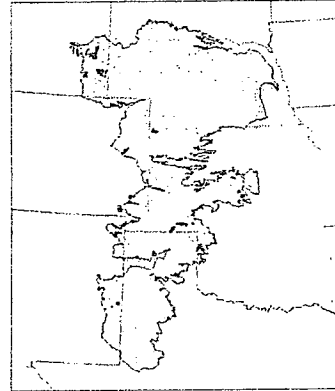


High Plains Hydrology LLC  
7956 S. Shawnee St.  
Aurora, CO 80016-7206  
(303) 693-0299



September 2, 2008

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

RECEIVED

SEP 04 2008

DEPARTMENT OF  
NATURAL RESOURCES

Dear Steve:

Enclosed please find my monthly report for August, an invoice for the time and expenses for work with the Department of Natural Resource, and a spreadsheet supporting the time. This represents the final invoice for DNR Contract No. 179. If you have any questions, please give me a call. Thank you.

Sincerely,

Richard R. Luckey  
Senior Hydrologist

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

**Status Report, August 31, 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 checked the list of all files used to generate the figures for the report Comparison of Republican River Compact Administration and Cooperative Hydrology Study Groundwater Flow Models. He added notes to the list where the shapefiles in the archival DVD had different names than were noted in the text of the report. He prepared an archival DVD containing the files used to prepare the model comparison report and sent it to the Department on August 26.

Dick met with Doug Hallum and Jim Schneider in Lincoln on August 20 to discuss preparation of water budgets in the area of overlap between the COHYST and RRCA models.

This completes work on Nebraska Department of Natural Resources Contract No. 179.

**Plans for next month:**

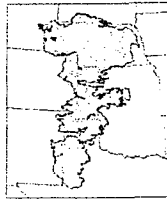
Dick will work with Doug Hallum to schedule a presentation to the Department on the model comparison sometime in the fall. Once a date is set, Dick will start work on the presentation.

Dick will revise the draft of scope of work for water budgets and evapotranspiration in the area of overlap between the COHYST and RRCA models. He will start work on this after the scope work is finalized.

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 #156  
DATE: SEPTEMBER 2, 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

**Note: This is the final invoice for DNR Contract No. 179**

LABOR DESCRIPTION	HOURS	RATE	AMOUNT
August, 2008, Task 1-1 (see attached spreadsheet)	0.25	\$ 75.00	\$ 18.50
August, 2008, Task 1-2 (see attached spreadsheet)	2.25	75.00	168.75
EXPENSES DESCRIPTION	QUANTITY	UNIT PRICE	LINE TOTAL
<b>TOTAL this Period</b>			\$ 187.25
<b>Previous balance</b>			\$ 1,687.50
<b>Payments received</b>			\$ 1,687.50
		<b>TOTAL</b>	\$ 187.25

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	Start	Stop	Hours	COHYST 1	COHYST 4	DNR 1-1	DNR 1-2	NPARD-1	SPNRD	Notes
08/01/2008	2:30 PM	4:45 PM							2.25	2.00		0.25				COHYST monthly report. DNR monthly report. Looking for last CMU model to look at gradients between layers. Can get GMS to read it, but would not run because I have GMS 6.0. Also would not run with standard MODFLOW-96. Called Clint and asked for GMS MODFLOW-96.
08/04/2008	10:30 AM	2:15 PM							3.75	2.00				1.75		Read CMU 1950-98 and converted to GMS 6.0. Had to change closure criteria and time steps to get to run even in hours. Started Bridgeport Ethanol Plant analysis. Partial estimates of pumpage rates. Located sites. Worked on text. Email to Ron Cacak for more information.
08/05/2008	8:30 AM	9:15 AM	11:00 AM						5.25	5.25						Worked on vertical gradients datasets. Call from Clint about CMU documentation. Checking CMU model convergence (bad). Rebuilt CMU model. Tried to run EMU model for gradients.
08/07/2008	12:00 PM	1:30 PM	2:00 PM	4:30 PM	2:00 PM	4:00 PM			4.00	4.00						Computed head gradients for EMU. Trying to make sense of values. Computed head 4 - head 2 and exported to shapefile. Reconfigured EMU to be less aggressive. Tried to compute gradients for CMU. Active cells are screwed up.
08/18/2008	8:45 AM	12:15 PM	1:00 PM	6:00 PM					8.50	8.50						Reviewed Technical Committee agenda. Looked at Julia Gogoi's databases. Working on EMU gradients. Put gradients in PowerPoint for EMU. Update notes and text for Bridgeport Ethanol Plant (BEP) analysis. Coordinating plans for archive meeting with Duane Woodward and Doug Hallum. Baseline for BEP analysis. Calls to Steve, Clint, and Kevin for Technical Committee meeting. Gradients in EMU to PowerPoint. Travel for Technical Committee and archive meetings.
08/19/2008	8:45 AM	11:45 AM	12:15 PM	5:15 PM					8.00	4.50				3.50		CMU gradients for PowerPoint presentation. Travel to DNR office. Meet with Duane and Doug on New Depletions by NRD archives. Day limited to 8 hour, although I quit at 8:00 pm.
08/20/2008	8:00 AM	1:00 PM	1:30 PM	4:30 PM					8.00	2.00	6.00					Completed CMU gradients for meeting presentation. Technical Committee meeting.
08/21/2008	8:00 AM	12:30 PM	1:00 PM	4:30 PM					8.00	8.00						Technical Committee meeting. Travel. Day limited to 8 hours.
08/22/2008	8:30 AM	1:00 PM	1:30 PM	5:00 PM					8.00	8.00						Checked ThinkPad from yesterday. Failed to find operating system. Tried to reboot without success. Repair said it worked, but it didn't. Nothing worked on booting. Found CMU cells that needed CycleWell to be run. Got database and necessary files organizer. Started CycleWell. Built BEP Scenario 1 simulation. Checked DNR RRCA figures list.
08/25/2008	8:45 AM	12:45 PM	1:15 PM	2:45 PM	3:30 PM	4:00 PM			6.00	2.50		0.50		3.00		Restated CycleWell on new block. Looked for 4-mile grid for Doug Hallum. Put on FTP site. Put Power Point presentations on FTP site.
08/26/2008	9:15 AM	12:00 PM	2:15 PM	5:00 PM					5.50	1.00				2.00	0.75	Updated RRCA/COHYST support files spreadsheet. Prepared RRCA/COHYST supporting files archival disk. Mailed final archive to DNR. Ran BEP spreadsheets. BEP charts and text. Completed draft of BEP text.
08/27/2008	8:15 AM	11:30 AM	3:00 PM	6:00 PM					6.25					6.25		Finalized BEP report and sent to Ron Cacak at 10:30. SPNRD water budgets - new zone file to include areas outside SPNRD for inflows and outflows. Worked on zones in GMS. Helping Kevin with various issues, mostly streams.
08/28/2008	9:00 AM	12:15 PM	1:45 PM	5:00 PM					6.50	0.50				1.50	4.50	SPNRD water budgets. Call from Kevin about CMU. Added SPNRD, Lodespole valley, and tablelands to spreadsheets. Redesigned Access database to retrieve zone-to-zone flows (split time between COHYST and SPNRD). Made overall water budgets for SPNRD for 1850 and 1887.
08/29/2008	9:15 AM	12:30 PM	1:15 PM	5:45 PM					7.75	1.25					6.50	
									<b>87.75</b>	<b>48.50</b>	<b>8.00</b>	<b>0.25</b>	<b>2.25</b>	<b>18.00</b>	<b>11.75</b>	<b>August total and total by task number</b>