



Potential Impact of Hurricane Rita on Gulf of Mexico Oil and Gas Production

September 27, 2005

On September 22 and 23, 2005, Hurricane Rita ripped through the Gulf of Mexico, reaching record-breaking wind speeds. Trailing after its sister Katrina, Rita's path crossed dozens of major oil and gas fields, forcing the evacuation of facilities and temporarily shutting in 100% of daily Gulf oil production, approximately 1.5 million barrels per day (bopd) and over 80% of daily gas production, approximately 8 billion cubic feet per day (bcfpd). By the time the storm encountered offshore production facilities, its wind speed had dropped to between 140 and 145 miles per hour (mph).

Fields, facilities and pipelines closest to the eye of the storm were in greatest danger of disruption; wind speeds declined at an average rate of approximately 1 mile per hour for each mile of distance from the storm track. To gauge the potential impact on production and its incidence across operators, Earth Science Associates integrated the hurricane track into its *GOM*³ geographic information system (GIS) to produce two maps (Maps 1 and 2).

First, two buffers were placed spanning distances of 30 and 60 miles from the storm track. These are regions in which wind speeds were anticipated within the > 100 mph and 60-100 mph ranges respectively. These buffers were then intersected with producing oil and gas fields to calculate capacity at risk. In Maps 1 and 2, symbols for both oil and gas fields were sized to reflect 2004 production.

Approximately 250,000 bopd was produced from fields within 60 miles of Hurricane Rita's path, or 17% of the Gulf's 2004 production data (Figure 1, Table 1). Of that volume, 130,000 bopd was produced within 30 miles from the storm center. Furthermore, 2.84 bcfpd of natural gas was produced from fields within 60 miles of Rita's path; of that volume, over two-thirds were produced within 30 miles. Considering both storms, 5% of US oil and 9% of natural gas supplies were produced within 60 miles of the two storms.

Of the several hundred companies operating oil and gas fields in the Gulf of Mexico, production in the most severely affected areas was balanced across a few major operators and a large number of independents (Figure 3, Table 2). Based on 2004 production, wells operated by Shell and Chevron were likely to be among the most severely affected.

Compared to Katrina, the impact of Hurricane Rita had a proportionately larger impact on gas production (Map 3). Rita also had a much broader impact across operators. In Katrina, 85% of the capacity within 60 miles was operated by the top 10 companies exposed; in Rita, the top 10 companies exposed accounted for only 54% of capacity at risk.

This analysis does not imply that these volumes will be lost to present supply. Intersecting the storm track with field locations and recent annual production data, however, identifies productive capacity at most immediate risk from the storm's impact and the operators most likely to be affected. This analysis does not reflect on pipelines or refinery capacity affected by the storm.

The tables, figures and maps may be used with credit to Earth Science Associates. The well production data has been supplied by the Minerals Management Service, the storm track by the National Weather Service and cumulative statistics for the Gulf of Mexico and US by the Energy Information Administration. Analyses were performed by Earth Science Associates using its *GOM*³ system. Maps may be requested in PDF, TIFF and JPEG formats by contacting ESA. Our September 1, 2005 Katrina analysis is available at www.earthsci.com.

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Figure 1: Oil Production at Risk from Rita in Context of US Supply
 Data Represent 2004 Oil Production in Millions of Barrels per Day and as Percentage of US Supply

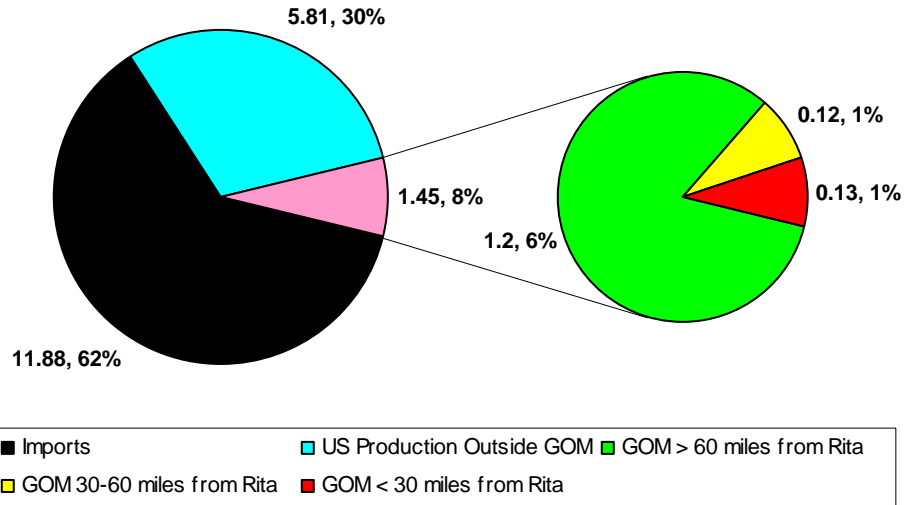


Figure 2: Gas Production at Risk from Rita in Context of US Supply
 Data Represent 2004 Gas Production in Billions of Cubic Feet per Day and as Percentage of US Supply

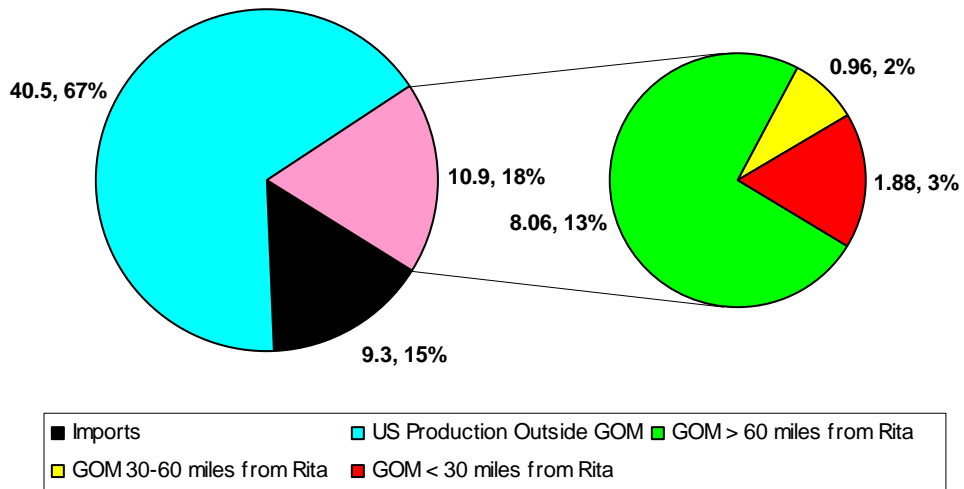
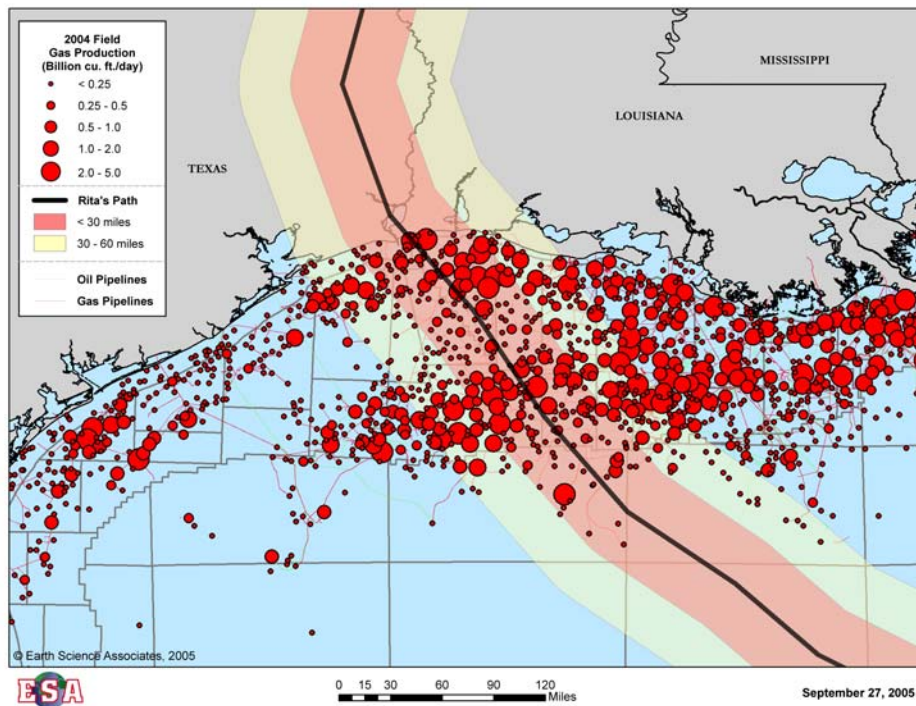


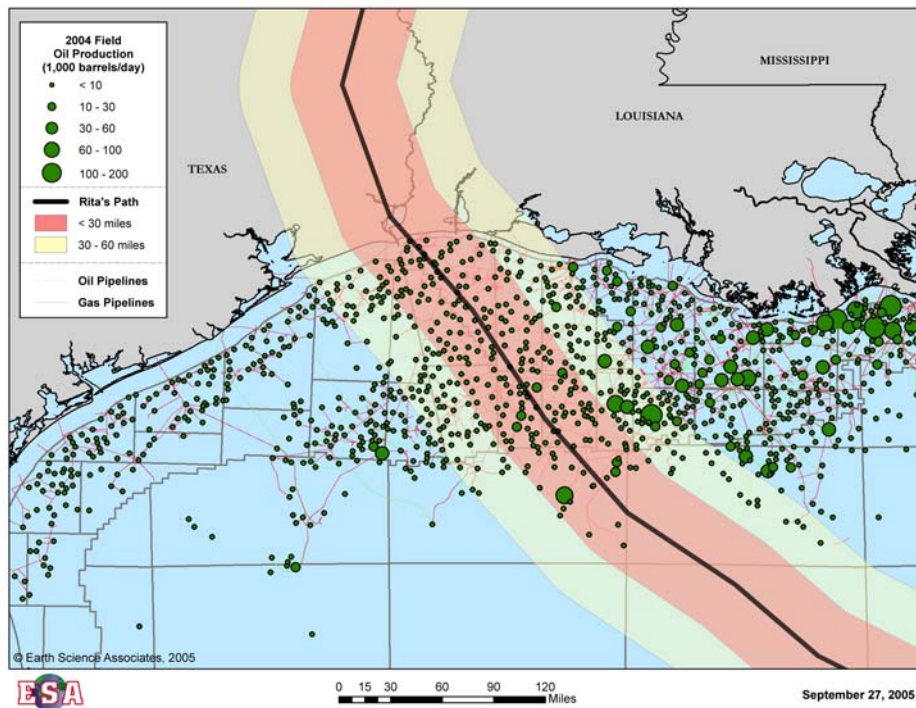
Table 1: Oil and Gas Production At Risk From Rita in Context of US Supply

	2004 Total US		2004 Total GOM	2004 GOM Production Proximate to Hurricane Path	
	Consumption	Production	Production	< 30 miles	30-60 miles
Oil (Million bopd)	19.14	7.26	1.45	0.13	0.12
Gas (bcfpd)	60.70	51.40	10.90	1.88	0.96
BOE (Million BOEpd)	29.94	16.41	3.39	0.47	0.32

Map 1: 2004 Gas Production in Relation to Hurricane Rita Path



Map 2: 2004 Oil Production in Relation to Hurricane Rita Path



Map 3: 2004 Oil Production in Relation to Hurricane Rita and Katrina Paths

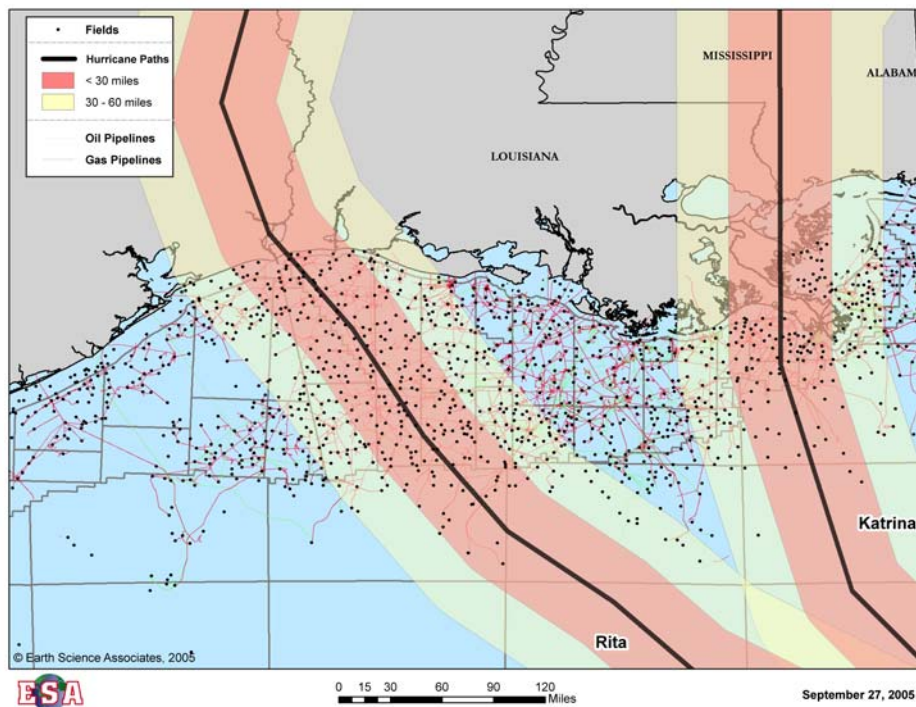


Figure 3: 2004 Productive Capacity by Operator within 60 Miles of Hurricane Rita Path
 Data Represent 2004 Oil and Gas Production in Barrels of Oil Equivalent (BOE) per Day

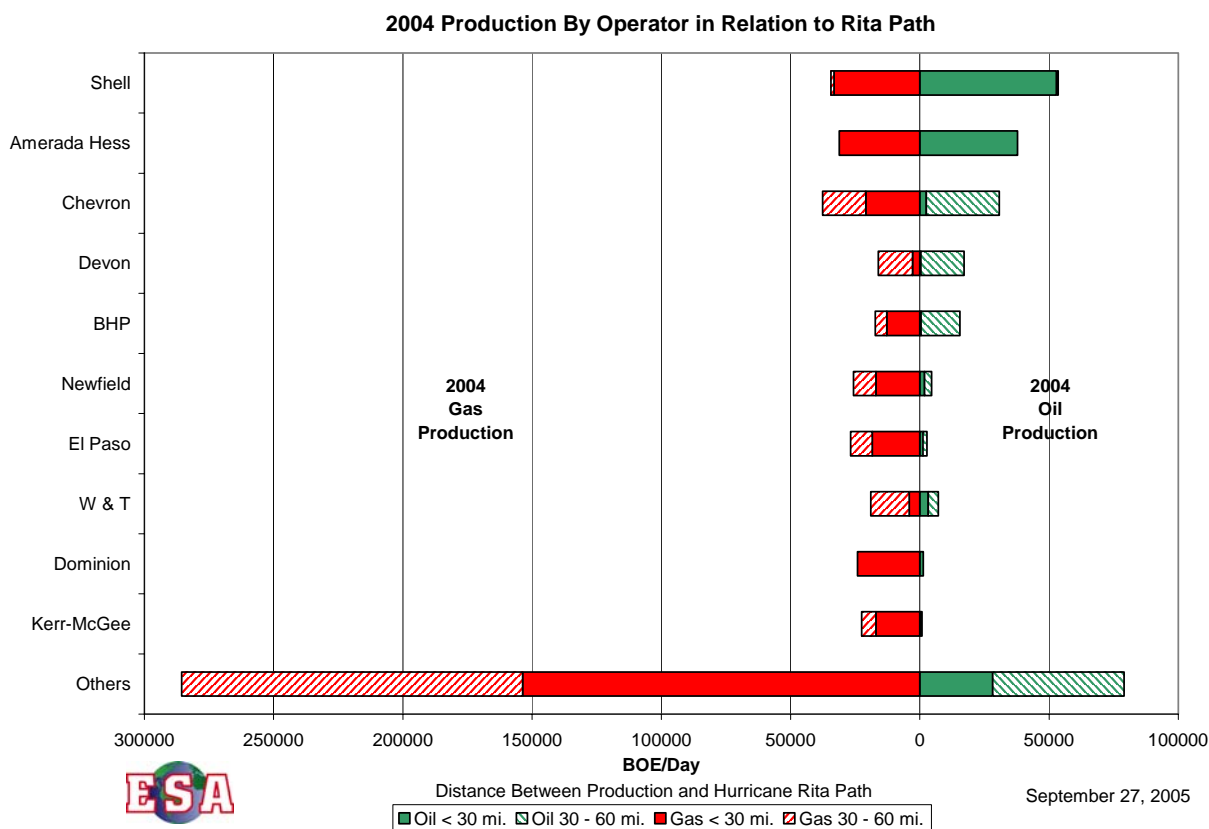


Table 2: 2004 Productive Capacity by Operator within 60 Miles of Hurricane Rita Path
 Data Represent 2004 Oil and Gas Production in Barrels of Oil Equivalent (BOE) per Day

	Oil < 30 mi.	Oil 30 - 60 mi.	Gas < 30 mi.	Gas 30 - 60 mi.
Shell	52,919	563	33,210	1,161
Amerada Hess	37,826	-	31,189	-
Chevron	2,518	28,276	20,932	16,687
Devon	397	16,699	2,841	13,176
BHP	478	14,990	12,783	4,426
Newfield	1,846	2,734	16,972	8,655
El Paso	1,282	1,474	18,419	8,335
W & T	3,328	3,881	4,054	14,889
Dominion	1,341	1	24,151	5
Kerr-McGee	187	682	16,992	5,490
Others	28,240	50,789	153,634	131,936