

Glacial Aquifer Report Plans Conference Call with NLT

February 26, 2004 1:30 – 5:00

List of participants (**may be incomplete – please update if possible**): Mary Ann Thomas, Kelly Warner, Bill Morrow, Terri Arnold, John Mullaney, Ed Moran, Tim Brabets, Jim Stark, Mike Yurewicz, Joe Ayotte, Gary Rowe, Neil Dubrovsky., Dan Feinstein, Wayne Lapham, Bill Wilbur, Mark Sylvester, Sarah Flanagan, Someone from Michigan (I didn't catch their name)

ACTION: Terri -- NLT requests that a memo be written outlining what is agreed on during this call

DISCUSSION: General Comments on all reports:

- Budget allocation/paying for colleague review needs to be considered (this varies by District).
- Districts need to approve the proposed report budgets and report plans
- Make sure to plan adequately for publication costs

ACTION: Lead authors need to speak with District regarding publication plans to make sure the reports get prepared. Each report lead should forward proposal, budget, and report timeline to DC and CC Wayne Lapham and Kelly Warner.

ACTION: Lead Authors should budget for posting final publication on the web and include on the timeline.

ACTION: Lead authors should plan for time and money to archive the data sets used for the reports. Consider this for the last quarter for their report.

ACTION: NLT will organize cyber seminars on extrapolation techniques and methods for analyzing pesticide data to help authors understand how to extrapolate their data to the regional scale.

ACTION: Lead authors—each report plan for ground-water studies relating to well information will address what will be done if there is not enough required well information in the databases.

--Geochemical modeling may be needed for some of the studies but who would be the appropriate person to do the modeling?

--Staging of reports may be needed if some reports are highly dependant on the results of another report.

ACTION: Keep in mind overall – adding costs to budgets may ultimately reduce the # of reports that can be accomplished for the glacial team.

ACTION: Where reports are similar to other principal aquifers, communicate findings and approaches.

ACTION: For all staging reports, preliminary analysis and calls to be done in July FY04 not at the very end.

DISCUSSION: Priority 1 report-- Nutrients and pesticide in drinking water (Kelly Warner, lead)

-- The report plan states that some networks may not be in rural areas but this statement was made to say how we would select nutrients and pesticides. It was not intended to be a limit on the wells selected. In her report, Leslie DeSimone will cover general info about domestic wells. Kelly Warner will cover more detail focusing on the glacial area.

ACTION: Kelly – title needs to be changed to reflect the study better.

--Was there a plan to make maps of confined vs unconfined aquifers? This was not a goal in this report. Confined vs unconfined is an attribute in GWSI.

--Will this report utilize the glacial stratification that was designed by the glacial aquifer planning team? Yes we will try to use the stratification by regions (East, central, west) or by texture (sand/gravel or till)

--Consider interested stakeholders. -- After report, maybe make a fact sheet for conference handouts. This was probably not included in the original budget but it is a good idea.

ACTION: Consider adding to budget \$\$ to make a handout for the general public.

ACTION: Consider adding to budget \$\$ to get people out to meetings to present findings. Consider who is the audience to address.

ACTION: Add sufficient \$\$ to have SU staff consult with their specific knowledge about their local study units. You could lump individuals into a single category called something like 'SU consultations' and add a general estimated cost on one line of the spreadsheet.

ACTION: Consider additional expenses as suggested in these comments. Can they be squeezed in or are additional funds required to complete this reports. Discuss with team to set priorities if needed.

ACTION: Work closely with Leslie to coordinate work on her report and this report to avoid redundancy.

DISCUSSION: Priority 2 report-- Arsenic in ground water (Mary Ann, lead)

--What are the expected findings and type of outlet/publication? This will be a journal article or a circular. Expected findings: an illustration of how geologic settings affect redox conditions and arsenic. This will build on a previous report by MaryAnn.

--Glacial settings based on glacial aquifer stratification table (with far west added on – PUGT and COOK). The stratification takes into consideration areas related to source of glacial material (glacial regions, texture, and extent/shape of aquifer).

--Exploratory data analysis will help determine if there is enough data in all the settings to include.

ACTION: Do this as a staged report. By END of FY04 have conference call to look at results of preliminary analysis –may redefine the scope of the work, funding, etc. If there is not enough data for all the settings, then may be able to 'aggregate up' to more general settings to be able to include all the data.

--We plan to use all the MAS and LUS data. There are arsenic issues across the glacial aquifer.

--What are some of the risks? If one or more SUSs don't have age data or hasn't classified their network in terms of the glacial stratification. Data should be available. Ancillary data such as source of arsenic from rocks may not be available. 1st layer of stratification takes into consideration source and we also have bedrock geology maps to address source issues.

--Geochemical modeling – This may not be a good data set for modeling based on previous experience by MaryAnn. The discussion had some disagreement.

ACTION: Mary Ann will do some preliminary looking at geochemical modeling to determine if it is feasible with this data. She will let the group know. She will do part of the exploration in FY05. This will require more \$\$ in budget.

TANC and other studies are doing modeling. Maybe their results could be included in this report?

--Geochemical modeling would be done later in the report phase after the data was compiled – maybe in FY05 – look specifically at what questions could be answered with modeling and ask if the modeling could answer them.

--Extrapolation with logistic regression for most of these reports could be a second phase.

--Where available use more detailed age date information.

--Objective 4 extrapolation –unusual high/low area are potentially of interest. Extrapolate findings by identifying on a map where similar conditions exist and determine if the areas are used for drinking water and look at USGS databases for additional data in those areas.

--Have a matrix to help identify area and overlay physical parameters that may affect these conditions – will not make a predictive map.

ACTION: Better define what extrapolation means –tone down the expectations from the extrapolation.

DISCUSSION: Priority 3 report –Geochemical comparison of TE (George Groschen, lead – presented by Kelly Warner)

--This report will look at TEs on schedules 2703 and 2710 with emphasis on the 8 major TE priority pollutants.

ACTION: Combine and clarify objects 1 and 3 with the above information about what Tes will be examined.

ACTION: Clarify objective 4. Is this feasible to do? Maybe could be done as a second stage – scale back?

--The TE report will include PUGT and COOK data as well as the rest of the US. They should be similar environments.

--PLUTO and RASS data – we have the spatial data sets so not a problem getting the data. However, its usefulness will have to be evaluated.

--How will anthropogenic sources be dealt with? Not sure how George planned to do this. Not sure if he has looked at what information is available yet.

ACTION: Determine if information is available to do objective 4.

ACTION: (Possible) We can definitely do objectives 1-3; scale back and maybe do objective 4 as a second report/article as an outcome from objectives 1-3

--We may bring in supporting stories related to specific constituents taking information from SU summary reports.

ACTION: George will update proposal with what the expected outlet for this report is.

--Will '01 data be used? We will only use data for Cycle I and early Cycle II for new networks only. Cycle II data may not be QA/QC'd – this may be a problem. Lori Apodaca is currently writing a report about the methods she developed for QA/Qcing data.

ACTION: Look at budget again and re-evaluate – may be too low.

--This report overlaps a little with the Arsenic and Radon reports. This report is more about distribution. The Arsenic report looks more at causal effects.

ACTION: Terri get arsenic data set. Look at Arsenic info from Sarah Ryker/Mike Facazio. Also look at Natn'l TE internal web site.

ACTION: Clarify that we will use PUGT and COOK in proposal

ACTION: Keep Lori and Neil up to date with what is doing on with this report.

DISCUSSION: Priority 7 report – Effects of deicing chemicals on GW QW (John Mullaney, lead)

--How do we look at the ancillary data and how do we know how much deicer is applied? Will ancillary data be for background analysis? We may only know statewide application rates. The Salt Institute may have more info about how much salt is applied.

ACTION: Combine objectives where possible. Narrow them down.

--Maybe look to see if there are ion signatures that would point to source as septic or deicer. Illinois State Geological Survey is using Br-Cl ions to do this. Local info may also be available. General Septic info is in Census data.

ACTION: Update objective 5. How would we use reference sites to support objective 5? Is the data available? Change objective 5 to be more general. Is explanatory data analysis telling you something more can be done with this or not?

--Not having reference sites would probably not be real detrimental to the study. Perhaps non-impacted sites could be identified in lieu of reference sites? What would be the approach to objective 5? Piper diagrams would help to see what different combos of ions are. We would also look at local geology. Exact methods would have to be investigated. Land use in conjunction with cation exchange (like Na-Cl) could help point to sources.

--What do you mean by including additional data? Maybe just looking at long-term records from other sources to include as examples. Not to do any major work on this and no additional analysis.

--Flow path studies may be useful for this study but LUS wells probably won't be. LERI, UMIS, and in East several LUS studies meet the criteria we need along with flow path studies.

--Septic vs Sewered is not an issue in CONN – most are sewerred.

ACTION: NAWQA not designed to determine the effects/sources of deicer.

Do a preliminary analysis with data sets to see if this is doable.

--Stage 1 – summarize variability in data from LUS studies. Check for flow path studies to see if Na-Cl was collected in all these wells. Br-Cl has been documented in literature as a tool to discriminate between sources. Septic and Road salt both are Na-Cl usually so that won't help separate them. Even if we couldn't determine a difference in source, still Cl is an important anthropogenic contaminant. This could still be used as an urban tracer no matter the source. Elevated Br-Cl has been documented as an indicator of halite.

ACTION: Determine how much of this analysis has been done by SUs. Perhaps there has been some exploratory analysis that could be used to determine what we already know.

ACTION: After stage 1, if you couldn't distinguish septic or deicer then modify objective to determine if looking for elevated Cl concentrations is a good screening tool. If so, scope could be changed to look between principal aquifers.

ACTION: Bill Wilbur says NLT would appreciate seeing the actual analysis so they could learn too – not just the conclusions.

ACTION: Change the proposal to specify the report outlet. After preliminary analysis determine if report is feasible. The proposal indicates there will be 2 reports. Is this correct?

ACTION: Investigate if COOK and PUGT data can be included – update proposal if needed.

--Don't spend too much time looking at flow path studies because they might not be helpful in this. They will ground-truth this to link it with the hydrology – maybe use them as case studies only.

ACTION: Discuss/show results to DOT after preliminary analysis. Will the product be useful to them?

DISCUSSION: Priority 4 report – Occurrence of Radon and Uranium – (Joe Ayotte, lead)

--not a lot of radium data in glacial – just a side story.

ACTION: More detail is needed in proposal about staff availability.

--We could do most of the work this year (FY04) with no\$ in FY06 and finish report in FY05. Move \$ to FY04 and less in FY05, no \$ in FY 06

ACTION: Update budget with new timeline and work plans as stated above.

--Is there more variability across Pas or within a PA? Is there a more important story to tell here? Is this regional scale the scale we want to work at for this?

--We definitely need a national synthesis of Radon and Uranium.

--Maybe info can be presented as a book with a chapter about each principal aquifer.

- How might we do a combined National, Regional, SU scale proposal? Compare with current proposal. Maybe include some GD data>
- Maybe write 2 proposals to compare study on National and regional scale

ACTION: Talk to Zoltan Szabo and Jeff Fischer about their radiochemical proposal

ACTION: Sarah, Joe, Neil will write up how we would approach this on a national scale (also include Lori and Zoltan?). Neil will organize a conf call to discuss.

--What about geochemical modeling? Have not really considered at this stage/scale. Just planning on looking at classical relationships and methods. The modeling would have to answer really specific questions. We're not at the point of knowing the questions yet.

ACTION: Part of 1st stage – consider if geochemical modeling is needed

ACTION: Speak with Zoltan about the geochemical modeling

--Will NWIS data be used? No, not planning on using NWIS data but some recent GD data may be helpful.

ACTION: As part of 1st stage, see if NWIS data could be used if data from NAWQA is sparse in some areas. NWIS may be able to fill in the gaps.

ACTION: Update proposal to state that work will include the glacial stratification instead of Soller's work and GW atlas.

ACTION: Define what you mean by 'high uranium'. Are you going to follow standards? There are different standards in different states. This is an important point to consider. Be careful not to imply a health concern. Have a reason for the level you choose. Make sure all interested parties have a heads-up about the level you select.

Conference Call minutes are respectfully submitted by Terri Arnold (03-02-2004). Please point out any corrections (tlarnold@usgs.gov).