

# Oil & Natural Gas Technology

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## Quarterly Report

January 2012 - March 2012

### Water-related Issues Affecting Conventional Oil and Gas Recovery and Potential Oil-Shale Development in the Uinta Basin, Utah



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## **EXECUTIVE SUMMARY**

The Utah Geological Survey's (UGS) Uinta Basin water study is nearing completion. The Task 2 and Task 4 draft final reports are completed and in the UGS review process, while the Task 3 draft report is roughly 50% finished. A second no-cost extension was granted in January 2012, extending the project's final ending date to April 30, 2012. Remaining project funds will be used to finalize the reports, travel to Morgantown, WV to present final results to NETL staff, and travel to the American Association of Petroleum Geologists (AAPG) annual meeting in April to present final results via two poster presentations.

## **PROGRESS, RESULTS, AND DISCUSSION**

### **Task 1.0: Project Management Plan**

During the month of January, the PI wrote and submitted the project's 13th quarterly report for the period October through December 2011. This report was subsequently sent via email to all interested parties and posted on the UGS project website.

### **Task 2.0: Moderately Saline Aquifer Study**

During the UGS review process, one of the non-UGS peer reviewers (an oil and gas company in the Uinta Basin) shared several new water chemistry analyses and digital geophysical logs from an area on the draft map that was lacking good quality data. The Task 2 team decided to delay publication of the report in order to include this new data. As of April 2012, the modifications have been made and the revised report is once again making its way through the UGS review process. The report is expected to be published in June 2012.

### **Task 3.0: Geologic Examination of the Birds Nest Aquifer**

All research for Task 3 is completed and the draft final report is about 50% finished. The expected completion date is end of May 2012, with the final version ready for publication in late July.

### **Task 4.0: Baseline Water Quality and Quantity GIS Database**

The draft final report for Task 4 is complete. The report is making its way through the extensive UGS review process and should be completed in May 2012.

### **Task 5.0: Integration of Analysis of Produced Water from Simulated In-situ Oil Shale Extraction Technologies**

As stated in the previous quarterly report, researchers in the Department of Chemical Engineering at the University of Utah have completed laboratory experiments simulating in-situ oil shale extraction with two overall objectives in mind: (1) determine the presence and species of dissolved organics in the water phase post-pyrolysis, and (2) determine the effect of the presence of water on retorting and its products. A detailed report/paper is currently being prepared by Dr. Milind Deo and his graduate students.

### **Task 6.0: Technology Transfer**

- An abstract was accepted to the 2012 AAPG-RMS annual meeting which will be held in Grand Junction, CO. The poster presentation will detail the final results related to Task 2.
- The PI presented the results of the project to NETL staff in Morgantown, WV on March 14, 2012. The close-out presentation is available on the UGS project website.
- Two poster presentations will be made at the 2012 AAPG national meeting in Long Beach, CA (April 22-25, 2012). One poster will present the results from Task 2 and the second poster will present the results from Task 3.

- The project website ([http://geology.utah.gov/emp/UBwater\\_study](http://geology.utah.gov/emp/UBwater_study)) was updated with new quarterly reports, abstracts, and presentations prepared by project team members.

## CONCLUSION

The final draft reports for Task 2 and Task 4 are completed and in the UGS review process (some revisions were made to the Task 2 report due to an unexpected new data donation), while the final draft report for Task 3 is roughly 50% completed. A second no-cost extension was granted which extended the project's official ending date to April 30, 2012. Project leaders will use the 90-days post-official-ending-date to complete writing, review, and editing of the final reports.

## COST STATUS

As of February 2012, the budgeted amount for this project was met. All remaining work will be funded solely by UGS.

**Table 1.** Project costing profile for second no-cost extension (first 3 months).

	Jan 2012		Feb 2012		Mar 2012	
	Plan	Actual	Plan	Actual	Plan	Actual
UGS-personnel		\$10,627		\$9,124		\$4,116
Travel Expenses <sup>1</sup>				\$790		\$618
Water Chemistry				\$5,929		
Miscellaneous						
<b>SUBTOTALS</b>		\$10,627		\$15,843		\$4,737
<b>UGS OVERHEAD (32.40%)</b>		\$3,443		\$5,133		\$1,535
<b>SUBCONTRACTS</b>						
P. Anderson		\$6,918				
<b>GRAND TOTALS</b>		\$20,988		\$20,976		\$6,272

<sup>1</sup>February and March – travel expenses for trip to Morgantown, WV for close-out meeting

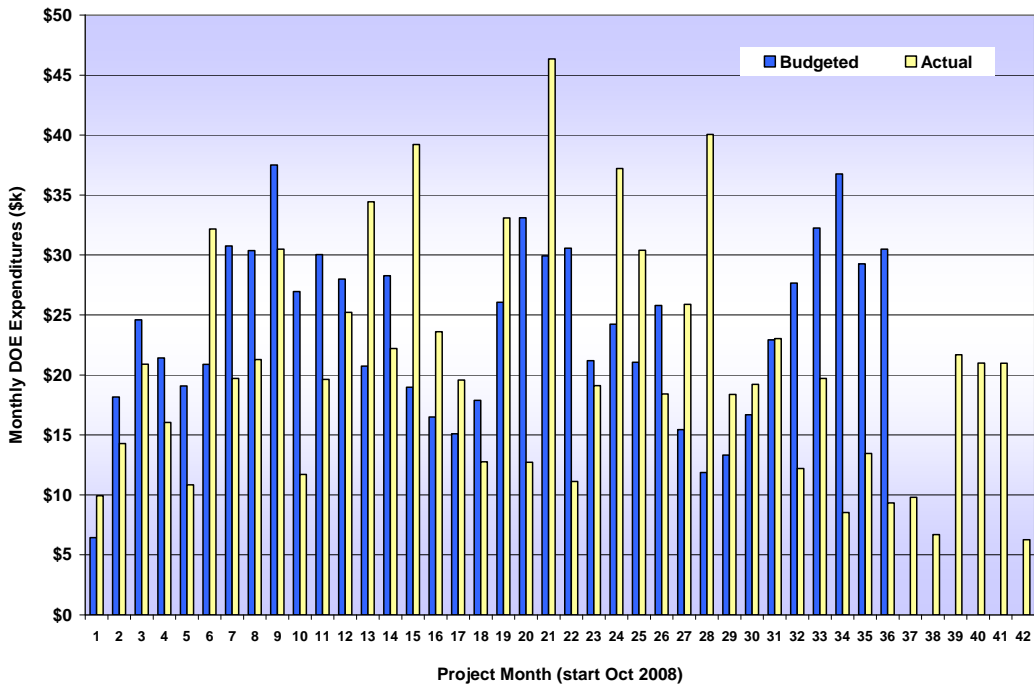


Figure 1. Project costing profile.

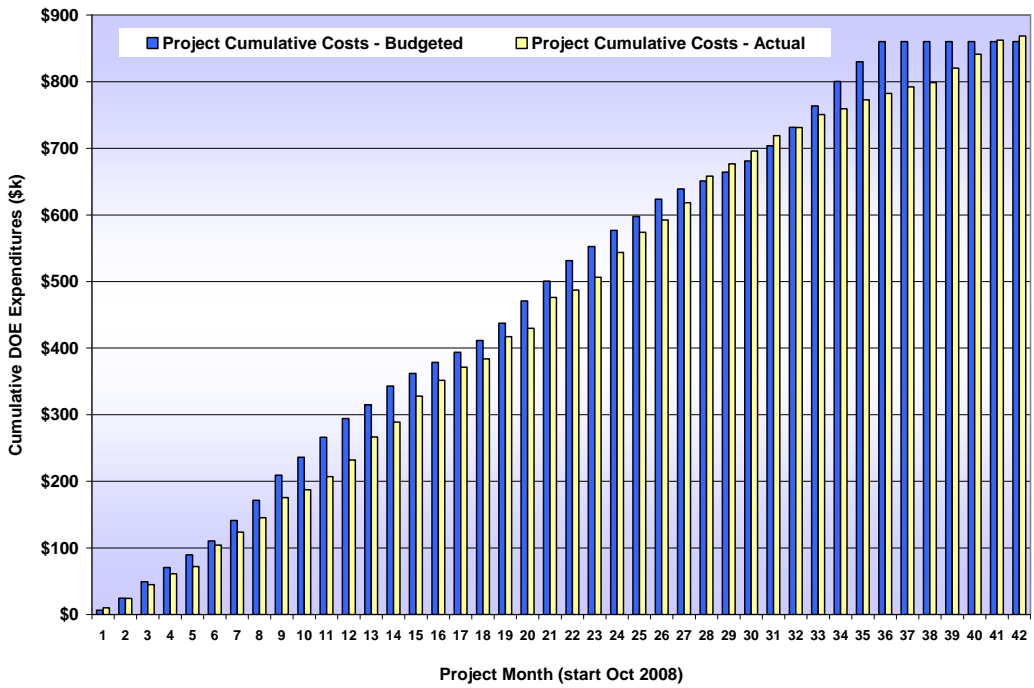


Figure 2. Project cumulative costs.

## MILESTONE STATUS

*Table 2. Milestone log for Budget Period 3.*

	<b>Title</b>	<b>Description</b>	<b>Related task or subtask</b>	<b>Completion Date</b>	<b>Update/comments</b>
Milestone 3.1	Map the base of the moderately saline aquifer	Re-map the base of the moderately saline aquifer, including cross-sections, based on data collected during the previous two years	Subtask 2.2	3/31/2011	Draft report completed, in UGS review process.
Milestone 3.2	Creation of Birds Nest aquifer maps	Map the thickness, extent, and water chemistry of the Birds Nest aquifer	Subtask 3.5	6/30/2011	All Birds Nest related maps are completed, final report in progress.
Milestone 3.3	Water quality and quantity analysis	Combine all collected water data and combine into a final report	Subtask 4.4	9/30/20011	Draft report completed, in UGS review process.
Milestone 3.4	Integration analysis	Model transfer of oil and water to adjacent aquifers and beyond	Task 5	6/30/2011	Researchers at the University of Utah have completed this part of the project and are in the process of preparing a final report/journal article

## ACCOMPLISHMENTS

- An abstract detailing research from Task 2 was accepted to the 2012 AAPG-RMS meeting to be held in Grand Junction, CO
- The PI presented final results to NETL at the close-out meeting in March 2012.

## PROBLEMS OR DELAYS

A second no-cost extension (four additional months) was granted in January 2012, pushing the project's final ending date to April 30, 2012. Final reports are due to NETL by no later than the end of July 2012.

## PRODUCTS AND TECHNOLOGY TRANSFER ACTIVITIES

- Completed 13th quarterly report
  - October 2011 through December 2011 – available on the UGS project website
- Updated project website
  - Posted various new reports, abstracts, and presentations prepared by project team members
  - [http://geology.utah.gov/emp/UBwater\\_study](http://geology.utah.gov/emp/UBwater_study)
- Abstract – AAPG-RMS Annual meeting – Grand Junction, CO – September 9-12, 2012
  - An abstract was accepted detailing the final results of Task 2 (re-mapping the BMSA)
  - The abstract is available on the UGS project website
- Close-out meeting with NETL
  - The PI presented the project final results to officials at NETL in March 2012
  - The close-out presentation is available on the UGS project website

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