UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF LOUISIANA

United States
v.
BP Exploration & Production, Inc., et al
Civil Action No. 10-4536

Penalty Phase

The Role of BP Exploration & Production Inc. in the Larger BP Enterprise

EXPERT REPORT

of

FREDRIC L. QUIVIK, PhD.

Fredric L. Quivik

15 August 2014

HIGHLY CONFIDENTIAL

Table of Contents

I. SUMMARY OF OPINIONS

The purpose of this report is to provide a detailed organizational analysis of BP p.l.c. (a legal entity incorporated in the United Kingdom), of BP's operations in the Gulf of Mexico (including the drilling of the Macondo well), of BP Exploration & Production Inc. (BPXP, a Delaware corporation), and of the corporate and organizational relationships between BPXP and the operations in the Gulf, on one hand, and BP p.lc. and its global enterprise, on the other. Details of these relationships support my opinion that: 1) although BPXP is the corporate entity that holds BP's leases in the Gulf of Mexico, BPXP is not an active corporate entity that operates those leases; and 2) although BP p.l.c. and BPXP are distinct corporate entities, the organizational structure created by BP p.l.c. for its global enterprise has managed and controlled BP's operations in the Gulf of Mexico, including operations at the Macondo well, from the time BPXP acquired the MC252 lease on which the well was drilled until the Macondo blowout and Deepwater Horizon oil-spill disaster in 2010. BP p.l.c.'s organizational structure has also managed the response to the blowout and oil spill. A summary of my opinions regarding the relationship between BP p.l.c. and BPXP is as follows:

A. BP p.l.c., a global company incorporated in the UK, maintains a group of subsidiary corporations, which are legal entities in the countries in which BP operates. BPXP is one such subsidiary in the U.S. BP also maintains a global organizational structure for managing its operations throughout the world. The lines of authority and direction in BP's organizational structure for managing BP's operations generally function without reference to the legal entities BP owns.

B. BP operates extensive deepwater leasing, exploration, drilling, and production operations in the Gulf of Mexico. Those operations are managed by an organizational structure that makes little if any reference to BP's legal subsidiaries in the U.S. but rather references the kinds of extra-legal organizational units that BP has established and standardized throughout its global enterprise. Lines of authority for BP's Gulf of Mexico operations pass from the U.S. to the top of BP's global organizational hierarchy, which likewise exists in an extra-legal fashion distinct from BP's array of global subsidiaries.

C. BPXP is one of many subsidiaries that BP maintains in the United States. BPXP holds hundreds of leases in the Gulf of Mexico. BPXP does not have any employees. Rather, BPXP contracts with BP America Production Company, another BP subsidiary in the U.S., by means of a general services agreement, to provide BPXP with any employees and other services it may need to conduct its affairs. The general services agreement does not indicate how that other subsidiary's employees are to be accountable to BPXP for the work its employees may do on BPXP's behalf.

D. BPXP has finances, but they are not a reflection of the execution of annual plans and budgets developed and approved by BPXP and its board of directors; rather BPXP's finances are a reflection the global financial accounting system developed by BP p.l.c. for its group of operations and entities, whereby said financial system ascribes the financial transactions incurred by BP's operations to the appropriate legal entities comprising the BP group of parents and subsidiaries, including BPXP.

E. I have seen little, if any, evidence that demonstrates that BPXP, as opposed to other BP entities, actually conducted operations at the well or responded to the blowout. In addition to not having its own employees to conduct those operations or respond to the blowout, BP has not produced a record that BPXP did other things that active corporations usually do to conduct operations, like approve annual work plans and budgets, or (prior to the Macondo incident) hire top managers to direct such work, or oversee the work being done. Those management functions were provided by BP's extra-legal organizational structure.

The main narrative of this report is divided into two sections. The first provides a chronological overview of BP's development of a new kind of global organizational structure from the 1990s to the present. The first section relies largely on secondary sources. The second section is divided into sub-sections that analyze, in turn, various facets of the relationships among BP's legal and extra-legal entities in the Gulf of Mexico and globally. It relies largely on primary sources: BP's annual reports, BP's management documents, and deposition testimony offered in the wake of the Macondo blowout.

II. GENERAL REMARKS

A. Statement of the Problem

On April 10, 2010, a blowout occurred at the Macondo oil well, being drilled by the drill rig *Deepwater Horizon* in the Gulf of Mexico. The Macondo well is located on a lease held by BP Exploration & Production Inc. (BPXP), a subsidiary of BP p.l.c., the global energy corporation, based in the United Kingdom and with operations in countries throughout the world, including in various parts of the United States.* The blowout at the Macondo well led to the largest marine discharge of oil into the environment in history. The discharge lasted for 87 days and released an estimated 5,000,000 barrels of crude oil into the Gulf of Mexico.** The blow-out also caused a catastrophic explosion and fire on-board the *Deepwater Horizon*, killing eleven workers and injuring seventeen.

As a complex technological system, the Macondo well and the *Deepwater Horizon* featured an equally complex organizational structure. BPXP owned the offshore oil lease, but it had undertaken the drilling operation as a joint venture with Anadarko Petroleum and MOEX Offshore. Anadarko, an independent oil exploration company, owned 25% of the joint venture, and MOEX, a U.S. subsidiary of a Japanese oil company, owned 10%. With the remaining 65% in the joint venture, BP was the operating partner. BP's engineering organization designed the Macondo well, but the actual work was performed by a number of contractors that specialize in particular kinds of tasks and undertakings.

BP contracted with Transocean for the rig to drill the Macondo well. Transocean owned the *Deepwater Horizon*, and Transocean's crews performed most of the actual tasks involved in drilling the well. Constructing an oil well involves several specialty operations, one of the most important of which is cementing the well casing. BP contracted with Haliburton for the cementing. Other important suppliers of equipment and services were also involved in the work at the Macondo well. Transocean, Haliburton, and the other contractors and suppliers are all well known in the oil industry and have extensive experience working with BP.

Just as the organization of work at the Macondo well was complex, so too was BP's corporate organization that it brought to bear on the drilling operation. The parent corporation of BP's global enterprise is BP p.l.c., incorporated under the laws of England and Wales. BP p.l.c. has hundreds of subsidiaries in countries around the world. Although BP has interests and activities in the renewable energy field, its major activity involves finding, extracting,

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* BP p.l.c. refers to its entire global enterprise as BP, BP group, or the group, which is defined as BP p.l.c. and its subsidiaries, including its U.S. subsidiaries; see BP, Annual Report and Form 20-F for 2010, p. 3 (TREX-06033).

** I am aware that the volume of the release is one of the issues being litigated in this matter, and by citing a volume, I am not offering myself as an expert in that particular area. I am merely using the number that the United States proposes is the accurate measure of the volume released.

processing, and marketing hydrocarbons (oil and gas). To organize its vast global oil and gas enterprise, BP divides all the functions it performs into two broad segments, "upstream" and "downstream." The upstream group focuses on exploring for oil and gas, developing oil and gas properties, and extracting hydrocarbons from those properties. The downstream group focuses on processing hydrocarbons into fuels and other useful products and on marketing its products to customers. The Gulf of Mexico is one of several geographical areas in the world where BP has major upstream activities, yielding the company tremendous volumes of oil and gas.

BP's organizational structure for its Gulf of Mexico operations is also complex. BP p.l.c. has numerous wholly-owned subsidiaries in the United States, some of which focus on work in the Gulf of Mexico. One of those is a corporation named BP Exploration & Production Inc. (BPXP). At the time of the Macondo disaster, BPXP was a wholly-owned subsidiary of BP America Production Inc., which in turn was a wholly-owned subsidiary of another BP company, and it a subsidiary of another, and so on through a total of five intermediate parents to the top parent company, BP p.l.c., incorporated in the U.K. BPXP holds the lease to a block in the area of the Gulf of Mexico designated by the U.S. Minerals Management Service as the Mississippi Canyon. The leased block is MC252.

In the earlier phases of *U.S. v. BPXP, et al*, the court has found BPXP liable for the Deepwater Horizon disaster of April 2010. In the penalty phase of the litigation, the United States argues that the court should consider the activities and finances of BP p.l.c. and its affiliates in evaluating the civil penalty to be imposed under the Clean Water Act. The U.S. contends that the penalty should be based on the participation of the larger BP enterprise in operating the Macondo well and in responding to the Macondo blowout. BP argues that assessment of the penalty should focus on BPXP as the responsible party. To shed light on the question, the U.S. Department of Justice, Environmental Enforcement Section, has asked me to research the organizational relationships between BPXP and the larger BP enterprise and to develop expert opinions on the extent to which other entities in the BP enterprise have participated in the operation of the Macondo well and responded to the Macondo blowout.

B. My Assignment/Personal Background/Qualifications

My name is Fredric L. Quivik. I am an industrial historian by profession. My specialty is the history of technology and industrial history, particularly in the area of the organization of extractive industries. I am the author of the following expert report in the matter of *United States v. BP Exploration & Production Inc.*

The U.S. Department of Justice asked me to investigate the history of management in BP p.l.c. and its relationships with BP Exploration & Production Inc., and the BP operations in the Gulf of Mexico associated with the Macondo blowout in April 2010.

As an industrial historian, I am academically trained in the history of technology, and I have extensive experience in the field of industrial history, both in the context of litigation and in academic and other applications. I earned a PhD in History and Sociology of Science from the University of Pennsylvania, and I have developed expertise in the history of technology,

especially mineral extraction and mineral processing technologies, as well as expertise in related fields, such as the history of big construction projects like bridges and dams. A particular focus for much of my work as an industrial historian has been on the ways that large extractive enterprises organize themselves in order to manage their operations. I have worked as a consultant since 1982, when I formed a historic preservation consulting firm, Renewable Technologies, Inc. (RTI), in Butte, Montana. Through both my academic training and my professional experiences, I have developed expertise in using the historical method.

The historical method is well-established and widely used by reputable historians in conducting inquiries and reaching conclusions. It allows historians to ask questions about the past which spring from our concerns in the present. The purpose of the historical method is to allow a historian to reconstruct, as reliably as possible, a truthful rendition of occurrences in the past. It involves developing questions to guide research, finding sources of information that allow one to answer those questions, evaluating the authenticity and credibility of the information, and then using the information to create a coherent and verifiable narrative recitation of the past. Such a work of history must include sufficient detailed references to the sources of information upon which it relies to allow a reader to evaluate the work.

In the process of my academic course work and professional experience, I have had to demonstrate my ability to use the historical method, both by evaluating the effectiveness of other authors and scholars in applying the historical method and by my own writing – for research reports and for publication – using the historical method. Appendix A to this report is a current version of my c.v., showing my academic and professional experience.

My expertise as a historian of technology, particularly a historian of mineral extraction and processing technologies, has been employed in several cases of Superfund litigation. Two of them involved the histories of ARCO and the Anaconda Copper Mining Company. I served as an expert historian for the United States in *U.S. v. ARCO* (the Clark Fork Superfund case in Montana). I was deposed by ARCO, but I did not testify at trial because the parties agreed to settle. I served as an expert historian for the Pinal Creek Group in *Pinal Creek Group. v. Newmont Mining Corporation, et al* (the Pinal Creek Superfund case in Arizona). I was deposed by ARCO (one of the defendants in addition to Newmont), but I did not testify at trial because ARCO and the Pinal Creek Group agreed to settle. My opinions in the case concerned the corporate relationships between the Anaconda Copper Mining Company and its subsidiaries, including the Inspiration Consolidated Copper Company.

I have worked on four cases for which I testified at trial. I served as an expert historian for the United States in *U.S. v. Asarco, et al* (the Bunker Hill Superfund case in Idaho). My expert report concerned the history of silver, lead, and zinc mining and metallurgical operations in the Coeur d'Alene mining district. I was deposed by Asarco and the other defendant mining companies in the case, and I testified at trial in Boise, in January 2001 during the liability phase of the case and in July 2001 during the counter-claims phase. Judge Lodge ruled in favor of the U.S. citing my expert testimony in his opinion.

I served as an expert historian for the United States in *U.S. v. Newmont Mining Corporation, et al* (the Midnite Mine Superfund case in the state of Washington). I was deposed

by Newmont, and I testified at trial in Spokane in July 2008. In my understanding, Newmont's defense was to assert that under U.S. corporate law a parent corporation is not liable for its subsidiary's actions; therefore, Newmont should not be held liable for its subsidiary's operations at the Midnite mine. In my expert report and in my testimony I showed that historically Newmont had managed its subsidiary's operations. Judge Quackenbush ruled that Newmont had managed its subsidiary's operations and so was liable under CERCLA as an operator of the Midnite mine. The Judge cited my testimony in his opinion (2008 WL 4621566 (E.D. Wash.).

I served as an expert historian for the United States in *U.S. v. Sunoco, et al*, the Defense Supply Center Philadelphia (DSCP) case in Pennsylvania. The case involved the provenance of a plume of light non-aqueous phase liquid (L-NAPL) sitting on the ground water beneath the former DSCP facility and east of Sunoco's Point Breeze refinery. ARCO was the previous owner and operator of the refinery. My work included researching the organizational structures of the U.S. Army's Quartermaster Corps, which had built and operated the DSCP facility, and of ARCO's predecessor Atlantic Refining Company, which had built and operated the refinery. The parties settled before trial and before my deposition was taken.

In November 2012, I testificd for the United States in *U.S. v. Sterling Centrecorp*, the Lava Cap Superfund case in California. I testified about the history of operations of the Lava Cap Mining Corporation, and I testified about the corporate relationship between Sterling Centrecorp, which had acquired Lava Cap Mining Corporation's assets and liabilities, and Sterling's subsidiary Keystone Copper Corporation, which held title to the Lava Cap property. Judge England ruled in favor of the United States, citing my testimony extensively in his ruling that Sterling managed Keystone's operations (2013 WL 3166585 (E.D. Cal.)).

In December 2012, I testified for the United States in *U.S. v. Marmon Holdings*, the final trial in the series of trials concerning the Bunker Hill Superfund site in Idaho. I testified about the history of operations of the Golconda mill, which had been owned and operated by a Marmon predecessor, and my testimony included opinions concerning the Golconda mill's practice of discharging its tailings directly into the nearby stream.

In March 2014, I testified on behalf of the Central Valley Regional Water Quality Control Board at an administrative law hearing in Sacramento, California. The hearing was to determine whether the Water Board would issue a Clean-up and Abatement Order (CAO) for the Walker mine to ARCO as the legal successor of the Anaconda Copper Mining Company. A central issue in the case was whether Anaconda officials had managed the operations of its subsidiary, Walker Mining Company, to an extent sufficient to legally consider Anaconda an operator of the Walker mine facility. I developed expert opinions on the management structure that Anaconda developed for its enterprise so that it could manage key facets of its subsidiaries' operations, including those of the Walker mine. The Water Board found that ARCO, through its predecessor Anaconda, was an operator of the Walker mine and issued the CAO.

I am working on one other case in which Atlantic Richfield is the defendant, *Gregory A. Christian, et al, v. BP/ARCO Corporation, et al.* My expert report offers opinions on the Anaconda Copper Mining Company's history of knowingly discharging contaminants, such as

arsenic, onto the property of residents in Opportunity, Montana. ARCO has taken my deposition, but the trial has yet to be held.

C. Materials Considered and Methods Used

I used all of my training and experience in history and the history of technology, including the history of organization and management of technological systems, in writing my report in this matter. I began by researching the general history of BP's development of a new organizational structure in the 1990s. I did this by conducting research in scholarly journals and in recent books about BP's organizational structure. To familiarize myself with the particular mineral extraction operations being undertaken by BP in the Gulf of Mexico's deepwater, I reviewed reports that had been prepared after the Macondo disaster, specifically the "*Deepwater Horizon* Study Group report (Bea Report) and the report prepared for the President's National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling (Chief Counsel's Report).

I then began reading deposition testimony given in this matter of BP executives, managers, and employees, looking especially at the manner in which they understood BP's organizational structure and their place in it. I reviewed BP's recent Form 20-F annual reports, particularly as they describe the organizational structure of the BP group. As I became familiar with the sorts of documents that were being used as exhibits in the depositions, I requested access to additional documents, and the DOJ then provided them to me, if available.

Since I started work on this report, BP has produced additional documents at the DOJ's request. BP has also provided information in the form of responses to the DOJ's interrogatories in lieu producing some of the requested BP documents. The DOJ has sent me that information in the form of BP's formal supplemental response. In other instances, BP has produced additional documents, many of which appear germane to my inquiry. The DOJ has made those documents available to me. Examples include records of resolutions passed by the BPXP board of directors and minutes of BP p.l.c. board of directors meetings.

As an essential part of my work as a historian, and for purposes of serving as an expert in this matter, I organized the pertinent information I found and assembled it into my expert report, which is a narrative recitation of the research questions I investigated and the conclusions I reached, containing appropriate citations to sources. Appropriate citation to sources is important for historians, because it allows the reader to locate the sources upon which historical conclusions rely, and then to evaluate whether the sources support the conclusions reached in the report.

In developing my opinions and in preparing this Expert Report, I considered many documents produced in discovery for this case. Those documents fall into several categories. I have relied upon published texts and journals. I have relied upon corporate records and records of government agencies. As I reviewed documents in this case, I evaluated them to make sure that the information they contained was authentic and credible. A list of materials I considered in forming my opinions is attached as Appendix B.

D. Compensation

I am being compensated by the United States Department of Justice as an expert witness in *U.S. v. BPXP, et al*, at the rate of $190.00/hr. for pre-trial consulting and at the rate of $380.00/hr. for depositions and trial testimony.

III. COMPLETE STATEMENT OF OPINIONS AND THE REASONS AND BASES THEREFOR:

BP p.l.c. is a global energy company incorporated and headquartered in the United Kingdom. It has subsidiaries throughout the world, and many of those subsidiaries are incorporated in the nations where they do business. BP p.l.c. has hundreds of subsidiaries incorporated in the United States.[1] Among them is BP Exploration & Production Inc. (BPXP), a company incorporated in Delaware and headquartered in Houston, Texas. BPXP holds the lease to MC252, where the Macondo well is located in the Gulf of Mexico.[2] In responding to the United States' arguments in the penalty phase of *U.S. v. BPXP, et al*, BP claims that BPXP is the sole liable party for the United States' legal action. BPXP claims that the court should not consider the role and finances of BP p.l.c. in evaluating an appropriate civil penalty but instead should focus on BPXP, because it is the sole responsible party liable for the action. BPXP also claims that BPXP is a corporate entity distinct from other corporate entities in the BP enterprise and that BPXP was the operator of the Macondo well and responded to the Macondo blowout.[3]

This expert report shows that, although BPXP may be a distinct legal entity, activities attributed to it are in many ways indistinguishable, at an operational and functional level, from its affiliates in the BP enterprise. As BP articulates it, "BP reporting in the United States is a matrix of legal entities and operating units."[4] This report shows that BPXP may have been an operator of the Macondo well, but BPXP alone did not operate the Macondo well, nor did BPXP alone respond to the blowout. BPXP may have been signatory to certain legal documents, like leases and contracts, which one would expect of an operator, but BPXP took few of the other actions one would expect the operator of a well to take. Rather, those actions were taken by other entities, many of them extra-legal, in the BP group.

This expert report illustrates, at a detailed level, what Andy Inglis said about the relationship between BP's legal structure and BP's organizational structure, established to manage its operations. At the time of the Macondo blowout, Inglis was head of BP's global

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[1] Ownership Chart accompanying BP p.l.c., AR01 Annual Return for 2009 (Exhibit 12820); Ownership Chart accompanying BP p.l.c., AR01 Annual Return for 2013 (Exhibit 12821).

[2] U.S. Minerals Management Service Lease for Mississippi Canyon Block 252 dated1 June 2008 (TREX-85002, BP-HZN-2179MDL00605624-5630).

[3] BP Exploration & Production Inc.'s Memorandum in Opposition to the United States' Motion *in Limine* to Permit Relevant Evidence Concerning BP p.l.c. and Other BP Affiliates, brief dated 6 March 2014 (Rec. Doc. 12465).

[4] BP, "BP Exploration & Production, Inc., Consolidated Financial Reports, 1Q14," unaudited BPXP financial reports for 1st quarter of 2014 (BP-HZN-2179MDL07817670 -7678, at 7678). This financial report goes on to state, "[T]he consolidated BPXP financial statements do not represent any specific operating unit in total but are largely made up of GoM Region and GCRO. Additionally, GoM Region and GCRO also have activities in legal entities outside BPXP.

organization, called the upstream segment, that explores for oil and gas, drills wells, and produces hydrocarbons from those wells. When testifying in deposition about the nature of BP's global exploration and production operations, he said:

> [BP] includes structures, which are to do [sic] with the legal entities of companies. That is a different structure to the way in which the—the operations would be undertaken. So the operations that I was responsible for were those things to do with the—the upstream business. They would have in it [sic] different companies, different legal structures. There was no legal structure to do with the upstream.[5]

A. GENERAL BACKGROUND HISTORY OF BP p.l.c. AND BPXP IN THE CONTEXT OF THE LARGER BP GLOBAL ENTERPRISE

1. Corporate History of BP p.l.c.

BP is the name for a global energy company based in London and with operations throughout the world, including the Gulf of Mexico off the coast of the United States. The name BP is used both for the parent corporation, BP p.l.c., and for the group of companies comprised of the parent and its hundreds of subsidiaries and businesses operating in dozens of countries. One of those subsidiaries is BP Exploration & Production Inc. (BPXP), the U.S. corporation that holds the lease in the Gulf of Mexico where the Macondo well is located. This introductory section includes corporate histories of BP p.l.c., BPXP, and a couple of other BP subsidiaries that are important to understanding BP's operations at the Macondo well leading to and responding to the 2010 blowout and oil spill.

BP has its origins in the efforts of William Knox D'Arcy (1849-1917) to find and gain access to petroleum in Persia (present-day Iran). D'Arcy had gained a large fortune mining gold in Australia by developing the Mount Morgan mine. When he turned his attention to oil at the turn of the twentieth century, the United States was the world's largest oil producer, with lesser supplies coming from oil fields in Russia and the Dutch East Indies (today's Indonesia). Persia granted D'Arcy a concession in 1901 to explore for oil and, should he find any, to exploit and market it. He sent the engineer George B. Reynolds to Persia to begin exploratory drilling. Reynolds struck a small oil deposit in 1903 and developments continued with the formation of the Anglo-Persian Oil Company in 1909. During World War I, when the British Navy made the transition from coal to oil to power its ships, the British government acquired a majority interest in Anglo-Persian stock. The company, renamed Anglo-Iranian in 1934, continued drilling wells, producing oil, and building railroad and pipeline infrastructure in Iran through the first half of the twentieth century. The company also developed refineries and marketing organizations, and it explored for oil in other parts of the world, forming partnership agreements with other major oil companies to do so. By 1954, when it changed its name to British Petroleum (the name of a marketing subsidiary it had acquired during World War I), or BP, the company was one of the

[5] Andrew George Inglis, deposition in re the Deepwater Horizon dated 21 July 2011, 276-277.

world's major oil companies, with markets throughout Europe and with major production operations in Kuwait and Iraq, in addition to Iran.[6]

Because of turmoil in the Middle East in the 1950s, BP decided in the late-1950s to diversify its sources of supply to other regions, including the Americas. BP entered a consortium with ARCO and Standard Oil of New Jersey to explore Alaska's North Slope. With the discovery of oil at Prudhoe Bay in 1968, the consortium built the Trans-Alaskan Pipeline from Prudhoe to Valdez, on Alaska's Prince William Sound. BP discovered gas and oil in the North Sea in 1970, further diversifying the company's supply. At the end of the 1960s, BP had also acquired other U.S. properties, including the east-coast operations of Sinclair and a majority share of Sohio. These developments put BP in a position to be counted among the Seven Sisters (Exxon, Mobil, Gulf, Texaco, Chevron, BP, and Royal Dutch Shell), a collective name for the giant global oil companies that, for a time, were able to manage the global supply and sale of oil on global markets, until the Organization of Petroleum Exporting Countries (OPEC) learned how to coordinate their efforts to exert greater control over oil supply and markets in the 1970s. Under Prime Minister Margaret Thatcher, the British government sold its share in BP in 1987. As OPEC lost some of its ability to control global oil markets, state-owned oil companies in Russia, Venezuela, Brazil, and elsewhere gained prominence. In response, major oil companies embarked on a wave of mergers around the turn of the twenty-first century. BP merged first with Amoco and then with ARCO to form a much larger BP. These and other mergers led to a new group of so-called "super-majors" (BP, ExxonMobil, Royal Dutch Shell, Chevron, ConocoPhillips, and Total). These giant companies had the capital necessary to engage in risky deepwater exploration in places like the Gulf of Mexico.[7]

Growth in the scale of operations and in geographic scope also put pressure on the major oil companies to change their organizational structures and management methods. Changes over time in corporate organization and management, responding to expanding scale and scope of operations since the onset of the industrial revolution, is a major topic of business historians and historians of technology. For a long time, the dean of business historians was Alfred Chandler, who described the methods that large corporations used to manage complex enterprises as they consolidated both horizontally and vertically.[8] Since Chandler, business historians have refined

[6] R.W. Ferrier, "A Brief History of BP," in *Our Industry: Petroleum* (London: British Petroleum Company Limited, 1977), 535-543; Daniel Yergin, *The Prize: The Epic Quest for Oil, Money, and Power* (New York: Free Press, 2008), 118-148, 158, 245-246, 252-254, 266-285, 432-460, 485.

[7] Ferrier, "A Brief History of BP," 544-549; Yergin, *The Prize*, 485-487, 551-556, 649-652, 765, 769-770; Joseph A. Pratt, "Exxon and the Control of Oil," *The Journal of American History* 99 (June 2012): 148-149; Tyler Priest, "The Dilemmas of Oil Empire," *The Journal of American History* 99 (June 2012): 246-247; Tom Bergin, *Spills and Spins: The Inside Story of BP* (London: Random House Business Books, 2011), 18.

[8] Alfred D. Chandler, *Visible Hand: The Managerial Revolution in American Business* (Cambridge, MA: Harvard University Press, 1977); Chandler, *Scale and Scope: The Dynamics of Industrial Capitalism* (Cambridge, MA: Harvard University Press, 1977).

their understanding of the dynamics that lead to changes in organizational structure and management style, as firms compete in changing economic environments and balance the efficiencies that accrue from sources of supply derived along the spectrum featuring, at one extreme, sole reliance on market exchanges and, at the other, top-down hierarchical organizations.[9] In this context, BP's John Browne is cited as a corporate executive who guided BP in the late 1990s through a transition from a traditional hierarchical firm to one that was rather decentralized and horizontal in its management structure, innovating performance incentives and peer interactions to stimulate accountability within BP's large global enterprise.[10]

John Roberts, an economist at the Stanford Graduate School of Business, is a scholar who has studied recent trends in organizational structure for large and complex global firms. In his book, *The Modern Firm*, he offers a case study of the changes Browne and his predecessors, Robert Horton and David Simon, made at BP in the 1990s. Like many other oil companies, BP had become a diversified conglomerate in the 1970s. It had a many-tiered bureaucracy that required more than a dozen levels of approval before decisions could be made. Beginning under Horton and continuing under Simon and Browne, BP shed its business entities that were unrelated to hydrocarbons, and it segregated its remaining businesses into three segments: "upstream," which is oil and gas exploration, development, and production; "downstream," which is petroleum refining and marketing; and petrochemicals (the downstream and petrochemical segments have since been combined into a single downstream segment). Because the global market for hydrocarbons functions efficiently, BP allows each segment to operate relatively independently, rather than focusing on tight links between upstream, as the supplier of oil and gas, and downstream, as the user of oil and gas and distributer of finished products. Instead of centralizing authority, Horton transferred significant decision-making to the segments. Horton abolished layers of the hierarchy and eliminated 80% of the workers at the corporate headquarters. Simon continued the trend.[11]

The most dramatic changes in organization took place in the upstream segment, which BP calls Exploration and Production (E&P). (Exploration & Production is not a legal entity and should not be confused with BPXP, the U.S. corporation that is a subsidiary of BP p.l.c.) John Browne headed the segment. When he took charge, the segment was organized into several Regional Operating Companies (ROCs), each of which functioned in a specific geographical area and had its own staff of engineers and managers. Browne and the heads of the ROCs formed the Global Management Group for the upstream segment. Browne began to confer decision-making authority down the hierarchical scheme to the managers of individual oil fields

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[9] Naomi R. Lamoreaux, Daniel M.G. Raff, and Peter Temin, "Beyond Markets and Hierarchies: Toward a New Synthesis of American Business History," *The American Historical Review* 108 (April 2003): 404-433.

[10] Ricardo Alonso, Wouter Dessein, and Niko Matouschek, "When Does Coordination Require Centralization?" *American Economic Review* 98 (March 2008): 165-166.

[11] John Roberts, *The Modern Firm: Organizational Design for Performance and Growth* (New York: Oxford University Press, 2007), 182-184.

in which BP was operating. Each of them negotiated a performance target with Browne, and then each was relatively free to manage the field as he saw fit in order to meet the performance target. Soon, Browne was able to organize BP's upstream operations into about forty distinct oil or oil-and-gas fields, which BP called business units. With that change, Browne was able to eliminate the ROCs, leaving himself and two senior assistants as the E&P executive committee in charge of the upstream segment. Each unit was managed by a business unit leader, who signed a performance contract with the executive committee for his particular field. Each leader had the discretion to determine how to meet his performance target, and each leader used a comparable system of performance contracts with employees working in his unit. Through quarterly reporting, Browne and his committee could monitor the unit leaders and coach them in ways to enhance performance. Browne sought to inculcate an atmosphere of openness in the dissemination of information within the organization.[12]

In traditional corporate hierarchies, the unit leaders would have senior experts in the corporate structure above them from whom they could get technical advice. Such experts did not exist in the structure Browne was creating. To compensate, Browne sub-divided the functions within the fields or units into four peer groups. Within each oil field, there would be people working in each of the functional areas, which correspond to stages through which a well goes in its life cycle: 1) obtaining rights to subsurface minerals and exploring for gas and oil, 2) drilling wells and bringing them into production, 3) operating wells while in production, and 4) taking care of wells at the end of their producing life. Workers in each functional area were encouraged to depend for technical support on their functional peers in other fields or units, who were likely facing and solving similar problems. Browne also implemented a system whereby peers could challenge each other, from field to field, to achieve better performance. Part of the system was to reward workers who helped peers in other units improve their performance.[13]

Exploration & Production began to outsource many of its functions, and Browne extended features of the new organizational structure to E&P's contractors as well. BP used performance contracts with its contractors and included cost-saving incentives, whereby the contractors and BP would share the savings.[14]

BP had relatively little activity in the Gulf of Mexico until it acquired Amoco and ARCO in 1998. A decade earlier, BP had joined Shell as a minority investor in a deepwater project there, but BP didn't acquire a major stake in the Gulf until it merged with Amoco and ARCO, both of which had developed large blocks of leases there and the technical expertise needed to exploit them. With the mergers, BP became the largest producer of oil in the U.S. and the second largest in the world, following only ExxonMobil, which had also merged in 1998. BP

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[12] Roberts, *The Modern Firm*, 184-187; Alonso, et al, "When Does Coordination Require Centralization?" 165.

[13] Roberts, *The Modern Firm*, 187-189; Alonso, et al, "When Does Coordination Require Centralization?" 166.

[14] Roberts, *The Modern Firm*, 188.

merged the Amoco and ARCO operations and employees into its organizational structure.[15] Roberts notes in the preface to the paperback edition of his book that the mergers doubled BP's employment and extended its operations into more complex physical and political environments, including deepwater in the Gulf of Mexico. Writing in 2007, Roberts observed:

> The clean, simple organizational model that had been so successful did not fit the new, complex environment and strategy nearly so well. Consequently, BP has been experimenting with adjustments to the model to regain alignment. The fundamental principles on which BP operates have not changed, and the tools that BP has employed in thinking about organizational design, many of which are laid out in this book, remain in use. But BP's executives and managers are working to adapt them to the company's new scale and complexity and achieve effective coordination between the company's center and its far-flung operations.[16]

By the end of 2009, BP's operations in the Gulf of Mexico had grown so that the company could claim to be the largest producer in the Gulf of Mexico.[17] As described in this expert report, BP was continuing to revise and try to refine its organizational model in order to achieve the effectiveness the executives sought for the global corporation's vast operations.

This broad overview of BP's organizational changes leading up to 2010 and the Macondo well blowout makes little reference to BPXP or any of the other subsidiary corporations operating in the United States in general or the Gulf of Mexico in particular. The next section will show that testimony given by BP officials and employees and evidence available in the documents produced in discovery by BP do not show that BPXP is a corporation that was managing its own operations in 2010. Rather, the evidence shows that BP's 2010 operations and the response to the Macondo blowout in the Gulf of Mexico were managed by means of the structure devised and revised by John Brown and his successors. The organizations that manage operations in the BP enterprise are not legal entities. Nevertheless, as organizations within the BP group, they have management authority, despite their lack of legal standing[18]

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[15] Roberts, *The Modern Firm*, 190; Bergin, *Spills and Spins*, 137-139; Abrahm Lustgarten, *Run to Failure: BP and the Making of the Deepwater Horizon Disaster* (New York: W.W. Norton, 2012), 55-58.

[16] Roberts, *The Modern Firm*, xiv.

[17] BP Gulf of Mexico Exploration, "GoM Exploration *The Way We Work* (GoM OMS Handbook)" document dated 15 December 2009, p 4 (BP-HZN-2179MDL03082168-2223, at 2171).

[18] BP, Annual Report and Form 20-F 2010, p 92 (TREX-06033, BP-HZN-2179MDL07816408-6676, at 6500).

2. Corporate History of BPXP

BPXP was incorporated as BP Seahorse Company under the laws of the State of Delaware in June 1996. Its purpose was to engage in any activity that is lawful for companies organized under the General Corporation Law of Delaware. The certificate of incorporation authorized the company to issue 100 shares of common stock with a par value of $10.00 per share. The company changed its name to BP Exploration & Production Inc. in 2000, with the company's secretary, D.A. Plumb, signing the certificate and assistant secretary D.A. Dowling attesting to the signature. The company again amended its certificate of incorporation in December 2001 by changing its capital stock structure. The amendment authorized BPXP to issue 7000 shares of preferred stock with a par value of $0.10 per share and to issue 250 shares of common stock with a par value of $10.00 per share. The amendment was signed by vice president D.B. Pinkert and witnessed by assistant secretary D.A. Dowling. Holders of the preferred stock, voting as a separate class, would be entitled to elect one director of the company. During these early years, BPXP had its offices in the Chicago building where Amoco had housed its headquarters before the merger with BP.[19]

3. Corporate History of BP America Production Company

BP America Production Company (BPAPC) is a U.S. subsidiary of BP p.l.c. that owned all of BPXP's common stock until January 1, 2014, when the stock was transferred to BP Company North America Inc. During the first decade of this century, BPXP also had a general service agreement with BPAPC, described below, to provide BPXP with employees, expertise, advice, and other resources that BPXP may need. BPAPC has its origins as the Stanolind Oil and Gas Company, incorporated under the laws of the State of Delaware in 1930. Stanolind was the exploration and production subsidiary of Standard Oil of Indiana (later Amoco). Unlike BPXP's non-specific purpose, Stanolind was organized to undertake the various activities of an oil and gas company, including leasing or purchasing the right to prospect for, develop, and use coal, oil, and gas; drilling for, producing, refining, and selling oil and oil products; drilling for, producing, and selling natural gas; constructing buildings and other infrastructure associated with the coal, oil, and gas business, and engaging other activities associated with the fossil fuel industries. In 1957, Pan American Production Company merged into Stanolind, and Stanolind amended its certificate of incorporation to become the Pan American Petroleum Corporation. In 1971, Pan American changed its name to Amoco Production Company. In December 2001,

[19] Certificate of Incorporation of BP Seahorse Company dated 6 June 1996 (BP-HZN-2179MDL08942159-2162); Certificate of Amendment of Certificate of Incorporation dated 28 September 2000 (US_PP_MAN001729-30); Certificate of Amendment of Certificate of Incorporation of BP Exploration & Production Inc. dated 18 December 2001 (BP-HZN-2179MDL08942176-2179); Certificate of Designations, Powers, Preferences and Relative, Participating, Optional or Other Rights, and the Qualifications, Limitations or Restrictions Thereof of Series A Preferred Stock of BP Exploration & Production, Inc. dated 20 December 2001 (BP-HZN-2179MDL08389251-9254).

following the BP/Amoco merger, Amoco Production Company merged with Vastar Resources, Inc., and the merged entity changed its name to BP America Production Company.[20]

4. Corporate History of BP America Inc.

BP America Inc. is the U.S. subsidiary of BP p.l.c. that owns, either directly or through its own direct subsidiaries, most of the lower-tier U.S. subsidiaries in the BP group, including BPXP. BP America in turn is the sole subsidiary of BP Holdings North America Limited, a direct subsidiary of BP p.l.c. BP America Inc. was incorporated under the laws of the State of Delaware in July 1974 as BP United States Inc. In April 1978, the company changed its name to BP North America Inc. The company again changed its name in June 1987 to BP America Inc.[21] As I show below, BP America is the entity that most BP employees in the United States associated with the *Deepwater Horizon* believed was their employer, even though BP America is not an employing entity.[22]

B. EVIDENCE SHOWING THAT BPXP WAS NOT THE SOLE OPERATOR OF MACONDO WELL

At the beginning of this Section III, my complete statement in support of my opinions, I quoted Andy Inglis' summary statement characterizing two distinct organizational structures within the BP group, one legal, consisting of parents and subsidiaries, and one operational, that

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[20] Certificate of Incorporation of Stanolind Oil and Gas Company dated 12 December 1930 (US_PP_MAN001845-59); Certificate of Ownership Pan American Production Company Merging into Stanolind Oil and Gas Company dated 22 January 1957 (US_PP_MAN001874-75); Certificate of Amendment of Certificate of Incorporation of Stanolind Oil and Gas Company dated 22 January 1957 (US_PP_MAN001876-77); Certificate of Amendment of Certificate of Incorporation of Pan American Petroleum Corporation dated 18 January 1971 (US_PP_MAN001900-01); Certificate of Merger of Vastar Resources, Inc., into Amoco Production Company dated 31 December 2001 (BP-HZN-2179MDL08942173-2175); BP, "BP Exploration & Production, Inc., Consolidated Financial Reports, 1Q14," unaudited BPXP financial reports for 1st quarter of 2014 (BP-HZN-2179MDL07817670-7678, at 7678).

[21] Certificate of Incorporation of BP United States Inc. dated 17 July 1974 (US_PP_MAN001789-90); Certificate of Amendment of Certificate of Incorporation of BP United States Inc. dated 28 April 1978 (US_PP_MAN001791); Certificate of Amendment of Certificate of Incorporation of BP North America Inc. dated 16 June 1987 (US_PP_MAN001788).

[22] BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase dated 12 June 2014, response to interrogatory no. 2, p 25 (Exhibit 11981); Michael T. Robertson, deposition in re Oil Spill by the Oil Rig Deepwater Horizon in the Gulf of Mexico, MDL no. 2179, deposition taken 10 July 2014, p 25.

functions without reference to the legal entities. The two operate side by side and coordinate as necessary, but a key feature of the BP organizational system is that operations are not managed through a corporate structure of parents and subsidiaries. That is true globally, and it is true within the United States as well. Perhaps the best illumination of BP's dual organizational structure was provided by Lamar McKay's testimony, both in deposition and at trial.

McKay is currently the CEO of BP's upstream segment, called Exploration & Production. At the time of the Macondo blowout, he was the president and chairman of BP America, based in Houston, and he had been the head of that BP subsidiary since 2009. He was also an executive vice president of BP p.l.c., but he was not a member of the parent's board of directors. He attended BP board meetings by invitation. McKay was also a member of the executive team of BP's upstream segment, E&P, of which Andy Inglis was the CEO. Other members of the executive team included the upstream segment's overall heads of drilling and projects, worldwide production, exploration, safety and operational risk, strategy and planning, and human resources, as well as the segment's general counsel and the CEO's chief of staff. The others were based in London, although some of them also maintained offices in Houston. Despite holding a position at the top of BP global hierarchy for the upstream segment, McKay received his paycheck from a U.S. entity, BP Corporation North America, Inc.[23]

McKay was the top official at BP America, serving as both chairman of the board and president. Among those he named as directors in 2011 were James Dupree, head of BP's Gulf of Mexico business (previously called a strategic performance unit, or SPU); James Minge, head of BP's Alaska business; Tim Harrington, head of BP's North American gas business; Steve Cornell, head of BP's refining business in the U.S.; Katrina Landis, head of BP's alternative energy business; Herb Vogel, head of BP's gas-trading business; Steve Pankhurst, head of the pipeline business; and Doug Sparkman, head of a business in the Midwest that BP calls a fuels value chain, which includes retail filling stations. Neither Bob Dudley (group CEO) nor any other member of the BP p.l.c. board was a member of the BP America board. Tellingly, BP America did not have a chief operating officer.[24]

McKay went on to testify that the top heads of all BP's businesses are based in London: "[O]ur businesses are run in the division and segment setting that go exploration, production, with business heads in London; refining and marketing, business head in London; alternative energy, business head in London." [25]

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[23] Lamar McKay, deposition in re the Deepwater Horizon dated 3 November 2011, 328-331, 338-340; BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase, response to interrogatory #2, dated 12 June 2014, p 25 (Exhibit 11981).

[24] McKay deposition, 325-328.

[25] McKay deposition, 331.

McKay was and is also a director and the chairman of BP North America, which he described as a holding company and not an operating company. He did not know if it had a president. One of the subsidiaries of BP North America is BPXP, which owns 89% of BP's assets in the Gulf of Mexico. Other BP entities hold the remaining 11% of BP's assets in the Gulf. BPXP, however, does not manage the assets that it owns; they, McKay testified, are managed through the global organization. The attorney examining McKay at this phase of his deposition was understandably confused – because of the similarity in their names – by the distinction McKay was trying to make between BP Exploration & Production Inc. (BPXP), the subsidiary of BP America, and exploration and production, the name BP gives its upstream business segment, which is managed from London. Explaining further, McKay said, "There's two different things." There are two sets of relationships. One is the set of parent-subsidiary relationships that exist in the BP group, which includes BPXP as a subsidiary of BP America. The other is the set of operations comprising exploration and production that is managed globally. "It is not managed by BP Exploration and Production, Incorporated," he testified. He could conceive of the describing the management of the global operations organization by means of an organizational chart, but he did not think of the legal structure as an organizational chart.[26]

Elaborating further, McKay testified that the assets owned by BPXP are "managed by a Gulf of Mexico production leader. It's [the operations of the assets) managed by a drilling organization that is in the U.S. Ultimately, those businesses do report to London, yes." McKay called the Gulf of Mexico a "regional production unit." The Gulf of Mexico "is organized as a business, and people work that business and operate it and manage it." Bob Dudley is in charge of the unit or business, and he reports to Bob Fryar in London. In another facet of the operations, however, the people who work the Gulf of Mexico assets are not paid by the organizational unit; they are largely paid by BPAPC, a BP subsidiary in the U.S. The Gulf of Mexico assets could not be held by the SPU because it is not a legal entity; rather, it is an organizational unit. To put an even finer point upon it, he testified, "BP Exploration and Production, Incorporated, that subsidiary does not manage the assets. It owns the assets."[27]

McKay went on to testify that the heads of all BP's exploration and production businesses are based in London. An attorney asked him, "Are we to understand that all of the operating executives or—or officers, if you will, within BP America that handle the exploration and production of the Gulf of Mexico, that those people ultimately report to somebody in London and not to you? Is that accurate?" McKay responded, "Yes." The next question was, "On April 20, 2010, did anyone who was under your ultimate supervision at BP America have

[26] McKay deposition, 325, 332-335; BP, "BP Exploration & Production, Inc., Consolidated Financial Reports, 1Q14," unaudited BPXP financial reports for 1st quarter of 2014 (BP-HZN-2179MDL07817670-7678, at 7678).

[27] McKay deposition, 336-337; BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase, response to interrogatory #2, dated 12 June 2014, p 25 (Exhibit 11981).

any management authority over any of the people who performed services for BP as BP employees on the Macondo well?" McKay responded, "No." [28]

In response to a series of follow-up questions, McKay outlined the chain of authority for safety at the Macondo well on April 20, 2010. Safety was part of the drilling organization, which was part of the Gulf of Mexico business, which reported to Doug Suttles, who was chief operating officer of the exploration and production organization and was paid by BPAPC. Andy Inglis was chief executive officer of that organization, and Tony Hayward was ultimately in charge. Although Suttles received his paycheck from a American subsidiary of BP, he did not report to McKay in any way, nor did he report to anyone else within the BP America organization.[29]

Responding to a different line of questioning, McKay testified about the work people do at BP America. He had already testified that he does not supervise any of the operations, which he calls the "line businesses." He does have about 85 people under his supervision at BP America. About 75 of them, he testified, work with governments, public affairs, community affairs, and communications.[30]

In his trial testimony, McKay described the structure and organization of the BP group the same way. Looking at an exhibit, a chart that showed the parent/subsidiary relationships among BP America, BP Corporation North America, and BPXP, he characterized it as "sort of the legal structure of the way the subsidiaries are held." Turning then to management of operations, he testified, "BP as a global company, which is common with global companies, manages its assets and its varied interests, which are in various subsidiaries around the world, we manage those through what's called an Exploration & Production segment. That contains the operating businesses which would manage Gulf of Mexico, Onshore US, Alaska, those kinds of things." [31] About seven weeks before the trial, BP promoted McKay to CEO of the Exploration & Production segment. Asked if that was the same company as BPXP, he responded in the negative, saying that BPXP is the subsidiary that owns the assets, that holds the leases in the Gulf of Mexico. He was now the CEO of the upstream segment, the operating structure that manages the assets throughout the world. That structure "is organized in businesses that don't perfectly match this legal entity structure." [32]

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[28] McKay deposition, 350-351.

[29] McKay deposition, 351-352; BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase, response to interrogatory #2, dated 12 June 2014, p 25 (Exhibit 11981).

[30] Lamar McKay, deposition in re the Deepwater Horizon dated 4 November 2011, 548-550.

[31] Lamar McKay, testimony in *U.S. v. BP Exploration & Production, Inc., et al*, United States District Court for the Eastern District of Louisiana, 26 February 2013, pp 594-595.

[32] McKay trial testimony, 595.

The next two sections of this expert report elaborate on the two facets of the BP enterprise. First I provide more details about the legal structure of the BP group. Then I provide more details about the extra-legal organizational structure that BP uses to manage its operations.

1. The Legal Structure of the BP Group

BP is a global energy company doing business in dozens of countries. It explores for hydrocarbons, develops oil and gas wells, and extracts oil and gas from wells on several continents and in deepwater. It transports hydrocarbons and sells them, it refines oil into petroleum products, it manufactures petrochemicals, and it markets its products throughout the world. In order to conduct its business outside the U.K., it owns hundreds of subsidiaries incorporated in the countries where it does business. Some of its subsidiaries are wholly-owned and some are owned along with other parties. BP calls the U.K. corporation (BP p.l.c.) and its hundreds of subsidiaries the BP group. Very few of the subsidiaries are directly owned by BP p.l.c. Some are owned by a parent that is a direct subsidiary of BP p.l.c., some are owned by a parent that is a direct subsidiary of a parent that is a direct subsidiary of BP p.l.c., and so forth, through a total of sixteen tiers of BP subsidiaries (with BP p.l.c. being the sole occupant of the top tier). An example of a tier-sixteen company is Dermody Developments Pty Ltd., which is a wholly-owned subsidiary of a tier-fifteen company named Dermody Petroleum Pty Ltd., which is part of a large group of subsidiaries incorporated and doing business in Australia.[33]

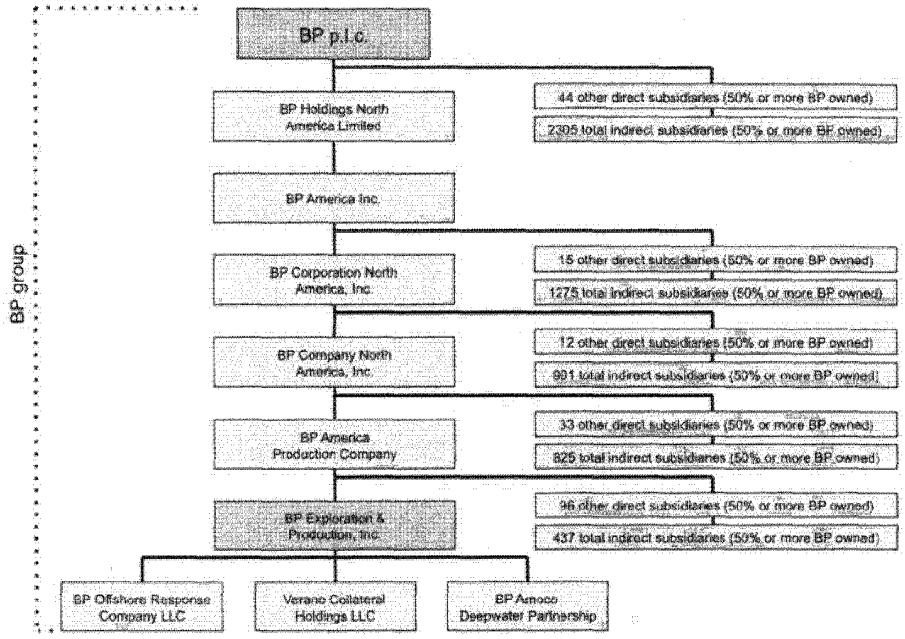
In 2010, BPXP was a tier-seven subsidiary, wholly-owned by BP America Production Company (BPAPC). There was a total of five layers of parents between BPXP and the overall parent, as a chart of BP's legal structure shows.[34] The following chart shows the tiers of parents that existing between BPXP and BP p.l.c. in 2010.[35]

[33] BP p.l.c. Ownership Chart as of 3 May 2010, p 42 (attached to BP p.l.c. AR01 Annual Return for 2009) (Exhibit 12820); see also Organization Structure (BP America Selected Subsidiary Corporate Structure as of June 25, 2010), BP-HZN-2179MDL08945818-819).

[34] BP p.l.c. Ownership Chart as of 3 May 2010, p 35 (Exhibit 12820).

[35] I made this chart based on data I gleaned from the sixty-eight-page BP p.l.c. Ownership Chart as of 3 May 2010 (Exhibit 12820).

Parents and Subsidiaries in the Ownership Chain Linking BP p.l.c. and BP Exploration & Production, Inc. (i.e., a portion of the legal structure of the BP group) in 2010



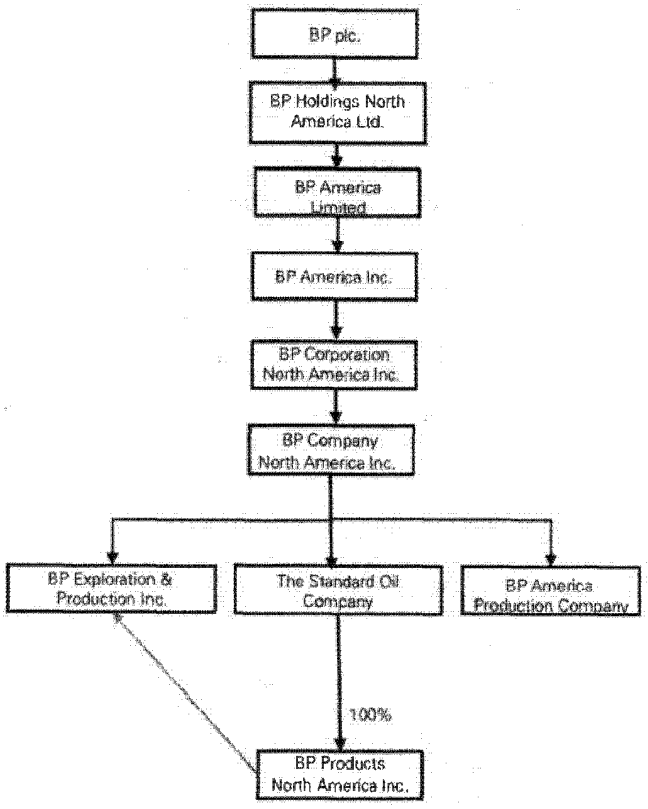
The legal structure of some areas of the BP group are more complicated than appears in the set of tiers that separate BPXP from BP p.l.c. For example, BP Products North America Inc., which owned the Texas City Refinery, is wholly-owned within the BP group, but it is not owned by a single parent, as is BPXP. BP Company North America owns 48.29% of BP Products North America stock, The Standard Oil Company owns 27.72% of the stock, and BP Exploration (Alaska), Inc., owns 23.99%. This is a curious situation, because BP Company North America is a tier-five company in the BP scheme, Standard Oil is a tier-six company, and BP Exploration (Alaska) is a tier-seven company.[36] Making the relationships even more complex, BP Products North America is a preferred stockholder of BPXP, meaning the latter often pays dividends to BP Products North America (described further below), not BP America Production, which owns 100% of BPXP common stock.

BP's legal structure has changed over time, and there have been changes since 2010. Most recently, BPXP's common stock was transferred on January 1, 2014, from BPAPC to BP

[36] BP p.l.c. Ownership Chart as of 3 May 2010, pp 38, 42, 44 (Exhibit 12820); BP, Annual Report and Form 20-F 2010, p 132 (TREX-06033, BP-HZN-2179MDL07816408-6676, at 6540).

Company North America.[37] BP has provided an illustrative document, "Organizational Chart – Main US Subsidiaries," which reflects the change in legal structure linking BPXP to BP p.l.c. as of February 3, 2014. The chart shows that BPXP is still a tier-seven company in the BP structure because, despite the fact that its stock has been transferred to BP Company North America, because BP has inserted a new corporate entity, BP America Limited, in the hierarchy between BP Holdings North America, as the tier-two parent, and BP America Inc., formerly its tier-three subsidiary.

Organizational Chart – Main US Subsidiaries (as of February 2014) [38]



[37] J. Andrew Hangan to Steven J. Herman, et al, letter dated 2 January 2014, re Notice of Corporate Reorganization (Rec. No. 12355-18); BP, "BP Exploration & Production, Inc., Consolidated Financial Reports, 1Q14," unaudited BPXP financial reports for 1st quarter of 2014 (BP-HZN-2179MDL07817670-7678, at 7678).

[38] BP, Organizational Chart – Main US Subsidiaries, as of 3 February 2014 (Exhibit 11963, BP-HZN-2179MDL07817329).

2. BP's Organizational Structure for Managing Its Global Operations

As Andy Inglis described in the quote at the beginning of section III of this report, the BP group has two sets of structures that have little to do with each other. There is a legal structure, which is the sixteen tiers of parents and subsidiaries, and there is the organizational structure by which BP operates its businesses. BP currently divides its operations into three segments: the upstream segment, which includes gaining access to, exploring for, and producing oil and gas; the downstream segment, which includes refining oil, manufacturing petrochemicals, and marketing products; and the alternative-energy segment. Each segment is run as a business, and the businesses do not relate to the legal structure except in so far as both the businesses and the legal structure are all part of the parent corporation, BP p.l.c. The separateness of the two structures can be seen in several kinds of evidence, including BP documents, such as annual reports; testimony of BP officials who are in positions to understand the organization of the BP group; and through a functional analysis of the BP operations, an analysis I have undertaken by investigating deposition testimony and documents produced by BP in discovery.[39]

BP's 2010 annual report describes the two structures. Reflecting its legal structure, BP stated, "our interests and activities are held or operated through subsidiaries, jointly controlled entities or associates established in – and subject to the laws and regulations of – many different jurisdictions."[40] At the time, BP stated that its interests and activities fell into two business segments, the upstream segment, called Exploration & Production, and the downstream segment in 2010, called Refining & Marketing. BP had yet to define alternative energy as a third segment. One of BP's responses to the blowout at the Macondo well was to reorganize the upstream segment into three functional divisions: exploration, developments, and production. Each division would report directly to the CEO of the segment. There was no suggestion of how this reorganization might relate to subsidiaries, such as BPXP, which had numerous leases and wells, some of which were being explored, some being developed, and some in production. Reporting on those functions did not pass to an official or hierarchy of officials in BPXP's corporate structure. Rather, reporting passed through channels defined within the business segment.[41]

Senior management of the upstream segment in early 2010 included Inglis as CEO and Doug Suttles as chief operating officer. Other members of the senior management team of the segment were executive vice presidents of BP p.l.c. who each had charge of a particular phase of

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[39] BP, Annual Report and Form 20-F 2010, p 14 (TREX-06033, BP-HZN-2179MDL07816408-6676, at 6422); BP, Annual Report and Form 20-F 2013, p 2 (Exhibit 12303 A, BP-HZN-2179MDL07816849-7135, at 6854).

[40] BP, Annual Report and Form 20-F, 2010, pp 14 (TREX-06033, BP-HZN-2179MDL07816408-6676, at 6422).

[41] BP, Annual Report and Form 20-F, 2010, pp 14, 20 (TREX-06033, BP-HZN-2179MDL07816408-6676, at 6422, 6428).

operations, like exploration (Mike Daly), developments (Neil Shaw), technology for drilling and completions (Barbara Yilmaz), and technology for operations, HSSE, and engineering (Gordon Birrell). In the wake of the Macondo disaster, BP's upstream segment reorganized, and Inglis left BP, but the senior management of the segment was still organized much as it had been.[42]

The role of the segment CEO in managing the upstream segment is evident in numerous other documents produced by BP in this litigation. For example, in October 2009, Andy Inglis led a telephone conference call with his senior leadership team of the upstream segment to give an update on how the segment's operations were performing by several measures, including cost reductions and employee attitudes. He had several ideas for how each SPU leader who was part of the call could carry the momentum of improvement forward into the future. He wanted BP to become the world's leading producer of hydrocarbons. Among other functions he wanted to improve to achieve that goal, he wanted to improve the quality of drilling used to appraise prospects and to improve the quality of information about a reservoir of hydrocarbons that was conveyed to the teams who were engineering the facilities for tapping the reservoir. There was no mention in his prepared remarks about the roles, if any, of BP subsidiaries in achieving his objectives for BP operations. In another example – the 2010 Strategy Presentation that Inglis made to the segment executive team meeting in Houston in January 2010 – he touched on various facets of operations that his segment needed to promote in order to achieve BP's strategy for improving output and reserves of hydrocarbons, efficiency of operations, safety, technological capabilities, and position among BP's peer corporations. The strategy made reference to the various regions in which BP was operating and the functions BP deployed in its operations, but it made no mention of subsidiary corporations.[43]

As described later in this expert report, Inglis also held weekly meetings with his senior executive team and received reports on details of activities occurring throughout BP's global operations, including problems with the Macondo well in 2010 leading up to the April 20 blowout. Inglis and his leadership team would review progress being made on exploration and production projects in various parts of the world, and they would also discuss decisions to be made about management appointments in the segment.[44]

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[42] Draft BP Org Chart for 10 April 2010, updated to 27 May 2011 (TREX-02557); Exploration & Production organizational chart (TREX-21722.009); BP, Annual Report and Form 20-F, 2010, pp 84-87 (TREX-06033, BP-HZN-2179MDL07816408-6676, at 6482-6495).

[43] Andy Inglis, script for GL/SLL Telecon dated 28/29 October 2009 (TREX-02248, BP-HZN-217MDL00985758-5767); Christina Verchere to G MOR Upstream SLT, memorandum dated 27 October 2009 (TREX-02248, BP-HZN-217MDL00985757); Inglis, draft 2010 Strategy Presentation dated 15 January 2010 (TREX-02259, BP-HZN-217MDL01463846-3872); Kathy Wu to Andy Inglis, et al, memorandum dated 15 January 2010 (TREX-02259, BP-HZN-217MDL01463845).

[44] Inglis deposition, 580; Mike Daly to Inglis, e-mails dated 15 March and 6 April 2010 (BP-HZN-2179MDL00005871; TREX-06321BP-HZN-2179MDL00032979-2981).

In the aftermath of the Macondo blowout, BP created a Gulf Coast Restoration Organization (GCRO) to manage BP's response to disaster. BP did not create the GCRO as part of BPXP, the holder of the lease on which the Macondo well was drilled. Rather, the GCRO reported directly to BP's CEO, and BP created a new committee of the BP board to oversee the GCRO's activities. Bob Dudley served as CEO of the GCRO from June through September 2010. Lamar McKay took over as GCRO CEO in October 2010.[45] McKay has never been a BPXP officer, to my knowledge.

BP designated David Rich as a 30(b)(6) witness to testify about BP's organizational structure. An attorney for Anadarko used an organizational chart he had produced when questioning Rich about BP's organizational structure. It showed on one piece of paper the reporting relationships leading from the well site leaders who supervised operations on the *Deepwater Horizon*, and the drilling engineers responsible for the Macondo well and the *Deepwater Horizon*, up through several levels of leaders and managers to the vice president for Drilling & Completions, Patrick O'Bryan. At O'Bryan's level in the hierarchy, the chart shows the other functional vice presidents in the Gulf of Mexico as well, including operations, HSSE & engineering, exploration and appraisal, and resources. The reporting lines for that level go up to SPU leader Richard Dupree and he reports to Andy Inglis, BP's CEO of Exploration & Production, the upstream segment. The SPU vice presidents also have dotted-line reporting relationships with others on the organizational chart, including Doug Suttles, the chief operating officer of the segment, and vice presidents at the segment level for functions like exploration, technology, operations, and developments. Suttles and the segment vice presidents also report directly to Inglis. The organizational chart makes no reference to BPXP, and Rich did not describe BPXP as being part of the organization that was drilling the Macondo well.[46]

An organization for operations making no reference to the legal structure, and in particular no reference to BPXP, comports with a variety of organizational charts BP has produced. The Bly investigation produced several BP organizational charts, including ones for BP's Exploration & Production business (the upstream segment). And BP's Gulf of Mexico Strategic Performance Unit (SPU). The former shows Andy Inglis as CEO and a collection of operating officers, vice presidents, and heads of functions like exploration and production, drilling and completions, and HSSE (health, safety, security, and environment). The chart shows that the team overseas operations in the Gulf of Mexico SPU, without reference to BPXP or any other U.S. corporation. The organizational chart for the Gulf of Mexico SPU shows a team led by James Dupree and comprised of vice presidents for functions, like exploration, drilling and completions, development, operations, and HSSE and engineering. There are six divisions comprising the organization of the SPU, each with the same name as that of a functional v.p. Dupree reports to Exploration & Production (the global upstream segment). Patrick O'Bryan is

[45] BP, Annual Report and Form 20-F, 2010, pp 14, 85, 87 (TREX-06033, BP-HZN-2179MDL07816408-6676, at 6422, 6493, 6495).

[46] David A. Rich, deposition in re the Deepwater Horizon dated 2 June 2011, 619-666; Draft BP Org Chart for 10 April 2010, updated to 27 May 2011 (TREX-02557).

the v.p. of drilling and completion, and David Rainey is the v.p. of exploration. The entire organization is depicted without reference to a legal entity such as BPXP or BP p.l.c.[47]

As described in more detail below, BP was in the process of revising its organizational structure in the Gulf of Mexico SPU when the Macondo blowout occurred in April 2010. BP has produced organization charts for the structure of its Drilling & Completions (D&C) organization in August 2008, prior to a reorganization that year; in January 2010, reflecting the 2008 reorganization and before the 2010 reorganization took place; and in April 2010, when the 2010 reorganization was to have been completed. In 2008, Henry Thierens was v.p. for the Gulf of Mexico D&C organization, and in both 2010 charts, Pat O'Bryan was v.p. for drilling and completions. The January 2010 document includes a chart showing the SPU leadership team. It is similar to the one prepared by the Bly Investigation Team but not identical. The Bly chart shows Fergus Addison as v.p. for developments (he left that position in October 2009), and the BP chart shows Gary Imm as v.p. for developments. None of the three BP-produced organizational charts makes reference to BPXP or any other U.S. corporation.[48]

Another important organization in the Gulf of Mexico SPU was the exploration unit, of which David Rainey was vice president. People in Rainey's unit conducted exploration activities in the Gulf in order to recommend areas for which BP would try to obtain leases. The exploration unit then performed exploration activities on leases in the Gulf in order to make recommendations on prospects that merited drilling. BP has produced an organizational chart for the Gulf of Mexico exploration organization in August 2008, by which time the decisions had been made to acquire the lease of MC252, and during which time exploration was underway leading to the recommendation to drill the Macondo well. The BP-produced organizational chart of the exploration organization makes no reference to BPXP or any other U.S. corporation.[49]

The United States has requested that BP produce organizational charts or other documents that show how BPXP and other subsidiaries relate to BP's organizational structure for the management of BP's operations. BP objected to the request as overly broad, unduly burdensome, etc. Moreover, BP asserts that it has already produced organizational charts showing the organizational structure of the upstream segment and the Gulf of Mexico SPU and organizational charts showing the relationship between BPXP and its parents. BP also responds that it will look for additional documentation showing the relationship between BPXP and its parents, documents identifying directors and offices, and the service agreements between BPXP and BP American Production Company. In its response to the United States' request, BP is

[47] Exploration and Production organizational chart, TREX-21722.009; Gulf of Mexico Strategic Performance Unit organizational chart, TREX-21722.010.

[48] BP, GoM Drilling & Completions organizational chart, August 2008 (TREX-02517, BP-HZN-217MDL01164126-4139); BP, DW D&C Organizational Chart, January 7, 2010 (TREX-02516); BP, Drilling & Completions organizational chart, April 2010 (TREX-02515).

[49] BP, GoM Exploration organizational chart, August 2008 (TREX-02518); David Rainey, deposition in re the Deepwater Horizon dated 2-3 July 2011, 17-18.

silent on whether it will look for charts or other documents that show how BPXP relates to the organizational structure by which BP manages its operations, and to the best of my knowledge BP has still not produced such documentation.[50] As I describe later in this expert report, linkages between BPXP and BP's operating organization are financial, and they are made through accounting activities performed by BP's finance and treasury functions. The accounting activities are performed automatically, as a finance official puts it.

The fact that reporting on operations was conducted through the upstream segment's organizational structure and not through BP's structure of subsidiaries and parents is evident in the reporting that took place as the Macondo well was experiencing technical problems in the weeks leading up to the blowout on April 20, 2010. After a hiatus of several months, drilling of the Macondo well had resumed in February 2010. In March, when the well had reached a total depth of 13,250 feet (about 8,000 feet below the floor of the Gulf of Mexico), it sustained a serious well control event, in which fluids from the formation flowed into the well bore for about a half-hour without being detected. In early April, the operation began losing drilling mud to the formation. BP and its contractors took steps to try to plug the fissures in the formation into which the mud was escaping. Loss of drilling mud can lead to a blowout.[51]

In early April, Andy Inglis received up-dates on BP operations around the globe, including the Gulf of Mexico.[52] On April 5, Christina Verchere, his chief of staff, informed him that the Macondo well had reached oil and so could be called a discovery. The plan was to tie the Macondo well to BP's Pompano production platform when the well was ready to begin producing. In the meantime, the well was "taking losses."[53] The next day, Mike Daly, who was in charge of exploration for BP's upstream segment, sent Inglis an up-date, which included details on the Macondo well. After reporting that the thickness of the oil-bearing stratum was about what had been predicted, although it was about 100 feet lower than expected, he stated, "we are currently taking serious losses which is a concern."[54] This episode comports with my opinion that reporting on operations and managerial direction followed an organizational structure developed within the BP's upstream segment, and BPXP was not part of that structure.

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[50] BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase dated 12 June 2014, response to request for production no. 7, pp 8-9 (Exhibit 11981).

[51] BP, "Deepwater Horizon Accident Investigation Report," dated September 8, 2010 (Bly Report), pp 17, 107 (TREX0000001, BP-HZN-BLY00000001-00000192 at 0017, 0107); Alan R. Huffman, "Expert Report" dated 26 August 2011, pp. 7-8, 13-14, 36-38 (TREX-07510).

[52] Inglis deposition, 578-582.

[53] Christina Verchere to Andy Inglis, e-mail dated 5 April 2010 (BP-HZN-2179MDL 00041387-1388).

[54] Mike Daly to Andy Inglis, e-mail dated 6 April 2010 (TREX-06321, BP-HZN-2179MDL 00032979-2981).

Although I describe the activities of the BPXP board of directors later in this report, it is important to note here that I have seen no evidence that either the BPXP board of directors or an officer of BPXP, acting in that capacity, was ever informed of the problems arising at the Macondo well in the weeks preceding the blowout, nor was BPXP informed of other operational matters, until 2011. In the section below on the BPXP board of directors, I also address the actions of officers of BPXP, and I elaborate further on the concept of a BPXP officer "acting in that capacity."

3. BP p.l.c. Board Oversight of BP Operations

A company that conducts operations generally has officers and managers who manage the operations, while the board of directors appoints and hires the officers and top managers, approves strategy, annual work plans, and budgets, and provides oversight of the officers and managers in charge of operations. One way of gauging the extent to which BPXP is, or is not, an operating company, is to compare the actions of its board of directors with the actions of a board of directors in the BP group that manages operations. For purposes of this exercise, the most appropriate board to compare with the BPXP board is the BP p.l.c. board, because it is at the top of the BP group hierarchy. I compare the BP p.l.c. board with the BPXP board in several ways – including the composition of each board – statements of how each board conducts its business, and their minutes of board meetings, to examine what each board actually does and has done. This section describes the BP p.l.c. board; the next section describes the BPXP board.

First, it is noteworthy to look at the composition of the BP p.l.c. board. In 2013, it had fourteen members, the chairman, three other executives, and ten independent non-executive directors. The chairman has worked his entire career in industry, most of it with Asea Brown Boveri (the Swiss power, automation, and robotics company) and then as president and CEO of Sony Ericsson (mobile telecommunications) from 2003 to 2009, when he took the helm at BP. The other three top executives have had long careers at BP, two in engineering and refining, and the other in finance and trading. Of the independent directors, seven have experience in engineering, extractive industries, and manufacturing, and three have experience in accounting and finance. BP's board also has an executive team comprised of the three executive board members and eight others, who have varieties of experience in the various facets of BP's operations, including engineering, trading, and safety. One member of the executive team serves as general counsel for the BP group.[55] The BP board is clearly comprised to oversee a global corporation with extensive operations.

To understand the responsibilities of the BP p.l.c. board and the actions it takes, it is important to investigate how BP p.l.c. describes itself as an operating company. Following are some excerpts from the BP's 2013 annual report:

[55] BP, Annual Report and Form 20-F 2013, pp 60-68 (Exhibit 12303 A, BP-HZN-2179MDL07816849-7135, at 6912-6920).

- BP p.l.c. is the parent company of the BP group of companies. Our worldwide headquarters is in London. (p. 2)
- As a global group, our interests and activities are held or operated through subsidiaries, branches, joint arrangements or associates established in – and subject to the laws and regulations of – many different jurisdictions. (inside front cover)
- Through our two main operating segments, Upstream and Downstream, we find, develop and produce essential sources of energy, turning them into products that people need. (p. 2)
- Our Upstream segment manages exploration, development and production activities through global functions with specialist areas of expertise. (p. 2) [56]

BP characterizes itself both in terms of its legal structure of subsidiary corporations and in terms of its organization for operations, through its two main segments (alternative energy is not mentioned here). Moreover, BP declares that the BP p.l.c. board provides oversight of operations in the BP group. BP's 2013 annual report has a lengthy section on its board of directors, including a section describing how the board works. The narrative lists four primary tasks of the board:

1. Active consideration and direction of long-term strategy, and approval of the annual plan.

2. Monitoring of BP's performance against the strategy and plan.

3. Obtaining assurance that the material risks to BP are identified and that systems of risk management and control are in place to mitigate such risk.

4. Board and executive management succession.

In addition, the board has committees for undertaking specific tasks of the board, including attending to health, safety, and environmental issues facing a corporation, such as BP's, with operations involving hazardous and dangerous materials like oil and gas.[57]

BP has produced minutes of BP p.l.c. board meetings from January 2008 to mid-2010, just after the flow from the Macondo well had been stopped by a capping stack. These minutes allow inspection of the extent which the BP p.l.c. board concerned itself with operations. For example, at the 9 January 2008 meeting of the board, Tony Hayward provided an overview of 2007 safety and operations in the BP group in comparison with 2007. His report did not address individual oil wells, oil fields, or oil refineries, but steps being taken in the group to improve safety and to measure safety. He also noted that oil spills in 2007 had been reduced 20% from

[56] BP, Annual Report and Form 20-F 2013, p 2 (Exhibit 12303 A, BP-HZN-2179MDL07816849-7135, at 6850, 6854).

[57] BP, Annual Report and Form 20-F 2013, p 71 (Exhibit 12303 A, BP-HZN-2179MDL07816849-7135, at 6923).

2006.[58] At a meeting later that month, Iain Conn, chief executive of the downstream segment gave a more detailed report on aspects of operations, including a report on fatalities that had occurred at BP facilities, including a BP employee killed at the Texas City refinery. Conn also reported on progress being made installing new equipment at Texas City.[59]

One regular feature of many board meetings was oversight of the work of the Safety, Ethics, and Environment Assurance Committee (SEEAC), which "has continued to monitor closely and provide constructive challenge to management in the drive for safe and reliable operations at all time." [60] The committee concerns itself with what it calls non-financial risks, which include risks to human safety and environment in all phases of operations, including wells. The committee receives reports from BP's business segments, from BP's functional groups (like the Safety & Operational Risk function, O&SR), and from "independent experts BP hires to provide an additional angle of oversight on BP's operations. The BP p.l.c. board would review and discuss SEEAC reports and up-dates, which often attended to very specific operational concerns, such as problems with corrosion under insulation in the Alaska pipeline, installation of new equipment and implementation of new practices at the Texas City refinery, and the circumstances surrounding a fatal helicopter accident in the North Sea. Duane Wilson, SEEAC's independent expert for the downstream segment, often attended board meetings and discussed his findings with the directors.[61]

Upstream CEO Andy Inglis and downstream CEO Iain Conn also brought operational matters of their respective segments before the BP p.l.c. board of directors. Inglis reported on safety performance of the Exploration & Production segment, reviewing at the July 2008 meeting, for example, an employee fatality and describing the causes and the remedial actions taken. [62] Minutes of November meetings in the years available for analysis show the board

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[58] Minutes of a meeting of the Board of Directors of BP p.l.c. (hereafter BP board minutes) held on 9 January 2008 (BP-HZN-2179MDL02003519-3522).

[59] BP board minutes, 31 January 2008 (BP-HZN-2179MDL02003523-3531).

[60] BP, Annual Report and Form 20-F 2013, p 77 (Exhibit 12303 A, BP-HZN-2179MDL07816849-7135, at 6929).

[61] BP board minutes, 31 January 2008 (BP-HZN-2179MDL02003523-3531, at 3525); BP board minutes, 13 and 14 March 2008 (BP-HZN-2179MDL02003532-3537, at 3533); BP board minutes, 8 May 2008 (TREX-06246, BP-HZN-2179MDL02003538-3545, at 3540); BP board minutes, 24 July 2008 (BP-HZN-2179MDL02003546-3552, at 3547-3548); BP board minutes, 13 November 2008 (BP-HZN-2179MDL02003559-3567, at 3560-3561); BP board minutes, 12 and 13 March 2009 (BP-HZN-2179MDL02003568-3575, at 3570-3571); BP board minutes, 7 May 2009 (BP-HZN-2179MDL02003576-3582, at 3579); BP board minutes, 12 November 2009 (BP-HZN-2179MDL02003591-3600, at 3592-3593); BP board minutes, 25 March 2010 (BP-HZN-2179MDL02003621-3629, at 3624).

[62] BP board minutes, 24 July 2008 (BP-HZN-2179MDL02003546-3552, at 3546); BP board minutes, 12 and 13 March 2009 (BP-HZN-2179MDL02003568-3575, at 3568-3569); BP board

reviewing the Exploration & Production plan for the coming year. In presenting the plan for 2009, Inglis reported that most operating sites in the segment outside the U.S. would by the end of 2009 have adopted BP's new Operating Management System (OMS, described in detail later in this expert report), which set standards for improvement of operations. In the new year, he reported, "Focus will be placed on cost efficiency, particularly in procurement, with incentives to deliver results beyond those in the plan." [63] At the November 2009 meeting, Tony Hayward presented the E&P plan for 2010, saying that 2008's priorities for safe and reliable operations would be maintained and that the plan aimed at a volume growth of 1-2% and improvements in efficiency of 3-4%. He said he expected that the new organizational structure being put in place would centralize project planning and execution.[64] In January 2010, three months before the Macondo blowout, Inglis reported that in 2009 the upstream segment had shown improvements in both safety and operations integrity over the previous year. For example, injury rates were down. [65]

The BP p.l.c. board also concerned itself with matters involving employees in the BP group. At the November meetings in 2008 and 2009, the board discussed results of what is called an annual Employee Pulse Survey. Results were analyzed according to levels within the hierarchy. For example, the 2008 survey showed that scores among team leaders had improved significantly since the 2006 survey, scores among the highest levels of management showed marginal improvement, and scores for mid-level managers had declined. The 2009 report showed improvements in most indicators across the group, but the presenter of the results noted that employees in the "lower levels of the organization were not yet seeing reductions in complexity."[66] In March 2010, about a month before the Macondo disaster, Sara Bott, BP's executive v.p. for human resources, gave the board an overview of BP's employment conditions and work that had been "undertaken to upgrade BP's organisational [sic] quality and put operations at the heart of the company." According to the minutes, "Ms. Bott described the simplified organisational structures created within the business segments and the change which has embedded functional sources within the SPUs and reduced the size of the corporate centre."[67] As described elsewhere in this expert report, BP was undergoing an organizational restructuring at the time of the 2010 Gulf of Mexico incident, and that reorganization was being overseen by the BP p.l.c. board of directors. Bott did not make reference to subsidiaries like BPXP.

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minutes, 7 May 2009 (BP-HZN-2179MDL02003576-3582, at 3576-3577).

[63] BP board minutes, 13 November 2008 (BP-HZN-2179MDL02003559-3567, at 3562).

[64] BP board minutes, 12 November 2009 (BP-HZN-2179MDL02003591-3600, at 3597).

[65] BP board minutes, 26 January 2010 (BP-HZN-2179MDL02003607-3613, at 3607).

[66] BP board minutes, 13 November 2008 (BP-HZN-2179MDL02003559-3567, at 3564-3565); BP board minutes, 12 November 2009 (BP-HZN-2179MDL02003591-3600, at 3599).

[67] BP board minutes, 25 March 2010 (BP-HZN-2179MDL02003621-3629, at 3623).

In the wake of the Macondo blowout, the BP p.l.c. board provided oversight of the group's response to the disaster. Executives reporting to the board included Tony Hayward, Andy Inglis, Bob Dudley, and Lamar McKay. At the July 2010 meeting, Inglis reported on the capping stack being successfully installed on the Macondo well and on progress drilling a nearby relief well. William Castell, who often led the board in discussions of safety matters, reported on the Bly investigation into the Macondo accident and on the review that Inglis and Barbara Yilmaz (global technology vice president for drilling and completions) were undertaking of the actions taken by the Gulf of Mexico drilling and completions organization in response to the Bly investigation. Mark Bly addressed the board at its July 2010 meeting, describing his on-going investigation and previewing what some of his recommendations were likely to be.[68]

The activities of BP's board of directors are what I expect to see in the governance of a large corporation: the setting of policies and business strategy, approving annual plans and budgets, developing means of managing and mitigating risks to the corporation, and appointing and hiring executives and top managers.[69] The minutes BP has produced of its board meetings comport with the business I would expect the board undertake as it tries to govern a large global energy company with operations on nearly every continent. The minutes of BPXP stand in stark contrast. In the large array of documents that BP has produced in this case, which I review in the next section, I find little evidence that BPXP's board performs functions with regard to operations in the Gulf of Mexico that I would expect to see, were BPXP actually acting as an operating company.

4. BPXP Board of Directors and Its Officers

BPXP is a BP subsidiary incorporated in Delaware. As such, it has a board of directors and officers. The following three subsections describe the actions of the BPXP board prior to the Macondo blowout, the roles of the BPXP officers in recent years, and the actions of the BPXP board in the months and years after the Macondo disaster. The subsections show that, although the directors and officers of the corporation do perform certain actions, they are rather limited in nature, and those actions do not extend to guiding and overseeing BP's operations in the Gulf of Mexico. A fourth sub-section draws comparisons between the activities of the BP p.l.c. board and the BPXP board.

a. BPXP's Board of Directors Prior to the Macondo Blowout

BPXP has a board of directors that passes resolutions from time to time. BP has produced an assortment of resolutions and minutes documenting the BPXP board's actions, the

[68] BP board minutes, 28 May 2010 (BP-HZN-2179MDL02004404-4405); BP board minutes, 20 June 2010 (TREX-06259, BP-HZN-2179MDL02004414-4417); BP board minutes, 22 July 2010 (TREX-06261, BP-HZN-2179MDL02004426-4433, at 4426-4427, 4430-4431).

[69] My opinion does not include an analysis of the quality of this oversight; my review is limited to comparison of activities of the BP p.l.c. board with those of the BPXP Board.

earliest of which is a consent action in lieu of a meeting dated February 11, 2005.[70] Then there is documentation for an apparent continuous three-year run of such actions occurring quarterly, beginning in December 2006. There is little evidence, however, of the board actually meeting before February 2011. Before the Macondo accident, the board met in person once, on December 30, 2009, according to the minutes. At his recent deposition, Steven Bray, who served on the BPXP board of directors, testified that to the best of his knowledge, the BPXP board of directors formally met as a board of directors only once before February 2011.[71] Prior to the February 2011 meeting, the directors typically passed resolutions by signing documents granting consent in lieu of holding a meeting or by responding to e-mails in which they would click "REPLY," type "I CONSENT," and then click "SEND."[72]

There is an interesting bifurcation in the kinds of resolutions the BPXP board passed. Prior to the Macondo blowout, the only business to which the BPXP board attended, by means of signing consent-in-lieu-of-meeting forms, was the passing of resolutions directing the distribution of dividends, usually to BPXP's preferred stockholder, BP Production North America. After the Macondo disaster, the board's actions included officially electing or removing officers, hearing reports on litigation related to the disaster, and passing resolutions concerning settlement agreements in that litigation.[73]

In February 2005, the board resolved to pay a dividend to its common stockholder, paying the dividend by transferring all right, title, and interest in a lease in Oklahoma to BPAPC. In December 2006, the board resolved to pay a dividend of $2,841,436,415.17 to its preferred stockholder. Beginning in March 2007 and continuing quarterly through September 2009, the board's only action was to pay its preferred stockholder a quarterly dividend of $120,180,750. In mid-December 2009, the board resolved, by signing consent-in-lieu-of-meeting forms, to pay the holder of its common stock, BP America Production Company, a dividend of $12,000,000,000. At the end of December, the board resolved, by signing consent-in-lieu-of-meeting forms, to pay

[70] Consent Action of the Board of Directors in Lieu of a Meeting effective 11 February 2005 (Exhibit 12825, BP-HZN-2179MDL08876892-6899, at 6892-6893).

[71] Steven Bray, deposition in re the Deepwater Horizon dated 16 July 2014, pp 177-178, 180, 182, 187, 197-198, 289-290, 319-320.

[72] Examples of signed consent actions in lieu of meetings may be seen in the Bates ranges BP-HZN-2179MDL07817719-7751 and BP-HZN-2179MDL08713506-3507. Examples of consent actions approved by e-mail may be seen in the Bates range BP-HZN-2179MDL08713914-4142.

[73] Examples of resolutions to pay dividends may be seen in the Bates ranges BP-HZN-2179MDL08713506-3507 and 7719-7751. Examples of minutes with resolutions to elect or remove officers, discussions of up-dates on litigation, or resolutions to approve settlement agreements may be seen in the Bates range BP-HZN-2179MDL08713914-4142. At his deposition, Bray testified that he was not aware of any instance in which a BP subsidiary board member had not consented to the election or removal of a director or officer recommended by BP legal; see Bray deposition, 193.

its preferred stockholder a regular quarterly dividend of $120,180,750. The amount of the quarterly dividend, by the way, was calculated at the rate of $17,250 for each outstanding share of preferred stock (6,967 shares).[74]

A change in the composition of the BPXP board occurred between the September 2009 and December 2009 meetings. Members of the board for the September meeting were Jane E. Klewin, Rochelle H. Jackson, Debra A. Dowling, Debra A. Plumb, Douglas J. Reistroffer, and Suzanne R. Sawada. Each of these individuals was either an attorney or paralegal working as part of the legal function for the BP group.[75] Dowling signed the forms as assistant secretary in addition to signing as a director. Klewin and Jackson were both senior attorneys in BP's legal office in suburban Chicago. Plumb was a corporate secretary for BP in Chicago attending the affairs of numerous U.S. subsidiaries. Reistroffer and Sawada, also based in Chicago, were both named as directors of several other BP subsidiaries.[76] Through September 2009, BPXP's board of directors was hardly a group of people skilled to provide any kind of oversight to operations as complex as BP was conducting in deepwater Gulf of Mexico.

Klewin and Jackson remained on the BPXP board after September 2009, but Dowling, Plumb, Reistroffer, and Sawado were removed as directors. Elected in their stead were Hans F. Boas, Steven L. Bray, Brenda H. Pennington, and Denise Robertson. Boas and Bray were both senior attorneys in BP's Houston office and Pennington and Robertson were paralegals in that office. The first action they took as a board was to provide their consent in lieu of meeting in December 2009 to declare the $12,000,000,000 dividend to be paid to BPXP's common stockholder. Whereas previous consent forms typically bore the signatures of all six board members, because they all worked in Chicago, the consent forms for the December 2009 action required more logistical work. The four new Houston-based board members signed one form, and Klewin and Jackson each signed separate forms, presumably mailing them to Houston.[77] The newly configured board of directors still did not appear to be a board equipped to oversee complex operations in the Gulf of Mexico. Nor does the documentary record show that it did so.

Attorney Steven Bray would play an important role in the next couple years in shaping BPXP's corporate governance. After working for about a dozen years in law firms and large

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[74] Consent Action of the Board of Directors in Lieu of a Meeting effective 11 February 2005 (Exhibit 12825, BP-HZN-2179MDL08876892-6899, at 6892-6893); records of consent in lieu of meeting to pass resolutions concerning payment of dividends beginning 18 December 2006 and ending 24 March 2010 (Exhibit 12738, BP-HZN-2179MDL08713506-3507 and Exhibits 12739 – 12752, BP-HZN-2179MDL07817719-7751).

[75] Bray deposition, 169-177, 183-185.

[76] Consent Action of the Board of Directors in Lieu of a Meeting effective 18 September 2009 (Exhibit 12749, BP-HZN-2179MDL07817742-7743).

[77] Action of the Board of Directors by Written Consent in Lieu of a Meeting effective 16 December 2009 (Exhibit 12752, BP-HZN-2179MDL07817726-7729).

companies on matters of corporate governance and related legal affairs, he joined BP's legal function in September 2009 as vice president, senior attorney (U.S. securities and governance), and corporate secretary of BP America. In his deposition, he explained that lawyers with BP work in a functional organization, BP legal, that exists in the BP group's organizational structure much like other functions described in this expert report. BP legal provides legal services to entities throughout the BP group. Bray's responsibilities, when he started at BP legal, were to attend to matters of corporate governance for more than 600 BP subsidiaries in the U.S. and elsewhere. BP Corporation North America issued Bray his paycheck.[78]

On December 30, 2009, the Houston-based directors met for the first time on record. Bray chaired the meeting, Pennington and Robertson were also present, and Boas participated by telephone. The two Chicago-based directors did not participate. The only action taken by the board was to declare a dividend of $120,150,750.00 payable to BP Products North America. The main difference between the minutes of the meeting and the previous resolutions, passed by consent in lieu of meeting, was that the minutes provided information about the financial context in which the company would declare a dividend. In March 2010, the BPXP declared another $120,150,750.00 dividend, payable to the preferred stockholder. It is the last BPXP dividend for which there is a record. Once again, the directors provided their consent in lieu of a meeting. Once again, the four Houston-based directors signed one form and the two Chicago-based directors each signed her own form, presumably sending it to Houston.[79]

The period prior to the April 2010 Macondo blowout was a period during which BP was implementing its new Operating Management System (OMS, described in detail below) throughout the BP group. OMS was a framework developed at the group level, and each operating entity in the group was supposed to use the framework to develop its own local OMS. BP's Gulf of Mexico business was in the process of developing and implementing local OMS documents, as were functional organizations in the Gulf business. At about the same, BP's upstream segment was reorganizing, at Andy Inglis' initiative, to create a management structure that was less based on geography and more based on function. The Gulf of Mexico's drilling & completions organization was nearly finished with its functional-based reorganization in April 2010. Significantly, during the twelve previous months, the BPXP board did not consider OMS at all; nor did it consider the reorganization of operations toward functional units. There is no record of the BPXP directors developing a local OMS or hearing a report from a BPXP officer or manager about the development and implementation of a local OMS for BPXP. This lack of attention to OMS by BPXP supports my opinion that BPXP was not an operating entity within the BP organizational structure.

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[78] Bray deposition, 24-28, 31, 154-155, 171.

[79] Minutes of a meeting of the Directors of BP Exploration & Production Inc. (hereafter BPXP board minutes) held on 30 December 2009 (Exhibit 12750, BP-HZN-2179MDL07817738-7739); Unanimous Written Consent of the Directors of BPXP in Lieu of a Meeting dated 24 March 2010 (Exhibit 12751, BP-HZN-2179MDL07817721-7725).

In BP's March 2014 Memorandum in Opposition to the United States' Motion *in Limine* to Permit Certain Relevant Evidence, one of BP's arguments is that "BPXP's operations are overseen by a Board of six directors."[80] Based on the documentation that BP has produced in evidence of BPXP board activities, it would appear that the only actions that the board oversaw from February 2005 to March 2010 was the distribution of dividends. At his recent deposition, Bray testified that he knew of no other actions the BPXP board took in that period.[81]

The Macondo well blew out about a month after the BPXP board's March 2010 dividend declaration, and the BPXP board has declared no dividends since then. According to a recent BPXP quarterly financial report, dividends normally due to BPXP's preferred stockholder have been deferred since the second quarter of 2010, have accrued at a rate of about $120,000,000 per quarter, and now total about $1,900,000,000 (as of first quarter 2014).[82]

b. BPXP Officers

BPXP also has had nominal officers over the years. From the evidence I have seen, it appears that the only significant role these officers play is signing legal documents. I have seen no evidence that they oversee or direct operations in the Gulf of Mexico in their capacity as officers of BPXP. In an earlier section, I wrote that I would elaborate on what I mean when I write that no BPXP official, "acting in that capacity," was informed of the problems arising at the Macondo well in the weeks prior to the blowout. BP has produced an appointment history for BPXP that shows Barbara Yilmaz serving as a vice president from September 2003 to February 2011, Dave Rainey serving as a vice president from June 2005 to May 2011, and Richard Morrison serving as a v.p. from January 2010 to October 2013. In her 2011 deposition Yilmaz did not mention her being an officer of BPXP. I describe Rainey's and Morrison's lack of awareness of their officer roles at BPXP in the following paragraphs. Since October 2013, Morrison has served as the BPXP president and chairman of the board.[83] He has also been president of BP's regional business in the Gulf of Mexico since March 2013. As such, he reports to Andy Hopwood, who is the COO for strategy and regions of BP's global upstream segment.[84]

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[80] BP Exploration & Production Inc.'s Memorandum in Opposition to the United States' Motion *in Limine* to Permit Relevant Evidence Concerning BP p.l.c. and Other BP Affiliates, brief dated 6 March 2014, p 4 (Rec. No. 12465).

[81] Bray deposition, 174-203.

[82] BP, "BP Exploration & Production, Inc., Consolidated Financial Reports, 1Q14," unaudited BPXP financial reports for 1st quarter of 2014 (BP-HZN-2179MDL07817670-7678, at 7673).

[83] BP Exploration & Production Inc., "Appointment History (From 4/20/2010 to the Present) (Exhibit 11959, BP-HZN-2179MDL07817761);" Barbara Jean Lowery-Yilmaz, deposition in re the Deepwater Horizon dated 26 and 27 July 2011.

[84] Richard Morrison, deposition in re the Deepwater Horizon dated 20 June 2014, pp 9-11.

In his deposition, Dave Rainey made no mention of his position as a vice president of BPXP. He identified as the Gulf of Mexico SPU's vice president for exploration at the time of the Macondo blowout. He described his responsibilities overseeing and directing teams who investigate areas of the Gulf in which to pursue leases, who explore leases BP acquires, who recommend whether or not to drill on a lease, and who appraise wells that have been drilled. The closest he got in his deposition to talking about his duties as an officer of BPXP was when he was questioned about his role in signing Execute Financial Memoranda, which gave approval for drilling the Macondo well. The first Financial Memorandum for the Macondo well was signed on September 30, 2009, and it has three signatures: Mike Daly, the single point of accountability and head of the upstream segment's exploration function, signing on the "Project SPA" line; Andy Inglis, CEO of the upstream segment, signing on the "Supported by" line; and Rainey, v.p. of BPXP, signing on the "Approved by" line. Rainey explained that the "Supported by" signature provided the financial approval for the drilling. His own "Approved by" signature was legal approval, because Rainey was an officer of BPXP. Rainey testified the he, rather than Inglis, had to sign because "Andy is not an officer of BP America." He made the statement even though the form he had signed clearly reads v.p. of BPXP, not of BP America.[85] This confusion about which legal entity he was representing and about the status of BPXP is typical of many people working for BP, as is described in more detail later in this expert report.

As v.p. for exploration in the SPU, Rainey reported to the SPU leader, first Neil Shaw and then James Dupree.[86] Shaw was not an officer of BPXP until February 2010, by which time he was no longer SPU leader. Shaw testified that while he was the leader of the Gulf of Mexico SPU he believed his payroll employer was "BP." He stated, "I've always seen it as BP. But there may be some different legal entity at the time I was working for them. I'm not – I don't understand the detail of that."[87] Dupree was appointed president and chairman of BPXP in February 2010. In July 2010, Rainey took a new leadership position as v.p. of science, technology, environment, and regulatory affairs for the Gulf Coast Restoration Organization. Now he reported to Lamar McKay. When Rainey's job changed, to being an official in the GCRO rather than in the SPU organization, his superior changed to an official, McKay, whom BP reports has not ever been a BPXP official.[88]

Richard Morrison was similarly oblivious to two of his positions as a BPXP officer. According to BP's Appointment History for BPXP, Morrison was named a vice president of the

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[85] Rainey deposition, 17-18, 25, 328-331. The quote is on p 331. See also Execute Financial Memorandum dated 30 September 2009 (BP-HZN-2179MDL00256298-6301).

[86] James Dupree, deposition in re the Deepwater Horizon dated 16 June 2011, p 16.

[87] Neil Shaw, deposition in re the Deepwater Horizon dated 26 October 2011, pp 187-188, 203-204. I provide additional documentation of BP employees' confusion about what BP legal entity was their payroll employer in sections below.

[88] Rainey deposition, 23-26; BPXP Appointment History (4/10/2010 to Present) (Exhibit 11959, BP-HZN-2179MDL07817761).

subsidiary in January 2010, and he served in that position until October 2013, when he became chairman of the BPXP board and president of the corporation. Yet, when he was testifying during his October 2011 deposition about BP's operations in the Gulf of Mexico and was asked who he meant by "we," he responded that he meant BP's Gulf of Mexico business.[89] In his recent deposition, Morrison was unaware that he had been appointed a v.p. of BPXP in January 2010. When shown the appointment history, he explained it as an administrative matter that would authorize him to sign invoices: "This would happen, you know, in the role that I had as vice president of operations in order for me to be able to sign invoices on behalf of the company, BPX&P. They would administratively have to appoint me as a vice president, but I wasn't doing a role as vice president."[90]

Morrison's role as vice president for operations in the Gulf of Mexico was what he considered a business role (because BP conducts its operations through business units, not legal entities). Morrison confirmed this in his deposition: "The decision to bid on leases comes through the BP region. The BPX&P board does not get involved with business, tactical, transactional decisions in the Gulf of Mexico; for example, leasing."[91] Nor does the BPXP board attend to budgeting. Morrison testified, "The budgets for our operating activities, be they projects or production or drilling or exploration, are set through what we call annual operating plans, through our chief operating officers, so through the – through the line."[92] "Through the line" is a phrase BP people use to refer to the organizational hierarchy of the segment. Morrison's testimony comports with the conclusions that I draw from the BPXP board minutes: the BPXP board of directors and officers do not oversee or direct business or operational activities that might otherwise be attributed to BPXP as a legal entity.

In his recent deposition, Morrison knew that he chairs BPXP's board of directors, but he was unaware that he was president of the company. Even after being shown the BPXP appointment history, he could not grasp his role for BPXP in that capacity. He testified that he was the chairman of BPXP and the regional president of BP's Gulf of Mexico operations.[93]

c. BPXP's Board of Directors after the Macondo Blowout

The Macondo well blew out about a month after the BPXP board's March 2010 dividend declaration. Shortly thereafter, we see the first known documentation of BPXP's stockholders

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[89] Richard Morrison, deposition in re the Deepwater Horizon dated 18 October 2011, p 82; BPXP Appointment History (4/10/2010 to Present) (Exhibit 11959, BP-HZN-2179MDL07817761) .

[90] Richard Morrison, deposition in re the Deepwater Horizon dated 20 June 2014, p 24.

[91] Morrison deposition (2014), 28-29.

[92] Morrison deposition (2014), 30.

[93] Morrison deposition (2014), 25-26.

acting to remove the existing board of directors and elect a new board.[94] On April 30, 2010, Steven Bray, vice president of BPAPC, signed a consent in lieu of meeting, authorizing a resolution that all the directors be removed and then that Boas, Bray, Jackson, Klewin, and Pennington be elected directors. That same day, Bray as v.p. of BP Products North America Inc. (which as the holder of the preferred stock is entitled to elect one director) signed a consent in lieu of meeting authorizing a resolution that all the directors be removed and then that Robertson be elected director.[95] Since April 2010, the documents show, the BPXP board has not declared another dividend, but it has, as the following paragraphs describe, conducted two new kinds of business that the board had not conducted prior to the Macondo blowout: the board has removed and/or elected officers of the corporation; and the board has discussed on-going litigation stemming from the Macondo blowout and has passed resolutions concerning settlement agreements with other parties.

There is one other feature of BPXP board business that has differed since the disaster, and that is the manner of conducting business. Prior to April 2010, the board is only known to have met in person once. Since then, the board has held occasional face-to-face meetings at Westlake, the BP office complex in Houston. The board also conducts some of its meetings by telephone. And the board also takes some official actions by providing unanimous written consent in lieu of meeting, but instead of signing a form, each director responds to an e-mail, typing "I consent." The first example occurred on June 7, 2010, when the board resolved to elect Robert W. Dudley vice president. To obtain the consent of the directors, Christina Wallace sent each an e-mail bearing the following language:

> You are currently serving as a director of BP Exploration & Production Inc. I have been asked by BP Legal to request your approval of the attached consent action to change the officers of that company.
>
> Please review the attached document. Please note that the document has been given advance legal approval.
>
> If you approve the attached consent action, please so indicate by going to the email toolbar above and clicking "REPLY," typing in "I CONSENT," and then clicking "SEND." This all you need to do. You do not need to sign, print, or fax any document.

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[94] In response to the United States' Request for Production Nos. 5 and 6, BP stated that "BPXP has undertaken a reasonable search for and will produce all resolutions of the BPXP board from 2009 to the present;" see BPXP's Memorandum in Opposition to the United States' Motion to Compel Production of Documents, May 20, 2014, p 11 (Rec. No. 12904).

[95] Unanimous Written Consent in Lieu of Annual Meeting of the Stockholders of BP Exploration & Production Inc. (BPAPC) dated 30 April 2010 (Exhibit 12826, BP-HZN-2179MDL08713908-3913, at 3908-3910); Unanimous Written Consent in Lieu of Annual Meeting of the Stockholders of BP Exploration & Production Inc. (BP Products North America Inc.) dated 30 April 2010 (Exhibit 12826, BP-HZN-2179MDL08713908-3913, at 3911-3913).

> Please send your email reply within 5 days. Please direct any questions you may have to Brenda Pennington at Brenda.Pennington@bp.com and reference T2b-20100607-001

BP Legal is BP's centralized legal function, the BP group's lawyers who provided legal services to BP's array of operational and legal entities. Wallace identified herself as part of the BP CorpTask Staff, Maron Marvel Bradley & Anderson, P.A., a law firm based in Wilmington, Delaware, which identifies itself on its website as a firm that leverages technology to the advantage of its clients in complex litigation. Bray testified that BP contracted the firm to prepare such documentations by means of an e-mail program. Each of the six directors sent Wallace an e-mail saying, "I consent." [96]

Bray was a director of BPXP and its corporate secretary at the time that BP Legal initiated the new practice of using e-mails to document consent in lieu of meeting. At his recent deposition, Bray was asked if he knows of any instance in which a director of a BP subsidiary has not consented to the removal or election of a director or officer that was recommended by BP Legal. Bray could not think of an instance.[97]

Through the remaining months of 2010, the BPXP board used the consent-in-lieu-of-meeting process to name a variety of persons to officer positions in the corporation. The other prominent BP official to be named as a vice president of BPXP was Doug Suttles (COO of BP's GCRO), elected by the BPXP directors on October 5, 2010. By consent in lieu of meeting, the directors removed Suttles as vice president on November 22, and they removed Bob Dudley on December 15. The BPXP directors conducted no business other than removing or electing officers in 2010.[98]

From 2011 to the present, the primary business of the BPXP board of directors has been the review and discussion of litigation, regulatory, administrative, claims, settlement, and compliance activities related to the Macondo incident and BP's response. Based on a review of the BPXP board of directors resolutions and minutes for the period from January 7, 2011,

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[96] Unanimous Written Consent in Lieu of Meeting of the Board of Directors of BP Exploration & Production Inc. dated 7 June 2010 (Exhibit 12828, BP-HZN-2179MDL08714066-4072); Bray deposition, 191-192.

[97] Bray deposition, 193.

[98] Unanimous Written Consent in Lieu of Meeting of the Board of Directors of BP Exploration & Production Inc. dated 7 June, 8 June (e-mails exchanged 14 June), 4 October, 5 October, 13 October, 18 November, 22 November, 15 December 2010 (Exhibit 12829, BP-HZN-2179MDL08713917-3923; Exhibit 12827, BP-HZN-2179MDL08713935-3941; Exhibit 12834, BP-HZN-2179MDL08713968-3974; Exhibit 12830, BP-HZN-2179MDL08713986-3992; Exhibit 12832, BP-HZN-2179MDL08714111-4117; Exhibit 12831, BP-HZN-2179MDL08714031-4037; Exhibit 12828, BP-HZN-2179MDL08714066-4072; Exhibit 12833, BP-HZN-2179MDL08714083-4089).

through March 14, 2014, I see that the BPXP board of directors discussed litigation, regulatory, administrative, claims, settlement, and compliance activity related to the Macondo blowout on 51 occasions; risk matters on 10 occasions; financial matters on 9 occasions; and corporate governance, other than the approval of board minutes, on 3 occasions.[99]

In January 2011, Steven Bray once again executed a consent-in-lieu-of-annual-meeting for BPXP's stockholders to remove the previous year's directors and to elect directors for 2011. This time, instead of signing a document as v.p. for BPXP's common stockholder and another document as v.p. of BPXP's preferred stockholder, Bray signed a single document, which recorded the actions of both stockholders. He signed the document twice, once as v.p. of BPAPC and once as v.p. of BP Products North America. This was a significant year for BPXP among the annual stockholder actions for which I have seen a record: it is the first time that the stockholders elected a slate of directors who had experience in the oil and gas industry beyond that as lawyers or paralegals. BPAPC elected James Dupree, Randy Latta, Luke Keller, Richard Morrison, and David Rainey as directors, and BP Products North America elected Cindy Yeilding as director. Dupree was leader of BP's Gulf of Mexico SPU. Latta was CFO and Keller was executive vice president of BP's Gulf Coast Restoration Organization (GCRO). Morrison was the v.p. for operations and Rainey the v.p. for exploration in the Gulf of Mexico SPU. Yeilding had been an exploration manager in Rainey's exploration organization before the Macondo incident, and then BP assigned her to work on relief wells during the response to the disaster.[100]

The newly assembled board of directors met for the first time in early February 2011. All six directors were in attendance, and Dupree chaired the meeting. Also attending were five attorneys, representing such BP organizations as the Gulf of Mexico SPU, the Health, Safety, Security, and Environment functional organization (HSSE), and the GCRO. One of the attorneys was Bray, who was identified in the minutes as the BPXP corporate secretary. He led the directors through several items of business involving corporate governance. First, he led the directors through a training session on fiduciary duties for directors and officers. Then he introduced the directors to the corporate structure of BP America and its subsidiaries, noting where BPXP stood within that structure, with one holder of all its common stock (BPAPC) and one holder of all its preferred stock (BP Products North America). He informed the board that those two stockholders had elected the current directors at BPXP's annual stockholders meeting in January.[101]

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[99] Bray deposition, 210-257, and Exhibits 12835-12894.

[100] Unanimous Written Consent in Lieu of Annual Meeting of the Stockholders of BP Exploration & Production Inc. dated 14 January 2011 (Exhibit 12836, BP-HZN-2179MDL08714040-4042); David Rainey, deposition in re the Deepwater Horizon dated 2-3 July 2011, 210.

[101] Minutes of BPXP Board of Directors Meeting dated 8 February 2011 (Exhibit 12837, BP-HZN-2179MDL0871407-4019, at 4017-4018).

Bray then informed the directors "that it had been the Board's historic practice to remove and re-elect all of the Company's officers on an annual basis and that it was, in his opinion, a best practice to do so." [102] He then presented a proposed slate of officers, which included Dupree as chairman and president, Brian Smith as v.p. and CFO, James Dietz as v.p. and general tax officer, Bray himself as v.p. and secretary, twelve other vice presidents, a treasurer, four tax officers, five assistant treasurers, and three assistant secretaries. The vice presidents included the other five directors besides Dupree. The assistant secretaries included Brenda Pennington and Denise Robertson, who had been directors until 2009. The board passed a resolution removing the previous officers and electing the proposed slate. Bray then brought to the board a proposed resolution to create an executive committee and to authorize the committee to act on behalf of the full board. Dupree proposed that he and Keller comprise the executive, explaining that he expected that the committee would use its power sparingly. Bray and Dupree offered the board their opinions that there was precedent for the giving an executive committee such authority and that it would be considered best practice under Delaware law. The board passed the resolution.[103]

The BPXP board next met in March 2011. All six directors participated by telephone, as did seven attorneys. Discussion concerned litigation with Halliburton and a proposed agreement with trustees for natural resource damages. The board passed a resolution to enter a settlement agreement with Halliburton and a global framework agreement with Halliburton to enhance and develop the business relationships between BP and Halliburton. The board also passed a resolution to negotiate further and execute a framework agreement with the trustees concerning natural resource damages. The attorneys were authorized to conduct the negotiations.[104] Through the rest of 2011, the board had several other meetings, meeting sometimes at the Westlake complex in Houston, meeting sometimes by phone. When they met at Westlake, one or more of the directors would sometimes participate by phone. The board's attention was largely taken up with discussing settlement agreements with some of the companies that were involved in one way or another in the Macondo disaster, such as MOEX, Weatherford, and Anadarko. Another item of business to which the board attended was passing a resolution to begin making "production payments" to Verano Collateral Holdings LLC, BPXP's wholly-owned subsidiary existing solely to hold and mortgage those payments, which were to be part of the agreement establishing the Deepwater Horizon Oil Spill Trust. The board also attended to the task of removing and electing officers.[105] As described above, even an official as prominent

[102] Minutes of BPXP Board of Directors Meeting dated 8 February 2011 (Exhibit 12837, BP-HZN-2179MDL08714017-4019, at 4018).

[103] Minutes of BPXP Board of Directors Meeting dated 8 February 2011 (Exhibit 12837, BP-HZN-2179MDL08714017-4019, at 4018-4019).

[104] Minutes of BPXP Board of Directors Meeting dated 19 April 2011 (Exhibit 12839, BP-HZN-2179MDL08714050-4054).

[105] Minutes of BPXP Board of Directors Meeting dated 20 April, 26 April, 3 May, 17 May, 18 June, 21 June, 27 June, 14 July, 25 July, 15 October, 16 October, 1 November, 7 November 2011 (Exhibit 12850, BP-HZN-2179MDL08713956-3961; Exhibit 12842, BP-HZN-2179MDL

in the BPXP organization as Richard Morrison (director, January 2011 to present; vice president, January 2010 to October 2013; chairman and president, October 2013) did not realize that he was vice president or president of BPXP.

At the May 2011 meeting, and for the first time in any of the documentation of BPXP board actions I have seen, the directors engaged in discussion of BP operations in the Gulf of Mexico. At the May 3 meeting, after conducting some of the other business described above, the minutes record that "the chairman led the board in a discussion regarding the Board's oversight responsibilities. During the discussion, the Board considered the possibility of performing risk reviews for the Company's Gulf of Mexico ("GoM") and Gulf Coast Restoration Organization ("GCRO") businesses." [106] It is not clear what the minutes could have meant by that statement, because, as described elsewhere in this report and in many BP documents, the Gulf of Mexico business was a unit of BP's upstream segment, and the GCRO was a business organization that reported directly to BP's CEO, and a committee of the BP p.l.c. board oversaw the activities of the GCRO.

At the board's July 14 meeting, Bray presented the board with a draft letter to the U.S. Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) laying out several voluntary safety commitments BPXP would make concerning operations in the Gulf of Mexico. The letter delineated four performance standards BPXP would meet for all wells in the Gulf for which it was the designated operator, and BPXP informed BOEMRE that the agency could consider any permit application that did not include the four provisions to be an incomplete application. BPXP would use, and would require its contractors to use, blowout preventers (BOPs) that met certain specifications. Any time BPXP brought a BOP to the surface for testing and maintenance, BPXP would use a third party to verify that the testing and maintenance were done to standard. BPXP would require laboratory testing of cement slurries whenever well casing was being cemented (testing to be conducted or witnessed by a qualified BPXP engineer or by a third-party independent of the contractor). And BPXP's oil spill response plan (OSRP) would include enhanced measures derived from lessons learned from the Macondo incident. [107]

08714002-4006; Exhibit 12846, BP-HZN-2179MDL08714022-4023; Exhibit 12844, BP-HZN-2179MDL08714063-4065; Exhibit 12841, BP-HZN-2179MDL08714029-4030; Exhibit 12849, BP-HZN-2179MDL08714038-4039; Exhibit 12851, BP-HZN-2179MDL08714045-4049; Exhibit 12848, BP-HZN-2179MDL08714057-4059; Exhibit 12847, BP-HZN-2179MDL 08714090-4092; Exhibit 12843, BP-HZN-2179MDL08714099-4101; Exhibit 12840, BP-HZN-2179MDL08714139-4140).

[106] Minutes of BPXP Board of Directors Meeting dated 3 May 2011 (Exhibit 12842, BP-HZN-2179MDL08714002-4006, at 4006).

[107] Minutes of BPXP Board of Directors Meeting dated 14 July 2011 (Exhibit 12847, BP-HZN-2179MDL08714090-4092, at 4091); James H. Dupree to Michael Bromwich, letter dated 15 July 2011 (EPA-BP003529-3532).

At the July 25 meeting, BPAPC elected Niloy Shah to begin serving as a vice president effective September 6. Shah was the CFO of BP's Gulf of Mexico regional business. (The board would elect Shah as a director at the November 1 meeting, replacing David Rainey, who had been in that director position for the early part of 2011, but quit participating in meetings in June.) [108] At the July 25 meeting, the board also took up the "Terms of Reference" for oversight of GoM & GCRO (In the BP world, a "Terms of Reference," or ToR, is a document defining the scope of work to be undertaken.). Pursuant to the ToR, the board heard a presentation by Cindi Skelton on risk management in the Gulf of Mexico at its November 28 meeting. The board inquired of Skelton whether the risks being managed included financial, reputational, or license-to-operate risks; she responded that her presentation focused only on safety and environmental risks. Dupree also updated the board on the audit that BP's Safety & Operational Risk organization had conducted of the Gulf of Mexico business (S&OR is a functional unit within the BP group, and it applies its expertise across operations through the group).[109]

In 2012, the BPXP board continued to receive litigation updates and to pass resolution relative to the litigation. The directors also heard presentations on risks associated with the Gulf of Mexico business and the GCRO. At the February 7 meeting, Mike Utsler, president of GCRO, presented an overview of GCRO risks to the BPXP board, describing the GCRO implementation of a new risk management process, the application of BP's Operating Management System (OMS) to the risk management process, and the role of Safety & Operational Risk (S&OR, a BP global functional group) in the risk management process. The minutes make it clear that risk management within the GCRO was being conducted using processes established by the BP group and the upstream segment, not according to a process being initiated or directed by the BPXP board and executives it had elected or managers it had hired.[110]

The 2012 BPXP stockholders action to elect directors took place in late April. Once again, the stockholders provided their consent in lieu of meeting, and Steve Bray signed the consent form twice, once as v.p. of BPAPC and once as v.p. of BP Products North America. All the existing directors were removed again, and then the stockholders elected officers, with the preferred stockholder electing Yeilding again and the common stockholder electing four of the five it had elected in January 2011. In addition, BPAPC elected Niloy Shah to the board. David

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[108] Minutes of BPXP Board of Directors Meeting dated 25 July and 1 November 2011 (Exhibit 12851, BP-HZN-2179MDL08714045-4049, at 4045; Exhibit 12848, BP-HZN-2179MDL08714057-4059, at 4058).

[109] Minutes of BPXP Board of Directors Meeting dated 25 July and 28 November 2011 (Exhibit 12848, BP-HZN-2179MDL08714057-4059, at 4058; Exhibit 12853, BP-HZN-2179MDL08714078-4079). For a definition of "Terms of Reference," see Inglis deposition, 397.

[110] Minutes of BPXP Board of Directors Meeting dated 7 February 2012 (Exhibit 12856, BP-HZN-2179MDL08714121-4123, at 4122).

Rainey had been in that director position for the early part of 2011, but quit participating in meetings in June. Shah was the CFO of BP's Gulf of Mexico regional business.[111]

The newly constituted board met at the Westlake complex on May 1. As at the 2011 meeting after the board had been newly constituted, Bray provided the directors with their annual fiduciary training session, explained the BPXP organizational chart and the results of the recent consent action taken by the stockholders, and then presented the directors with a proposed slate of officers. After removing one name from the list of vice presidents and adding another, the board elected corporate officers, some of whom were re-elected from the previous year and some of whom were new. Dupree and Bray were re-elected as president and secretary, respectively; Shah was newly elected as v.p. and CFO for BPXP.[112]

After hearing some litigation updates, the board turned its attention to a review of risk in the Gulf of Mexico business. Shah and Cindi Skelton provided the overview. Skelton had just become the v.p. of safety and operational risk for the Gulf of Mexico region at the end of March 2012. Her previous title, which BP had given her just six days before the Macondo blowout, was v.p. for HSSE & Engineering in the Gulf of Mexico. Her organization was performing the risk review of the Gulf of Mexico, which she and Shah told the board would be complete by early June. At a July meeting, the board received another update, this time from Shah and Chris Harper, the "risk champion" for the Gulf of Mexico region. Shah and Harper described for the board the processing being used to identify and assess risks, plans for categorizing and mitigating risks, and the means through which the risk management process was being "networked beyond the GoM business and across the organization." Randy Latta updated the board on risk for the GCRO. In this particular context, risk seems to have been associated not so much with safety or environmental consequences of actual operation but rather risks to the BP organization associated with external communications and the release of scientific studies.[113]

The BPXP board was apparently reviewing the risk assessment for BP operations in the region, but the board's activities would not be considered oversight, if oversight is understood to include the authority to issue directives or make personnel changes if something did not meet with the overseeing entity's approval. This conclusion comports with the descriptions by both Andy Inglis and Cindi Skelton of risk assessment being done in the Gulf of Mexico. Inglis described the global process he caused to be undertaken to try to ensure that processes and

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[111] Unanimous Written Consent in Lieu of Annual Meeting of the Stockholders of BP Exploration & Production Inc. dated 30 April 2012 (Exhibit 12861, BP-HZN-2179MDL08713942-3944).

[112] Minutes of BPXP Board of Directors Meeting dated 1 May 2012 (Exhibit 12862, BP-HZN-2179MDL08714103-4106, at 4103-4105).

[113] Minutes of BPXP Board of Directors Meeting dated 1 May and 23 July 2012 (Exhibit 12862, BP-HZN-2179MDL08714103-4106, at 4105-4106; Exhibit 12865, BP-HZN-2179MDL08714133-4135, at 4133-4134); Cindi Skelton, deposition in re the Deepwater Horizon dated 25 May 2011, 16-17.

procedures for safe and reliable operations were implemented throughout BP's global operation, using BP's OMS as the tool for achieving the objective. Cindi Skelton, he said, had the responsibility for implementing the OMS at the regional level. From Skelton's perspective, OMS was something that was implemented at BP production facilities in the Gulf in late 2008 and in the drilling & completions organization in late 2009. She knew that OMS was not developed at the local level, that it was developed at the group level (BP group). And, as Inglis described, an organization within the BP group, separate from the segments and their businesses, audited how well regional and local business units were implementing OMS.[114] There is no evidence that the BPXP board played a role in the implementation, auditing, direction, or oversight of risk assessment and management in the Gulf of Mexico.

Several kinds of evidence demonstrate that BPXP does not attend to its own legal affairs. I have seen copies of BPXP's Annual Franchise Tax Report to the State of Delaware for the years 2010, 2011, 2012, and 2013. Each year, the form names Brenda Pennington, Denise Robertson, and D.B. Pinkert as directors. Pinkert may have been a BPXP vice president in 2001, but he has not been a director since 2006, the earliest year for which BP has produced BPXP board minutes.[115] BP has been made aware of this filing error, and in response, Donette Dewar, general tax counsel for BP America, has prepared an affidavit correcting the error and explaining that BP employs the services of Corporation Service Company (CSC) to perform filings and Delaware franchise tax reports for certain BP's subsidiaries in the U.S. The affidavit states that CSC has corrected the franchise tax report, and a corrected report is attached to the affidavit.[116] That BPXP does not conduct its own filings with the State of Delaware is consistent with the testimony of Steven Bray and others, that such work is undertaken by BP tax, BP legal, and other centralized functions in the BP group, which provide services in their functional area to organizations throughout the BP group.

Another example of minimal "self-awareness" as a corporate entity is the Richard Morrison 30(b)(6) deposition. He has been president and chair of the BPXP board since March 2013, yet he did not know what entity or entities own BPXP's stock. He knew that BPXP did not have any employees, and he knew that other BP entities provided BPXP with employees, but he did not know of an agreement to do so. When shown the General Services Agreement described elsewhere in this expert report, it was the first time he had seen it.[117]

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[114] Inglis deposition, 244-245, 250-251, 378-380; Skelton deposition, 40-42.

[115] BP Exploration & Production Inc., Annual Franchise Tax Report for 2010 dated 13 January 2011, for 2011 dated 16 February 2012, for 2012 dated 1 February 2013, and for 2013 dated 24 January 2014 (Rec. No. 12858-11); BP Exploration & Production Inc., Director History (Exhibit 11960, BP-HZN-2179MDL 08876900).

[116] Declaration of Donette Dewar dated 19 May 2014 (Rec. No. 12904-27 Exhibit BB).

[117] Richard Morrison, 30(b)(6) deposition in re the Deepwater Horizon Oil Spill dated 20 June 2014, pp 44-46, 50-56.

d. Comparison of the BP p.l.c. and BPXP Boards of Directors

As the above sections have shown, the BP p.l.c. board of directors is responsible for the direction and oversight of the group and for the conduct of its businesses and operations. BP's top executive officers are responsible for the day-to-day management of BP's global operations. And that includes BP's operations in response to the Macondo blowout, which the board oversees by means of its Gulf of Mexico Committee. The board oversees management of BP's other operations through the organizational structure of segments and businesses that the company has devised to manage its extensive operations throughout the world. And that includes BP's upstream segment, which is responsible for managing leasing, exploration, drilling, and production in the Gulf of Mexico.[118]

In contrast, the BPXP board of directors has no such history of direction and oversight of operations that may be attributed to BPXP. Prior to the Macondo incident, the evidence indicates that the BPXP board only met once, and its only known actions were to approve the distribution of dividends to its stockholders. The BPXP board did not direct or oversee BP's operations in the Gulf of Mexico that were conducted on leases held in BPXP's name. The documentary evidence is consistent with various BP employees' understandings, as described and quoted throughout this expert report, of the BPXP board's role in the BP enterprise. That role is aptly summarized by Steven Bray, who was BPXP's corporate secretary at the time of the Macondo disaster. At his deposition, he testified that the BPXP board of directors did not create or guide business strategy, create or guide annual budgets or annual plans, set performance standards, oversee capital expenditures, oversee acquisitions or divestments in the Gulf of Mexico.[119]

In 2010, after the Macondo blowout in April, the BP p.l.c. board met twenty-five times to deliberate on matters in response to the event. The BPXP board did not meet in 2010.[120]

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[118] BP, Annual Report and Form 20-F 2010, pp 32, 90, 92 (TREX-06033, BP-HZN-2179MDL07816408-6676, at 6440, 6498, 6500); BP, Annual Report and Form 20-F 2013, pp 2-3, 71, 78-79 (Exhibit 12303 A, BP-HZN-2179MDL07816849-7135, at 6854-6855, 6923, 6930-6931).

[119] Bray deposition, 175-200, 207-209, 258-261. However, Bray testified that it was the BPXP management who were involved in strategy for the Gulf of Mexico. By BPXP management, he meant people in the Gulf of Mexico organization who had been given titles as BPXP officers. When shown an organizational chart for the Gulf SPU in 2010, he acknowledged that the chart showed management leaders for operations reporting up through a hierarchy that led to the upstream segment, and the chart made no mention of any of them reporting to BPXP; see Bray deposition, 199-206, 261-263. As described elsewhere in this expert report, the people who had officer titles with BPXP did not think of themselves as officers and in some cases did not even know they were officers. As acknowledged by Bray, there is no documentation of BPXP appointing them officers prior to 2010.

[120] BP, Annual Report and Form 20-F 2010, p 90 (TREX-06033, BP-HZN-2179MDL07816408-6676, at 6498); Bray deposition, 197-198.

5. BP p.l.c.'s Management of Operations in the Gulf of Mexico

> BP reporting in the United States is a matrix of legal entities and operating units. As such, the consolidated BPXP financial statements do not represent any specific operating unit in total but are largely made up of GoM Region and GCRO. Additionally, GoM Region and GCRO also have activities in legal entities outside BPXP. There is approximately 11% of GoM region activity operated outside of BPXP.
>
> *BPXP financial reports for 1st quarter of 2014.*[121]

This statement by BP succinctly summarizes a key feature of BP's global enterprise: it has an extensive array of legal subsidiaries and it reports its financial affairs in terms of those legal entities as needed.[122] BP also has an extensive array of operations, and it implements an organizational structure for managing those operations that is parallel to and almost without reference to its legal structure. Thus, for example, the Gulf of Mexico (GoM) is one of BP's important operating units, and my expert report describes in considerable detail how BP, through its upstream segment, manages BP operations in the Gulf. But there is not an exact correlation between BP's legal structure and its organizational structure in the Gulf. BPXP, while holding most of the physical assets from which BP produces oil in the Gulf, does not hold all the assets on which the GoM operating unit's activities are based. About 11% of GoM activities are based on assets held by other BP entities. I have seen no evidence to suggest that, when the GoM organization is managing BP operations in the Gulf, it distinguishes whether it is operating on BPXP assets or other assets.

In his deposition testimony, Lamar McKay provided a good example of BP p.l.c.'s management and control of operations in the Gulf of Mexico. At the time of the Macondo blowout, he was chairman and president of BP America Inc., and he served as BP's chief representative in the U.S. In his deposition, he testified about where the authority rested to have asked that a capping stack be built for the Macondo well. He testified that he did not have that

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[121] BP, "BP Exploration & Production, Inc., Consolidated Financial Reports, 1Q14," unaudited BPXP financial reports for 1st quarter of 2014 (BP-HZN-2179MDL07817670-7678, at 7678).

[122] The United States has requested financial statements at the subsidiary level for BPXP, BPAPC, BP Company North America Inc., BP Corporation North America Inc., BP America Inc., and BP Holdings North America for 2009 to 2014. BP has produced the requested financial statements when they exist, and it has explained that several of the named subsidiaries have not been required to create such statements. BP Company North America does not have any financial statements for 2009 to present. BPAPC has unaudited quarterly financials only for 2Q & 3Q 2012, which it prepared at the request of its board of directors. BPXP began preparing quarterly financial reports in 2Q 2001 at the request of its board of directors and has prepared them since. BPXP does not have financial statement for 2009, 2010, or 1Q 2011; see BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase dated 12 June 2014, response to request for production no. 1, pp 1-4 (Exhibit 11981).

authority. Rather, people in the exploration and production organization, the upstream segment, had that authority. He named people who would have had such authority, and they included Tony Hayward, Bob Dudley, and Doug Suttles.[123] BPXP is a subsidiary of BP America. If someone at BPXP, which held the lease to MC252, had wanted to request a capping stack for the Macondo well, McKay's testimony indicates that the request would not have made its way through the chain of parent corporations to McKay, who then might have requested the capping stack to his superiors in the BP chain of subsidiaries and parent corporations. Rather, such a request had to go through the E&P organization which, as Inglis asserted in his deposition (quoted at the beginning of this report), was independent of, and parallel to, BP's parent-subsidiary structure.

McKay was even more explicit later in his deposition, when he testified that BP America is a holding company, and BP America's subsidiaries hold the assets. Thereby, he said, "BP American owns the assets."[124] Operations like exploration and production, refining, and alternative energy, however, report to the larger global organization. Like other BP managers and officials being deposed concerning the Macondo blowout and response, McKay was so steeped in the culture of the BP group that, immediately after he testified about BP America and its subsidiaries (one of which is BPXP), when he was questioned about who Exploration & Production reports to, he responded out of an assumption that Exploration & Production referred to the global segment within the BP group, not BP Exploration & Production Inc., the subsidiary of BP America. He responded that Exploration & Production does not report to him, as president of BP America. He went on to say: "We're organized on a global basis. So Exploration & Production reports up a global organization, Refining & Marketing up a global organization, same with Alternative Energy, trading." And the lines of authority "eventually get to London, yeah." Andy Inglis was the CEO of the E&P segment at the time of the disaster.[125]

Bob Dudley succeeded Inglis as CEO of the upstream segment, and he revised the Exploration & Production organization, creating three divisions: drilling and projects, production, and exploration. At the time of McKay's deposition, he was on Dudley's executive team. He reported to Dudley, but he reported on legislative and regulatory issues, not operations: "I do not have line accountability or responsibility," he said. "Those are—the line or the operating businesses are global businesses that report up through the segments, and I don't—I do not supervise those segments. The U.S. is different than any other country in that we have every business of BP operating in the U.S. So my job is unique; and, you know, effectively, it's—it's government and public affairs."[126] McKay's testimony demonstrates very clearly that there was and is a very clear distinction between legal and governmental affairs in BP, on one hand, and operational matters, on the other. McKay's responsibilities were in the former, not the latter. Likewise, the role of the subsidiary over which he had charge, BPXP, was legal, not operational.

[123] Lamar McKay, deposition in re the Deepwater Horizon dated 3 November 2011, 86-87.

[124] McKay deposition, 139.

[125] McKay deposition, 139-140.

[126] McKay deposition, 140, 145-146.

According to BP's annual report for 2013, meanwhile BP organizes operations in its enterprise separately from the legal structure. BP still divides it operations into three segments: Upstream, Downstream (now including petrochemicals), and Alternate Energy. The Upstream segment includes operational assets in the Gulf of Mexico, Alberta, Alaska, as well as South America, Africa, Asia, and the North Sea. There is little if any hint in the organization and business model described in the annual report of a connection between BP's operations and the structure of its corporate subsidiaries.[127] For example, in group chief executive Bob Dudley's March 2014 letter to BP shareholders, he uses the nebulous term "business" to describe portions of the BP enterprise. On the second page, he references the Downstream business three paragraphs after describing a plan to "create a separate BP business to manage our onshore oil and gas assets."[128] The Downstream business is not a legal entity, so one must conclude from the letter that the new separate onshore business will not be a legal entity either.

Likewise, other sections of the annual report describe BP's attributes without reference to the subsidiary or subsidiaries wherein those attributes reside. One page of the report touts BP's expertise in advanced technologies, such as seismic imaging and enhanced oil recovery, without referencing whether that expertise resides in BP p.l.c. or in one or more of its subsidiaries. The same page provides overall employment figures, noting the numbers of new people hired by BP and the numbers of people (4,979) who were promoted internally. There is no clue as to whether those promotions were within subsidiaries or within the larger BP group, or whether such a distinction is of significance in the BP enterprise.[129]

Indication that the BP enterprise does not consider BPXP to be the sole responsible party for the Macondo well blowout can be seen in the BP p.l.c. annual report for 2013. In the consolidated financial statement for the BP Group (the entire enterprise), section 2, "Significant Event – Gulf of Mexico Oil Spill," describes actions BP is taking and expenses BP is incurring to respond to the Macondo disaster. In the previous section of the report on accounting policies, BP states that the response to the disaster is being undertaken by a separate organization, which reports directly to BP's chief executive. The costs of the response are not part of the accounting for any operating segment, including the Upstream segment, of which operations at the Macondo well were a part. This method of accounting suggests that BP p.l.c. views the Macondo disaster to be a liability of the parent or the group, not solely that of BPXP.[130]

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[127] BP, Annual Report and Form 20-F 2013, pp 2-3 (Exhibit 12303 A, BP-HZN-2179MDL07816849-7135, at 6854-6855).

[128] Dudley to shareholders, letter dated 6 March 2014, BP, Annual Report and Form 20-F 2013, p 9 (Exhibit 12303 A, BP-HZN-2179MDL07816849-7135, at 6861).

[129] BP, Annual Report and Form 20-F 2013, p 16 (Exhibit 12303 A, BP-HZN-2179MDL08716849-7135, at 6868).

[130] BP, Annual Report and Form 20-F 2013, p 128 (Exhibit 12303 A, BP-HZN-2179MDL07816849-7135, at 6980). The section of the consolidated financial statement is pp 139-144.

Another section of the annual report has analyses of Upstream operations by region of the world. For North America, BP operates in four areas: Gulf of Mexico deepwater, Lower 48, Alaska, and Canada. The analysis summarizes the activities in the Gulf of Mexico by field, but it makes no mention of activities of its various subsidiary corporations that are active in the Gulf.[131] This again demonstrates that corporate formalities play little role in the ways that BP manages its Gulf operations.

6. BP's Management Structure for Operations in the Gulf of Mexico

Documents produced by BP showing organizational structure, and in particular the chain of command for people who were directly responsible for operations of *Deepwater Horizon* and the Macondo well, do not show any BPXP officials present in the hierarchy. The lead BP employees on board the *Deepwater Horizon* at any given time were two well site leaders, each of whom worked a twelve-hour shift. The pair would remain on board for two full weeks and then go ashore and be replaced by another pair, who would work alternating twelve-hour shifts for two weeks. On April 20, 2010, when the Macondo well blew, the two BP employees who normally would have been assigned to be aboard the *Deepwater Horizon* were Ronald Sepulvado and Donald Vidrine. Because Sepulvado was away at a training program, BP had assigned Bob Kaluza to serve in his stead.[132] At his deposition, Sepulvado testified that he was an employee of BP America, Inc., and that BP America was the operator of the Macondo well. When asked about BPXP, Sepulvado testified that he had heard of the company, but he did not know what its relationship to the Macondo well was.[133]

It may be that Sepulvado was confusing BP America with BPAPC. He testified that he knew that BP had many company names, and understanding them was beyond him. BPXP has no employees. As described later in this expert report, BPXP had a general services agreement with BPAPC at the time of the Macondo blowout. Under the agreement, BPAPC would provide BPXP with employees and other services. BP has admitted that Don Vidrine and Bob Kaluza were employed by BPAPC at the time of the Macondo blowout, and presumably Sepulvado was as well.[134] As will be seen in the following paragraphs, other BP employees associated with the operations of the *Deepwater Horizon* were similarly mistaken about their employer, suggesting

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[131] BP, Annual Report and Form 20-F 2013, p 239 (Exhibit 12303 A, BP-HZN-2179MDL07816849-7135, at 7091).

[132] Ronald W. Sepulvado, deposition in re the Deepwater Horizon dated 10 March 2011, 19-20, 114-115, 243, 387-388.

[133] Sepulvado deposition, 349.

[134] Sepulvado deposition, 349; BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase dated 12 June 2014, response to interrogatory no. 2, p 25, answer to request for admission no. 5, pp. 48-49 (Exhibit 11981).

how insignificant the parent/subsidiary structure of the BP group is to the people who operate BP's facilities and assets in the Gulf of Mexico.

The well site leaders and other BP personnel aboard the *Deepwater Horizon* were supervised by Alexander (John) Guide, whose title was wells team leader. At his deposition, Guide testified that he was an employee of BP America. He exhibited a confident memory of the hierarchy in which he worked and how it had varied since 2007, as reporting lines in the operations and engineering functions changed within the BP's Drilling & Completions organization (D&C). He remembered to whom he reported and to whom his immediate supervisor reported. In all of his testimony about his work, his responsibilities, and his superiors, he never mentioned BPXP playing a role in the organization. Despite Guide's testimony that BP America was his employer, BP has admitted that BPAPC was actually his employer at the time of the Macondo blowout.[135]

John Guide's supervisor in the Drilling & Completion organization at the time of the blowout was David Sims, whose title was D&C operations manager (Exploration & Appraisal). Sims had been made operations manager in a restructuring of the D&C organization that took effect in early April 2010 (described in further detail below), just prior to the blowout. Before that reorganization, Sims had been engineering team leader for operations, and he and Guide both reported to Ian Little. As part of the reorganization, Little moved to another assignment. The engineers who had worked for Sims continued doing the work they had been doing, but under the reorganization they were assigned to Jonathan Sprague's drilling engineering section (see below). At his deposition, Sims testified that he was an employee of BP America. BP has admitted that Sims was a BPAPC employee at the time of the Macondo disaster.[136]

David Sims (and before him, Ian Little) reported to David Rich, who was wells manager for the D&C organization. Sims testified that he was employed by BP. Rich reported to Pat O'Bryan, who was vice president for the D&C organization.[137] As of January 2010, BP's entire upstream segment (Exploration & Production, not to be confused with BPXP, the U.S.

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[135] BP Drilling & Completions Organizational Chart As of April 2010, p 18 (TREX-02515); A. John Guide, deposition in re the Deepwater Horizon dated 9 May 2011, p 430 and following; BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase dated 12 June 2014, response to interrogatory no. 2, p 25, and response to request for admission no. 5, p 49 (Exhibit 11981).

[136] BP Drilling & Completions Organizational Chart As of April 2010, p 18, (TREX-02515); David Sims, deposition in re the Deepwater Horizon dated 6 April 2011, p 309; Jonathan Sprague, deposition in re the Deepwater Horizon dated 22 March 2011, 96-99, 401-402, 509-510; BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase dated 12 June 2014, response to interrogatory no. 2, p 25 (Exhibit 11981).

[137] BP Drilling & Completions Organizational Chart As of April 2010, pp 2, 18 (TREX-02515); David Rich, deposition in re the Deepwater Horizon dated 1 June 2011, pp 118-119.

corporation) was divided into Strategic Performance Unites (SPUs), of which the Gulf of Mexico was one. Each SPU had a vice president for drilling & completions (D&C), who reported both to the leader of the SPU and to the top management of BP's upstream segment, of which Andy Inglis was the CEO. As of January 2010, Inglis had made Doug Suttles the chief operating officer (COO) for the upstream business. For the Gulf of Mexico D&C organization, this structure meant that Pat O'Bryan reported both to James Dupree, leader of the Gulf of Mexico SPU, and to Doug Suttles. Dupree and Suttles reported to Inglis. BP has not indicated who Rich's and O'Bryan's employer was. BP has admitted that Suttles was employed by BPAPC at the time of the Macondo blowout, that Dupree was employed by BP Corporation North America until August 31, 2010, and by BPAPC thereafter, and that Inglis was employed by BP Corporation North America.[138] Nowhere in this chain of direction was there someone who was specifically accountable to the directors and officers of BP Exploration & Production, Inc.

Parallel to the operations section of the D&C organization was an engineering section. The drilling engineer assigned to the *Deepwater Horizon* was Brett Cocales. Prior to the April 2010 reorganization of the D&C organization, Cocales had been part of the well site team, based in Houston and reporting to John Guide. With the reorganization, Cocales joined the exploration and assessment drilling engineering team, also in Houston and led by Greg Walz. Other members of the team included Mark Hafle and Brian Morel, the drilling engineers who had designed the Macondo well. When the well was being planned in 2009, Hafle and Morel worked under the supervision of Ian Little. Initially the well was to be drilled by another vessel, the *Marianas*. Therefore Cocales was not the operations drilling engineer assigned to the project, because he was assigned to the *Deepwater Horizon*, not the *Marianas*. The operations drilling engineer tied to the *Marianas* who worked with Hafle and Morel on the well design was Trent Fleece. BP has admitted that Cocales, Hafle, and Morel were employees of BPAPC.[139]

When Hafle, Morel, and the other drilling engineers in the operations section were reassigned to the drilling engineering section in the reorganization, Greg Walz was made the exploration & assessment drilling engineering team leader. Walz in turn reported to Jonathan Sprague, who was the drilling engineering manager. Prior to the reorganization, Walz had been a drilling engineering team leader for the Thunder Horse and other fields in the Gulf. Walz believed that he was employed by BPXP, but when questioned further about it, he wasn't sure if his employer was BPXP or BP America.[140] BP has not provided the name of Walz's employer at the time of the Macondo incident, but it would not have been BPXP, because BPXP did not have employees.

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[138] Inglis deposition, 278-279, 439-442; Rich deposition, 55.

[139] BP Drilling & Completions Organizational Chart As of April 2010, p 8 (TREX-02515); Greg Walz, deposition in re the Deepwater Horizon dated 21 April 2011, 347-352; BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase dated 12 June 2014, response to interrogatory no. 2, p 25 (Exhibit 11981).

[140] Walz deposition, 342-343; Sprague deposition, 401-402, 509-510.

Sprague testified in 2011 that the Gulf of Mexico had been an SPU, but now BP called it a region. He said that he thought BP America owned the operations in the Gulf, and he believed that he was employed by BP America. When asked about BP Exploration and Production, Inc., he said he thought he had heard of it, but he didn't know BPXP's involvement in the Gulf of Mexico. Nor did he know whether anyone with whom he worked was employed by BPXP. He did say that he thought employees from various regions within the BP group were interchangeable in any given job or region. Sprague reported to Pat O'Bryan, who was vice president for the D&C organization.[141] BP has not indicated which entity employed Sprague at the time of the Macondo blowout.

With the exception of Greg Walz, all of the BP personnel involved with the Macondo well, who were asked the identity of their employer, named BP America. This is understandable, because BPXP does not have employees, so there is little reason for BP workers in the U.S. to think that BPXP was their employer. Moreover, as described above, Lamar McKay, who was president of BP America Inc. at the time of the Macondo blowout and is now CEO of BP's upstream segment, believed that, with the exception of the expats working in the U.S., all the BP workers in the U.S. were employed by BP America. McKay, by the way, was employed by BP Corporation North America in April 2010. In his recent deposition, Richard Morrison also expressed an ambiguous understanding of the distinction between BP America, an organization of BP operations in the U.S., and BP America Inc., the legal entity.[142]

Further evidence of how little the parent/subsidiary structure of the BP group means to BP's operations managers, its workers, and the organization of BP's operations can be seen in this curious anomaly: even though most everyone in BP's Gulf of Mexico operation believes that BP America is the employer of BP's American workers, the definitive evidence produced by BP indicates that BP America Production Company is the actual employing entity in the BP scheme, as outlined in the general services agreement between the two BP subsidiaries and as admitted by BP in its supplemental response to the United States' discovery request. Responding to an interrogatory from the United States, BP has identified BPAPC as the employer of James Dupree, Brian Morel, Mark Hafle, Bret Cocales, John Guide, Robert Kaluza, Don Vidrine, Trevor Hill, and David Sims.[143]

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[141] Sprague deposition, 453-455; BP Drilling & Completions Organizational Chart As of April 2010, pp 2 (TREX-02515).

[142] BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase dated 12 June 2014, response to interrogatory no. 2, p 25 (Exhibit 11981); Richard Morrison, deposition in re the Deepwater Horizon dated 20 June 2014, pp 15-17.

[143] BP Exploration & Production Inc.'s First Supplemental Responses to the United States' First Set of Discovery Requests in the Penalty Phase dated 12 June 2014, response to interrogatory no. 2, p 25 (Exhibit 11981).

Regarding the irrelevance of BP's parent/subsidiary structure to the management structure for BP's operations, even more telling is the fact that none of the employees whose deposition testimonies I have reviewed knew the role that BPXP played in the Gulf, even if they thought they had heard of the company. There is no suggestion in the testimony of these BP employees or in the organizational charts provided by BP that they understood that they were working for BPXP, even if technically employed by BPAPC. Moreover, in their descriptions of who was ultimately responsible for directing their activities (i.e., who was the operator) at the Macondo well, there is no suggestion that they understood that BPXP was a part of the chain of command.

Lamar McKay, president of BP America, provided a good overview in his deposition of BP's employment structure. BP employees working on the Macondo well were either employees of BP America (he, like the other BP employees who are Americans mistakenly believed BP America to be the employing entity) or they were "expats" from somewhere else in the BP group and being paid by another BP entity, like BP UK. McKay did not know of anyone who was actually employed by BPXP, and he was generally uninformed about the entity that paid individual BP employees their paychecks.[144]

Further evidence of the fluid nature of employment within the BP group can be seen in the organizational charts BP has produced for the Drilling & Completions organization and the Exploration organization in the Gulf of Mexico. In August 2008, D&C's wells director, Henry Thierens, was an expat, and a drilling-engineering team and a completions-engineering team each had an expat. In August 2008, Exploration's deepwater exploration section had several expats, including a manager, a geophysicist, a petrophysicist, and some geologists. Exploration's exploration section for deep gas had at least two expats, a drilling operations superintendent and geophysicist.[145]

7. BP's Leadership Team in the Gulf of Mexico

In August 2009, the leadership team for the Gulf of Mexico SPU included David Rainey, v.p. for exporation; Fergus Addison, v.p. of development; Kevin Lacy, v.p. of drilling and completion; Dan Replogle, v.p. of Thunderhorse. Another person who often attended leadership team meetings was Steve Tink, the HSSE manager for drilling and completion.[146]

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[144] Lamar McKay, deposition in re the Deepwater Horizon dated 3 November 2011, 316-317.

[145] BP, GoM Drilling & Completions organizational chart, August 2008 (TREX-02517, BP-HZN-2179MDL01164126-4139, at 4126, 4135-4136); BP, DW D&C Organizational Chart, January 7, 2010 (TREX-02516); BP, Drilling & Completions organizational chart, April 2010 (TREX-02515); BP, GoM Exploration organizational chart, August 2008 (TREX-02518).

[146] David Rainey, deposition in re the Deepwater Horizon dated 2-3 July 2011, 33-34.

In January 2010, the leadership team for the Gulf of Mexico SPU included James Dupree, SPU leader, David Rainey, v.p. for exporation; Gary Imm, v.p. of development; Pat O'Bryan, v.p. of drilling and completion; Simon Todd, v.p. of Thunderhorse; Cindi Skelton, v.p. for HSSE and engineering. Curtis Jackson was the HSSE director for the SPU.[147]

The complexity of the BP organizational structure can be seen in the example of Kevin Lacy. He was the v.p. of drilling and completions (D&C), and as such he reported to the SPU leader, Neil Shaw and then James Dupree. BP also had functional teams, one of which concerned technology used in D&C. According to David Rainey, "in general the functional leadership teams in the firm are responsible for the technical quality of that function."[148] In BP's global organization, Barbara Yilmaz was the technology v.p. for drilling and completions, so she also directed Lacy's work. As Rainey put it, "She was [Lacy's] functional boss. He was solid lined to the SPU leader, Neil Shaw, subsequently James Dupree, but had a dotted line into the D&C function, as all the SPU drilling vice presidents were members of the drilling and completions function leadership team."[149]

Rainey described his responsibilities as v.p. for exploration. He and the people who worked for him investigated leads and prospects in the Gulf and determined which ones BP would pursue. If BP could acquire a lease on a prospect, Rainey's section would investigate further. For a promising prospect, "we would make the recommendation whether or not to drill the prospect. That recommendation would be taken to our global exploration forum; and if the exploration forum approved the well, then we would move forward to drill the well, but my teams had no accountability for actual operations of the well."[150] BPXP may have been the legal entity that held leases in the Gulf, but BPXP was not part of the organizational structure that made decisions about whether to drill a well on a lease. As Rainey testified, that recommendation was made in his SPU section, and approval was given by BP's global organization.

BP argues in footnote 4 on p 5 of its March 2014 Memorandum in Opposition that a representative of BPXP was the actual approver of the memorandum requesting authority to spend $140,000,000 drilling the Macondo well. That signatory was David Rainey, who is identified on the memo as v.p., BP Exploration & Production, Inc. Michael Daly and Andrew Inglis (both officials of the BP's Exploration & Production business, the global upstream segment) are the other two signatories to the document.[151] In his testimony, Rainey testified that

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[147] Rainey deposition, 38-42, 45.

[148] Rainey deposition, 63.

[149] Rainey deposition, 53, 60-61.

[150] David Rainey, deposition in re the Deepwater Horizon dated 2-3 July 2011, 17-18.

[151] BP's Memorandum in Opposition to the United States' Motion *in Limine* to Permit Relevant Evidence Concerning BP p.l.c. and Other BP Affiliates, dated 6 March 2014, p 5 (Rec. No. 12465); Execute Financial Memorandum dated 30 September 2009 (BP-HZN-

he signed the "Approved by" line because he was an officer of the company, but he did not have the authority to approve an expenditure that large; an expenditure that great had to be signed by Andy Inglis, who was CEO of BP's upstream segment and who signed the "Supported by" line. Daly was the global head of exploration. Curiously, when describing various authorities in signing the document, Rainey said he signed as an officer of BP America. Daly or Inglis had the financial authority to approve the expenditure, and Rainey signed it, "just from a legal perspective," as an officer of BP America.[152]

Deposition testimony identifies Rainey as an official in the Gulf of Mexico SPU. Pat O'Bryan identified Rainey as a member of the Gulf of Mexico SPU leadership team, headed by James Dupree. Other members of the team included O'Bryan as v.p. of D&C, Richard Morrison as v.p. of operations, and Rainey as v.p. of exploration. David Rich testified that Rainey was the v.p. for exploration and appraisal.[153] As described above, Rainey was elected a director of BPXP in January 2011 and as a vice president in February 2011. The only document I have seen that shows Rainey serving as a BPXP officer prior to 2011 is an appointment history that BP has produced for the period April 20, 2010, to the present. It shows that Rainey served as a BPXP vice president from June 2005 to May 2011.[154]

The beginning of his service as v.p. is a few months after the earliest BPXP board minutes that BP has produced, and in all the minutes for BPXP that BP has produced, we cannot see how Rainey was elected or appointed v.p. How that may have happened is not clear because, for the entire period February 2005 through March 2010, the BPXP board did not meet, to the best of my knowledge, conducting business instead by signing consent-in-lieu-of-meeting forms. Moreover, the only business the board appears to have conducted then was to declare dividends payable to its stockholders. This raises a question of how other vice presidents named on the BP-produced appointment history were elected. The appointment history shows that Fergus T. Addison was elected v.p. in June 2007, Andy Hopwood and John K. Wells were elected v.p. in January 2008, and Karen K. Westall elected v.p. in June 2009, Brian Smith was named v.p. and chief financial officer in June 2009, and Steven Bray was named v.p. and secretary in November 2009.[155] Yet there is no record of those elections or appointments in the minutes of the BPXP board of directors for the period December 2006 through March 2010. In his recent deposition, Steven Bray testified that he knew of no actual meetings that the BPXP board of directors held

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2179MDL00256298-6301, at 6298-6299).

[152] Rainey deposition, 94, 331, 345.

[153] O'Bryan deposition, 209-210; Rich deposition, 653-654.

[154] BP Exploration & Production Inc. Appointment History from 4/20/2010 to Present (Exhibit 11959, BP-HZN-2179MDL08817761).

[155] BP Exploration & Production Inc. Appointment History from 4/20/2010 to Present (Exhibit 11959, BP-HZN-2179MDL08817761).

from 2005 until December 2009 and he knew of no resolutions that they passed to make such appointments.[156]

David Rainey was a geologist by education. In 2010, he had worked for BP for thirty-one years, based in Houston since 1991. He was promoted to v.p. of exploration in 2005. His office was on the 20th floor of Westlake 4. From 2002 to 2005, he was performance unit leader for deepwater exploration in the Gulf Mexico, which meant he had charge only of exploration in deepwater projects. Under the organizational scheme then (2002-2005), the drilling teams reported to him as performance unit leader. Prior to that, he was exploration manager in the Gulf for deepwater.[157]

In his deposition testimony, Rainey described the organizational context in which he viewed his work. It is clear that he saw himself performing his duties as part of the upstream segment, not BPXP, and that his role was to help meet the cascading or sequential objectives of the firm, which was BP. He believed that he needed to know how his position fit into the team, how the team fit into the SPU, and how the SPU fit into the firm. Responding to a quote from a 2003 John Brown presentation outlining the upstream business strategy, Rainey testified:

> So this was a set of cascading objectives, if you like. So starting right at the top of the firm, our business is about creating of new profit centers, building them, maximizing productivity and then managing the portfolio. Our piece of that as explorers is the creation of new profit centers.[158]

Rainey described the process by which a project would go from a prospect to a well being drilled in order to see if there were actually any hydrocarbons in the subsurface, and then would go from being a drilled well to a producing well. Rainey and his exploration team did the technical work to assess, based on seismic data, whether they believed a prospect merited drilling, and they would make a recommendation to a global forum, a body at the top of the upstream segment, comprised of Mike Daly and BP exploration managers from throughout the world, which would decide whether to take that next step. Even though the drilling and completions team did the actual drilling, Rainey's exploration unit continued to monitor data from the prospect to see if the drilling would actually discover hydrocarbons. If the drilling made a discovery, then the next step would be to recommend to a global forum that the well be developed for production. At the time Rainey was taking the Macondo well through this

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[156] Steven Bray, deposition, in re the Deepwater Horizon dated 16 June 2014, pp 174-188, 319-320.

[157] Rainey deposition, 64-66.

[158] Rainey deposition, 114. This quote is followed by Rainey's description of the exploration strategy: to be in the right basins, to be no. 1 or 2 in the basin, and to have a disproportionate share of the largest, lowest cost sector 1 discoveries. Sector 1 is the big stuff. Sector 2 is satellite exploration that becomes profitable because it can be tied to the infrastructure in place for the sector 1 projects; see Rainey deposition, pp 114-18.

process, Daly was the global head of exploration and Shaw was the head of the global developments organization.[159] Nowhere in Rainey's description of BP's process for deciding which wells to drill, how to drill them, and whether to transition from drilling to production, did he mention BPXP as part of the decision-making process.

Another important person in the Gulf of Mexico leadership team was Cindi Skelton. She had just been named v.p. for HSSE & Engineering six days before the Macondo blowout. About a year later, as the E&P segment restructured its global organization, her title was changed to v.p. for safety and operational risk. As with other BP employees, she thought of her role in BP in terms of the organization of which she was a part, not in terms of the corporation that employeed her. In fact, she didn't know what entity her actual employer was, other than BP. When asked in her 2011 deposition who her employer was, she responded, "BP." When asked what BP entity employed her, she responded, "BP Gulf of Mexico," which is a regional business within the BP group but is not a legal payroll entity. When asked which BP entity, BP America or BP, employed her, she did not know. Skelton went on to describe her two reporting lines. One was to James Dupree, leader of the Gulf of Mexico SPU and then to Bob Dudley, CEO of the upstream segment, and the other was through Gordon Birrell and Mark Bly of the safety and operational risk organization within the upstream segment.[160]

8. The April 2010 Reorganization of BP's Drilling & Completion Organization

As described in the first section of this report, BP began a major management restructuring in the 1990s, eliminating the bureaucratic hierarchy that was top-heavy in the London headquarters in favor of an organizational structure that gave greater decision-making authority (accompanied by new accountability tools) to regional business units. The new system also included means to allowing more technical expertise to flow horizontally through the global enterprise rather than vertically. Officials at the top of BP's organization, especially in BP Exploration & Production (the upstream global business segment, not the U.S. corporation), continued trying to refine the organizational structure, responding to changing market and competitive conditions, to the merging of Amoco and ARCO into the BP organization, to changing geographies of production, to technological innovation, and to developing understandings of health, safety, and environmental risks. In 2008, Andy Inglis, the CEO of global Exploration & Production (not a legal entity) initiated a new series of modifications to BP's global organizational structure. It was his intention to create a structure that reduced the emphasis on geography as a basis for organization and increased the emphasis on function within the organizational divisions. His rationale for the change was threefold: 1) he believed it would build "deeper" capability within the organization, 2) it would eliminate regional variations in the global structure, and 3) it would create possibilities to centralize certain functional activities that were common to multiple regions.[161]

[159] Rainey deposition, 21, 339-353.

[160] Cindi Skelton, deposition in re the Deepwater Horizon dated 25 May 2011, 10-16.

[161] Andrew George Inglis, deposition in re the Deepwater Horizon, 21 July 2011, 296-298.

As a global enterprise with tens of thousands of employees, BP's upstream segment would not be able to implement the changes Inglis had in mind in a single stroke. The appropriate top managers would have to be found to be able to move the changes down through the structure. One of the early changes that occurred as part of the reorganization was that Kevin Lacy, who had been vice president of the Drilling & Completions organization in the Gulf of Mexico, was replaced in 2009 by Patrick O'Bryan. Under the previous scheme, Harry Thierens had served as Lacy's deputy. Under the reorganization, O'Bryan did not have a deputy.[162] Over the next year, changes in the D&C organization worked their way down to the level of the leaders and engineers who had charge of operations at the Macondo well.

In December 2009, David Rich became the wells director for the Gulf of Mexico strategic performance unit (SPU), replacing Ian Little. In April 2010, as the reorganization was taking effect among the drilling teams and engineering teams under his supervision, Rich's job title was changed to wells manager. The new title did not reflect a promotion or greater responsibility but simply accompanied the reorganization. As a 30(b)(6) witness for BP, Rich testified that the reorganization was part of a global undertaking within the BP enterprise to shift from being an asset-based structure to a function-based structure. He testified that the Gulf SPU had already made a shift toward a function-based structure during a 2008 reorganization. Rich also described the physical layout of the well team leaders and drilling engineers working at BP's Houston office facility, called Westlake 4, one of four buildings in Westlake Park along Houston's Energy Corridor. In April 2010, Rich's office was on the 10th floor of Westlake 4, as was Jon Sprague's office. Drill rig teams, such as John Guide's team responsible for *Deepwater Horizon*, had operations centers on the 2nd and 3rd floors of Westlake 4. David Sims also had his office on the 2nd or 3rd floor.[163] Rich described this arrangement of office spaces without reference to BPXP.

BP reorganized the lower levels of its Drilling & Completion organization in April 2010. This is the business unit that was responsible for operating the Macondo well. Members of the organization (Mark Hafle and Brian Morel in particular) designed the well, and other members of the organization directed the operations involved in drilling the well. As indicated above, the reorganization involved reassigning engineers to new sections. Before the reorganization, David Sims had supervised a team of engineers assigned to the exploration and appraisal operations section. After the reorganization, that team of engineers fell under the direction of Jonathan Sprague's drilling engineering section, with Greg Walz being made leader of the new team. A step lower on the organizational chart, Brett Cocales, the operations drilling engineer, who had been part of the well site team and had reported to the well team leader, was reassigned to the Walz's drilling engineering team, still with the assignment of providing engineering assistance to the John Guide's team operating the *Deepwater Horizon*. Walz testified that, although the reorganization was supposed to have taken effect April 14, Cocales had not yet moved in with Walz's engineering team when the Macondo blowout occurred on April 20. Walz also testified

[162] Inglis deposition, 260-265.

[163] David A. Rich, deposition in re the Deepwater Horizon dated 1 June 2011, 49-51, 75-77.

to his understanding that the April 2010 reorganization had been initiated by BP in London, with the intention of standardizing BP's organizational structure globally.[164]

Pat O'Bryan testified that he and his managers had some concern about the effect the reorganization would have on drilling operations at the wells. O'Bryan knew that his wells team leaders were concerned that the operations drilling engineers would now report to leaders in the engineering function rather than to the wells team leaders. In the case of the *Deepwater Horizon*, this meant that Brett Cocales, while still assigned to the *Horizon* and still communicating with its well team leader, John Guide, would be reporting directly to Greg Walz rather than to Guide.[165] The transition in the organizational structure of the teams and personnel working with the *Deepwater Horizon* was taking place in April 2010, in the weeks leading up to the blowout. It is not my role to opine whether the new structure or the transition to it was a contributing cause to the disaster. What I can say is that the organizational structure changed the nature of the operation of the Macondo well; it shaped the ways that the individuals working on the *Deepwater Horizon* conducted their jobs. And the change in operations was initiated by Andy Inglis, CEO of BP's upstream segment, a business that is not a legal entity, and it was implemented throughout the D&C organization, another unit that is not a legal entity. BPXP is not referenced in the changes that BP made in either its global upstream segment or its Gulf of Mexico business.

9. BPXP General Services Agreement with BP American Production Company

In arguing that BPXP is a distinct corporate entity that should be considered the sole responsible party when assessing the penalty, BP acknowledges that BPXP has no employees on its payroll and that BP America Production Company (BPAPC) provides employees and other resources to BPXP under a service agreement between the two companies. It its brief, BP asserts that BPXP pays BPAPC for those services. BP says nothing about how BPXP supervises those BPAPC employees.[166]

In support of its assertion that BPXP is the sole responsible party, BP offers as exhibit 7 two versions of the service agreement, one dated December 31, 2001, and one dated December 31, 2005 (presumably the one in force when the Macondo incident occurred). The agreement asserts that BPAPC "has knowledge, expertise, and experience which can contribute and support various aspects of the business of [BPXP]," that BPXP "shall require certain advice, support, work and services to assist it in the conduct of such businesses and operations," and that BPAPC "is ready, willing and able to provide [BPXP], or procure the provision of such advice, support,

[164] Sprague deposition, 96-99, 401-402, 509-510; Walz deposition, 355-357.

[165] Patrick O'Bryan, deposition in re the Deepwater Horizon dated 14 July 2011, 313-314.

[166] BP's Memorandum in Opposition, 4 (Rec. No. 12465).

work and services on the terms and conditions hereinafter set forth." [167] The agreement continues by defining what in means by services:

> "Services" shall mean the advice, support, work and services (technical and other), to be provided by the Company [BPAPC] pursuant generally to the terms and conditions of this Agreement. Such advice, work and services to be provided by the Company shall include, but not be limited to, engineering services, scientific studies, project investigation and development, including the provision and utilization of information reports, in any format including hard copy, magnetic or electronic, on current and development technologies and services and the performance of work and services (technical, engineering, commercial, marketing, environmental, legal, tax, banking, treasury, investment, financial, accounting, administrative or other), require by [BPXP]. [168]

Article 2 of the agreement outlines the purpose and scope. Paragraph 2.1 says that the purpose of agreement "is to define and set forth the terms and conditions under which the Company shall provide the services to [BPXP] on a non-exclusive basis." The paragraph says that the services "shall be of the type, scope and duration as mutually agreed upon by the Company and [BPXP]," but it does not say what officer or manager at BPXP will communicate to BPAPC the type, scope, or duration of services are required, nor does the agreement establish a process by which the two parties will mutually agree upon the type, scope, or duration of those services. Moreover, the paragraph states that BPAPC agrees "to act as paying agent" for BPXP's operations in the Gulf of Mexico, and as such BPAPC "may initiate, generate, distribute and settle on [BPXP's] account settlements in respect of any matters associated with the services performed hereunder." [169] The agreement does not articulate to whom at BPXP BPAPC is accountable for the payments it makes on BPXP's behalf.

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[167] General Services Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2001 (Exhibit 11964, BP-HZN-2179MDL07817979-7998); and Amended and Restated General Services and Agency Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2005, (Exhibit 11964, BP-HZN-2179MDL07817979-7998).

[168] General Services Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2001, paragraph 1.1 (Exhibit 11964, BP-HZN-2179MDL07817979-7998); and Amended and Restated General Services and Agency Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2005, paragraph 1.1 (Exhibit 11964, BP-HZN-2179MDL07817979-7998).

[169] General Services Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2001, paragraph 2.1 (Exhibit 11964, BP-HZN-2179MDL07817979-7998); and Amended and Restated General Services and Agency Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2005, paragraph 2.1 (Exhibit 11964, BP-HZN-2179MDL07817979-7998).

The agreement does not state how BPXP and BPAPC are to determine what services BPXP needs. The agreement states that BPAPC will provide its services "at such location or locations as may be mutually agreed with [BPXP]," but the agreement does not specify to whom BPAPC is to look when seeking mutual agreement about where the services will be provided, nor does the agreement say anything about who at BPXP is to supervise or otherwise direct the work that BPAPC employees do on BPXP's behalf.[170]

Nor does the agreement state how BPAPC might be able to know or decide what "knowledge, expertise, and experience" BPXP needs. There is no suggestion in the historical record of BP's operations in the U.S. that BPAPC, as a corporate entity, possesses such knowledge, expertise, and experience. Persons on its payroll may possess those qualities, but BPAPC, as a corporate entity, does not appear to possess or deploy them. BPAPC has three directors on its board, and they appear always to have been legal or financial people, and not people with expertise in geology, geophysics, engineering, or other technical disciplines that help to direct BPXP's operations to determine what services it might need. Moreover, Steven Bray, who served on BPAPC's board of directors, testified in deposition that he does not believe the BPAPC board ever met while he was on the board from November 2009 to early 2013.[171]

The 2001 agreement is signed on BPAPC's behalf by G. Fonseca Onofre and on BPXP's behalf by James H. Dupree, each claiming the title attorney in fact for the respective company. The 2005 agreement is signed by D.R. Mottashed, signing twice, once on behalf of BPAPC and once on behalf of BPXP. Mottashed identifies himself as the PSCM manager for each entity. In the BP world, PSCM means procurement & supply chain management, a centralized function in the BP group, not an office within the BPXP organization. The agreements feature many other standard stipulations for the quality of work BPAPC's personnel will perform, the way in which BPAPC will invoice BPXP for services, and the liability for work performed by BPAPC employees (as described below, it appears that, in reality, no invoices are exchanged), but no BPXP officer or manager is authorized by the agreement to instruct BPAPC employees in the work they will be doing. This is in stark contrast with the contracts BP signed with Transocean to provide the services of the drill rigs *Marianas* and *Deepwater Horizon*, described in the next section.[172]

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[170] General Services Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2001, paragraph 2.4 (Exhibit 11964, BP-HZN-2179MDL07817979-7998); and Amended and Restated General Services and Agency Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2005, paragraph 2.4 (Exhibit 11964, BP-HZN-2179MDL07817979-7998).

[171] BP, Director History of BP America Production Company (Exhibit 11960, BP-HZN-2179MDL08876900; Steven Bray, deposition in re Deepwater Horizon taken 16 July 2014, pp 273-274.

[172] General Services Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2001, paragraph 2.1(Exhibit 11964, BP-HZN-2179MDL07817979-7998); and Amended and Restated General Services and Agency Agreement between BP Exploration & Production Inc. and BP America Production Company

10. BP Contracts with Transocean

According to the exploration plan filed with the U.S. Minerals Management Service, BP intended to drill two wells in MC252, the lease block in the Gulf of Mexico. The purpose of the exploration wells was to explore strata 13,000 to 15,000 feet beneath the bottom of the Gulf, or 18,000 to 20,000 feet from the surface (the Gulf being about 5,000 feet deep in that area). BP believed that the strata were sands bearing hydrocarbons. The plan projected that it would take 100 days to complete both wells. When BP began drilling the Macondo well in October 2009, it intended to complete both wells using the *Marianas*, a drill rig for which BP had contracted with Transocean. The *Marianas* had been drilling for about a month, setting about 9,000 feet of casing in the well, when it was damaged by Hurricane Ida, so the *Marianas* had to head to shore for repairs. No further progress was made on the well until February 2010, when another Transocean rig, the *Deepwater Horizon*, moved into position and resumed drilling.[173]

BP's contracts with Transocean for both the *Marianas* and the *Deepwater Horizon* are in the trial record. They are instructive for comparing and contrasting with the general services agreements between BPXP and BPAPC. The contract for the *Marianas* is signed on BPAPC's behalf by David R. Mottashed, PSCM Manager – GoM Offshore. He is the same person who signed on behalf of both BPXP and BPAPC on their general services agreement of 2005. The initial contract for the *Deepwater Horizon* was entered in 1998 by Vastar Resources, as the client, and R&B Falcon Drilling, as the contractor. BP acquired Vastar Resources as part of the ARCO merger in 1998. Transocean acquired R&B Falcon Drilling in 2000. Near the end of 2001, Transocean and BP had executed a modification to the contract that stipulated changes to job titles, consistent with Transocean conventions, and revised some of the labor rates. In April 2004, BPAPC and Transocean agreed to extend the 1998 contract, retaining most of the terms and conditions in the original contract. A letter between a representative of Transocean and a representative of BPAPC articulated a few new terms and conditions, such as day rates for the rig and the numbers of personnel under some job classifications whom Transocean would assign to the rig.[174]

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dated 31 December 2005, paragraph 1.1 (Exhibit 11964, BP-HZN-2179MDL07817979-7998).

[173] BPXP, "Initial Exploration Plan, Mississippi Canyon Block 252, OCS-G 32306," February 2009 (TREX-000768, BPHZN-2179MDL00001095-1218, at 1100, 1115); Deepwater Horizon Accident Investigation Report (Bly Report), 16-17 (TREX-0000001, BP-HZN-BLY00000001-00000192, at 0016-0017).

[174] Drilling Contract between BP America Production Company and Transocean Offshore Deepwater Drilling Inc. for "Transocean Marianas," contract no. BPM-06-00369 dated 3 February 2006 (DWHMX00299595-9726, at 9599, 9631); Deepwater Horizon Drilling Contract between BP America Production Company and Transocean Offshore Deepwater Drilling Inc., contract no. BPM-06-00369, various dates (TREX-051269, TRN-USCG_MMS-00027281-7861); Terry Bonno to Don Weisinger, letter dated 12 December 2001 (TREX-051269, TRN_USCG_MMS-00027281-7861, at 7501-7505); Christopher S. Young to Randy Rhodes, letter dated April 19 2004 (TREX-051269, TRN_USCG_MMS-00027281-7861, at 7472-7477). Note that the *Deepwater Horizon* was originally called RBS-8D, when it was owned by R&B

Note that BPAPC is BP's contracting entity for the drill rigs. For some other legal documents that BP creates to undertake its work in the Gulf of Mexico, like leases, BPXP is the legal entity that represents the BP group in the legal relationship. For the contracts with Transocean, however, BPXP is not the legal entity representing the BP group; BPAPC is. This is in keeping with the terms of the general services agreements between BPXP and BPAPC. BPAPC is to provide BPXP with services, and BPAPC may either perform those services or acquire them. By contracting with Transocean for drilling rigs, BPAPC is acquiring services.[175]

The documentation that we have for the *Marianas* is rather straightforward; it is basically just the contract itself, with two e-mails from 2010 as a cover sheet. The contract begins by identifying the two parties, the "company," BPAPC, and the "contractor," Transocean. The contract recites that BPAPC wants to engage Transocean's services, and in particular the services of the *Marianas*, including its equipment and crews. The contract and its six exhibits set forth the terms and conditions, many of which are similar in nature to the terms and conditions set forth in the general services agreement between BPXP and BPAPC, including such factors as duration of the contract, indemnification, insurance, and which party is responsible for taxes. Several of the terms and conditions of the contract for the *Marianas*, however, show the unusual nature of the BPXP/BPAPC contract.[176]

At the heart of the service Transocean is to perform is drilling wells for BP. Article 15 of the contract delineates how Transocean will perform the drilling operations.[177] Transocean is solely responsible for operating the drilling unit, but it will do so at locations determined by BP. In general, the contractor is to follow good oilfield practices, but certain matters are specified. For example, the contract specifies that the contractor will consult with the company any time the wellhead or BOP (blow-out preventer) stack angle deviates more than one degree from the vertical. The contractor shall measure deviations from the vertical at time intervals directed by the company. The contractor shall also perform pressure tests on the BOP devices whenever directed by the company to do so. When setting the well casing, the contractor shall follow the program specified by the company. The contractor shall perform tests on drilling mud as instructed by the company. And when the drilling of a well is finished, the contractor will either

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Falcon Drilling; see Larry E. Archibald to Jurgen Sager, letter dated 30 August 2005 (TREX-051269, TRN_USCG_MMS-00027281-7861, at 7456-7459).

[175] General Services Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2001, paragraph 2.2 (Exhibit 11964, BP-HZN-2179MDL07817979-7998); and Amended and Restated General Services and Agency Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2005, paragraph 1.1 (Exhibit 11964, BP-HZN-2179MDL07817979-7998).

[176] "Transocean Marianas" contract (DWHMX00299595-9726, at DWHMX00299598-9600).

[177] My review of the contract with Transocean is for purposes of comparison with the inter-company BP contracts. I have not reviewed the record to determine compliance with or interpretation of the contract terms.

abandon or complete the well as specified by the company.[178] The BPXP/BPAPC general services agreement has no comparable provisions. BPAPC is simply to provide the services required by BPXP; what those services are, or how BPAPC will come to learn what those services are, or which services BPXP has discretion in selecting, is not specified.

Article 18 of the contract addresses performance of the work. The contract states that, in performing the work, Transocean is an independent contractor. Transocean can make no commitments nor incur any charges in BP's name, and the only compensation Transocean is to receive under the contract is payment, as specified by the contract. BP "shall have no direction or control" of Transocean "or its employees and agents except in the results to be obtained." The contractor shall do and supervise all the work, but the work must meet with BP's approval, and BP has the right to inspect all of the contractor's operations to see that they meet terms of the contract. BP's representatives shall at all times have unrestricted access to the drilling rig in order to observe and inspect Transocean's operations, and BP has the sole discretion to determine whether the contractor has complied with the contract.[179] As noted above, the general services agreements between BPXP and BPAPC make no provision for how BPXP is to observe or inspect the services that BPAPC provides.

At the time the contract for the *Marianas* was signed, Transocean had a program for addressing safety, health, and environmental issues, and BP had a safety, health, and environment manual, which the contractor agreed to follow (unless there was a conflict between the contractor's program and BP's manual, in which case the contractor's program would dictate safety measures followed on the rig).[180] In addition, Transocean agreed to develop a "Rig Site Safety Management System" addressing particular issues on the rig, including working on high-pressure lines, pumping hazardous materials, and work involving the dynamic positioning system and equipment on the vessel. The contractor agreed that it would report all safety and health incidents and all spills, pollution releases, and other environmental incidents to BP.[181] In contrast, there is no mention of health, safety, or environmental risks in the general services agreements between BPXP and BPAPC. BPXP holds leases in the Gulf of Mexico, and the BPXP/BPAPC agreements acknowledge that BPXP acts as operator of certain offshore operations in the Gulf, but there is no mention of the fact that drilling and other operations in deepwater can be dangerous work or pose significant environmental risks, and there is no

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[178] "Transocean Marianas" contract, 14-16 (DWHMX00299595-9726, at 9613-9615).

[179] "Transocean Marianas" contract, 17-19 (DWHMX00299595-9726, at 9616-9618).

[180] I have not reviewed the Transocean HSE program, or the record for how Transocean applied its program to operations, and I do not offer opinions on the quality of that program or of the BP manuals. This is true for all the safety programs referenced in my report. My review is for purposes of determining BPXP's role, as opposed to the role of its parent companies, in those operations.

[181] "Transocean Marianas" contract, 16-17, exhibit D (DWHMX00299595-9726, at 9615-9616, 9720-9723).

mention that BPXP expects BPAPC, when providing services of such a dangerous and risky nature, to abide by particular standards, as is the case in the contract between BP and Transocean for drilling services.

The contract for the *Deepwater Horizon* specified crew levels, among other things. A change in crew levels required a contract modification. For example, in September 2002, BP and Transocean agreed to add a deck pusher to the crew members already specified by contract to be on the rig. In early 2003, the two companies agreed to add an offshore safety advisor to the number already specified in the contract. In early 2005, at BP's request, Transocean added a performance engagement coordinator (PEC) to the *Deepwater Horizon's* crew. Language for the amendments were presented by Transaction and agreed to by BPAPC. The amendments for the deck pusher and the safety advisor made reference to Exhibit F-1 of the original contract for the rig signed between Vastar and Falcon. The exhibit specified numbers of workers in each job classification who would be assigned to the rig and the number who would be on board at a given time. The amendment for the PEC, was a bit different, because the person would be working Monday through Friday, rather that normal shifts of people working on the rig.[182]

The *Deepwater Horizon* contract also provides an organizational chart for the drilling unit showing reporting relationships within the Transocrean organization, within the client organization, and between the contractor and client organizations. Both structures are depicted relative to a horizontal line that separates shore-based personnel from rig-based personnel. The two top people on the drill rig, using Falcon's job titles, are the assistant drilling superintendent, who has charge of drilling operations, and the captain, who has charge of the ship's crew (Transocean changed those titles in 2001 to offshore installation manager and master, respectively). One of them reports to the other, depending on the phase of operation the rig is undertaking, and they both report to the rig manager, who is on shore. The client's top person on the rig is called the client drilling supervisor, which BP's organizational charts calls the well site leader. The client drilling engineer reports to the drilling supervisor, and the drilling supervisor reports to the client drilling superintendent, who is on shore. BP calls the client drilling superintendent the wells team leader. The rig organizational chart shows that the interface relationship between the rig's assistant drilling superintendent and client's drilling supervisor is the only link between the two organizations (reflecting the language of the contract).[183] In

[182] Christopher S. Young to Randy Rhodes, letter dated 18 September 2002 (TREX-051269, TRN_USCG_MMS-00027281-7861, at 7518); Young to Jon Sprague, letter dated 6 January 2003 (TREX-051269, TRN_USCG_MMS-00027281-7861, at 7516-7517); Young to Randy Rhodes, letter dated 7 January 2005 (TREX-051269, TRN_USCG_MMS-00027281-7861, at 7514). For the list of crew members, see Drilling Contract RBS-8D Semisubmersible Drilling Unit Vastar Resources, Inc., and R&B Falcon Drilling Co., contract no. 980249 dated 9 December 1998, exhibits F-1 and F-2 (TREX-051269, TRN_USCG_MMS-00027281-7861, at 7445, 7447).

[183] Drilling Contract RBS-8D Semisubmersible Drilling Unit Vastar Resources, Inc., and R&B Falcon Drilling Co., contract no. 980249 dated 9 December 1998, exhibit F-2 (TREX-051269, TRN_USCG_MMS-00027281-7861, at 7448); Bonno to Weisinger, 12 December 2001 (TREX-051269, TRN_USCG_MMS-00027281-7861, 7501-7505).

contrast, there is no known organizational chart showing how BPAPC is organized in providing BPXP with the services it requires, how BPXP is organized in observing or inspecting the services that BPAPC is providing, and how the organizations of the two companies interface in the execution of the contract.

In June 2004, BP and Transocean conducted a survey of the crew levels on the *Deepwater Horizon* and on two comparable Transocean drill rigs, the *Nautilus* and the *Marianas*. The latter two had 88 and 96 crew members, respectively, while the *Horizon* had only 72. The parties agreed that they could achieve greater operating efficiency on the *Horizon* if Transocean increased its crew by two additional tool pushers, four additional floor hands, four additional crane operators, and eight additional roustabouts. The contract modification is in the form of a letter from Transocean to BP, in which the contractor proposes the change, and the company accepts the change.[184] The general services agreements between BPXP and BPAPC are silent on the number of people the latter will assign to perform services for the former. The agreements simply state that BPAPC "undertakes to perform the Services with its own personnel in an efficient, workmanlike and cost effective manner."[185] I have seen no documents in which BPAPC proposes to change the number of employees it assigns to perform services for BPXP and in which BPXP accepts the proposed change.

I have described just a few of the modifications that are documented for the contract between BP and Transocean for the services of the *Deepwater Horizon*. Modifications cover numbers of personnel, labor rates for those personnel, equipment to be supplied by the contractor. There is even a letter of agreement, accompanied by an attachment delineating the scope of work, to institute a recycling program on the *Deepwater Horizon* in order to reduce waste on the drill rig.[186] I have seen no documentary evidence of a corresponding attention to detail under the general services agreements for the kinds of work BPAPC performs for BPXP.

11. "Common Processes" Throughout the Upstream Segment

The previous sections of this expert report have examined details at the level of the contracts BPXP and BPAPC, as legal entities, have entered. Now I turn my attention to details of the global organization that BP has developed to manage its vast operations. As I have written several times, BP establishes processes in its global organizational system that make little or no reference to the hundreds of legal entities that are part of the BP group. Toward the end of this

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[184] Bonno to Sprague, letter date 3 June 2002 (TREX-051269, TRN_USCG_MMS-00027281-7861, at 7524-7525).

[185] General Services Agreement between BP Exploration & Production Inc. and BP America Production Company dated 31 December 2001, paragraph 2.2 (Exhibit 11964, BP-HZN-2179MDL07817979-7998).

[186] Bonno to Sprague, letter date 7 January 2003 (TREX-051269, TRN_USCG_MMS-00027281-7861, at 7607-7609).

expert report, I will describe how functional units in the global BP organization – the tax, treasury, and finance functions in particular – tie the legal structure and the operational structure together in terms of financial accounting, but in the next few sections, I focus on details of BP's global organizational structure and show how it operates without reference to subsidiaries, like BPXP.

In order to manage operations throughout the world, one of the management systems the upstream segment established was a set of "common processes" that its organizations would use everywhere. To make that undertaking practical, the segment developed "common process" handbooks for each of eight functional areas, such as drillings & completions and exploration. The common process handbook for drilling & completions is called "Beyond the Best" (BtB). The common process for drilling & completions was meant to be a common language that personnel in drilling & completions could use to apply best practices to their work. The intent was to "provide greater clarity and efficiency to how we work." Drilling & completions was the first group in the upstream segment to develop a common practice handbook, and it was considered successful enough that the segment developed common processes for seven other groups as well. Because of the complexity of BP's operations and the need to integrate various functions, subsequent editions of "Beyond the Best" included a chapter outlining how drilling & completions' common process would interface with the other common processes in the segment.[187]

One of the concepts developed in the BtB handbook BP is called "drilling & completion value assurance" (D&CVA). It is supposed to be a framework for treating all the phases or stages of an oil well, from well planning through various operations, as a single project. D&CVA recognized that there are many disciplines of expertise required for such a project, and its framework allows all to be working efficiently toward a common purpose. The approach includes the concept of "gates." As a project moves from stage to stage, common process enables "gatekeepers" to review and assess the project as it moves through gates into new stages. The performance unit leaders are accountable for seeing that the reviews and assessments are undertaken.[188] There is no mention in the BtB handbook of BPXP being responsible for (or in other ways participating in) implementing any of the framework.

The BtB handbook articulates seven elements of the D&CVA process. In addressing knowledge management, the handbook stresses that the framework has been adopted across the entire upstream segment, stating: "We are a Local Energy Company bound by segment wide Common Processes." [189] It is clear from this document that the top managers of the upstream

[187] BP, "Beyond the Best Common Process," common process document for drilling and completions in the global Exploration & Production segment, June 2008, pp 2, 8 (TREX-02681, BP-HZN-2179MDL00333308-3497, at 3309, 3315).

[188] BP, "Beyond the Best Common Process," 13-15 (TREX-02681, BP-HZN-2179MDL00333308-3497, at 3320-3322).

[189] BP, "Beyond the Best Common Process," 16-19 (TREX-02681, BP-HZN-2179MDL00333308-3497, at 3323-3326).

segment have developed a framework whereby they can manage processes that operations throughout the world will have in common, even as each operation is also responding to its local peculiarities. As will be seen throughout this report, there is no role for a subsidiary like BPXP in this global management structure.

12. BP's Operating Management System (OMS)

In 2008, in the wake of the Texas City refinery accident that killed fifteen people and injured more than 170, and at the initiative of Tony Hayward and his executive committee, BP reorganized the management structure for its group of operations throughout the world. The new organizational scheme was called BP's Organizational Management System (OMS). It replaced BP's previous system, called Getting Health, Safety and the Environment Right (gHSEr), for implementing and assessing operational practices aimed at protecting health, safety, and the environment. The Group Operations Risk Committee (GORC), which was part of BP p.l.c.'s executive management structure, was responsible for the oversight of the development and implementation of the OMS. The GORC developed an OMS document for the entire group. The document was to provide set of requirements for performance and a framework with which BP's businesses throughout the world, such as the Gulf of Mexico, would develop their own local OMS, which would be more finely tuned to local conditions. In turn, each operating unit would then develop its own local OMS to conform to the group requirements.[190]

In BP's document introducing OMS to the BP group in 2008, Hayward characterized it similarly: "OMS is important. It provides a set of requirements and a systematic application of a performance improvement cycle to continuously improve the way we operate. It also sets the boundaries and standards that will enable leaders to exercise control in a way that is clear and unambiguous." [191] Whether or not OMS could succeed in preventing an accident like the Macondo blowout, or whether OMS would be properly implemented, is beyond the scope of this report. What is clear is that OMS was the system by which BP intended to manage its operations globally, including in the Gulf of Mexico, and it would do so by means of BP's organizational structure, not the legal structure of its subsidiaries. A page after Hayward's statement, the document continued, "Every site and business within BP currently has a management system to set priorities and manage risk. The purpose of the OMS framework is to help bring the

[190] Hayward deposition, 145, 178; Inglis deposition, 88-89, 190-192, 244-245; BP, "The BP Operating Management System Framework, Part 1: An Overview of OMS," printed document copyrighted by BP p.l.c. and dated 3 November 2008, p 3 (TREX-06257 at BP-HZN-2179MDL003331983198). That the segment's OMS manual was to provide a set of mandatory requirements for performance was reiterated in Andy Inglis' introduction to the 2009 revised E&P OMS manual; see BP, "E&P OMS Manual" version 2.0 dated January 2009, p 3 (TREX-045366, BP-HZN-2179MDL01164601-4804, at 4603).

[191] BP, "The BP Operating Management System Framework, Part 1: An Overview of OMS," printed document copyrighted by BP p.l.c. and dated 3 November 2008, p 3 (TREX-06257 at BP-HZN-2179MDL0333198).

appropriate level of consistency and completeness to all these systems."[192] As described throughout in this report, BP organizes its businesses and sites in a structure that does not make reference to the legal structure of parents and subsidiaries. The same is true of OMS; responsibility for its development and implementation rested with the segment and SPU leaders. Legal subsidiaries' organizations were not part of the implementation process.[193]

The first page of text in the introductory document specifically describes the entities that would adopt OMS and develop their own local OMS. It does so by means of laying out the four parts of the OMS document that BP was distributing to entities in the group. Part 1 is the overview, Part 2 describes the "Elements of Operating" in OMS (see below), Part 3 describes the "OMS Performance Improvement Cycle" to be performed by each entity in the group, and Part 4 clarifies governance and applicability of OMS in the BP group. Because BP intended OMS to be implemented by entities in the BP group, the text on the page has a footnote defining "entity" the first time the word is used:

> **Entity or BP entity:** An organizational unit within BP which may be a Performance Unit, Business Unit, Strategic Performance Unit, Segment, or some logical sub group of one of these, defined by the Segment, Function, or Region. Each operating entity will have a consistent local Operating Management System documented in an OMS Handbook.[194]

Legal entities like subsidiaries are not among the kinds of entities listed in this definition, and this fact comports with other documents produced by BP describing its organizational system and with the testimony provided by BP employees and officials, and described and cited throughout this expert report.

In characterizing BP's operations, the OMS document describes eight Elements of Operating that it calls dimensions of BP's four Group Essentials: people, processes, plant, and performance. Together, the four essentials yield BP's outcomes. Pairs of elements work together to deliver each group essential, to use BP's language. For example, the two elements that deliver people to achieve BP's outcomes are 'organization' and 'leadership.'[195] Here is the

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[192] BP, "The BP Operating Management System Framework, Part 1," 4 (TREX-06257 at BP-HZN-2179MDL00333199).

[193] BP, "The BP Operating Management System Framework, Part 1," 22 (TREX-06257 at BP-HZN-2179MDL00333208). In his October 2011 deposition (pp 217-218), Robert Morrison, v.p. of operations in the Gulf of Mexico at the time of the Macondo blowout, testified that BP was the entity that decided to implement OMS throughout the world.

[194] BP, "The BP Operating Management System Framework, Part 1," inside front cover (TREX-06257 at BP-HZN-2179MDL00333197).

[195] BP, "The BP Operating Management System Framework, Part 1," 4 (TREX-06257 at BP-HZN-2179MDL00333199 3199).

summary statement for BP's principle of organization, according to OMS: "We have fit for purpose and agile organizations staffed with competent people and teams." One of the sub-element principles is called 'organizational structure,' about which OMS states: "BP entities establish organizations that allow them to deliver their planned business objectives effectively and efficiently through the deployment of competent people and adequate resources." [196] If we were to apply this principle and sub-principle to the board of directors for BPXP, which is a legal BP entity (but not an operating entity), we would see that before January 2011 the board was 'staffed' only with attorneys and paralegals.[197] If we assume that the BPXP board was staffed with competent people who could "deliver their planned business objectives effectively and effectively," then we could also conclude that the BPXP board was not staffed to deliver board oversight and direction of exploration, drilling, completions, production, and other operations in Gulf of Mexico deepwater. Not until 2011, as describe above, did the BPXP board include directors with operational skills and experience.

Part 2 of the OMS document provided more details for elements of operating and the group essentials so that local operating entities would know the performance they were expected to deliver for the BP enterprise. Answering an introductory question, 'Where do the Elements of Operating and Group Essentials fit?' the document states, "The OMS framework is a structured set of processes and requirements that, when fully implemented, help to make BP operations safe, responsible and reliable, and to continuously improve performance. It is a control process that is relevant to all projects, facilities, sites and operations." [198] Clearly, OMS was a means by which BP's directors and group leaders intended to control operations throughout the group's vast and complex enterprise to make them safer and more reliable. OMS involved workers, leaders, and managers at all levels in BP's organizational hierarchy. Significantly, it did not include the directors or officers of a subsidiary like BPXP exercising management and control of operations in the Gulf of Mexico.

OMS delineated, among other things, a process, which BP called a virtuous cycle, of implementing practices, assessing performance and compliance, devising corrective actions, and implementing improvements to practices, which in turn would be assessed and so forth. Details of the approach would be developed locally, but for certain facets of operations, all entities adopting OMS would have to abide by BP's "Group Defined Practice" (GDP). The facets had names like "Inherently Safer Design," "Hazard and Operability Study," "Major Accident Risk

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[196] BP, "The BP Operating Management System Framework, Part 1," 14 (TREX-06257 at BP-HZN-2179MDL00333201).

[197] BP Exploration & Production Inc., Director History (Exhibit 11960); Bray deposition, pp 170-177, 183-185.

[198] BP, "The BP Operating Management System Framework, Part 2: Elements of Operating including Group Essentials," printed document copyrighted by BP p.l.c. and dated 3 November 2008, p 5 (TREX-06257 at BP-HZN-2179MDL00333228).

Process," and "Inspection and Testing of Equipment in Service."[199] There is no evidence that BPXP played a role in developing any of the GDPs or took steps to adopt them.

Further along in Part 2, the several aspects of 'organization' are delineated. The principle delineated for 'people and competence' is: "BP entities deploy and maintain competent employees with appropriate qualifications, skills and knowledge for roles that impact integrity and operating performance and to meet current and future business needs."[200] As described above, BPXP does not have any employees but instead contracts with BPAPC for its employees. And as described above, there is no procedure identified in the General Services Agreement between BPXP and BPAPC for verifying that BPAPC is providing BPXP with workers who have appropriated qualifications, skills, and knowledge. This is further evidence that BPXP is not an operating entity as defined by BP's OMS, and therefore that BPXP is not the sole operating entity for *Deepwater Horizon* or for the response to the Macondo blowout.

The above paragraphs show that BPXP does not fit the definition of an operating entity under BP's Operating Management System. Further evidence for this conclusion can be found in the documentation of the Gulf of Mexico's local OMS. The Gulf of Mexico SPU had developed its OMS handbook by the end of 2008.[201] The introduction to the handbook attests that it was prepared following the BP group framework and that it was developed only for the SPU level. All of the attention in the handbook is to organizational and functional units within the upstream segment's management scheme. There is no reference to legal entities like BP subsidiaries, such as BPXP.[202]

After the Gulf of Mexico SPU created its OMS handbook, various organizations within the SPU, such as Drilling & Completions (D&C) developed theirs. The first section of the D&C OMS manual includes description of D&C's organizational structure, much as I have described it earlier in this expert report:

> D&C is managed as a central, functional organization. The organization manages all aspects of GoM D&C including Health, Safety, Security, Environment (HSSE), individual well planning and execution, new development projects, performance management, rig scheduling, BP-owned rig management, project services, and D&C support staff.[203]

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[199] BP, "The BP Operating Management System Framework, Part 2," 7 (TREX-06257 at BP-HZN-2179MDL00333230).

[200] BP, "The BP Operating Management System Framework, Part 2," 18 (TREX-06257 at BP-HZN-2179MDL00333241).

[201] Whether there was compliance is beyond the scope of this expert report.

[202] BP, "Gulf of Mexico SPU Operating Plan (OMS Handbook)," document dated 3 December 2008, p 3 (TREX-000866, BP-HZN-2179MDL00333155-3195, at 3157).

[203] BP, "GoM D&C Operating Plan/Local OMS Manual" (TREX-000268, BP-HZN-

The manual continues by describing the two core groups that work side by side within D&C: Engineering and Operations. Each group is comprised of teams of engineers who focus on various facets of drilling and completions, including well planning and execution, exploration and appraisal, major projects, excellence, and HSSE. There is no mention of BPXP playing a role in managing drilling and completions in the Gulf of Mexico.[204]

The D&C OMS manual also delineates the governance of the D&C organization in the Gulf of Mexico, making it clear that the vice president for D&C (Lacy) reports to the Gulf of Mexico SPU leader (Shaw). The D&C leadership team was comprised of the various managers who report to the v.p., including the drilling engineering manager, completions engineering manager, operations managers, etc. There is no mention of BPXP in the organizational chart. Elsewhere in the manual were sections on meetings for financial forecasting, planning, gap assessments, and developing the annual plan, and again there is no mention of BPXP.[205]

Activities in the D&C organization were governed by documents outlining "common processes" developed by the leadership of the upstream segment. One of those centralized, controlling documents is called "Beyond the Best" (BtB, described in a previous section of this expert report). About its role in planning D&C activities, the GoM D&C OMS handbook states, "BP's worldwide Exploration & Production 'Beyond the Best common practice' documents and details 'the BP way" across the E&P segment for Drilling and Completions planning." [206]

13. BPXP and the Holding of Leases in the Gulf of Mexico

BP gains access to resources in the Gulf of Mexico by bidding on leases offered by the United States government. To maintain its competitive position, one of BP's priorities in the Gulf has been "constantly renewing our acreage position through lease sales and other access methods." [207] BP bids on lease sales conducted by the U.S. Department of the Interior (currently by the Bureau of Ocean Energy Management, formerly by the Minerals Management Service). Because holding title to leases from the federal government is a legal undertaking, BP undertakes

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2179MDL00344829-4899, at 4837).

[204] BP, "GoM D&C Operating Plan/Local OMS Manual" (TREX-000268, BP-HZN-2179MDL00344829-4899, at 4837-4838).

[205] BP, "GoM D&C Operating Plan/Local OMS Manual" (TREX-000268, BP-HZN-2179MDL00344829-4899, at 4848, 4855-4858).

[206] BP, "GoM D&C Operating Plan/Local OMS Manual" (TREX-000268, BP-HZN-2179MDL00344829-4899, at 4852).

[207] BP Gulf of Mexico Exploration, "GoM Exploration *The Way We Work* (GoM OMS Handbook)" document dated 15 December 2009, p 12 (BP-HZN-2179MDL03082168-2223 at 2179).

its leasing activity by means of its subsidiary BPXP. Yet even with regard to leasing, it is difficult to see evidence of BPXP as an operating entity playing an active role.

One of the central functions that BPXP appears to perform in the BP enterprise is that it holds leases in the Gulf of Mexico. BP cites this fact in its March 2014 Memorandum in Opposition to the United States' Motion *in Limine*, pointing out, for example, that BPXP holds more lease acreage in the Gulf than any other company. In support of this assertion, BP cites a February press release. The statement provides the public with ample information about the scale and scope of BP's operations in the Gulf, but it makes no mention of the subsidiary that BP claims is the operator of BP's extensive Gulf of Mexico business.[208]

A major thrust of this expert report is that exploring for oil, drilling wells, and producing oil from those wells are very active kinds of operations, they are very complex operations, they required a very sophisticated organizational structure to manage them, and BPXP plays little if any role in the management of those operations. This sub-section looks at the one function that BPXP clearly does perform for the BP group, the holding of leases, and explores it as an operation. Even in this facet of operations, testimony and documents produced by BP show that BPXP plays little role in managing the holding of lease, so that BPXP appears to be little more than a passive legal entity that holds those leases. BPXP plays no documented role in deciding which leases to pursue, which leases to exploit, or which leases to divest.

That BPXP is the legal entity holding the lease to MC252 is not in dispute. The lease document, dated June 1, 2008, names BP Exploration & Production Inc. as the lessee. It is signed by Lars Herbst on behalf of the Minerals Management Service (the leasing agency for the United States) and by Kemper Howe on behalf of BPXP. Howe is identified as BPXP's attorney-in-fact. On an organizational chart for the Exploration organization in the Gulf of Mexico SPU, Howe is identified as the land manager.[209]

The most direct statement demonstrating that BPXP does not play an active role in deciding which leases it comes to hold is provided in Richard Morrison's recent 30(b)(6) deposition. Morrison has been the president of BP's Gulf of Mexico region since March 2013, and he has been president and chairman of BPXP since November 2013. For several years prior to the Macondo blowout, he had been the vice president for operations in BP's Gulf of Mexico business. After the blowout, he was part of BP's response team, and then in October 2010 he

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[208] BP Exploration & Production Inc.'s Memorandum in Opposition to the United States' Motion *in Limine* to Permit Relevant Evidence Concerning BP p.l.c. and Other BP Affiliates, brief dated 6 March 2014, p 4 (Rec. No. 12904); and "BP Starts up Na Kita Phase 3 in Deepwater Gulf of Mexico," press release dated 24 February 2014, attached as exhibit 6 to the Memorandum (Rec. No. 12465-6).

[209] United States Minerals Management Service, Oil and Gas Lease of Submerged Lands under the Outer Continental Shelf Lands Act dated 1 June 2008, Serial No. OCS-G 32306 (TREX-85002, BP-HZN-2179MDL00605624-5630); BP, GoM Exploration, organizational chart dated August 2008 (TREX-02518).

was named BP's global vice president for deepwater response, working with BP's five deepwater regions to be sure that they understood BP's new guidelines for well control. BP regularly modifies its organizational chart, and with those reorganizations BP often changes names of units in the organization and of leadership positions for those units. What was once called the Gulf of Mexico SPU is now the Gulf of Mexico region.[210] The head person for the Gulf of Mexico SPU was called the SPU leader (the role once filled by James Dupree); the head person for the Gulf of Mexico region (Morrison's role) is now called the president. Admitting that he was a bit lost when it came to specific titles he held, Morrison testified that he thought of himself as president of the Gulf of Mexico region and chairman of the BPXP board, but he did not think of himself as president of BPXP, even though an exhibit documents that he is also president of BPXP.[211]

When asked if the BPXP board is involved in deciding which leases in the Gulf of Mexico to bid on, Morrison responded, "That is a – the decision to bid on leases comes through our exploration team that supports BP region. The [BPXP] board does not get involved with business, tactical, transactional decisions in the Gulf of Mexico; for example, leasing."[212] Asked if those business, tactical, and transactional decisions were made by the Gulf of Mexico region, Morrison responded, "The Gulf of Mexico region will put forward recommendations to chief operating officers on do we want to bid, how much, what leases, that kind of thing."[213]

Morrison's ensuing testimony describes BP's organizational structure as I have described it in this expert report. Plans and budgets for operations in the Gulf are developed by the various functional units in the region (exploration, drilling, projects, production, etc.). The individuals in charge of each of those functions are called vice presidents, and they report to Morrison as president of the region. The annual operating plans and budgets are then submitted to the global segment and its chief operating officers for the various functions. The segment sends approved plans to the region, and the region implements them. Asked if the BPXP board ever reviews the plans, Morrison responded that the directors could if they wanted to do so. Asked if they ever had, the only example he could think of concerned decisions to sell leases. Budgets for operations, however, are not set by the BPXP board. Budgets are set "through the line," which is the terminology BP managers use to describe the chain of command in the organizational structure of the global segment.[214] Regarding decisions about leasing in particular, Morrison testified, "But on the – on the just leasing, getting new – new exploration acreage, that's really

[210] At his recent deposition, Michael Robertson testified that to the best of his knowledge the functions served by the Gulf of Mexico Strategic Business Unit (SPU) and Regional Business Unit (RBU) were essentially the same; see Michael T. Robertson, deposition in re the Deepwater Horizon dated 10 July 2014, p 227:4-12.

[211] Richard Morrison, 30(b)(6) deposition in re the Deepwater Horizon Oil Spill dated 20 June 2014, pp 9-10, 13-14, 21, 25-26, 251-263.

[212] Morrison 30(b)(6) deposition, 28-29.

[213] Morrison 30(b)(6) deposition, 29.

[214] Morrison 30(b)(6) deposition, 29-31.

handled by our exploration team."[215] As he had already testified, the exploration team was part of the regional organization, not BPXP.

We have two bid documents for the MC252 lease. One of them shows a bid of $38,003,428, but it has a hand-written note at the bottom stating, "This Bid was withdrawn from the MMS & replaced with a new bid amount."[216] It is signed by Kemper Howe as attorney-in-fact for BPXP. The other bid document is nearly identical, but the amount bid is $34,003,428, and it is signed by O. Kirk Wardlaw as attorney-in-fact for BPXP. Wardlaw was Gulf of Mexico Exploration organization's chief land negotiator in 2008. The amount on the latter bid comports with the lease listed on the MMS-issued lease document for MC252.[217]

14. BP's Exploration Activities in the Gulf of Mexico

Morrison's descriptions of how plans are developed and approved are consistent with BP documents describing how approval of plans is undertaken at the group and segment levels. According to BP Annual Reports, the Resource Commitments Meeting (RCM) is a committee of the group chief executive. The RCM reviews and endorses material long-term investment decisions.[218] BP's "E&P Assurance, Networks and Governance" guidance, issued by the upstream segment in February 2008, describes the process by which plans for investment in major projects, such as exploration, drilling and completions, and operations, proceeded from SPUs and other BP businesses to the RCM. The Strategic Performance Unit leader (SPUL) was required to present the investment case to the Operations Committee (OpCo) at the OpCo Financial Memorandum (FM) Review Meeting (scheduled 3 weeks before the RCM). The E&P RCM analyst was responsible for coordinating the meeting and providing written feedback to the SPUs based on the OpCo FM Review Meeting discussion. The SPUs then re-submitted the investment cases requiring RCM endorsement, with feedback incorporated, before the RCM. The RCM occurred nine times a year. The SPUL presented the investment case to the RCM, unless agreed otherwise. After the meeting, the RCM minutes were circulated by the E&P RCM analyst to the E&P CEO for endorsement. Nowhere in this document are legal entities, such as

[215] Morrison 30(b)(6) deposition, 30.

[216] Bid Form submitted to MMS for Oil and Gas Lease Sale 206, dated 19 March 2008, and signed by Kemper Howe (BP-HZN-2179MDL01157142-7145 at 7144).

[217] Bid Form submitted to MMS for Oil and Gas Lease Sale 206, dated 19 March 2008, and signed by O. Kirk Wardlaw (BP-HZN-2179MDL01157138-7141 at 7140); United States Minerals Management Service, Oil and Gas Lease of Submerged Lands under the Outer Continental Shelf Lands Act dated 1 June 2008, Serial No. OCS-G 32306 (TREX-85002, BP-HZN-2179MDL 00605624-5630)); BP, GoM Exploration, organizational chart dated August 2008 (TREX-02518).

[218] BP Annual Report for 2010, at 92-93 (TREX-06033); BP Annual Report for 2013, at 49 (Exhibit. 12303A).

BPXP, mentioned.[219] In fact, on several occasions during his deposition, Bray testified that he did not know what the Resource Commitments Meeting was or what it did.[220]

Similarly, the OMS handbook for BP's exploration unit in the Gulf of Mexico SPU comports with Morrison's understanding of how decisions are made concerning leases in the Gulf, and how decisions were made to acquire the MC252 lease. Exploration's OMS handbook, "The Way We Work," is oriented toward the Gulf SPU, not any particular subsidiary, like BPXP. Its orientation to the SPU is evident in the abbreviation used throughout the document for the Exploration organization: GoMX (for Gulf of Mexico Exploration). The Exploration handbook delineates the means by which the functional unit would perform in the Gulf of Mexico.[221]

The Exploration OMS handbook describes the organization structure of which the exploration unit was a part. Dave Rainey was the unit's leader, and he was part of the Gulf of Mexico leadership team. The GoMX leadership team would consist of all the individuals who reported directly to Rainey, including the exploration managers and performance unit leaders, the chief negotiator, land manager, GoM subsurface & wells director, human resources advisor, head of finance for GoMX, HSSE director, and a BP senior attorney. GoMX was accountable to BP's global Exploration organization.[222] The Exploration OMS handbook makes no mention of being accountable to BPXP or any other U.S. subsidiary of BP p.l.c.

The exploration team is responsible for a number of activities that are fundamental to BP's ability to secure quality leases, to decide where to drill, to appraise the quantity and quality of discoveries, to develop discoveries into producing wells, and to decide when to sell leases. The team does this by evaluating both BP's own assets and those of its competitors in the Gulf so that it can understand the character of oil and gas deposits in the various basins in the Gulf. Because of all the stages involved in targeting areas for leasing, acquiring leases, exploring, drilling, and developing wells, the exploration function employs a planning process that has a moving three-year time-frame. Various components of the team work to update understanding of basin potentials and review BP's share in those basins, to update information on BP's inventory of prospects, to update seismic information, to keep abreast of drill rig rate assumptions from suppliers, and to make capital and financial projections.[223]

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[219] BP, "E&P Assurance, Networks and Governance," February 2008, pp 3-4, 9-11 (Exhibit 12896, BP-HZN-2179MDL02366117-6137).

[220] Bray deposition, pp 61, 64, 82-83, 269-270.

[221] BP Gulf of Mexico Exploration, "GoM Exploration *The Way We Work* (GoM OMS Handbook)" document dated 15 December 2009, p 4 (BP-HZN-2179MDL03082168-2223 at 2171).

[222] BP GoMX, "GoM Exploration *The Way We Work*," 6 (BP-HZN-2179MDL03082168-2223 at 2173).

[223] BP GoMX, "GoM Exploration *The Way We Work*," 45-55 (BP-HZN-2179MDL03082168-

Much of work by which the SPU and the exploration team integrate with the global segment is done through something BP calls the Exploration Forum. It is a global body presided over by the upstream segment's head of exploration. The forum's purpose is to advise the head of exploration on decisions he will make regarding access, drilling, and allocation of funding for exploration (all of these matters come before the forum, with one exception: proposals for access funding in the Gulf of Mexico go directly from the SPU to the head of exploration, because of a need for strict confidentiality). Mike Daly had been head of exploration for eight years, until he retired in October 2013. Other members of the forum from the segment level included (in 2009), the segment's CFO, v.p. for exploration, v.p. for exploration performance, v.p. for exploration excellence, v.p. for access, and v.p. for resource appraisal. The forum also included (in 2009) the vice presidents for exploration from each of BP's SPUs around the globe, including such regions as North Africa, Azerbaijan, Angola, Egypt, and the Gulf of Mexico. Because of the size of BP business in the Gulf of Mexico, that region had two additional members on the Exploration Forum. The forum meets for a week each quarter (January or February, April, July, and October). The first-quarter meeting mainly considers lessons learned during the previous year. The second-quarter meeting develops a preliminary plan for the coming year. The third-quarter meeting makes recommendations for funding in the coming year. The four-quarter meeting reviews BP's global portfolio of assets and attends to details of spending in the current year.[224]

The SPU exploration team follows a quarterly planning schedule that is intended to mesh with the SPU and upstream segment planning schedules. Although the units are continually updating and revising plans, the planning process generally begins in the second quarter of each year, with the SPU agreeing to a preliminary plan outlined by the segment CEO in May, following the April Exploration Forum. The SPU team elaborates on the preliminary plan for presentation to the June Exploration Forum, where the plan for the Gulf of Mexico is approved or revised for the next three years. The plan includes geological and geophysical work, drilling programs, and proposed capital expenditures. The human resources unit determines how many employees will be needed to execute the plan, and the exploration finance team develops a long-term (three-year) budget that is ready to submit to the SPU. The plan and budget then become part of the SPU's annual plan submitted to the upstream segment in August. The segment CEO then reviews the long-term plan submitted by the SPU with the SPU leader and the SPU CFO during a September event BP calls Pfest (performance fest). The review examines performance during the current year, the shape of the long-term plan, and opportunities for improvement. The CEO, the SPU leader, and the SPU CFO then set targets for the coming year. Following the Pfest review, the SPU is ready to develop its annual plan for next year.[225] There is no mention of the Exploration OMS of BPXP or other BP subsidiaries being part of the process of developing

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2223 at 2212-2222).

[224] BP GoMX, "GoM Exploration *The Way We Work*," 39 (BP-HZN-2179MDL03082168-2223 at 2206).

[225] BP GoMX, "GoM Exploration *The Way We Work*," 11, 44 (BP-HZN-2179MDL03082168-2223 at 2211, 2178).

an annual plan and budget, and there is no mention of the annual plan and budget being approved by BPXP or another subsidiary. Even though the funds used to execute the plan flow through BPXP's books, I have seen no evidence that the BPXP board reviewed or approved an annual plan or budget prior to April 2010. As described elsewhere in this report, there is evidence showing that the BPXP board apparently began reviewing the some of company's finances after February 2011, but I have seen no evidence that the BPXP board actually approved a budget or annual plan.

So that the BP executives can monitor the finances of the BP group in an on-going manner, BP maintains an up-to-date Group Financial Outlook (GFO), which is based on reporting from the SPUs. The upstream segment requires nine reports each year. One of them, produced in October or November, is called GFO 0; it lays out the base plan and budget for the coming year. The SPU produces four bottom-up GFO's, one at the middle of each quarter, which reflect current finances and the most up-to-date forecast for the annual finances. The other four GFOs are quarter-end reports, submitted as soon as each quarter's books are closed out.[226] Exploration's OMS makes no mention of financial reporting to BPXP or other BP subsidiaries. Even though the funds used to conduct BP operations in the Gulf of Mexico flow through BPXP's books, I have seen little evidence that the BPXP board received financial reporting from the SPU prior to February 2011.[227]

There is no reference to an entity like BPXP in the Exploration OMS handbook. One cannot explain this lack of a reference to an entity like BPXP by a claim that the OMS makes reference only to the Exploration organization. The OMS does make reference to the Drilling & Completions organization, because of the need to coordinate Exploration's activities with the engineering expertise that resides in the D&C organization. The upstream segment has eight "common processes," which are frameworks that BP has developed to be able to effectively manage particular functions. The Drilling & Completions function has a common process that BP calls "Beyond the Best" (BtBcp). Exploration's is simply called Exploration Common Process (Ecp). The exploration team and its common process integrate with the D&C's BtB common process.[228]

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[226] BP GoMX, "GoM Exploration *The Way We Work*," 14 (BP-HZN-2179MDL03082168-2223 at 2181).

[227] The lone exception, of which I am aware, was the one time the BPXP board met in person prior to the Macondo blowout; see BPXP board minutes, 30 December 2009 (Exhibit 12750, BP-HZN-2179MDL07817738-7739). According to the minutes, however, the directors received financial documentation from BP's centralized tax unit, not from the SPU.

[228] BP GoMX, "GoM Exploration *The Way We Work*," 40 (BP-HZN-2179MDL03082168-2223 at 2207).

15. Linkages between Operations and Legal Entities in the BP Group

Throughout this expert report, I have written about the parallel and seemingly unconnected organizational structures that exist within the BP group. One structure is BP's legal structure, comprised of BP p.l.c. and its hundreds of subsidiaries, most of which are incorporated in nations other than the U.K. The other is BP's business structure by which BP has arranged its operations, which it conducts on all continents except Antarctica. BP has developed the latter structure in order to manage a large array of complex operations situated in diverse environments and which pose profound risks to BP, to people, and to environments. The organizations in the latter structure are businesses and functions, but they are not legal entities. For various legal reasons, however, BP must conduct its business through entities that have legal standing. At the end of the day, then, there must be some connections between the legal structure and the operations that are being conducted by BP's extra-legal organizational structure. One of those connections is financial. Recent depositions by three BP officials working in the finance and treasury functions have explained the ways BP's accounting system connects the legal structure with BP's operations.[229]

David Bucknall is the highest-ranking BP official of the three. He joined BP in 2006 as the head of risk in the integrated supply and trading function. In 2010, he became executive assistant to Byron Grote, BP's CFO. Since January 2012, Bucknall has been treasurer for the BP group. In his deposition, he described BP's dual organizational structure, the legal structure and the functional structure. For reasons of efficiency and effectiveness, the BP group is organized into functional groups, many of which have been described elsewhere in this report, like exploration, drilling and completions, and HSSE. BP also has support functions, groups like treasury and legal, which support the operations of the entire group. According to Bucknall, "we're organized around functional competencies, because we believe that gives up the depth of skill and experience to be able to do things properly." As group treasurer, Bucknall is in charge of the group's treasury function, a centralized organization that makes sure there is sufficient cash for all of BP's operations. Exchanging money in the global market has legal implications, so the financial transactions of the BP group must be ascribed to various legal entities around the world where operations are taking place. Attending to the proper accounting of the cash movements is the task of both the tax and the treasury functions in the BP group. As Bucknall puts it, "treasury is a – and tax actually are a very important interface between that functional setup and the legal entity structures." [230]

Bucknall provided further examples of how BP's functional activities are distinct from the legal structure. He and some of his staff, for example, are based in London. He knows that he is employed by BP p.l.c., but he doesn't know what employing entity pays each of his staff

[229] David Bucknall, deposition in re the Deepwater Horizon dated 2 July 2014; Michael T. Robertson, deposition in re the Deepwater Horizon dated 10 July 2014; Brian Smith, deposition in re the Deepwater Horizon dated 11 July 2014.

[230] Bucknall deposition, 15, 29-34; the quote about organizing around functional competencies is on p 33; the quote about tax and treasury being an important interface is on p 34.

members. Delegation of authority in BP comes from the group, not from a particular employing entity. Thus, Bucknall's authority in the group comes from the delegation he has received from current group CFO Brian Gilvary. Bucknall, in turn, delegates authority to members of his staff regardless of their employing entity. At his deposition, Bucknall was shown an organization chart depicting the parent/subsidiary relationships between BP p.l.c. and BPXP. When asked how his treasury organization fit in the legal organizational structure, he responded, the treasury doesn't map onto the legal entities." [231]

Bucknall also provided insights into how plans and budgets for projects develop at the regional or business level, are approved at the segment level, and then are financed through the group treasury. He outlined the planning process in a manner similar to the description I have provided in this report. Early in the year, businesses and regions begin to formulate plans and cost estimates for the subsequent year, incorporating those plans as well in longer-term plans. Those plans are aggregated at the regional level and then forwarded to the segment team. The segment leaders evaluate the regional plans relative to each other and to the segment's global overview. The segment brings various kinds of functional expertise to the task of evaluating plans and then develops a plan to forward to the group. At the group level, the segment plans are evaluated, with the participation of treasury to help calculate funding requirements and other financial measures. Once the group has decided upon its plan and budget for the coming year, the tax and treasury functions determine which legal entities need to be involved to execute the plan financially.[232]

Bucknall further elaborated on the paperwork involved in the financial accounting for BP operations. Appropriate officials in the segment organization or other function will develop an approved plan, often accompanied by an Execute Financial Memorandum (EFM), such as the one Andy Inglis, Mike Daly, and David Rainey signed to authorize funds for drilling the Macondo well in 2009. After funding for an approved plan has been authorized by the segment, the tax and treasury functions develop a corporate structure and financing note (SFN) that delineates how the financing should be channeled through the appropriate legal entities in order to the execute the project. BP's guidelines for its corporate structure financing process state that a segment or function in the BP group chooses whether to make an investment in a particular project, but the tax and treasury functions determine, through the SFN process, which of BP's legal entities will receive the financing.[233] To summarize, BP's regions, businesses, and

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[231] Bucknall deposition, 36-40; the quote is on p 40.

[232] Bucknall deposition, 99-106.

[233] Bucknall deposition, 226-240. The Corporate Structure and Finance Process Guidance states: "Authority to commit [Group] investments is exercised by a manager in the relevant Segment or Function, who has appropriate delegated authority, through support of a Finance Memorandum (FM). The choice of *whether* to make the investment ('Is this a good investment of Group resources?') belongs therefore with the Segment or Function within whose Plan that investment lies: however, the choice of legal entity through which to make that investment and low to *finance* that investment ('From which BP legal entity will the funded be applied, and in what form?') is reserved to Treasury and Tax and is governed by the SFN process, as above."

functions are undertaking BP's operations, and meanwhile the record of financial transactions is inscribed in the appropriate books of BP's legal entities.

Michael Roberson described the automatic process by which BP allocates costs to appropriate legal entities. He is the director of finance and performance management for the Gulf Coast Restoration Organization. He reports to Randy Latta, CFO of the GCRO. Robertson receives his paychecks from BPAPC, and he has no formal position or title with BPXP. He considers himself to be part of the financial function in the BP group. The financial function performs BP's payroll work. Robertson knows of two BP subsidiaries in the U.S. that are payroll entities, meaning they pay BP employees' salaries and wages.[234]

Robertson summarized BP's group structure much as others have: there are two parallel structures, the organizational one and the legal one of parents and subsidiaries. The organizational structure is comprised of businesses, which deliver revenue and have operations, and of functions, which provide support services to operating businesses. The finance function in the BP group is led by the deputy CFO of the BP group, and it is integrated into each segment and (at the time) SPU in the group. Such a structure allows financial processes throughout the group to be managed by a single financial entity. Robertson considers himself to be part of the finance function embedded in a business, GCRO, which is not a legal entity (he acknowledges that GCRO does not generate revenue like other BP businesses, but BP runs it like one of its businesses).[235]

In accounting for BP's vast payroll activities, Robertson testified, "We have automatic processes to charge out payroll-related costs to [sic] when people are working on different ownership and different entities."[236] One of those automatic processes is called SAP. When a payroll entity or other paying entity, like BPAPC, incurs a cost, like issuing a paycheck or paying a contractor for services, then employees in BP's financial function use the SAP system to automatically charge the legal entity that will be responsible for the cost. When BPAPC writes paychecks to BP employees who are working on assets owned by BPXP, for example, SAP automatically takes the necessary funds from the BPXP account and transfers them to the BPAPC account. BPAPC sends no invoices to BPXP for that to happen; it happens automatically. SAP actually accomplishes dual accounting; costs like payroll are charged both to the legal entity, like BPXP, and to the operating business, like the Gulf of Mexico business. Thus, BPXP's financial accounting reflects two operations that are loosely associated with BPXP's assets, the Gulf of Mexico and the GCRO.[237]

BP, "Corporate Structure and Financing Process Guidance" January 2014 (BP-HZN-2179MDL 08942142-2158, at 2142-2143).

[234] Robertson deposition, 16-18, 23-25, 62.

[235] Robertson deposition, 37-38, 68.

[236] Robertson deposition, 25.

[237] Robertson deposition, 60-61, 87, 154, 176.

Paying entities in the BP group, namely BPAPC and BP Company North America, also pay for services acquired on BPXP's behalf. Robertson acknowledged that he knows of no service agreement between BPXP and BP Company North America like the agreement that exists between BPXP and BPAPC. Nevertheless, when BP Company North America makes a payment on BPXP's behalf for GCRO expenses, the costs are automatically charged to BPXP's account. Robertson elaborated further on the automatic nature of the process. Contractors send invoices to BP's central scanning organization, which used to be located in Tulsa and now is located in San Antonio. The accounts payable staff function is actually outsourced to IBM, which now processes BP's payments from a center in India.[238]

Robertson testified that, in addition to contract services for the Gulf Coast response being contracted by BPAPC on BPXP's behalf, and then being paid by BP Company North America, with the costs being charged to BPXP's account by the finance function, some contract services for the response were contracted by BP America, even though BPXP and BP America have no general service agreement, like the one between BPXP and BPAPC, for providing BPXP with services. Nevertheless, the finance function charges the costs for those contracts (Robertson named as contractors the Marine Spill Response Corporation and Entrix in particular) to BPXP.[239]

Bucknall pointed out that the upstream's financial statements do not include GCRO costs, but those costs are reflected in BPXP's accounts.[240]

Brian Smith's deposition testimony is consistent with that of Bucknall and Robertson in describing the way functional organizations in the BP group serve the group's operations. Smith is in the treasury function, and he serves as the v.p. for structure finance in the western hemisphere. According to Smith, treasury is a centralized function in the BP group that serves BP entities throughout the world, whether legal entities or businesses. Like Bucknall, Smith described treasury as a function within the BP group that works closely with the tax function. He considers that his "day job." It's the job he does full-time for BP. One of his tasks in that job is to serve as a member of BP America's board of directors and to serve as an officer of some 200 BP subsidiaries. When he performs those tasks, he does not step away from his day job. Smith's payroll employer is BP Corporation North America.[241] Like Michael Robertson, Brian Smith confirmed that BPXP does not have an external bank account.[242]

Smith served as v.p. and CFO of BPXP from June 2009 to May 2012, at which time the BPXP directors conducted an annual removal of officers and elected a new slate of officers.

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[238] Robertson deposition, 95-96, 149-152, 176.

[239] Robertson deposition, 186-191.

[240] Bucknall deposition, 224.

[241] Smith deposition, 25, 29.

[242] Robertson deposition, 109; Smith deposition, 89-90.

Many of the officers were the same as in the previous year, but Smith was removed and replaced as BPXP CFO by Niloy Shah. Smith explained that the reason for the change was that, as the nature of BPXP's transactions changed in the aftermath of the Macondo disaster, BP management wanted to have someone in the CFO position who had served as the CFO of a business organization. Shah is the CFO of the Gulf of Mexico business.[243]

17. BP Response to the Macondo Blowout

When the Macondo disaster occurred, many organizations within the BP group met to determine appropriate responses to the blowout and ensuing oil spill. One entity that apparently did not meet was BPXP. The corporation's board of directors did not meet once during 2010, and their first meeting after the incident was not until February 2011. In his deposition testimony, Steven Bray confirmed that the BPXP board did not meet in 2010, and he confirmed that the directors passed no resolutions in 2010 other than resolutions to elect or remove officers, which they adopted by consent in lieu of meeting. This was in keeping with the BPXP board's practice of the previous few years of conducting little business, and of conducting what little business they did undertake by consent in lieu of meeting.[244] When the BPXP board did finally meet again in February 2011, the directors only business was board governance. The minutes reflect no discussion of the Macondo blowout and its aftermath with the exception that the board did adopt a resolution authorizing an executive committee comprised of directors Bob Dudley and Luke Keller to act with the authority of the board in rare instances when the board would have to act without enough time to call a meeting of the board. Dudley would serve on the executive committee because of his knowledge of Gulf of Mexico affairs and Keller because of his knowledge of Gulf Coast Restoration Organization affairs. Reference to the GCRO is the only hint that a response to the disaster was taking place.[245]

The BPXP board's lack of action regarding the Macondo blowout stands in marked contrast with the BP p.l.c. board, which met twenty-five times in 2010 after the Macondo blowout to oversee and direct BP's response to the disaster.[246]

The Macondo incident and its aftermath were of such magnitude that BP created a new business to handle the company's response. While BP continues to divide most of its operations into three segments – upstream, downstream, and alternative energy – it also conducts other

[243] Smith deposition, 29; Minutes of BPXP Board of Directors Meeting dated 1 May 2012 (Exhibit 12862, BP-HZN-2179MDL08714103-4106 at 4104).

[244] Bray deposition, 197-198.

[245] BPXP Board of Directors Meeting, minutes dated 8 February 2011 (Exhibit 12837, BP-HZN-2179MDL08714017-4019).

[246] BP, Annual Report and Form 20-F 2010, p 90 (TREX-06033, BP-HZN-2179MDL07816408-6676 at 6498).

activities, including the business of responding to the Macondo blowout, outside that basic organizational structure. In June 2010, soon after the accident, BP established a special organization, the Gulf Coast Restoration Organization (GCRO) to implement the response, and named Bob Dudley as the GCRO's president and CEO. He served in that position until BP named him group chief executive to replace Tony Hayward in October 2010. Lamar McKay took Dudley's place as head of the GCRO. The GCRO reported directly to the group chief executive. The BP p.l.c. board establish a special committee to oversee GCRO's response work. That continues to be the way the response is organized in the BP enterprise. BP p.l.c. director, Ian Davis, has chaired BP's Gulf of Mexico committee since its beginning. Other committee members since July 2010 are Paul Anderson and George David. Frank Bowman joined the committee in February 2012.[247]

BP documents announcing creation of the GCRO to the BP group make it clear that the response to the Macondo disaster was to be the job of a new BP business reporting to BP's CEO. In his initial announcement, Tony Hayward stated, "I would like to announce further details of the new organization which we are creating to *manage* [emphasis added] our long-term response to the Deepwater Horizon incident."[248] He went on to say that the new organization would be permanent. It would continue the work or "More than a thousand BP staff [who] are working on the response throughout the Gulf region and have devoted all their energies for two months now to marshaling BP's resources to contain the spill."[249] Hayward said that the new organization would be responsible for "all aspects of the response." One of its assignments would be "Executing our ongoing clean-up operations, and all associated remediation activities."[250] Hayward made no mention of BPXP responding to the disaster or even being part of the response.

On the same day as Hayward's announcement, Bob Dudley made an announcement to all the BP personnel who had been working on the response, explaining the new leadership team he was creating, including a chief operating officer, chief counsel, chief financial officer, and others. Like Hayward, Dudley stated that the GCRO would handle all aspects of the response,

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[247] Gulf of Mexico Committee Charter dated 9 July 2010 (BP-HZN-2179MDL02003229-3230); BP, Annual Report and Form 20-F 2010, 14, 34, 91 (TREX-06033, BP-HZN-2179MDL07816408-6676 at 6422, 6442, 6499); BP, Annual Report and Form 20-F 2013, 78-79 (Exhibit 12303 A, BP-HZN-2179MDL07816849-7135 at 6930-6931).

[248] Tony Hayward, "Formation of the Gulf Coast Restoration Organization," draft announcement dated 22 June 2010; the announcement appears in an e-mail sent to BP employees dated 22 June 2010 (Exhibit 12441, BP-HZN-2179MDL07721911-1912).

[249] Hayward, "Formation of the Gulf Coast Restoration Organization" (Exhibit 12441, BP-HZN-2179MDL07721911-1912).

[250] Hayward, "Formation of the Gulf Coast Restoration Organization" (Exhibit 12441, BP-HZN-2179MDL07721911-1912).

including executing cleanup operations and associated remediation activities. Dudley made no mention of BPXP being part of the organization responding to the disaster.[251]

A day after Hayward's and Dudley's announcements, Hayward held a meeting in Lafitte, Louisiana, and which he announced the creation of the GCRO, making many of the points he and Dudley had made in their announcements the previous day. In addition, he stated, "From day one, BP hs been clear that we take responsibility for dealing with the impact of the spill, including environmental impact."[252] He did not say, for example, that the spill and its impact were the responsibility of BPXP and BP was trying to help its subsidiary.

In this expert report, I have shown how BP organizes its global operations functionally, and that approach to organization entails not only physical, technical functions, such as exploration, engineering, and drilling operations, but also support functions, like tax, treasury, and legal. That the new GCRO was fully integrated into BP's global functional organization is demonstrated in an e-mail that Rupert Bondy, general counsel of the BP group, sent to BP's global legal organization, announcing that Jack Lynch had been appointed chief counsel for the GCRO. Lynch had been general counsel for BP America, and he would continue in that role. In order to free Lynch for his new duties, Bondy extracted two roles from Lynch's existing portfolio and assigned them others. And because the legal response to the Macondo disaster would be such an important part of BP legal's function, Bondy also appointed Lynch as deputy group general counsel. The new organizational chart showed Lynch reporting directly to Bondy.[253] This was comparable to members of leadership teams of other BP businesses; the vice lead functional people would report to the business leader, and they also reported to the top function person in the group's global functional organization.

The BP p.l.c. board continues to oversee BP's response in the Gulf of Mexico by means of the board's Gulf of Mexico committee, which met thirteen times in 2013. According to BP's 2013, the committee's current responsibilities are to oversee BP's legal strategy for litigation arising from the Macondo disaster, reviewing BP's work to remediate or mitigate environmental effects of the oil spill, oversee management strategy aimed at restoring BP's reputation in the U.S., and review the company's compliance with settlement agreements reached with governmental entities. Placing the committee's work in the context of governance of the BP group, the 2013 report states, "The committee's work is integrated with that of the board, which retains ultimate accountability for oversight of the group's response to the accident."[254]

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[251] Bob Dudley, "Gulf Coast Restoration Phase I Organization," draft announcement dated 22 June 2010 (BP-HZN-2179MDL01455490-5491). The announcement appears in an e-mail sent to BP employees dated 22 June 2010 (BP-HZN-2179MDL07727410-7411).

[252] Hayward, "Talking Points, June 23, 2010" (BP-HZN-2179MDL05067340-7342).

[253] Gina Middlemiss (on behalf of Rupert Bondy) to G Legal Worldwide Lawyers, et al, e-mail dated 23 June 2010 (BP-HZN-2179MDL07705501-5503).

[254] BP, Annual Report and Form 20-F 2013, 78-79 (Exhibit 12303 A, BP-HZN-2179MDL 07816849-7135 at 6930-6931); Bray deposition, 78-81, 320-321.

Richard Morrison testifies in his deposition that BP's response to the blowout involved BP employees from all over the world.[255] BP's response to the Macondo incident is much like the rest of BP's operations: it is an operation of BP's global enterprise, managed by BP's global organizational structure, with BPXP being the legal entity where many of the costs of the response are lodged.

[255] Morrison deposition (2011), 292.

Appendix A: Quivik Resume

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Quivik resume begins on the following page)

Fredric L. Quivik, PhD.
[redacted]
August 2014

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RESUME

SUMMARY OF EXPERIENCE

Dr. Quivik is Professor of History in the Department of Social Sciences at Michigan Technological University, where he also serves as editor of *IA: The Journal of the Society for Industrial Archeology*. He previously taught history of technology and environmental history as a lecturer in the Dept. of History & Sociology of Science at the University of Pennsylvania (2006-2009) and as a lecturer at the University of California at Berkeley in the Interdisciplinary Studies Program of the College of Engineering and in the History Dept. (1999-2001). He also taught as an adjunct at Montana Tech in Butte and at Montana State University in Bozeman.

Since 1976, Fred Quivik has been professionally active in the fields of history of technology, industrial archeology, and cultural resource management. He makes that experience available to clients as the principal historian in the firm Quivik Consulting Historian, Inc., which he incorporated in 1998. A significant body of his work in recent years has been as an expert witness (historian of technology) in Superfund litigation concerning the remediation of mining and metallurgical wastes in Montana (the Clark Fork Superfund project embracing Butte and Anaconda and the Libby Superfund project), Idaho (the Bunker Hill Superfund project in the Coeur d'Alene mining district, and the Stibnite Superfund project in the Yellow Pine district), the State of Washington (the Midnite Mine Superfund project), New York (the Li Tungsten Superfund project), and Arizona (the Pinal Creek project in the Globe/Miami mining district).

In 1982, Dr. Quivik founded Renewable Technologies, Inc. (RTI), an historic preservation consulting firm in Butte, Montana, that is still a thriving business. In 1990, Dr. Quivik left RTI to attend the University of Pennsylvania, where he was a William Penn Fellow. He received the PhD in History and Sociology of Science from Penn in 1998. The title of his dissertation is "Smoke & Tailings: An Environmental History of Copper Smelting Technologies in Montana, 1880-1930." While writing his dissertation, he continued to work as a consultant.

As an expert witness for the U.S. Dept. of Justice, providing litigation support in Superfund litigation, Dr. Quivik's specialty has been industrial history, especially the history of the mineral industries, with special attention to the organizational structure of the management of operations and to the discharge of byproducts and their historical impacts on the environment. At RTI, he completed surveys and Historic American Engineering Record (HAER) documentation of dams and hydroelectric generating plants of the Montana Power Company, of the Corps of Engineers' Fort Peck Dam, and of Bureau of Reclamation dams and irrigation infrastructure in Idaho, New Mexico, Oregon, and Wyoming. He conducted statewide historic bridge inventories in Minnesota, Montana, Nebraska, and North and South Dakota. He has also prepared business and technological histories of the Connellsville Coke Region in southwestern Pennsylvania, the Kaiser shipyards in Richmond, CA, and the Ford Motor Company's Richmond assembly plant (a.k.a. the Richmond Tank Depot) for HAER. He served for ten years on the Montana State Historic Preservation Review Board.

EDUCATION

PhD, History and Sociology of Science, University of Pennsylvania, Philadelphia, 1998. Dissertation title: "Smoke and Tailings: An Environmental History of Copper Smelting Technologies in Montana, 1880-1930." M.A. in 1992.

Master of Science in Historic Preservation, Graduate School of Architecture and Planning, Columbia University, New York City, 1977.

Bachelor of Environmental Design, School of Architecture, University of Minnesota, Minneapolis, MN, 1975.

Bachelor of Arts in Art, St. Olaf College, Northfield, MN, 1971.

EMPLOYMENT HISTORY

Professor of History, Department of Social Sciences and Graduate Program in Industrial Archaeology, Michigan Technological University, Houghton, MI, January 2010 to present (received tenure & promoted from associate professor to professor in May 2014).

Consulting Historian of Technology, principal in the firm Quivik Consulting Historian, Inc., working in litigation support as an expert witness, and in the evaluation of historic industrial and engineering sites as a cultural resources consultant, 1994-present.

Instructor, history of technology, environmental history, Dept. of History and Sociology of Science, University of Pennsylvania, Philadelphia, spring semesters 2006, '07, '08, '09.

Lecturer, history of technology, Interdisciplinary Studies Program, College of Engineering, University of California at Berkeley, January 1999 to May 2001; history of American science and technology, Department of History, U.C. Berkeley, January to May 2000.

Historian, Historic American Engineering Record, U.S. Dept. of the Interior, Jeannette, PA, June to August 1991, June to September 1992.

Architectural Historian (and founder), Renewable Technologies, Inc., Butte, MT, May 1982 to August 1990.

Adjunct Assistant Professor, School of Architecture, Montana State University, Bozeman, MT, winter quarter 1983.

Building Recycling Specialist, National Center for Appropriate Technology, Butte, MT, April 1977 to September 1981.

Historian, Historic American Engineering Record, U.S. Dept. of Interior, Butte, October 1979 to April 1981.

PROFESSIONAL AFFILIATIONS

Society for Industrial Archeology: president 6/96 to 6/98; vice president 6/94-6/96; past-president 6/98 to 6/00; board of directors 6/90-6/93; journal editor 2011 to present.
Capitol Advisory Council (Montana), appointed by Gov. Racicot 1/96 to 8/98.
Klepetko (Montana) Chapter, Society for Industrial Archeology, president 9/87-8/90.
Committee on Historic and Archeological Preservation in Transportation, Transportation Research Board of the Nat'l Research Council, 1/91 to 6/93.
Board of Directors, Butte-Anaconda Historical Park and Railroad Corporation, 1986-1990.
Montana Historic Preservation Review Board, 1981-1990: appointed by Governor Schwinden, 10/81; reappointed 10/85; elected chairperson, 12/87.
Montana State Capitol Restoration Advisory Panel, appointed by House Speaker John Vincent, 5/85-4/89.
Board of Directors, Butte-Silver Bow Public Archives, 1979-1986.
Society of Architectural Historians.
Society for the History of Technology.
American Society for Environmental History
History of Science Society
Western History Association
Organization of American Historians
Norwegian-American Historical Association

SCHOLARLY and OTHER PUBLICATIONS

"Cooling Mass Concrete: Owyhee ,Hoover, and Building Large Dams," *Engineering History and Heritage* 168 (November 2013): 236-247.

Architects as Designers of Pre-World War II, Large-Scale Technological Systems: Edward W. Tanner and the Design of the Fort Peck Townsite," *IA: The Journal of the Society for Industrial Archeology* 37, nos. 1 & 2 (2011): 115-134.

"Overcoming Barriers: Milk River Irrigation Project, Montana," *Engineering History and Heritage* 164 (November 2011): 245-254.

"Engineering Nature: the Souris River and the Production of Migratory Waterfowl," *History and Technology*, 25 (December 2009): 307-323.

"Industrial Foundations of the Built Environments of Butte and Anaconda," in the guidebook for the annual meeting of the Vernacular Architecture Forum, June 2009.

"The Industrial Undergirding to the Vernacular Architecture of Butte and Anaconda," in *Coming Home*, Patty Dean, ed., special issue of *Drumlummon Views* devoted to the historic built environment and landscapes of Butte and Anaconda, Montana (Helena, MT: Drumlummon Institute, 2009).

"Authenticity and the Preservation of Technological Systems," *CRM Journal* (Summer 2008): 26-36.

"The Historical Significance of Tailings and Slag: Industrial Waste as Cultural Resource," *IA: The Journal of the Society for Industrial Archeology* vol. 33, no. 2 (2007): 35-54.

"The Tragic Montana Career of Dr. D.E. Salmon," in *Montana: The Magazine of Western History* 57 (Spring 2007): 32-47, 92-94.

"New Deal Oasis on the High Plains," a "Montana Traveler" feature on the Town of Fort Peck in *Montana: The Magazine of Western History* 54 (Winter 2004): 69-74.

"Smelters" and "Tailings," two entries in the *Encyclopedia of World Environmental History* (New York & London: Routledge, 2004).

"Of Tailings, Superfund Litigation, and Historians As Experts: *U.S. v. Asarco, et al*, the Bunker Hill Superfund Case in Idaho," in *The Public Historian* 26 (Winter 2004): 81-104.

"Gold & Tailings: The Standard Mill at Bodie, California," in *IA: The Journal of the Society for Industrial Archeology* vol. 29, no. 2 (2003): 5-27.

"Integrating the Preservation of Cultural Resources with the Remediation of Hazardous Materials: Assessment of Superfund's Record," *The Public Historian* 23 (Spring 2001): 47-61.

"Landscapes as Industrial Artifacts: Lessons from Environmental History," in *IA: The Journal of the Society for Industrial Archeology*, vol. 26, no. 2 (2000): 55-64.

"The Historic Industrial Landscape of Butte and Anaconda," in *Images of an American Land: Vernacular Architecture Studies in the Western United States*, Thomas Carter, ed. (Albuquerque: University of New Mexico Press, 1997).

Butte & Anaconda Revisited: An Overview of Early-Day Mining and Smelting in Montana, with Brian Shovers, Dale Martin, and Mark Fiege, Special Publication 99 (Butte: Montana Bureau of Mines, 1991). This is a reprint of "Guidebook to Historic Industrial Resources of Butte and Anaconda," October 1989, prepared by the same authors for the Annual Fall Tour of the Society for Industrial Archeology.

"Steel Transmission Towers & Energy for Montana's Copper Industry," Historic Landscapes feature in *Montana: The Magazine of Western History*, 38 (Fall 1988): 67-69.

"The Anaconda Company Smelters at Great Falls and Anaconda," in *The Speculator: The Journal of Butte and Southwest Montana History*, 1 (Summer 1984), expanded version of a paper given at the Annual Meeting of the Society for Industrial Archeology, St. Paul, MN, May 1983.

"Montana's Minneapolis Bridge Buildings," in *IA: The Journal of the Society for Industrial Archeology*, 10, no. 1 (1984): 35-54.

Historic Bridges in Montana, (Washington, DC: U.S. Department of the Interior, National Park Service, Historic American Engineering Record, 1982).

"A Comparison Between Passive Solar and Superinsulated Retrofits," paper given at the Sixth National Passive Solar Conference, Portland, OR, September 1981. Published in the *Conference Proceedings*, AS/ISES, 1981.

"Retrofitting with Passive Solar," paper published in *New Energy From Old Buildings* (Washington, D.C: The Preservation Press, 1981), and presented at the Smithsonian Institution, Washington, D.C., during National Historic Preservation Week, May 1980.

SCHOLARLY REVIEWS

Review of *Tainted Earth: Smelters, Public Health and the Environment*, by Marianne Sullivan, forthcoming in *Pacific Northwest Quarterly*.

Review of *Opportunity, Montana: Big Copper, Bad Water, and the Burial of an American Landscape*, By Bray Tyer, in *Environmental History* 19 (April 2014): 398-399.

Review of *Meet Joe Copper: Masculinity and Race on Montana's World War II Home Front*, by Matt Basso, in *IA: Journal of the Society for Industrial Archeology* 37, no. 1&2 (2011): 176-177.

Review of *The Illusory Boundary: Environment and Technology in History*, edited by Martin Ruess and Stephen H. Cutcliffe, in *Environmental History* 16 (October 2011): 733-734.

Review of *Murder of a Landscape: The California Farmer-Smelter Ware, 1897-1916*, f in *Agricultural History* 85 (Spring 2011): 262.

Review of *Tungsten in Peace and War, 1918-1946*, by Ronald H. Limbaugh, in *Marine Corps University Journal* 2 (Spring 2011): 138-140.

Review of *Idaho's Bunker Hill: The Rise and Fall of a Great Mining Company, 1885-1981*, by Katherine Aiken, in *Oregon Historical Quarterly* 107 (Fall 2006): 471-473.

Review of *A Room for the Summer*, by Fritz Wolff, in *Montana: The Magazine of Western History* 56 (Summer 2006): 92-93.

Review of *The Government Machine: A Revolutionary History of the Computer*, by Jon Agar, in *IA: the Journal of the Society for Industrial Archeology* 31 (no. 2, 2005): 69-70.

Review of *Coal: A Human History*, by Barbara Freese, in *Technology and Culture* 46 (October 2005): 846-847.

Review of *Fish versus Power: An Environmental History of the Fraser River*, by Matthew D. Evenden, in *Environmental History Review* 10 (July 2005): 558-559.

Review of *DuPont: From the Banks of the Brandywine to Miracles of Science*, by Adrian Kinnane, in *Chemical Heritage* , 22 (Spring 2004): 44-45.

Review of *Mining Frontiers of the Far West, 1848-1880*, by Rodman Wilson Paul (Holt, Reinhart, and Winston, 1963, rev. ed. with additional chapters by Elliott West, University of New Mexico Press, 2001) in *Western Historical Quarterly* (Summer 2003): 242-243.

Review of *The Chimney of the World: A History of Smoke Pollution in Victorian and Edwardian Manchester*, by Stephen Mosley, in *Technology and Culture* 44 (July 2003): 620-621.

Review of *The Subterranean Forest: Energy Systems and the Industrial Revolution*, by Rolf Peter Sieferle, in *Technology & Culture* 44 (January 2003): 216-218.

Review of *Virtual Rivers: Lessons from the Mountain Rivers of the Colorado Front Range*, by Ellen E. Wohl, in *Environmental History* 7 (July 2002): 517-518.

Review of *Wealth, Waste, and Alienation: Growth and Decline in the Connellsville Coke Industry*, by Kenneth Warren, in *Enterprise and Society* 3 (June 2002): 383-385.

Review of *Petrolia: The Landscape of America' First Oil Boom*, by Brian Black, in *Environmental History* 7 (January 2002): 139-140.

Review of *Metal Mining in Canada, 1840-1950*, by Jeremy Mouat, in *IA: the Journal of the Society for Industrial Archeology* 27, no. 2 (2001): 55-56.

Review of *Wounding the West: Montana, Mining, and the Environment*, by David Stiller, in *Environmental History* 6 (January 2001): 127-128.

Review of *Smelter Smoke in North America: The Politics of Transborder Pollution*, by John D. Wirth, in *Technology & Culture* 42 (January 2001): 151-152.

Review of *True Gardens of the Gods: Californian-Australian Environmental Reform, 1860-1930*, by Ian Tyrrell, in *Environmental History* 5 (April 2000): 254-255.

Review of *Common Fields: An Environmental History of St. Louis*, edited by Andrew Hurley, in *American Studies Journal* 40 (Fall 1999): 187-188.

Review of *Managing the Industrial Heritage*, edited by Marilyn Palmer and Peter Neaverson, in *IA: The Journal of the Society for Industrial Archeology* 24 (no. 2, 1998): 53-54.

Review of *The Search for the Ultimate Sink: Urban Pollution in Historical Perspective*, by Joel Tarr, in *Historical Geography* 26 (1998): 228-230.

Review of *Race and Labor in Western Copper*, by Philip J. Mellinger, in *Montana: The Magazine of Western History* 47 (Autumn 1997): 84-85.

Review of *Environmental History Review*, Spring 1994, special issue on "Technology, Pollution, and the Environment," Joel A. Tarr and Jeffrey K. Stine, eds., and *Journal of Urban History*, May 1994, special issue on "The City and the Environment," Joel A. Tarr and Christine M. Rosen, eds., in *Technology & Culture* 36 (October 1995): 1038-1041.

Review of *Water Towers* and *Gas Tanks*, by Bernd and Hilla Becher, in *Design Book Review* 35/36 (Winter/Spring 1995): 56-59.

Review of *The Texture of Industry: An Archaeological View of the Industrialization of North America* by Robert B. Gordon and Patrick M. Malone, in *Environmental History Review* 18 (Winter 1994): 102-104.

Review of *Bisbee: Urban Outpost on the Frontier*, Carlos A. Schwantes, ed., in *Technology and Culture* 35 (April 1994): 435-436.

Review of *In the Servitude of Power: Energy and Civilization through the Ages* by Jean-Claude Debeir, Jean-Paul Deleage, and Daniel Hemery, in *Environmental History Review* 17 (Summer 1993): 97-98.

Review of *The Colossus of 1812: An American Engineering Superlative* by Lee H. Nelson, in *IA: The Journal of the Society for Industrial Archeology*, 16 (1990), No. 1.

Review of *Song of the Hammer & Steel* by Duane Smith, in *IA: The Journal of the Society for Industrial Archeology*, 14 (1988), No. 1.

SCHOLARLY PRESENTATIONS

"The Rule of Capture in Reverse: Avoiding Responsibility for Refinery Losses to the Subsurface," paper presented at the annual meeting of the American Society for Environmental History, San Francisco, March 2014.

"Historians As Experts in Environmental Litigation," paper presented at the annual meeting of the American Historical Association, New Orleans, January 2013.

"A Case for the Preservation of Industrial Waste: The Historic Copper-Mining Industry of Southwest Montana," paper presented at the annual meeting of the National Trust for Historic Preservation, Buffalo, NY, October 2011, and The International Conference on the Conservation of Industrial Heritage (TICCIH), Freiberg, Germany, September 2009.

"History of Fort Peck Dam," keynote address presented at the annual meeting of the Missouri River Natural Resources Committee, March 2009.

"Addressing Global Warming by Means of History: Thinking in the Material World," presented at the Nobel Peace Prize Forum, St. Olaf College, Northfield, MN, March 2009.

"Fort Peck and Its Shanty Towns: The Corps of Engineers Couldn't Have It All," paper presented at the annual Montana History Conference, Glasgow, Montana, October 2008.

"The Industrial Heritage of Energy," paper presented at "Industrial Heritage: Premises & Practices for the 21st Century," a conference at Michigan Tech, Houghton, MI, September 2008.

"Industrial Waste As Cultural Resource," presentation made to colloquium of the Industrial Archaeology Program, Social Sciences Dept., Michigan Tech, Houghton, MI, November 2007.

"Engineering Nature: The Souris River and the Production of Migratory Waterfowl," paper presented at annual meeting of the Society for the History of Technology, Wash, DC, Oct. 2007.

"Conflict in the Realm of Medical Science: Battling Veterinarians in the Anaconda Smelter Smoke Litigation" and "Mining in the West: Overview and Health Issues," papers presented at the Seventh Annual Medical History of the West Conference, Montana State University, Bozeman, April 2007.

"Conflict along the Edges of the Living and the Non-Living Environments: Mining v. Farming in Montana's Deer Lodge Valley in the Early Twentieth Century," paper presented at the annual meeting of the American Society for Environmental History, Baton Rouge, March 2007. Keynote Address on "Technology, Environment, and Work" at the North American Labor History Conference, Detroit, October 2006.

"The Question of Authenticity When Applied to the Preservation of Components of Complex, Large-Scale Technological Systems," paper presented at the Fifth National Forum on Historic Preservation Practice, Goucher College, March 2006.

"Inhaling a Microscopic Artifact: Asbestos Dust and the Vermiculite Mine at Libby, Montana," paper given at the annual meeting, Society for Industrial Archeology, Milwaukee, June 2005.

"Interpreting a Large Industrial Artifact: The Case of the Whirley Cranes at Kaiser's Richmond Shipyards," paper presented at the annual meeting of the Society for Industrial Archeology, Providence, June 2004.

"History As Compliment to Scientific Field Data in Superfund Litigation," presentation as part of a panel titled, "Reading the Issue: Environmental History in *The Public Historian*," at the joint annual meeting of the American Society for Environmental History and the National Council on Public History, Victoria, BC, April 2004.

"Gold & Tailings: The Standard Mill at Bodie, California," paper presented at the annual meeting of the Society for Industrial Archeology, Montreal, Quebec, May 2003.

Organizer of and participant in a scholarly panel on "The Environmental History of Mining" at the annual meeting of the Mining History Association, Wallace, ID, June 2002.

"From Slimes to Hens Eggs: Visions of Tailings in Idaho's Coeur d'Alene Mining District, 1888-2001," paper presented at the annual meeting of the Society for Industrial Archeology, Brooklyn, June 2002.

"Integrating the Preservation of Cultural Resources with Remediation of Hazardous Materials: An Assessment of Superfund's Record," paper presented at the annual meeting of the American Society for Environmental History, Tacoma, WA, April 2000.

"Physical Setting and the Shaping of Giant Smelters: A Comparison of the Great Falls and Anaconda Smelters," paper given at the annual meeting of the Society for Industrial Archeology, Savannah, GA, June 1999.

"Landscapes as Industrial Artifacts: Lessons from Environmental History," paper presented at Whither Industrial Archeology, a symposium sponsored by the Society for Industrial Archeology at Lowell National Historic Park, MA, November 1998.

"Government Intervention v. Economic Efficiency in the Abatement of Smelter Smoke Pollution: The Case of the Anaconda Smelter in the 1910s," paper given at the annual meeting of the Society for the History of Technology, Baltimore, MD, October 1998.

"Smoke and Tailings: An Environmental History of Copper Smelting Technologies in Montana, 1880-1920," public presentations based on PhD dissertation and illustrated with slides, Trinity Lutheran Church, Alameda, CA, July 2001; Environmental Studies Program, St. Olaf College, Northfield, MN, October 1999; Colloquium of the Office for History of Science and Technology, University of California at Berkeley, April 1999; Parker Lecture Series, Lowell, MA, November 1998; Chemical Heritage Foundation, Philadelphia, October 1998; Froid Lutheran Church, Froid, MT, July 1998; Center for the Rocky Mountain West, Missoula, MT, March 1996.

"On the Nature of Tailings: An Overview of Early Attitudes Towards Tailings Disposal in the Montana Copper Industry," Montana State History Conference, Butte, MT, October 1996.

"Captain Couch of the Boston & Montana: A Self-Trained Mining Engineer and the Industrialization of Butte's Copper Mining District," paper presented at the annual meeting of the Western History Association, Denver, CO, October 1995.

"Conflict in the Science of Environmental Impact: The Anaconda Smelter Smoke Cases, 1902-1911," paper presented at the biennial meeting of the American Society for Environmental History, Las Vegas, NV, March 1995.

"Architects as Designers of Pre-World War II, Large-Scale Technological Systems: Edward W. Tanner and the Design of the Fort Peck Townsite," paper presented at the Annual Meeting of the Society of Architectural Historians, Seattle, WA, April 1995.

"The Concept of Industrial Waste: Smoke 'Nuisance' Cases in the Montana Copper Industry at the Turn of the Twentieth Century," paper presented at the annual meeting of the Society for the History of Technology, Lowell, MA, October 1994.

"Retarded Mechanization in the Connellsville Beehive Coke Industry," paper presented at the annual meeting of the Society for Industrial Archeology, Pittsburgh, PA, June 1993.

"EPA's Superfund in the Context of Other American Large-Scale Technological Systems," paper presented at the fifteenth annual meeting of the National Council on Public History, Valley Forge, PA, May 1993.

"Imposing an Industrial Order on the Northern Plains: Patterns of Truss Bridge Construction, 1880-1920," paper presented at the annual symposium of the Center for Great Plains Studies, Lincoln, NE, April 1993.

"Industrial Pollution on the Southwestern Pennsylvania Countryside: The Connellsville Beehive Coke Industry, 1880-1920," paper presented at the biennial meeting of the American Society for Environmental History, Pittsburgh, PA, March 1993. A longer version of this paper won the 1994 Newcomen Prize at the University of Pennsylvania.

"EPA Superfund: After a Decade, Why Is It Not an Effective Technological System?" paper presented at the annual meeting of the Society for the History of Technology, Madison, Wisconsin, October 1991.

"A Comparison of the U.S. Bureau of Reclamation's Cylinder-Gate and Ring-Gate Designs for Spillway Controls," paper presented at the 20th Annual Meeting of the Society for Industrial Archeology, Chicago, June 1991.

"Contribution of Railroads to Montana's Historic Bridge Landscape," presentation at the Montana History Conference, Livingston, MT, October 1988.

"Power for the Copper Industry: Hydroelectric Developments Along the Great Falls of the Missouri River, 1890-1957," paper given at the 17th Annual Meeting of the Society for Industrial Archeology, Wheeling, WV, May 1988.

"Historical Differences Between Hardrock Mining and Underground Coal Mining," presentation at the Montana History Conference, Helena, MT, October 1987.

"Industrial Urbanism on the Wheat Frontier: Minot, North Dakota, 1886-1929," paper given at the 15th Annual Meeting of the Society of Industrial Archeology, Cleveland, OH, June 1986.

"Appropriate Technologies and Historic Preservation," paper given at the International Conference on the Conservation of Industrial Heritage (TICCIH), Lowell, MA, June 1984.

"Maintenance and Stabilization of Historic Bridges," paper given at the Annual Meeting of the Association for Preservation Technology, Banff, Alberta, October 1982.

"The Great Falls Smelter: Some Reflections on Its Significance," paper given at the Montana State History Conference, Great Falls, MT, October 1982.

"Superinsulation vs. Passive Solar Energy in Historic Buildings," paper given at the Annual Meeting of the Association for Preservation Technology, Washington, D.C., October 1981.

"Passive Solar Retrofit of Historic Structures," paper given at the Annual Meeting of the Association for Preservation Technology, Denver, CO, September 1979.

SCHOLARLY and RELATED ACTIVITIES

Editor, *IA: the Journal of the Society for Industrial Archeology*, responsible for soliciting authors to submit manuscripts, arranging peer reviewers for manuscripts, making decisions about articles to publish, organizing special issues and working with guest editors, January 2011 to present.

Panel organizer, "Creating and Responding to Energy Sacrifice Zones," panel of four papers and a comment presented at the annual meeting of the American Society for Environmental History, San Francisco, March 2014.

Instructor for "Richest Hills" workshops, two week-long workshops on the history of Western mining for teachers sponsored by the Montana Historical Society and funded by the National Endowment for the Humanities; focus of instruction was on history of environmental impacts by industrial mining at Butte, and the cultural landscapes of the mining industry at Butte and Anaconda, July 2013 and July 2011.

Served as peer reviewer for articles submitted to the following scholarly journals: *BC Studies; Environmental History; IA: the Journal of the Society for Industrial Archeology; Montana: the Magazine of Western History; Technology & Culture; The Annals of Science; Health & History.*

Served as peer reviewer for book manuscripts for the University of Oklahoma Press, University Press of Colorado, Oregon State University Press, University of Washington Press, the University of Tennessee Press, and the Montana Historical Society Press.

Served as a reviewer for grant proposals submitted to the National Science Foundation.

Chair of the Program Committee for the annual meeting of the Society for Industrial Archeology, Philadelphia, PA, June 2007; and Duluth, MN, June 2000.

Panel organizer, "Defining Environmental Edges to Anaconda's Global Mining Enterprise," panel of three papers presented at the annual meeting of the American Society for Environmental History, Baton Rouge, March 2007.

Panel organizer, "Emergency Shipyards during World War II in the San Francisco Bay Area," presented at the annual meeting of the Society for Industrial Archeology, Providence, June 2004.

Co-organizer with Brian Shovers, Fall Tour of industrial and engineering sites in NE Montana, organized by the Klepetko (Montana) Chapter for the Society for Industrial Archeology, September 2003.

Panel organizer, "A Roundtable on the Environmental History of Mining," panel of three papers presented at the annual meeting of the Mining History Association, Wallace, ID, June 2002.

Panel organizer, "Tailings As Cultural Artifact," panel of three papers presented at the annual meeting of the Society for Industrial Archeology, Brooklyn, June 2002.

Chair of the Program Committee, "Whither Industrial Archeology," a three-day symposium at Lowell, MA, featuring twenty-four speakers and co-sponsored by the Society for Industrial Archeology, Historic American Engineering Record, and Lowell National Historic Park, November 1998.

Panel organizer, "Topics at the Intersection of Architectural History and the History of Technology," a two-session panel featuring seven papers and a comment, presented at the Annual Meeting of the Society of Architectural Historians, Seattle, WA, April 1995.

Organizer, Coal and Coke Tour, organized for the Annual Meeting of the Society for Industrial Archeology, Pittsburgh, PA, June 1993.

Co-organizer with Brian Shovers, Fall Tour of Butte and Anaconda, Montana, organized by the Klepetko (Montana) Chapter for the Society for Industrial Archeology, October 1989.

Co-organizer with Brian Shovers, "Butte: The Urban Frontier," three-day history conference featuring twenty-six speakers and sponsored by the Butte Historical Society with major funding by the Montana Committee for the Humanities, Butte, MT, September 1982.

Project Director, Historic and Architectural Survey of over 3,000 structures in the Butte National Historic Landmark District, sponsored by the Butte Historical Society with major funding from the Montana State Historic Preservation Office and the Butte-Silver Bow Community Development Office, 1981-1985.

ORAL HISTORIES

Organized and conducted an oral history project as part of the research for an Expert Report for the U.S. Dept. of Justice in *U.S. v. Asarco, et al*; recorded 12 oral histories in communities in the Coeur d'Alene mining district, ID, December 2005 and April 2006.

Organized and conducted, in cooperation with the oral historian at the Montana Historical Society, the Libby Oral History Project as part of the research for an Expert Report for the U.S. Dept. of Justice in *U.S. v. W.R. Grace*; recorded 32 oral histories, April-June 2002.

Oral histories with three former shipyard workers, conducted in conjunction with research for the history of the Kaiser shipyards in Richmond, CA, being prepared for the Historic American Engineering Record.

Oral history of Guy Harris, retired chemist at Dow who developed and patented Z200, an important reagent used in the flotation of copper ores; Regional Oral History Office, Bancroft Library, University of California at Berkeley, 2001.

Oral histories with Joe & Carol Gwerder, farmers in California's Delta Region who spent their lives engaged in irrigated agriculture; Regional Oral History Office, Bancroft Library, University of California at Berkeley, 2001.

The Morrissey Oral History Workshop, training by Charles Morrissey during a three-day workshop at Fort Mason Center, San Francisco, March 2000.

Oral histories of thirteen early members of a rural electric co-op recalling the impacts of rural electrification on farm life in northeast Montana; sponsored by Sheridan Electric Co-op, 1997.

SELECT CONTRACT PUBLICATIONS AND PRESENTATIONS

"Expert Witness Statement," expert report dated 17 January 2014, prepared for the Central Valley Regional Water Quality Control Board, California, for an administrative law hearing concerning issuing a Cleanup and Abatement Order to Atlantic Richfield in the Walker Mine and Mine Tailings matters, Plumas County, California. The report provides expert opinions concerning the ways in which the Anaconda Copper Mining Company (predecessor to Atlantic Richfield) managed certain aspects of the operations at the Walker mine.

"History of Federal Resources Corporation's Activities at the Conjecture Mine," expert report dated 18 April 2013, prepared for Lybeck Murphy on behalf of the defendant in *U.S. v. Federal Resources Corporation* in the Conjecture Mine Superfund litigation in Idaho. The report provides expert opinions concerning the history of operations at the Conjecture mine, including those of Federal Resources as well as those of previous owners of the property.

"History of Opportunity, Montana, and Its Environment," expert report dated 12 April 2013, prepared for Lewis, Slovak, & Kovacich on behalf of the plaintiffs in *Gregory A. Christian, et al, v. BP Amoco Corporation, et al*, in Montana District Court for Silver Bow County. The report provides expert opinions concerning the history of the Anaconda Copper Mining Company's practices of discharging pollutants into the Opportunity environment and of the company's knowledge that it was doing so.

"Silver Bow Creek," expert report dated 15 October 2012, prepared for Goetz, Baldwin, and Geddes on behalf of the plaintiffs in *Silver Bow Creek Headwaters Coalition v. State of Montana*, in Montana District Court for Silver Bow County. The report provides expert opinions concerning the history of the name of an upper reach of Silver Creek, located within a portion of Butte undergoing Superfund remediation.

"Tailings Contributions of Golconda Lead Mines, Inc.," expert report dated September 2011, prepared for the Environmental Enforcement Section, U.S. Department of Justice, in *U.S. v. Marmon Holdings*, a subsidiary case in the Bunker Hill Superfund litigation in Idaho. The report details the discharge of tailings by the Golconda mill during its years of operation.

"Lava Cap Mine," expert report dated January 2011, prepared for the Environmental Enforcement Section, U.S. Department of Justice, in *U.S. v. Sterling Centrecorp*, the Lava Cap Mine Superfund case in California. The report details the history of the management relationship between Sterling and its subsidiary, Keystone Copper, which operated the Lava Cap mine.

"History of Mining, Milling, and Smelting in NE Washington," November 2010, prepared for Teck Metals Ltd in Joseph A. Pakootas, et al v. Teck Cominco Metals, Ltd. The report details the histories of several mining and milling operations in northeast Washington which discharged tailings and other contaminants to the environment of the Upper Columbia River in the U.S.

"Mining on State Lands in NE Washington," September 2010, prepared for Teck Metals Ltd in Joseph A. Pakootas, et al v. Teck Cominco Metals, Ltd. The report details the histories of several mining and milling operations in northeast Washington which operated on State lands and discharged tailings to the environment of the Upper Columbia River in the U.S.

"History of Potential Sources of the LNAPL Contamination beneath the Former DSCP Site in South Philadelphia," February 2010, prepared for the Environmental Enforcement Section, U.S. Department of Justice, and the Defense Logistics Agency in *U.S. v. Sunoco, et al*, sub-contract to Stratus Consulting, Boulder, CO. The report details the histories of the Defense Supply Center Philadelphia (DSCP), Sunoco's Point Breeze Refinery, and several smaller industrial operations for the purpose of showing that the LNAPL contamination had is historic source at the refinery and could not historically have had its source at DSCP other any of the smaller operations.

"Expert Report," November 2006, prepared for the Environmental Enforcement Section, U.S. Department of Justice, in the Midnite Mine (WA) Superfund litigation (*U.S. v. Newmont USA Limited, et al*). The report details the history of the management relationship between Newmont and its subsidiary, Dawn Mining Company, which operated the Midnite mine.

"Expert Report," October 2006, prepared for the Coeur d'Alene Tribe of Indians in support of a mediation hearing intended to resolve differences between the Tribe and Avista, (formerly Washington Water Power) concerning compensation Avista owes the Tribe for having inundated portions of the Coeur d'Alene Indian Reservation as a consequence of the construction of the Post Falls dam, which allows Avista to utilize the lake to provide annual storage for a system of hydroelectric generating stations along the Spokane River.

Testimony before a mediator on behalf of the U.S. Attorney's Office for the Eastern District of New York in the case *TDY Holdings, Inc., v. United States* concerning allocation of costs for the Superfund remediation of the Li Tungsten site at Glen Cove, New York. Testimony concerned history of operations at the Wah Chang tungsten refinery, corporate history associated with the operation, and the history of the federal government's involvement in the operations during the World War II years; January 2005.

"Synthesis Report," a report written under contract to the Historic American Engineering Record for the Rosie the Riveter/World War II Home Front National Historical Park (RORI), Richmond, CA, and synthesizing more than a dozen reports prepared for RORI on physical resources in Richmond dating from the WWII period, on historic sites in the San Francisco Bay Area relating America's WWII mobilization, and on historical themes reflecting Americans' experiences on the home front during the war, December 2004.

"The Kaiser Shipyards," business and technological history of Kaiser's Richmond shipyards, written under contract to the Historic American Engineering Record for the Rosie the Riveter/World War II Home Front National Historical Park, Richmond, CA, July 2004.

"The Ford Motor Company Assembly Plant," business and technological history of the Ford Assembly Plant in Richmond, CA, a.k.a. the Richmond Tank Depot, written under contract to the Historic American Engineering Record for the Rosie the Riveter/World War II Home Front National Historical Park, Richmond, CA, September 2003.

"Phase II Expert Rebuttal Report," January 2003, prepared for the firm Beshears Muchmore Wallwork, representing two of the plaintiffs (Phelps Dodge Miami, Inc., and Inspiration Consolidated Copper Company) in the Superfund litigation *Pinal Creek Group v. Newmont Mining Corporation, et al.* The report presents my expert opinions concerning the economic integration of mining companies operating in the Globe/Miami district of Arizona.
"Expert Report," July 2002, prepared for the Environmental Enforcement Section, U.S. Dept. of Justice, in *U.S. v. W.R. Grace*, the Libby, MT, Superfund case. The report describes the mining and mineral processing history of the W.R. Grace/Zonolite vermiculite operation at Libby.

"Second Supplemental Expert Report," July 2002, prepared for the firm Beshears Muchmore Wallwork, representing the plaintiffs in the Superfund litigation *Pinal Creek Group v. Newmont Mining Corporation, et al.* The report provides additional historical details concerning the corporate relationship between the Inspiration Consolidated Copper Company and the Anaconda Copper Mining Company.

"Supplemental Expert Report," January 2002, prepared for the firm Beshears Muchmore Wallwork, representing the plaintiffs in the Superfund litigation *Pinal Creek Group v. Newmont Mining Corporation, et al.* The report provides additional historical details concerning the corporate relationship between the Inspiration Consolidated Copper Company and the Anaconda Copper Mining Company.

"History and Heritage of Civil Engineering," historian of technology for developing an interactive web site (www.asce.org/history/) mounted in commemoration of the sesquicentennial of the American Society of Civil Engineers (ASCE); sub-contract to Convey, Inc., October 2001.

"Determination of Eligibility for the Contra Costa Power Plant," Antioch, CA, prepared under contract to URS-Dames & Moore for Southern Energy, Oct. 2000.

"The Standard Mill at Bodie, CA," narrative history written under contract to the Historic American Engineering Record for California State Parks, Sept. 2000.

"Expert Report," March 2000, prepared for the Environmental Defense Section, U.S. Dept. of Justice, in the Stibnite/Yellow Pine Superfund litigation (*Mobil Oil Corp. v. U.S.*) in Idaho. The report describes the tailings-disposal methods used by the Bradley Mining Company, 1932-1952.

"Expert Report," February 2000, prepared for the firm Muchmore & Wallwork, representing the plaintiffs in the Superfund litigation *Pinal Creek Group v. Newmont Mining Corporation, et al.* The report is a corporate and operational history of the Inspiration Consolidated Copper Company in the context of the corporate and operational history of the Anaconda Copper Mining Co., which owned a minority share of Inspiration stock but controlled the Inspiration operations.

"Expert Report," August 1999, prepared for the Environmental Enforcement Section, U.S. Department of Justice, in the Bunker Hill (ID) Superfund litigation (*U.S. v. ASARCO, et al*). The report includes technological and business histories of the lead-silver concentrators operating in the Coeur d'Alene mining district and a history of the movement of tailings and other contaminants through the Coeur d'Alene River system.

"Expert Report," August 1997, prepared for the Environmental Enforcement Section, U.S. Department of Justice, in the Clark Fork (MT) Superfund litigation (*U.S. v. ARCO*). The report includes technological histories of the silver mills, copper smelters, zinc concentrators, and manganese plant at Butte and Anaconda, Montana, as well as histories of the Anaconda Smelter Smoke Commission and the land exchanges between the Anaconda Company and the U.S.

"The Anaconda Smelter Smoke Commission: A Technological History," May 1997, Expert Report prepared for the Environmental Defense Section, U.S. Department of Justice, in the Clark Fork (MT) Superfund litigation (*U.S. v. ARCO*). In addition to a history of the Smoke Commission, the report includes a technological and pollution history of the Anaconda Copper Mining Company's smelters at Anaconda.

"Sheridan Electric Co-op: A History of Its Organizing," a history written to commemorate Sheridan Electric's 50th annual membership meeting, October 1997. The project is accompanied by the recording of about a dozen oral histories of early co-op members recalling the impacts of rural electrification on farm life in northeast Montana.

"Connellsville Coal and Coke Study," a business and technological history of the Connellsville Coke Region for the America's Industrial Heritage Project, Historic American Engineering Record (HAER), National Park Service, September 1992. Transmitted to the Library of Congress as "Connellsville Coal & Coke Region, HAER No. PA-283," the historical narrative accompanying HAER measured drawings of beehive coke ovens in the region, 1995.

"Selby Avenue Bridge, HAER No. MN-61," Historic American Engineering Record narrative and large format photographs, sub-contract to Robert M. Frame III for the Department of Public Works, St. Paul, MN, September 1992.

"Historic Bridges in North Dakota," statewide survey and determination of eligibility, with Lon Johnson (RTI), Mark Hufstetler (RTI), and Charlene Roise, contract to North Dakota State Department of Transportation, May 1992.

Appendix B: Documents Considered

Expert Report of F. Quivik
Consideration Materials
(Documents Cited in Report are Consideration Materials even if Not Listed Below)

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Expert Report of F. Quivik
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Expert Report of F. Quivik
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(Documents Cited in Report are Consideration Materials even if Not Listed Below)

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Expert Report of F. Quivik
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(Documents Cited in Report are Consideration Materials even if Not Listed Below)

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US_PP_FQK000718-US_PP_FQK000718
US_PP_FQK000719-US_PP_FQK000721
US_PP_FQK000722-US_PP_FQK000744
US_PP_FQK000745-US_PP_FQK000755
US_PP_FQK000756-US_PP_FQK000761
US_PP_FQK000762-US_PP_FQK000767
US_PP_FQK000768-US_PP_FQK000835
US_PP_FQK000836-US_PP_FQK000839
US_PP_FQK000840-US_PP_FQK000842
US_PP_FQK000843-US_PP_FQK000847
US_PP_FQK000848-US_PP_FQK000852
US_PP_FQK000853-US_PP_FQK000856
US_PP_FQK000857-US_PP_FQK000867
US_PP_FQK000868-US_PP_FQK000871
US_PP_FQK000872-US_PP_FQK000875
US_PP_FQK000876-US_PP_FQK000934
US_PP_FQK000935-US_PP_FQK000955

US_PP_FQK000956-US_PP_FQK000958
US_PP_FQK000959-US_PP_FQK000961
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US_PP_FQK000991-US_PP_FQK001015
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US_PP_FQK001019-US_PP_FQK001020
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US_PP_FQK001024-US_PP_FQK001027
US_PP_FQK001028-US_PP_FQK001031
US_PP_FQK001032-US_PP_FQK001032
US_PP_FQK001033-US_PP_FQK001067
US_PP_FQK001068-US_PP_FQK001114
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US_PP_FQK001193-US_PP_FQK001225
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US_PP_FQK001290-US_PP_FQK001292
US_PP_FQK001293-US_PP_FQK001295
US_PP_FQK001296-US_PP_FQK001301
US_PP_FQK001302-US_PP_FQK001319

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US_PP_FQK001320-US_PP_FQK001336
US_PP_FQK001337-US_PP_FQK001346
US_PP_FQK001347-US_PP_FQK001349
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US_PP_FQK001353-US_PP_FQK001363
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US_PP_FQK001371-US_PP_FQK001394
US_PP_FQK001395-US_PP_FQK001408
US_PP_FQK001409-US_PP_FQK001411
US_PP_FQK001412-US_PP_FQK001416
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US_PP_FQK001482-US_PP_FQK001485
US_PP_FQK001486-US_PP_FQK001508
US_PP_FQK001509-US_PP_FQK001512
US_PP_FQK001513-US_PP_FQK001538
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US_PP_FQK001550-US_PP_FQK001558
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US_PP_FQK001593-US_PP_FQK001629
US_PP_FQK001630-US_PP_FQK001648
US_PP_FQK001649-US_PP_FQK001649
US_PP_FQK001650-US_PP_FQK001668
US_PP_MAN001729-US_PP_MAN001730
US_PP_MAN001788-US_PP_MAN001788
US_PP_MAN001789-US_PP_MAN001790
US_PP_MAN001791-US_PP_MAN001791
US_PP_MAN001845-US_PP_MAN001859
US_PP_MAN001874-US_PP_MAN001875
US_PP_MAN001876-US_PP_MAN001877
US_PP_MAN001900-US_PP_MAN001901

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US_PP_MAN006377-US_PP_MAN007030
US_PP_RAT006064-US_PP_RAT006352