

**IN RE: OIL SPILL BY THE OIL RIG "DEEPWATER HORIZON"  
IN THE GULF OF MEXICO, ON APRIL 20, 2010  
MDL 2179**

**EXPERT REPORT:  
The Role of BPXP and Anadarko in the Gulf of Mexico and  
Economic Harm from the Macondo Oil Spill**

**Charles F. Mason, Ph.D.  
August 15, 2014**



Charles F. Mason

13317
Exhibit No. _____
Worldwide Court Reporters, Inc.

**HIGHLY CONFIDENTIAL**

**Table of Contents**

**I.** Statement of Purpose.....5

**II.** Executive Summary.....5

**III.** Background .....6

**IV.** Statement of Opinion.....8

**A.** Issue 1: The Role of BPXP and Anadarko in the Gulf of Mexico.....8

**1.** Production .....8

**a.** Methodology.....8

**b.** BPXP’s role in Gulf of Mexico production .....9

**c.** Anadarko’s role in Gulf of Mexico production.....13

**d.** Conclusion.....14

**2.** Royalties.....15

**a.** Methodology .....15

**b.** BPXP’s role in Gulf of Mexico royalties.....18

**c.** Anadarko’s role in Gulf of Mexico royalties.....19

**d.** Conclusion.....20

**3.** Leases.....21

**a.** Background.....21

**b.** Methodology.....22

**c.** BPXP’s role in Gulf of Mexico leasing.....24

**d.** Anadarko’s role in Gulf of Mexico leasing.....25

**e.** Conclusion.....26

**4.** Deepwater Presence.....28

Expert Report of Charles F. Mason, Ph.D.

a. Background.....	28
b. Methodology.....	28
c. BPXP’s role in Gulf of Mexico Deepwater Structures.....	29
d. Anadarko’s role in Gulf of Mexico Deepwater Structures .....	29
e. Conclusion.....	29
<b>B. Issue 2: The Degree of Economic Harm Suffered in the Gulf of Mexico Region</b>	
Following the Macondo Oil Spill.....	29
1. Background.....	29
2. Methodolgy.....	37
3. Analysis.....	41
4. Conclusion.....	44
<b>V. Statement of Compensation.....</b>	<b>68</b>
<b>VI. References Cited.....</b>	<b>69</b>
<b>VII. Curriculum Vita.....</b>	<b>72</b>
<b>VIII. Documents Consulted.....</b>	<b>83</b>

Figures and Tables

Figure 1: Oil Production in the Gulf of Mexico, 2011 – 2013.....	12
Figure 2: Gas Production in the Gulf of Mexico, 2011 – 2013.....	12
Figure 3: Combined Oil and Gas Production in the Gulf of Mexico, 2011 – 2013.....	13
Figure 4: Combined Oil and Gas Royalties in the Gulf of Mexico, 2011 – 2013.....	20
Figure 5: Activity in Recent Lease Sales: Number of Leases Won.....	27
Figure 6: Activity in Recent Lease Sales: Monies Spent.....	27
Figure 7: BP/GCCF Payment History.....	33
Table 1: Total Industry Production for the Gulf of Mexico Region, 2011-2013.....	9
Table 2: BPXP’s Role in the Gulf of Mexico – Production.....	11
Table 3: Anadarko’s Role in the Gulf of Mexico – Production.....	14
Table 4: Total Royalty Payments in the Gulf of Mexico, 2011-2013.....	16
Table 5: BPXP and Anadarko Royalty Payments in the Gulf of Mexico, 2011-2013.....	18
Table 6: BPXP’s Role in Gulf of Mexico Royalty Payments, 2011-2013.....	18
Table 7: Anadarko’s Role in Gulf of Mexico Royalty Payments, 2011-2013.....	19
Table 8: Gulf of Mexico Leasing, as of June 2, 2014.....	21
Table 9: Lease Sales in the Gulf of Mexico.....	22
Table 10: Active Leases Held by Anadarko and BPXP, as of July 1, 2014.....	23
Table 11: BPXP’s Role in Gulf of Mexico Lease Sales.....	24
Table 12: Anadarko’s Role in New Gulf of Mexico Lease Sales .....	25
Table 13: Deepwater Structures – Permanent Platforms as of July 1, 2014.....	45



Table 14: Deepwater Structures – Subsea Boreholes as of July 1, 2014.....46

Table 15: Claims Filed and Processed under the Settlement Program.....36

Table 16: Claims Filed and Processed under the Settlement Program.....36

Table 17: Gulf of Mexico Oil Spill Payments.....42

**I. Statement of Purpose**

I have been retained by the United States Department of Justice to offer my opinion on two issues:

1. The economic role of BP Exploration and Production (BPXP) and Anadarko Petroleum Corporation (Anadarko) in the Gulf of Mexico region;
2. Whether the economic harm suffered in the Gulf of Mexico region as a result of the oil spill following the Macondo blowout was severe.

**II. Executive Summary**

1. Both BPXP and Anadarko are modestly important in the Gulf of Mexico oil and gas industry. BPXP's share of Gulf of Mexico market output, royalties paid, new leases and deepwater structures is generally smaller than 18%, and is less than 12% for a number of these metrics. Anadarko's share of Gulf of Mexico market output, royalties paid, new leases, and deepwater structures is generally smaller than 14%, and is less than 8% for a number of these metrics.

2. The oil spill following the Macondo blowout led to extremely severe economic harm. Damages caused by the spill, based on the subset of effects I analyze, can be roughly estimated at more than \$10 billion.

### III. Background

I have a double Bachelor's of Arts, in Economics and Mathematics (with Honors), from the University of California at Berkeley, awarded in 1977. Following my undergraduate work, I entered the Doctoral program at the University of California at Berkeley, receiving my PhD in 1983. I was hired as an Assistant Professor at the University of Wyoming in August 1982; in 1989 I was promoted to Associate Professor, with tenure; in 1994 I was promoted to Full Professor. In 2007, I was named the H. A. "Dave" True, Jr. Chair in Petroleum and Natural Gas Economics, and Full Professor of Economics, in the Department of Economics and Finance at the University of Wyoming, a position I still hold. My research focuses on Environmental and Resource Economics broadly defined, with over 60 publications in peer-reviewed journals. Many of my papers have appeared in top general interest economics journals, including the *Quarterly Journal of Economics*, the *Review of Economics and Statistics*, the *RAND Journal of Economics*, the *International Economic Review*, *Economic Inquiry*, the *Southern Economic Journal*. I have also published widely in the top journals in the field of environmental and resource economics, including the *Journal of Environmental Economics and Management*, *Environmental and Resource Economics* and *Resource and Energy Economics*, as well as the top field journal in energy economics, the *Energy Journal*. A complete list of my publications is contained in my CV, which is appended to this report.

My responsibilities as the True Chair include conducting research into topics related to oil and gas economics, teaching an undergraduate course on oil and gas economics, and service outreach to the state. Since being named to this chair, much of my research effort has been devoted to oil and gas economics, as reflected in the publications listed in my CV. As I created the oil and gas economics class, I realized no textbook appropriate to the course was available.

Expert Report of Charles F. Mason, Ph.D.

As a result, I wrote a monograph relevant to the course, which has recently been published. I have also contributed to an Issue Brief relevant to petroleum economics, and am in the process of co-authoring two survey articles on related topics: the economics of fracking, and the economics of oil sands. I have been asked to give presentations related to oil markets to the Brookings Institutions Crude Oil Working Group, FBR Capital Markets, and the Independent Petroleum Association of America.

I served as the managing editor of the top international journal in the field of Environmental and Resource Economics, the *Journal of Environmental Economics and Management*, from 2006 to 2011. I am currently an associate editor of the *European Economic Review*, co-editor of the *Journal of the Association of Environmental and Resource Economists* and joint editor-in-chief of *Strategic Behavior in the Environment*. I regularly provide peer reviews of articles submitted for publication, for a wide range of journals, and I am regularly asked to evaluate academics that are being considered for tenure or promotion at various universities. Within the past 18 months, I have been asked to serve as the external examiner on two Doctoral committees on dissertations that included material on petroleum economics.

I have been a visiting academic at a variety of top international universities, including the University of Cambridge (2003); the University of Oxford (2008, 2009, 2010, 2011 and 2012); the Venice International University, Ca' Foscari (2013); the Toulouse School of Economics (2013); the University of Southern Denmark (2014) and the London School of Economics (2014).

#### IV. Statement of Opinion

##### A. Issue 1: The Role of BPXP and Anadarko in the Gulf of Mexico

BPXP asserts that it plays an important role in the economy of the Gulf of Mexico and the nation, and Anadarko asserts that it makes important contributions to the Gulf of Mexico regional economy. To evaluate these assertions, I determine BPXP and Anadarko's share of the Gulf of Mexico oil and gas industry based upon a variety of metrics including their share of hydrocarbon production, their share of royalty payments, their share of leases, and their share of deepwater structures.

##### 1. Production

##### a. Methodology

Annual data on oil and gas production are available from the Bureau of Ocean Energy Management (BOEM), at its webpage.<sup>1</sup> These data show the quantities of crude oil, condensate, and combined oil production, in barrels, by operator, for all firms producing in the Gulf of Mexico.<sup>2</sup> Also listed is the total amount of natural gas produced, in thousand cubic feet (MCF), by operator. I downloaded these data files for each of the three complete years after the oil spill (2011, 2012 and 2013).<sup>3</sup>

For later reference, Table 1 displays total annual industry production of oil (in barrels), gas (in MCF) and combined output (in barrels of oil equivalent) for the years 2011, 2012 and

---

<sup>1</sup> See <http://www.data.boem.gov/homepg/pubinfo/repcat/product/Rank%20Oil.asp>.

<sup>2</sup> As the designated operator does not necessarily hold a 100% ownership interest in every field it operates, this data is not identical to firms' production levels. Even so, this data is informative in that it is correlated with firms' production levels. Moreover, in aggregate the data does correspond to industry production levels.

<sup>3</sup> US\_PP\_MAS009963, US\_PP\_MAS009967, US\_PP\_MAS009970.

Expert Report of Charles F. Mason, Ph.D.

2013.<sup>4</sup> Between 2011 and 2012, oil production in the Gulf of Mexico fell by about 3% while gas production fell by nearly 19%; between 2012 and 2013, oil production fell by 2% while gas production fell by 18%.

Table 1: Total Industry Production for the Gulf of Mexico Region, 2011-2013<sup>5</sup>

<u>Year</u>	<u>Oil (barrels)</u>	<u>Natural Gas (MCF)</u>	<u>Barrels of Oil Equivalent</u>
2011	481,803,483	1,831,466,525	808,000,634.18
2012	465,282,835	1,541,558,527	739,845,319.77
2013	456,122,652	1,306,700,919	688,855,334.47

The BOEM production data lists output for two subcategories for oil, crude oil and condensates, and two subcategories for gas, natural gas and casinghead gas (gas jointly produced with oil); it also lists the sum of the subcategories' values for both oil and gas. I use these summed values in my analysis. I consider oil production (in barrels), gas production (in MCF), and combined production (in barrels of oil equivalent) for each of the three years following the oil spill (2011, 2012 and 2013). All are available for every active firm in the Gulf of Mexico, for each of the three years.

b. BPXP's Role in Gulf of Mexico Production

BPXP provided annual production statistics for oil (in barrels) and gas (in MCF).<sup>6</sup> Comparing this data against the BOEM industry-level statistics given in Table 1, I calculate

---

<sup>4</sup> Barrels of oil equivalent is a volumetric measure that converts natural gas from thousand cubic feet into barrels. The factor I used was 5.61460 thousand cubic feet per barrel, taken from US\_PP\_MAS009998, available at the Energy Information Administration website: <http://www.eia.gov/cfapps/ipdbproject/docs/unitswithpetro.cfm>.

<sup>5</sup> Created by adding the columns in US\_PP\_MAS009963, US\_PP\_MAS009967, US\_PP\_MAS009970.

Expert Report of Charles F. Mason, Ph.D.

BPXP's share of production for each of the three metrics: oil (in barrels), gas (in MCF) and combined output (in barrels of oil equivalent).<sup>7</sup> These shares are listed, for each of the three years 2011, 2012 and 2013, in Table 2. BPXP's average share of oil production over the three-year period was 15.36%. Its share of oil production eroded from a high of 17.32% in 2011 to a low of 13.55% in 2013. BPXP's average share of gas production over the three-year period was 3.44%. Its share fell from a high of 3.64% in 2011 to a low of 3.23% in 2013. In terms of combined output, BPXP's average share over the three-year period was 10.92%; its share shrank from a high of 11.80% in 2011 to a low of 10.06% in 2013.<sup>8</sup>

---

<sup>6</sup> BP-HZN-2179MDL09099965. It is unclear if these data include production from Verano Holdings LLC in 2012; see BP-HZN-2179MDL07815598.

<sup>7</sup> As noted above, I used the value 5.6416 to convert million cubic feet of gas into barrels of oil equivalent. The spreadsheet provided by BPXP uses the factor 5.8; applying their conversion factor would slightly change BPXP's shares of combined hydrocarbon production, from 11.80% to 11.90% in 2011, from 10.74% to 10.83% in 2012 and from 10.05% to 10.14% in 2013. Over the three-year period, adjusting the conversion factor would change BPXP's share from 10.92% to 10.95%.

<sup>8</sup> BPXP's sale of some of its Gulf of Mexico production assets after the Macondo incident was an important contributing factor to the reduction in BPXP's share of Gulf of Mexico oil and gas production between 2011 and 2013. See Exhibits 12406, 12412, 12420. While year-on-year industry production in the Gulf of Mexico also fell, BPXP's sale of production assets would accelerate their rate of production decline above and beyond the general industry trend.

Table 2: BPXP's Role in the Gulf of Mexico – Production

<u>Year</u>	<u>BPXP's Total Production<sup>9</sup></u>			<u>BPXP's Share of Production</u>		
	<u>Oil<sup>a</sup></u>	<u>Natural Gas<sup>b</sup></u>	<u>Combined<sup>c</sup></u>	<u>Oil</u>	<u>Natural Gas</u>	<u>Combined</u>
2011	83,462,078	66,620,847	95,327,722	17.32%	3.64%	11.80%
2012	70,220,364	52,016,071	79,484,794	15.09%	3.37%	10.74%
2013	61,813,904	42,198,343	69,329,727	13.55%	3.23%	10.06%
2011-13	215,496,346	160,835,260	244,142,244	15.36%	3.44%	10.92%

a: Barrels of oil

b: MCF of natural gas

c: Barrels of oil equivalent

Figures 1-3 graphically illustrate BPXP's role in Gulf of Mexico hydrocarbon production. Figure 1 shows oil production in the Gulf of Mexico, for each of the past 3 complete years, along with the sum over those three years, for the industry as a whole and for BPXP. Figure 2 shows gas production in the Gulf of Mexico, for each of the past 3 complete years, along with the sum over those three years, for the industry as a whole and for BPXP. Figure 3 shows combined production in the Gulf of Mexico, for each of the past 3 complete years along with the sum over those three years, for the industry as a whole and for BPXP. These graphics provide visual confirmation of the numbers in Table 2: BPXP did not play a large role in Gulf of Mexico hydrocarbon production over the past three years.

<sup>9</sup> BP-HZN-2179MDL09099965.



Figure 1: Oil Production in the Gulf of Mexico, 2011 – 2013

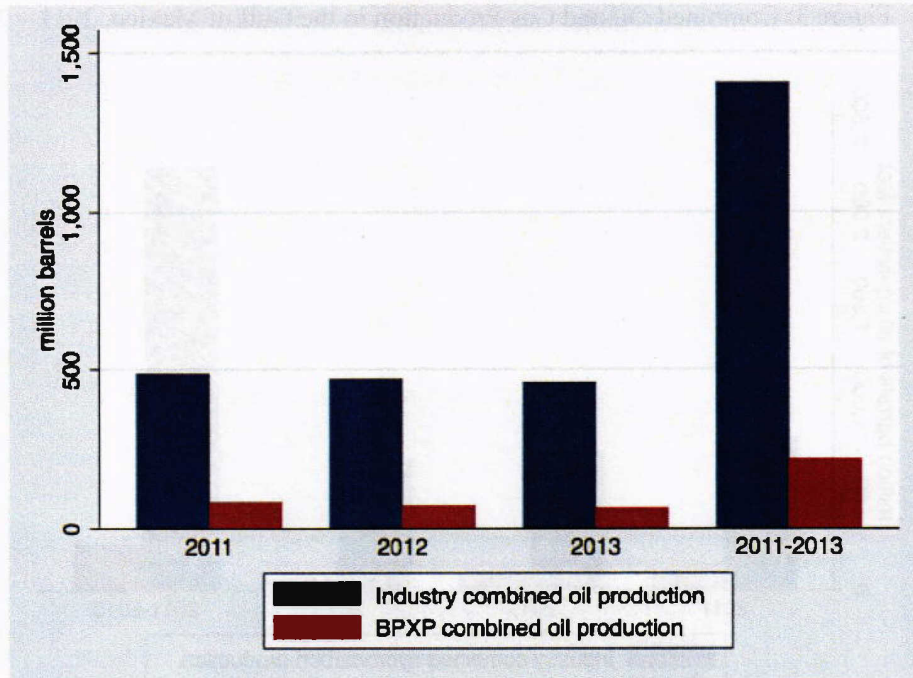


Figure 2: Gas Production in the Gulf of Mexico, 2011 – 2013

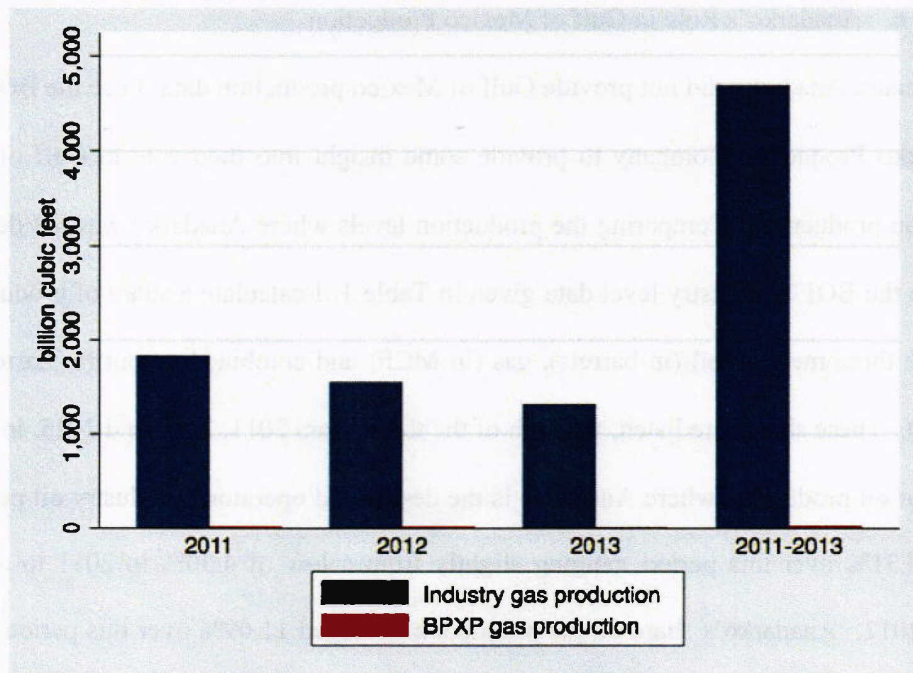
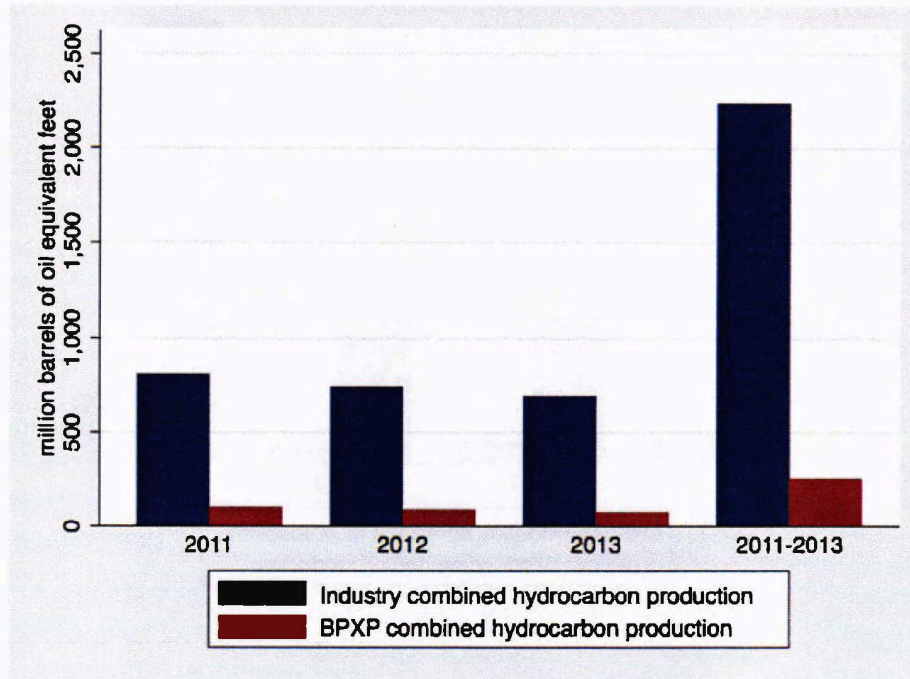


Figure 3: Combined Oil and Gas Production in the Gulf of Mexico, 2011 – 2013



c. Anadarko’s Role in Gulf of Mexico Production

Because Anadarko did not provide Gulf of Mexico production data, I use the BOEM data for Anadarko Production Company to provide some insight into their role in Gulf of Mexico hydrocarbon production. Comparing the production levels where Anadarko was the designated operator to the BOEM industry level data given in Table 1, I calculate a share of production for each of the three metrics: oil (in barrels), gas (in MCF) and combined output (in barrels of oil equivalent). These shares are listed, for each of the three years 2011, 2012 and 2013, in Table 3. The ratio of oil production where Anadarko is the designated operator to industry oil production averaged 5.31% over this period, ranging slightly from a low of 4.30% in 2011 to a high of 6.26% in 2012. Anadarko’s share of gas production averaged 11.09% over this period, ranging

Expert Report of Charles F. Mason, Ph.D.

from a low of 10.42% in 2013 to a high of 11.38% in 2012. In terms of combined output, the ratio of production where Anadarko is the designated operator to industry production averaged 7.46% over the three years, ranging from a low of 7.10% in 2013 to a high of 8.16% in 2012.

Table 3: Anadarko's Role in the Gulf of Mexico – Production

Year	Anadarko's Total Production <sup>10</sup>			Anadarko's Share of Production		
	Oil <sup>a</sup>	Natural Gas <sup>b</sup>	Combined <sup>c</sup>	Oil	Natural Gas	Combined
2011	20,695,042	207,440,096	57,641,591.35	4.30%	11.33%	7.13%
2012	29,124,038	175,363,561	60,357,529.43	6.26%	11.38%	8.16%
2013	24,692,679	136,116,510	48,935,992.86	5.41%	10.42%	7.10%
2011-13	74,511,759	518,920,167	166,935,113.65	5.31%	11.09%	7.46%

a: barrels of oil

b: MCF of Natural Gas

c: Barrels of oil equivalent

#### d. Conclusion

Neither BPXP nor Anadarko has a large share of production in the Gulf of Mexico. BPXP contributed 15.36% of oil production over the preceding three years. In terms of combined oil and gas production, measured by barrels of oil equivalent, BPXP's share over the past three complete years was a relatively modest 10.92%. Anadarko was the designated operator for 11.09% of gas production over the past three complete years and 7.46% of combined oil and gas production, both quite modest shares.

<sup>10</sup> US\_PP\_MAS009963, US\_PP\_MAS009967, US\_PP\_MAS009970, available at <http://www.data.boem.gov/homepg/pubinfo/repcat/product/Rank%20Oil.asp>. While Anadarko US Offshore was listed as an operator in the 2011 report, it had no production that year; Anadarko US Offshore was not listed in the 2012 or 2013 reports.

## 2. Royalties

### a. Methodology

Information regarding royalties paid in a variety of geographic regions is available at the Office of Natural Resource Revenue (ONRR) website.<sup>11</sup> I used royalties reported for the offshore Gulf of Mexico; these data show annual royalty payments, for both oil and gas, as well as combined royalty payments. Two temporal reporting conventions are available: sales year and accounting year. Both data sets show sales that occurred during the fiscal year (running from October 1 of the preceding year to September 30 of the reported year).<sup>12</sup> Accounting Year data reflect recorded transactions that ONRR accepted into their system during the fiscal year, including adjusted or corrected transactions for sales from previous years, while Sales Year data do not include these changes.<sup>13</sup> I use Sales Year for my analysis because ONRR warns against using Accounting Year for analyses of trends or sales volume.<sup>14</sup> In Table 4, I list royalty payments in the Gulf of Mexico for each of the three complete years following the oil spill (2011, 2012 and 2013), for oil, for gas, and combined royalty payments. BPXP and Anadarko each provided data identifying the royalties paid by each company in 2011, 2012, and 2013.<sup>15</sup> I compare these data from the companies to the ONRR industry-level data.

---

<sup>11</sup> <http://statistics.onrr.gov/ReportTool.aspx>.

<sup>12</sup> US\_PP\_MAS009963, available at <http://statistics.onrr.gov/PDF/FAQs.pdf>, at 2.

<sup>13</sup> *Id.*, at 1-2.

<sup>14</sup> *Id.*

<sup>15</sup> For BPXP, see Exhibit 11970, BP-HZN-2179MDL07818050; Deposition of Richard Morrison 277:23-278:3. For Anadarko, see Exhibit 12914, ANA-MDL3\_0011603.



Table 4: Total Royalty Payments in the Gulf of Mexico, 2011-2013<sup>16</sup>

<u>Sales Year</u>	<u>Oil</u>	<u>Gas</u>	<u>Combined oil &amp; gas</u>
2011	\$4,795,103,633.08	\$1,121,153,321.45	\$5,916,256,954.53
2012	\$5,022,322,666.98	\$673,844,269.27	\$5,696,166,936.25
2013	\$5,186,978,444.14	\$667,318,833.17	\$5,854,297,277.31
2011-2013	\$15,004,404,744.20	\$2,462,316,423.89	\$17,466,721,168.09

There is a small temporal discrepancy between reporting conventions used by the companies and ONRR. Because the ONRR data uses a fiscal year, the industry level data are offset by three months from the reported values for BPXP and Anadarko. As royalties are based on a firm's sales revenues, the distinction between these two temporal reporting schemes boils down to the difference between industry revenues in the fourth quarter of a particular year and the corresponding revenues from the previous year. While fourth quarter revenues will naturally vary from one year to the next, I believe there is good reason to expect the variations are not substantial.

First, while oil and gas prices vary from one year to the next, the distinction between average fiscal year prices and average calendar year prices within any particular year is not large.<sup>17</sup> Second, while average Federal Offshore Gulf of Mexico field production of crude oil

<sup>16</sup> US\_PP\_MAS010787, US\_PP\_MAS010789, US\_PP\_MAS010791.

<sup>17</sup> The appropriate benchmark for Gulf of Mexico oil production is the Louisiana Light Sweet price index; see US\_PP\_MAS010940, available at <http://statistics.onrr.gov/PDF/YearInReview%20FY2012.pdf>, at 1 and 2. The average monthly prices per barrel are: \$100.70 for Fiscal Year 2011 and \$108.83 for Calendar Year 2011; \$109.51 for Fiscal Year 2012 and \$107.19 for Calendar Year 2012; \$108.15 for Fiscal Year 2013 and \$106.19 for Calendar Year 2013. US\_PP\_MAS010932, available at the EIA website, <http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=F003075773&f=M>. The appropriate benchmark for Gulf of Mexico gas is the Henry Hub price index; see US\_PP\_MAS010948, available at <http://statistics.onrr.gov/PDF/YearInReview%20FY2013.pdf>, at 1 and 5, and US\_PP\_MAS010940, at 1 and 5. The average monthly prices per MCF are: \$4.12 for Fiscal Year 2011 and \$4.00 for Calendar Year 2011; \$2.73 for Fiscal Year 2012 and

Expert Report of Charles F. Mason, Ph.D.

changed over time, the distinction between average fiscal year prices and average calendar year prices within any particular year is also modest.<sup>18</sup> As a result of the first two observations, Fiscal Year revenue and Calendar Year revenue were similar in each year, for both oil and gas.<sup>19</sup> Accordingly, the discrepancy between the two reporting schemes does not impact the qualitative assessment of the role played by either company in terms of Gulf of Mexico royalties.

I now proceed to an analysis of BPXP's and Anadarko's role in Gulf of Mexico royalties. Table 5 shows royalty payments from BPXP and from Anadarko for each of the three years, 2011-2013, as well as the total amount paid over that period.<sup>20</sup>

---

\$2.75 for Calendar Year 2012; \$3.62 for Fiscal Year 2013 and \$3.73 for Calendar Year 2013.

See US\_PP\_MAS011279, available at <http://www.eia.gov/dnav/ng/hist/rngwhhdm.htm>.

<sup>18</sup> The average monthly oil production levels, in thousands of barrels, are: 41,724 for Fiscal Year 2011 and 40,018 for Calendar Year 2011; 37,995 for Fiscal Year 2012 and 38,641 for Calendar Year 2012; 38,933 for Fiscal Year 2013 and 38,123 for Calendar Year 2013. See US\_PP\_MAS011278, available at

<http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRFP3FM1&f=M>. The average monthly gas production levels, in billion cubic feet, are: 160.62 for Fiscal Year 2011 and 151.03 for Calendar Year 2011; 129.27 for Fiscal Year 2012 and 125.63 for Calendar Year 2012; 114.90 for Fiscal Year 2013 and 109.32 for Calendar Year 2013. See US\_PP\_MAS011282, available at <http://www.eia.gov/dnav/ng/hist/n9050fx2m.htm>.

<sup>19</sup> Multiplying monthly production with monthly price, I calculated monthly revenue, for both oil and gas. I summed these to get combined revenues, and then calculated the average monthly revenues under each of the two annual reporting schemes. The resultant values are: \$4.836 billion for Fiscal Year 2011 and \$4.925 billion for Calendar Year 2011; \$4.527 billion for Fiscal Year 2012 and \$4.495 billion for Calendar Year 2012; \$4.626 billion for Fiscal Year 2013 and \$4.457 billion for Calendar Year 2013. The difference between these revenue values in percentage terms is not large: Fiscal Year revenues are .7% larger than Calendar Year revenues in 2012 and 3.79% larger in 2013. Adjusting for these discrepancies would raise BPXP's share of royalties by about .5% in 2013, and less in other years; Anadarko's share of royalties would increase by about .1%. Adjustments in other years would be smaller still.

<sup>20</sup> For BPXP, see Exhibit 11970, BP-HZN-2179MDL07818050. For Anadarko, see Exhibit 12914, ANA-MDL3\_0011603.

Table 5: BPXP and Anadarko Royalty Payments in the Gulf of Mexico, 2011-2013

<u>Year</u>	<u>BPXP</u>	<u>Anadarko</u>
2011	\$1,070,051,169	\$196,302,442
2012	\$889,944,384	\$182,792,786
2013	\$779,087,387	\$170,520,600
2011-2013	\$2,739,082,940	\$549,615,828

b. BPXP's Role in Gulf of Mexico Royalties

To determine BPXP's role in Gulf of Mexico royalties, I compare BPXP's royalty data in Table 5 to the ONRR oil and gas industry Gulf of Mexico royalties reported in Table 4. As the values listed in Table 5 do not distinguish between oil and gas as the source of production, I compare them against the combined oil and gas Gulf of Mexico royalties reported in Table 4. The values from Table 5 are reproduced in the second column of Table 6, and the values from Table 4 are reproduced in the third column of Table 6. In the fourth column of Table 6, I show the ratio of BPXP's royalty payment to combined industry Gulf of Mexico industry royalty payments for each of the three years. This ratio declined over the past three years, from a high of 18.09% in 2011 to a low of 13.31% in 2013; this mirrors the decrease in BPXP's production during this time frame. Over the three-year period, the ratio of BPXP's royalties to total industry Gulf of Mexico royalties was 15.68%.

Table 6: BPXP's Role in Gulf of Mexico Royalty Payments, 2011-2013

<u>Year</u>	<u>BPXP Royalties</u>	<u>Industry Royalties</u>	<u>BPXP Share of Royalties</u>
2011	\$1,070,051,169	\$5,916,256,953	18.09%
2012	\$889,944,384	\$5,696,168,665	15.62%
2013	\$779,087,387	\$5,854,300,151	13.31%
2011-2013	\$2,739,082,940	\$17,466,725,769	15.68%

c. Anadarko's Role in Gulf of Mexico Royalties

To determine Anadarko's role in Gulf of Mexico royalties, I compare Anadarko's royalty data from Table 5 to the ONRR oil and gas industry Gulf of Mexico royalties reported in Table 4. As for BPXP, I use the combined oil and gas Gulf of Mexico royalties reported in Table 4 in this comparison. The values from Table 5 are reproduced in the second column of Table 7, and the values from Table 4 are reproduced in the third column of Table 7. In the fourth column of Table 7, I show the ratio of Anadarko's royalty payment to combined Gulf of Mexico industry royalty payment for each of the three years. Over the three-year period 2011 to 2013, the ratio of Anadarko's royalties to total industry Gulf of Mexico royalties was 3.15%. This ratio ranged from a high of 3.32% in 2011 to a low of 2.91% in 2013.<sup>21</sup>

Table 7: Anadarko's Role in Gulf of Mexico Royalty Payments, 2011-2013

<u>Year</u>	<u>Anadarko Royalties</u>	<u>Industry Royalties</u>	<u>Anadarko Share of Royalties</u>
2011	\$196,302,442	\$5,916,256,953	3.32%
2012	\$182,792,786	\$5,696,168,665	3.21%
2013	\$170,520,600	\$5,854,300,151	2.91%
2011-2013	\$549,615,828	\$17,466,725,769	3.15%

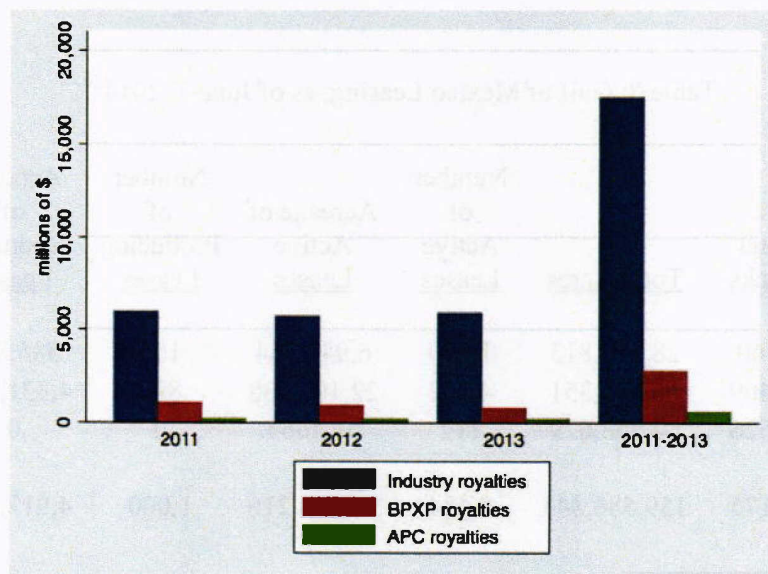
<sup>21</sup> Anadarko contends that "minimum royalties, delay rentals, surface rentals, and variable payment rentals" are relevant as well. Deposition of Darrell Hollek 53:3-8, 155:23-156:13, 158:22-159:8. These contributions amounted to \$15.9 million in 2013 (Exhibit 12935); about \$15.9 million for 2012 (Exhibit 12936); and \$14.2 million for 2011 (Exhibit 12939). Including these additional amounts would raise Anadarko's share from 3.32% to 3.59% in 2011, from 3.21% to 3.49% in 2012, and from 2.91% to 3.16% in 2013; over the three-year period, their share would be raised from 3.15% to 3.41%. In my opinion, these adjustments are not of great consequence because Anadarko's share of Gulf of Mexico royalties remains modest.



d. Conclusion

Figure 4 shows combined royalty payments in the Gulf of Mexico, for each of the past 3 complete years, for the industry as a whole, for BPXP and for Anadarko, along with the total over the past 3 complete years, for the industry as a whole, for BPXP and for Anadarko. Neither BPXP nor Anadarko has a large share of royalties paid on hydrocarbon production in the Gulf of Mexico. Over the three-year period from 2011 to 2013, average royalties paid by BPXP represented 15.68% of total Gulf of Mexico royalty payments. Over this three-year time period, combined royalties paid by Anadarko Petroleum Corporation and Anadarko US Offshore Corporation represented 3.15% of total Gulf of Mexico royalty payments.

Figure 4: Combined Oil and Gas Royalties in the Gulf of Mexico, 2011 – 2013



3. Leases

a. Background

The BOEM website provides a summary of offshore leasing, which contains a variety of information related to offshore leases.<sup>22</sup> Included are statistics on the total number of blocks leased, the total number of acres leased, the number of active leases,<sup>23</sup> the number of producing leases,<sup>24</sup> the acreage of producing leases, the number of non-producing leases, and the acreage of non-producing leases. Table 8 reproduces the part of the leasing report relevant to the Gulf of Mexico. Activity in the Gulf is delineated geographically, into the western, central and eastern Gulf of Mexico sub-regions. As of June 2, 2014, leases were held on 29,175 total blocks, comprising 159,586,843 acres. Of these leases, 5,484 were active; 1,000 of these active leases were producing oil or gas. Both BPXP and Anadarko hold several active leases in the Gulf of Mexico.<sup>25</sup>

Table 8: Gulf of Mexico Leasing, as of June 2, 2014<sup>26</sup>

<u>Gulf of Mexico Region</u>	<u>Total Blocks</u>	<u>Total Acres</u>	<u>Number of Active Leases</u>	<u>Acreage of Active Leases</u>	<u>Number of Producing Leases</u>	<u>Acreage of Producing Leases</u>	<u>Number of Non-Producing Leases</u>
Western	5,240	28,576,813	1,220	6,947,564	106	585,835	1,114
Central	12,409	66,446,351	4,152	22,101,988	894	4,331,305	3,258
Eastern	11,526	64,563,679	112	601,664	0	0	112
Total	29,175	159,586,843	5,484	29,651,216	1,000	4,917,140	4,484

<sup>22</sup> US\_PP\_MAS009977, available at <http://www.boem.gov/Combined-Leasing-Report-June-2014/>.

<sup>23</sup> These are leases where drilling is taking place.

<sup>24</sup> These are leases where hydrocarbons are being produced; a non-producing lease is one where no hydrocarbons are being produced.

<sup>25</sup> US\_PP\_MAS010629.

<sup>26</sup> US\_PP\_MAS009977, Combined Leasing Report as of June 2, 2014.

BOEM regularly offers lease sales, in which a large number of tracts are offered up for auction. These auctions attract considerable interest. For example, sale number 218, offered 14 December, 2011, attracted bids on 191 tracts; sale number 216/222, offered 20 June, 2012, attracted bids on 454 tracts; and sale number 231, offered 19 March, 2014, attracted bids on 326 tracts.<sup>27</sup> A large number of companies bid on leases in these sales. In sale 218, 20 companies participated.<sup>28</sup> In sale 216/222, 56 companies submitted bids on leases.<sup>29</sup> In sale 231, 50 companies submitted bids on leases.<sup>30</sup> I use data for lease sales 218, 216/222, and 231 in my analysis below. Table 9 shows the sale date, the number of tracts for which BOEM determined the winning bid was acceptable, and the sum total of winning bids, for each of these three sales.

Table 9: Lease Sales in the Gulf of Mexico<sup>31</sup>

<u>Lease Sale</u>	<u>Date</u>	<u>Tracts Leased</u>	<u>Total of High Bids</u>	<u>Companies Bidding</u>
218	12/11/11	181	\$337,688,341	20
216/222	6/20/12	442	\$1,704,500,995	56
231	3/19/14	320	\$850,809,921	50

b. Methodology

Data available at the BOEM website show the number of active leases held by each company, by company number, as of July 1, 2014.<sup>32</sup> Using this data, I added the number of

<sup>27</sup> US\_PP\_MAS010279, available at <http://www.boem.gov/OCS-Lease-Sale-Statistics-All-Lease-Offerings/>.

<sup>28</sup> US\_PP\_MAS010919.

<sup>29</sup> US\_PP\_MAS010921.

<sup>30</sup> US\_PP\_MAS010929.

<sup>31</sup> US\_PP\_MAS010279, US\_PP\_MAS010919, US\_PP\_MAS010921, US\_PP\_MAS010929.

<sup>32</sup> US\_PP\_MAS010629.

Expert Report of Charles F. Mason, Ph.D.

active leases for each company to find the industry total number of active leases, which is 5,853. Dividing the number of active leases held by any company by 5,853 then gives the share of active leases that company holds. I follow this approach to obtain BPXP's share. For Anadarko, I follow this approach to obtain shares for Anadarko Petroleum Corporation and Anadarko US Offshore Corporation; I then sum these values to generate Anadarko's share. Results are collected in Table 10.

Table 10: Active Leases Held by Anadarko and BPXP, as of July 1, 2014<sup>33</sup>

<u>Company Name</u>	<u>Company Number</u>	<u>Number of Leases</u>	<u>Share of Total</u>
Anadarko Petroleum Corporation	981	361	6.17%
Anadarko US Offshore Corporation	2219	3	0.05%
combined Anadarko		364	6.22%
BPXP	2481	486	8.30%

The database I downloaded from the BOEM website for individual lease sales shows the number of leases obtained for each company, by company number, for that sale. Using this information, I calculated the total number of leases awarded in that lease sale; dividing the number of leases obtained by a particular firm by the total number of leases awarded then gives the share of new leases for each company for that sale. BPXP was barred from participating in lease sales starting in November 2012, though it was allowed to return to active participation in

---

<sup>33</sup> *Id.* BPXP and Anadarko are the "designated operators" of the leases included in Table 10. However, they do not necessarily hold a 100% ownership interest in all of these leases.

lease sales as of March 13, 2014.<sup>34</sup> In order to avoid slanting my results, I therefore do not use data from lease sales that took place during this period of debarment.<sup>35</sup>

c. BPXP's Role in Gulf of Mexico Leasing

The data in Table 10 indicate that BPXP held 8.3% of all active leases in the Gulf of Mexico as of July 1, 2014. Information on BPXP's role in individual lease sales in which it participated after the oil spill is presented in Table 11. Here, I show for each of the three sales the number of bids offered by BPXP, the number of high bids offered by BPXP, and the total amount of BPXP's winning bids. The ratio of the number of winning bids offered by BPXP to the total number of winning bids gives the fraction of leases won by BPXP in that sale; I list this in column 5. The ratio of the total dollar amount of BPXP's winning bids to the total amount of high bids gives the fraction of total money from winning bids associated with BPXP's winning bids in that sale; I list this in column 6. Because firms' bidding behavior may vary across lease sales I also list the corresponding values taken over all three sales together.

Table 11: BPXP's Role in Gulf of Mexico Lease Sales<sup>36</sup>

Lease Sale	BPXP Number of		Total Amount of High Bids	BPXP's Share of	
	Bids Submitted	High Bids		High Bids	Payments
218	15	11	\$27,458,809	6.08%	8.13%
216/222	48	43	\$239,502,916	9.73%	14.05%
231	31	24	\$41,625,416	7.50%	4.89%
Total for All 3 Sales	94	78	\$308,587,141	8.27%	10.67%

<sup>34</sup> See US\_PP\_MAS009647.

<sup>35</sup> The sales in question are 229, which occurred on 11/28/12; 227, which occurred on 3/20/13; and 233, which occurred on 8/28/13.

<sup>36</sup> US\_PP\_MAS010919, US\_PP\_MAS010921, US\_PP\_MAS010929.

BPXP's share of new leases ranges from 6 – 10%, averaging 8.27% over the three lease sales. Its share of payments associated with winning bids is slightly larger, ranging from 5 – 14%, averaging 10.67% over the three lease sales. These values are similar to the share of active leases held by BPXP I reported in Table 10.

d. Anadarko's Role in Gulf of Mexico Leasing

The data in Table 10 indicate that Anadarko held just over 6.5% of all active leases in the Gulf of Mexico as of June 1, 2014. Information on Anadarko's role in recent individual lease sales is presented in Table 12. Here, I show for each of the three sales the number of bids offered by Anadarko, the number of high bids offered by Anadarko, and the total amount of Anadarko's winning bids. The ratio of the number of winning bids offered by Anadarko to the total number of winning bids gives the fraction of leases won by Anadarko in that sale; I list this in column 5. The ratio of the total dollar amount of Anadarko's winning bids to the total amount of high bids gives the fraction of total money from winning bids associated with Anadarko's winning bids in that sale; I list this in column 6. Because firms' bidding behavior may vary across lease sales I also list the corresponding values taken over all three sales together.

Table 12: Anadarko's Role in New Gulf of Mexico Lease Sales<sup>37</sup>

<u>Lease sale</u>	<u>Anadarko Bids Submitted</u>	<u>Number of High Bids</u>	<u>Total Amount of High Bids</u>	<u>Anadarko's Share of High Bids</u>	<u>Payments</u>
218	8	7	\$19,317,210	3.87%	5.72%
216/222	19	11	\$12,569,500	2.49%	0.74%
231	8	7	\$9,484,400	2.19%	1.11%
Total for All 3 Leases	35	25	\$41,371,110	2.65%	1.43%

<sup>37</sup> US\_PP\_MAS010919, US\_PP\_MAS010921, US\_PP\_MAS010929.

Anadarko's share of new leases ranges from 2 – 4%, averaging 2.65% over the three lease sales. Its share of payments associated with winning bids varies, ranging from just less than 1% to just less than 6%. On average, its payments amount to roughly 1.5% of all winning bids, over the three lease sales. These values are similar to the share of active leases held by Anadarko I reported in Table 10.<sup>38</sup>

e. Conclusion

Neither BPXP nor Anadarko has a large share of leases in the Gulf of Mexico. Figures 5 and 6 illustrate. Figure 5 shows the total number of leases awarded for each of the three lease sales I considered in my analysis, along with the number of leases won by BPXP and Anadarko. I also show the total numbers, summed over the three leases. Figure 6 shows the combined monetary total amount of winning bids for each of the three lease sales, along with the combined monetary amount of BPXP's winning bids and the combined monetary amount of Anadarko's winning bids. I also show the total amounts, summed over the three leases. BPXP holds less than 9% of all active leases in the Gulf of Mexico, and won less than 9% of leases awarded during recent lease sales in which it participated. The monetary amount of its winning bids associated with these lease sales represent less than 11% of the total monetary amount of winning bids. Anadarko holds less than 7% of all active leases in the Gulf of Mexico. It won less than 5% of leases awarded during recent lease sales in it participated. The monetary amount

---

<sup>38</sup> Of the three lease sales I excluded because of the BPXP debarment, Anadarko's participation in lease sale 227 was larger than the average value reported in Table 12. Anadarko had 30 of 307 (or 9.77%) high bids in this lease sale 227. US\_PP\_MAS010925. It was less active in the other two excluded leases, with only 3 of 51 high bids in lease sale 233 and none of the 13 high bids in lease sale 229. US\_PP\_MAS010933, US\_PP\_MAS010928. Anadarko's share of the amount bid on high bids was 3.5% for lease sale 227 and 1.7% for lease sale 233. Including data from these lease sales would increase Anadarko's average share of winning bids from 2.65% to 4.07%, and its share of winning bid payments from 1.43% to 2.03%.

of its winning bids associated with these lease sales represent less than 2% of the total monetary amount of winning bids.

Figure 5: Activity in Recent Lease Sales: Number of Leases Won

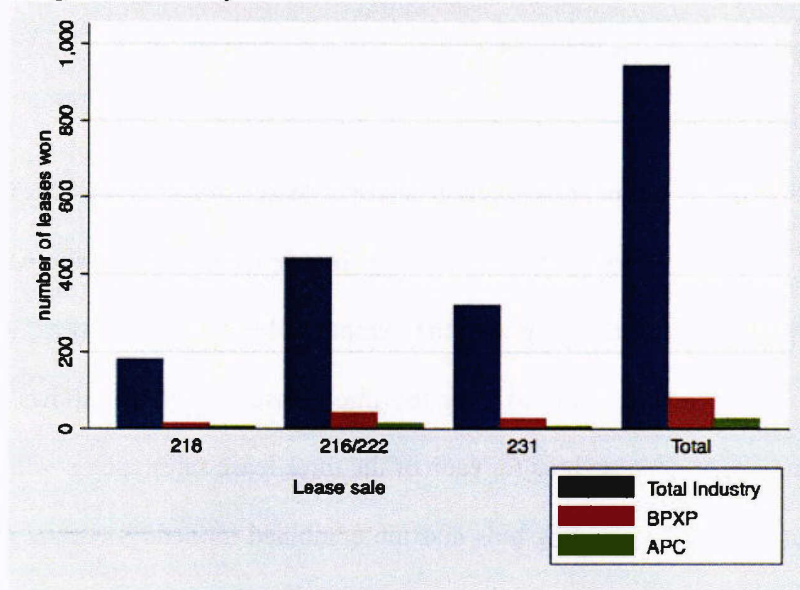
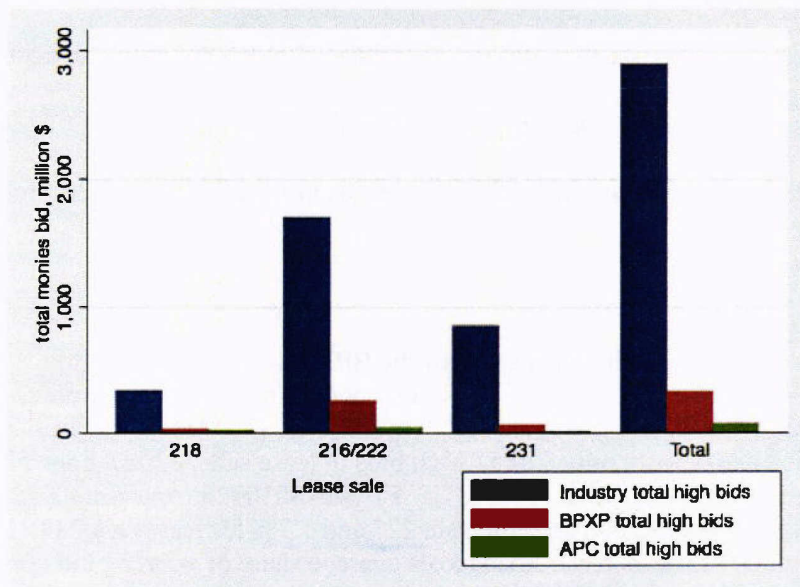


Figure 6: Activity in Recent Lease Sales: Monies Spent





#### 4. Deepwater Presence

##### a. Background

Information related to deepwater structures is also available at the BOEM website.<sup>39</sup> These data show the number of permanent production platforms in water depths greater than 1,000 feet, by operator, and the number of subsea boreholes<sup>40</sup> in water depths greater than 1,000 feet, by company, as of July 1, 2014. Table 13, located at the end of the report, shows the list of permanent production platforms, by company. Table 14, also located at the end of the report, shows the list of subsea boreholes, by company. There were 49 permanent platforms and 298 subsea boreholes in water depths greater than 1,000 feet as of July 1, 2014; 4 of the permanent platforms and 30 of the subsea boreholes are attributed to BPXP, while 7 of the permanent platforms and 39 of the subsea boreholes are attributed to Anadarko.

##### b. Methodology

For any company, dividing the number of permanent deepwater platforms it operates by 49 (the total number of permanent platforms in operation in the Gulf of Mexico) yields that company's share of permanent deepwater platforms. Similarly, dividing the number of subsea boreholes for a particular company by 298 (the total number of subsea boreholes in the Gulf of Mexico) yields that company's share of subsea boreholes.

<sup>39</sup> US\_PP\_MAS009983, available at [http://www.data.boem.gov/homepg/data\\_center/other/tables/dpstruct.asp](http://www.data.boem.gov/homepg/data_center/other/tables/dpstruct.asp).

<sup>40</sup> These are drilled holes on the seabed; see <http://www.glossary.oilfield.slb.com/>.

c. BPXP's Role in Gulf of Mexico Deepwater Structures

With 4 of 49 permanent Gulf of Mexico platforms currently operating in water depths exceeding 1,000 feet, BPXP's share is 8.16%. In terms of Gulf of Mexico subsea boreholes in water depths exceeding 1,000 feet, BPXP had 30 of 298 listed, or 10.07%.

d. Anadarko's Role in Gulf of Mexico Deepwater Structures

With 7 of 49 permanent Gulf of Mexico platforms currently operating in water depths exceeding 1,000 feet, Anadarko's share is 14.29%. Anadarko had 39 of 298 Gulf of Mexico subsea boreholes in water depths exceeding 1,000 feet, which corresponds to 13.09%.

e. Conclusion

Neither BPXP nor Anadarko has a large share of deepwater structures in the Gulf of Mexico. BPXP has only 10.07% of subsea boreholes, and 8.16% of permanent platforms. Anadarko has only 14.29% of permanent platforms and 13.09% of subsea boreholes.

B. Issue 3: The Degree of Economic Harm Suffered in the Gulf of Mexico Region

Following the Macondo Oil Spill

1. Background

On April 20, 2010, the Macondo well suffered a blowout, causing the mobile offshore drilling unit "Deepwater Horizon" to explode and eventually sink. Oil flowed from the well into the Gulf of Mexico for 87 days. The extended and substantial flow of oil caused direct and indirect economic harm, primarily in the Gulf of Mexico region.

Following the Macondo blowout, three main regimes allowed injured parties to seek compensation from BP for certain types of economic damages. From May 2010 to August 23,

Expert Report of Charles F. Mason, Ph.D.

2010, claims were processed by BP directly (the "BP Claims Program");<sup>41</sup> from August 2010 until June 2012, claims were processed by the Gulf Coast Claims Facility (the "GCCF Program");<sup>42</sup> since June 2012, claims have been processed by the Deepwater Horizon Court Supervised Settlement Program (the "Settlement Program").<sup>43</sup> In all three claims regimes, claimants were required to submit detailed information to the claim organization.

The BP Claims Program received over 154,000 claims, and made over 127,000 payments to more than 30,000 claimants.<sup>44</sup> The total amount paid was slightly less than \$400 million.<sup>45</sup> Claims processed included health related effects, adverse impacts to fisheries, real estate losses, property damage losses, tourism losses, and lost wages.<sup>46</sup> Claimants were required to provide documentation to support their claim, such as documentation to establish their lost income, their commercial economic loss, and their property damage.<sup>47</sup> BP extensively reviewed claims processed by the claims adjusters and forensic accountants hired to run the BP Claims Program.<sup>48</sup> The BP Claims Program provided payments for past losses only; it did not issue payments to cover future anticipated losses.<sup>49</sup> The BP Claims Program was suspended on

---

<sup>41</sup> US\_PP\_MAS009132-US\_PP\_MAS009133, Gulf of Mexico Oil Spill - Claims and Other Payments - Public Report - June 30, 2014; 2014 available at [http://www.bcom/content/dam/bp/pdf/gulf-of-mexico/Public\\_Report\\_June\\_2014.pdf](http://www.bcom/content/dam/bp/pdf/gulf-of-mexico/Public_Report_June_2014.pdf).

<sup>42</sup> *Id.*

<sup>43</sup> Rec. Doc. 6430-1, US\_PP\_MAS009511, Deepwater Horizon Economic and Property Damages Settlement Agreement as Amended on May 2, 2012; Rec. Doc. 7282, US\_PP\_MAS009634 Report by the Claims Administrator of the Deepwater Horizon Economic and Property Damage Settlement Agreement on the Status of Claims Review: Status Report No. 1, September 5, 2012, establishing that the Settlement Program began accepting claims June 4, 2012.

<sup>44</sup> US\_PP\_MAS010282 BDO Consulting Independent Evaluation of the Gulf Coast Claims Facility, at 12.

<sup>45</sup> Exhibit 11923, at 161.

<sup>46</sup> BP-HZN-2179MDL01627551

<sup>47</sup> BP-HZN-2179MDL01748782, at 4-5.

<sup>48</sup> US\_PP\_MAS010282, at 12.

<sup>49</sup> *Id.*

Expert Report of Charles F. Mason, Ph.D.

August 22, 2010.<sup>50</sup>

The GCCF Program commenced on August 23, 2010. It processed claims involving lost earnings or profits for individuals and businesses, damage to real or personal property, loss of subsistence use of natural resources, as well as removal and clean-up costs, and physical injury or death.<sup>51</sup> Hundreds of trained claims processors processed these GCCF claims.<sup>52</sup>

The GCCF Program was split into two phases. The first phase, known as “Phase I,” processed claims for documented losses sustained during the first six months following the Macondo blowout; the focus was on quick disbursement of funds, which was accomplished by the “Emergency Advance Payment” (EAP) claims process.<sup>53</sup> The second phase, “Phase II,” processed three types of payments: quick payment, interim payment and final payment.<sup>54</sup> The quick payment claim involved a one-time payment of \$5,000 for individuals or \$25,000 for businesses; claimants were required to sign a form promising not to bring future suits against BP. Interim and final payments involved compensation for documented past losses or damages caused by the Spill. These claims were incremental to any past claims, in particular claims paid from the BP Claims Program. While receiving an interim claim did not entail releasing BP from future liability, claimants receiving a final payment were required to sign a form promising not to bring future suits against BP. Interim payments were limited to losses sustained by the claimant up to the date the claim was filed; in particular, there was no attempt to quantify anticipated future losses. By contrast, final payments included both past losses and an estimate of future

---

<sup>50</sup> At the conclusion of the GCCF, BP resumed paying a small number of claims directly. As of June 30, 2014 these claims paid by BP after the GCCF totaled \$11.8 million.

US\_PP\_MAS009132.

<sup>51</sup> US\_PP\_MAS010282, at 12-13.

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*, at 29.

<sup>54</sup> *Id.*, at 34-35.

Expert Report of Charles F. Mason, Ph.D.

losses. To make a claim, an individual had to demonstrate that the loss had been proximately caused by the oil spill, and had to provide evidence as to the magnitude of the loss.<sup>55</sup> The GCCF Program was quite rigorous; indeed, over 60% of claimants who filed under the GCCF were denied.<sup>56</sup>

GCCF claims processing involved sorting claimants into one of four categories: individuals and businesses that depended heavily on resources and tourism from the Gulf and who were located in zip codes that bordered the Gulf shore (Group 1); individuals and businesses from Gulf Alliance counties<sup>57</sup> who were not located in zip codes that bordered the Gulf shore, along with businesses that located in zip codes bordering the Gulf that were not heavily reliant on Gulf resources and tourism (Group 2); claimants that were not located in the Gulf Alliance

---

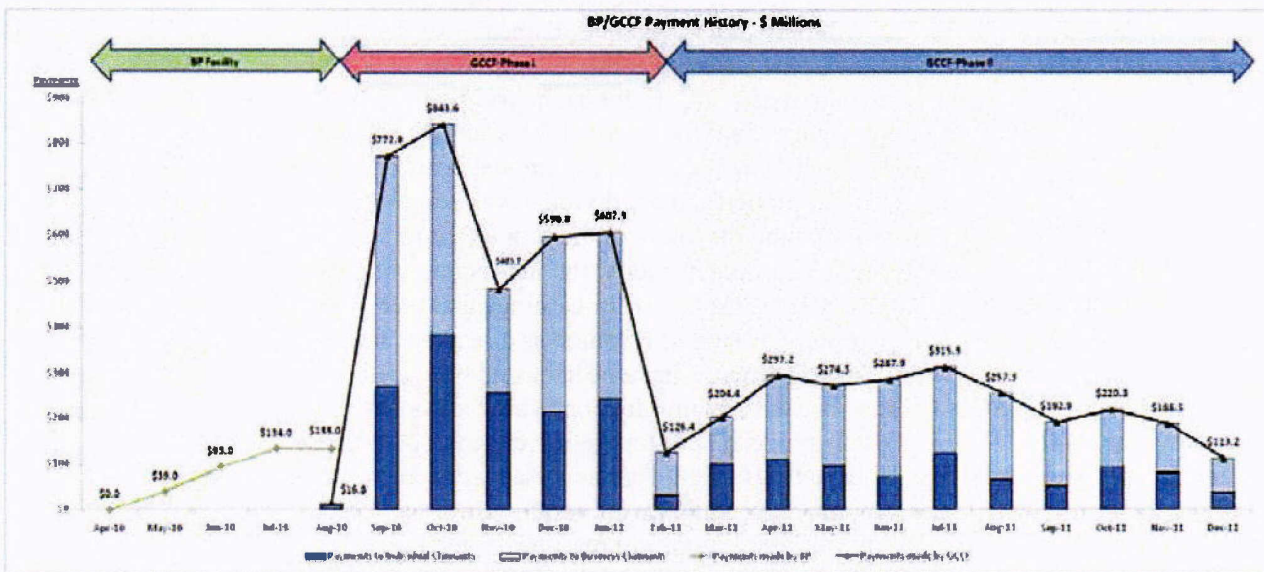
<sup>55</sup> *Id.*, at 38-39. See also Exhibit 11977, Gulf Coast Claims Facility Protocol for Interim and Final Claims, at 4 (“The GCCF will only pay for harm or damage that was proximately caused by the spill.”); Exhibit 11978 Gulf Coast Claims Facility Claim Form, at 3 (“You must provide documentation or evidence of the damage or injury for each type claimed.”); BP-HZN-2179MDL03368697, Gulf Coast Claims Facility Protocol for Interim and Final Claims, at 4 (“The GCCF will only pay for harm or damage that is proximately caused by the Spill.”) For claims related to lost real or personal property, the individual was required to provide “[i]nformation or documentation showing the value of the property both before and after damage.” *Id.* at 3. For lost profits or earning capacity, the individual was required to provide “[i]nformation concerning the Claimant's lost profits or earnings that were caused by the injury, destruction, or loss of specific property or natural resource as a result of the Spill (such as lost earnings by a fisherman whose fishing grounds have been closed or a hotel or rental property that has had decreased profits because beaches, swimming, or fishing areas have been affected by the oil from the Spill).” *Id.* at 3. For claims related to mitigation expenses, the individual was required to demonstrate that “[t]he actions taken were necessary for removal of oil discharged due to the Spill or to prevent, minimize, or mitigate oil pollution from the Spill” and that “[t]he removal costs incurred as a result of these actions are reasonable and necessary.” *Id.* at 2. The GCCF Protocols were written with input from BP, Exhibit 12343, at 5.

<sup>56</sup> US\_PP\_MASO10282, at 62. In addition, quite a few claimants had difficulty navigating the GCCF system. Exhibit 12362, at 1. BP was not unaware of GCCF's mode of operation: One function of BP's Gulf Coast Restoration Organization, was to “monitor” GCCF. BP-HZN-2179MDL01875511, at slide 37. The GCRO reviewed and commented on GCCF methodology and reviewed and commented on special claims paid by the GCCF. BP-HZN-2179MDL08684118 at slide 3.

<sup>57</sup> See US\_PP\_MASO10282, footnote 23 at 37, for a full delineation of these counties.

counties, or who were not heavily reliant on Gulf resources and tourism (Group 3); and claimants who were deemed not deemed not to be eligible for compensation by the GCCF.<sup>58</sup> If an individual claimant was found eligible, his or her losses were determined by comparing actual 2010 earnings against projected 2010 earnings. Projected 2010 earnings were the highest of the claimant’s earnings for 2008, 2009 or annualized 2010 prior to the Spill, which were then seasonally adjusted. The resultant amount was then subtracted from the claimant’s actual earnings to determine the claim payment.<sup>59</sup> For Final Payment claims, the analysis included a prediction of future losses; these were predicted using a “Future Recovery Factor,” which was based upon a multiple of the claimant’s documented 2010 loss amount.<sup>60</sup> Figure 7 displays the payment history during the BP Claims Processing period and the first 16 months of the GCCF.<sup>61</sup>

Figure 7: BP/GCCF Payment History



<sup>58</sup> *Id.*, at 39-40.

<sup>59</sup> *Id.*, at 41.

<sup>60</sup> *Id.*, at 35, 41. However, large losses were not automatically adjusted by the Future Recovery Factor: “With regard to claimants with documented 2010 losses of \$500,000 or more, the GCCF did not automatically apply a Future Recovery Factor.” At 43, footnote 34.

<sup>61</sup> Reproduced from *Id.*, Figure 2, at 60.

The Settlement Program similarly addressed many types of individual and business economic losses, losses in real property value, and subsistence losses.<sup>62</sup> The Economic and Property Damages (E&PD) Settlement Class includes people, businesses, and other entities in the “Gulf Coast Area”<sup>63</sup> that were harmed by the oil spill. Claims eligible for payment under the E&PD include Seafood Compensation, Economic Damage, Loss of Subsistence, Vessel Physical Damage, Coastal Real Property Damage, Wetlands Real Property Damage, and Real Property Sales Damage.<sup>64</sup> Both claimants and BP had the right to appeal proposed claim settlements.<sup>65</sup>

Under the Settlement Program, claimants were required to establish causation for certain claims, though causation was presumed for other claims. However, even where causation was presumed, claimants had to show an economic loss in the period following the oil spill as measured by reduced income or reduced profits in the period after the spill as compared to an earlier benchmark period.<sup>66</sup> BP’s own expert described the process as follows: “If a claimant

---

<sup>62</sup> Rec. Doc. 6430-1. Claims under the Settlement program fell into 12 categories: Seafood Compensation Program; Individual Economic Loss; Individual Periodic Vendor or Festival Vendor Economic Loss; Business Economic Loss; Start-Up Business Economic Loss; Failed Business Economic Loss; Coastal Real Property; Wetlands Real Property; Real Property Sales; Subsistence; Vessels of Opportunity Charter Payment; and Vessel Physical Damage.

<sup>63</sup> This area consists of states of Louisiana, Alabama and Mississippi, and the counties of Chambers, Galveston, Jefferson and Orange in the state of Texas, and the counties of Bay, Calhoun, Charlotte, Citrus, Collier, Dixie, Escambia, Franklin, Gadsden, Gulf, Hernando, Hillsborough, Holmes, Jackson, Jefferson, Lee, Leon, Levy, Liberty, Manatee, Monroe, Okaloosa, Pasco, Pinellas, Santa Rosa, Sarasota, Taylor, Wakulla, Walton and Washington in the state of Florida. See *Id.*, at 3.

<sup>64</sup> *Id.*

<sup>65</sup> Rec. Doc. 6430-1. BPXP’s appeals are limited to claim payments in excess of \$25,000. As of June 30, 2014, BPXP had filed 3,995 appeals, or 20.9% of the 18,989 claims that were eligible to be appealed. US\_PP\_MAS010829, at 18.

<sup>66</sup> Most claimants were allowed to use either 2009, the average of 2008 and 2009, or the average of 2007, 2008 and 2009 to form their benchmark, although individuals who changed jobs between the base period and 2010, or who started work on or after April 21, 2009 had to

Expert Report of Charles F. Mason, Ph.D.

did not experience an economic loss after the oil spill, the claimant's damages calculation will result in a payment of \$0, whether causation is established or presumed."<sup>67</sup> BP's community outreach coordinator during the oil spill response, whose responsibilities included organizing community affairs activities at the tactical level, agreed that "if we [BP] paid a claim, there must have been a loss."<sup>68</sup>

Tables 15 and 16 display some relevant statistics for the Settlement Program.<sup>69</sup> In Table 15, I show the number of claim forms filed, the number of claims that have been reviewed, and the fraction of filed claims that have yet to be reviewed, as of June 30, 2014; these values are listed for each type of claim. I have arranged the claim types in descending order of number of claims filed. The two most often filed claims types are filed Business Economic Loss and Individual Economic Loss; together they represent about half of all claims filed under the Settlement Program. Over 30% of all claims filed by June 30, 2014 have yet to be reviewed; in particular, about 60% of Subsistence and Wetlands Real Property claims and almost 45% of Business Loss claims have not yet been reviewed. Table 16 displays the aggregate amount offered, the total amount of accepted offers, and the total amount paid, for each claim type. In terms of monies offered, Business Economic Losses are the most important category, while the second most important category is the Seafood Compensation Program. Combined, these top two categories represent about 5/6 of all monies offered, and of all money offers accepted.

---

include 2011 in their benchmark period. See

[http://www.deepwaterhorizoneconomicsettlement.com/docs/QRG\\_IEL.pdf](http://www.deepwaterhorizoneconomicsettlement.com/docs/QRG_IEL.pdf).

<sup>67</sup> US\_PP\_MAS010956, Supplemental Declaration of James L. Henley, Jr.

<sup>68</sup> Deposition of Iris Cross, 34:16-36:25; 110:1-5.

<sup>69</sup> The numbers in Table 15 are drawn from US\_PP\_MAS010829, Table 10 at page 12, and the numbers in Table 16 are taken from US\_PP\_MAS010829, in Ex. A, Table 5. For completeness, I include all claim types listed in the source document, including VOO Charter Payment. In the analysis below, I exclude this claim type from consideration.



Table 15: Claims Filed and Processed under the Settlement Program

<u>Claim Type</u>	<u>Total Claims Filed</u>	<u>Reviews Completed</u>	<u>% Claims Remaining to Review</u>
Business Economic Loss	101,520	56,111	44.73%
Individual Economic Loss	43,023	39,227	8.82%
Coastal Real Property	36,076	35,490	1.62%
Seafood Compensation Program	24,723	24,413	1.25%
Subsistence	37,678	13,717	63.59%
VoO Charter Payment	8,759	8,699	0.69%
Wetlands Real Property	16,600	6,837	58.81%
Start-Up Business Economic Loss	5,541	4,006	27.70%
Failed Business Economic Loss	3,753	2,860	23.79%
Real Property Sales	1,640	1,616	1.46%
Vessel Physical Damage	1,438	1,399	2.71%
Individual Periodic Vendor or Festival Vendor Economic Loss	284	270	4.93%
<b>Total</b>	<b>281,035</b>	<b>281,035</b>	<b>30.74%</b>

Table 16: Claim Payments under the Settlement Program

<u>Claim Type</u>	<u>Amount Offered</u>	<u>Amount Accepted</u>	<u>Amount Paid</u>
Business Economic Loss	\$3,064,876,770	\$2,910,201,937	\$2,104,436,731
Seafood Compensation Program	\$1,123,077,536	\$1,107,584,283	\$1,088,690,912
VoO Charter Payment	\$280,054,437	\$277,799,002	\$276,481,711
Wetlands Real Property	\$142,573,333	\$118,212,447	\$114,979,743
Coastal Real Property	\$141,709,991	\$137,762,284	\$134,948,554
Start-Up Business Economic Loss	\$121,416,636	\$114,243,931	\$95,956,004
Individual Economic Loss	\$66,780,730	\$63,168,909	\$55,739,894
Real Property Sales	\$34,313,396	\$33,628,861	\$32,542,683
Subsistence	\$19,661,837	\$18,137,824	\$16,153,899
Vessel Physical Damage	\$12,727,175	\$12,595,585	\$11,890,417
Failed Business Economic Loss	\$3,428,620	\$2,977,358	\$1,868,839
Individual Periodic Vendor or Festival Vendor Economic Loss	\$77,085	\$77,085	\$77,085
<b>Total</b>	<b>\$5,010,697,547</b>	<b>\$4,796,389,507</b>	<b>\$3,933,766,472</b>

## 2. Methodology

A variety of individuals have suffered economic harm as a result of the Macondo blowout and oil spill.<sup>70</sup> Examples include, but are not limited to: individuals participating in the gulf coast fishing industry,<sup>71</sup> individuals employed in the tourism industry,<sup>72</sup> and property owners.<sup>73</sup> The losses suffered by these cohorts of individuals are mainly *direct*, in that they suffered reductions in income or profit as a direct result of the spill. There were also *indirect* losses (the impacts resulting from the change in spending by those who suffered direct effects upon industries that provide goods and services to those in the direct effects cohort) and *induced* losses (resulting from reduced household income of anyone in the primary or related industries, for example laborers who lose their jobs as a result of the initial direct effect upon their employer).

Uncertainty was one cause of economic harm resulting from the oil spill.<sup>74</sup> This increased uncertainty will naturally retard investment,<sup>75</sup> an effect that would be particularly important for smaller businesses. For example, a small fish processor would be unlikely to invest in added processing capacity due to uncertainty about the Gulf of Mexico fishery that followed the oil spill. There have also been increases in psychological problems, which have

---

<sup>70</sup> The oil spill is an example of what economists call an “externality,” that is an action taken by one party that imposes a cost upon another party or parties. US\_PP\_MAS010069, Hanley, Shogren and White (2007), at 49; US\_PP\_MAS010076, Perloff (2007), at 605.

<sup>71</sup> BP-HZN-2179MDL01888387, IEM (2010); US\_PP\_MAS001580, Sumaila et al. (2012).

<sup>72</sup> Exhibit 11929, Eastern Research Group (2014); BP-HZN-2179MDL01876986, Oxford Economics (2010); US\_PP\_MAS002883, Ritchie et al. (2014).

<sup>73</sup> US\_PP\_MAS001175, Siegel, Caudill and Mixon, Jr. (2013)

<sup>74</sup> See Exhibit 12915, Rockefeller Philanthropy Advisors - Fund for Gulf Communities - Final Report: “Recent Deepwater Horizon spill triggered further uncertainty and dislocation, particularly among small businesses, the self-employed and poor residents.” At 3. Also see Exhibit 11929, Eastern Research Group (2014): “Many interviewees mentioned uncertainty following the oil spill when ERG asked them about any unresolved challenges. The types of uncertainty mentioned included the health of the environment, business recovery, or tourism levels after BP funding is decreased.” At 54.

<sup>75</sup> US\_PP\_MAS009860, Dixit and Pindyck (1994), at 152-154.

Expert Report of Charles F. Mason, Ph.D.

economic implications.<sup>76</sup> One study suggests that the psychological fallout from the oil spill led to adverse effects, including increases in depression and anxiety that persisted well after the spill; these psychological effects would cause reductions in productivity.<sup>77</sup>

Lost income is one example of economic harm caused by the Macondo blowout and oil spill. Conceptually, the exact amount of lost income due to the oil spill would be the difference between businesses' and individuals' actual earnings and what they would have earned in the period after April 20, 2010 had the oil spill not occurred. However, because we can't readily determine what individuals or businesses would have earned had the oil spill not occurred, we must use a proxy to compare against actual earnings. Absent any clear evidence regarding other probable changes to an individual's income between the period before the oil spill and the period after the spill, the best available proxy is a measure of earnings preceding the spill. The period used to construct the counter-factual income level, had the spill not occurred, is called a benchmark period. An estimate of harm can then be made by comparing the earnings realized after the spill against the earnings that the business or individual realized during the benchmark period. Using a benchmark period in this manner is a sensible approach when so many claims

---

<sup>76</sup> Exhibit 12916, Rockefeller Philanthropy Advisors - Fund for Gulf Communities - Final Report, notes that "daily experiences of anxiety, stress & worry have increased by up to 15% in Gulf-facing counties." At 6. Similarly, Exhibit 12915 notes: "The uncertainty is causing a lot of stress for community leaders and local residents..." and "Recent Deepwater Horizon spill triggered further uncertainty and dislocation, particularly among small businesses, the self-employed and poor residents." At 2-3. These sort of psychological problems have been linked to reductions in worker productivity; see US\_PP\_MAS010236, Egede (2007), US\_PP\_MAS010244, Lerner et al. (2004), and US\_PP\_MAS010269, Simon et al. (2000). To the extent that worker productivity is reduced, there are economic consequences.

<sup>77</sup> See US\_PP\_MAS009129, Weir (2014), which observes that "between one-third and half the population met the criteria [for depression] – notably higher than the 10 percent to 11 percent base rate expected in those communities." At 1. This document also notes that it took 3 years for depression levels to drop back down to the baseline levels. US\_PP\_MAS009118, Morris et al. (2013) note that: "89.66% of the people in the income loss group having anxiety scores in the clinically significant range, and 83.7% having scores suggestive of clinically significant depression." At 194.

Expert Report of Charles F. Mason, Ph.D.

have to be processed.<sup>78</sup> Further, by allowing individuals to average income levels over multiple years, the process can average out the ups and downs due to cyclical macroeconomic factors or unusual weather events to find a reasonable forecast as to what one could expect to earn in the period of interest, had the oil spill event not occurred.

The comparison of post-spill income or profits to a benchmark period was the method used to determine the appropriate claim amounts under both the GCCF and the Settlement Program.<sup>79</sup> The benchmark period method may somewhat overestimate or underestimate the precise amount of economic harm experienced by an individual or entity due to the oil spill because the benchmark period earnings may be slightly lower or higher than the earnings that the individual or business would have realized but for the spill. Businesses experience natural variations in their income or profits from year to year, for example because of variations in weather or patronage.<sup>80</sup> The volume of fish caught vary, as do the prices the fish fetch, from one year to the next; hotel room rentals vary from one year to the next; tourism generally is subject to variations in receipts from one year to the next. There are also broad-based macro-economic trends that may impact all industries within a particular region. All these effects, which are external to the oil spill, may make the benchmark period earnings slightly different from the earnings that the business would have realized but for the spill. That point noted, an alternative approach that sought to take idiosyncratic information into account would likely be very

---

<sup>78</sup> An alternative to using a benchmark period would be to forecast underlying trends relevant to each individual, for example by analyzing in detail the industry they participate in. This alternative approach would be complex and unwieldy when so many claims had to be processed, likely leading to very large transactions costs.

<sup>79</sup> Many claims used the average of 2007, 2008 and 2009, or the average of 2008 and 2009, or 2009 as the benchmark period. Individuals who changed jobs between the base period and 2010, or who started work on or after April 21, 2009 had to include 2011. See US\_PP\_MAS009988 at 3, available at [http://www.deepwaterhorizoneconomicsettlement.com/docs/QRG\\_IEL.pdf](http://www.deepwaterhorizoneconomicsettlement.com/docs/QRG_IEL.pdf).

<sup>80</sup> For a discussion of the economics of uncertainty, see US\_PP\_MAS010076, Perloff (2007) at 574-581.

Expert Report of Charles F. Mason, Ph.D.

complicated,<sup>81</sup> and impose substantial “transactions costs” on both claimants and the Claims Program.<sup>82</sup>

While the difference between the benchmark period and post-spill income or profits may include elements that are due to external factors, it does capture differences in income or profits that are due to the oil spill. Each individual claim can therefore be viewed as an estimate of that individual claimant’s loss,<sup>83</sup> which might be either an under- or an over-estimate of damages. Aggregating the claims paid that were calculated using this method provides a rough estimate of damages to claimants caused by the oil spill.<sup>84</sup>

An alternative method for determining damages would be to apply an input-output model, such as the Regional Input-Output Modeling System (RIMS) model used by the U.S. Bureau of Economic Analysis, or the Impact Analysis for Planning (IMPLAN) model developed at the University of Minnesota. With such a model, one could assess the level of economic activity before and after the spill, and estimate the level of damages as the difference. These models implicitly assume that all flows between sectors in the area of interest and all other sectors in the economy can be captured through appropriately selected input-output coefficients that characterize the inter-sector linkages. In this manner, these models integrate indirect and

---

<sup>81</sup> US\_PP\_MAS010252, Mason and Plantinga (2013) analyze such a scheme.

<sup>82</sup> Transactions costs refer to the additional costs that must be incurred as part of an interaction. Economists have long recognized their importance; see US\_PP\_MAS009894, Coase (1960).

<sup>83</sup> US\_PP\_MAS009836, Asteriou and Hall (2011), at 6-7; US\_PP\_MAS009851, Chou (1989), at 21-24.

<sup>84</sup> US\_PP\_MAS010069, Hanley, Shogren and White (2007), at 334-336 discuss the aggregation of damage estimates across affected individuals. One can also think of these individual damages as estimates of an individual’s loss; the set of claims can then be used to estimate the average loss suffered by an individual in the set (US\_PP\_MAS009836, Asteriou and Hall, 2011, at 8; US\_PP\_MAS009851, Chou, 1989, at 101-103). Then multiplying by the total population in the Gulf of Mexico would produce an estimate of total damages. Since one cannot know how the set of individuals who did not file claims were impacted, I prefer to use the simpler method of summing reported claims.

Expert Report of Charles F. Mason, Ph.D.

induced effects into the analysis. While this feature of the RIMS and IMPLAN models is attractive, they make some very stark assumptions. Included in the list of explicit or implicit assumptions are the inability to substitute between inputs, the lack of supply constraints, inflexible trading relations, and very rapid migration of labor in response to decreases in employment. In this application, these assumptions are sufficiently problematic to outweigh the attractive features associated with the input-output models. Accordingly, I prefer to rely on reported paid claims to estimate a subset of damages.

### 3. Analysis

Because each of the three claims programs base claim payments on measured and documented losses, the aggregate amount of claims paid provides information that is relevant for estimating a portion of the economic harm suffered as a result of the oil spill which followed the Macondo blowout. BP's records establish that roughly \$10 billion was paid to claimants under the three claims regimes from 2010 through June 30, 2014.<sup>85</sup> About \$395 million was paid through BP's Program, \$6.2 billion was paid through the GCCF Program for individual and business claims, just over \$4 billion was paid through the Settlement Program Economic and Property Damage settlement, and \$11.8 million was paid under BP's claims program which operated concurrently with the Court Supervised Settlement Program. I also do not include medical settlements (\$79 million) or "Other Payments" (\$25 million) in my calculations, as it is not clear if these represent economic harm. In addition, the BP records include \$287 million in VOO charter payments under the Settlement Program; I remove these from consideration

---

<sup>85</sup> US\_PP\_MAS009132, Gulf of Mexico Oil Spill Claims and Other Payments Public Report – June 30, 2014; see also Exhibit 12647.

Expert Report of Charles F. Mason, Ph.D.

because these do not reflect a loss caused by the oil spill.<sup>86</sup> This adjustment is reflected by subtraction of the row labeled VOO Charter Payments in Table 17. After these adjustments, I calculate a total of \$10.4 billion in claims to individuals and businesses.

Table 17: Gulf of Mexico Oil Spill Payments<sup>87</sup>

<u>Individual &amp; Business Payment</u>	<u>Amount</u>
Claims Paid by BP Prior to August 23, 2010	\$395,619,857
Gulf Coast Claims Facility Individual and Business	\$6,282,191,885
Court Supervised Settlement Program: Economic & Property Damage	\$4,031,093,972
BP Claims Program	\$11,869,813
VOO Charter Payments	(\$286,607,046)
<hr/>	
Total Paid - Individual & Business	\$10,434,168,481

Using actual claim payments as a measure of economic harm due to the oil spill excludes a variety of damages. Because claim payments only cover a subset of the economic harms attributable to the Macondo blowout and spill, the figure arrived at by aggregating claims data should be viewed as a rough estimate of a subset of the damages caused by the spill. That is, while the existence of economic variables other than the spill makes a comparison between benchmarked and actual earnings a somewhat uncertain estimate of loss, it is clear that whatever that estimate is will reflect only a portion of the total loss attributable to the spill.

Some harms were explicitly excluded from the Settlement Program, including claims of BP shareholders, claims for moratoria losses, claims relating to Menhaden fishing and processing, and claims for economic damage suffered by entities in the banking, gaming, financial, insurance, oil and gas, real estate development, and defense contractor industries, as

<sup>86</sup> Exhibit 12647.

<sup>87</sup> Exhibit 12647, BP-HZN-2179MDL08389255; US\_PP\_MAS009132, Gulf of Mexico Oil Spill Claims and Other Payments Public Report – June 30 2014.

Expert Report of Charles F. Mason, Ph.D.

well as claims from entities selling or marketing BP-branded fuel.<sup>88</sup> Some businesses that have experienced economic losses caused by the spill, but who were excluded from the claims process are seeking compensation through the courts.<sup>89</sup> Harms that were excluded from the Settlement Program, and not otherwise compensated through the BP claims program that resumed at the end of the GCCF Program, are excluded from my calculation of claims paid. State governments are also seeking to recover their economic damages from BP through the courts and these losses suffered by government entities are likewise excluded from my \$10 billion estimate.<sup>90</sup>

Some individuals or businesses who experienced economic losses may have determined that the likely return from filing was not worth the time and cost of filing the claim. The time and cost of filing a claim are examples of transactions costs. There are indications that the transactions costs associated with filing a claim as part of the GCCF and Settlement Programs could be substantial.<sup>91</sup> Any individual or business that suffered damages less than the transaction costs would rationally decide to not file a claim. Others may have overestimated the transaction costs and decided that it was not worthwhile to file, even they would have received more claims money than the true cost associated with filing the claim. My calculation does not include these claims that were not filed due to transaction cost concerns.

Many claims that have been filed are still waiting to be reviewed. As indicated in Table 15, over 30% of all claims filed by June 30, 2014 have yet to be reviewed; including 63% of

---

<sup>88</sup> Rec. Doc. 6430-1, US\_PP\_MAS009511, at 5.

<sup>89</sup> See e.g. US\_PP\_MAS010892, US\_PP\_MAS010870.

<sup>90</sup> See e.g. Rec. Doc. 1887.

<sup>91</sup> Exhibit 11923, Austin et al. (2014), reports the GCCF often claimed to have lost the documentation provided by claimants, and "claims adjusters made multiple, new requests for additional financial documents, stretching over weeks and months." At 164. With regard to the Settlement Program, as of June 30, 2104 prospective claimants had started to fill out 12,618 claim forms but had failed to fully complete and submit them, perhaps thwarted by the time and difficulty involved in filing a claim. US\_PP\_MAS010829.



Expert Report of Charles F. Mason, Ph.D.

Subsistence claims, 58% of Wetlands Real Property claims and almost 45% of Business Loss claims.<sup>92</sup> In addition, some claimants may not have filed their claim as of June 30, 2014; the Settlement Program continues to receive additional claims on an ongoing basis.<sup>93</sup> These claims that were not yet filed or not yet reviewed have not been counted in my calculation.

Finally, some types of harm were not explicitly excluded from the three claims programs but no claim was available for these harms. For instance, the claims paid do not reflect recreational use losses, or various non-market losses such as losses of ecosystem services.

#### 4. Conclusion

I conclude that \$10 billion is a rough estimate of a subset of the damages caused by the spill. Claims were paid to hundreds of thousands of individuals who provided documentation establishing economic damage caused by the spill.<sup>94</sup> The oil spill is the largest off-shore spill in US history, with millions of barrels of oil released.<sup>95</sup> In light of the sheer magnitude of these numbers, I conclude that the Macondo blowout led to extremely severe economic harm.

---

<sup>92</sup> US\_PP\_MAS010829, in Ex. A, Table 5. As noted in Table 16, the payments offered to claims in the Business Economic Loss category are far and away the largest in aggregate; they are also large on average. The number of offers made in this claim category as of June 30, 2014 was 12,529. This implies an average offer of slightly less than \$245,00 per claimant.

<sup>93</sup> US\_PP\_MAS010829, Table 10 at 12.

<sup>94</sup> Over 125,000 claims were paid under BP's claims process, see BP-HZN-2179MDL01627551, Total Paid; by January 10, 2012, BP and the GCCF had paid over \$5.5 billion to over 200,000 unique claimants, see US\_PP\_MAS010037, McDonnell (2012), at 772. Under the Settlement Program, almost 200,000 more individuals have filed claims; see <http://www.deepwaterhorizoneconomicsettlement.com/docs/statistics.pdf>, Table 2, p. 2 and Table 4, p. 3.

<sup>95</sup> US\_PP\_MAS009118, Morris et al. (2013), at 192.

Table 13: Deepwater Structures – Permanent Platforms as of July 1, 2014<sup>96</sup>

<u>Operator</u>	<u>Number of Platforms</u>	<u>Share</u>
Anadarko Petroleum Corporation	7	14.29%
Bennu Oil & Gas, LLC	1	2.04%
BHP Billiton Petroleum (GOM) Inc.	2	4.08%
BP Exploration & Production Inc.	4	8.16%
Chevron U.S.A. Inc.	4	8.16%
ConocoPhillips Company	1	2.04%
Energy Resource Technology GOM, Inc.	1	2.04%
Eni US Operating Co. Inc.	3	6.12%
EnVen Energy Ventures, LLC	1	2.04%
Exxon Mobil Corporation	2	4.08%
Freeport-McMoRan Oil & Gas LLC	3	6.12%
Hess Corporation	1	2.04%
LLOG Exploration Offshore, L.L.C.	1	2.04%
MC Offshore Petroleum, LLC	1	2.04%
Murphy Exploration & Production Company - USA	3	6.12%
Noble Energy, Inc.	1	2.04%
Petrobras America Inc.	1	2.04%
SandRidge Energy Offshore, LLC	1	2.04%
Shell Offshore Inc.	7	14.29%
Stone Energy Corporation	2	4.08%
W & T Energy VI, LLC	2	4.08%
Total	49	100%

<sup>96</sup> US\_PP\_MAS009983.

Table 14: Deepwater Structures – Subsea Boreholes as of July 1, 2014<sup>97</sup>

<u>Company</u>	<u>Number of Subsea Boreholes</u>	<u>Share</u>
Anadarko Petroleum Corporation	39	13.09%
Apache Deepwater LLC	6	2.01%
ATP Oil & Gas Corporation	9	3.02%
BHP Billiton Petroleum (GOM) Inc.	20	6.71%
BP Exploration & Production Inc.	30	10.07%
Chevron U.S.A. Inc.	8	2.68%
Deep Gulf Energy LP	1	0.34%
Energy Resource Technology GOM, Inc.	10	3.36%
Eni US Operating Co. Inc.	18	6.04%
Exxon Mobil Corporation	15	5.03%
Freeport-McMoRan Oil & Gas LLC	7	2.35%
Hess Corporation	9	3.02%
LLOG Exploration Offshore, L.L.C.	10	3.36%
Marathon Oil Company	4	1.34%
Mariner Gulf of Mexico LLC	1	0.34%
Marubeni Oil & Gas (USA) Inc.	8	2.68%
Murphy Exploration & Production Company - USA	8	2.68%
Noble Energy, Inc.	5	1.68%
Petrobras America Inc.	5	1.68%
Shell Offshore Inc.	45	15.10%
Stone Energy Corporation	7	2.35%
Union Oil Company of California	5	1.68%
W & T Offshore, Inc.	9	3.02%
Walter Oil & Gas Corporation	19	6.38%
<b>Total</b>	<b>298</b>	<b>100%</b>

<sup>97</sup> *Id.*

Expert Report of Charles F. Mason, Ph.D.

**V. Statement of Compensation**

My fee is \$350 per hour for expert analysis, \$525 per hour for deposition testimony and \$700 per hour for courtroom testimony.

Expert Report of Charles F. Mason, Ph.D.

## VI. Curriculum Vita

### CHARLES F. MASON

H. A. True Chair in Petroleum and Natural Gas Economics and Professor of Economics  
Department of Economics & Finance, University of Wyoming, Laramie WY 82071  
Tel. (307) 742-7580, e-mail: bambuzlr@uwyo.edu

#### Education

- 6/77 Double A.B. in Economics and Mathematics with honor, University of California, Berkeley  
6/83 Ph.D., Economics, University of California, Berkeley  
"Regulation and Information in the U.S. Uranium Industry"

#### Employment

- 6/78-12/78 Research Assistant, Electric Power Research Institute  
1/81-1/82 Economist, Cambridge Systematics Incorporated  
8/82-6/88 Assistant Professor, Economics, University of Wyoming  
7/88-5/94 Associate Professor, Economics, University of Wyoming  
5/94-present Professor, Economics, University of Wyoming  
9/99-10/00 Director of Graduate Studies, University of Wyoming  
1/05-6/05 Visiting Professor, Agricultural and Resource Economics, University of California-Davis  
8/07- present H. A. "Dave" True Chair in Petroleum & Natural Gas Economics, University of Wyoming  
6/97-7/97 Visiting Scholar, Centre for Resource and Environmental Studies, Australian National University  
1/97-5/97 Visiting Professor, Economics, University of Waikato

#### Honors and Awards

- 1992 Senior Research Award, College of Business, University of Wyoming  
1996 Senior Research Award, College of Business, University of Wyoming  
9/77-6/79 Flood Fellowship, Univ. of California, Berkeley  
11/94 Mortar Board 'Top Prof,' University of Wyoming  
12/13- Non-resident Fellow, Resources for the Future  
12/13 Visiting Researcher, Center for Economic Studies, Faculty of Economics of Ludwig-Maximilians-Universität Munich  
6/13 Visiting Scholar, Toulouse School of Economics  
3/13-5/13 Visiting Scholar, Fondazione Eni Enrico Mattei - Venice  
1/13-2/13 Visiting Academic, Energy and Environmental Economics, Bren School of the Environment, University of California-Santa Barbara  
9/12-12/12 Visiting Academic Fellow, Mansfield College, University of Oxford  
6/11- External Research Associate, Oxford Centre for the Analysis of Resource Rich Economics, University of Oxford  
9/08-11/08 Visiting Research Fellow, Smith School of Enterprise and the Environment, University of Oxford  
9/04-11/04 Visiting Fellow, Clare Hall, Cambridge University

Expert Report of Charles F. Mason, Ph.D.

6/97-7/97 Visiting Scholar, Centre for Resource and Environmental Studies, Australian National University  
1/97-5/97 Visiting Professor, Economics, University of Waikato  
8/96-12/96 Visiting Professor, Graduate School of Economics, Oregon State University  
1/90-6/90 Visiting Scholar, Economics, University of Michigan

#### Refereed Journal Articles

1. Oliver, Matthew E., Charles F. Mason and David Finnoff, "Pipeline Congestion and Natural Gas Basis Differentials: Theory and Evidence," *Journal of Regulatory Economics* forthcoming.
2. Mason, Charles F., Victoria Umanskaya and Edward Barbier, "On the Strategic Use of Border Tax Adjustments as a Second-Best Climate Policy Measure," *Environment and Development Economics* forthcoming.
3. Atkinson, Scott E. and Charles F. Mason, "Power Generation and Environment: Choices and Economic Trade-offs," *Resource and Energy Economics* 2014, v. 36, 1-5.
4. Mason, Charles F., "Uranium and Nuclear Power: The Role of Exploration in Framing Public Policy," *Resource and Energy Economics* 2014, v. 36, 49-63.
5. Oliver, Matthew E., Charles F. Mason and David Finnoff, "Natural Gas Expansion and the Cost Of Congestion," *IAEE Energy Forum* Winter 2014, pp. 31-32.
6. Van 't Veld, Klaas, Charles F. Mason and Andrew Leach, "The Economics of CO<sub>2</sub> Sequestration Through Enhanced Oil Recovery," *Energy Procedia* 2013, v. 37, 6909-6919.
7. Mason, Charles F., "The Economics of Eco-Labeling," *International Review of Environmental and Resource Economics* 2013, v. 6, 341-372.
8. Mason, Charles F. and Andrew Plantinga, "Contracting for Impure Public Goods: Carbon Offsets and Additionality," *Journal of Environmental Economics and Management* 2013, v. 66 1-14.
9. Wilmot, Neil and Charles F. Mason, "Jump Processes in the Market for Crude Oil," *The Energy Journal* 2013, v 34.
10. Mason, Charles F., Erwin Bulte and Richard D. Horan, "Banking on Extinction: Endangered Species and Speculation," *Oxford Review of Economics and Policy*, 2012, v. 28, 180-192.
11. Mason, Charles F., "On Equilibrium in Resource Markets with Scale Economies and Stochastic Prices," *Journal of Environmental Economics and Management*, 2012, v. 64, 288-300.

Expert Report of Charles F. Mason, Ph.D.

12. Cook, Benjamin R. and Charles F. Mason, "Enhanced Oil Recovery: Going Beyond Conventional Extraction," *IAEE Energy Forum*, Fall 2012, 21-23.
13. Leach, Andrew, Charles F. Mason and Klaas van 't Veld, "Economic Co-optimization of Enhanced Oil Recovery and Carbon Sequestration" *Resource and Energy Economics*, 2011, v. 33, 893-912.
14. Mason, Charles F., "Eco-Labeling and Market Equilibria with Noisy Certification Tests," *Environmental and Resource Economics*, 2011, v. 48, 537-560.
15. Mason, Charles F., "On Stockpiling Natural Resources," *Resource and Energy Economics*, 2011 v. 33, 398-409.
16. List, John and Charles F. Mason, "Are CEOs Expected Utility Maximizers?," *Journal of Econometrics* 2011 v. 162, 114-123.
17. Mason, Charles F., "Certification of Socially Responsible Behavior: Eco-Labels and Fair-Trade Coffee," *Journal of Food and Agricultural Industrial Organization*, December 2009, v. 7(2), available online at <http://www.bepress.com/jafio/vol7/iss2/>.
18. Allen, Myles R., David J. Frame and Charles F. Mason "The Case for Mandatory Sequestration," *Nature Geosciences*, 2009, December 2009, v. 2, 813-14.
19. Tarui, Nori, Charles F. Mason, Stephen Polasky and Greg Ellis, "Cooperation in the Commons with Unobservable Actions", *Journal of Environmental Economics and Management* January 2008 v 55(1), pp. 37-51.
20. Mason, Charles F., "Experimental Duopoly in the Classroom," *Journal of Industrial Organization Education* October 2006 v1(1), published on-line at
21. <http://www.bepress.com/jioe/vol1/iss1/>
22. Polasky, Stephen, Nori Tarui, Greg Ellis and Charles F. Mason, "Cooperation in the Commons," *Economic Theory* 2006 v 29(1), pp. 71-88.
23. Mason, Charles F., "An Economic Model of Eco-Labeling," *Environmental Modelling and Assessment*, 2006 v 11(2), pp. 131-143.
24. Mason, Charles F. and Stephen Polasky, "What motivates membership in non-renewable resource cartels?: The case of OPEC," *Resource and Energy Economics* November 2005 27(4), pp. 321-342.
25. Phillips, Owen R., Lawrence R. Weatherford, Charles F. Mason and Mitch Kunce "Passenger Leaks and the Fate of Small Community Air Service," *Economic Inquiry*, October 2005 v 43(4), pp. 785-794.

Expert Report of Charles F. Mason, Ph.D.

26. Mason, Charles F., Jason Shogren, Chad Settle and John List, "Environmental Catastrophes and Non-Expected Utility Maximization: An Experimental Evaluation," *Journal of Risk and Uncertainty*, September 2005 v 31(2), pp. 187-215.
27. Bulte, Erwin, Charles F. Mason and Richard D. Horan, "Betting on Extinction: Endangered Species and Speculation," *Land Economics*, Nov. 2003 v 79(4), pp. 460-471.
28. Mason, Charles F., Aron A. Gottesman and Andrew K. Prevost, "Shareholder Intervention, Managerial Resistance, and Corporate Control: A Nash Equilibrium Approach," *Quarterly Review of Economics and Finance*, Autumn 2003 v 43(3) pp.466-482.
29. Mason, Charles F. and Stephen Polasky, "Strategic Preemption in a Common-Property Resource: A Continuous Time Approach," *Environmental and Resource Economics*, 2002, pp. 255-278.
30. Mason, Charles F. and Owen R. Phillips, "Observing Trigger Strategies in Two-Person Non-Cooperative Games," *Journal of Economics & Management Strategy*, 2002, pp. 685-716.
31. Mason, Charles F. and Arik Ragowsky, "How Supplier Characteristics Influence the Value of a Supplier Management ERP Application," *Information Technology & Management* 2002, pp. 161-180.
32. List, John and Charles F. Mason, "Optimal Institutional Arrangements for Transboundary Pollutants: Evidence from a Differential Game with Asymmetric Players," *Journal of Environmental Economics and Management*, November 2001, pp. 277-296.
33. Phillips, Owen R. and Charles F. Mason, "Collusion in Horizontally Connected Markets," *Multiunit Organization and Multimarket Strategy*, special issue of Advances in Strategic Management, 2001, pp. 205-228.
34. Mason, Charles F. and Owen R. Phillips, "Dynamic Learning in a Two-Person Experimental Game," *Journal of Economic Dynamics and Control*, September 2001, pp. 1305-1344.
35. Mason, Charles F., "Non-renewable Resources with Switching Costs," *Journal of Environmental Economics and Management*, July 2001, pp. 65-81.
36. Mason, Charles F., "Minimum Wages and Information," *Journal of Economics and Business*, March/June 2001, pp. 153-170.
37. Mason, Charles F. and Owen R. Phillips, "An Experimental Evaluation of Strategic Preemption," *International Journal of Industrial Organization*, January 2000, pp. 107-135.



Expert Report of Charles F. Mason, Ph.D.

38. Mason, Charles F. and Owen R. Phillips, "An Experimental Analysis of the Effects of Vertical Integration," *International Journal of Industrial Organization*, March 2000, pp. 471-496.
39. List, John and Charles F. Mason, "Spatial Aspects of Pollution Control when Pollutants have Synergistic Effects: Evidence from a Differential Game with Asymmetric Information," *The Annals of Regional Science*, December 1999, pp. 439-452.
40. Cason, Timothy N. and Charles F. Mason, "Uncertainty, Information Sharing and Collusion in Laboratory Duopoly Markets," *Economic Inquiry*, April 1999, pp. 258-281.
41. Mason, Charles F. and Cliff Nowell "An Experimental Analysis of Subgame Perfect Play: the Entry Deterrence Game," *Journal of Economic Behavior and Organization*, December, 1998, pp. 443-462.
42. Polasky, Stephen and Charles F. Mason, "On the Welfare Effects of Mergers: Short Run vs. Long Run", *Quarterly Review of Economics and Finance*, Spring 1998, pp. 1-24.
43. Mason, Charles F. and Stephen Polasky, "The Optimal Number of Firms in the Commons: A Dynamic Approach," *Canadian Journal of Economics*, November 1997, pp. 1143-1160.
44. Mason, Charles, F. and Owen R. Phillips, "Mitigating the Tragedy of the Commons Through Cooperation: An Experimental Evaluation," *Journal of Environmental Economics and Management*, October 1997, pp. 148-172.
45. Mason, Charles F. and Owen R. Phillips, "Information and Cost Asymmetry in Experimental Duopoly Markets," *Review of Economics and Statistics*, February 1997, pp. 290-299.
46. Phillips, Owen R. and Charles F. Mason, "Fixed Costs, Bankruptcy, and Price Wars in a Duopoly Game," *Southern Journal of Economics*, January 1997, pp. 726-742.
47. Phillips, Owen R. and Charles F. Mason, "Market Regulation and Multi-Market Rivalry," *RAND Journal of Economics*, Autumn 1996, pp. 596-617.
48. Mason, Charles F. and Stephen Polasky, "Entry Deterrence in the Commons," *International Economic Review*, 5/94, pp. 507-525
49. Mason, Charles F. and Frederic P. Sterbenz, 1994, "Imperfect Product Testing and Market Size," *International Economic Review*, pp. 61 - 86.
50. Phillips, Owen R. and Charles F. Mason, 1992, "Mutual Forbearance in a Conglomerate Game," *RAND Journal of Economics*, pp. 395 - 414.

Expert Report of Charles F. Mason, Ph.D.

51. Mason, Charles F., Owen R. Phillips, and Clifford Nowell, 1992, "Duopoly Behavior in Asymmetric Markets: An Experimental Evaluation" *Review of Economics and Statistics*, pp. 662 - 70.
52. Mason, Charles F. and Clifford Nowell, 1992, "Entry, Collusion, and Capacity Constraints," *Southern Journal of Economics*, pp. 1002 - 1014.
53. Mason, Charles F., Owen R. Phillips, and Douglas B. Redington, 1991, "The Role of Gender in a Non-Cooperative Game," *Journal of Economic Behavior and Organization*, pp. 215-235.
54. Mason, Charles F., 1989, "Exploration Information and A.E.C. Regulation of the U.S. Uranium Industry," *Journal of Economic Dynamics and Control*, pp. 421-448.
55. Mason, Charles F., Todd Sandler, and Richard Cornes, 1988, "Expectations, the Commons, and Optimal Group Size," *Journal of Environmental Economics and Management*, pp. 99 - 110.
56. Coursey, Don L. and Charles F. Mason, 1987, "Investigations Concerning the Dynamics of Consumer Behavior," *Economic Inquiry*, pp. 549 - 564.
57. Mason, Charles F., 1987, "Predation by Noisy Advertising," *Review of Industrial Organization*, pp. 78 - 93.
58. Cornes, Richard, Charles F. Mason, and Todd Sandler, 1986, "The Commons and the Optimal Number of Firms," *Quarterly Journal of Economics*, pp. 641 - 646.
59. Mason, Charles F., 1985, "Exploration, Information, and Regulation in an Exhaustible Mineral Industry," *Journal of Environmental Economics and Management*, pp. 153 -166.
60. Mason, Charles F., 1986, "Cherries, Lemons, and the FTC, Revisited," *Economic Inquiry*, pp. 363 - 365.
61. Mason, Charles F., 1985, "On Scale Economies and Exhaustible Resource Markets," *Review of Industrial Organization*, pp. 144 - 159.
62. Mason, Charles F., 1985, "Learning From Exploration Information," *Resources and Energy*, pp. 243 - 257.

**Conference Proceedings and Book Chapters**

63. Burgess, Jo, Chis J. Kennedy and Charles F. Mason, "On the Potential for Speculation to Threaten Biodiversity Loss," Nature in the Balance: The Economics of Biodiversity, Oxford University Press, 2013.

Expert Report of Charles F. Mason, Ph.D.

64. Kroll, Stephan, John List and Charles F. Mason, "International Environmental Problems as Two-Level Games: An Experimental Investigation," Handbook on Experimental Economics and the Environment, 2013.
65. Mason, Charles F., "Global Petroleum Markets: Past, Present and Future," Encyclopedia of Globalization, Basil Blackwell publishers, 2012.
66. Mason, Charles F., "What Motivates Membership in OPEC?," OPEC, Oil Prices and LNG, NOVA Science publications, E. R. Pitt and C. N. Leung, eds., 2009, 281-294.
67. Kroll, Stephan, Charles F. Mason, and Jason Shogren "Environmental Conflicts and Interconnected Games: An Experimental Note on Institutional Design," *Game Theory and the Global Environment*, H. Folmer and N. Hanley, eds., 1998.
68. Mason, Charles F. and Arik Ragowsky, "On the Value of Information in Information Systems," Papers and Proceedings of the 30<sup>th</sup> annual Hawaiian International Conference on System Sciences, 1993.
69. Mason, Charles F. and Kenneth Train, 1985, "A Route Forecasting Method for the Portland Area" In: Research in Transportation Economics (Theodore Keeler ed.), JAI Press, pp. 239 - 259.

**Other**

70. Charles F. Mason, 2014, Topics in the Organization of the Oil Industry, Past and Present NOW Publishers, Hanover MA (2014).
71. Charles F. Mason and Robert Whaples, 2006, "Study Guide to Accompany Microeconomics," (4<sup>th</sup> edition) Addison-Wesley Longman: Reading, MA.
72. Charles F. Mason, 1999, "Classroom Experiments for Intermediate Microeconomics," Addison-Wesley Longman: Reading, MA.
73. Dag Nummedal, Brian Towler, Charles Mason and Myron Allen, 2003, "Enhanced Oil Recovery in Wyoming: Prospects and Challenges," University of Wyoming White Paper (prepared for Governor Dave Freudenthal).

**Grants**

Funded Projects as PI

"Co-Optimization of Enhanced Oil Recovery and Carbon Sequestration," UW School of Energy Resources; 9/07-5/08. Funding for a graduate student.

Expert Report of Charles F. Mason, Ph.D.

"On the Economics of Eco-Labeling," NSF grant # SES-0214160, \$54,334; 8/02 – 7/03.

"A Competitive Assessment of the Market for Alaskan Forest Products," USDA, \$25,907; 10/00 – 6/01.

"Incorporating Uncertainty into an Assessment of Global Climate Change," COB 1995 Summer grant, \$5,000.

"An Experimental Analysis of Entry Deterrence," COB 1994 Summer grant, \$4,000.

"Observing Trigger Strategies in Two-Person Experimental Games," COB 1993 Summer grant, \$4,000.

"Mitigating the Tragedy of the Commons Through Cooperation: An Experimental Evaluation," COB 1992 Summer grant, \$4,000.

"Raising Rivals' Costs: An Experimental Evaluation," COB 1991 Summer grant, \$4,200.

Additional C&I grants in summers of 1983 - 1990

#### Funded Projects as CoPI

2006 – 2009 "Big Sky Regional Carbon Sequestration Partnership, Phase 2," Department of Energy, Fossil Energy Research and Development Program, with S. M. Capalbo, J. M. Antle, Andrew Plantinga and Klaas van 't Veld, \$14,292,087.

2004 – 2006 "State Appropriation to the Enhanced Oil Recovery Institute for EOR in Wyoming," with O. R. Phillips and Klaas van 't Veld, State of Wyoming, \$263,000.

1990 - 1991 "Collusion in Multi-Market Rivalry," with O. R. Phillips, NSF/EPSCoR, \$51,500.

#### **Consulting**

Expert witness, Ruth Ferguson (Plaintiff) vs. TIC-The Industrial Company Wyoming, Inc., a Wyoming Corporation, and Black & Veatch, a Delaware Corporation, Defendants, Docket No. 172-207. Prepared report relating to damages suffered by defendant; deposed 12/09.

Market analysis, regarding Grynberg vs. Shell Oil Company et al., 2/03. Used econometric analysis to evaluate market for CO<sub>2</sub> as an input into enhanced oil recovery process in West

Expert Report of Charles F. Mason, Ph.D.

Texas.

Market analysis, regarding Nobody in Particular vs. Clear Channels, Inc., 11/02. Used econometric analysis to evaluate similarity of playlists for different radio stations in the Denver metro area.

Expert witness, Puget Sound Energy Inc. (complainant) v. All Jurisdictional Sellers of Energy and/or Capacity at Wholesale Into Electric Energy and/or Capacity Markets in the Pacific Northwest, Including Parties to the Western Systems Power Pool Agreement (respondents), Docket Nos. EL01-10-000 EL01-10-001. Served as rebuttal witness for complainant; testified at FERC proceeding, 9/01; contributed to final brief.

### Professional Affiliations and Activities

Joint Interim	<i>Journal of the Association of Environmental and Resource Economists</i>
Managing Editor:	(2013)
Editor, special issue	<i>Resource and Energy Economics</i> (2013; issue to appear Jan. 2014)
Associate Editor:	<i>European Economic Review</i> (2012-)
Joint Editor-in-Chief:	<i>Strategic Behavior and the Environment</i> (2012-)
Managing Editor:	<i>Journal of Environmental Economics and Management</i> (2006-2011)
Co-Editor:	<i>Journal of Environmental Economics and Management</i> (2001-2006)
Associate Editor:	<i>Journal of Environmental Economics and Management</i> (1999-2000)
Associate Editor:	<i>Social Science Journal</i> (1988-1992)
Editorial Board:	<i>Challenges in Sustainability</i> (2012-)
	<i>Journal of Environmental Economics and Management</i> (1992-1993; 2011-)

Referee for:

*American Economic Review*

*American Journal of Agricultural Economics*

*Journal of Agricultural & Food Industrial Organization*

*B.E. Journals in Economic Analysis & Policy*

*Contemporary Economic Policy*

*Defence Economics*

*Econometrica*

*Economica*

*Economic Inquiry*

*Energy Journal*

Expert Report of Charles F. Mason, Ph.D.

*Environmental and Resource Economics*

*Forest Science*

*Growth and Change*

*International Economic Review*

*International Journal of Agricultural Resources Governance and Ecology*

*International Journal of Game Theory*

*Journal of Business Economics*

*Journal of Economic Behavior and Organization*

*Journal of Economic Dynamics and Control*

*Journal of Environmental Economics and Management*

*Journal of Economics & Management Strategy*

*Journal of Environmental Management*

*Journal of Law*

*Economics and Organization*

*Journal of Public Economics*

*Journal of Regulatory Economics*

*Marine Resource Economics*

*Oxford Economic Papers*

*RAND Journal of Economics*

*Resources and Energy*

*Resource and Energy Economics*

*Review of Economics and Statistics*

*Scandinavian Journal of Economics*

*Science*

*The Social Science Journal*

Expert Report of Charles F. Mason, Ph.D.

*Southern Economic Journal*

*Water Resources Research*

*Zeitschrift für Nationalökonomie*

National Science Foundation

Social Sciences and Humanities Research Council of Canada

Expert Report of Charles F. Mason, Ph.D.

**VII. Consideration Materials**

I considered all of the materials cited in the body of this report. In addition, I considered the materials in the table on the following pages.



Expert Report of Charles Mason  
 Consideration Materials  
 (Documents Cited in Report are Consideration Materials even if Not Listed Below)

Bates, Exhibit, TREX, or Other Description
ANA-MDL-000175954-ANA-MDL-000175977
ANA-MDL-000047580-ANA-MDL-000047675
ANA-MDL-000058985-ANA-MDL-000059009
ANA-MDL3-0000001-ANA-MDL3-0000005
ANA-MDL3-0000006-ANA-MDL3-0000012
ANA-MDL3-0000013-ANA-MDL3-0000020
ANA-MDL3-0000021-ANA-MDL3-0000027
ANA-MDL3-0000028-ANA-MDL3-0000034
ANA-MDL3-0000035-ANA-MDL3-0000042
ANA-MDL3-0012192-ANA-MDL3-0012192
ANA-MDL3-0012193-ANA-MDL3-0012193
ANA-MDL3-0012194-ANA-MDL3-0012194
ANA-MDL3-0012195-ANA-MDL3-0012195
ANA-MDL3-0012196-ANA-MDL3-0012196
ANA-MDL3-0012197-ANA-MDL3-0012205
ANA-MDL3_0009484-ANA-MDL3_0009498
ANA-MDL3_0009499-ANA-MDL3_0009513
ANA-MDL3_0009514-ANA-MDL3_0009528
ANA-MDL3_0009529-ANA-MDL3_0009542
ANA-MDL3_0009935-ANA-MDL3_0009949
ANA-MDL3_0009950-ANA-MDL3_0009964
ANA-MDL3_0009965-ANA-MDL3_0009979
ANA-MDL3_0010095-ANA-MDL3_0010109
ANA-MDL3_0010336-ANA-MDL3_0010355
ANA-MDL3_0010356-ANA-MDL3_0010373
ANA-MDL3_0010374-ANA-MDL3_0010391
ANA-MDL3_0010392-ANA-MDL3_0010409
ANA-MDL3_0010955-ANA-MDL3_0010971
ANA-MDL3_0010972-ANA-MDL3_0010985
ANA-MDL3_0010986-ANA-MDL3_0010999
ANA-MDL3_0011000-ANA-MDL3_0011016
ANA-MDL3_0011603-ANA-MDL3_0011603
ANA-MDL3_0011604-ANA-MDL3_0011604
ANA-MDL3_0011605-ANA-MDL3_0011605
ANA-MDL3_0011606-ANA-MDL3_0011606
ANA-MDL3_0011607-ANA-MDL3_0011607
ANA-MDL3_0011608-ANA-MDL3_0011608
ANA-MDL3_0011609-ANA-MDL3_0011609
ANA-MDL3_0011610-ANA-MDL3_0011610
ANA-MDL3_0011611-ANA-MDL3_0011611
ANA-MDL3_0011612-ANA-MDL3_0011612

Expert Report of Charles Mason

Consideration Materials

(Documents Cited in Report are Consideration Materials even if Not Listed Below)

ANA-MDL3_0011613-ANA-MDL3_0011613
ANA-MDL3_0011614-ANA-MDL3_0011614
ANA-MDL3_0011615-ANA-MDL3_0011615
ANA-MDL3_0011616-ANA-MDL3_0011616
ANA-MDL3_0011617-ANA-MDL3_0011617
ANA-MDL3_0011618-ANA-MDL3_0011618
ANA-MDL3_0011619-ANA-MDL3_0011619
ANA-MDL3_0011620-ANA-MDL3_0011620
ANA-MDL3_0011621-ANA-MDL3_0011621
ANA-MDL3_0011622-ANA-MDL3_0011622
ANA-MDL3_0011623-ANA-MDL3_0011623
ANA-MDL3_0011624-ANA-MDL3_0011624
ANA-MDL3_0011625-ANA-MDL3_0011625
ANA-MDL3_0011626-ANA-MDL3_0011626
ANA-MDL3_0011627-ANA-MDL3_0011627
ANA-MDL3_0011628-ANA-MDL3_0011628
ANA-MDL3_0011629-ANA-MDL3_0011629
ANA-MDL3_0011630-ANA-MDL3_0011630
ANA-MDL3_0011631-ANA-MDL3_0011631
ANA-MDL3_0011632-ANA-MDL3_0011632
ANA-MDL3_0011633-ANA-MDL3_0011633
ANA-MDL3_0011634-ANA-MDL3_0011634
ANA-MDL3_0011635-ANA-MDL3_0011635
ANA-MDL3_0011636-ANA-MDL3_0011636
ANA-MDL3_0011637-ANA-MDL3_0011637
ANA-MDL3_0011638-ANA-MDL3_0011638
ANA-MDL3_0011639-ANA-MDL3_0011639
ANA-MDL3_0011640-ANA-MDL3_0011640
ANA-MDL3_0011641-ANA-MDL3_0011641
ANA-MDL3_0011642-ANA-MDL3_0011642
ANA-MDL3_0011643-ANA-MDL3_0011643
ANA-MDL3_0011644-ANA-MDL3_0011644
ANA-MDL3_0011645-ANA-MDL3_0011645
ANA-MDL3_0011646-ANA-MDL3_0011646
ANA-MDL3_0011647-ANA-MDL3_0011647
ANA-MDL3_0011648-ANA-MDL3_0011648
ANA-MDL3_0011649-ANA-MDL3_0011649
ANA-MDL3_0011650-ANA-MDL3_0011650
ANA-MDL3_0011651-ANA-MDL3_0011651
ANA-MDL3_0011652-ANA-MDL3_0011652
ANA-MDL3_0011653-ANA-MDL3_0011653
ANA-MDL3_0011654-ANA-MDL3_0011654

Expert Report of Charles Mason  
Consideration Materials

(Documents Cited in Report are Consideration Materials even if Not Listed Below)

ANA-MDL3_0011655-ANA-MDL3_0011655
ANA-MDL3_0011656-ANA-MDL3_0011656
ANA-MDL3_0011657-ANA-MDL3_0011657
ANA-MDL3_0011658-ANA-MDL3_0011658
ANA-MDL3_0011659-ANA-MDL3_0011659
ANA-MDL3_0011680-ANA-MDL3_0011680
ANA-MDL3_0011681-ANA-MDL3_0011681
ANA-MDL3_0011682-ANA-MDL3_0011682
ANA-MDL3_0011683-ANA-MDL3_0011683
ANA-MDL3_0011684-ANA-MDL3_0011684
ANA-MDL3_0011698-ANA-MDL3_0011714
ANA-MDL3_0011715-ANA-MDL3_0011736
ANA-MDL3_0011737-ANA-MDL3_0011872
ANA-MDL3_0011873-ANA-MDL3_0011873
ANA-MDL3_0011874-ANA-MDL3_0011874
ANA-MDL3_0011875-ANA-MDL3_0011875
ANA-MDL3_0012066-ANA-MDL3_0012066
ANA-MDL3_0019462-ANA-MDL3_0019462
BP-HZN-2179MDL07815569-BP-HZN-2179MDL07815578
BP-HZN-2179MDL07815579-BP-HZN-2179MDL07815587
BP-HZN-2179MDL07815588-BP-HZN-2179MDL07815596
BP-HZN-2179MDL07815597-BP-HZN-2179MDL07815597
BP-HZN-2179MDL07815598-BP-HZN-2179MDL07815598
BP-HZN-2179MDL07815599-BP-HZN-2179MDL07815599
BP-HZN-2179MDL07815600-BP-HZN-2179MDL07815608
BP-HZN-2179MDL07815609-BP-HZN-2179MDL07815609
BP-HZN-2179MDL07815610-BP-HZN-2179MDL07815703
BP-HZN-2179MDL07815704-BP-HZN-2179MDL07815799
BP-HZN-2179MDL07815800-BP-HZN-2179MDL07816099
BP-HZN-2179MDL07816100-BP-HZN-2179MDL07816407
BP-HZN-2179MDL07816849-BP-HZN-2179MDL07817135
BP-HZN-2179MDL07817329-BP-HZN-2179MDL07817329
BP-HZN-2179MDL07817372-BP-HZN-2179MDL07817372
BP-HZN-2179MDL07817380-BP-HZN-2179MDL07817395
BP-HZN-2179MDL07817413-BP-HZN-2179MDL07817417
BP-HZN-2179MDL07817418-BP-HZN-2179MDL07817437
BP-HZN-2179MDL07817477-BP-HZN-2179MDL07817494
BP-HZN-2179MDL07817522-BP-HZN-2179MDL07817529
BP-HZN-2179MDL07817570-BP-HZN-2179MDL07817584
BP-HZN-2179MDL07817645-BP-HZN-2179MDL07817645
BP-HZN-2179MDL07817646-BP-HZN-2179MDL07817659
BP-HZN-2179MDL07817670-BP-HZN-2179MDL07817678

Expert Report of Charles Mason  
Consideration Materials

(Documents Cited in Report are Consideration Materials even if Not Listed Below)

BP-HZN-2179MDL07817679-BP-HZN-2179MDL07817679
BP-HZN-2179MDL07817680-BP-HZN-2179MDL07817680
BP-HZN-2179MDL07817681-BP-HZN-2179MDL07817690
BP-HZN-2179MDL07817691-BP-HZN-2179MDL07817693
BP-HZN-2179MDL07817694-BP-HZN-2179MDL07817696
BP-HZN-2179MDL07817697-BP-HZN-2179MDL07817697
BP-HZN-2179MDL07817698-BP-HZN-2179MDL07817698
BP-HZN-2179MDL07817699-BP-HZN-2179MDL07817705
BP-HZN-2179MDL07817706-BP-HZN-2179MDL07817706
BP-HZN-2179MDL07817707-BP-HZN-2179MDL07817712
BP-HZN-2179MDL07817713-BP-HZN-2179MDL07817713
BP-HZN-2179MDL07817714-BP-HZN-2179MDL07817714
BP-HZN-2179MDL07817715-BP-HZN-2179MDL07817717
BP-HZN-2179MDL07817718-BP-HZN-2179MDL07817718
BP-HZN-2179MDL07817752-BP-HZN-2179MDL07817755
BP-HZN-2179MDL07817756-BP-HZN-2179MDL07817760
BP-HZN-2179MDL07817999-BP-HZN-2179MDL07817999
BP-HZN-2179MDL07818050-BP-HZN-2179MDL07818050
BP-HZN-2179MDL08389255-BP-HZN-2179MDL08389255
BP-HZN-2179MDL08471561-BP-HZN-2179MDL08471563
BP-HZN-2179MDL08683394-BP-HZN-2179MDL08683394
BP-HZN-2179MDL08684118-BP-HZN-2179MDL08684131
BP-HZN-2179MDL08713237-BP-HZN-2179MDL08713238
BP-HZN-2179MDL08713264-BP-HZN-2179MDL08713265
BP-HZN-2179MDL08713291-BP-HZN-2179MDL08713293
BP-HZN-2179MDL08713516-BP-HZN-2179MDL08713516
BP-HZN-2179MDL08714395-BP-HZN-2179MDL08720551
BP-HZN-2179MDL08720552-BP-HZN-2179MDL08726281
BP-HZN-2179MDL08726282-BP-HZN-2179MDL08731529
BP-HZN-2179MDL08731530-BP-HZN-2179MDL08737630
BP-HZN-2179MDL08927522-BP-HZN-2179MDL08927529
BP-HZN-2179MDL08927654-BP-HZN-2179MDL08927657
BP-HZN-2179MDL08927660-BP-HZN-2179MDL08927664
BP-HZN-2179MDL08927665-BP-HZN-2179MDL08927695
BP-HZN-2179MDL08927759-BP-HZN-2179MDL08927759
BP-HZN-2179MDL08927761-BP-HZN-2179MDL08927769
BP-HZN-2179MDL08927770-BP-HZN-2179MDL08927777
BP-HZN-2179MDL08927778-BP-HZN-2179MDL08927785
BP-HZN-2179MDL08927786-BP-HZN-2179MDL08927792
BP-HZN-2179MDL08927793-BP-HZN-2179MDL08927826
BP-HZN-2179MDL08927827-BP-HZN-2179MDL08927833
BP-HZN-2179MDL08927834-BP-HZN-2179MDL08927840

Expert Report of Charles Mason  
Consideration Materials

(Documents Cited in Report are Consideration Materials even if Not Listed Below)

BP-HZN-2179MDL08942188-BP-HZN-2179MDL08942188
BP-HZN-2179MDL08949751-BP-HZN-2179MDL08949752
BP-HZN-2179MDL08964432-BP-HZN-2179MDL08964435
BP-HZN-2179MDL08965801-BP-HZN-2179MDL08965802
BP-HZN-2179MDL09099965-BP-HZN-2179MDL09099965
BP-HZN-2179MDL09099966-BP-HZN-2179MDL09099966
BP-HZN-2179MDL09099967-BP-HZN-2179MDL09099967
BP-HZN-2179MDL00000804-BP-HZN-2179MDL00000837
BP-HZN-2179MDL00665962-BP-HZN-2179MDL00666038
BP-HZN-2179MDL01156165-BP-HZN-2179MDL01157088
BP-HZN-2179MDL01479598-BP-HZN-2179MDL01479616
BP-HZN-2179MDL01627530-BP-HZN-2179MDL01627551
BP-HZN-2179MDL01748781-BP-HZN-2179MDL01748788
BP-HZN-2179MDL01830917-BP-HZN-2179MDL01830930
BP-HZN-2179MDL01864309-BP-HZN-2179MDL01864331
BP-HZN-2179MDL01871488-BP-HZN-2179MDL01871625
BP-HZN-2179MDL01875510-BP-HZN-2179MDL01875556
BP-HZN-2179MDL01875768-BP-HZN-2179MDL01875787
BP-HZN-2179MDL01876986-BP-HZN-2179MDL01877011
BP-HZN-2179MDL01881205-BP-HZN-2179MDL01881240
BP-HZN-2179MDL01888304-BP-HZN-2179MDL01888441
BP-HZN-2179MDL01893536-BP-HZN-2179MDL01893742
BP-HZN-2179MDL01894760-BP-HZN-2179MDL01894904
BP-HZN-2179MDL01906721-BP-HZN-2179MDL01906739
BP-HZN-2179MDL01919551-BP-HZN-2179MDL01919574
BP-HZN-2179MDL02300943-BP-HZN-2179MDL02301004
BP-HZN-2179MDL02659277-BP-HZN-2179MDL02659286
BP-HZN-2179MDL02667322-BP-HZN-2179MDL02667335
BP-HZN-2179MDL02705640-BP-HZN-2179MDL02705668
BP-HZN-2179MDL03367310-BP-HZN-2179MDL03367333
BP-HZN-2179MDL03368688-BP-HZN-2179MDL03368836
BP-HZN-2179MDL03426226-BP-HZN-2179MDL03426229
BP-HZN-2179MDL03484316-BP-HZN-2179MDL03484397
BP-HZN-2179MDL04469338-BP-HZN-2179MDL04469386
BP-HZN-2179MDL05257888-BP-HZN-2179MDL05257899
BP-HZN-2179MDL06156915-BP-HZN-2179MDL06157288
C2K002-000153-C2K002-000683
EPA-BP006059-EPA-BP006066
EPF062-000379-EPF062-000389
LA-GOV 00018914-LA-GOV 00018953
N1A001-003113-N1A001-003118
N3A018-002557-N3A018-002560

Expert Report of Charles Mason  
Consideration Materials

(Documents Cited in Report are Consideration Materials even if Not Listed Below)

N3P001-000723-N3P001-000723
N5G012-000118-N5G012-000118
N5G071-000207-N5G071-000207
OSE021-014616-OSE021-014617
OSE048-025247-OSE048-025366
OSE232-012904-OSE232-012928
PSC-MDL2179-009737-PSC-MDL2179-009739
Deposition Exhibit 11865
Deposition Exhibit 11922
Deposition Exhibit 11923
Deposition Exhibit 11929
Deposition Exhibit 11974
Deposition Exhibit 11977
Deposition Exhibit 11978
Deposition Exhibit 11983
Deposition Exhibit 11984
Deposition Exhibit 12343
Deposition Exhibit 12362
Deposition Exhibit 12304 A
Deposition Exhibit 12432
Deposition Exhibit 12390
Deposition Exhibit 12647
Deposition Exhibit 12802
Deposition Exhibit 12914
Deposition Exhibit 12915
Deposition Exhibit 12916
Deposition Exhibit 12917
Deposition Exhibit 12937
Deposition Transcript Luton, Harry
Deposition Transcript Barnes, Joshua
Deposition Transcript Morrison, Richard
Deposition Transcript Rose, Marshall
Deposition Transcript Cross, Iris
Deposition Transcript Bucknall, David
Deposition Transcript Utsler, Mike
Deposition Transcript Robertson, Michael T.
Deposition Transcript Smith, Brian
Deposition Transcript Gwin, Robert
Deposition Transcript Hollek, Darrell
S2N015-000816-S2N015-000825
US_PP_DOI008621-US_PP_DOI008621
US_PP_DOI008622-US_PP_DOI008623

Expert Report of Charles Mason  
Consideration Materials  
(Documents Cited in Report are Consideration Materials even if Not Listed Below)

US_PP_EPA001736-US_PP_EPA001746
US_PP_EPA001747-US_PP_EPA001797
US_PP_MAS000001-US_PP_MAS000142
US_PP_MAS000143-US_PP_MAS000350
US_PP_MAS000351-US_PP_MAS000549
US_PP_MAS001041-US_PP_MAS001174
US_PP_MAS001175-US_PP_MAS001186
US_PP_MAS001187-US_PP_MAS001299
US_PP_MAS001580-US_PP_MAS001591
US_PP_MAS001592-US_PP_MAS001670
US_PP_MAS001671-US_PP_MAS001794
US_PP_MAS001795-US_PP_MAS001805
US_PP_MAS002358-US_PP_MAS002724
US_PP_MAS002725-US_PP_MAS002794
US_PP_MAS002795-US_PP_MAS002830
US_PP_MAS002831-US_PP_MAS002882
US_PP_MAS002883-US_PP_MAS002897
US_PP_MAS006942-US_PP_MAS007169
US_PP_MAS007424-US_PP_MAS007608
US_PP_MAS007799-US_PP_MAS007983
US_PP_MAS008178-US_PP_MAS008243
US_PP_MAS008244-US_PP_MAS008252
US_PP_MAS008253-US_PP_MAS008278
US_PP_MAS008279-US_PP_MAS008300
US_PP_MAS008301-US_PP_MAS008309
US_PP_MAS008310-US_PP_MAS008329
US_PP_MAS008330-US_PP_MAS008381
US_PP_MAS008382-US_PP_MAS008403
US_PP_MAS008404-US_PP_MAS008425
US_PP_MAS008426-US_PP_MAS008435
US_PP_MAS008436-US_PP_MAS008482
US_PP_MAS008483-US_PP_MAS008504
US_PP_MAS008505-US_PP_MAS008523
US_PP_MAS008524-US_PP_MAS008531
US_PP_MAS008532-US_PP_MAS008550
US_PP_MAS008551-US_PP_MAS008569
US_PP_MAS008570-US_PP_MAS008588
US_PP_MAS008589-US_PP_MAS008607
US_PP_MAS008608-US_PP_MAS008626
US_PP_MAS008627-US_PP_MAS008640
US_PP_MAS008641-US_PP_MAS008650
US_PP_MAS008651-US_PP_MAS008668



Expert Report of Charles Mason  
Consideration Materials

(Documents Cited in Report are Consideration Materials even if Not Listed Below)

US_PP_MAS008669-US_PP_MAS008686
US_PP_MAS008687-US_PP_MAS008704
US_PP_MAS008705-US_PP_MAS008713
US_PP_MAS008714-US_PP_MAS008729
US_PP_MAS008730-US_PP_MAS008824
US_PP_MAS008825-US_PP_MAS008844
US_PP_MAS008845-US_PP_MAS008851
US_PP_MAS008852-US_PP_MAS009003
US_PP_MAS009104-US_PP_MAS009108
US_PP_MAS009109-US_PP_MAS009115
US_PP_MAS009116-US_PP_MAS009117
US_PP_MAS009118-US_PP_MAS009128
US_PP_MAS009129-US_PP_MAS009131
US_PP_MAS009132-US_PP_MAS009133
US_PP_MAS009134-US_PP_MAS009144
US_PP_MAS009145-US_PP_MAS009157
US_PP_MAS009158-US_PP_MAS009288
US_PP_MAS009289-US_PP_MAS009306
US_PP_MAS009307-US_PP_MAS009331
US_PP_MAS009332-US_PP_MAS009352
US_PP_MAS009353-US_PP_MAS009367
US_PP_MAS009368-US_PP_MAS009402
US_PP_MAS009403-US_PP_MAS009408
US_PP_MAS009409-US_PP_MAS009417
US_PP_MAS009418-US_PP_MAS009421
US_PP_MAS009422-US_PP_MAS009510
US_PP_MAS009511-US_PP_MAS009633
US_PP_MAS009634-US_PP_MAS009646
US_PP_MAS009647-US_PP_MAS009699
US_PP_MAS009836-US_PP_MAS009842
US_PP_MAS009843-US_PP_MAS009850
US_PP_MAS009851-US_PP_MAS009859
US_PP_MAS009860-US_PP_MAS009864
US_PP_MAS009865-US_PP_MAS009869
US_PP_MAS009878-US_PP_MAS009888
US_PP_MAS009889-US_PP_MAS009893
US_PP_MAS009894-US_PP_MAS009962
US_PP_MAS009963-US_PP_MAS009966
US_PP_MAS009967-US_PP_MAS009969
US_PP_MAS009970-US_PP_MAS009972
US_PP_MAS009973-US_PP_MAS009976
US_PP_MAS009977-US_PP_MAS009977



Expert Report of Charles Mason

Consideration Materials

(Documents Cited in Report are Consideration Materials even if Not Listed Below)

US_PP_MAS009978-US_PP_MAS009982
US_PP_MAS009983-US_PP_MAS009987
US_PP_MAS009988-US_PP_MAS009991
US_PP_MAS009992-US_PP_MAS009997
US_PP_MAS009998-US_PP_MAS009999
US_PP_MAS010037-US_PP_MAS010068
US_PP_MAS010069-US_PP_MAS010075
US_PP_MAS010076-US_PP_MAS010090
US_PP_MAS010091-US_PP_MAS010115
US_PP_MAS010116-US_PP_MAS010181
US_PP_MAS010182-US_PP_MAS010235
US_PP_MAS010236-US_PP_MAS010243
US_PP_MAS010244-US_PP_MAS010251
US_PP_MAS010252-US_PP_MAS010265
US_PP_MAS010266-US_PP_MAS010268
US_PP_MAS010269-US_PP_MAS010278
US_PP_MAS010279-US_PP_MAS010281
US_PP_MAS010282-US_PP_MAS010628
US_PP_MAS010629-US_PP_MAS010773
US_PP_MAS010774-US_PP_MAS010774
US_PP_MAS010775-US_PP_MAS010775
US_PP_MAS010776-US_PP_MAS010784
US_PP_MAS010785-US_PP_MAS010786
US_PP_MAS010787-US_PP_MAS010787
US_PP_MAS010788-US_PP_MAS010788
US_PP_MAS010789-US_PP_MAS010789
US_PP_MAS010790-US_PP_MAS010790
US_PP_MAS010791-US_PP_MAS010791
US_PP_MAS010792-US_PP_MAS010828
US_PP_MAS010829-US_PP_MAS010865
US_PP_MAS010866-US_PP_MAS010869
US_PP_MAS010870-US_PP_MAS010885
US_PP_MAS010886-US_PP_MAS010891
US_PP_MAS010892-US_PP_MAS010896
US_PP_MAS010897-US_PP_MAS010900
US_PP_MAS010901-US_PP_MAS010918
US_PP_MAS010919-US_PP_MAS010920
US_PP_MAS010921-US_PP_MAS010924
US_PP_MAS010925-US_PP_MAS010927
US_PP_MAS010928-US_PP_MAS010928
US_PP_MAS010929-US_PP_MAS010931
US_PP_MAS010932-US_PP_MAS010932

Expert Report of Charles Mason  
Consideration Materials

(Documents Cited in Report are Consideration Materials even if Not Listed Below)

US_PP_MAS010933-US_PP_MAS010933
US_PP_MAS010934-US_PP_MAS010936
US_PP_MAS010937-US_PP_MAS010939
US_PP_MAS010940-US_PP_MAS010947
US_PP_MAS010948-US_PP_MAS010955
US_PP_MAS010956-US_PP_MAS010988
US_PP_MAS010989-US_PP_MAS011006
US_PP_MAS011007-US_PP_MAS011058
US_PP_MAS011059-US_PP_MAS011134
US_PP_MAS011135-US_PP_MAS011202
US_PP_MAS011203-US_PP_MAS011252
US_PP_MAS011253-US_PP_MAS011260
US_PP_MAS011261-US_PP_MAS011277
US_PP_MAS011278-US_PP_MAS011278
US_PP_MAS011279-US_PP_MAS011279
US_PP_MAS011280-US_PP_MAS011280
US_PP_MAS011281-US_PP_MAS011281
US_PP_MAS011282-US_PP_MAS011282
US_PP_MAS011283-US_PP_MAS011283
US_PP_MAS011284-US_PP_MAS011284
US_PP_MAS011285-US_PP_MAS011288
US_PP_MAS011289-US_PP_MAS011368
US_PP_MAS011369-US_PP_MAS011412
US_PP_MAS011413-US_PP_MAS011560
US_PP_RAT000586-US_PP_RAT000587
US_PP_RAT004443-US_PP_RAT004444
US_PP_RAT004517-US_PP_RAT004518
US_PP_RAT005019-US_PP_RAT005020
US_PP_RAT005311-US_PP_RAT005312
US_PP_USCG206904-US_PP_USCG206933