

# Water and Oil & Gas Development

## Key Points

NRS, R9, NA Workshop

November 12, 2008

- National policy is to “foster and encourage” responsible minerals and energy development on NFS lands (statute and FS national minerals policy)
- Key phases of oil & gas activity include:
  - Exploration
  - Development
  - Production
  - Reclamation
- Principle hydrologic issues associated with oil & gas activities include:
  - Surface Disturbance for Access and Infrastructure
  - Drilling
  - Hole Development
  - Production Operation and Maintenance
  - Spill Prevention, Control and Cleanup
  - Well and Facility Abandonment and Restoration
  - Water Rights (primarily in the west)
- Important Framing Issues
  - Land Status – Federal or Private Minerals and Associated Authorities and Decision Space
    - Cooperation with State agencies, BLM and others is critical
  - Nature of Resource
    - Conventional
      - scale of development tends to be limited (1-4 holes per section)
      - resource tends to be deep with poor water quality largely unconnected to fresh water resources
      - subsurface issues generally are well-understood and reasonably addressed
    - Unconventional
      - scale of development can be substantial (many fields developed with 16 or more holes per section),
      - resource tends to be relatively shallow and much closer to or a part of the fresh water resources
      - scale of water use and/or production tends to be much higher (many shale gas fields need upwards of one million gallons of water per hole for development; many CBM fields produce tens of gallons per minute of more to capture the gas)
      - subsurface issues may not be well-understood or appropriately addressed
      - shale gas resources being developed are concentrated in R8 and R9
- Key Threats
  - Aquifer depletion and/or contamination
  - Changes in ground and surface water flows
  - Changes in surface water and soil quality
  - Modification of ecosystem structure and function
- Select Unknowns (Opportunities and Challenges)
  - Sources of development water and impacts from withdrawal
  - Effects of production water withdrawal and options for use or disposal
  - Nature of short and long-term hydrologic change from large scale development
  - Effects of hydrologic changes on ecosystems

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Presenter- Chuck Lopicola

## Roads and Soils

- We should always have the philosophy that the minimum road system to do the job is what we want.
- Use existing roads wherever possible
- We need to be involved in every road built on Forest Service lands

What is the minimum system?

- Minimum length
- Minimum width
- Minimum environmental impacts
- Minimal construction
- Minimum costs
- Minimum number

Needed to do the job!

We are probably talking exclusively about High clearance vehicle roads or resource extraction roads, single purpose roads, etc

What might the Process be for a well driller to drill in an area with no road they can use

- Discuss with the forest and get all clearances needed
- Forest engineering goes out with the rep for the company to look at the situation
- Forest should look at the route with the company but should be able to charge for their time
- Come to an agreement as to route and standards

Other Important Factors:

- Highway Safety Act Roads
- Mixed use analysis needed?
- Length of use
- Who restores when road is no longer needed?
- Who Maintains road if joint use
- Manual Direction (commensurate share)
- Road use permits
- Who pays for construction of the road if we need (cost share agreement)
- Curvilinear Alignment
- Limit Cuts and Fills
- Limit permanent change (such as rock blasting or blocking drainage patterns)
- Limit surfacing if possible
- Limit clearing
- Limit stream crossings
- Use minimum radius
- They do not tell us, we tell them

This is, as much as anything, something we need to get a handle on to protect our resources. It is part of a major threat to our forest lands and is as dangerous as our unregulated motorized recreation