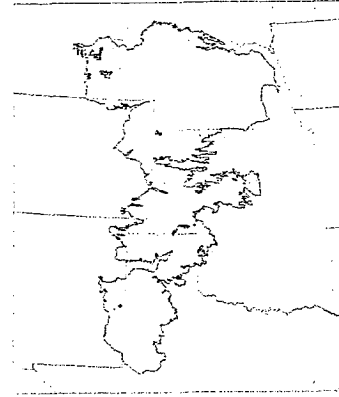


High Plains Hydrology LLC
7956 S. Shawnee St.
Aurora, CO 80016-7206
(303) 693-0299



December 1, 2006

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

Dear Steve:

Enclosed are my monthly report for November, 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
DEC 04 2006
DEPARTMENT OF
NATURAL RESOURCES

High Plains Hydrology LLC

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



INVOICE

INVOICE #112
DATE: DECEMBER 1, 2006

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
September, 2006, Task 1-1 (see attached spreadsheet)	0.00	\$65.00	\$ 0.00
September, 2006, Task 1-2 (see attached spreadsheet)	25.50	65.00	1,657.50
EXPENSES DESCRIPTION	QUANTITY	UNIT PRICE	LINE TOTAL
TOTAL this Period			1,657.50
Previous balance			1,966.25
Payments received			715.00
TOTAL			\$2,908.75

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!

Groundwater Modeling Support for the Nebraska Department of Natural Resources

Status Report, November 30, 2006

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 one day early in November and the last week of November working on this project. He got the latest versions of the COHYST central and eastern models and put these in separate directories. He opened the models in GMS and put the aquifer properties in 2-D scatter points to compare them with the RRCA model. He exported the data sets and cleaned them up in ArcMap.

Dick started work on comparing specific yields between the two models. Because the COHYST models used for the comparison were multi-layer models, he used the specific yield where the water table occurred. He put that into a 2-D scatter point data set for each of the COHYST models and brought that into the RRCA model. He interpolated the scatter points to the RRCA grid. He built a series of masks in GMS to combine the two data sets into a single data set. In the area where the central and eastern COHYST models overlap, he used the average between the two models. He tried some visual comparisons between RRCA and COHYST specific yield, but that didn't work out very well. He calculated node-by-node differences and looked at that. He generated a map of the differences, some statistics, and a plot. He has not yet decided if he will use all of these, or some other method of comparing aquifer parameters.

Dick produced base of aquifer maps for the RRCA model and the two COHYST models. He can see some differences, but has not figured out how to analyze and display the differences.

Dick spent a small amount of time on the documentation for this work while the scatter points were interpolated to the RRCA grid. The interpolation was a very time consuming process. At this point, the documentation consists of section heading and a few paragraphs of very rough text.

Plans for next month:

Dick will continue to compare aquifer properties between the RRCA and COHYST models. He will look at hydraulic conductivity next. He will also look at transmissivity. This is necessary to make a good comparison because the models handled transmissivity in different manners.

Dick will do other tasks as requested by DNR.

