**UNITED STATES**
**ENVIRONMENTAL PROTECTION AGENCY**

**BEFORE THE ADMINISTRATOR**

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| **In re FIFRA Section 3(c)(2)(B) Notice of Intent to Suspend Dimethyl Tetrachloroterephthalate (DCPA) Technical Registration** | ) | |
| **AMVAC Chemical Corporation; Grower-Shipper Association of Central California; Sunheaven Farms, LLC; J&D Produce; Ratto Bros., Inc.; and Huntington Farms,** **Petitioners.** | ) | **Docket No. FIFRA-HQ-2022-0002** |

**VERIFIED WRITTEN STATEMENT OF WITNESS, STEPHEN WENTE, IN SUPPORT OF RESPONDENT'S NOTICE OF INTENT TO SUSPEND**

## I. Background

I, Stephen Wente, declare under penalty of perjury that the following statements are true and correct to the best of my knowledge and belief and that they are based upon my personal knowledge, information contained in the records of Respondent, the United States Environmental Protection Agency ("EPA"), and/or information supplied to me by EPA employees under my supervision and in other EPA offices. *See* 28 U.S.C. § 1746.

I am a Senior Fate Scientist in the Environmental Risk Branch Two ("ERB2"), Environmental Fate and Effects Division ("EFED"), Office of Pesticide Programs ("OPP"), Office of Chemical Safety and Pollution Prevention ("OCSPP"), EPA. I have served in various positions within EFED since 2007. Prior to working in EFED, I worked for the U.S. Geological Survey (part of the Department of the Interior) starting in 2002. Additional previous work experience and education details are included in my curriculum vitae, which is attached to this declaration.

EFED is the division within OPP assigned with the responsibility to evaluate and validate environmental data submitted on pesticide properties and effects, as part of the re-evaluation required for conventional pesticides that are currently registered under the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA"). EFED contains six Ecological Risk Branches identified as ERB1 through ERB6. ERB2 is the Ecological Risk Branch to which DCPA is assigned.

Part of EFED's responsibility includes preparing the Ecological Risk Assessments ("ERAs") and Drinking Water Assessments ("DWAs") for the periodic "registration review" of conventional pesticides as required by section 3(g) of FIFRA, 7 U.S.C. § 136a(g). The ERAs prepared by EFED are used by the Registration Division ("RD") and Pesticide Re-evaluation Division ("PRD") as part of the basis for their registration and re-evaluation risk management decisions considering the environmental impacts of each pesticide's use. The DWAs provide drinking water exposure estimates that are used by the Health Effects Division ("HED") in its human health risk assessments, which are used by RD and PRD as part of the basis for their registration and re-evaluation risk management decisions considering the human health impacts of each pesticide's use. EPA's essential responsibility under registration review is to review each registered pesticide at least every 15 years to determine whether it continues to meet the FIFRA standard for registration, which is clearly laid out in 40 C.F.R. § 155.40(a).

This verified statement is filed in support of EPA's April 28, 2022 Notice of Intent to Suspend ("NOITS") Petitioner AMVAC Chemical Corporation's ("AMVAC") registered pesticide product, Technical Chlorthal Dimethyl (EPA Registration Number 5481-495), containing the active ingredient dimethyl tetrachloroterephthalate ("DCPA"). This verified statement constitutes my direct statement as a fact witness in the hearing prompted by

AMVAC's May 27, 2022 Request for Hearing, pursuant to the Presiding Official's June 3, 2022 Order Scheduling Hearing and Prehearing Procedures.

## II. Series 835 Transformation in Water and Soil Studies

As laid out in Respondent's June 13, 2022 Motion for Accelerated Decision, and the supporting Memorandum, additional data on transformation in water and soil studies were necessary for EPA to complete registration review. Transformation in water and soil studies indicate how long the residues of concern (*i.e.,* pesticide residue and other chemicals that form due to the pesticide's degradation that may be of toxicological concern) from a pesticide persist in the environment under the specific study conditions (the specific study conditions simulate specific environmental conditions such as aerobic and anaerobic[1] aquatic conditions or anaerobic soil conditions). Longer persistence typically results in more potential for ecological and human health exposures.

There are three residues of concern for DCPA that are considered in both the ERA and DWA. These residues of concern are the parent chemical DCPA, the daughter transformation product MTP (Monomethyl tetrachloroterephthalate), and the granddaughter transformation product TPA (tetrachlorophthalic acid). Because the degradation of DCPA simply forms MTP and the degradation of MTP simply forms TPA, it is only when TPA finally degrades that environmental exposure to the 'residues of concern' actually decreases.

[1] Aerobic means "in the presence of molecular oxygen", whereas anaerobic means "in the absence of molecular oxygen". An aerobic aquatic study simulates conditions in the upper portions or near the surface of a waterbody where oxygen is abundant. An anaerobic soil study simulates conditions in soils that become saturated with oxygen-depleted water, whereas an anaerobic aquatic study simulates conditions in or near the bottom sediment in a waterbody where oxygen is limited. Often the rate of chemical transformations can vary with the presence or absence of oxygen.

Aerobic and anaerobic soil metabolism data are required in 40 C.F.R. § 158.1300. Those data requirements can be satisfied by OPPTS[2] Guidelines 835.4100 and 835.4200. Some pertinent aspects of the guidelines are described in Section 5 'Sampling and measurements' on page 8 of the combined guideline 835.4100 and 835.4200 document:

> *Time intervals should be chosen in such a way that pattern of decline of the test substance and patterns of formation and decline of transformation products can be established (e.g., 0, 1, 3, 7 days; 2, 3 weeks; 1, 2, 3 months, etc.).*

And in a Section titled 'Test duration' on page 11:

> *When necessary to characterize the decline of the test substance and the formation and decline of major transformation products, studies can be continued for longer periods (e.g., 6 or 12 months) (see paragraph (j)(9) of this guideline).*

Similarly, aquatic metabolism data are required in 40 C.F.R. § 158.1300. Those data requirements can be satisfied by OPPTS Guidelines 835.4300 and 835.4400. Relevant to the DCPA DCI, Section 4 'Test duration and sampling' on page 12 states:

> *The study should be conducted until the decline of parent and the formation and decline of the degradates are established.*

Studies were submitted that show these transformations from the DCPA to MTP and MTP to TPA, but do not conclusively show the degradation rate at which TPA degrades in the environment. The available data suggests that TPA is more persistent than DCPA and MTP. While no major (>10% formation) degradate has been observed beyond TPA, these studies would also confirm that there are no additional residues of concern forming as TPA degrades.

[2] OCSPP Guidelines were formerly designated as "OPPTS" guidelines based on the previous name of the relevant EPA Office. EPA is in the process of updating these references but the Guideline numbers referenced in this Statement have not yet been updated. The substantive content of the guidelines is the same.

Because the Agency needs to establish rates of degradation for the granddaughter product TPA, the Agency has required, in the DCI, metabolism studies for that degradate. Conducting these studies with TPA as the starting material provides a greater chance that the rate of degradation can be measured within a reasonable study duration.

## III. Guideline No. 835.4200, Anaerobic soil metabolism, TPA

As indicated in the Respondent's June 13, 2022 Motion for Accelerated Decision, the January 31, 2013, DCI required the citation or submission of a study of the anaerobic degradation of TPA in soil. On April 29, 2013, AMVAC cited an existing study, EPA Master Record Identification number ("MRID") 114651, in support of this data requirement. JX 5 at 20-21. On February 7, 2017, EPA classified MRID 114651 as supplemental and required the submission or citation of additional data to satisfy this requirement of the DCI. EPA-HQ-OPP-2011-0374-0051, JX 77. After receiving no response from AMVAC, EPA notified AMVAC in the October 16, 2020 Data Delay Letter that this DCI data requirement remained outstanding, and asked how AMVAC intended to satisfy the requirement. EPA-HQ-OPP-2011-0374-0013, JX 21. On December 17, 2020, AMVAC submitted a data waiver request, arguing that compounds similar to TPA are initially stable in anaerobic environments but do degrade after a lag period and that, because "TPA is relatively innocuous to mammalian and aquatic life," no data responsive to Guideline No. 835.4200 are necessary for EPA to complete registration review of DCPA. MRID 51398102. On April 27, 2022, EPA denied AMVAC's data waiver request, noting that an anaerobic soil metabolism test of sufficient duration to derive a reliable anaerobic soil half-life for TPA degradation was needed to satisfy the data requirement. EPA-HQ-OPP-2011-0374-0014. While the guidance for developing anaerobic soil metabolism data indicates that test duration typically should not exceed 120 days, it indicates that a study of longer duration may be

needed to characterize the decline of the test substance and formation and decline of major transformation products. Counter to AMVAC's statements in its data waiver request, the Agency does not have sufficient information on the toxicity of TPA to conclude that it is "innocuous" in the environment. This data requirement remains outstanding.

## IV. Guideline No. 835.4300, Aerobic aquatic metabolism, TPA

As indicated in the Respondent's June 13, 2022 Motion for Accelerated Decision, the January 31, 2013 DCI required the citation or submission of a study of the aerobic degradation of TPA in aquatic environments. On April 29, 2013, AMVAC submitted a data waiver request, arguing that it would prefer to defer completing this study for TPA until similar data for DCPA was generated. MRID 49115401, JX 5 at 21. AMVAC also proposed that EPA assess the risks from TPA using DCPA data. On March 21, 2014, EPA denied AMVAC's data waiver request, noting that TPA is a major degradate of DCPA, that DCPA has up to a 100% conversion rate to TPA in the environment, and that the required data are critical to understand the degradation pathway of DCPA. EPA-HQ-OPP-2011-0374-0049, JX 66. After receiving no response from AMVAC, EPA notified AMVAC in the October 16, 2020 Data Delay Letter that this DCI data requirement remained outstanding, and asked how AMVAC intended to satisfy the requirement. EPA-HQ-OPP-2011-0374-0013, JX 21. On December 17, 2020, AMVAC disputed EPA's reasons for denying the data waiver request but did not submit the required data or provide any new or additional evidence supporting its data waiver request. JX 22. EPA did not consider AMVAC's contestation of the waiver request denial to constitute a second waiver request. This data requirement remains outstanding.

## V. Guideline No. 835.4400, Anaerobic aquatic metabolism, TPA

As indicated in the Respondent's June 13, 2022 Motion for Accelerated Decision, the January 31, 2013, DCI required the citation or submission of a study of the anaerobic degradation of TPA in aquatic environments. On April 29, 2013, AMVAC submitted a data waiver request arguing that EPA could estimate anaerobic aquatic metabolism as two times the anaerobic soil metabolism half-life. MRID 49115401, JX 5 at 25-26. On March 21, 2014, EPA denied AMVAC's data waiver request, noting that TPA is a major degradate of DCPA, that DCPA has up to a 100% conversion rate to TPA in the environment, and that the required data are critical to understand the degradation pathway of TPA. EPA-HQ-OPP-2011-0374-0049, JX 66. It is my understanding that AMVAC did not receive notice of EPA's denial of the waiver until March 17, 2017. On February 22, 2018, AMVAC requested that EPA reconsider its data waiver request after the Agency reviewed data from studies of DCPA metabolism in aerobic soil either previously submitted or planned to be submitted in response to other DCI requirements. MRID 50533512. In the October 16, 2020 Data Delay Letter, EPA notified AMVAC that the waiver request was still denied and that this DCI data requirement remained outstanding, and asked how AMVAC intended to satisfy the requirement. EPA-HQ-OPP-2011-0374-0013, JX 21.

On December 17, 2020, AMVAC submitted another data waiver request, arguing that TPA is stable until DCPA has been used in a given area over a period of several years, as populations of microorganisms capable of breaking down TPA would be likely to increase after repeated exposure. MRID 51398102, JX 22. On April 27, 2022, EPA denied AMVAC's second data waiver request, noting that an anaerobic aquatic metabolism study of longer-than-standard duration is required to quantify a half-life of TPA in aquatic environments. EPA-HQ-OPP-2011-0374-0014. This data requirement remains outstanding.

## VI. Conclusion

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Stephen P. Wente

Digitally signed by Stephen P. Wente
Date: 2022.06.17 16:12:26 -04'00'

Stephen Wente
Senior Fate Scientist
Environmental Risk Branch 2
Environmental Fate and Effects Division
Office of Pesticide Programs
Office of Chemical Safety and Pollution Prevention
U.S. Environmental Protection Agency

***In re FIFRA Section 3(c)(2)(B) Notice of Intent to Suspend Dimethyl Tetrachloroterephthalate (DCPA) Technical Registration***
AMVAC Chemical Corporation; Grower-Shipper Association of Central California; Sunheaven Farms, LLC; J&D Produce; Ratto Bros., Inc.; and Huntington Farms, Petitioners.
Docket No. FIFRA-HQ-2022-0002

**CERTIFICATE OF SERVICE**

I hereby certify that the foregoing **Verified Statement of Stephen Wente**, dated June 17, 2022, was sent this day to the following parties in the manner indicated below.

FORREST PITTMAN
Digitally signed by FORREST PITTMAN
Date: 2022.06.17 16:07:32 -04'00'

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*Counsel for Respondent*

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Dated June 17, 2022

# Stephen Paul Wente

## WORK EXPERIENCE

US Environmental Protection Agency 3/2007 - Present
Grade Level: 14
Biologist , GS
Performed Ecological Risk Assessments to assess the risk of chemicals (pesticides) to the environment as required under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). This work is performed in the Office of Pesticide Programs, Environmental Fate and Effects Division, Environmental Risk Branch 1.

U.S. Geological Survey 2/2002 - 9/2006
Grade Level: GS-12
Aquatic Biologist , 0401
Aquatic Biologist/Environmental Modeler - Managed projects describing spatial and temporal in fish-tissue mercury concentrations, a potent neurotoxin, across the U.S. (http://emmma.usgs.gov/). See publications (below): Wente, In prep.; Christensen et al, 2006; Hearn et al, 2006; and Wente, 2004.

University of Illinois 8/1998 - 2/2002
Post-doctoral Researcher
Environmental Modeler/Post-doctoral Researcher - Modeled nutrient concentrations in streamwater in Illinois and measured uncertainty in environmental models. See publications (below): Wang et al, 2002; Fang et al, 2002; Wang et al, 2001; Wente, 2000; and Watras et al, 1998.

Indiana Dept. of Environmental Management 6/1986 - 2/1993
Environmental Scientist
Office of Water Mgmt., Biological studies (2/89 – 2/93); Office of Solid and Hazardous Waste, Hazardous waste site investigations (5/88 – 2/89); Office of Solid and Hazardous Waste, Hydrogeologic investigations (6/86 – 9/86).<br/>Duties and accomplishments: Collected fish and sediment samples for chemical analysis. Collected and analyzed aquatic macroinvertebrate samples to assess “environmental health” (biological integrity). Some superfund (CERCLA) site investigation and groundwater chemistry work.

Muncie Bureau of Water Quality 6/1987 - 8/1988
Associate Chemist/Microbiologist
Associate Chemist/Microbiologist (3/88 – 8/88) – chemical and microbial analysis of water and wastewater samples. Field Biologist (6/87 – 3/88) – collected fish and insect samples for chemical and community composition analysis.

## EDUCATION

Purdue University, Forestry and Natural Resources Dept.
West Lafayette, Indiana US
Doctorate - 12/1997

Major: Fisheries and Aquatic Science
GPA: 3.42 out of 4
Relevant Coursework, Licensures and Certifications:
Dissertation: A Spatially and Temporally Variable Model of Mercury Concentrations in Aquatic Communities with Applications to Public Health Protection and Water Quality Assessment.

Ball State University, Dept. of Biology
Muncie, Indiana US
Master's Degree - 12/1996
36.6 Semester Hours
Major: Biology
Minor: Geology
GPA: 3.836 out of 4
Relevant Coursework, Licensures and Certifications:
Thesis: Optimizing Land Acquisition/Conversion Projects for Water Quality Protection and Enhancement using Biological Integrity Endpoints

Dept. of Chemistry, Ball State University
Muncie, Indiana US
Associate Degree - 2/1988
224.6 Semester Hours
Major: Chemical Technology
GPA: 3.141 out of 4

Natural Resources Dept., Ball State University
Muncie, Indiana US
Bachelor's Degree - 2/1988
224.6 Semester Hours
Major: Natural Resources
Minor: Philosophy and Psychology
GPA: 3.141 out of 4

Dept. of Biology, Ball State University
Muncie, Indiana US
Bachelor's Degree - 2/1988
224.6 Semester Hours
Major: Wildlife Biology
Minor: Chemistry and Computer Science
GPA: 3.141 out of 4

## PEER-REVIEWED PUBLICATIONS

Drenner, R. W., Chumchal, M. M., Wente, S. P., McGuire, M. and Drenner, S. M. (2011), Landscape-level patterns of mercury contamination of fish in North Texas, USA. Environmental Toxicology and Chemistry, 30: n/a. doi: 10.1002/etc.589.

Christensen, V.G., Wente, S.P., Sandheinrich, M.B., and Brigham, M.E., 2006, Spatial variation in fish-tissue mercury concentrations in the St. Croix River Basin, Minnesota and Wisconsin, 2004: U.S. Geological Survey Scientific Investigations Report 2006-5063, 26 p. (http://pubs.usgs.gov/sir/2006/5063/pdf/SIR20065063.pdf).

Hearn, P.P., Wente, S.P., Donato, D.I., and Aguinaldo, J.J., 2006, EMMMA: A web-based system for environmental mercury mapping, modeling, and analysis. U.S. Geological Survey Open File Report 2006-1086, 13p. (http://erg.usgs.gov/isb/pubs/ofrs/2006-1086/ofr%202006-1086.pdf).

Wente, S.P., 2004, A statistical model and national data set for partitioning fish-tissue mercury concentration variation between spatiotemporal and sample characteristic effects: U.S. Geological Survey Scientific Investigation Report 2004-5199, 15p. (http://pubs.usgs.gov/sir/2004/5199/pdf/2004-5199.pdf).

Wang, G., S. Wente, G. Z. Gertner, and A. Anderson 2002. Improvement in mapping vegetation cover factor for universal soil loss equation by geo-statistical methods with Landsat TM images. International Journal of Remote Sensing 23(18): 3649-3667.

Fang, S., S. Wente, G.Z. Gertner, G. Wang, and A.B. Anderson. 2002. Uncertainty analysis of predicted disturbance from off-road vehicular traffic in complex landscapes. Environmental Management. 30:199-208.

Myers-Kinzie, M.L., Wente, S.P. and Spacie, A. 2001. Occurrence and distribution of freshwater mussels in small streams of Tippecanoe County, Indiana. Proceedings of the Indiana Academy of Science 110: 141-150.

Wang, G., G.Z. Gertner, X. Xiao, S.P. Wente and A.B. Anderson 2001. Appropriate plot size and spatial resolution for mapping multiple vegetation types. Photogrammetric Engineering and Remote Sensing, 67(5):575-584.

Fisher, B., S. Wente, T. Simon, and A. Spacie. 2001. The Fishes of Tippecanoe County, Indiana (1994). Proceedings of the Indiana Academy of Sciences. 107(1-4): 151-166.

Wente, S.P. 2000. A Proximity-based Measure of Land Use Impacts to Aquatic Ecosystem Integrity. Environmental Toxicology and Chemistry, Vol. 19, No. 4(2): 1148–1152.

Watras, C.J., R.C. Back, S. Halvorsen, R.J.M. Hudson, K.A. Morrison, and S.P. Wente. 1998. Bioaccumulation of mercury in pelagic freshwater food webs. The Science of the Total Environment. 219: 183-208.

## CONFERENCE PROCEEDINGS

Wang, G., G. Gertner, S. Wente and A. Anderson 2001. Vegetation classification and accuracy assessment using image-aided sequential indicator co-simulation. American Society for Photogrammetry and Remote Sensing Annual Conference Proceedings. St. Louis, MO. April 23-27, 2001. 12p.

## REPORTS (NOT PEER-REVIEWED)

H Galavotti, LR Brown, R Miller, and SP Wente. 2008. Section 3 New Chemical Registration: Environmental Fate and Ecological Risk Assessment for Flubendiamide. Office of Pesticide Programs. 128p.

Jenkins, F. and S. Wente. 2008. Risks of Propargite Use to Federally Threatened California Red-legged Frog (Rana aurora draytonii): Pesticide Effects Determination. Office of Pesticide Programs. 137p. (http://epa.gov/espp/litstatus/effects/redleg-frog/propargite/determination.pdf).

Doelling, P. and S. Wente. 2008. Risks of Methyl Parathion Use to Federally Threatened California Red-legged Frog (Rana aurora draytonii): Pesticide Effects Determination. Office of Pesticide Programs. 96p. (http://www.epa.gov/espp/litstatus/effects/redleg-frog/methyl-parathion/analysis.pdf).

Odenkirchen, E. and S. Wente. 2007. Risks of Malathion Use to Federally Listed California Red-legged Frog (Rana aurora draytonii): Pesticide Effects Determination. Office of Pesticide Programs. 272p. (http://www.epa.gov/espp/litstatus/effects/redleg-frog/malathion/determination.pdf).

Wente, S. 1995. Cox Ditch and Otter Creek Biomonitoring Results (1991-1994). A report to the Indiana Dept. of Natural Resources, Division of Soil Conservation, Lake and River Enhancement Program and the Vigo County (Indiana) Soil and Water Conservation District. 112p.

Wente, S. 1994. Sediment Background Concentration Distributions of 172 Potential Pollutants in Indiana. A report to the National Network for Environmental Mgmt. Studies, USEPA, and the Indiana Dept. of Environmental Mgmt., Office of Water Mgmt. 78p.

## RESEARCH GRANTS

National Institute of Environmental Health Sciences (P. Hearn, S. Wente, and D. Donato). 2003-05. Development of NDMMF model and deployment on EMMMA website (http://emmma.usgs.gov/).

Illinois Council for Food and Agricultural Research, Water Quality Strategic Research Initiative (S. Wente, R. Hudson and G. Gertner). 2000-02. Statewide Mass Balance Model for Estimating Allowable N Application Rates.

Indiana Dept. of Natural Resources, Division of Soil Conservation, Lake and River Enhancement Program (S. Wente). 1994. Assessed the potential for a land treatment (erosion reduction) project to positively impact the water quality/biological integrity of Otter Creek (Vigo County, IN).

U.S. Environmental Protection Agency, National Network for Environmental Management Studies (S. Wente). 1993. Studied spatial variability in background sediment chemical concentrations of 172 potential pollutants using the Indiana Department of Environmental Management's sediment database.

## ORAL PRESENTATIONS

Wente, S., R. Hudson and G. Gertner. An Inverse Model for Determining Agricultural Watershed N Balances from Stream Nitrate Data. Exposure Modeling Public Meeting, Arlington, VA (3/11/08).

Wente, S. EMMMA: A web-based system for environmental mercury mapping, modeling, and analysis. 2006 National Monitoring Conference. San Jose, CA (5/10/06).

Wente, S., P. Hearn, D. Donato, J. Aguinaldo. Visualization of Spatial and Temporal Trends in Fish-tissue Mercury Data. Collaborative Meeting on Modeling Mercury in Freshwater Environments. Niagara Falls, NY (1/20/06).

Christensen, V.G., S.P. Wente, M.E. Brigham, and M.B. Sandheinrich. Spatial Variation in Fish-Tissue Mercury Concentration in the St. Croix River Basin in Minnesota and Wisconsin, 2004. 2005 St. Croix River Research Rendezvous. Marine on St. Croix, MN (10/18/05) (http://www.smm.org/SCWRS/rendezvous/abstracts05.php#spatial).

Hearn, P.P., S.P. Wente, D.I. Donato, J. Aguinaldo, J. Burkhardt. 2005 Annual Meeting of the Association of American Geographers, Denver, CO (4/8/05) (http://communicate.aag.org/eseries/aag_org/program/AbstractDetail.cfm?AbstractID=2454).

Wente, S. National descriptive model of mercury in fish tissue. 2004 Mercury Workshop. Reston, VA (8/17/04) (http://westnilemaps.usgs.gov/mercuryworkshop/presentations.html).

Wente, S. National Descriptive Model for Mercury in Fish Tissue. Mercury Roundtable (a large-scale [~200 participants] periodic national teleconference) (6/2/04).

Wente, S. A National Fish-Tissue Mercury Model: Implications for Monitoring Program Design. Minnesota Water 2004. St. Paul, MN (3/23/04) (http://wrc.coafes.umn.edu/Water2004/Water2004_abstracts.html#NationalFish).

Hearn, P., S. Wente, J. Aguinaldo, D. Donato, S. Price, S. Tanner, O. Rivero-Bartolomei. Model Application for Developing State Fish Advisories. 2004 National Forum on Contaminants in Fish. San Diego, CA (1/27/04) (http://www.epa.gov/waterscience/fish/forum/2004/presentations/tuesday/wente.pdf).

Hearn, P., S. Wente, J. Aguinaldo, D. Donato, S. Price, S. Tanner, O. Rivero-Bartolomei. Model Application for Developing Fish Advisories. 2004 National Forum on Contaminants in Fish. San Diego, CA (1/25/04) (http://www.epa.gov/waterscience/fish/forum/2004/presentations/sunday/wente.pdf).

Wente, S., R. Hudson and G. Gertner. Watershed-scale Nutrient Mass-balance Models as an Integral Part of Monitoring and Managing Water Quality. U.S. Environmental Protection Agency, Region 5 Nutrient Criteria Workgroup. Chicago, IL (10/4/01).

Wente, S., R. Hudson and G. Gertner. An Inverse Model for Determining Agricultural Watershed N Balances from Stream Nitrate Data. National Nonpoint Source Monitoring Workshop, Indianapolis, IN (8/30/2001).

Wente, S., D. Jones, G. Gertner and A. Anderson. Appropriate Spatial Resolution for Vegetation Cover Mapping Based on LCTA at Fort Hood, Texas. U.S. Army's ITAM (Integrated Training Area Management) 2001 Workshop. Nashville, TN (8/29/01).

Wente, S., R. Hudson and G. Gertner. Estimating Allowable Agricultural Fertilizer Application Rates to Meet N Water Quality Standards. Illinois Water 2000 Conference, Urbana, IL (11/13/2000) and U.S. Environmental Protection Agency, Region 5 Nutrient Criteria Workgroup. Chicago, IL (8/28/00).

Wente, S., D. Jones, G. Gertner and A. Anderson. Error Budgets for Predicted Disturbance Due to Training Activities at Fort Hood. U.S. Army's ITAM (Integrated Training Area Management) 2000 Workshop. Richmond, VA (8/22/00).

Wente, S., R. Hudson and G. Gertner. Modeling Spatial and Temporal Variation in the Terrestrial Nitrogen Balance at the Statewide Scale. Nitrogen Forum Seminar Series of the IL Council for Food and Agricultural Research's Water Quality Strategic Research Initiative. Urbana, IL (5/25/00).

Wente, S. Measuring Land Use Impacts to Aquatic Ecosystem Integrity Based on a Hydrologic Proximity Model. Modeling and Measuring the Vulnerability of Ecosystems at Regional Scales for Use in Ecological Risk Assessment and Risk Management Symposium. Seattle, WA (8/18/1998).

Wente, S. Monitoring Contaminant Concentrations using Fish Tissue Residue Data Sets. Presented to the Indiana Fish Consumption Advisory Committee (7/21/98), Wisconsin Department of Natural Resources (7/13/98) and Minnesota Pollution Control Agency (8/24/98).

## POSTER PRESENTATIONS

Wente, S.P. Accuracy of the National Descriptive Model of Mercury in Fish. SETAC North America 28th Annual Meeting. Milwaukee, WI (11/11-15/2007).

Wente, S.P. Use of a National Descriptive Model of Mercury in Fish in Site-specific Applications. 2006 National Monitoring Conference. San José, CA (May 7–11, 2006).

Donato, D.I., S.P. Wente, and P.P. Hearn. Modeling Mercury in Fish Tissue. 1st All USGS Modeling Conference. Port Angeles, WA (11/15/05).

Wente, S., D. Jones, G. Gertner and A. Anderson. Uncertainty Assessment For Ecological Modeling And Simulation: Error Budgets For An Erosion Model At Fort Hood. U.S. Army's ITAM (Integrated Training Area Management) 2000 Workshop. Richmond, VA (8/22/00).