"Going Green" in the restoration and reclamation from natural gas and oil extraction

The government and the natural resource extraction industries publish a plethora of facts and figures surrounding natural gas and oil [1,2]. It is not the subject of this paper to recapitulate those facts or figures. Rather this paper hopes to present the efforts of the oil and natural gas industries specifically, towards restoration and reclamation.

Do to numerous laws much time, effort and money has been expended over the decades to address the restoration and reclamation of oil and natural gas recovery. It is the last activity required to release the bonding for the drilling and pipeline companies. It is also based on visual, subjective interpretation.

Every state reclamation plan is different. There are basic similarities: remove and store the topsoil, extract the natural resource or install the pipeline, replace the overburden into the disturbed area, cover with the saved topsoil, seed, fertilize and pray something grows to "70% coverage". What is 70% coverage? Who makes that decision? How consistent and sustainable is it?

One of the problems of restoration and reclamation is the topsoil has been so degraded it requires excessive use of fertilizer to sustain vegetation. Moreover synthetic fertilizer is being used less, so as to address the nutrient management programs (NMP) of states to reduce nutrient run-off into streams and creeks. Without a nutrient infusion, vegetation is retarded and the 70% coverage is questionable.

So what's the oil and natural gas industry to do? Simply put – "Go organic". With society's ever increasing waste production, efforts are being made to remove the organic matter from landfills. For instance grass clippings, leaf and brush debris are no longer allowed in many landfills, and townships are implementing compost centers. Likewise many universities and some cities are initiating food waste composting[3] efforts. Finally, the mushroom industry produces over 2 million cubic yards of compost per year[4].

These organic debris sources are ideal soil amendments for use in land restoration and reclamation. Once composted they offer a high C:N ratio, organic slow soluble NPK and micro nutrients required for root growth. Incorporating compost into the degraded topsoil provides such benefits as improving and increasing the organic matter, reducing soil compaction, retaining moisture, building the soil flora and reducing the need for synthetic fertilizer.

Compost material should be adequately composted so not to resemble the original material. It should be weed free and pathogen free in accordance with CFR Title 40 Part 503. Such testing should be performed by a US Compost Council certified laboratory[5]. Having this information prior to initiating the planned reclamation activity allows both the landowner, oil/natural gas company, pipeline company and local Townships to work together to present facts and processes to State and Federal authorities for approval.

Much time, effort, expense and pride goes into the restoration and reclamation portion of a drilling and pipeline operation. Utilization of compost facilitates a green cottage industry in a time when the natural gas and oil industry is under intense pressure to "do it right".

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[1] http://www.eia.gov/naturalgas/monthly/?src=Natural-f2

[2] http://www.eia.gov/petroleum/

[3] http://www.epa.gov/foodrecovery/

[4] http://www.americanmushroom.org/environmental-management-p-4.html

[5] http://compostingcouncil.org/seal-of-testing-assurance/