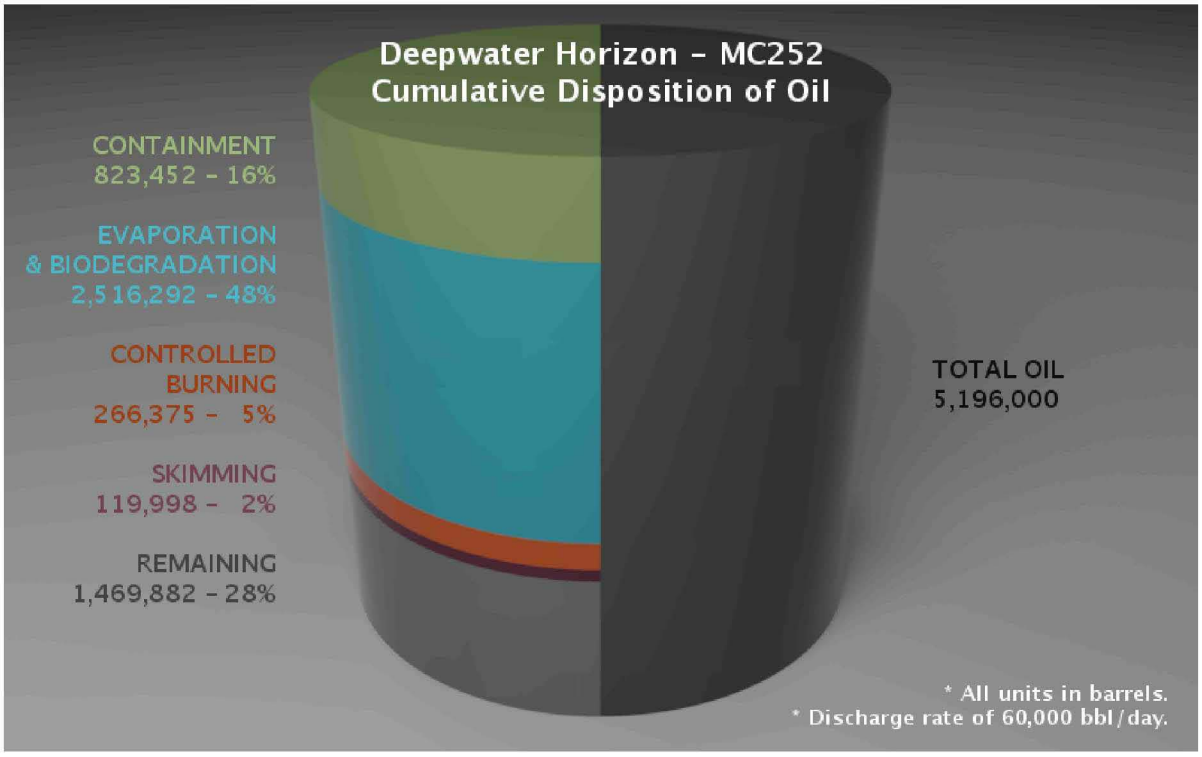
Deepwater Horizon MC252 Gulf Incident Oil Budget

High Flow Scenario (60,000 barrels/day) - Through July 21 (Day 93)

	Cumulative	July 21
Discharged	5,196,000	0
Recovered via RITT and Top Hat	823,452	0
Dispersed Naturally	826,216	0
Evaporated or Dissolved	1,346,443	0
Available for Recovery	2,199,889	0
Chemically Dispersed	343,633	0
Burned	266,375	0
Skimmed	119,998	11
Dispersant Used	35,525	0
Remaining	1,469,882	-11

* All units in barrels. See end notes for assumptions.

	Cumulative
Inland Recovery	32,640 tons



Deepwater Horizon MC252 Gulf Incident Oil Budget

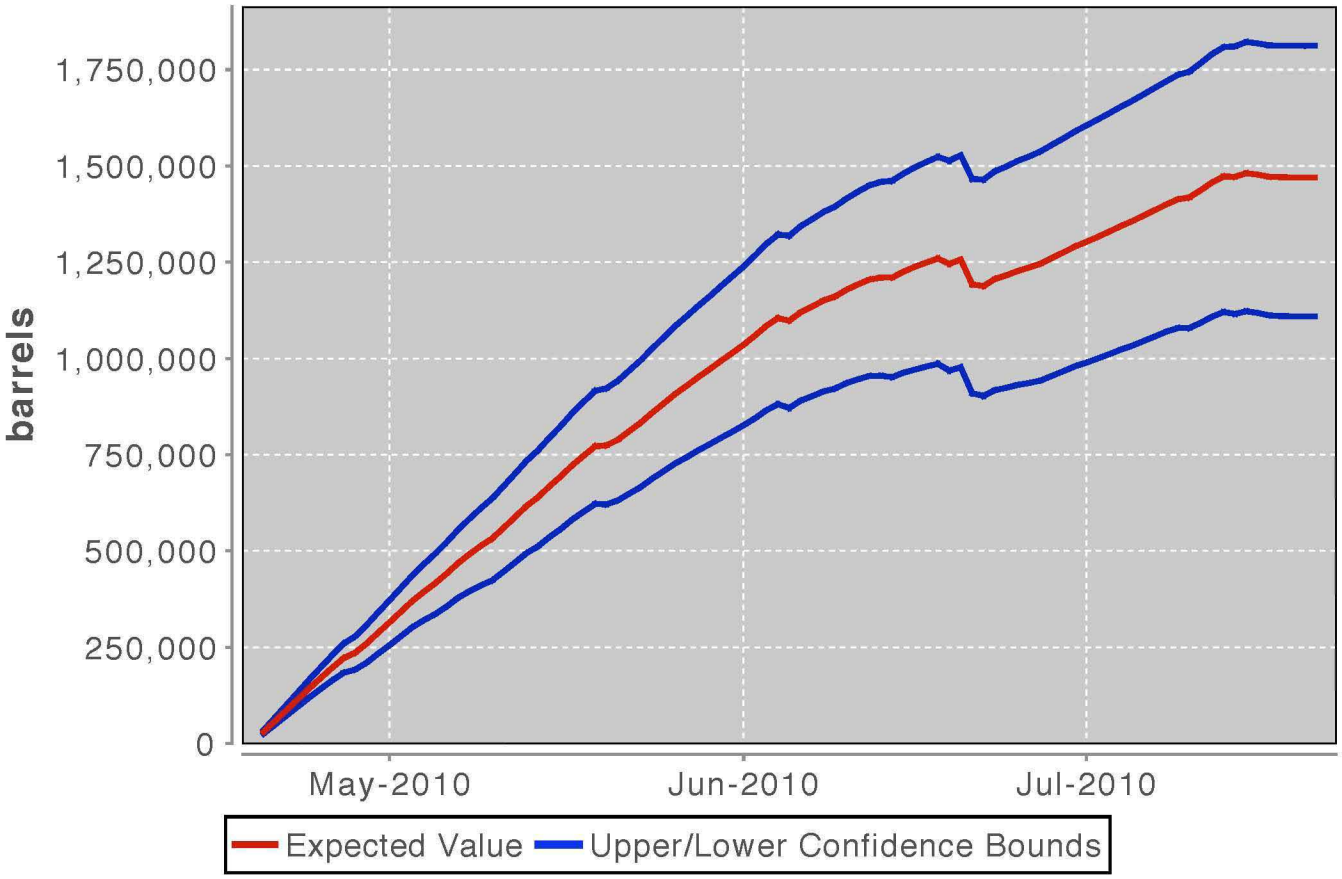
Report generated by mark.w.miller@noaa.gov on 07/22/2010 01:39 PM MDT.

See end notes section of the report for reference material on report elements.

Application operated by the U.S. Coast Guard and provided by the U.S. Geological Survey in cooperation with the National Oceanic and Atmospheric Administration.

High Flow Scenario (60,000 barrels/day) - Through July 21 (Day 93)

Cumulative Remaining



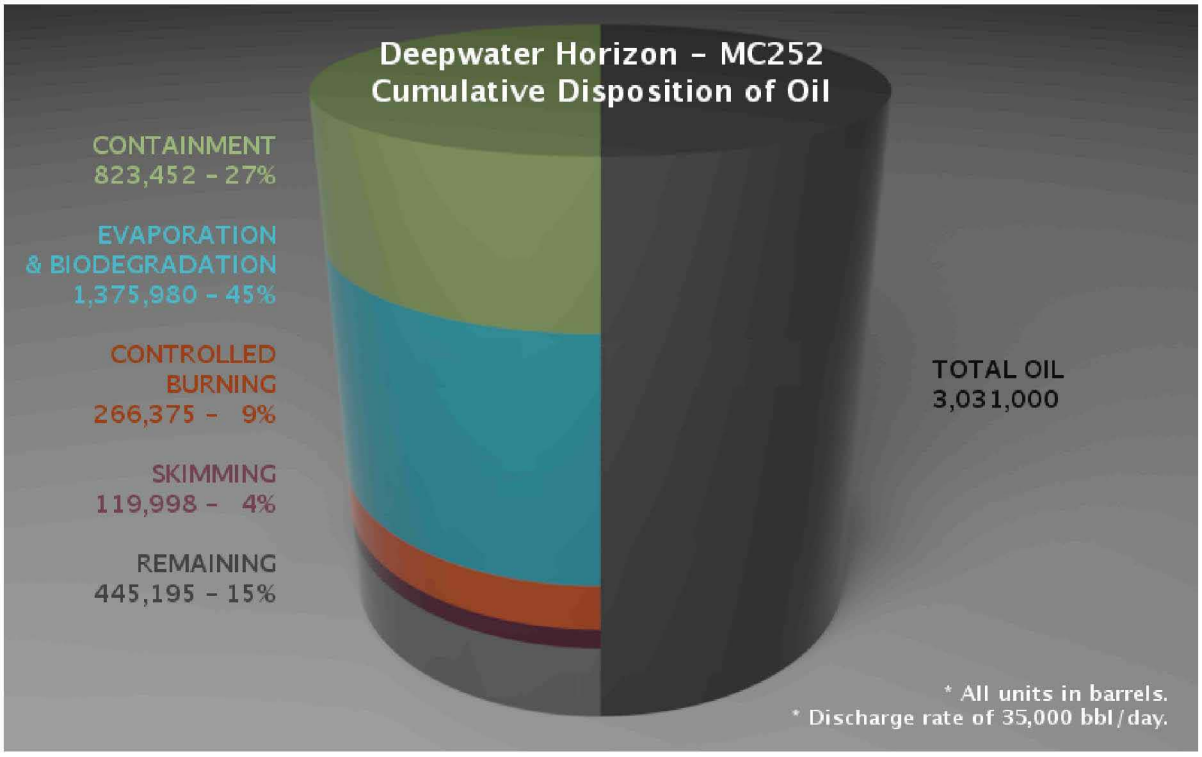
Deepwater Horizon MC252 Gulf Incident Oil Budget

Low Flow Scenario (35,000 barrels/day) - Through July 21 (Day 93)

	Cumulative	July 21
Discharged	3,031,000	0
Recovered via RITT and Top Hat	823,452	0
Dispersed Naturally	393,216	0
Evaporated or Dissolved	639,131	0
Available for Recovery	1,175,201	0
Chemically Dispersed	343,633	0
Burned	266,375	0
Skimmed	119,998	11
Dispersant Used	35,525	0
Remaining	445,195	-11

* All units in barrels. See end notes for assumptions.

	Cumulative
Inland Recovery	32,640 tons



Deepwater Horizon MC252 Gulf Incident Oil Budget

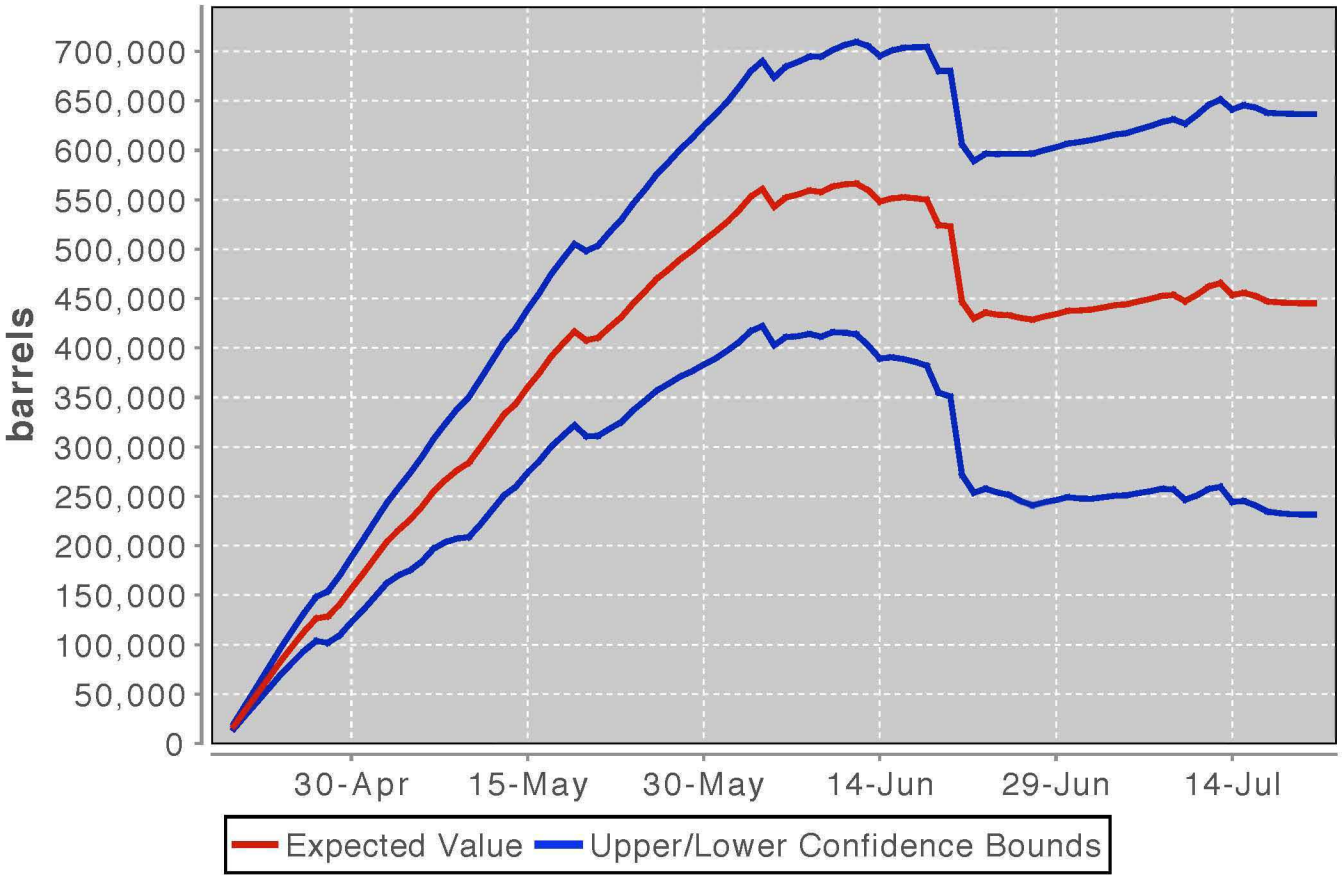
Report generated by mark.w.miller@noaa.gov on 07/22/2010 01:39 PM MDT.

See end notes section of the report for reference material on report elements.

Application operated by the U.S. Coast Guard and provided by the U.S. Geological Survey in cooperation with the National Oceanic and Atmospheric Administration.

Low Flow Scenario (35,000 barrels/day) - Through July 21 (Day 93)

Cumulative Remaining



Reference Notes

Chart - Cumulative/Daily Volume Remaining of the Surface

The volume of oil that each day is added to the volume of oil already on the surface is computed taking into account the effective discharge (total discharge minus volume collected via the Top Hat), and the volume that is evaporated or dissolved, skimmed, burned, or dispersed (either chemically or naturally).

Chart - Deepwater Horizon MC-252 - Cumulative Disposition of Oil

The Cumulative Disposition of Oil "Barrel Graph" provides a representation of the total amount of oil released over time based on low and high discharge estimates, the relative amounts of oil recovered or dispersed by both natural and management methods, and the total remaining oil calculated by the oil budget model. The values used in the chart come from the calculations in a statistical model and correspond to the cumulative values in the table. See the footnotes (available in the Web application by clicking on the labels in the table) for further information on the individual calculations and further reference material.

Dispersant Used

The amount of dispersant used is recorded each day of the incident by National Incident Command personnel. It is an actual measurement of the total dispersant used via all methods employed.

Burned

Total burned values are entered daily by National Incident Command personnel and used in daily and cumulative totals.

- •American Society for Testing and Materials (ASTM) burn rate standards are used
- •Different rates for non-emulsified and emulsified oil

Note: Refer to the section on Burning Losses in the Mass Balance Formulas document for a discussion of the methodology used in this calculated measurement.

Available for Recovery

The amount available for recovery, both daily and cumulative, is simply the remaining oil after removing the following from the total discharge:

- Measured amount removed via RITT and Top Hat
- Calculated amount of subsurface dispersion
- Calculated amount of evaporation and dissolution

Recovered via RITT and Top Hat

RITT and Top Hat are mechanical devices that British Petroleum (BP) has used to recover oil from the spill flow. Values for the amount recovered are reported by BP, entered daily by National Incident Command personnel, and used in the calculation of remaining oil. Cumulative totals are a sum of all daily values entered.

Chemically Dispersed

Chemical oil dispersion is the result of a scientific calculation based on the amount of chemical dispersant applied and recorded daily and acting on both surface and subsurface oil. The following assumptions and factors apply:

- Droplets smaller than 100 micron are considered dispersed
- No natural surface dispersion assumed
- International Tanker Owners Pollution Federation (ITOPF) "planning purpose" dosage of 20:1 used as estimate for successful chemical dispersant application

Note: Refer to the section on Dispersed Oil in the Mass Balance Formulas document for a full discussion of the scientific methodology used in this calculation.

Skimmed

Skimmed oil is a rough calculation based on the daily reported amount of oily water multiplied by a factored estimation of net oil content. The net oil factor is different for the Maximum and Minimum Removal scenarios.

- The skimmed oil estimate is very rough
- The actual amount of skimmed oil should ultimately be based on actual measurement

Note: Refer to the section on Skimmed Oil in the Mass Balance Formulas document for a discussion of this calculation.

Dispersed Naturally

Natural oil dispersion is estimated using the methods described in this annotation and background documentation. The following assumptions and factors apply:

- •Droplets smaller than 100 micron are considered dispersed
- •No natural surface dispersion assumed
- •Subsurface natural dispersion based upon plume turbulent energy dissipation

Natural subsurface dispersion is a calculation of the total discharge minus a calculation of subsurface chemical dispersion multiplied by a factor of natural dispersion effectiveness derived from a scientific method of determining oil dispersion in the water column. A higher factor is used for the "Maximum Removal" scenario to result in a larger amount of oil "removed." See background documentation for more information.

Note: Refer to the section on Dispersed Oil in the Mass Balance Formulas (link) document for a full discussion of the scientific methodology used in this calculation.

Evaporated or Dissolved

Evaporation and dissolution occur naturally with oil on the surface. This element in the report is the result of a scientific calculation using the methods described in this annotation and background documentation. The following assumptions and factors apply:

- •Evaporation formulas include dissolution as well
- •Largest oil removal mechanism for surface oil
- •Most evaporative losses occur during the first 24 hours

Evaporation is calculated differently for "fresh" oil within 24 hours (daily total in the report) and older oil for the cumulative total over time. Different factors are used to represent the difference in this rate. The evaporation/dissolution calculation first determines the remaining oil available for evaporative processes by removing the following from the total discharge:

- •Measured amount removed via RITT and Top Hat
- •Calculated amount of subsurface dispersion
- •Reported amount of oil burned
- •The remaining amount is then multiplied with a different factor based on scientific research and current observations conducted on the Deepwater Horizon incident.

Note: Refer to the section on Evaporated and Dissolved Oil in the Mass Balance Formulas document for a full discussion of the scientific methodology used in this calculation.

Discharged

The Discharge values shown in the reports come from the low and high estimates determined by the Flow Rate Technical Group (FRTG) for the Deepwater Horizon incident. Discharge rates are adjusted over time in the data behind the application based on analyses by the FRTG of changing dynamics in the incident (e.g., severing the riser).

- •Discharge rates use flow limits from FRTG Plume Team PIV measurements.
- •Chosen because same measurement method used pre- and post-riser cut.
- •Other estimation methods provided higher and lower values.

Note: Refer to the section on Leakage in the Mass Balance Formulas document for a full discussion of the scientific methodology used in this calculation.

Background

On June 15, 2010, an improved estimate of how much oil is flowing from the leaking BP well was announced. The most likely flow rate of oil is between 35,000 and 60,000 barrels per day. This improved estimate is based on more and better data that is available after the riser cut Ã¢ÂÂ data which helps increase the scientific confidence in the accuracy of the estimate. As the Government continues to collect additional data and refine these estimates, it is important to realize that the numbers can change. In particular, because the upper number is less certain, it is important to plan for the upper estimate plus additional contingencies immediately.