environmental analyses under NEPA.²⁰⁸ Until that point, the agency retains the authority to prevent subsequent exploration and production until environmental problems are identified and resolved.²⁰⁹ In effect, a U.S. lease does not convey an absolute right to drill, produce or sell.²¹⁰

D. *Duties During Exploration, Development & Production*

Although no further ecological examinations are required once a PSA has been signed, the production sharing contract and federal law place other environmental duties on the mineral developer.

I. *Environmental Obligations Arising Out of PSAs*

As outlined in Part IV, the Law on Production Sharing Agreements governs the contracts between the Russian Federation and international petroleum companies for oil and gas development. The PSA Law creates environmental obligations of petroleum investors by requiring certain provisions to be addressed in every agreement.

A production sharing agreement must obligate the investor to "take measures at preventing harmful impact of the said operations upon the natural environment, as well as to remedy the consequences of such impact."²¹¹ As of April 1997, implementing regulations were in draft form only.²¹² These regulations list issues that must be addressed in every PSA.²¹³ According to the draft PSA regulations, every PSA must address the investor's commitments to "subsoil protection" and "environmental protection."²¹⁴ A PSA must also address the investor's commitments to "other subsoil requirements established by law."²¹⁵ Those "other"

²⁰⁸ Village of False Pass v. Clark, 733 F.2d at 605.

²⁰⁹ *Id.*

²¹⁰ Secretary of Interior v. California, 464 U.S. 312, 339 (1984).

²¹¹ PSA Law, *supra* note 3, art. 7.2.

²¹² *Draft Regulation on the Procedure for Concluding, Implementing and Overseeing Production Sharing Agreements for Subsoil Use* art. 12, translated in, *Enough Said*, RUSSIAN PETROLEUM INVESTOR, Nov. 1996, at 19 [hereinafter *Draft PSA Regulations*].

²¹³ *Down to the Nitty Gritty*, RUSSIAN PETROLEUM INVESTOR, Nov. 1996, at 16.

²¹⁴ *Draft PSA Regulations* art. 3, *supra* note 212, at 19.

²¹⁵ *Id.*

requirements which must be addressed include measures aimed at preventing hazardous impact of operations.²¹⁶ These provisions are vague, providing the investor with no guidance as to its responsibilities and potential liability. Additionally, these provisions also set no specific standards by which to measure compliance.

Lessees in the U.S. have a general duty to maintain operations in compliance with environmental regulations.²¹⁷ Offshore leases are "somewhat" contingent upon environmental acceptability.²¹⁸ The Secretary of Interior is authorized to cancel a lease for environmental reasons upon a determination that: "(i) continued activity . . . would probably cause harm to [the] environment; (ii) the threat of harm or damage will not disappear or decrease to an acceptable extent within a reasonable period of time; and (iii) the advantages of cancellation outweigh the advantages of continuing such lease or permit in force."²¹⁹ If a lease is canceled for these reasons, the lessee is entitled to the fair value of the canceled right (including anticipated revenues and costs of compliance).²²⁰ In reality, the Secretary of Interior has apparently never canceled a lease for environmental reasons, although cancellations have been considered.²²¹

In the exploration phase, a permit will be issued only if the Secretary of Interior determines the exploration "will not be unduly harmful to aquatic life in the area, result in pollution, create hazardous or unsafe conditions, unreasonably interfere with other uses of the area, or disturb any site, structure, or object of historical or archeological significance."²²²

a. Insurance

Besides fulfilling general contractual duties to protect the environment, a mineral developer in Russia has a contractual duty to obtain insurance.²²³ The PSA must obligate the investor to buy insurance against

²¹⁶ *Id.*

²¹⁷ 43 U.S.C. § 1348(b)(2) (1997).

²¹⁸ NATIONAL ACADEMY OF SCIENCES, LAND USE PLANNING AND OIL AND GAS LEASING ON ONSHORE FEDERAL LANDS 29 (1989) *quoted in* GEORGE CAMERON COGGINS ET AL., FEDERAL PUBLIC LAND AND RESOURCES LAW 572 (1993).

²¹⁹ 43 U.S.C. § 1334(a)(2)(A)(i)-(iii) (1997).

²²⁰ 43 U.S.C. § 1334(a)(2)(C).

²²¹ COGGINS ET AL., *supra* note 218, at 580.

²²² 43 U.S.C. § 1340(g)(3).

²²³ Ecological insurance is to be made available to enterprises, institutions, organizations and individuals. *Law on Environmental Protection, supra* note 158 art. 23.1. For a discussion of the

liability for damage caused by accidents harmfully impacting the natural environment.²²⁴ The PSA Law's draft implementing regulation reaffirms the inclusion of an insurance requirement against loss or damage as a result of environmentally hazardous impacts.²²⁵ This requirement poses a substantial hardship for foreign investors in Russia because such insurance is not likely to be readily available.²²⁶ In addition, no guidelines are provided as to the scope of the required coverage. In this respect, Russia's law resembles those of less-developed petroleum-producing countries.

The United States requires the presence of a responsible party who can establish and maintain financial responsibility sufficient to satisfy minimum liability requirements where facilities are used for drilling for or producing oil and have "worst-case" oil spill discharge potential of more than 1,000 barrels of oil.²²⁷ Where facilities are in open ocean, responsible parties must show evidence of financial responsibility of \$35 million and for facilities in inland waters such as bays and estuaries \$10 million is the required sum.²²⁸ Financial responsibility may be established through a showing of insurance, surety bond, guarantee, letter of credit, qualification as a self-insurer, or other evidence of financial responsibility.²²⁹

b. Abandonment/Rehabilitation

The PSA Law requires a mineral developer to be contractually obligated "to remove all facilities, installations and other assets upon completion of the Agreement Operations as well as clean the territory on which the Agreement Operations were conducted."²³⁰ This language is an improvement over that found in the Law on the Continental Shelf which only requires information about the removal of installations and structures

complexities of insurance in the offshore oil and gas industry, see KIRSTEN ROHRMAN, OFFSHORE OIL AND GAS EXPLORATION AND PRODUCTION INSTALLATIONS: LAW AND INSURANCE (1990).

²²⁴ PSA Law art. 7.2, *supra* note 3. The *Law on the Continental Shelf* requires information about insurance to be included in a license or agreement. *Law on the Continental Shelf*, *supra* note 102, art. 8.

²²⁵ *Draft PSA Regulations* art. 12, *supra* note 212, at 19.

²²⁶ Frank Erisman et al., *C.I.S. Mining Legislation*, MINING J., May 24, 1996, available in LEXIS, Energy Library, MINJNL File.

²²⁷ 33 U.S.C. § 2716(c)(1)(A) (1997).

²²⁸ 33 U.S.C. § 2716(c)(1)(B).

²²⁹ 33 U.S.C. § 2716(e).

²³⁰ PSA Law art. 7.2, *supra* note 3. After approximately forty years of use, platforms should be removed and wells plugged. Rehabilitation involves the restoration of a site to approximate its natural state prior to platform installation. ZHIGUO GAO, *supra* note 16, at 219.

after project completion be included in production sharing agreements.²³¹ Unfortunately, the draft PSA regulations provide no more specifics; the agreement need only address the investor's commitments to "other subsoil requirements" established by law including "cleaning the aftermath."²³² Given the lack of specificity, it will be difficult to hold investors responsible for damage inflicted due to poor abandonment procedures.

One provision which Russia addresses for the first time in the draft regulations is that of an abandonment fund.²³³ The fund is to be used for land reclamation "within the limits of the area of operations under the agreement and the activities related to dismantling, abandoning, and preserving equipment, structures, holds and field facilities."²³⁴ Further details as to the source or scope of this fund are not provided.

c. Reference to National Legislation

The effect of the vague contractual duties arising under PSAs is that the agreements provide little substantive protection against offshore development but create a great deal of uncertainty as to what actions constitute compliance. What little environmental protection the PSA provides arises from the provision that requires activities conducted under the agreement be in accordance with Russian Federation law including laws on "protection of the subsoil, natural environment and health of the population."²³⁵ By referring to national environmental legislation, this requirement puts Russia well ahead of many petroleum-producing countries.

2. Environmental Obligations Arising Out of Federal Statute

As discussed in Part V, the exploration, development and production of oil and gas resources involve discharge of effluents into marine waters. Russia's system for regulating pollution from offshore platforms is woefully inadequate. Contractual obligations create broad duties which the investor must fulfill but offer inadequate protection against harmful impacts from development activities.

²³¹ *Law on the Continental Shelf*, *supra* note 102, art. 8.

²³² *Draft PSA Regulations* art. 3(a), *supra* note 212, at 19.

²³³ *Id.* art. 21.

²³⁴ *Id.*

²³⁵ *PSA Law* art. 7, *supra* note 3.

Rather than following the traditional command and control regulatory scheme, Russia has created an elaborate system of environmentally-based economic incentives.²³⁶ The "cornerstone" of this mechanism is a pollution charge system.²³⁷ Konstantin Gofman, Deputy Director of the Russian Academy of Sciences' Institute for Market Studies, explained the economically-based program for environmental protection, "Of all the countries in the world, it is now Russia that has the most developed system of pollution taxes. We have fees for taxes for most major types of air and water pollution and for solid waste disposal."²³⁸ One regional leader noted that economic incentives, "are now the chief levers with respect to the environment We are convincing managers that it is more profitable to build purification plants than to pay into the [ecological] fund."²³⁹

Environmental quality is measured using: (1) ambient standards based on the Soviet-era maximum permissible concentrations ("MPC"); and, (2) source limits measured in maximum permitted discharges ("MPD") for each specific pollutant for a given period.²⁴⁰ Much criticism exists of the use of MPCs because limits are established on an individual facility basis, rather than on a uniform regional basis.²⁴¹ That is, "standards of maximally permissible releases and discharges of dangerous pollutants . . . shall be fixed with due account of the facility's production capacity, the data on mutagenic effect and other harmful consequences."²⁴² MPCs have also been criticized because as long as charges are not sufficiently high they provide an incentive to pollute rather than encouraging the adoption of pollution control technology.²⁴³

Pollution charges for discharging pollutants are established for discharges within the MPCs as well as for discharges above set limits.²⁴⁴ This differs from traditional Western regimes which tend to have permissible levels of discharge and penalties assessed only once that level

²³⁶ *Law on Environmental Protection*, *supra* note 158, arts. 15-21.

²³⁷ NATIONAL ACADEMY OF PUBLIC ADMINISTRATION, *THE ENVIRONMENT GOES TO MARKET: THE IMPLEMENTATION OF ECONOMIC INCENTIVES FOR POLLUTION CONTROL* 111 (1994).

²³⁸ J. Andrew Hoerner, *Russia Seeks to Harness Market Forces to Clean Up Environment, Choosing Taxes Over Regulation*, TAX NOTES INT'L, May 20, 1992, available in LEXIS, Fedtax Library, TNI File.

²³⁹ *Chelyabinsk Ecology Chief on 1992 Reforms*, CHELYABINSKII RABOCHII, Mar. 27, 1993, at 2, translated in F.B.I.S., FBIS-USR-059, May 12, 1993, at 36.

²⁴⁰ NATIONAL ACADEMY OF PUBLIC ADMINISTRATION, *supra* note 237, at 88.

²⁴¹ Dehgan, *supra* note 158, at 685.

²⁴² *Law on Environmental Protection*, *supra* note 158, art. 27.1.

²⁴³ Bond & Sagers, *supra* note 158, at 466.

²⁴⁴ *Law on Environmental Protection*, *supra* note 158, art. 20.3.

has been exceeded.²⁴⁵ Charges are to be established "with due account of ecological factors, namely, natural and climatic specifics of territories, and importance of natural and socio-cultural objects."²⁴⁶ Approximately 140 pollutants are identified, including petroleum, using coefficients indexed to the particular body of water.²⁴⁷ Pollution charges may be capped, however, "with due account of the economic specifics of the individual sectors of the national economy."²⁴⁸ Given both the historical and contemporary importance of the oil and gas sector to the national economy, economic priorities will likely continue to trump considerations of ecological sensitivity.

Enterprises are generally required to report their own pollution levels.²⁴⁹ This absence of an actual monitoring system is a distinguishing feature of Russia's pollution charge system which hinders its effectiveness.²⁵⁰ The lack of effective monitoring is due to a lack of funds, qualified personnel, and appropriate equipment.²⁵¹

Once the data has been submitted, the State Committee for Environmental Protection determines whether inspections are needed.²⁵² Where development activities are taking place on the continental shelf, the State Committee for Hydrometeorology is charged with conducting "regular observations" of the condition of the marine environment and bottom sediments.²⁵³

Charges are to be levied where hazardous effects on the environment occur including "dumping of pollutants into surface and underground bodies of water."²⁵⁴ Ninety percent of revenues generated from the charges are allocated to "special accounts of off-budget ecological funds," and ten

²⁴⁵ Kingston, *supra* note 15.

²⁴⁶ *Procedure for Fixing and Capping of Charges for Environmental Pollution, Waste Dumping, and Other Harmful Effects—RF Government Decree No. 632*, RUSDATA DIALINE - RUSLEGISLINE, Aug. 28, 1992, available in LEXIS, Europe Library, RUSLEG File.

²⁴⁷ *Basic Norms of Payment for Exhausts, Drops of Pollutants into Environment and Waste Disposal*, ECONOMIC LAW OF RUSSIA, Nov. 27, 1992, available in LEXIS, Intlaw Library, RFLAW File. Coefficients are adjusted annually. See, e.g., *Letter of the State Tax Service of the Russian Federation No. NP-4-04/2N of Jn. 5, 1996 on Indexation of Payment for Environmental Pollution in 1996*, ECONOMIC LAW OF RUSSIA, Jan. 5, 1996, available in LEXIS, Intlaw Library, RFLAW File.

²⁴⁸ *Id.*

²⁴⁹ NATIONAL ACADEMY OF PUBLIC ADMINISTRATION, *supra* note 237, at 93.

²⁵⁰ *Id.* at 102.

²⁵¹ *Id.*

²⁵² *Id.* at 93.

²⁵³ *Law on the Continental Shelf*, *supra* note 102, art. 33.

²⁵⁴ *Environmental Pollution Charges: RF State Tax Service Letter No. IL-4-02/60N*, RUSDATA DIALINE-RUSLEGISLINE, Sept. 28, 1992, available in LEXIS, Europe Library, RUSLEG File.

percent to the federal fund to finance environmental protection activities.²⁵⁵ Of particular interest is that payment of charges does not relieve the polluter from liability.²⁵⁶

In contrast to Russia's statutory framework, statutory duties of petroleum companies operating facilities off U.S. coasts are less diverse. As mentioned in Part IV, the 1969 Santa Barbara, California blowout proved to be the turning point in U.S. environmental regulation of offshore oil and gas development activities. Discharges of effluents from offshore installations on the continental shelf of the U.S. are regulated by the Clean Water Act²⁵⁷ and the Oil Pollution Act of 1990.²⁵⁸ All "harmful" quantities of oil discharged into federal waters are prohibited unless specifically permitted by the EPA under the National Pollution Discharge Elimination System ("NPDES").²⁵⁹ The Environmental Protection Agency ("EPA") has produced a series of guidelines for discharge of pollutants from offshore installations.²⁶⁰

One key aspect of U.S. regulation of offshore pollution which Russia lacks is the requirement of spill prevention and response plans. First, the Clean Water Act requires a National Contingency Plan and National Response System.²⁶¹ In addition, operators of offshore facilities must prepare written Spill Prevention Control and Countermeasure ("SPCC") plans.²⁶² And finally, any offshore facility located where one could reasonably expect it to cause substantial harm to the environment by discharging into the waters of the United States is required to prepare individual response plans to address the removal of "worst case discharge" or a "substantial threat of such a discharge of oil or hazardous substance."²⁶³

²⁵⁵ *Id.* art. 9.

²⁵⁶ *Id.* art. 10.

²⁵⁷ 33 U.S.C. §§ 1251-1387 (1997).

²⁵⁸ 33 U.S.C. §§ 2701-2767 (1997).

²⁵⁹ 33 U.S.C. § 1342.

²⁶⁰ Effluent Guidelines and Standards, Oil and Gas Extraction Point Source Category, Offshore Subcategory, 40 C.F.R. § 435.10, *as amended* 61 Fed.Reg. 69366 (1997).

²⁶¹ 33 U.S.C. §§ 1321(d), (j) (1997).

²⁶² 40 C.F.R. §§ 112.3; 112.7 (1997). "The SPCC Plan shall be a carefully thought-out plan, prepared in accordance with good engineering practices, and which has the full approval of management at a level with authority to commit the necessary resources." 40 C.F.R. §§ 112.7. A registered professional engineer must certify that the plan has been prepared in accordance with sound engineering principles. 40 C.F.R. § 112.3(d).

²⁶³ 33 U.S.C. § 1321(j)(5). Regulations delineate the scope and content of these plans. Facility Response Plans, 40 C.F.R. § 112.20 (1997).

E. Environmental Liability Issues

The above regulatory framework for Russia sets forth sweeping affirmative duties but provides little guidance as to the scope of these duties. As a result, companies operating in Russia's offshore oil and gas industry must often speculate as to the appropriate level of compliance, "Uncertainty surrounds attempts to assess and quantify environmental liability risks."²⁶⁴ A recent World Bank report indicates that the top 1000 multinational firms rank the uncertainty of environmental liability as one of the top disincentives to invest in transitional economies.²⁶⁵ The reason for the concern is that these ambiguities leave much room for arbitrary decisions of low-paid bureaucrats. The following discussion outlines the types of environmental liability investors face under Russian federal law.

The PSA law provides for civil liability in the event that a party fails to fulfill or improperly fulfills its contractual obligations.²⁶⁶ Under federal environmental law, investors may incur civil, administrative, and criminal liability.²⁶⁷ Enterprises, institutions, organizations, and individuals who damage the environment,²⁶⁸ harm public health,²⁶⁹ or damage property²⁷⁰ may be held liable for compensation to damaged parties.²⁷¹ In addition, all entities may be subject to broad administrative liability for violation of environmental laws including non-fulfillment of duties of carrying out state ecological expert examinations and polluting the natural environment.²⁷² Administrative fines depend on the nature of the violation, the degree of guilt of the law breaker,²⁷³ and the damage caused.²⁷⁴ Administrative

²⁶⁴ *Managing Environmental Risks in Central and Eastern Europe*, E. EUR. BUS. L., Oct. 1994, available in LEXIS, Europe Library, EEBLAW File.

²⁶⁵ JONATHAN KLAVENS & ANTHONY ZAMPARUTTI, FOREIGN DIRECT INVESTMENT AND ENVIRONMENT IN CENTRAL AND EASTERN EUROPE: A SURVEY 3 (1995).

²⁶⁶ *PSA Law*, *supra* note 3, art. 20.1.

²⁶⁷ *Law on Environmental Protection*, *supra* note 158, art. 81.

²⁶⁸ *Id.* art. 86.

²⁶⁹ *Id.* art. 89.

²⁷⁰ *Id.* art. 90.

²⁷¹ Unlike in Russia, civil penalties in the U.S. are capped at \$25,000 per day of violation or an amount of up to \$1,000 per barrel of oil or unit of reportable quantity of hazardous substances discharged is imposed. 33 U.S.C. § 1321(b)(7)(A). The amount is increased to \$100,000 per day and \$3,000 per barrel or unit of reportable quantity where there is proof of gross negligence or willful misconduct. 33 U.S.C. § 1321(b)(7)(D).

²⁷² *Law on Environmental Protection*, *supra* note 158, art. 84.

²⁷³ Presumably, this language allows for consideration of egregious or intentional violations.

²⁷⁴ *Law on Environmental Protection*, *supra* note 158, art. 84.2. Unauthorized discharges of oil and hazardous substances in U.S. waters, and owners and operators of facilities who do not comply with the regulations are subject to two administrative penalty regimes: either up to \$10,000 per day where an

penalties may be appealed in court.²⁷⁵ Officials and private persons can be held criminally liable for committing "socially dangerous deeds encroaching on the ecological law and order . . . , the society's ecological safety, and causing harm to the natural environment and human health."²⁷⁶ And finally, an action for injunctive relief may be maintained by enterprises, institutions, organizations, and individuals where an activity caused injury to human health, property, the national economy, or the natural environment.²⁷⁷ It appears that removal liability is not contemplated, i.e., mineral developers are not liable for costs associated with cleaning up after a spill.²⁷⁸

VII. CONCLUSION

Environmental regulation of Russia's offshore oil and gas industry appears to be relatively advanced. Lacking, however, are substantive guidelines by which to shape behavior and measure compliance. Implementing regulations intended to clarify general statutory duties further cloud the regulatory environment. The International Energy Agency concluded that the issue of energy-related environmental impacts "does not figure large" in the Russian energy strategy.²⁷⁹ As one commentator characterized the situation, "The energy sector in the former Soviet Union has never had to concern itself with meaningful environmental requirements."²⁸⁰ The inefficacy of this regulatory framework has a dual negative effect. First, it fails to adequately protect the environment and so it fails to effectuate Russians' constitutional right to a favorable environment. Second, it adds an additional degree of uncertainty as to potential liability for international petroleum companies in an already risky investment climate.

administrative process is streamlined or \$125,000 may be assessed where formal adjudicatory proceedings are followed; the public has an opportunity to participate in both types of proceedings. 33 U.S.C. § 1319(g)(2)(B) (1997).

²⁷⁵ *Law on Environmental Protection*, *supra* note 158, art. 84.3.

²⁷⁶ *Id.* art. 85. In the U.S., criminal sanctions are imposed for failure to report discharges. 33 U.S.C. § 1321(b)(5) (1997). Civil and criminal penalties are paid into the Oil Liability Trust Fund. 26 U.S.C. § 9509 (1997).

²⁷⁷ *Law on Environmental Protection*, *supra* note 158, art. 91.

²⁷⁸ In contrast, the U.S. Oil Pollution Act of 1990 ("OPA") established a regime for removal liability, damages, and penalties. 33 U.S.C. §§ 2701-2761 (1997). Responsible parties are strictly liable for all removal costs and damages associated with the discharge. 33 U.S.C. § 2702(a).

²⁷⁹ INT'L ENERGY AGENCY, *supra* note 150, at 77.

²⁸⁰ Gerald Karey, *Regulation and the Environment*, PLATT'S OILGRAM NEWS, Sept. 18, 1995, at 3.

In spite of the legal risks, the potential energy reserves in the Russian Far East, and in all of Russia, are too substantial for international petroleum companies to ignore. Daniel Yergin, oil historian and author of the Pulitzer-prize winning book *The Prize: The Quest for Oil, Money & Power*, commented on the long-term investment prospects for the oil and gas industry of the former Soviet Union, "It's the new prize for world oil, the biggest risk is the risk of not being there."²⁸¹ When that urgency is combined with the potential to capture the burgeoning energy markets of Northeast Asia, the likelihood of offshore oil and gas development over the long-term is good. Part of that package, however, is that investors must contend with Russia's environmental protection legislation which imposes both contractual and statutory duties. Slowly, legislative reform is creating opportunities to hold private actors accountable for their actions. "At the mention of environmental issues, most of us in the oil industry instinctively recoil, look down at our feet, shuffle them, and mutter something about it all being very difficult. When the region in question is the former Soviet Union, the mutterings are likely to be more uneasy and longer."²⁸² Given the long-term potential of Russia's oil and gas industry, the prudent course for international petroleum companies would be to self-regulate in the interest of self-preservation. The environmental rule of law in Russia is only going to mature.

²⁸¹ Paul Klebnikov, *The Seven Sisters Have a Baby Brother*, FORBES, Jan. 22, 1996, at 70.

²⁸² Richard Shoylekoy, *Former Soviet Union States Seeking Commitment on Environmental Standards*, OILMAN, Dec. 1994, at 168.

