



**1) Opening Remarks for March 14<sup>th</sup> Meeting with ASH Industry Partners**

- Review the background; why the ASH project was created and funded
- First quarter goals and accomplishments
- Geologic intervals of interest
- Second quarter goals and accomplishments
- A look ahead to the key 3<sup>rd</sup> quarter
- Today's program
- May need 10 minutes at most

**2) Summary of Research Team Presentations**

Strategy 1 – Data Collection (Jessica, WVGS)

- Will introduce order cars with individual log in & passwords
- Add a comment card? Group said yes.
- How the data are structured; John Bocan has re-tooled the project website
- Annotated bibliography; legacy projects in the literature
- Set of static maps to compile with an overview map
- Will add Ohio River to AOI; thanks to Kris
- Requested list of shale gas wells from PA (okay) and OH (with regulatory group)
- Will have her slides ready by Friday
- May only need 30 minutes

### Strategy 2 – Stratigraphic Correlation of Key Units (Kyle, OGS)

- Will prepare one presentation; will give in-house on Thursday
- Begin with correlation diagram and list of challenges
- Will present several cross sections, strike and dip, for 3 intervals
  - Greenbrier to Onondaga
  - Oriskany to top Queenston
  - Rose Run and Gatesburg
- Will not present details on any interval; then turn to the maps

### Strategy 3 – Mapping (Kyle, OGS)

- Will show “working” structure and isopach maps for each interval
- Discussion: how many slides, how much time will Kyle need?
- Perhaps 20 slides, 40 minutes, maybe longer
- Will be sure to mention that the thick intervals on the isopach maps do not indicate huge thicknesses with storage potential
- More detailed maps to follow, but could prepare net sand maps for sandstones in the thick Venango, Bradford, Elk packages, then turn it over to Kris for detailed work
- In later discussion, Kyle suggested he could add more geology by using slides from the gas atlas, including paleogeography and depositional systems
- Play boundaries and fields within each play would add to a sense of where each play may have some storage potential within the AOI
- Kyle will add some questions at the end

### Strategy 4 – Studies of Reservoir Character (Kris, PGS)

- Kris will begin with the types of rocks (limestone, sandstone, salt) and storage (mined caverns, gas reservoirs, solution cavities)
- Will have a few slides on reservoir characterization; what it is, how we do it
- Her maps and petrophysical studies will overlap with strategy 3
- Qualitative work and thin sections studies
- Map with core and thin section locations within the AOI
- Samples have been sent out for thin sections
- Some additional detail on the Oriskany as an example
- Will also add some detail on the Rose Run/Gatesburg
- Emphasize that this is a work in progress, have just started, done in 6 weeks (?)
- Question: How technical will the audience be on Tuesday?
  - Doug to send list of expected attendees with job titles
- Kris will have 12-15 slides, may only need 30 minutes
- Total so far, 110 minutes
- Will add a 15-20 minute break between Kyle and Kris to get us to 3:00 or 3:10

### Strategy 8 – Project Management/Tech Transfer (Doug, NRCCE)

- Mike suggested we add this as a summary of the project so far

**3) Additional discussion following summaries of presentations**

- Need to add a break between Kyle and Kris
- Jessica: What do we need from the Reservoir Storage people?
- Kyle: Trap geometry? Engineering study next?
- Jessica: Mountaineer NGL storage as an example
- Jessica: Any data on geochemistry of Salina brine? Interested in Lithium
- Discussed Greenbrier erosion surface; Mike Hohn to send a map to all
- Gary advised Kyle of missing Greenbrier in Wood County; need to use 0' in 3 wells
- Kyle and Gary to follow up after the call
- Kris to send Kyle some digitized Clinton-Medina logs
- All: listed those who will attend

**4) Adjourned 11:10**

Strategies/Activities	Start Date	End Date
Strategy 1: Data Collection		
<ul style="list-style-type: none"> <li>Identify and assemble well log and core data</li> </ul>	Month 1	Month 2
<ul style="list-style-type: none"> <li>Identify previous studies of interest</li> </ul>	Month 1	Month 2

<ul style="list-style-type: none"> <li>Create a project database (format, prototype)</li> </ul>	Month 1	Month 2
Strategy 2: Stratigraphic correlation of key units		
<ul style="list-style-type: none"> <li>Develop cross sections of the Salina Formation</li> </ul>	Month 3	Month 8
<ul style="list-style-type: none"> <li>Develop cross sections of the Greenbrier Formation</li> </ul>	Month 3	Month 8
<ul style="list-style-type: none"> <li>Develop cross sections of the Keener to Berea Interval</li> </ul>	Month 3	Month 8
<ul style="list-style-type: none"> <li>Develop cross sections of the Upper Devonian Sandstones</li> </ul>	Month 3	Month 8
<ul style="list-style-type: none"> <li>Develop cross sections of the Oriskany Sandstone</li> </ul>	Month 3	Month 8
<ul style="list-style-type: none"> <li>Develop cross sections of the Clinton-Medina through Tuscarora Interval</li> </ul>	Month 3	Month 8
<ul style="list-style-type: none"> <li>Develop cross sections of the Rose Run and Upper Sandy Member of the Gatesburg Formation</li> </ul>	Month 3	Month 8
Strategy 3: Map the thickness, extent, and structure of potential storage units in the study area		
<ul style="list-style-type: none"> <li>Map the Salina Formation</li> </ul>	Month 5	Month 7
<ul style="list-style-type: none"> <li>Map the Greenbrier Limestone</li> </ul>	Month 5	Month 7
<ul style="list-style-type: none"> <li>Map the Keener-Berea, Upper Devonian, Oriskany, Clinton-Medina, and Gatesburg Formations</li> </ul>	Month 5	Month 7
Strategy 4: Conduct studies of reservoir character		
<ul style="list-style-type: none"> <li>Characterize potential storage intervals in the Salina Formation</li> </ul>	Month 5	Month 8
<ul style="list-style-type: none"> <li>Characterize potential storage intervals in the Greenbrier Formation</li> </ul>	Month 5	Month 8
<ul style="list-style-type: none"> <li>Characterize potential storage pools in gas-depleted sandstone reservoirs</li> </ul>	Month 5	Month 8
Strategy 5: Develop ranking criteria for potential storage zones		
<ul style="list-style-type: none"> <li>Determine criteria and weighted priority of potential storage zones</li> </ul>	Month 8	Month 9
Strategy 6: Recommendations		
<ul style="list-style-type: none"> <li>Rank all candidates within each category</li> </ul>	Month 10	Month 11
<ul style="list-style-type: none"> <li>Rank the top candidates in each category</li> </ul>	Month 10	Month 11
Strategy 7: Suggestions for engineering follow-up study		
<ul style="list-style-type: none"> <li>Make suggestions for additional field and lab studies</li> </ul>	Month 10	Month 11
Strategy 8: Project management and technology transfer		
<ul style="list-style-type: none"> <li>Project management</li> </ul>	Month 1	Month 12
<ul style="list-style-type: none"> <li>Final Report</li> </ul>	Month 11	Month 12
<ul style="list-style-type: none"> <li>Technology transfer</li> </ul>		Month 12+ ongoing