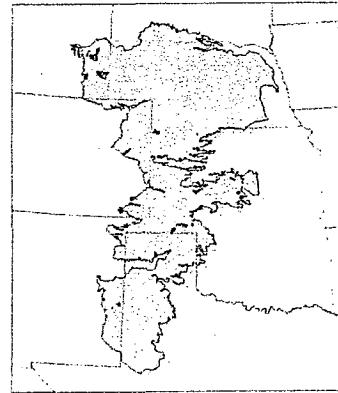


High Plains Hydrology LLC  
7956 S. Shawnee St.  
Aurora, CO 80016-7206  
(303) 693-0299



March 3, 2008

Steve Gaul  
Supervisor, Planning and Assistance Division  
Nebraska Department of Natural Resources  
P.O. Box 94676  
Lincoln, NE 68509-4676

Dear Steve:

Enclosed please find my monthly report for February, an invoice for the time and expenses for work with the Department of Natural Resource, and a spreadsheet supporting the time. If you have any questions, please give me a call. Thank you.

Sincerely,

*Dick*

Richard R. Luckey  
Senior Hydrologist

RECEIVED  
MAR 05 2008  
DEPARTMENT OF  
NATURAL RESOURCES

**Groundwater Modeling Support for the Nebraska Department of Natural Resources**

**Status Report, February 29, 2008**

- Objectives:** 1. Provide modeling support as requested; and
2. Compare COHYST and RRCA models in area of overlap, with emphasis on the groundwater mound area.

**Status:**

Dick spent some time in February working on the comparison of the COHYST and Republican models. He worked on the text on model calibration. He wrote up what was varied during model calibration. He spent some time looking at the RRCA surface water calibration data, but could not come up with an effective way to summarize it. He eventually decided not to try to compare how effectively the models were calibrated, as this would imply one model was better than the other.

Dick worked on the comparison of boundary conditions between the models. He wrote a section on the closely related drain, river, stream, general head, and constant head boundary conditions. These have slight differences and each may be more appropriate under certain conditions. However, under many conditions in the study area, they are virtually interchangeable.

With this work, the Introduction section is complete. In previous months, model inputs and overall model output sections were completed.

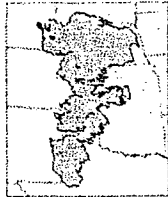
**Plans for next month:**

Dick will continue to work on comparisons of COHYST and Republican models in March. He will work on more detailed comparison of model outputs in the mound area. Based on the report outline, he will do various comparisons of the geometry of the mound. Just how this will be presented remains to be determined. If this is completed, he will work on simulated streamflows out of the mound area.

Dick will do other tasks as requested by DNR.

# High Plains Hydrology LLC

7956 S. Shawnee St.  
Aurora, CO 80016-7206  
Phone (303) 693-0299 Cell (303) 916-5973



# INVOICE

INVOICE #142  
DATE: MARCH 3, 2008

**TO:**  
Nebraska Department of Natural Resources  
301 Centennial Mall South  
P.O. Box 94676  
Lincoln, NE 68509-4676

**FOR:**  
Services of Senior Groundwater Modeler

LABOR DESCRIPTION	HOURS	RATE	AMOUNT
February, 2008, Task 1-1 (see attached spreadsheet)	0.00	\$ 75.00	\$ 0.00
February, 2008, Task 1-2 (see attached spreadsheet)	22.00	75.00	1,650.00
EXPENSES DESCRIPTION	QUANTITY	UNIT PRICE	LINE TOTAL
<b>TOTAL this Period</b>			\$ 1,650.00
<b>Previous balance</b>			\$ 4,425.00
<b>Payments received</b>			\$ 4,425.00
		<b>TOTAL</b>	\$ 1,650.00

Make all checks payable to **High Plains Hydrology LLC**  
Total due in 30 days. Overdue accounts subject to a service charge of 1% per month.

**Thank you for your business!**

Date	Start	Stop	Start	Stop	Start	Stop	Hours	Task 1	Task 2	Task 3	Task 4	DNR 1-1	DNR 1-2	Notes
02/20/2008	10:15 AM	12:30 PM	2:00 PM	4:00 PM			4.25	2.00						Monthly reports. Restart CycleWell on COHYST Dell. RRCA calibration section. Start columns for pump 4000 on IBM ThinkPad. Calibration of streamflow section of RRCA report. What was varied to calibrate models section
02/04/2008	8:45 AM	12:30 PM	1:45 PM	4:00 PM			6.00	0.25						5.75 of text.
02/05/2008	8:45 AM	12:30 PM	2:15 PM	4:30 PM			6.00	0.50						5.50 Set up CycleWell inject 16000. RRCA documentation on calibration parameters. Most time spent on trying to understand ET.
02/06/2008	9:30 AM	12:30 PM	1:30 PM	5:30 PM			7.00							7.00 Email to Ron Zell. Email to Rick Wilson. Both about ET and recharge information. RRCA boundary conditions text. Backup of COHYST-Dell. Tended to CycleWell. Look at Sponsors questions. Looked at supplemental pumpage stuff. RRCA comparison of boundary conditions.
02/12/2008	2:45 PM	5:15 PM					2.50	1.00						1.50 Phone call with Rich to discuss surface-water irrigation districts. Checking Rich's spreadsheet of SW acres. Looking at SW irrigation districts in WMU that look auspicious.
02/13/2008	8:45 AM	12:30 PM	1:30 PM	6:00 PM			8.25	8.25						Review COHYST SW acres estimates.
02/14/2008	9:45 AM	12:30 PM	1:15 PM	5:00 PM			6.50	6.50						Looking for errors in Kevin's CycleWell results.
02/15/2008	9:30 AM	12:00 PM					2.50	2.50						Looking for errors in Kevin's CycleWell results. Supplemental pumpage conference call.
02/19/2008	8:15 AM	12:30 PM					4.25	4.25						Looking for errors in Kevin's CycleWell results.
02/20/2008	8:45 AM	12:30 PM					3.75	3.75						Looking at CMU CycleWell stuff. Call from Kevin on starting new database. Talked to Clint. Talked to Jim. Ran lots of ZoneBudget test.
02/21/2008	9:00 AM	12:30 PM	1:15 PM	5:15 PM			7.50	7.50						Looking at CMU CycleWell stuff. Call to Kevin - he is having issues with new database - was bad criteria in templates, step=600. Found that CMU CycleWell problem was a bad baseline simulation. Wrote up CMU CycleWell results and sent to Kevin and Duane. Helped Kevin return baseline.
02/22/2008	8:00 AM	12:30 PM	3:15 PM	4:15 PM			5.50	5.50						Reviewing Doug's work on NDBYNRD. Call to Doug. Corrected spreadsheet and recharge is okay. Pumpage still different.
02/25/2008	8:45 AM	12:30 PM	1:15 PM	4:30 PM			7.00				7.00			Update NDBYNRD documentation following Doug Hellum's review.
02/26/2008	8:45 AM	12:15 PM	1:00 PM	4:45 PM			7.25				7.25			Update NDBYNRD documentation following Doug Hellum's review.
02/27/2008	9:00 AM	11:00 AM					2.00				2.00			Updated NDBYNRD documentation. Conference call on surface-water acres issues. Completed documentation and converted to PDF. Added bookmarks to PDF. Sent documentation to Duane and Doug in case we want to give to Sponsors March 4.
02/28/2008	8:15 AM	12:30 PM	1:00 PM	5:30 PM			8.75	0.50			8.25			February total and total by task number.
							89.00	42.50			24.50			22.00