

AGRICULTURAL CHEMICALS SUBCOMMITTEE MEETING RECORD

TIME AND DATE:

10:30 AM, January 13, 2005

LOCATION:

TCEQ, Park 35, Building B, Room 201A, Austin, Texas

PURPOSE OF MEETING:

The FY05 Second Quarter Meeting of the Agricultural Chemicals Subcommittee of the Texas Groundwater Protection Committee.

ATTENDEES:

AGENCIES

Texas Department of Agriculture [TDA]
Texas Commission on Environmental Quality [TCEQ]
Texas Water Development Board [TWDB]
Texas Cooperative Extension [TCE]
Texas State Soil & Water Conservation Board [TSSWCB]
Texas Structural Pest Control Board [TSPCB]

REPRESENTATIVES

Steve Musick	Chair, Member, TCEQ, Austin
Ambrose Charles	Member, TDA, Austin
Janie Hopkins	Member, TWDB, Austin
Bruce Lesikar	Member, TCE, College Station
Richard Egg	Member, TSSWCB, Temple
Jeff Isler	Member, TSPCB, Austin

AGENCY STAFF

Joe Peters	TCEQ, Austin
Alan Cherepon	TCEQ, Austin
Susy Loftus	TCEQ, Austin
Lynne Fahlquist	USGS, Austin
Richard Eyster	TDA, Austin

INTERESTED PARTIES

Ed Baker	Syngenta Crop Protection, Mineola
Denise Geutsch	Syngenta Crop Protection, Austin
Rex Martin	Syngenta Crop Protection, Springfield, MO

MEETING SUMMARY:

I. Opening Remarks

The Chairman of the Agricultural Chemicals Subcommittee, Mr. Steve Musick (TCEQ), called the meeting to order. He welcomed everyone to the meeting. Two Subcommittee members were absent: Allan Jones (TAES) and Barry Miller (TAGD), and Richard Egg represented Kevin Wagner (TSSWCB). Following the self-introductions, Mr. Musick proceeded to the Task Force Reports.

II Task Force Reports

Site Selection Task Force: Janie Hopkins (TWDB), the Task Force Chair, provided a brief summary of work the TWDB is planning to perform before the end of the calendar year. The TWDB is presently conducting water level measurements in wells thru February. During the 2004 fiscal year, the TWDB, High Plains Underground Water Conservation District #1, and the Panhandle Groundwater Conservation District collected a combined 583 well samples, with 393 of these from the Ogallala, 93 from the Dockum, and the rest in various other aquifers. The TWDB will continue with the cooperative monitoring program in the Gulf Coast aquifer, where priorities will include counties with previous detects of atrazine or metolachlor, and where few or no samples have been collected. The TWDB will begin sampling again around March, estimating between 500 and 600 samples will be collected. Ms. Hopkins added that the USGS will do some well sampling in the counties east of Houston. The USGS will sample some 30 wells. Hopefully, the USGS may also pull samples for TCEQ to do immunoassays for atrazine and metolachlor.

Alan Cherepon (TCEQ) summarized scheduled pesticide monitoring activities of the TCEQ. The TCEQ will conduct two monitoring trips to the Panhandle region, with one in April/May, and the other in July. One of these trips will include screening all of the nearly 100 wells in the City of Amarillo PWS system. The TCEQ is also considering whether it will be workable to perform laboratory analyses for the compounds that are cross-reactive with atrazine in the immunoassay analysis for this fiscal year. The annual immunoassay sampling refresher training for the TWDB sampling team will also be conducted by TCEQ in late January or early February.

Ms. Hopkins indicated the TWDB will add perchlorate to their suite of compounds they analyze for this year, in response to concerns expressed to them by Senator Kay Bailey Hutchinson. This resulted from (an article in USA Today on 1/10/05, commenting on)* findings by the National Academy of Science, but the article did not mention any of the recent work and findings in the Panhandle by Dr. Rainwater at Texas Tech University.

* The source, an article in USA Today article, was not actually mentioned during the meeting, but was instead, relayed to Mr. Cherepon by Ms. Hopkins the week following the meeting, for the purpose of clarifying this point and the source for the record presented here.

Education Task Force: The Task Force Chair Dr. Bruce Lesikar (TCE), reported that Dr. Dana Porter (TCE, Lubbock) completed the educational curriculum and outreach materials,

which include addressing atrazine in groundwater issues in the Panhandle. He will provide presentation summarizing the curriculum later in the agenda. Montey Dozier conducted a water well screening/sampling events, and watershed protection and well plugging education events this quarter, with 3 screening events in El Paso, Kendall, and Hutchinson Counties, a cluster of education meetings in Bastrop/Caldwell, Robertson/Limestone/McLennan/Falls, Fannin/Red River/Lamar, and Colorado Counties. Mr. Cherepon added that the TCEQ has received Dr. Porter's curriculum package, which Dr. Lesikar will present later in the agenda. County agricultural agent training will be conducted on 3/22/05 in Amarillo, and on 3/23/05 in Lubbock. The plan is to tie the training into Continuing Education Units (CEUs) for pesticide applicator licensing, certified crop controllers.

No other Task Forces had anything new to present.

III. Business Items for Discussion and Possible Action

Revised FY05 Groundwater Monitoring Plan

Alan Cherepon provided a summary and handouts on the revised FY05 Monitoring Plan. There were only two changes to the proposed plan, along with verifying three sites under task III of the Plan. Under task I, the Gulf Coast aquifer was added to the Cooperative efforts, with a concentration on counties with little or no well coverage in previous years, and those areas in with previous detects. Under task II (on-going monitoring), screening the City of Amarillo for atrazine and metolachlor was moved up to the number three slot, since TCEQ plans on screening their entire system. The systems under task III were verified as being groundwater sources, and upon further scrutiny of available data, there were found to be two separate areas (both in the Edwards aquifer) in the Bexar Municipal Water District (BMWD) that should be sampled when time and funding are available. Additionally, task IV (screening the City of Amarillo's water supply system by immunoassay analysis) will be removed from the plan, since it is already included under task II.

Mr. Musick asked the subcommittee if there were any further questions or comments, and seeing none, stated that the plan would be adopted as final.

IV Information Exchange

a. Hale County Airport Update

Susy Loftus of TCEQ's Remediation Division, Superfund Site Discovery and Assessment Team, provided a preliminary (QA/QC not yet finalized) summary of investigated work her team conducted at the Hale County Airport in Plainview this past summer. The purpose of their work was to investigate a contaminated site which was impacting a PWS well, identify Potential Sources of Contamination (PSOCs), and score the site for Superfund determination, or recommend additional work prior to doing so. The team sampled the three nearby PWS wells (Plainview #16, 17, and 18, and airport monitoring wells (Miller Flying Service) MW-3, 4, and 5, as well as seven soil samples in the area of the wells and PSOCs. Only PWS well 16 and MW-4 had atrazine detects, with MW-4 having the highest concentrations. Only one soil sample, at the end of the taxi area, had an atrazine detect, while soil samples from other, more

promising areas of suspected pesticide activity, had no detects. Toxaphene, DDD, DDE, DDT, and Dieldrin were also detected in most of the soil samples, while lindane was detected in one of the airport monitoring wells and in PWS well 16. One of the monitoring wells also detected DDD, DDE, and DDT. Samples were analyzed at the EPA regional lab to parts per trillion concentrations.

The investigators initially identified the site as a Plainview groundwater plume, but with the limited amount of information, could not define a specific PSOC at present. There will likely be a recommendation for additional investigation work, especially since the former aerial applicator area on the other side of the airport (south) has yet to be investigated. Since the source is yet to be defined/identified, the TCEQ will likely propose additional investigation work.

The summary was followed by a question and answer time. Someone asked how and why does a site like this get an investigation, what determines this. Ms. Loftus said there was atrazine detected in a PWS well at or near the MCL, indicating a source for the atrazine, and the well as the receptor. At that time, these facts triggered the remediation investigation team to do the investigation to determine what the next step is. Ed Baker (Syngenta) asked what the atrazine concentration was in the one soil sample detection (it was 73.8 ppb), and do we know the last known date of aerial applicator use at the airport. Mr. Cherepon wasn't sure of the date, but it would have been at least as recent as the 1980s. Ms. Loftus added they would most likely investigate all PSOCs in the area, such as the quarries/landfills, cemetery, etc. Ambrose Charles (TDA) asked when the report would be available, and it was indicated to be in about one month or so. Rex Martin (Syngenta) commented that atrazine would not likely remain in the soils that long, having a half life of about 400 days for soils, regardless of the 10-20 year half life in groundwater the University of Nebraska study indicated.

b. Interagency Pesticide Database

Joe Peters (TCEQ) provided a handout and summary on updating activities for the Interagency Pesticide Database. There are three data sources which require additional data entry work;

- The Cooperative atrazine and metolachlor data has mostly been entered for the past year, but the well data still needs to be entered or imported from the TWDB database
- LCRA laboratory data (already in electronic format) from TCEQ sampling activities this past year (most wells already have well data entered for them, as these are primarily re-samplings)
- USGS groundwater monitoring data, which came in an ASCII file in the form of an un-normalized spread sheet, needed extensive restructuring to fit the format of the IPD.

The plan is to finish updating the database through the 2004 fiscal year and draft a report by the end of the 2005 fiscal year. Mr. Musick asked about the currency of the USGS data, and if it included the Edwards aquifer data from the San Antonio area. Dr. Peters wasn't sure. Mr. Musick followed-up by asking Ms. Fahlquist how long it takes for the USGS to release data once sampling is completed. Ms. Fahlquist replied that it would depend on the amount of data, project and analytical scope and such. If the TCEQ would run any requests thru her, she would see that all available pesticides in groundwater program data is provided for the IPD. Mr.

Musick asked if the High Plains and Edwards aquifer NAWQA data is available. Ms. Fahlquist wasn't sure about the High Plains data, but that the Edwards aquifer data from 1998/1999 should be available by now, and to send all data requests thru her. Ms. Hopkins mentioned that TCEQ uses Paradox database software, and asked if they have Access software. Mr. Musick said only certain programs and people had Access availability at present.

c. Atrazine Trends in the High Plains Aquifer

At the previous meeting, several comments and questions were made regarding possible relationships between atrazine concentrations and precipitation, and between propazine and atrazine concentrations. Suggestions were made to further review available data, and assess whether obvious patterns or relationships can be seen. The following items were summarized by Mr. Cherepon's reply and handout in response to these questions and comments;

- There is no potential for interference between propazine and atrazine when analyzing with analytical laboratory methods. (There are cross-reactivities in the Immunoassay method.)
- Looking at long term trend graphs for sites for which we have long-term data (Tulia, Friona, etc.), there are no obvious seasonal patterns in atrazine detections for PWSs.
- Some vague potential patterns may exist for three wells, but monthly atrazine analyses data would be required to compare with monthly precipitation data to determine a more definitive answer. The issue will be revisited next fiscal year since some data indicate a decrease in atrazine during a wetter year.
- Pumping data for individual wells most often is not available; and it is suspected that such detailed data would be of little use, since it is known that the systems pump much more during the hot, dry summer months, and yet there is no seasonal pattern indicated in the available data.
- Plainview Well 16 showed a substantial drop in atrazine when the well was off-line for nearly two years, and a marked increase again when it was put back on line, indicating high volume PWS wells that pump regularly are more apt to draw in contaminants from nearby plumes.
- Propazine has been subject to some off-label use on cotton in the Panhandle, and a map of labeled use in 1979 indicates relatively widespread usage in the region at that time.
- Propazine (and simazine) is an atrazine manufacturing by-product, present in the final formulation at up to three percent (University of Nebraska).
- Atrazine and propazine have similar half-lives, mobilities, and toxicity mechanisms.
- Early propazine detects in the Texas Panhandle, from PWS monitoring by the Public Drinking Water Section of TCEQ, because they were only identified as Tentatively Identified Compounds (TICs), were considered questionable at the time; but recent detections from PMP monitoring, indicating the presence of propazine at low levels over a large area of the Panhandle, suggest that the early detects were probably of significance.
- Comparison of atrazine and propazine concentrations in the same samples indicates no obvious relationship. Since potential sources can be from formulation, regular propazine use, and off-label use, no pattern is anticipated.
- A study by the University of Nebraska, carried out over a 6 year period on 14 pesticides,

- indicated that the transformation products were mostly triazines and acetamides.
- Atrazine half-life in groundwater is estimated to be from 10-20 years.
 - The potential presence of propazine in small amounts in atrazine formulations is one explanation as to why it sometimes shows up where propazine is not used.
 - In one groundwater study, metolachlor primary degradates were found in 99% of the samples, contributing more mass than any other pesticide in the study. Thus, if one is not analyzing for metolachlor metabolites, one may not be really monitoring adequately for metolachlor.
 - Alachlor may be similar, with a need to analyze for its metabolites to get a full picture of any contamination problem.
 - iRED uses Total Chlorotriazines (TCTs), which includes chlorinated metabolites, propazine, and simazine, all of which have similar toxicity mechanisms. For this reason metabolite analysis will likely to be required in any PMP Final Rule.
 - Texas should consider analyzing for selected chlorinated metabolites for atrazine, alachlor, simazine, and metolachlor, depending on whether the EPA approves standard analytical methods for these, whether these methods will be available through local labs, and if sufficient funding will be available.

Following the reading of these items, Mr. Musick requested Mr. Cherepon explain some of the attachments provided to the subcommittee members. The instruction sheet that is provided with every immunoassay kit for atrazine includes a table of cross-reactive compounds that interfere with the analysis, making this a non-specific analysis. Mr Cherepon reported that Fernando Rubio, the president of Abraxis, the immunoassay kit manufacturing company, indicated to him that if lab analyses were conducted for all potential cross-reactive compounds in the table, the percentage estimates could be back-calculated for the percentages of each detected in the immunoassay analytical results. This would provide the ACS members with a better understanding of what the immunoassay analyses are actually detecting for atrazine, and the metabolite data could potentially be used as an estimate of age of the groundwater contamination.

The atrazine versus precipitation graphs over time were difficult to read. Mr. Cherepon walked the subcommittee through an interpretation of one of the graphs, for Plainview. He explained which values represented the precipitation vs atrazine and where the highs and lows were for each. It was hypothesized that, as wet a year as 2004 was, if there were a relationship between precipitation amount and atrazine concentration, it should have shown up. Instead, the graphs indicated that atrazine concentrations were actually lower than in previous drier years. Ms. Fahlquist asked if we could expect to see this quick a response of a well to precipitation. Mr. Cherepon said that only if there was an abandoned well nearby or if the well had integrity problems, due to age or poor construction, allowing surface contaminants to migrate down the well bore or casing. Even if there were natural preferential pathways, it would be expected to take at least a year or two for migration from the surface to reach the water table. Additionally, since there were only two sampling events per year, monthly monitoring of atrazine levels would be required to more adequately and definitively determine whether there is any real quick well response to precipitation. Otherwise, there does not appear to be any obvious seasonal or precipitation effect on atrazine concentrations. Ms. Fahlquist suggested that application

amounts, times, and pumpage data be added to the comparisons, which may provide a better correlation, but since there doesn't appear to be any seasonal correlation, and almost all the samples were collected in spring or summer, it is doubtful this would serve any purpose.

d. iRED Atrazine Triggers and Analytical Methods

Mr. Cherepon also provided a handout and summary of the Atrazine iRED triggers and analytical methods to the subcommittee. These were as follow;

- The atrazine interim Reregistration Eligibility Decision (iRED) of 1/03 and Addendum of 10/03 contain various atrazine-related triggers different from MCLs, which take precedent.
- The PDW program uses the 3 ppb MCL for atrazine to compare with the average concentration of 4 consecutive 1/4 samples, taken from entry points (finished water, not raw).
- PMP uses a confirmed detection to compare against the 3 ppb MCL for any well.
- TMDL uses the 3 ppb MCL also.
- The CWA/SDWA 3 ppb MCL takes precedent on MCL or 303d/TMDL violations.
- iRED focuses on surface water, but will address groundwater.
- Community Water Systems (CWS) that have already exceeded the Drinking Water Level of Comparison (DWLOC) for infants <1 year old already are scheduled for more intense monitoring (weekly during application period, every other week for the rest of the year). These Systems are called index sites.
- iRED analyzes for Total Chlorotriazines (TCTs), which is a sum of atrazine, propazine, simazine, and their chlorinated metabolites, all of which have similar toxicity mechanisms.
- There are three trigger concentrations in the iRED program; 12.5 ppb, 2.6 ppb, and 37.5 ppb.
- The 12.5 ppb 90-day average for finished water is a DWLOC screening trigger to identify CWSs with potential high-end seasonal exposures. An exceedence of this trigger will initiate intense monitoring.
- The 2.6 ppb Annual average for raw water samples, will trigger frequent monitoring of a CWS, and if detected twice in any watershed, will move that watershed into mitigation.
- The 37.5 ppb 90-day average in raw water samples, is for CWSs that are already being intensely monitored, and if the 90-day average continues above this level, atrazine use will be prohibited in that watershed. (This is the only trigger that can result in the prohibition of atrazine use.)
- Once intensive monitoring begins, it must be continued for a 5-year period, and can cease after the 5-year period if no 90-day average exceeds the 37.5 ppb level.
- The Registrant must supply EPA with annual reports and notify EPA within 30 days of any exceedences.
- The Registrant is also responsible for developing a well monitoring program for rural drinking water wells that exceed the level of concern of 12.5 ppb, and should have developed the protocol for this program by 4/30/03, indicating the number of wells, frequency of sampling, duration of monitoring, timing of sampling, and timing of submission of data to the EPA.

- The most important thing is that these triggers don't supercede the 3 ppb MCL for the CWA/SDWA or the 303d/TMDL violations.

Following the summary, Mr. Musick asked what analytical methods were used for the iRED monitoring. Mr. Martin (Syngenta) said they primarily used immunoassay, with about 10% of the samples verified by laboratory analysis by Syngenta GC/MS Method 2070-02. They may make some tweaks to the methods as a result of cross-reactivity. Monitoring began in 2003, and there have been no detects >37.5 ppb TCTs in Texas. One issue that needs to be resolved with EPA is that a system can be removed from the intensive monitoring, and in the same year, get right back on it, due to analytical results. Mr. Musick is concerned that the TCEQ uses immunoassay for atrazine/triazines, while the iRED uses immunoassay and lab analyses for TCTs, using different methods and having different triggers and what is actually being analyzed for. He wants to see if the two programs can get coordinated for comparison purposes, and needs to know whether either one needs to make changes. Mr. Cherepon added that four of the cross reactive compounds can be analyzed under the 525.2 method currently used by TCEQ for the FIFRA grant monitoring, and TCEQ will look into adding these compounds to the 525.2 suite, as well as analyzing for metabolites in the next year or two.

e. TCE BMP Education and Training Project Update

Bruce Lesikar (TCE) gave a presentation on the TCE Best Management Practice Education and Training Project. The BMP training will primarily be aimed for the Panhandle region. The materials for the curriculum package are being developed by Dana Porter (TCE) in Lubbock, and Montey Dozier in College Station. The curriculum and training materials are for the training of county agricultural agents, and will be used as wells for the training of licensed pesticide applicators, certified crop protectors, and others. The materials are in a modular format, which will enable trainers to pick and choose the specific subject matter for that particular audience. This includes hard copy materials, discussion questions, reference and supplemental materials, and an extensive CD containing all the same materials and presentations. The training is aimed at raising the awareness pertinent audiences to the problems and solutions of pesticides in groundwater, especially atrazine detections in the Panhandle region. The curriculum is divided into five sections;

- Groundwater contamination in the High Plains aquifer, Potential sources, transport mechanisms, and BMPs
- Migration pathways from surface to water table
- Storage, handling, and mixing of pesticides
- Well head protection and abandoned wells
- BMPs for the application of pesticides to reduce risks to ground and surface water.

Most County Agents have expressed a preference for the material in the CD format, it being a compact way to keep and distribute the information. Presentations will take place in Amarillo on 3/22/05, and in Lubbock on 3/23/05. These training exercises, initially aimed at county agricultural agents, will be used to improve the delivery for specific audiences, and determine what changes or additions may be needed.

V. Public Comment

None

VI. Announcements

Ms. Fahlquist announced that the USGS will be conducting a planning meeting at UTSA in San Antonio on 2/2/05 for pre-NAWQA sampling of PWS wells in the San Antonio area in March/April/May FY05.

The decision was made by the Texas Groundwater Protection Committee that the FY05 third quarter meeting of the Agricultural Chemicals Subcommittee will take place on 4/27/05 (a Wednesday) at 10:30 a.m., in TCEQ Building F, Conference Room 2210.

VII. Adjournment

Recorded and transcribed by Alan Cherepon.

Attachments

Revised FY05 Groundwater Monitoring Plan

Interagency Pesticide Database Update Maintenance

Atrazine and Propazine Trends in the High Plains Aquifer

iRED Atrazine Triggers and Analytical Methods

Panhandle Regional BMPs Update Presentation