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It is typically assumed that the dewatering operation has no effect on pathogen counts (after they are normalized to a solids basis). Therefore, any stabilization process that reduces pathogen numbers to Class A levels is assumed to provide the same levels at any later point of sampling. If anything, dewatering and natural die-off would seem likely to *decrease* pathogen counts after the stabilization step. However, recent evidence has suggested that pathogen densities can actually *increase* after certain types of dewatering operations. Instead of dying off, evidence suggests that pathogens are regrowing or being reactivated after the test point.

The implications are serious: 1) If dewatering can increase pathogen numbers, then previous studies characterizing pathogen levels after various types of stabilization processes no longer justify the use of these processes in achieving a *final* pathogen level; and 2) If the factors leading to growth/reactivation in dewatering are poorly understood, there is no assurance that the phenomena are limited to this specific situation: pathogen counts may be increasing in other unrecognized circumstances. Clearly, important assumptions about the safety of land-applying biosolids are placed in question.

The planned research program is designed to provide definitive findings, clearly determining whether fecal coliform densities may increase after biosolids processing. The experimental hypotheses examine all likely causes of the apparent coliform growth observations. The possibilities of procedural or statistical effects will be examined, such as error introduced by solids measurements and the normalization of counts based on this parameter. The greater dispersion of polymer-flocculated coliforms in high shear processes may lead to greater bacterial most probable number (MPN) results simply due to greater discretization of cells, and this hypothesis will be evaluated. Biosolids temperature and exposure to air during high shear dewatering may influence the occurrence of false positives by the A-1 MPN enumeration procedure (compared to the LTB/EC broth procedure), and this possibility will be experimentally tested. The release of extracellular polymeric substances as usable substrate, and its possible effects on coliform numbers, will be assessed.

In summary, the proposal is ambitious but addresses a crucial environmental need. If pathogen regrowth is found to be an artifact, then practices for biosolids application to land can continue, with the added assurances from this research concerning human health. Where biosolids are land applied, this allows an important recycling practice for a waste material which becomes a soil fertilizer and conditioner. On the other hand, if pathogen regrowth is documented, the manner in which biosolids are land applied will necessarily be modified or curtailed to assure that human health and environmental quality are protected.