

**EPA Region 7 Science Integration for Decision Making Fact-Finding Interviews  
December 16, 2009  
901 N. 5th St. Kansas City, KS**

Three members of the SAB Committee on Science Integration for Decision Making conducted three interviews in EPA Region 7: Drs. Catherine Kling and Gary Sayler conducted the interviews in person and Dr. Terry Daniel participated by phone. For each interview, Dr. Anthony Maciorowski, Deputy Director of the SAB Staff Office, provided a brief introduction to the purpose of the interview and the Designated Federal Officer, Dr. Angela Nugent, took notes to develop a summary of the conversation.

Dr. Maciorowski noted in each interview that the purpose of the interview was to help SAB Committee members learn about Region 7's current and recent experience with science integration supporting EPA decision making so that the SAB can develop advice to support and/or strengthen Agency science integration efforts. Dr. Maciorowski thanked participants for taking time for the interviews and thanked Ms. Brenda Groskinsky, Science Policy Advisor and ORD Science Liaison for Region 7, for serving as liaison with the SAB Staff Office in planning the interviews.

**EPA Region 7 Manager Participants (8:45 - 10:00 a.m. Session)**

Ms. Cecilia Tapia, Director, Superfund Division  
Dr. Ron Hammerschmidt, Director, Environmental Services Division  
Mr. Gene Gunn, Chief, Special Emphasis and Remedial Branch, Superfund Division  
Ms. Luetta Flournoy, Deputy Director, Policy and Man  
Mr. Don Toensing, Chief, RCRA

SAB members began the discussion by asking managers to provide their perspectives on the following five areas:

- Practices for integrating science to support decision making
- Consideration of public, stakeholder, external scientific, and other input in science assessment
- Drivers and impediments to implementing past recommendations for science integration
- Ways program receives feedback on how science is used in decision-making
- Workforce to support science integration for decision making staff to identify their principal customers.

One manager began the discussion by noting a need to attract "top scientific talent" in air quality modeling. There is a "limited universe of qualified people" at the state level and in Region 7 to review and approve state implementation plans. This is a critical need because millions of dollars of controls depend on the accuracy of models. When Region 7 loses an expert in this area, it is challenging to get an expert with the right skill set. A state typically prepares a modeling demonstration to show that reducing emissions can achieve the standard set for a criteria pollutant. The state's effort goes out for public comment and there is limited peer review. EPA must review and approve the state's plans.

Another manager described how his unit provides human health and ecological risk assessments for the Superfund and RCRA programs. The process for analyzing contaminants of interests works well and "gets into decisions." Science integration also happens when *ad hoc* groups form inside the region to address issues, like vapor intrusion, that cut across programs. Region 7 benefits from teamwork encouraged by its small size. People know "who to go to and who to team with" and work well together.

For water monitoring and nutrient criteria, there are external technical advisory groups at the regional level. Experts from states, tribes, other federal agencies (e.g., the Fish and Wildlife Service) and academic groups discuss benchmarks for lakes and rivers.

One impediment to science integration is the "tension between research and applied science." The region is often faced with issues that don't fit ORD's timeline. One example is the intensity of the Region's need to get model applications up to speed so they can support regulatory processes. Regulatory time constraints sometimes impede getting the best science.

Two other managers described how enforcement programs are sometimes constrained by limited science. They described an old regulation in the RCRA program that exempted Chromium(VI), also known as hexavalent chromium, present in tanning waste. The old rule involved "slim discussion" of the scientific bases for including and excluding chemicals, but the public was concerned about a possible link between Chromium(VI) and brain tumors. Region 7 tapped outside experts and formed a team of risk assessors, bench scientists, scientists from the enforcement division, and the state of Missouri and requested assistance from the Office of Research and Development to focus on Chromium(VI) hazard issues.

The manager responsible for the Region's Superfund Program described it as a "safety net" for other programs. She noted that Region 7 centralized its risk assessment functions for air, RCRA, and Superfund in 1999. As a result, scientists are independent and provide consistent assessments across the region. The Superfund program itself includes a technical staff of engineers and geologists, oriented to implementation. She cited effective collaboration with ORD's National Risk Management Laboratory in providing point-of-entry and point-of-use water filtration for homes in a community after a Superfund On-Site Coordinator discovered that "people sometimes don't use bottled water" provided by the Region. The coordinator brought this practical concern to the attention of the "Regional Decision Team" of risk assessors, the site manager, and counsel. The ORD National Risk Management Research Laboratory responded to the need to provide the filtration system, a more effective source of water that addressed both inhalation and ingestion routes of exposure.

The manager noted that in the construction/clean-up phase of Superfund projects, her division focuses on civil engineering, construction management, and project management. There is an incentive for "local hires" because of the community focus of the work. The Superfund Program is friendly to local communities. Where a need for special expertise arises, the Regional Science Liaison for ORD helps to find support.

Another manager described how the region worked with water quality standards, based on directives set by the Office of Science and Technology in EPA's Office of Water. The Water

Quality Standards Program sets standards to be protective of uses in different water bodies with no consideration of economics. Sometimes, as for arsenic (set at 18 parts per trillion), the limit is very difficult to implement and can have major economic implications. Unlike site-specific clean-ups, water quality decisions can affect whole states. Plaintiffs and stakeholder involvement provide the major feedback on science integration. State regulatory agencies and municipalities currently struggle to comply with water quality requirements, because of the expense of monitoring at a time of severe budget constraints. Some states have sophisticated stakeholder involvement processes and involve the public early. Nevertheless, it has been a long process developing state standards. Environmental groups are impatient. Even though the Clean Water Act was passed in 1972, many water bodies haven't felt its impact because state standards and state programs are not in place.

A manager described science integration in the underground storage tank program, which involves a high level of community involvement. In Region 7, states have delegated programs, but tribes do not. Science helps programs get faster clean-ups. States have a backlog. A key issue is determining the clean-up level and the trade-off between the costs of clean-up and the efficacy of clean-up by natural attenuation. Science questions arise with different kinds of contamination, geological issues determining the size and direction of the plume, innovative technologies to clean up sites more quickly and less expensively, and the potential of natural attenuation. As EPA and state resources shrink, there will be a need for more innovative methods supported by science. The manager primarily works and shares information with states. He acknowledged possible merit in involving ORD in these efforts, especially in green clean-ups and use of green technologies.

Another manager commented that the region works well to integrate scientists into decision making, when decisions "hinge on well-known and well-vetted science." Decision makers struggle with novel issues, like Chromium(VI), where EPA does not have a firm toxicity number for drinking water pathways. The challenge is planning ahead for the "science needed over the horizon." An example is vapor intrusion, where EPA needs to develop the science needed in 2, 5, or 10 years.

Managers discussed human resource needs and strategies for addressing them. Several managers noted that "economic hardship has resulted in good opportunities for hiring." Government jobs are attractive and the region has been able to attract experienced scientists with diverse backgrounds, including water quality modelers. In the future, however, each region may not be able to support expertise in every specialized area. Regions may instead develop "centers of excellence" and provide support to other regions.

One manager noted that EPA does not offer scientists a development track within their disciplines. One option is to provide more options for scientists to work outside EPA and return with new ideas and more senior experience.

It has been difficult for Region 7 to identify staff for new, emerging science areas, even with continuous planning. One example is climate change. Region 7 has found it difficult to identify universities that provide a background in climate change to prepare scientists to work at

EPA. A manager asked for SAB advice on human resource planning to address future climate change science issues.

Managers also praised recent improvements in the regional library, which has switched back to an EPA-(rather than contractor-) supported effort. The library has improved how employees get journals and articles and access information resources.

The next topic was communication of science to stakeholders. One manager commented that "stakeholders only want to know the bottom line," not EPA's processes for developing needed science. Stakeholders want a number that's predictable. Several participants spoke of the important role played by Region 7's Office of Public Affairs, which helps the region deliver its message and education clearly regarding decisions and particular sites. One manager noted that dynamic interaction with stakeholders is healthy and leads to change. Another manager, however, noted that communicating uncertainties is difficult; "as regulators, EPA can't go out with an academic approach -- we have to go out as if we are right." Dynamic interaction with stakeholders leads to change.

Managers described their experience practicing with the incident command system for responding to a homeland security incident. For any given threat, EPA would work within that system, which includes state and federal agencies, to identify the relevant expert(s) who can assess the risk in question in a credible way. Trust relationships play a major role in coordination across agencies. It takes time to develop trust, but Region 7, because of its small size, has worked to foster such relationships. Once agencies agree on a message to convey to the public, then the risk communication can happen. Region 7's Public Affairs Office has provided risk communication training. The core principles are to tell people the truth, what's known, keep it simple, keep it short and repeat it. "People are smart and can understand." Representatives from Region 7 attend risk assessment conferences and communicate lessons learned to other regional contacts and states.

A different example involved the challenge communicating EPA's determination that greenhouse gases endanger human health and the environment. Region 7 managers receive many questions about EPA's climate change decisions and find it difficult to respond and integrate the large body of evidence behind EPA's endangerment findings. One manager said that he meets a "tough crowd" and feels "we're not prepared" to communicate polarized science to the public. He also noted that climate change models don't provide information useful at the regional level and involve so many uncertainties, that the science is exceptionally difficult to communicate. EPA's credibility depends on the climate change science generated by other institutions (e.g., the World Resource Institutes, Intergovernmental Panel on Climate Change). Regional managers depend on the Regional Science Liaison for ORD, or the EPA Science Connector to link them to ORD experts who can help them field detailed questions.

#### **EPA Region 7 Scientist Participants (10:15 - 11:30 a.m. Session)**

Mr. Walt Foster, Ecologist, Assessment & Monitoring Branch, Environmental Services  
Division

Ms. Debbie Bishop, Superfund Lead Region Coordinator, Superfund Division

Mr. Wilfredo Rosado-Chaparro, Storage Tanks & Oil Pollution Branch, Air and Waste Management Division

Mr. Stanley Holder, Program Operations & Integration Staff, Office of Policy and Management Division

Mr. Robert Feild, Special Emphasis and Remedial Branch, Superfund Division

Mr. Dave Drake, Special Emphasis and Remedial Branch, Superfund Division

Ms. Kelly Schumacher, Assessment and Monitoring Branch, Environmental Services Division

Ms. Ann Lavaty, Water Quality Management Branch, Water, Wetlands and Pesticides Division

After listening to the five science integration topics of concern to the SAB, scientists took turns providing insights, based on their experience working in the Region. The first scientist described how Region 7's environmental justice activities have a need to draw on social science. Interactions with communities and the economic impacts of policies are unpredictable and should be studied. EPA has improved how it engages communities, makes increased use of geographic information system census data, and develops more consistent, sensitive methodologies to identify disadvantaged communities, but more could be done. Environmental justice communities are difficult to define, but EPA could make more consistent use of databases to recognize potential disproportionality in health and economic impacts. A science-based approach can help programs address environmental justice needs and benefits. She noted that the current administration is reaching out to local universities to attract diverse well-educated scientists. Scientists with a more diverse background may help advance environmental justice programs.

A regional scientist described working with Tribes in Region 7. He also uses databases to identify problems in tribal lands and trains environmental directors to use them. He collaborates with the Indian Health Services and Bureau of Indian Affairs, working jointly on projects and sharing funding, to address special challenges in Tribal lands: the special economic problems of Tribes; community outreach regarding risks of lead, levels; and the need to communicate science on such topics as pesticides, drinking water, waste water, solid waste, quality control/assurance, healthy homes and children's health so that they can use science in their decision making.

Another scientist provided a 30-year perspective on working on EPA site remediation. He had worked at EPA's Times Beach site shortly after the passage of Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), when EPA didn't have a regional risk assessor, an action level, or a clean-up level. Region 7 adopted the 1 part-per-billion level of concern set by the Centers for Disease Control and the state of Missouri was directly involved in the clean up. Now, as manager of Superfund sites contaminated by lead, he relies on EPA national guidance for an action level and remedy selection. Regions don't typically set their own level. Regional scientists, however, need to stay abreast of the science because of litigation. The ASARCO Lead Smelter site in Omaha, for example, has involved aggressive litigation with the Principal Potentially Responsible Party. Regional responses to the litigation must be based on current science to be supportable at court. As a result, Region 7's risk

assessors have been recognized as the premiere lead risk assessors nation-wide, and have served as consultants for the national, as well as for other regional sites.

The region has also developed specialized expertise in lead speciation, because the Region must demonstrate the source of the Omaha lead. A critical legal issue involves whether the lead contamination was the result of lead-based paint or the ARARCO smelter. EPA has drawn on the expertise of a key expert consultant and Region 7 lead experts participate in a national work group.

Another scientist provided a different historical perspective, describing EPA's evolving efforts to protect ecosystems. It has taken a long time for the public to understand ecosystem impacts and for EPA organizations to adapt and change processes to integrate analysis of ecosystem effects into decision making. He started a remote-sensing group 20 years ago, but decision makers have been slow to use the data for decision making. Emergency response managers use some of the data; enforcement managers sometimes use it, but often there are "tradeoffs between science you think should driving things and the *real politik*" of the decisions actually made.

Yet another scientist responded that Regions have developed a process for using science. Regions try to be consistent, transparent, and conservative. They follow policy set by Headquarters and "fear going rogue." There are impediments to doing original science or using new science, because new information may not be peer reviewed or fit with existing policy.

Turning to the water program, a scientist described the differences between working with states to approve state water quality standards (WQS), 303(d) lists, and Total Maximum Daily Loads and working with the national program office on new water quality standards at the national level. Each of the four states in Region 7 has different administrative procedures and procedures for public involvement. When she reviews packages of state WQS regulations, she must determine that there is a scientifically defensible rationale for approving the regulations and that the underlying science is communicated clearly. Regional counsel must concur with the water program when approving or disapproving a State WQS package.

She spoke of the new "Kaizen" water quality standards process Region 7 is implementing; the Kaizen process is a streamlined process for all four Region 7 states and EPA to follow for submittal, review and approval of state WQS's. The process includes the following:

1. State initiates a scientific scoping meeting with EPA Region 7 and HQ on a specific standard change during which a schedule and timeline is developed for discussing the package, this is also where "scientists close to the issue" academicians, state scientists, and scientists from non-governmental organizations come to the table with all of their information;
2. EPA consults the US Fish and Wildlife Service and provides science and policy input to the state on the specific standard change;
3. State develops a game plan for how to move the WQS through the standards process which includes background, schedules, milestones, identification of science/data analysis

needs, policy issues, potential stakeholders, issues of national significance and options for solving the issues identified;

4. EPA reviews key action items from the state's game plan and stakeholder process;
5. State develops a draft rule package/consultation package, sends to EPA and EPA reviews;
6. State decides whether to move forward with a formal rulemaking process.

Region 7 and Iowa recently used the Kaizen process to modify EPA's nationally recommended water quality criteria for chloride for adoption in Iowa; this effort may result in EPA revising the national criteria for chloride for the U.S.

An engineer in the Superfund Program spoke of successes developing and implementing innovative technologies. With the help of several universities in the Region, he piloted a method for re-vegetating a Kansas prairie-type cover over mining waste. The approach worked successfully and he documented it as a clean-up technology. It is now being used on thousands of acres. He also pursued alternatives to *in-vivo* studies of lead bioavailability, because the process is very expensive and involved sacrificing animals. He funded *in vitro* research that mimics the *in-vivo* results. The new *in-vivo* method has become a new standard EPA method with an official method number. He spoke about the creativity and flexibility of his job, "the beauty of being a project manager is that I can begin a financial agreement with states or universities early and can integrate the result into an Agency decision document." Once a technology appears in a record of decision, others can follow it as a pattern. His experience shows how regional science can be integrated into decision making.

He described how he integrated science communication into his work as a Superfund project manager. For every clean-up, he routinely meets with the media and plans for a television appearance. He'll plan on taking a trip to have lunch with community members and build a framework of relationships, an essential part of the process of communicating science. Whether the science is novel or not, he expects to be asked to explain it and have the media scrutinize "what we do." Overall, science has helped him implement solutions to problems.

To get science support, he typically uses cooperative agreements with universities and states, because of the resources offered by such large institutions as the University of Kansas, Kansas State, and Purdue. He also uses ORD laboratories and partners with ORD teams, but does not generally use consultants directly.

A coordinator for the underground storage tank program described his work as "applied science." Much of his job involves explaining science--to his non-scientific supervisor, to the States, to the Tribes, and to stakeholders. He likes the challenge of communicating science to non-technical people. It helps him to think "outside the box." He also expressed enthusiasm about chairing the Latino Math and Science Academy sponsored by EPA and several academic organizations in Kansas City. He spoke of the need to communicate the exciting possibilities offered by math and science to students not often attracted to these subjects. EPA's investment in science education may help students pursue future careers at EPA and may help the public understand and respect science and EPA's work.

The final program area discussed was the National Environmental Protection Act (NEPA). One scientist noted that NEPA "forces you to be a "jack of all trades -- not a specialist" and that such a role is difficult for scientists. He described two aspects of NEPA: enforcement and compliance. NEPA requires federal agencies responsible for issuing a license or funding a major project to conduct an environmental impact statement. The lead federal agency associated with the activity must assess environmental impacts and make a finding of "no significant impacts" or of "significant impacts." If there us a "significant impacts" finding, the lead Agency must complete a more detailed environmental impacts. EPA "enforces" the NEPA process by reviewing assessments developed by other federal agencies. EPA, in turn, itself must comply with NEPA when, for example, it provides funding for a wastewater treatment plant. In Region 7, EPA's NEPA program primarily involves enforcement.

As part of its enforcement responsibilities, EPA must evaluate and grade environmental impact assessments to determine their adequacy in meeting the intent of NEPA, and the requirements of the Council on Environmental Quality (CEQ) under the section 309 of the Clean Air Act Amendments. If EPA disagrees with the lead Agency's assessment, CEQ makes the final determination. Because NEPA projects can vary widely, Environmental Impact Assessments can be very technical, and EPA has only 45 days to review an Environmental Impact Assessment (with the possibility of a 15-day extension), regional NEPA staff must constantly be reviewing new material and monitoring possible upcoming projects. EPA does not have NEPA staff trained in evaluating assessments for new impacts, such as global climate change, genetically modified organisms, or impacts on ecosystem services; for technologies like nuclear power risks, where EPA's experts have retired; or for new paradigms, such as cumulative risk.

He noted a need for training for scientists responsible for NEPA review and noted that performance standards did not require EPA personnel to keep "up to speed in your areas of expertise" or meet technical requirements for their jobs. Other scientists noted differences across divisions. The Superfund program stands out for the "wealth of training" and travel money available to support professional development. A scientist in the environmental justice program also noted that the Region supported training her training and development. A toxicologist noted that she missed the stimulation of training and new ideas outside the Regional Office. Although the four toxicologists in Region 7 talk actively and she attends meetings with other Regional risk assessors and annual meetings of the Society of Toxicology, she misses more frequent opportunities to keep abreast of new science in such areas as genomics and seminars that introduce her to new ideas.

### **Region 7 Acting Regional Administrator, Mr. William Rice (12:45 - 1:30 p.m.)**

Mr. Rice began the discussion by observing that almost every issue in Region 7 has scientific underpinnings. Different sets of challenges arise when decisions depend on accessing existing information, compared with decisions where needed science is not available.

In most situations, the challenge for managers and staff is to "keep up" with the relevant science. Because EPA' has a "stove piped" organizational structure, it is difficult to keep informed about the science across EPA and how science in one area affects another. He noted

the contributions of Region 7's Science Advisor, Brenda Groskinsky, in helping Region 7 access science across EPA and especially in ORD.

In other situations, the Region must make decisions on issues where there is extremely limited available science. He described a specific situation where Region 7 received briefing from health and technology experts in ORD as well as OSWER's Technology Innovation and Field Services Division. It was extremely beneficial to have direct access to the most current scientific information.

Mr. Rice also noted the major challenges with the science underlying the causes of hypoxia in the Gulf of Mexico. Additional science, is needed to develop effective strategies and to educate the public about the need for nutrient management.

SAB members asked Mr. Rice to comment on how ORD's programs support the region's needs. He responded that the Region 7 Science Advisor has been communicating with ORD's National Center for Environmental Research on possible future extramural grants of interest to Region 7. She is also working with ORD's Corvallis laboratory, with National Science Foundation funding, to study different approaches to controlled burns of tall grass prairie through the use of air quality models, and how different options for this agricultural practice relate to non-attainment conditions under the Clean Air Act. This multi-disciplinary research may have an impact on regulations and policy. In general, however, it is difficult for Region 7 to work through ORD's long-term research planning process to meet regional needs. A better strategy for the Region has been to tap ongoing research that the Region can apply immediately.

In response to a question about the usefulness of SAB reports, such as the 2003 report, *Hypoxia in the Northern Gulf of Mexico*, Mr. Rice responded that it would be helpful for some group in the Agency to take the lead for reviewing such reports and identifying their possible impacts for the Regions. He noted the importance of conferences and workshops that distill science for Regions.

Mr. Rice noted that EPA had offered systematic training in risk communication in the past and called for more future investment in that area.

The discussion closed by addressing human resource needs related to scientific and technical staff. Mr. Rice noted that a recent human resource study identified the need for "multi-faceted" individuals, i.e., scientists who were also good communicators or individuals who could fit multiple positions.

#### **EPA Region 7 Agricultural Team Participants (1:30 - 3:00 p.m. Session)**

Damon Frizell, Environmental Scientist / R7 Associate Ag Advisor

Dr. Donna Porter, Environmental Scientist / CAFO Coordinator, Water, Wetlands, and Pesticides Division

Jason Daniels, Environmental Scientist / IA Wetlands Coordinator, Water, Wetlands, and Pesticides Division

Dan Breedlove, Ag Counselor, Office of Regional Counsel

Heather Duncan, Environmental Scientist, Water Wetlands and Pesticides Division  
Todd Phillips, Life Scientist / Kansas Pesticide Program Officer, Water, Wetlands, and  
Pesticides Division

A member of the agriculture team noted that agriculture had become increasingly important to EPA over the past 10 years and will likely become even more important. Region 7 developed the agriculture team to promote communication and education within the regional office to improve interactions with the agricultural sector. Region 7 holds a monthly meeting to share information about activities affecting agriculture across EPA programs. The team also sets priorities and identifies needs related to environmental protection in the agricultural sector on an annual basis. The team also provides an EPA presence in the agricultural community to help members of the community provide early input into regulations that affect them.

Although EPA does not have as strong a presence or the same relationships with farmers and the agricultural community as USDA, EPA is participating in the work of the USDA Cooperative State Research, Education, and Extension Service grant program related to three water quality issues: nutrients and sedimentation, bioenergy, and watershed initiatives.

The agricultural team also deals with some issues related to regulations under Federal Insecticide, Fungicide, and Rodenticide Act. Pesticide drift, for example, causes increasing problems, because urban sprawl brings residential housing close to farm fields. EPA also cooperates with USDA on occasional pesticide residue issues to ensure residues are below health threat levels. Another issue concerns tests for genetically modified plants. As tests become more frequent, farmers sometimes do not comply with requirements for buffer strips to separate genetically modified plantings. The Region 7 Agriculture Team explains the rationales and science behind the requirements to address concerns that "EPA lacks real reasons why we do this."

The Region 7 agricultural team often works to ensure that regulations are enforceable. The Region 7 team, for example worked with the revised 2008 Concentrated Animal Feeding Operation to identify the nutrient management terms to be included in permits.

Members of the Agricultural Team noted that voluntary programs have the most potential for reducing environmental risks associated with agriculture. For voluntary programs to succeed, however, farmers must be convinced of the merit of environmental protection programs. Scientists on the team must have a scientific base to justify programs and give them credibility.

In the wetlands program, there is a need for science that meets the needs at the Regional level to evaluate the quality of wetlands, assess mitigation sites, and predict "what a restoration will look like." Regions need rapid assessment methods. The wetlands program gives grants to states, tribes, and communities to develop the needed science for specific locations. The Regions evaluate whether the resulting science is effective and practical to use and has developed a tracking database for all grants.

Region 7's Agriculture Team has developed science on atrazine needed by the Agency. Because of atrazine reregistration, Syngenta has been monitoring several watersheds. Two

watersheds in Missouri and one watershed in Nebraska exceeded the levels of concern. Headquarters scientists from the Office of Pesticide Programs met with state of Missouri staff, Agricultural Research Service scientists, and scientists from Region 7 and are using information from the Region 7 sites for reregistration. Region 7 has also awarded states grants to evaluate 57 pesticides of interest for effects on sensitive species to establish water quality criteria. In these cases, regional science and networks are contributing to decision making at the national level.

Members of the Agriculture Team described how they try to work with and through USDA programs, especially with state land grant extension personnel, to address environmental issues, but USDA and EPA priorities differ. One member of the Agriculture Team called for more research to be focused on developing and demonstrating field practices, use of cover crops, terraces, and livestock practices that will improve water quality. Demonstration projects that illustrate combined agricultural and environmental benefits are especially important to the agricultural community.