THE DRAGUN CORPORATION'S
ENVIRONMENTAL MINUTE
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Dr. Michael Sklash

Mike is a hydrogeologist with a passion for getting things right the first time through critical analysis of the data. He also isn't afraid to buck conventional thought, when necessary. Mike brings these two characteristics to every environmental project he touches.

Mike has a deep and broad background in hydrogeology, formed from a demanding geological engineering undergraduate degree, followed by a Ph.D. from the world-class hydrogeology program at the University of Waterloo. Mike's 15-year academic career prior to consulting served to further broaden his knowledge, hone his communication skills, and learn to teach the unteachable topics.

Multiple Lines of Evidence

Convincing Regulators and Courts of Your Position

It doesn't matter how convincing we believe the data are in demonstrating that our client is not responsible for a release. What really matters is our ability to convince the regulators and the courts that the data clearly demonstrate our position. Multiple lines of evidence is the approach Dr. Michael Sklash has used on projects for nearly 30 years. So for this environmental minute, we asked Dr. Sklash how he developed this discipline and to give us a practical example of how this works on a project.

When I did my Ph.D. a few decades ago at the University of Waterloo, I was both lucky, and not-so-lucky, to have an amazing doctoral committee. Amazing means (1) it was an unusually big committee and (2) it offered a wide range of expertise. Bob Farvolden, my thesis advisor, was one of the first hydrogeologists in the modern era. He completed some of the first hydrogeological evaluations of landfills. Bob's expertise was in water supply, and he taught me a lot about that. My committee members included: Peter Fritz (environmental isotopes), Emil Frind (computer modeling), John Cherry (pioneer in contaminant hydrogeology), and Bob Gillham (unsaturated flow). Did I forget anybody? Yes, Hugh Whitely, a surface water expert from the University of Guelph, was my external examiner.

It's obvious why I was lucky to have this committee. The not-so-lucky aspect (at that time) was that I had to know all of these aspects of hydrogeology for my thesis, plus more. While a burden at the time of my graduate work, it has been a blessing in my career.

Whenever I can, I integrate as many approaches as possible to solve a hydrogeologic problem. In a very recent court case, an exasperated, opposing attorney rhetorically asked me,"How can you be so sure about everything?" I didn't answer, but it has to do with my passion for getting things right the first time and my approach to each problem in a multidisciplinary manner.

Courts, regulators, and clients rarely articulate exactly why they like my arguments. A couple of years ago, a regulator on a project did just that. We were brought in to unravel a project that had languished a long time, cost the client a lot with no foreseeable end, and was gaining new interest from the regulators.

First, we did a peer review of the existing data. We re-evaluated the groundwater flow data (the previous consultant did not really understand what was

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happening), we re-examined existing groundwater chemistry data (we noticed two distinct chemistries in the groundwater), and re-examined the existing soil chemistry data (we saw that the soil was impacted at different elevations on the east and west sides). We also gathered a limited amount of new data on groundwater flow direction trends, chemical ratios, and isotopes to come up with a new interpretation of the site. We re-examined the site historical records because something seemed suspiciously out of place.

What we presented to the regulator was a very different interpretation of the site conditions than were on record. We suggested that our client was not responsible for soil and groundwater contamination on the west side of the property – we were convinced this contamination originated from an offsite source. And, in the end, we convinced the regulator that we were correct.

The regulator said he would not have believed us if we hadn't come up with six reasons why our 'client should be done with this site:

(1) The groundwater chemistry data clearly indicated another, older release of gasoline on our client's property. We knew exactly when our client's release occurred because it was the result of a tank overfill.

(2) The soil chemistry data clearly indicated the other release occurred when the groundwater was at a different elevation than when our client had their release – groundwater at the site fluctuates with the adjacent lake level.

(3) Continuous groundwater elevation data from data loggers allowed us to monitor groundwater flow directions (which changed up to 180 degrees due to the lake-level variations in the adjacent lake and a leaking sanitary sewer) and to identify a groundwater divide on the site. The divide clearly indicated the other release originated from offsite.

(4) The previous review of site history was faulty – there was an old tank below a building adjacent to our client's property – not several blocks away, as previously reported.

(5) We knew how much gasoline was released during the overfill. Data obtained by the remediation consultant indicated there was four times more gasoline that had affected the soil.

(6) A soil gas survey showed that gasoline odors (identified in a previous report) in the sewer pump station should no longer be an issue.

(7) The impacted groundwater west of the site was not our client's responsibility, as previously suggested by the regulator, due to the other release. The re-evaluation of the historical site conditions uncovered this previously unidentified source. Our client did not need to delineate or remediate that problem.

We were able to close the site in under two years…mostly because I was lucky, and not-so-lucky, to have an amazing and varied thesis committee.

Dragun Corporation
Environmental Advisors

As with many of our projects, this site closure began as a peer review. If you would like more information about peer reviews and how this might be a good way to assess your current site investigation/remediation efforts, contact Dr. Michael Sklash (msklash@dragun.com) at 248-932-0228.

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