

## O<sub>2</sub> Environmental Technology Assessment Group

### OIL AND GAS WATER EXPERT

## JOHN VEIL

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*John Veil is an expert in managing oil and gas produced water, flowback water from shale gas development, hydraulic fracturing, and other energy industry water issues.*

*He is the President of Veil Environmental, LLC, a water consulting practice focusing on the energy industries.*

John Veil is an expert in managing produced water and other wastewater streams associated with oil and gas production and also in power plant cooling water intake and discharge issues.

John began his water career as a regulator in a state water pollution control agency. This experience allowed him to gain expertise in industrial processes, how water is used in those processes, technologies used to treat wastewater, and the importance of understanding regulatory requirements when selecting water technologies.

He then spent 20 years as the Manager of Argonne National Laboratory's Water Policy Program. Through Argonne's linkage with the U.S. Department of Energy, John shifted his focus to the energy industries (primarily oil and gas and electric power). He has published numerous reports and articles, and has received hundreds of invitations to give presentations at conferences

around the world, especially on topics relating to produced water, flowback water, shale gas production, and hydraulic fracturing.

In 2011, Veil retired from Argonne and founded a consulting practice (Veil Environmental, LLC) that specializes in water issues affecting the energy industries.

His entire career has focused on water and wastewater topics. In addition to his professional interest in water, John spends much of his free time on the water fishing, boating, and kayaking.

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### EDUCATION

M.S. University of Maryland, Civil Engineering (Environmental Engineering), 1980

M.S. University of Maryland, Zoology (Marine Biology), 1977

B.A. Johns Hopkins University, Earth and Planetary Science, 1975

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### PROFESSIONAL AFFILIATIONS

Society of Petroleum Engineers  
Produced Water Society  
Ground Water Protection Council  
Co-chair of the International  
Petroleum Environmental Conference  
for the past decade

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### HIGHLIGHTS OF RECENT PROJECTS

Prepared several reports on water  
usage and flowback water  
management in various shale gas  
plays

Developed a training module to teach  
gas company employees how to  
enter hydraulic fracturing chemical  
data into the highly visible and  
important FracFocus registry

Co-authored the most current and  
detailed compilation of produced  
water volumes in the United States.

Developed highly acclaimed websites  
on produced water management and  
drilling waste management  
technologies and regulatory  
requirements

Prepared first-of-its-kind assessment  
of management approaches for saline  
groundwater that might be extracted  
during large carbon sequestration  
projects.

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### EMPLOYMENT HISTORY

2011 – present

President-Veil Environmental, LLC

Annapolis, MD

Started new consulting practice  
focusing on water issues affecting the  
oil and gas and electric power  
industries

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1990-2011

Manager, Water Policy Program  
Environmental Science Division  
Argonne National Laboratory  
Washington, DC

Initiated, coordinated, and conducted technical analyses on regulatory, legislative, and policy issues relating to energy industry operations, with specialization in water and wastewater issues.

Evaluated the feasibility of innovative production and wastewater management technologies

1980 – 1990

Several technical and management positions

Maryland Department of the Environment  
Baltimore, MD

In the most recent position, managed state-wide programs for industrial water pollution control including the National Pollutant Discharge Elimination System, Underground Injection Control, Oil Control, and Biomonitoring programs and supervised a staff of 23 engineers and scientists.

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### **PUBLICATIONS**

Veil is the author or co-author of more than 475 journal, report, and conference publications and presentations. Some of the more recent and relevant ones are shown below.

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### **JOURNAL ARTICLES**

Theodori, G.L., M. Avalos, D.B. Burnett, and J.A. Veil, "Public Perception of Desalinated Produced Water from Oil and Gas Field Operations: A Replication," *Journal of Rural Social Sciences* 26(1): 92-106. (2011)

Veil, J.A., and C.E. Clark, "Produced Water Volume Estimates and Management Practices," *SPE Production and Operations* 26(3): 234-239. (August 2010).

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Bierman, V.J., Jr., S.C. Hinz, D. Justić, D. Scavia, J.A. Veil, K. Satterlee, III, M.E. Parker, and S. Wilson, "Predicted Impacts from Offshore Produced Water Discharges on Hypoxia in the Gulf of Mexico," SPE Projects, Facilities & Construction 3(2): 1-10. (June 2008).

Durn, G., N. Gaurina-Medimurec, H. Froschl, J.A. Veil, B. Veronek, and S. Mesic, 2008, "Improvements in Treatment of Waste from Petroleum Industry in Croatia," Journal of Energy Resources Technology 130(2) (June 2008).

Puder, M.G., and J.A. Veil, "Options, Methods, and Costs for Offsite Commercial Disposal of Oil and Gas Exploration and Production Wastes," SPE Projects, Facilities & Construction 2(4): 1-5 (December 2007).

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### **BOOK CHAPTERS**

Veil, J.A., "Produced Water Management Options and Technologies," 2011, chapter in Produced Water: Environmental Risks and Advances in Mitigation Technologies, edited by J. Neff, Springer.

Veil, J.A., M.G. Puder, M. Bruno, and C. Fleming, 2010, "Regulatory Considerations," chapter in Society of Petroleum Engineers Monograph Vol 24, Solids Injection of Exploration and Production Wastes, N. Nagel and J. McLennan, eds., September.

Veil, J.A., D. Elcock, N. Ranek, and M.G. Puder, "Chapter 32: Legal Framework for Groundwater Protection in the United States," 32 pp. in Handbook of Groundwater Engineering, 2nd edition, edited by J.W. Delleur, CRC Press, Boca Raton, FL, (November 2006).

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### **TECHNICAL REPORTS**

Harto, C.B., and J.A. Veil,  
“Management of Water Extracted  
from Carbon Sequestration Projects,”  
ANL/EVS/R-11/1, January, 50 pp.

Veil, J.A., 2010, Water Management  
Technologies Used by Marcellus  
Shale Gas Producers, ANL/EVS/R-  
10/3, July, 59 pp.

Clark, C.E., and J.A. Veil, 2009,  
Produced Water Volumes and  
Management Practices in the United  
States, ANL/EVS/R-09/1, September,  
64 pp.

Kimmell, T.A., and J.A. Veil, 2009,  
Impact of Drought on Cooling Water  
Intakes, DOE/NETL-2009/1364, April,  
91 pp.

Veil, J.A., and J.J. Quinn, 2008,  
Water Issues Associated with Heavy  
Oil Production, ANL/EVS/R-08/4,  
November, 64 pp.

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### **TESTIMONY TO U.S. CONGRESS**

Veil, J.A., Testimony at Hearing on  
“Research to Improve Water-Use  
Efficiency and Conservation:  
Technologies and Practice,” before  
the United States House of  
Representatives Committee on  
Science and Technology,  
Subcommittee on Energy and  
Environment, Washington, DC,  
October 30, 2007. [invited speaker;  
testimony in official Congressional  
records.]

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### **PRESENTATIONS**

Veil, J., “Disclosure of the Chemicals  
Used in Frac Fluids – What is Going  
On?”, Ground Water Protection  
Council GWPC UIC Meeting,  
Houston, TX, January 23-25, 2012  
[invited presentation]

Veil, J., “Trends in Flowback Water  
Management in Shale Gas Plays,”  
Produced Water Society, Houston,  
TX, January 17-19, 2012 [invited  
presentation]

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Veil, J.A., "U.S. Experience and Perspectives on Natural Gas Development," Queensland International Gas Symposium, Brisbane, Queensland, Australia, December 7-8, 2011 [invited presentation]

Veil, J.A., "Water Issues and Challenges Associated with Shale Gas Production," International Water Conference, Orlando, FL, November 13-17, 2011 [keynote address]

Veil, J., "Beneficial Uses of Excess Heat," EPRI 3rd Thermal Ecology and Regulation Workshop, Maple Grove, MN, October 11-12, 2011 [invited presentation]

Veil, J., "Shale Gas: It's Not Just in North America Anymore," Ground Water Protection Council Annual Forum, Atlanta, GA, September 25-28, 2011 [invited presentation]

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### **TECHNICAL WEBSITES**

Veil, J.A., R. Sullivan, P.D. Richmond, and K. Beckmann, Produced Water Treatment and Beneficial Reuse Information Center website, [http://aqwaterc.mines.edu/produced\\_water](http://aqwaterc.mines.edu/produced_water), prepared for the Colorado School of Mines under a project funded by the Research Partnership to Secure Energy for America. (April 2010)

Veil, J.A., R. Sullivan, P.D. Richmond, Fayetteville Shale Informational Website, <http://lingo.cast.uark.edu/LINGOPUBLIC/index.htm>, prepared for the U.S. Department of Energy, National Energy Technology Laboratory. (May 2008)

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Veil, J.A., M.G. Puder, R. Sullivan,  
P.D. Richmond, and T. Kotek,  
Produced Water Management  
Information System,  
<http://www.netl.doe.gov/technologies/PW>  
MIS, prepared for the U.S.  
Department of Energy, National  
Energy Technology Laboratory.  
(June 2007)

Veil, J.A., M.G. Puder, D. Elcock, R.  
Sullivan, P.D. Richmond, and T.  
Kotek, Drilling Waste Management  
Information System,  
<http://ead.anl.gov/dwm>, prepared for  
the U.S. Department of Energy,  
National Energy Technology  
Laboratory. (June 2004)