Table 1 - nZVI Strength, Weakness, Opportunity and Threat (SWOT) for the use of nZVI in remediation

Strengths		Weaknesses	
Improving the speed of contaminant destruction	Relative effectiveness	Field scale deployments are limited in scope of remediation problem being addressed and tend to lack verified / validated performance information	Field scale experience
Improving the extent of contaminant destruction	Relative effectiveness	Knowledge gaps regarding fate, transport, toxicity in environment	Current knowledge
Extending the treatable range of contaminants	Relative effectiveness	Knowledge gaps relating to toxicity to humans	Current knowledge
70 known field scale deployments	Field scale experience	Handling risks may be greater than granular ZVI	Relative risks
Limited longevity of action may reduce environmental risks	Relative risks	Limited longevity due to rapid agglomeration & passivation. May require several applications	Relative effectiveness/ Ease of use
Compatibility with other treatments	Synergy	Poor mobility due to rapid agglomeration & passivation in the short term	Relative effectiveness/ Ease of use
Can utilise existing techniques for deployment	Ease of use	Potential groundwater contamination by NPs	Relative risks
As an *in situ* technique there may be reductions in site costs compared to *ex situ* remediation (e.g. reduced waste generation, reduced fuel usage)	Relative costs	Lack of comprehensive sustainability assessment	Current knowledge
As an *in situ* technique there may be reductions in some site risks compared to *ex situ* remediation (e.g. reduced exposure of workers to contaminants)	Relative risks	Cost of nZVI is currently high relative to granular ZVI	Relative costs

Opportunities		Threats	
Concentration of field scale experience in some countries, e.g. Czech Republic, creates an opportunity for cross comparison of field scale deployments in one jurisdiction	Field scale experience	Unwillingness to provide regulatory or problem holder permission to use nZVI	Field scale experience
Cost reductions associated with economies of scale	Relative costs	Potentially significant public concern about nanotechnology being inherently risky	Technology dread
Optimisation of field trials improving NP delivery methods	Relative effectiveness	Numerous coatings, modifiers, catalysts which could make establishing risks complicated	Relative risks
Treatment of contaminants in the vadose zone	Relative effectiveness	Costs remaining high relative to competing technologies	Relative costs
Potential for treatment of source terms	Relative effectiveness	Source term treatment effectiveness is in general constrained by the accessibility of the source	Relative effectiveness
Improved understanding could lead to reduced public and regulatory fears	Technology dread	Difficulties in tracking NP transport	Relative risks
Inclusion of nanoremediation in *in situ* integrated treatment approaches	Relative effectiveness		