

Oil and Gas Development BMPs *Marcellus & Manufacturing Development Conference*

April 9, 2019

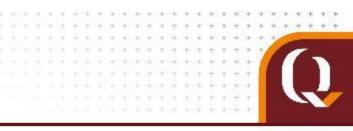




- WV Horizontal Well Control Act :: Well Pads & Access Roads
 - Section 22-6A Well Work Permit All associated earth disturbance activities
 - Erosion and Sediment Control Plan is a permit condition (35 CSR 8.55)
 - WV Erosion and Sediment Control Field Manual Oil and Gas BMP Manual (May 2012)
 - PE Certification of plans and as-builts
 - Slope standards, compaction requirements, setbacks from streams and wetlands

WV Water Pollution Control Act :: Oil and Gas Facilities and Linear Projects

- Oil and Gas Construction Stormwater General Permit (January 2019)
 - Site registration for activities disturbing one acre or greater of land
 - Requirements for BMPs and enhanced BMPs in certain watersheds
 - Information submitted with registration application are terms and conditions of permit

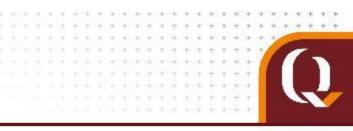


Erosion, Sediment Control and Stormwater Plans

Development of Plans and Compliance

Develop Constructible Plans

- Regulatory requirements have prescriptive and performance based requirements
- Consider the topographic changes the site will undergo
- Review proposed design with construction engineers and construction contractors
- Additional design time may reduce construction and compliance costs
- Manage Construction to Ensure Compliance with Plan
 - Develop compliance plan and have a multi-disciplinary compliance team
 - Construction schedule and technical compliance are achievable
 - Timely address corrective action and maintenance items
- Wet Weather Stresses Plans and Systems



- Pre-Drill Sampling Program
 - Collect at least two rounds of pre-drill water samples
 - Sample all water wells and springs within 1,500 feet of pad
- Post-Drill Sampling Program
 - Sample water wells and springs within 1,500 feet of pad
- Promptly Investigate All Complaints
 - All complaints are reported and immediately investigated
 - May include resampling, yield testing, water system management review, hydrogeologic evaluations, meteorological, etc.
 - Complete investigations in a timely manner and communicate results

