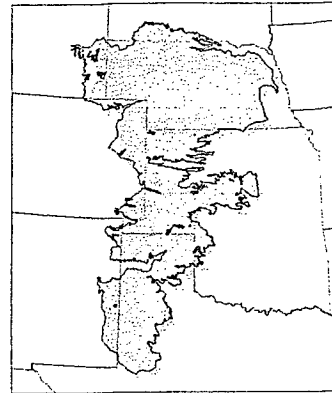


High Plains Hydrology LLC
7956 S. Shawnee St.
Aurora, CO 80016-7206
(303) 693-0299



February 1, 2008

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

RECEIVED

FEB 04 2008

DEPARTMENT OF
NATURAL RESOURCES

Dear Steve:

Enclosed please find my monthly report for January, 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,

A handwritten signature in cursive script, appearing to read "Dick".

Richard R. Luckey
Senior Hydrologist

Groundwater Modeling Support for the Nebraska Department of Natural Resources

Status Report, January 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 a considerable part of January working on the comparison of the COHYST and Republican models. Early in the month, Dick showed the current draft to Jim Schneider to see if the report still met the Department's needs. Jim said it was fine and to carry on.

Dick completed work on the evapotranspiration comparison. He completed the maps and finished the text.

Dick worked on the simulated water levels for predevelopment, 1950, and 1998. He combined the central and eastern COHYST models results into a single dataset and projected it to the RRCA grid. He prepared maps of simulated waters for those data, difference maps for those dates, and difference graphs for those dates. He then prepared text for the documentation on those results.

Dick worked on simulated water-level changes for predevelopment to 1950, predevelopment to 1998, and 1950-98. He combined the central and eastern COHYST models results into a single dataset and projected it to the RRCA grid. He prepared maps of simulated changes for those data, difference maps for those dates, and difference graphs for those dates. The difference maps are essentially differences of differences, and may not be very useful. For now, he will retain them for consistency with the rest of the sections of the report. He then prepared text for the documentation on those results.

Dick worked on comparisons of the base of aquifer. The process was the same as for simulated water levels.

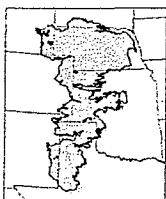
Dick worked on the Introduction section of the report. Part of it had been previously done. He completed the Conceptual Model section and partially completed the Model Construction section.

Plans for next month:

Dick will continue to work on comparisons of COHYST and Republican models in February. He hopes to spend at least two weeks on it. He will complete the Introduction section. He will start on the Model Calibration section. He hopes to also work on the Model Boundaries section. Once those are all completed, he can work on how this simulation results compare.

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 #140
 DATE: FEBRUARY 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
January, 2008, Task 1-1 (see attached spreadsheet)	0.00	\$ 75.00	\$ 0.00
January, 2008, Task 1-2 (see attached spreadsheet)	59.00	75.00	4,425.00
EXPENSES DESCRIPTION	QUANTITY	UNIT PRICE	LINE TOTAL
TOTAL this Period			\$ 4,425.00
Previous balance			\$ 8,086.42
Payments received			\$ 8,086.42
TOTAL			\$ 4,425.00

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!

All times MST. Ending time adjusted to limit day to 8 hours. Travel to Lincoln for COHYST. Meet with Duane and Doug about future COHYST work. Looked at 1998-2005 water-level change work.

Ending time adjusted to limit day to 8 hours. Meet with Duane and Doug about future COHYST work. How to use Julie and Kevin. Points to understand distribution.

Planning future COHYST work with Duane and Doug. Discussed how to approach supplemental pumpage. How to use Julie and Kevin. Points to understand distribution.

Checked 1998-2005 water-level change points and missing data. Review RRCA/COHYST comparison. Checked 1998-2005 water-level change points and missing data. Review RRCA/COHYST comparison.

Monthly reports. Locate and resend OA2FA without recharge bump and send to Technical Committee. Review RRCA/COHYST comparison. Monthly reports. Locate and resend OA2FA without recharge bump and send to Technical Committee.

4.25 status. Revised ET text. Worked on CMU simulated levels. Made notes on which big streams were simulated. 4.25 status. Revised ET text. Worked on CMU simulated levels.

Build counties for CMU model. Had to get new coverage from USGS. Ran 1950-88 CMU model with new pumpage from Clint. Located Build counties for CMU model.

8.25 NDBYNRD recharge notes for Doug. Merged COHYST water levels into a single shapefile. 8.25 NDBYNRD recharge notes for Doug.

Call from Rich about SWI file issues - surface-water acres have increased substantially between 1950 and 1988. Decided to incorporate into Call from Rich about SWI file issues.

6.50 change figures. Redit COHYST 1988 water levels in RRCA report. Worked on COHYST water-level change figure. Redit COHYST 1988 water levels.

1.75 Map of RRCA water-level change minus COHYST water-level change. Checking text on water levels (partial). 1.75 Map of RRCA water-level change minus COHYST water-level change.

6.50 RRCA water level text checks and rewrite. Text for delta water-level change. Graph for delta water-level change. Text on delta water-level change. RRCA water level text checks and rewrite.

5.75 RRCA text for difference in water-level change maps. Graph for delta water-level change. Text on delta water-level change. RRCA text for difference in water-level change maps.

6.75 between Doug and me on new depletions by NRD (NDBYNRD). 6.75 between Doug and me on new depletions by NRD (NDBYNRD).

0.50 Technical Committee meeting preparation. Technical Committee meeting. RRCA base of aquifer. Text on base of aquifer (partial). 0.50 Technical Committee meeting preparation.

Call to Julia Gogoi and Ron Cacek about meetings. Email to Doug about OA2FA work. Clean up stuff from Technical Committee meeting. Call to Julia Gogoi and Ron Cacek about meetings.

1.25 Introductory text on RRCA report. 1.25 Introductory text on RRCA report.

6.75 Transfer CycleWell stuff from IBM to Dell. Organize all CycleWell stuff to a common format. 6.75 Transfer CycleWell stuff from IBM to Dell.

Ending time adjusted to limit day to 8 hours. Travel to Scottsbluff. Work with Duane and Julie on OA2FA analysis without change in land-use Ending time adjusted to limit day to 8 hours.

Work with Duane and Julie on OA2FA analysis without change in land-use recharge. Meet with Dennis Strauch, Kevin Adams, and Ron Cacek about supplemental pumpage. Worked with Duane and Julie on CycleWell for transects and fire off for weekend.

Worked with Duane and Julie on CycleWell and SPNRD tasks. Travel home. Set up CycleWell for transects and fire off for weekend. Worked with Duane and Julie on CycleWell and SPNRD tasks.

Set up CycleWell test on IBM ThinkPad. Signed row test at -4000. Write up work scope for CycleWell tests. Worked on what went wrong with Set up CycleWell test on IBM ThinkPad.

my CycleWell shapefile. Rebuild CycleWell_071103.shp. Call to Doug H about NDBYNRD review. Rebuild CycleWell_071207.shp. Fixed CycleWell_071103 & 071015 to my CycleWell shapefile.

2.50 Rebuild CycleWell_071103.shp. Call to Doug H about NDBYNRD review. Rebuild CycleWell_071207.shp. Fixed CycleWell_071103 & 071015 to Rebuild CycleWell_071103.shp.

7.25 have consistent field names. Rebuild CycleWell_071009 because it wouldn't merge. Fixed flags on 071103 and 071205. Merged all into have consistent field names.

4.00 CycleWell_080129 and defined project. Looks good. RRCA comparison introduction text. (partial). 4.00 CycleWell_080129 and defined project.

68.00 RRCA conceptual model text. Test on model construction. 68.00 RRCA conceptual model text.

140.00 January total and total by task number. 140.00 January total and total by task number.

Date	Start	Stop	Start	Stop	Hours	Task 1	Task 2	Task 3	Task 4	Notes
01/02/2008	7:45 AM	11:45 AM	12:00 PM	4:00 PM	8.00	8.00				Ending time adjusted to limit day to 8 hours. Travel to Lincoln for COHYST. Meet with Duane and Doug about future COHYST work. Looked at 1998-2005 water-level change work.
01/03/2008	8:30 AM	11:45 AM	12:30 PM	5:15 PM	8.00	8.00				Ending time adjusted to limit day to 8 hours. Meet with Duane and Doug about future COHYST work. How to use Julie and Kevin. Points to understand distribution.
01/04/2008	8:45 AM	11:30 AM	12:15 PM	4:00 PM	6.50	6.50				Planning future COHYST work with Duane and Doug. Discussed how to approach supplemental pumpage. How to use Julie and Kevin. Points to understand distribution.
01/07/2008	8:15 AM	11:30 AM	1:00 PM	4:45 PM	5.00	1.75				Checked 1998-2005 water-level change points and missing data. Review RRCA/COHYST comparison. Checked 1998-2005 water-level change points and missing data. Review RRCA/COHYST comparison.
01/08/2008	8:00 AM	11:45 AM	12:15 PM	4:30 PM	8.00	1.75				Monthly reports. Locate and resend OA2FA without recharge bump and send to Technical Committee. Review RRCA/COHYST comparison. Monthly reports. Locate and resend OA2FA without recharge bump and send to Technical Committee.
01/09/2008	8:45 AM	12:15 PM	1:00 PM	3:00 PM	7.00	0.50				4.25 status. Revised ET text. Worked on CMU simulated levels. Made notes on which big streams were simulated. 4.25 status. Revised ET text. Worked on CMU simulated levels.
01/10/2008	1:45 PM	3:30 PM			1.75					Build counties for CMU model. Had to get new coverage from USGS. Ran 1950-88 CMU model with new pumpage from Clint. Located Build counties for CMU model.
01/11/2008	8:45 AM	12:30 PM	1:15 PM	3:00 PM	5.50					8.25 NDBYNRD recharge notes for Doug. Merged COHYST water levels into a single shapefile. 8.25 NDBYNRD recharge notes for Doug.
01/14/2008	8:15 AM	12:30 PM	1:30 PM	5:00 PM	7.75					Call from Rich about SWI file issues - surface-water acres have increased substantially between 1950 and 1988. Decided to incorporate into Call from Rich about SWI file issues.
01/15/2008	8:30 AM	12:45 PM	1:30 PM	4:00 PM	8.75					6.50 change figures. Redit COHYST 1988 water levels in RRCA report. Worked on COHYST water-level change figure. Redit COHYST 1988 water levels.
01/16/2008	7:00 AM	8:00 AM	9:00 AM	3:30 PM	8.00	7.50				1.75 Map of RRCA water-level change minus COHYST water-level change. Checking text on water levels (partial). 1.75 Map of RRCA water-level change minus COHYST water-level change.
01/17/2008	11:15 AM	12:45 PM	3:45 PM	5:30 PM	3.25	2.00				6.50 RRCA water level text checks and rewrite. Text for delta water-level change. Graph for delta water-level change. Text on delta water-level change. RRCA water level text checks and rewrite.
01/18/2008	8:15 AM	11:45 AM	1:00 PM	5:15 PM	6.25	0.25				5.75 RRCA text for difference in water-level change maps. Graph for delta water-level change. Text on delta water-level change. RRCA text for difference in water-level change maps.
01/22/2008	10:15 AM	12:15 PM	1:15 PM	5:30 PM	6.00					6.75 between Doug and me on new depletions by NRD (NDBYNRD). 6.75 between Doug and me on new depletions by NRD (NDBYNRD).
01/23/2008	8:45 AM	10:30 AM	11:30 AM	3:45 PM	8.00	8.00				0.50 Technical Committee meeting preparation. Technical Committee meeting. RRCA base of aquifer. Text on base of aquifer (partial). 0.50 Technical Committee meeting preparation.
01/24/2008	8:00 AM	12:00 PM	1:00 PM	5:00 PM	8.00					Call to Julia Gogoi and Ron Cacek about meetings. Email to Doug about OA2FA work. Clean up stuff from Technical Committee meeting. Call to Julia Gogoi and Ron Cacek about meetings.
01/25/2008	8:00 AM	3:30 PM	5:30 PM	5:30 PM	6.00					1.25 Introductory text on RRCA report. 1.25 Introductory text on RRCA report.
01/28/2008	8:30 AM	12:30 PM	3:00 PM	5:00 PM	6.00					6.75 Transfer CycleWell stuff from IBM to Dell. Organize all CycleWell stuff to a common format. 6.75 Transfer CycleWell stuff from IBM to Dell.
01/29/2008	7:00 AM	12:30 PM	1:00 PM	4:45 PM	9.25	6.50				Ending time adjusted to limit day to 8 hours. Travel to Scottsbluff. Work with Duane and Julie on OA2FA analysis without change in land-use recharge. Meet with Dennis Strauch, Kevin Adams, and Ron Cacek about supplemental pumpage. Worked with Duane and Julie on CycleWell for transects and fire off for weekend.
01/30/2008	9:00 AM	12:30 PM	1:15 PM	5:00 PM	7.25					Worked with Duane and Julie on CycleWell and SPNRD tasks. Travel home. Set up CycleWell for transects and fire off for weekend. Worked with Duane and Julie on CycleWell and SPNRD tasks.
01/31/2008	8:45 AM	12:45 PM			4.00					Set up CycleWell test on IBM ThinkPad. Signed row test at -4000. Write up work scope for CycleWell tests. Worked on what went wrong with Set up CycleWell test on IBM ThinkPad.
					140.00	78.75				my CycleWell shapefile. Rebuild CycleWell_071103.shp. Call to Doug H about NDBYNRD review. Rebuild CycleWell_071207.shp. Fixed CycleWell_071103 & 071015 to my CycleWell shapefile.
										2.50 Rebuild CycleWell_071103.shp. Call to Doug H about NDBYNRD review. Rebuild CycleWell_071207.shp. Fixed CycleWell_071103 & 071015 to my CycleWell shapefile.
										7.25 have consistent field names. Rebuild CycleWell_071009 because it wouldn't merge. Fixed flags on 071103 and 071205. Merged all into have consistent field names.
										4.00 CycleWell_080129 and defined project. Looks good. RRCA comparison introduction text. (partial). 4.00 CycleWell_080129 and defined project.
										68.00 RRCA conceptual model text. Test on model construction. 68.00 RRCA conceptual model text.
										140.00 January total and total by task number. 140.00 January total and total by task number.