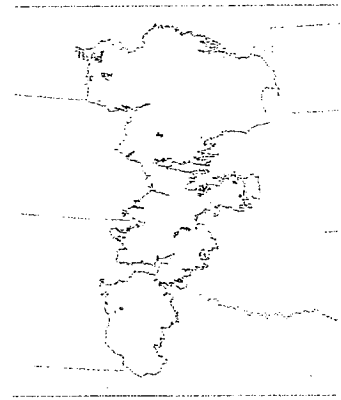


High Plains Hydrology LLC
7956 S. Shawnee St.
Aurora, CO 80016-7206
(303) 693-0299



May 1, 2007

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 April, 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,

Richard R. Luckey
Senior Hydrologist

RECEIVED

MAY 03 2007

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 #122
 DATE: MAY 1, 2007

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
March, 2007, Task 1-1 (see attached spreadsheet)	8.75	\$ 70.00	\$ 612.50
March, 2007, Task 1-2 (see attached spreadsheet)	93.75	70.00	6,562.50
EXPENSES DESCRIPTION	QUANTITY	UNIT PRICE	LINE TOTAL
TOTAL this Period			\$ 7,175.00
Previous balance			\$ 5,005.00
Payments received			\$ 5,005.00
TOTAL			\$ 7,175.00

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!

Groundwater Modeling Support for the Nebraska Department of Natural Resources

Status Report, April 30, 2007

- 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 continued to work on the differences between the Cooperative Hydrology Study (COHYST) models and the Republican River Compact Administration (RRCA) model in April. He worked on getting the RRCA recharge into seasonal recharge and found the problem with the way he had processed the recharge. He had previously summed the monthly recharge when he should have done a time-weighted average. He prepared maps of average 1950-97 RRCA recharge and the difference between RRCA and COHYST recharge. He also prepared graphs of the differences on a cell-by-cell basis. He prepared a table showing average 1950-97 RRCA and COHYST recharge by county. He incorporated these into a draft documentation of the results.

Dick started work on comparing RRCA and COHYST pumpage. He decided to average pumpage over four periods, 1950-61, 1961-73, 1973-85, and 1985-97. He averaged RRCA pumpage over these periods and prepared maps of the results. He also averaged COHYST pumpage over these periods and prepared maps of the results. He prepared a table showing RRCA and COHYST pumpage by county and period. He hasn't done a cell-by-cell comparison because he has not gotten the COHYST pumpage into the RRCA grid.

Plans for next month:

Dick will continue to compare pumpage between the RRCA and COHYST models. He will get the COHYST pumpage to the RRCA grid and do a cell-by-cell comparison of pumpage. He will incorporate the analysis of pumpage into the draft report on the results.

Dick will meet with Jim Schneider on May 2 to discuss the model comparisons to date. Dick wants to make sure that what he is doing will be useful to the Department before going too much further.

Dick may combine the pumpage and recharge into a net stress for the RRCA and COHYST models. Because both models used recharge as a calibration tool, any differences in pumpage may be offset by an equivalent difference in recharge. As a result, net stress may be a more valuable comparison between the models.

Dick will do other tasks as requested by DNR.

Date	Start	Stop	Start	Stop	Start	Stop	Hours	Task 1	Task 2	Task 3	DNR 1-1	DNR 1-2	Notes
04/02/2007	9:15 AM	11:15 AM	2:45 PM	4:45 PM			4.00	1.00			0.50		Check RRCA recharge processing. Problem was GMS means with and without active flags. Summarizing recharge by county. Now precipitation recharge is wrong.
04/03/2007	8:45 AM	12:00 PM	12:30 PM	4:15 PM			7.00						7.00 RRCA recharge. Got correct precipitation and sum recharge. Verified previous work dated 3/22/07.
04/04/2007	8:45 AM	9:00 AM					2.25						Call to Mike McDonald (1 hour). Draft task order 4 for COHYST. RRCA recharge components. Put Perkins County data from Appendix G into spreadsheet looking for error. Think I found the problem.
04/05/2007	7:45 AM	9:45 AM	11:00 AM	12:30 PM	1:15 PM	5:00 PM	7.25	2.00			1.00		RRCA recharge corrected. I had added monthly recharge to get seasonal recharge. I should have done time-weighted average instead. Summarized recharge by county and component. Did time series for selected counties. Made new shapfiles. Helping Clint with model conceptualization issues.
04/06/2007	7:30 AM	12:45 PM	5:00 PM	5:15 PM			5.50	0.25					4.00 RRCA average recharge distribution. Joining EMU and CMU recharge points.
04/09/2007	12:30 PM	4:30 PM					4.00						Revised COHYST task 4 work statement. Worked on COHYST recharge in RRCA area. Trying to merge EMU and CMU recharge. Helped Doug build recharge adjustment files (1 hour).
04/10/2007	7:00 AM	10:45 AM	2:45 PM	5:15 PM			6.25	1.00			1.00		COHYST average recharge in RRCA areas. Calls from Jim Schneider and Doug Hallum. Got COHYST recharge to shapfiles. Joined to counties.
04/11/2007	8:00 AM	12:30 PM	2:15 PM	5:30 PM			7.75				1.00		COHYST recharge by county. COHYST recharge plots.
04/12/2007	7:45 AM	12:30 PM	1:15 PM	4:45 PM			8.25	2.00					RRCA documentation outline. ZoneBudget issues with Rich Kern. Worked on ZoneBudget with multiple input files. RRCA documentation introduction. RRCA documentation on aquifer parameters (partial).
04/13/2007	7:00 AM	1:00 PM					6.00						Downloads for RRCA documentation. Text for RRCA documentation.
04/16/2007	7:30 AM	12:45 PM	1:15 PM	4:45 PM			8.75						COHYST recharge to RRCA grid. RRCA documentation of hydraulic conductivity and transmissivity.
04/17/2007	11:30 AM	1:15 PM	2:00 PM	4:30 PM			4.25	0.50					Check on latest pumpage for Duane. Worked on RRCA documentation for recharge.
04/18/2007	12:45 PM	5:00 PM					4.25						Update notes in logbook on DEM. Getting RRCA pumpage in form to work with. Working on program to get RRCA pumpage into COHYST stress periods.
04/19/2007	7:45 AM	8:45 AM	12:45 PM	4:30 PM			4.75				0.50		4.25 Program to aggregate RRCA pumpage. Manipulating pumpage in GMS. Call from Doug.
04/20/2007	6:30 AM	9:30 AM	10:45 AM	1:00 PM			5.25						5.25 Fixing time steps on RRCA recharge datasets. Calculate RRCA net pumpage and export.
04/23/2007	8:00 AM	11:00 AM	2:30 PM	4:45 PM			5.25						5.25 Working on RRCA pumpage.
04/24/2007	8:30 AM	11:45 AM	1:15 PM	5:30 PM			7.50						7.50 RRCA pumpage maps. RRCA pumpage by county. COHYST CMU pumpage to shapfile.
04/25/2007	6:30 AM	11:00 AM	3:00 PM	4:45 PM			6.25						6.25 CMU pumpage to RRCA grid. EMU pumpage to RRCA grid. COHYST pumpage to shapfiles. COHYST pumpage summary.
04/26/2007	6:45 AM	11:30 AM	1:30 PM	4:00 PM			7.25			2.50	4.75		Jim Schneider data request. WMU surface-water and land use recharge. OAZFA documentation revisions.
04/27/2007	6:30 AM	12:45 PM					6.25			6.25			OAZFA document revisions. Redo variable meteorology 20% reductions.
04/30/2007	9:15 AM	12:30 PM	1:00 PM	4:30 PM			6.75			6.75			Redo variable meteorology 40% - 100% reductions. Update spreadsheet. Update documentation. Revised documentation to Technical Committee.
							124.75	6.75		15.50	8.75	93.75	April total and total by task number