



NSZD-Related LCSM Questions

Initial LCSM

- What is the rate of NSZD?
- What natural processes are acting on the LNAPL?
- Is NSZD sufficient to address an LNAPL concern?

Remedy Selection LCSM

- How does NSZD fit into the remedial selection process?
- How do NSZD rates compare to other technologies?
- Is NSZD a stand-alone remedy?
- Should the remedy treatment train transition to NSZD, and if so, when?

Design and Performance LCSM

- How can NSZD rates be incorporated into remedial performance metrics?
 - Transition
 - Endpoint
- What long term monitoring is necessary to monitor NSZD performance under the applicable regulatory framework?

Project Phase

Initial LCSM
 Screening-Level NSZD Assessment
 See Section 4.

Remedy Selection LCSM
 NSZD Evaluation for Remedy Selection
 See Section 4

Design and Performance LCSM
 Long-term Monitoring
 See Section 6

Data Uses and Notes

NSZD is generally active at petroleum hydrocarbon sites. During initial LCSM development a screening level or snap shot evaluation may be adequate to support the initial LCSM. A thorough evaluation may be warranted at this stage if NSZD is likely a component of the remedy.

Note: Concentration or saturation concerns (e.g. vapor intrusion, migration) may require more immediate attention at this stage.

Understanding the seasonal variability and quantifying the annual NSZD rate provides a baseline to compare other remedial technologies and, in conjunction with the Remedial Goals, determine if NSZD is the standalone remedy, a metric to support efficient transition to NSZD in a remedy treatment train, or an endpoint metric to support No Further Action.

NSZD is expected to continue to deplete the LNAPL source mass over time, changing the LNAPL composition and reducing the LNAPL saturation concern. During performance monitoring, NSZD rates may be compared to the current remedy to facilitate transition once the current remedy is no longer efficient. When NSZD is the final stage of a remedial program, an endpoint for continued NSZD monitoring (and attainment of NFA for the site) should be established (this endpoint will be a function of the applicable regulatory program).

A long term monitoring program may include or even rely upon conventional monitoring such as:

- fluid level monitoring to monitor LNAPL stability for saturation concerns, or
- dissolved-phase monitoring to demonstrate plume contraction/regression for composition concerns.

Once a consensus is established that NSZD is ongoing, and any risks or other LNAPL concerns are mitigated, monitoring may no longer be required (dependent of the specific regulatory program).

* This graphic is intended to help the user understand how NSZD may fit into a specific project. The user is encouraged to peruse the list of "LCSM questions" in the central portion of the figure, and then proceed to the right to find the applicable section of the NSZD appendix, and a summary of key considerations in "data uses and notes".