

Helena Area GWIP Projects, North Hills and Scratchgravel Hills – Update July 1, 2010

Helena area projects current contracts:

- University of Idaho METRIC evapo-transpiration calculations.
- Phil Farnes – precipitation maps and consulting
- Patrick Faber – summaries of aquifer testing in the North Hills area completed
- MSE – completed installation of four shallow piezometers along Silver Creek
- H and L Drilling – Aquifer test site drilling and well installation (Valley Excavating site near a rock quarry)
- Lewis and Clark County Water Quality Protection District (LCWQPD) – ¼ FTE Hydrogeologist and technician for monthly groundwater level monitoring
- Diamond M Drilling: Exploratory drilling and aquifer tests at three wells along the Helena Valley Fault (Diamond Hill property)
- H and L Drilling – Aquifer test site drilling and well installation (Head Lane site on private land)
- Lindsay Drilling – Exploration and monitoring well installation for four to five wells in the North Hills area
- Lindsay Drilling – Exploration, monitoring, and aquifer test site well installations of up to nine wells in the Scratchgravel Hills area
- Request for bids completed for two additional drilling projects, including 6 wells and 2 exploratory borings in the North Hills area: numerous wells with split-spoon sampling and rock coring are proposed, and 1 to 3 sites will be set up for aquifer testing, depending on the conditions encountered
- Permissions obtained for access for drilling and aquifer testing activities on State-owned and BLM land.

Activities:

North Hills

Began or re-instated monthly groundwater level monitoring at 20 wells, increased Lewis and Clark County Water Quality Protection District (LCWQPD) monitoring from quarterly to monthly at 4 wells, and collect monthly data for another 21 wells monitored monthly by LCWQPD. Seven wells instrumented with continuous recorders

Conducted a 6-day aquifer test with existing, unused wells at the Panoramic Subdivision site north of Lake Helena

Monitored and assisted with two privately conducted aquifer tests at a subdivision.

Installed a pumping well and four observation wells for aquifer testing near the Valley Excavating rock quarry and conducted a 5-day aquifer test at the test site

Installed three wells near the Helena Valley Fault to examine hydrogeologic conditions in the subsurface in the vicinity of the fault and conducted numerous well and aquifer tests

Drilling of additional exploration and test wells scheduled to begin the first full week of July

Montana Tech Geophysics Department has conducted several resistivity surveys and a seismic survey on state and private land near and on both sides of Interstate 15 and completed a gravity and magnetic surveys along Applegate Drive, Montana Avenue, and Prairie Road

Monitoring of streamflow at drains began in March at numerous sites, augmenting surface water flows measured by LCWQPD in Prickly Pear Creek, Ten Mile Creek, and Drain D2

Three stilling wells with staff gages and shallow monitoring wells are in place on Silver Creek and will be instrumented with data recorders as soon as ice melts.

The first of three major water quality sampling events was conducted in April, in cooperation with LCWQPD. GWIC project samples are being analyzed by the MBMG laboratory, while LCWQPD project samples went to Energy Labs.

Crest gages have been installed with buried temperature recorder buttons in four sites in the North Hills area to measure the depth and durations of intermittent flows in selected drainages.

Collected snow and water samples for stable oxygen and hydrogen isotope analyses at various elevations in early March.

Aquifer test data from DNRC water rights records, the GWIC database, and from a summary from Helena area consultant Pat Faber have been compiled

Area maps, aerial photos, and digital elevation models have been projected into the groundwater model coordinate system, which will be the Montana State Plane system, North American Datum 1983, in feet.

Well log data for hundreds of wells over 200 feet deep have been processed for display in a 3D graphics format in Groundwater Modeling System for use in developing the aquifer geometry for the groundwater model

Scratchgravel Hills

Began or re-instated monthly groundwater level monitoring at area wells, resulting in over 50 wells being monitored in cooperation with LCWQPD.

Four streamflow and shallow groundwater monitoring sites have been constructed and are being monitored by routine flow and water level measurements and various data logging instruments.

Installed two wells to augment two existing unused wells for an aquifer test near Head Lane and conducted a 5-day aquifer test

Drilling is expected to begin in mid-July on about nine exploration and test wells in the Scratchgravel Hills area

The first of three major water quality sampling events completed in April, in cooperation with LCWQPD

Crest gages have been installed with buried temperature recorder buttons in numerous sites in the Scratchgravel Hills area.

Aquifer test data from DNRC water rights records, the GWIC database, and from a summary from Helena area consultant Pat Faber have been compiled

Area maps, aerial photos, and digital elevation models have been projected into the groundwater model coordinate system, which will be the Montana State Plane system, North American Datum 1983, in feet.