Progress on Reassessing Oil Shale of the Green River Formation at the U.S. Geological Survey

By

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Distribution of Oil Shale in CO, UT and WY
Map showing extent of significant oil shale deposits in the Green River Formation and coreholes and drillholes with Fischer assay data Colorado, Utah and Wyoming (Tracey Mercier, Jack Dyni, Ron Johnson)
3D model in Earth Vision model used to identify location problems with oil shale coreholes and drillholes (Mike Pantea).
3D model in Earth Vision model used to identify location problems with oil shale coreholes and drillholes (Mike Pantea)
The original file listing the depths to all oil shale zones in the Piceance Basin could not be found so a new one was generated
Cross sections correlating rich and lean oil shale zones in the Piceance Basin (Ron Johnson, Bob Ryder, Jack Dyni)
Thickness of the R6 rich oil shale zone
Thickness of overburden on the top of the Mahogany oil shale zone (Tracey Mercier)
Cubic meters of overburden on the top of the Mahogany zone was calculated in Arc-GIS for every section in the Piceance Basin by Tracey Mercier.
Oil yield in gallons per ton for the Mahogany ledge from Pitman and Johnson (1979) overlain on thickness of overburden (Tracey Mercier)
Oil yield in gallons per ton for the Mahogany ledge (new, unpublished version) overlain on thickness of overburden (Tracey Mercier)
Geologic map of the Anvil Points quadrangle (O’Sullivan, 1986) placed into Google Earth (Tracey Mercier)
Oil yield histograms have been plotted for all Wyoming and Colorado holes with Fischer assay data (Jessie Self, Mick Brownfield)

- The paper copies are scanned and then converted to text using OCR software and checked for errors.
- This new database is also being checked against the original data in the National Oil Shale Database Archives.
- Missing data is added when found.
- Drill hole location data is being added.
Example of Oil and Nahcolite Yields for the Saline Zone, Green River Formation, Piceance Creek Basin, Northwest Colorado. We are currently recovering nahcolite data from 69 core holes. (Mick Brownfield, Jessie Self)
Preliminary correlation of Green River Formation between four 7 1/2 minute quadrangles in the northern part of the Piceance Basin
Locations of measured sections in the northern Piceance Basin
Upper part of Green River Formation near mouth of Yellow Creek, Piceance Basin
Correlation of upper part of Green River Formation between Spring Creek and Yellow Creek
Some marl tongues extend east-west across the entire basin indicating that there were extended periods of time when no volcanioclastics reached the basin.
Green River Formation along Deep Channel Creek in the northernmost part of the Piceance Basin
Green River Formation along Deep Channel Creek in the northernmost part of the Piceance Basin
Laney Shale Member in the southernmost part of the Sand Wash Basin
What will the assessments consist of?

- All available Fischer assay data
- Oil-yield histograms for Fischer assay data
- Scans of geophysical logs for oil shale coreholes
- A tops file for key oil shale units
- Detailed cross sections
What will the assessments consist of?

- Best available structure contour maps on key oil shale units
- Oil yields in gallons per ton and barrels per acre for all major oil shale units along with a range of probabilities
- Overburden maps for key oil shale units and calculations of amount of overburden by square mile section
- Nahcolite resources for each oil shale zone in the Piceance Basin
What the assessment will not include

• An estimate of recoverable shale oil, however we hope to provide enough information so that estimates of recoverable shale oil can be made in the future once a viable extraction method or methods have been developed.