



Arsenic in Old Space

Addressing the Problem Presents Costly Options

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Historical use of arsenic-containing pesticides and fertilizers has been blamed for the presence of elevated levels of arsenic in soil and ground water at some golf courses. The presence of elevated arsenic levels can lead to enormous expenditures to address the problem and can impair the ability of a golf course to operate.

The presence of arsenic at some of Florida's golf courses is attracting attention from EPA, the State of Florida and local government. In fact, several of these agencies recently organized a group to evaluate agency policy on this matter. Overlaid onto this is the fact that the State of Florida is taking a much more conservative view of arsenic and is considering making its arsenic cleanup criteria more stringent.

Having worked with several golf course owners who are dealing with recent findings of arsenic in the ground, we have developed a decision-making process to select a strategy for working with the state toward a practical solution.

Let's consider a case study. In this example, routine groundwater monitoring within a maintenance area (required for this golf course) found elevated arsenic levels. The owner was faced with a

request from the Florida Department of Environmental Protection to delineate the extent of elevated arsenic levels in soil and ground water by further testing. FDEP's objective for additional testing is to gain enough information to make a decision on how to address the elevated arsenic levels.

In planning the required work, we discussed several options which the owner could choose from. The pros and cons of each are provided below to show the thought process.

Option 1: *Address the arsenic as a localized problem in the maintenance area.*

If an isolated, relatively small affected area is identified, the FDEP will probably require management according to exist-

Cons: The cleanup portion of the project cost could be expensive (e.g.: the FDEP indicated a preferred remedy would be excavation and disposal of arsenic contaminated soil, which can cost well over \$100/ton). Also, there would still be an unresolved issue of potential arsenic presence at the rest of the golf course (a long history of applying arsenic-containing compounds made this a possibility) which could affect the owner if it needed to pursue refinancing or decided to sell the golf course.

Option 2: *Address the arsenic impacts as a golf-course-wide problem. The testing plan would be designed to investigate the possibility that elevated arsenic levels are present throughout the golf course.*

Pros: This approach would likely delay the expenditure of cleanup costs and may possibly avoid some of the typical cleanup costs. Although no policy has been finalized, some FDEP staff feel it may be impractical to require

cleanup of such a large area.

Cons: The assessment cost would be expensive (testing throughout the golf course). There would not be a quick resolution of the matter. FDEP indicated it does not have a policy for dealing with golf courses which have widespread arsenic, and this may delay a final decision on how to address the problem. FDEP indicated to me that progress on the development of a policy is slow and it feels the final policy may come from proposed resolutions that originate from the golf course industry. We do not know the financial impact of dealing with

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ing generalized state guidance. With this option, our plan for testing would attempt to focus only on delineation of arsenic excesses near the maintenance area. We would avoid looking elsewhere in the golf course.

Pros: The assessment portion of the project cost would be minimized. If we could show a delineated localized problem, then FDEP would likely require some form of active cleanup (e.g.: soil removal or capping and possibly ground water cleanup). With this option, the problem could hopefully be resolved relatively quickly (within a couple of years).



FDEP's final policy, although we do know the policy will be more conservative if ground water in the area is used for drinking water.

Option 3: *Position ourselves to perform a risk assessment.*

Whether Option 1 or 2 is selected, it was worthwhile considering a risk assessment. For this effort, our testing would include collection of site-specific information that would enable us to evaluate the potential human health risk due to exposure to the elevated arsenic levels.

Pros: This work would enable us to present a better technical basis for whatever remedy we propose depending on whether or not undue risk is present. A risk assessment would probably be required by FDEP anyway if the desire is to propose a nonstandard remedy to resolving the problem (for example, proposing no cleanup and monitoring only or minimal cleanup) and if the plan is to propose arsenic cleanup criteria that are less stringent than the State's.

Cons: This adds another step and additional front-end cost to the project. The risk assessment may or may not prove successful in minimizing the total costs to resolve this problem. Also, this assessment (which would be in the public record) would present estimated risks to golfers, workers and others in the area.

In this example, the owner decided to evaluate the presence of arsenic throughout the golf course and to pursue a risk assessment. Hopefully, an argument can ultimately be made for a low-cost remedy. This outcome may be strengthened by the fact that the presence of arsenic is probably due to the legal use of pesticides and/or fertilizers. Whereas the FDEP may require cleanup for an isolated problem, some FDEP officials seem reluctant to require cleanup of a golf course-wide problem.

It is possible that more and more owners may be faced with these types of decisions (no one knows how prevalent this problem is throughout Florida). The opportunity is there for owners to have a say in how this matter will be addressed in the future. Since the State of Florida is

in the process of policy development, there is an immediate need for the golf course industry to actively work with the State toward a policy that is comfortable for both sides. It is worth expending some effort on this and the State is willing to listen.

Editor's Note: *Chris is working on behalf of several golf course owners to negotiate solutions with FDEP regarding the presence of elevated arsenic levels at golf courses. He is a member of a state task force charged with development of new environmental cleanup guidelines in Florida. As information comes to light which could be of use to the golf course industry, he plans to share this with the FGCSA. If you have any information (experiences at other golf courses, etc.) which could help him reach a practical solution to the arsenic matter, feel free to contact him at (561) 736-4648 or via e-mail at ermjsch@aol.com.*

FQPA Update

Environmentalists Get Off TRAC!

The Environmental Working Group (EWG), the most vocal anti-pesticide activist organization in the FQPA controversy, has resigned from the FQPA Tolerance Reassessment Advisory Committee (TRAC).

In a letter to Vice President Al Gore, EWG complained the Administration has failed to take "any tangible action to actually protect children from pesticides" and sharply criticized recently passed legislation that delays the phase-out of methyl bromide. EWG also claimed the Administration has been unwilling to act to reduce pesticide risks "in deference to economic concerns of agribusiness groups, pesticide companies and food processors."

EWG had threatened to pull out of the process earlier this year when USDA and EPA agreed to extend the TRAC sessions into 1999.

•The FQPA science issues framework was published in the Oct. 29 *Federal Register*. The framework is a schedule for the

issuance of a series of nine science policies to implement FQPA provisions. The framework is a direct result of TRAC discussions and comments on each interim science policy document will be invited through separate notices in the *Federal Register*.

•Idaho, Michigan, Pennsylvania, California and others are working on state resolutions supporting the industry position on FQPA that real exposure data should be used by EPA and that the law's deadlines should be extended to allow time to collect the data.

•The Western States FQPA Coalition will ask EPA to remove nonfood and nonfood-type uses from risk cup calculations in an issue paper being prepared by the group, reports the American Crop Protection Association (ACPA). Nonfood uses include sod production, ornamental nursery stock, and crops grown for seed. The position paper maintains nonfood uses do not pose dietary risk and that their removal from the process would allow for more efficient implementation of FQPA.

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FQPA Letter Offer The Dialogue Continues

FQPA Implementation won't go away and neither should we! We need to keep emphasizing a scientific and realistic process to Congress. Joel Jackson, FGCSA Director of Communications will prepare a letter to your representative and senators for your signature on your club's letterhead. Just send three sheets of your club's letterhead and a self-addressed stamped envelope to Joel Jackson, FQPA, 6780 Tamarind Circle, Orlando FL, 32819. The letters will be returned to you for your signature and mailing to your legislators to keep the pressure on EPA to use good science and common sense in enacting the law.