

**Estimated Petroleum Spillage from Facilities Associated with
Federal Outer Continental Shelf (OCS) Oil and Gas Activities
Resulting from Damages Caused by Hurricanes Rita and Katrina in 2005**

SUMMARY

The loss of hydrocarbons from wells on the Federal OCS was minimal due to the successful operation of the safety valves that are required to be installed at least 100 feet below the mudline in each wellbore. All OCS facilities in areas threatened by the storms' approach were shut in prior to the hurricanes so that oil losses were mostly limited to the oil stored on the damaged structures or contained in the individual damaged pipeline segments. There were no accounts of spills from facilities on the Federal OCS that: reached the shoreline; oiled birds or mammals; or involved any discoveries of large volumes of oil to be collected or cleaned up.

As of August 8, 2006, MMS has identified 124 spills of petroleum products totaling 17,652 bbl that were lost from platforms, rigs, and pipelines on the Federal OCS as a result of damages from Hurricanes Katrina and Rita in 2005. Using the USCG size classifications for offshore spills, 110 of the spills or 89% were MINOR in size (less than 238 bbl), and 14 or 11% were MEDIUM in size (238 to 2,380 bbl). There were no MAJOR spills (2,381 bbl or greater). In some cases, the actual volume lost has been difficult to estimate, and where a range was developed, the high value is used in these calculations. The terms MAJOR, MEDIUM, and MINOR are based on spill size only and do not reflect any level of impacts.

The six largest spills were estimated between at 1,000 and 2,000 bbl, three of which may have actually been as small as a couple of hundred bbl. These six spills represent only 5% of the number of spills and total to 10,429 bbl, 59% of the total estimated spillage. See Table 1 below.

Location	Structure	Operator	Spill Size	Product	Storm
EI 51	Segment #1844 14" x 4" Subsea Tie-in	Gulf South Pipeline	greater than 100 bbl to 1,812 bbl	Condensate	Rita
EI 95	Segment #4754 10" x 10" Subsea Tie-in	Gulf South Pipeline	greater than 100 bbl to 1,551 bbl	Condensate	Rita
EI 314	Platform J	Forrest Oil	2,000 bbl	Condensate	Rita
MC 109	Segment #9347 8" Oil Pipeline	BP E & P	200 bbl to 2,000 bbl	Crude Oil	Katrina
SM 146	Rowan Fort Worth Rig	Hunt Petroleum	1,494 bbl	Diesel	Rita
SS 250	Rowan Odessa Rig	Remington O & G	1,572 bbl	Diesel & Other	Rita

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There were 40 spills of 50 bbl or greater totaling 16,846 bbl, this accounts for 32% of the 124 spills and 95% of the estimated spill volume. Hurricane Katrina caused 23 of the spills of 50 bbl or greater totaling 5,046 bbl, and 17 were caused by Hurricane Rita totaling to 11,800 bbl. See "APPENDIX A: Petroleum Spills from Federal OCS Facilities of 50 bbl or Greater Resulting from Damages Caused by Hurricanes Katrina and Rita in 2005" listing individual petroleum spills of 50 bbl or greater.

Hurricane Katrina was responsible for 70 (56%) of the 124 spills of 1 bbl or greater, but only 5,552 bbl (31%) of the 17,652 bbl spilled as compared to Hurricane Rita's causing 54 spills totaling to 12,100 bbl. See Table 2 for more information of spills by storm and size categories. Platforms and Rigs were responsible for 52 or 42% of the 124 spills and 59% of the 17,652 spillage. See Table 3 for more information spills from Platforms and Rigs vs. Pipelines.

The estimation of the total spillage associated with these hurricanes will not be complete until all operators have completed recovery efforts associated with the repair and/or have completed decommissioning of all the damaged structures. Some of the petroleum currently counted as spilled may yet be recovered from intact tanks, and additional damages may yet be discovered by the operators. These activities will continue through 2006 and possibly into 2007.

BACKGROUND

This discussion focuses on spillage from facilities associated with oil and gas activities that occurred in Federal OCS waters as a result of damages from Hurricanes Katrina and Rita in 2005. Specifically excluded from these estimates are: 191,000 barrels (8.0 million gallons) of oil released from nine onshore facilities located in the Louisiana Delta where large oil storage tanks were breached during Hurricane Katrina; approximately 75,000 bbl of heavy fuel oil spilled in West Cameron from a non-OCS related barge en route to Florida in November 2005; and any other inland or coastal spills including those associated with oil and gas leases in State waters.

Hurricanes Katrina and Rita each attained Category 5 strengths as they passed through Federal OCS oil and gas fields within 4 weeks of each other. Hurricane Katrina contacted the Louisiana coast near New Orleans as a Category 3 storm on August 29, 2005. Hurricane Rita contacted Louisiana near Morgan City as a Category 3 storm on September 24, 2005. Approximately 75% of the 4,000 Federal OCS oil and gas facilities in the Gulf of Mexico were subject to hurricane force winds (up to 175 mph over open water) from these two hurricanes. Hurricanes Katrina and Rita jointly destroyed or seriously damaged approximately 220 platforms and drilling rigs on the Federal OCS. There have also been reports of damage to more than 460 pipeline segments. The swath of damage extended over 100 miles offshore from Port Arthur, Texas to Gulfport, Mississippi.

The loss of hydrocarbons from the Federal OCS wells themselves was minimal due to the successful operation of the safety valves that are required to be installed at least 100 feet below the mudline in each wellbore, of which no failures have been identified as of July 2006. All OCS facilities in areas threatened by storms' approach were shut in prior to the hurricanes so that oil losses were mostly limited to the oil stored on the damaged structures or contained in the individual damaged pipeline segments. There were no accounts of spills from facilities on the Federal OCS that: reached the shoreline; oiled birds or mammals; or involved any discoveries of large volumes of oil to be collected or cleaned up.

The estimation of the total spillage associated with these hurricanes will not be complete until all operators have completed recovery efforts associated with the repair and/or have completed decommissioning of all the damaged structures. Some of the petroleum currently counted as spilled may yet be recovered from intact tanks, and additional damages may yet be discovered by the operators. These activities will continue through 2006 and possibly into 2007.

All spills are required to be reported to the National Response Center (NRC) which is operated under the U.S. Coast Guard (USCG). The NRC Report is a “first report” at which time one or more key information elements may not yet be identified such as: the facility that is the source of the spill, the responsible party, the product spilled, and/or an estimate of the spill volume. NRC Reports are not corrected or updated. Spills related to Federal OCS oil and gas activities of 42 gallons (gal) or 1 barrel (bbl) or greater are required to be reported directly to the Minerals Management Service (MMS). Over 500 NRC Reports have been filed for spills from Hurricanes Katrina and Rita in Federal OCS waters for which almost 40% had no responsible party was identified. Approximately 77% of the 500 NRC Reports were for petroleum losses or sheen sightings of which about 45% had a volume estimate (many of the volume estimates were superseded at a later date with better information). The other NRC Reports were for natural gas, chemicals, and non-release events such as spill potentials (volumes on board not known to be released) or fires. Less than half of the petroleum reports included a volume estimate.

SPILL COUNTS AND VOLUMES

The USCG defines offshore spills of less than 10,000 gal (238 bbl) as “MINOR”; offshore spills of 10,000 to 99,999 gal (238 to 2,380 bbl) as “MEDIUM”; and offshore spills of 100,000 gal, (2,381 bbl) and greater as “MAJOR”. The terms MAJOR, MEDIUM, and MINOR are based on spill size only and do not reflect any level of impacts.

As of August 1, 2006 MMS provides the following estimates for petroleum spills of 1 bbl or greater in from oil and gas facilities in Federal OCS waters in 2005 as a result of Hurricanes Katrina and Rita:

- 124 spills totaling 17,652 bbl from both hurricanes
- 70 of the spills totaling 5,552 bbl were from Hurricane Katrina
 - 54 of the spills totaling 12,100 bbl were from Hurricane Rita
- 52 of the spills totaling 10,365 bbl were from Platforms and Rigs
 - 72 of the spills totaling 7,287 bbl were from Pipelines
- 110 or 89% of the spills were MINOR in size
 - None of the spills were MAJOR in size
 - 14 or 11% of the spills were MEDIUM in size*
- 8 of the MEDIUM spills were between 238 and less than 1,000 bbl
 - 6 of the MEDIUM spills were between 1,000 and 2,000 bbl*
 - * 3 of the 6 spills estimated as 1,000 bbl or greater may actually have been much smaller
- See Table 2 for a breakdown of counts and volumes by Spill Size and Storm
- See Table 3 for counts and volumes by Platforms and Rigs vs. Pipelines by Storm

MMS’s petroleum spill volume estimates rely primarily on: estimates from the operators provided to MMS in early 2006, USCG estimates as of April 2006, and rely on the NRC Report volume only if it is the only information available. As operators have continued their recovery efforts they have updated MMS with reduced loss estimates based on products actually recovered, and newly identified losses, some as recently as the end of July 2006. Spill size estimation has proven problematic in many instances and frequently “worst case” estimates have been used. If the operators are able to develop more precise estimates in the future, MMS will incorporate the new information at that time.

Table 2. Petroleum Spills from Federal OCS Facilities of 1 bbl Or Greater Resulting from Damages Caused by Hurricanes Katrina and Rita in 2005					
By Size Intervals and U.S. Coast Guard (USCG) Size Categories By Storm					
Storm	USCG Size*	Total Petroleum	Crude Oil & Condensate	Refined Petroleum	Counts
COMBINED	Total	17,652.2	13,137.3	4,514.8	124
MINOR	1 - 9 bbl	201.5	158.5	43.0	56
	10 - 49 bbl	604.7	473.5	131.2	28
	50 - 99 bbl	905.3	753.6	151.7	14
	100 - 237 bbl	1,749.4	1,534.5	214.9	12
MEDIUM	238 - 999 bbl	3,762.9	2,854.4	908.4	8
	1,000 - 2,380 bbl	10,428.5	7,362.8	3,065.7	6
MAJOR	≥ 2,381 bbl	-	-	-	-
KATRINA	Total	5,552.1	4,961.9	590.1	70
MINOR	1 - 9 bbl	107.3	95.7	11.7	27
	10 - 49 bbl	398.5	398.5	-	20
	50 - 99 bbl	620.5	568.1	52.4	10
	100 - 237 bbl	1,171.6	1,025.7	145.9	8
MEDIUM	238 - 999 bbl	1,254.2	874.0	380.2	4
	1,000 - 2,380 bbl	2,000.0	2,000.0	-	1
MAJOR	≥ 2,381 bbl	-	-	-	-
RITA	Total	12,100.1	8,175.4	3,924.7	54
MINOR	1 - 9 bbl	94.1	62.8	31.3	29
	10 - 49 bbl	206.2	75.0	131.2	8
	50 - 99 bbl	284.8	185.5	99.3	4
	100 - 237 bbl	577.8	508.8	69.0	4
MEDIUM	238 - 999 bbl	2,509.6	1,980.4	528.2	4
	1,000 - 2,380 bbl	8,428.5	5,362.8	3,065.7	5
MAJOR	≥ 2,381 bbl	-	-	-	-

* USCG Size Categories:

Columns may not add due to rounding

MINOR: Under 10,000 gal (< 238 bbl)

MEDIUM: 10,000 gal to < 100,000 gal (238 bbl to < 2,381 bbl)

MAJOR: 1100,000 gal (2,381 bbl) and Greater

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Table 3. Petroleum Spills from Federal OCS Facilities of 1 bbl or Greater Resulting from Damages Caused by Hurricanes Katrina and Rita in 2005 By Source, Platforms And Rigs vs. Pipelines By Storm					
Storm	Source	Total Petroleum	Crude Oil & Condensate	Refined Petroleum	Counts
COMBINED	Total	17,652.2	13,137.3	4,514.8	124
	Platforms & Rigs	10,365.4	5,850.6	4,514.8	52
	Pipelines	7,286.8	7,286.8	-	72
KATRINA	Total	5,552.1	4,961.9	590.1	70
	Platforms & Rigs	2,842.5	2,252.4	590.1	27
	Pipelines	2,709.6	2,709.6	-	43
RITA	Total	12,100.1	8,175.4	3,924.7	54
	Platforms & Rigs	7,522.9	3,598.2	3,924.7	25
	Pipelines	4,577.2	4,577.2	-	29

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This ongoing reporting has made it difficult for MMS to provide 2005 Hurricanes Katrina and Rita spill information to the public. Since MMS released preliminary spill totals in April 2006:

- Operators have recovered enough petroleum products in the interim to remove one platform and one rig from the 1,000 bbl and greater category as a result of the reductions in the estimated volume of unrecovered hydrocarbons (Chevron's Typhoon platform in GC 237 and the Rowan Halifax in EC 346)
- One rig which has not been found to date has been added to the 1,000 bbl and greater category (Rowan Fort Worth last seen at SM 146)
- A pipeline was just discovered in late July 2006 and is estimated to have lost 200 to 2,000 bbl of which the 2,000 bbl is being used as the estimate until the operator can provide better information (BP E & P Segment #9347 in MC 109).
- Two pipeline segments in Eugene Island were originally estimated in April 2006 based on "worst case" estimates (on the order of 3,000 bbl each) have been reduced to 50% of the "worst case" estimate. These reductions were based on professional judgment; the fact that the damages involved cracks, not breaks; and the lack of sightings of any condensate or sheens in the area of the cracks immediately after Hurricane Rita. It is likely that these 50% of "worst case" estimates still overestimate the actual spillage. These volumes may be revised further if new information becomes available. (Gulf South Pipeline Segment #1844 in EI 51 and Segment #4754 in EI 95)