

## **Suggested Regs On-Site of Exploration and Production (E&P) for shale gas and oil:**

The definition of solid waste would not vary from NCGS 130A-290(35) except for the federal exemption that excludes E&P wastes from being managed as hazardous waste contained in 42 USC Section 6921(b)(2)(A). Other wastes generated at the site are subject to hazardous waste regulations. No rules needed. Guidance by EPA should suffice.

Naturally occurring rock cuttings and drilling muds, such as bentonite, are not solid waste unless the operator chooses to handle it as solid waste. Our research has shown that most states do allow that the soil and cuttings be disposed on site *only if they are uncontaminated by Non-Naturally occurring drilling fluids and muds*. Our research also shows that most states send even the naturally occurring cuttings and mud off-site for disposal.

TCLP or SPLP testing (choice of industry) and Soil Testing to prove that the material is inert must be required if the cuttings/muds will be land disposed of without the safeguards of a Municipal Solid Waste (MSW) landfill. Testing should be required also if the waste is to be used for a beneficial reuse such as structural fill or agricultural land application. Regs needed.

The commingling of cuttings with synthetic drill muds, often oil or petroleum based, would require that the waste be appropriately disposed of in a MSW landfill or an Industrial Landfill with a design appropriate for shale gas industrial waste (there are presently no industrial landfills of this type in NC). The waste could not go to a Land Clearing Inert Debris or Construction & Demolition landfill.

An onsite industrial landfill would be designed and operated according to NCAC 13B .0503 and .0504.

On site P&E Operation Plan should include:

Solid Waste shall be contained in leak-proof containers on site prior to transportation to a MSW landfill.

Containers should be covered to prevent rainwater infiltration and windblown nuisance.

Precipitation which comes into contact with Solid Waste should be handled as leachate. "Leachate" means a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

Leachate must be contained within a lined disposal cell or leachate collection and storage system. All leachate must be treated, prior to discharge. A NPDES permit will be required prior to the discharge of leachate to surface waters, as provided by 40 CFR Parts 258.26 and 258.27.

Documentation from the permitted solid waste facility (final disposal destination) that waste generated from E&P sites will be allowed. ~~The receiving MSW must have an approved Operation Plan and Waste Screening Plan that addresses E&P waste.~~

On-site operations should have Waste Screening Plan which demonstrates that waste going to a MSW landfill was generated during E&P activities in accordance with federal guidance.

**Discussions with Solid Waste staff from other shale gas States indicate that future disposal of E&P waste at MSW landfills will not necessitate changes to the existing regulations.**

There are some unique waste characteristics that could change operating practices at MSWs, such as:

Oil based drill muds and the cuttings associated with them are found to have an odor problem.

Large quantities of drill muds when disposed of in a dense lift may cause liquids within a landfill to accumulate (perching effect). This could lead to a failure in the sidewalls of the landfill (breakout of leachate).

Radiation has been found to be a problem occasionally at MSWs and if present could be a potential risk to landfill staff. Filter socks within the waste seem to trigger radiation detectors most frequently, although there are instances of rock cuttings which are detectable at levels above 5 picocuries. It is our understanding that we may not have this problem in NC.

Solid Wastes may contain elevated levels of chlorides and VOCs.

Federal exemption of P&E wastes from being considered hazardous could mean that waste may exhibit hazardous characteristics and could be a potential risk to landfill staff.

A Best Management Practice manual will be produced by staff of DWM to cover some unique aspects of the solid waste associated with the shale oil and gas industry. The BMP manual will be available by January 2014 and will be edited as we receive more information from NC and other states.

Permitted landfills taking waste from this industry will be given technical guidance and information including the following:

- Waste Screening
- Operations
- Solidification
- Odor Control

In addition, the Section will work with the NC Radiation Protection Division to address proper management procedures and potential hazards associated with radioactive wastes.

Other things to address: Permitting an on-site industrial landfill, identifying which well pad waste came from-not just which county, ...