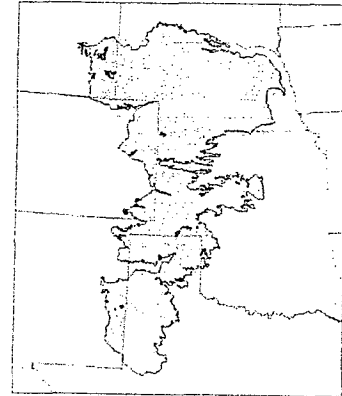


For your Records
Schweitzer
Page 56

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



April 1, 2008

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

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APR 03 2008
DEPARTMENT OF
NATURAL RESOURCES

Dear Steve:

Enclosed please find my monthly report for March, 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

Groundwater Modeling Support for the Nebraska Department of Natural Resources

Status Report, March 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 spent considerable time in March working on the comparison of the COHYST and Republican models. He worked on comparison of water-level changes in the groundwater mound area. He prepared figures of the RRCA change, the COHYST change, and the differences between the changes. He revised the report outline on how he would discuss these changes. He completed the text discussing the changes in the mound area.

Dick selected ten streams to compare simulated baseflows between the RRCA and COHYST models. He tried to run the RRCA model to get simulated streamflows into the MODFLOW output file, but ran into problems with convergence. He discussed the problem with Paul Koester and Paul provided a new MODFLOW executable file that solved the problem. Dick extracted the streamflows for the ten streams and put them into a spreadsheet.

Dick ran the central and eastern COHYST models, extracted the simulated streamflows for the ten streams, and put them into a spreadsheet.

Dick added text to the report about the differences in streamflows for the ten streams. However, Red Willow Creek and Medicine Creek need further work as the streamflows may not be compared correctly due to on-stream reservoirs.

Dick updated the shaded relief map in the Introduction of the report. He also updated several other figures that were inconsistent with the rest of the report.

Plans for next month:

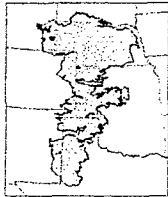
Dick will continue to work on comparisons of COHYST and Republican models in April. He will work on simulated streamflows out of the mound area. However, in the overall comparison, he looked at several streams draining the mound area, so there may not be much left to be done here. He is still trying to figure out if something more can be done.

Dick will then work on a section on the effects that the differences between the models might have. This section will be fairly general because the effects cannot be accurately known without changing the models. Dick hopes to have this done and a first draft sent to DNR for review by the end of the month.

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 #144
DATE: APRIL 1, 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
March, 2008, Task 1-1 (see attached spreadsheet)	0.25	\$ 75.00	\$ 18.75
March, 2008, Task 1-2 (see attached spreadsheet)	53.75	75.00	4,031.25
EXPENSES DESCRIPTION	QUANTITY	UNIT PRICE	LINE TOTAL
TOTAL this Period			\$ 4,050.00
Previous balance			\$ 1,650.00
Payments received			\$ 1,650.00
		TOTAL	\$ 4,050.00

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APR 03 2008

DEPARTMENT OF
NATURAL RESOURCES

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	COHYST 1	COHYST 4	DNR 1-1	DNR 1-2	Notes
03/03/2008	9:15 AM	12:15 PM	1:00 PM	5:00 PM			7.00	1.00	5.75	0.25		Monthly reports. Compare Doug's and my well files. Same. Looking at zones for New Depletions by NRD (NbyNRD). Comparing Doug's model and my model.
03/04/2008	8:45 AM	12:45 PM	1:15 PM	2:30 PM			5.25	0.75	4.50			Western Model Unit (WMU) irrigation district stuff. Looking at my NbyNRD zone pumpage. Found differences in dry wells accounted for differences. Wrote note to Duane. Looking at Mitchell and Gering Irrigation Districts for Risk.
03/05/2008	8:45 AM	11:45 AM	3:30 PM	5:30 PM			5.00				5.00	Reviewing status of RRCA/COHYST model comparison. Revision report outline. Testing scales and symbols for mound area comparison. Text for size of RRCA mound.
03/06/2008	8:00 AM	12:30 PM	3:15 PM	5:00 PM			6.25	1.00			5.25	RRCA mound water-level test. COHYST mound text and map. Reviewing Ramshorn Irrigation District land. Test on differences in mound area
03/07/2008	8:30 AM	12:30 PM	2:00 PM	5:00 PM			7.00	0.25			6.75	Helped Clint with sensitivity analysis graphs. Text on RRCA mound differences. Text and graphs to report. Cleaned up several figures throughout report with problems. Redid shaded relief maps.
03/10/2008	8:30 AM	12:30 PM	1:30 PM	6:00 PM			8.50	1.25			7.25	RRCA streamflow comparison cells for central model (CMU) and eastern model (EMU) for streamflow outlets. Working on RRCA MODFLOW files to get it to run. Call from Loring Watkins about COHYST model. Looking at how I did surface-water recharge in western model (WMU). Call back to Loring. Mapping stream cell mouths on CMU, EMU, and RRCA.
03/11/2008	8:30 AM	12:30 PM					4.00	1.00			3.00	RRCA streamflow from COHYST models. Call from Mike Drain about NbyNRD report. Call to Duane about Sponsors status of report (not yet accepted). Distributed NbyNRD report to Technical Committee for comments by April 15. COHYST monthly streamflow for 10 stations to Excel for RRCA report.
03/12/2008	9:15 AM	12:30 PM	1:00 PM	3:15 PM	4:45 PM	5:30 PM	6.25				6.25	Searching for RRCA streamflow in usable format. Trying different PCG parameters to get RRCA model to run. Testing various PCG parameters without success.
03/13/2008	9:15 AM	12:30 PM	1:00 PM	5:00 PM			7.25				7.25	Going back to original RRCA model. Paul Koester returned my call and sent me a new MODFLOW executable file. Retrieved all MODFLOW files from Appendix A DVD. Ran model 12p1 to completion. Extracting RRCA streamflows. Putting streamflow into spreadsheet.
03/14/2008	9:00 AM	10:30 AM					1.50				1.50	Checking RRCA streamflows in spreadsheet. Building Medicine Creek stream linkage list.
03/17/2008	8:00 AM	12:30 PM	1:30 PM	4:45 PM			7.75				7.75	Mapping Medicine Creek stream linkage. Compiling RRCA streamflow at selected gauges. Text on COHYST and RRCA streamflows.
03/18/2008	8:15 AM	9:30 AM	2:45 PM	5:15 PM			3.75				3.75	Checking streamflow comparison text. Checking RRCA streamflow without ET package. Checking CMU stream linkages.
03/19/2008	8:45 AM	11:00 AM	1:30 PM	4:30 PM			5.25	5.25				Checking stream linkages in CMU - all messed up. Checking stream linkages in EMU - okay. Drove to Bill Hahn's office and met with him and Loring Watkins to talk about various things with the WMU.
03/21/2008	8:30 AM	1:30 PM	2:00 PM	4:45 PM			7.75	7.75				Checking stream linkages in CMU as given to Peer Review - better, but still not right. Trying to rebuild CMU stream file. Call to Duane to alert him we had CMU problem that went back at least as far as original new depletions work. Call to Jay Bliver because Duane said he had GMS stream problems. Call to Steve Peterson. Call to Clint Carney.
03/21/2008	8:30 AM	12:30 PM	1:15 PM	3:45 PM			6.50	6.50				Working on CMU streams in shapefile. Checked all directions and found a couple of problems. Working on numbering segments at Jays suggestion. If this cleans up how GMS links the streams, this will really help.
03/24/2008	9:30 AM	12:15 PM	12:45 PM	3:00 PM	5:45 PM	6:45 PM	6.00	6.00				Collecting stuff for Technical Committee meeting. Call from Duane. Collecting stuff for South Platte NRD water budgets. Reviewing status of supplemental pumpage. Reviewing surface-water irrigation districts. Working on making new CMU stream file.
03/25/2008	8:15 AM	12:00 PM	12:30 PM	5:00 PM			8.25	8.25				Travel to Lincoln for Technical Committee meeting. Review TC meeting documents. Talk to Steve about models. Working on nodes for CMU streams (most of time). All times MDT.
03/26/2008	8:00 AM	12:00 PM	1:00 PM	5:00 PM			8.00	8.00				Technical Committee meeting.
03/27/2008	8:00 AM	12:00 PM	12:30 PM	4:00 PM			7.50	7.50				COHYST modelers workshop. DNR modelers meeting. Working on nodes for CMU streams.
03/28/2008	1:00 PM	4:30 PM					3.50	3.50				Checking CMU stream node elevations. All done. Made a few changes to CMU_hm_stream_pts.shp and documented.
03/31/2008	9:45 AM	1:00 PM	3:45 PM	5:15 PM			4.75	4.75				Reviewing WMU 1850-88 water budgets against Julie's. Build SPNRD zones without gaps. Brought CMU streams into GMS. GMS did not use the segments I defined. Call from Ron Cacek. Prepared gained/lost irrigated land shapefile for NPNRD. Sent to Jeff Sprock via DNR FTP site.
							127.00	61.75	11.25	0.25	53.75	March total and total by task number