

ITRC PROJECT PROPOSAL: Assessing the Impact of [Animal Feeding Operations on Groundwater](#)

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Proposal Contact:

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Problem Statement

The relationship of dairy, feeder cattle, and swine animal feeding operations (AFOs) to runoff into rivers and streams has been widely studied. However, the impact that AFOs may have on the nation's groundwater resources is largely unknown at this time. While some work has been done, national coordination of those efforts is limited, and distribution of that information is lacking. More significantly, limited information is available that details the appropriate steps to take if contamination due to AFO is suspected.

Solution / Impact

This would be a three-phase project to examine the potential impact of, and response to, groundwater contamination in states' groundwater that may be caused by AFOs. The first phase is to survey the states and provide an overview document describing their monitoring programs and any significant findings, as well as a description of any assessment approaches and remedial technologies for potential AFOs contaminants, if found.

The second phase is the creation of a decision tree that would include the characteristics and parameters to consider in assessing and selecting options to address sites. The document would list criteria that should be evaluated in responding to the detection of potential AFO-related compounds such as nutrients in groundwater. The decision tree document will provide an analytical approach that defines and shapes potential remedial responses, if needed. This will not be a policy document with recommendations on how to proceed. The overview and decision tree documents will provide stakeholders, state regulators, and the community with key information needed to address groundwater issues related to AFOs.

The efforts of this team will undoubtedly identify additional issues including but not limited to practices for construction, operation, and maintenance of AFOs. This may lead to expansion or creation of a new team.

The final phase is to translate the overview and decision tree documents into a curriculum for internet-based training (IBT). IBT courses are an effective way to reach a large number of people at low cost.

Success Measures (how you determine the project impact to the market place)

- 1) Decision Tree and Guidance for Remediation Related to AFOs in Groundwater guidance document is used in AFOs management and/or assessment and monitoring in five (5) states and/or at more than twenty (20) sites;
- 2) Feedback from ITRC member states indicate that use of the technical-regulatory document has been useful in addressing and/or planning for AFOs management;
- 3) Feedback from regulated facilities indicate that use of the Decision Tree and guidance document has been useful in addressing and/or planning for AFOs management; and/or
- 4) Positive feedback from delivery of Internet training courses/webcasts.

Summary of Deliverables

- Survey and Overview of State AFO Monitoring and Remediation Technologies
- Decision Tree and Guidance for Remediation Related to AFOs in Groundwater
- Internet-based training on decision tree and guidance document.

Project Schedule

Year 1

- Team Formation – confirm leader(s), members, federal agencies, agricultural partners, and community stakeholders; evaluate individual skill sets
- Select Program Advisor
- Data gathering and review for Survey and Overview of State AFO Monitoring and Remediation Technologies – define scope and goals; form team units; assign writing assignments & schedules
- Prepare outlines as data dictates

Year 2

- 1st Draft of Survey and Overview of State AFO Monitoring and Remediation Technologies document
- Prepare table of contents for Decision Tree and Guidance for Remediation Related to AFOs in Groundwater
- Finalize Survey and Overview of State AFO Monitoring and Remediation Technologies document
- 1st Draft of Decision Tree and Guidance Doc
- 2nd Draft of Decision Tree and Guidance Doc

Year 3

- Final Draft of Decision Tree and Guidance Doc
- Internet-Based Training development
- Finalize Decision Tree and Guidance Doc – Battelle editing, EPA review, POC review, incorporate comments
- Develop implementation strategy
- Publish Decision Tree and Guidance Doc
- Internet-Based Training dry run

Year 4

- Internet-Based Training and attend conferences to advocate the use of products.

Target Audience

The primary audience includes state regulators (i.e., state and environmental and agricultural agencies), AFO owners, contractors remediating AFO sites, and the interested public. Secondary audiences include federal regulators, and USDA staff.

Resources Required

Personnel:

- Team Leader – Marty Link, Nebraska; co-team leader to be determined
- States that are Interested in Supporting this Project – Iowa, Kansas, Michigan, Missouri, Nebraska, New Mexico, Oklahoma, Oregon, South Dakota, Texas, and Ohio and Virginia as Interested Parties. In addition, other states have expressed interest.
- Skill Mix of Team Members –
 - regulators familiar with water, wastewater and air quality issues
 - Federal agency representative – EPA
 - soil conservationist
 - representative from the farming community
 - academic faculty familiar with animal ecology
 - representative from a livestock association
- Sectors of Team Members (e.g., federal, state, community, regulated, regulator, etc.)

Financial Resources:

A dedicated support contract for a Program Advisor provides staff support for the team. Travel to meetings for state regulators and stakeholders is the second cost category. We anticipate funding approximately +/- 10 travelers to two meetings each year with a smaller number (2-3) attending an additional meeting to present the work of the team. Industry and federal travelers pay their own way. Conference calls, printing, and miscellaneous comprise the third category:

Year 1 Budget

Project Advisor \$70,000
Travel \$35,000
Calls, printing, & misc. \$5,000
Year 1 Total \$110,000

Year 2 Budget

Project Advisor \$70,000
Travel \$35,000
Calls, printing, & misc. \$5,000
Year 2 Total \$110,000

Year 3 Budget

Project Advisor \$70,000
Travel \$35,000
Calls, printing, & misc. \$5,000
\$110,000

Year 4 Budget

Project Advisor \$12,000
Travel \$6,000
\$18,000

Total Project

Project Advisor \$222,000
Project Costs \$126,000

Project Total \$348,000

Related Work:

This project may build on the efforts of the former In Situ Bioremediation team whose work addressed nitrates in groundwater. For monitoring information, the project may be able to get information from the Diffusion Samplers team or the Sampling, Characterization, and Monitoring team. In the future, the group could potentially work with the proposed Alternative Fuels group to look into remediation technologies such as methane digesters.