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Subj: Additional Comments on WMGR097 permit renewal (gas concerns)

The attached January 26, 2011 and November 27, 2012 correspondences provide details on technical issues on stabilization and generation of gas that are still pending response. I believe that these issues should be resolved prior to any renewal of WMGR0974011 permit. This also supplements additional concerns on historical technical issues on the permit calculations detailed in email dated October 8, 2013. The attached correspondences provide serious issues on gas generation as well as stabilization concerns poorly addressed by an unknown responder during the past public comment period for WMGR125 but also would be considered relative to this proposed permit renewal.

The following also supplements the attached concerns and utilizes air monitoring data (Second Quarter 2013) that is part of the public file. The lack of any known sampling plan would indicate that some of these comments are based on limited information. Measurements taken by field instruments at an open well cap can show false negative readings due to mixing with outside air that should be minimized. However, note that the monitoring data does show that these were field measurements collected at various wells and fairly rapid (five to ten minutes apart). Several items to consider:

- The waste streams have identified organic constituents in inspection reports. Any disposal of biosolids may also make this gas generation issue more significant regarding possible reactions that would form hydrogen sulfide.
- The hydrogen sulfide meter used at the HCP site monitoring appears to be in the part per million range (possibly one part per million) with an undefined detection level on the sample results. This is well above the ATSDR action level used at a documented hydrogen sulfide release site. More details on concerns are provided in the attached correspondence. Note that odor detection levels can be in fractions of part per billion range. Hydrogen sulfide meters that measure concentrations below the action levels are available and were utilized at the Precision National Superfund site and other gas investigations. The following action level is cited from the attached correspondence and was used at Precision National NPL Site:

"ATSDR recommends that, if the concentration detected by real-time air monitors in the residential areas near the site exceeds or equals 30 ppb during the remedial action, potential human exposures at that location should be evaluated in light of current conditions at the scene."

- Additional materials that are stabilized not limited to the approved Marcellus cuttings and ash/FGD material adds possibly additional sources of sulphur for reactions. The lack of compaction noted in past photos and lack of a RCRA/CERCLA type cap may allow infiltration of water that may help create these chemical reactions. The lack of information on alleged shallow burial of hazardous waste at defined landfill areas may also complicate this issue.
- Methane is measured in the fraction of a percentage range according to the monitoring data. While this is typical at some landfills it can be limited on characterization or assessment of a site. Note that a detection level of one percent is equal to 10,000 parts per million methane. The attached data appears to indicate a detection level of 0.05 percent (500 PPM) methane that may be reasonably low for a field instrument. However, note that in Older landfills typically do not have the anticipated relatively equal concentrations of carbon dioxide and methane. This point is that low methane does not necessarily indicate low carbon dioxide concentrations. Old landfills with low methane can have very high carbon dioxide that can displace oxygen to dangerous

concentrations in limited ventilation areas. This was demonstrated at Dunmore where residences had low oxygen and where at least one borehole measurements noted non detectable oxygen. The low levels of methane observed by this monitoring that is being questioned may not reflect possibly high carbon dioxide or other gases.

As noted in the referenced email regarding permit levels and monitoring, there is no apparent monitoring for on-site or off-site metals common to most sites that have high concentrations of inorganics. This coupled with the above concerns on existing air monitoring at boreholes may indicate a lack of protection for humans and other environmental receptors. Based on unresolved issues and unknowns it seems prudent not to renew any general permit for this site until these concerns are resolved.