

HIGHLY CONFIDENTIAL
Pursuant to PTO 13

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF LOUISIANA**

IN RE: OIL SPILL by the
OIL RIG "DEEPWATER HORIZON" in the
GULF OF MEXICO, on
APRIL 20, 2010

MDL NO. 2179
SECTION: J
JUDGE BARBIER
MAG. JUDGE SHUSHAN

SUPPLEMENTAL EXPERT REPORT

OF

R. Bruce Den Uyl

December 30, 2014

TREX-247596.0001

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1. As explained in my prior reports,¹ the economic impact of a Clean Water Act penalty on BPXP can be examined based on the value of BPXP at the time the penalty is assessed. BPXP's value depends significantly upon oil prices. In my Initial Report, I performed a valuation of BPXP utilizing inputs from industry benchmark Wood Mackenzie, and I assessed BPXP's equity value as \$16.1 billion as of August 15, 2014, without considering any CWA provision, CWA liabilities, or other future contingent liabilities. My valuation incorporated Wood Mackenzie's asset valuations as a starting point input. As discussed below, an analysis based on these same inputs indicates that the significant drop in oil prices since August 2014 corresponds with a significant decrease in the equity value of BPXP.
2. Wood Mackenzie's analysis cited in my Initial Report contains a section on "price assumptions," including a "base case," a "high case," and a "low case." (Ex. 1). Wood Mackenzie's GOM asset valuations utilizing "base case" prices were used in my August 15, 2014 valuation of BPXP and were reasonably similar to actual and forecasted oil prices at that time. (Ex. 2).
3. Since August 15, 2014, oil prices have declined significantly: e.g., from \$97.30 (WTI) on August 15, 2014 to a closing price of \$53.61 (WTI) as of December 29, 2014, a 45% drop in four months.
4. My August 15, 2014 valuation methodology is oil-price-dependent because it discounts the future estimated cash flows of BPXP. The valuation can reflect the decline in BPXP's asset values due to oil price declines with updated inputs. Wood Mackenzie includes a sensitivity analysis to illustrate how sensitive the asset valuation is to oil price, and I understand the United States' expert Mr. Ratner had no criticism of this sensitivity. Specifically, Wood Mackenzie determined that asset values would decline by 1.67% of the "base case" value for every \$1 decline in oil prices.² Thus, hypothetically, if at the time of trial oil prices³ have declined from the "base case," I will be able to calculate the equity value of BPXP. For example, using Wood Mackenzie's sensitivity analysis and my assessment of BPXP's equity value, every incremental \$1 change in oil prices would change BPXP's equity value by approximately \$550 million, holding all other input assumptions constant. (Ex. 3).
5. Wood Mackenzie provides a "low case" analysis that assesses asset values using lower oil prices than those forecasted in its base case. In December 2014, futures prices are reasonably similar to the low case scenario presented by Wood Mackenzie. Under this "low case" analysis, asset values decline approximately 34% from the base case. After applying BPXP's ownership percentage and reducing the asset value by the same liabilities as detailed in my Initial Report, BPXP's equity value has declined from \$16.1 billion to \$5.1 billion. (Ex. 4).
6. My valuation analysis in my Initial Report incorporated BPXP's projections, which forecasted that operating expenses will decline by approximately \$250 million from 2014 and 2018. It is uncertain whether BPXP will be able to reduce its cost base further to mitigate the impact of the declines in oil prices. While unknown at present, I have performed a sensitivity of my initial equity valuation to any such potential future operating expense reductions from current plans. For example, if I adjust BPXP's projected operating expenses downward by an additional 10% in my valuation, the equity value of BPXP would increase by \$1.0 billion. (Ex. 5). While reduced costs could increase BPXP's NPV, other factors could drive the value downward, such as futures prices below Wood Mackenzie's low case.

¹ For purposes of this report, I incorporate the definitions, background, analyses and opinions detailed in my reports dated August 15, 2014 ("Initial Report"), September 12, 2014 and September 26, 2014.

² The Wood Mackenzie low price scenario determined that for a \$20 decline in 2018 WTI oil prices, BP's upstream business would fall from \$181.4 billion to \$120.6 billion.

³ There are different oil futures prices for different time periods (e.g., December 31, 2015 delivery, December 31, 2018 delivery, etc.). To the extent that there are price changes between now and trial, my analysis may need to take any such price changes into account. Wood Mackenzie's forecast for all years beyond 2018 is based on the inflation-adjusted 2018 price, such that an adjustment to the 2018 oil price assumption would affect all subsequent years.

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7. To assess the reasonableness of my valuation conclusions given the drop in oil prices, I also looked at public market data. Public equity valuations of companies engaged in the exploration and production industry have declined significantly following the drop in oil prices. For example, on a broad market basis, the SPDR S&P Oil & Gas Exploration & Production ETF, which includes 90 different holdings in the oil and gas exploration industry, has declined by 35% since August 15, 2014. (Ex. 6).
8. As discussed in my Initial Report, any CWA penalty over \$2.3 billion in 2015 would require BPXP to obtain new funding from some external source to pay such a judgment. That \$2.3 billion utilized projections for 2015 cash flows based on \$100/bbl oil prices, and thus would also be impacted by lower revenue from lower oil prices in 2015, holding all else constant.
9. The rapid decline in oil price (and thus asset values) illustrates the volatility that I believe a lender or investor would consider when assessing an investment in BPXP following a CWA penalty. Volatility in the energy markets has reduced investors' appetite in energy investments including high-yield energy company bonds.⁴ As indicated in my Initial Report, BPXP would be a sub-investment grade (speculative) borrower even before a CWA penalty is assessed, and the oil price environment would render BPXP's ability to issue debt even more challenging. Speculative grade energy interest rates have expanded dramatically in recent months. Since August 15, 2014, the U.S. Energy High Yield Index spread over U.S. Swap rates has increased from 4.35% to 9.25%, an increase of well over 100% in such speculative grade bond spreads.
10. Although BP p.l.c. is not a defendant, Mr. Ratner focuses on the consolidated BP Group, which has also been negatively impacted by the decline in oil prices. In addition to an 18% decline in BP p.l.c.'s market capitalization since August 15, 2014, BP p.l.c.'s 10-year bonds have widened by approximately 0.5% over comparable benchmark treasury securities since August 15, 2014, which represents an approximate 50% increase in BP p.l.c.'s 10-year bond spreads.⁵ S&P also cited the "dramatic deterioration in the oil price outlook" in ratings actions for European oil majors, including revising BP p.l.c.'s outlook to negative.⁶
11. BP p.l.c. estimates in its public information for investors that every \$1 decline in oil prices reduces BP p.l.c.'s annual replacement cost operating profit (RCOP) by approximately \$275 million.⁷ As a point of reference, BP p.l.c. assumed \$100/bbl in its prior presentations.⁸ Applying the rule of thumb for the drop in Brent crude oil prices to approximately \$60/bbl as of December 26, 2014 (and assuming tax rates remain constant), this price drop alone results in an estimated \$7.2 billion annual impact on BP p.l.c.'s profit.⁹ This represents 31% of BP p.l.c.'s 2013 profits, and 65% of BP p.l.c.'s 2012 profits.
12. In summary, BPXP is in a commodity-based industry, and its financial condition today and in the future is directly impacted by commodity prices. The substantial drop in oil prices has substantially decreased BPXP's value, which value in turn is relevant (as it was in my August 2014 Initial Report) to assessing the economic impact of a future CWA penalty on BPXP.


R. Bruce Den Uyl

Dated: December 30, 2014

⁴ <http://www.bloomberg.com/news/print/2014-12-10/oil-driven-junk-bond-selloff-spreads-as-risk-gauge-climbs.html>

⁵ Bloomberg, LP.

⁶ Standard and Poor's, "Various Rating Actions Taken On European Oil And Gas Majors On Lower Oil Price Environment" dated December 22, 2014.

⁷ <http://www.bp.com/en/global/corporate/investors/results-and-reporting/trading-conditions-update.html>

⁸ Investor update dated March 4, 2014, page 9 (BP-HZN-2179MDL07816688).

⁹ However, other factors can impact BP's profitability as outlined in the description cited in footnote 7.

Exhibit 1
Wood Mackenzie Price Scenarios

Wood Mackenzie Projected WTI Prices					
	Base Case		High Case		Low Case
2014	\$	94.38	\$	113.07	\$ 75.69
2015	\$	93.13	\$	112.23	\$ 74.04
2016	\$	89.50	\$	108.90	\$ 70.10
2017	\$	85.51	\$	106.37	\$ 66.50
2018	\$	86.81	\$	106.84	\$ 66.79

Source:

Wood Mackenzie (BP-HZN-2179MDL09216019)

Exhibit 2
Wood Mackenzie Base Case and CME Futures Projections

WTI Oil Price Forecast					
		Oil Futures as			
		of 8/15/14		Base Case	
				Difference	
2015	\$	92.85	\$	93.13	\$ (0.29)
2016	\$	90.66	\$	89.50	\$ 1.16
2017	\$	89.37	\$	85.51	\$ 3.85
2018	\$	88.70	\$	86.81	\$ 1.88

Sources:

Wood Mackenzie (BP-HZN-2179MDL09216019)

<http://www.cmegroup.com/trading/energy/crude-oil/light-sweet-crude.html>

Exhibit 3
BPXP Sensitivity to Oil Prices

Wood Mackenzie Low Case Applied to BPXP	
BP Upstream Value (millions)	\$ 181,379
BP Upstream Value Under the Low Case	120,567
Difference	(60,812)
% Change	-33.53%
2018 Base Price (WTI)	86.81
2018 Low Case (WTI)	66.79
Difference	20.02
% Change for \$1 change decline in WTI	-1.67%
GOM Asset Value	38,259
BPXP Ownership	85.9%
BPXP Asset Value	32,847
Impact on BPXP Value for each \$1 decline in WTI	\$ (550)

Sources:

Wood Mackenzie (BP-HZN-2179MDL09216019)
Initial Report

Exhibit 4

BPXP Value under Wood Mackenzie Low Price Scenario

Wood Mackenzie Low Case Applied to BPXP	
Base GOM Value	\$ 38,259
Impact of the 33.53% Low Case Scenario	(12,827)
New GOM Value	25,432
BPXP Ownership	85.9%
BPXP Value	21,834
Less: BPXP Cost Adjustment	(7,815)
BPXP Intercompany Debt	(3,400)
BPXP Intercompany Payables, net	(1,602)
Remaining Incident Provisions and Payables (Ex-CWA)	(3,954)
New BPXP Equity	\$ 5,063

WTI Oil Price Forecast					
CME Avg. as of Wood Mac Low					
		12/29/14	Case		Difference
2015	\$	56.48	\$	74.04	\$ (17.56)
2016	\$	61.96	\$	70.10	\$ (8.15)
2017	\$	66.20	\$	66.50	\$ (0.30)
2018	\$	68.61	\$	66.79	\$ 1.82

Sources:

Wood Mackenzie (BP-HZN-2179MDL09216019)
Initial Report

Exhibit 5A

Comparison of BPXP and Wood Mackenzie Projected Operating Expenses

OPERATING COST SENSITIVITY SCENARIO: ADJUSTED FOR 10% REDUCTION IN FUTURE OPERATING COSTS

<i>(Millions)</i>	Operating Expense Adjustment				
	2014	2015	2016	2017	2018
Operating Expense As Projected	\$ 2,225	\$ 2,041	\$ 2,113	\$ 2,140	\$ 2,396
Operating Expense Adjustment	0	(102)	(306)	(399)	(462)
Adjusted Operating Expense	\$ 2,225	\$ 1,939	\$ 1,807	\$ 1,741	\$ 1,934
Cost Adjustment		-10.0%	-10.0%	-10.0%	-10.0%
Adjusted Costs	\$ 2,225	\$ 1,745	\$ 1,626	\$ 1,567	\$ 1,741
Wood Mackenzie Projected Operating Expense	508	561	603	599	590
GOM in Excess of Wood Mackenzie	\$ 1,717	\$ 1,184	\$ 1,023	\$ 968	\$ 1,151
BPXP Ownership of GOM	85.9%	85.9%	85.9%	85.9%	85.9%
BPXP Portion of Excess	\$ 1,474	\$ 1,016	\$ 878	\$ 831	\$ 988

Note: Adjustment taken as a percentage of the adjustment applied to the operating cash flow.
See Initial Report Exhibit 9.

Exhibit 5B
Operating Cost Analysis Relative to Wood Mackenzie
OPERATING COST SENSITIVITY SCENARIO:
ADJUSTED FOR 10% REDUCTION IN FUTURE
OPERATING COSTS

(Smillions)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
BPXP Costs Above Wood Mackenzie (1)	\$ 1,474	\$ 1,016	\$ 878	\$ 831	\$ 988	\$ 1,008	\$ 1,028	\$ 1,049	\$ 1,070	\$ 1,091	\$ 1,113	\$ 1,135
Growth %		-31.0%	-13.6%	-5.3%	18.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Less Taxes @ 35%	(516)	(356)	(307)	(291)	(346)	(353)	(360)	(367)	(374)	(382)	(389)	(397)
Additional Costs (Post-Tax)	958	661	571	540	642	655	668	682	695	709	723	738
Period	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Mid-Year Convention	0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50	8.50	9.50	10.50	11.50
Discount Factor 10%	0.95	0.87	0.79	0.72	0.65	0.59	0.54	0.49	0.44	0.40	0.37	0.33
Discounted Incremental Cash Flow	\$ 913	\$ 573	\$ 450	\$ 387	\$ 418	\$ 388	\$ 360	\$ 333	\$ 309	\$ 287	\$ 266	\$ 247
Total Present Value	\$ 6,817											
Original Cost Adjustment	7,815											
Difference	\$ (998)											

Notes:

(1) See Exhibit 5A and Initial Report Exhibit 9.

Exhibit 5B
Operating Cost Analysis Relative to Wood Mackenzie
OPERATING COST SENSITIVITY SCENARIO:
ADJUSTED FOR 10% REDUCTION IN FUTURE
OPERATING COSTS

(\$millions)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
BPXP Costs Above Wood Mackenzie (1)	\$ 1,158	\$ 1,181	\$ 1,205	\$ 1,199	\$ 1,178	\$ 1,141	\$ 1,051	\$ 980	\$ 906	\$ 836	\$ 802	\$ 799
Growth %	2.0%	2.0%	2.0%	-0.4%	-1.8%	-3.1%	-7.9%	-6.8%	-7.5%	-7.8%	-4.0%	-0.4%
Less Taxes @ 35%	(405)	(413)	(422)	(420)	(412)	(399)	(368)	(343)	(317)	(292)	(281)	(280)
Additional Costs (Post-Tax)	753	768	783	780	766	742	683	637	589	543	521	519
Period	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Mid-Year Convention	12.50	13.50	14.50	15.50	16.50	17.50	18.50	19.50	20.50	21.50	22.50	23.50
Discount Factor 10%	0.30	0.28	0.25	0.23	0.21	0.19	0.17	0.16	0.14	0.13	0.12	0.11
Discounted Incremental Cash Flow	\$ 229	\$ 212	\$ 197	\$ 178	\$ 159	\$ 140	\$ 117	\$ 99	\$ 84	\$ 70	\$ 61	\$ 55
Total Present Value	\$ 6,817											
Original Cost Adjustment	7,815											
Difference	\$ (998)											

Notes:

(1) See Exhibit 5A and Initial Report Exhibit 9.

Exhibit 5B
Operating Cost Analysis Relative to Wood Mackenzie
OPERATING COST SENSITIVITY SCENARIO:
ADJUSTED FOR 10% REDUCTION IN FUTURE
OPERATING COSTS

(\$millions)	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
BPXP Costs Above Wood Mackenzie (1)	\$ 746	\$ 720	\$ 688	\$ 669	\$ 634	\$ 588	\$ 512	\$ 477	\$ 437	\$ 317	\$ 294	\$ 275
Growth %	-6.6%	-3.4%	-4.5%	-2.7%	-5.2%	-7.4%	-12.9%	-6.7%	-8.4%	-27.4%	-7.4%	-6.5%
Less Taxes @ 35%	(261)	(252)	(241)	(234)	(222)	(206)	(179)	(167)	(153)	(111)	(103)	(96)
Additional Costs (Post-Tax)	485	468	447	435	412	382	333	310	284	206	191	179
Period	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Mid-Year Convention	24.50	25.50	26.50	27.50	28.50	29.50	30.50	31.50	32.50	33.50	34.50	35.50
Discount Factor 10%	0.10	0.09	0.08	0.07	0.07	0.06	0.05	0.05	0.05	0.04	0.04	0.03
Discounted Incremental Cash Flow	\$ 47	\$ 41	\$ 36	\$ 32	\$ 27	\$ 23	\$ 18	\$ 15	\$ 13	\$ 8	\$ 7	\$ 6
Total Present Value	\$ 6,817											
Original Cost Adjustment	7,815											
Difference	\$ (998)											

Notes:

(1) See Exhibit 5A and Initial Report Exhibit 9.

Exhibit 5B
Operating Cost Analysis Relative to Wood Mackenzie
OPERATING COST SENSITIVITY SCENARIO:
ADJUSTED FOR 10% REDUCTION IN FUTURE
OPERATING COSTS

(\$millions)	2050	2051	2052	2053	2054	2055	2056	2057	2058
BPXP Costs Above Wood Mackenzie (1)	\$ 199	\$ 184	\$ 136	\$ 82	\$ 71	\$ 21	\$ 14	\$ 7	\$ -
Growth %	-27.6%	-7.6%	-25.8%	-39.6%	-14.3%	-70.5%	-31.8%	-48.6%	-100.0%
Less Taxes @ 35%	(70)	(64)	(48)	(29)	(25)	(7)	(5)	(3)	-
Additional Costs (Post-Tax)	129	119	89	54	46	14	9	5	-
Period	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Mid-Year Convention	36.50	37.50	38.50	39.50	40.50	41.50	42.50	43.50	44.50
Discount Factor 10%	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01
Discounted Incremental Cash Flow	\$ 4	\$ 3	\$ 2	\$ 1	\$ 1	\$ 0	\$ 0	\$ 0	\$ -
Total Present Value	\$ 6,817								
Original Cost Adjustment	7,815								
Difference	\$ (998)								

Notes:

(1) See Exhibit 5A and Initial Report Exhibit 9.

Exhibit 6
Stock Price Performance

Stock Performance: 8/15/14 - 12/26/14		
	Price Change	Total Shareholder Return
SPDR S&P Oil & Gas Exploration & Production ETF	-35%	-34%
BP p.l.c. ADR	-18%	-17%

Source:
Bloomberg, LP

Bates Begin	Bates End	TREX Number	Document Title / Description
			Initial Report
			All documents listed in Exhibit 4 to the Initial Report
			Response Report
			All documents listed in Exhibit 1 to the Response Report
			Rebuttal Report
			All documents listed in Exhibit 1 to the Rebuttal Report
			Deposition of Ian Ratner
		TREX-247417	SPDR S&P Oil & Gas Exploration & Production ETF Performance
		TREX-247418	SPDR S&P Oil & Gas Exploration & Production ETF Holdings
		TREX-247419	SPDR S&P Oil & Gas Exploration & Production ETF Fund Overview
			BP Trading conditions update, available at http://www.bp.com/en/global/corporate/investors/results-andreporting/trading-conditions-update.html
		TREX-247141	Bloomberg, Oil-Driven Junk-Bond Selloff Spreads as Risk Gauge Climbs (Dec. 10, 2014)
			Standard and Poor's, "Various Rating Actions Taken On European Oil And Gas Majors On Lower Oil Price Environment" dated December 22, 2014.
			Bloomberg data on BP ADR and SPDR S&P Oil & Gas Exploration & Production ETF performance
			CME Group Crude Oil Futures Quotes
			Bloomberg and Federal Reserve Data on Bond Spreads
			http://tonto.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RWTC&f=D
			Bloomberg High Yield Index Data

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