Regulatory perspective on nanoremediation use

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Nanotechnology in remediation?

Regulatory perspective on nanoremediation use

1. Concerns over nanoparticle release in several countries
2. NanoRem – interim Risk-benefit perspective (for nZVI)
3. What affects regulatory acceptance? Special case?
4. Likely future direction of travel

Concerns over nanoparticle release in several countries

- Still emerging technology

- Majority of nZVI applications in North America
- Only 17 field scale deployments in Europe, but situation varies:
  - ➢ No regulatory impediments (e.g. Czech Republic)
  - ➢ Balance between the benefits vs potential risks (e.g. Austria, Switzerland, UK, USA, Canada)
  - ➢ Voluntary moratoria/prevention of deployment (e.g. UK, Germany)

Nanoremediation – interim Risk-Benefit perspective (for nZVI)

- 2 major benefits anticipated (in theory):
  - More treatable contaminant types
  - Increase in the treatment efficacy
- Application for chlorinated solvents in aquifers

- Risks of nZVI deployments to be considered in the same way as any other potentially hazardous treatment reagents (more established in situ techniques)
- Adverse effects expected to be minor, localised, short lived

- Still uncertainty in understanding risks to the wider environment
- Lack of effective field based particle monitoring technologies

Could expand range of technologies but advantages highly dependent on site specific circumstances

Is regulatory acceptance a special case?

NanoRem Workshop on Sustainability and markets – Oslo - December 2014:

- Application of NPs in remediation processes is not foreseen as requiring specific regulatory inputs

At EU level:

- No fundamental concerns raised by regulators although still in demand for more information to prove applicability

Special case?

- No specific regime is expected

Likely future direction of travel

- Specific European regulatory regime is not anticipated
- NanoRem risk-benefit work being extended to a wider range of nanoparticles
- All risk-benefits findings will be updated along with findings of NanoRem scientific programme/field deployments
- Hoping for European consensus on appropriate use of nanoremediation and greater consistency in nanoremediation permitting

References

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